Nonresidential Buildings Energy Consumption Survey:

Commercial Buildings Consumption and Expenditures 1986

Energy Information Administration
DOE/EIA-0318(86)

This publication is available from the Superintendent of Documents, U.S. Government Printing Office (GPO). Information about purchasing this or other Energy Information Administration (EIA) publications may be obtained from the GPO or the EIA's National Energy Information Center (NEIC). Questions on energy statistics should be directed to the NEIC by mail, telephone or telecommunications device for the deaf (TDD). Addresses, telephone numbers and hours appear below.

National Energy Information Center, EI-231
Energy Information Administration
Forrestal Building, Room 1F-048
Washington, DC 20585
(202) 586-8800
TDD (202) 586-1181
Hours: 8:00-5:00, M-F, Eastern Time

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
(202) 783-3238

Released for Printing May 5, 1989

DOE/EIA-0318(86)
Distribution Category UC-98

Nonresidential Buildings
Energy Consumption Survey:

Commercial Buildings Consumption and Expenditures 1986

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

This report was prepared by the Energy Information Administration, the independent statistical and analytical agency within the Department of Energy. The information contained herein should not be construed as advocating or necessarily reflecting any policy position of the Department of Energy or any other organization.

Contacts

General information concerning the contents of this report may be obtained from Lynda T. Carlson, Director of the Energy End Use Division (202/586-1112). Specific information regarding the contents or preparation of the publication may be obtained from Nancy L. Leach, Chief of the Residential and Commercial Branch (202/586-1114). The NBECS Survey Manager is Julia D. Oliver. Principal authors for this publication, with primary responsibility for statistical methods, were Eugene M. Burns and Miriam L. Goldberg. Paul M. Gargiullo had responsibilities related to sample design and variance estimation. Preparation of public use data files and computer system design were performed by David S. Chu.

Contents

	Page
Executive Summary	vii
Introduction	1
Commercial Buildings Energy Consumption and Expenditures 1986	3
Changes in Commercial Buildings Energy Consumption	5
Energy Consumption and Expenditures by Building Characteristics	6
New Energy Consumption Data for 1986	20
Detailed Tables	27
Guide to the Detailed Tables	27
Row and Column Factors	28

Appendices

A. How the Survey Was Conducted	247
B. Sampling and Nonsampling Errors	269
C. Types of Buildings	297
D. U.S. Climate Zone Map	303
E. U.S. Census Regions and Divisions	307
F. Survey Forms	311
G. Related Publications from the EIA on Energy Consumption	355

Glossary	361

Tables

		Page
ES1.	Commercial Buildings Energy Consumption in 1986	vii
ES2.	Energy Intensity by Year Constructed	vii
1.	Consumption and Expenditures by Major Fuel	4
2.	Consumption and Expenditure Indices by Survey Year	5
3.	Electricity and Natural Gas Consumption Indices by Principal Building Activity	9
4.	Electricity and Natural Gas Intensity by Building Size and Weekly Operating Hours	12
5.	Electricity and Natural Gas Indices by Special Measures of Occupancy	14
6.	Electricity and Natural Gas Intensities by Previous or Intended Use of Vacant Buildings	15
7.	Energy Intensities by Percent Vacant Three or More Months	16
8.	Consumption and Expenditure Indices by Primary Heating Fuel	19
9.	Fuel Oil Tank Capacity	21
10.	District Steam, Purchased and Nonpurchased	25
11.	Total Energy Consumption by Major Fuel	29
12.	Total Energy Expenditures by Major Fuel	34
13.	Major Fuel Consumption and Expenditures	39
14.	Electricity Consumption and Expenditures	49
15.	Natural Gas Consumption and Expenditures	59
16.	Fuel Oil Consumption and Expenditures	69
17.	District Heat Consumption and Expenditures	79
18.	Propane Consumption and Expenditures	89
19.	Major Fuel Consumption and Intensity by Census Region	99
20.	Electricity Consumption and Intensity by Census Region	104
21.	Natural Gas Consumption and Intensity by Census Region	109
22.	Fuel Oil Consumption and Intensity by Census Region	114
23.	Major Fuel Consumption and Intensity by Building Size	119
24.	Electricity Consumption and Intensity by Building Size	124
25.	Natural Gas Consumption and Intensity by Building Size	129
26.	Fuel Oil Consumption and Intensity by Building Size	134
27.	Major Fuel Consumption and Intensity by Selected Principal Building Activity	139
28.	Electricity Consumption and Intensity by Selected Principal Building Activity	144
29.	Natural Gas Consumption and Intensity by Selected Principal Building Activity	149
30.	Energy and Expenditure Intensities for Buildings Heated by Electricity	154

Page

31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity 162
32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity 170
33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas 178
34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil 187
35. Energy and Expenditure Intensities for Buildings Heated by District Heat 196
36. Major Fuel Expenditures by Census Region 206
37. Electricity Expenditures by Census Region 211
38. Natural Gas Expenditures by Census Region 216
39. Fuel Oil Expenditures by Census Region 221
40. Electricity Peak Demand-Metered Buildings 226
41. Season of Peak Electricity Demand 231
42. Peak Electricity Demand Category, Number of Buildings 236
43. Peak Electricity Demand Indices, Number of Buildings 241
A1. Number and Distribution of 1986 NBECS Sample Buildings By Building Disposition 255
A2. Response Rates by Type of Energy Supplied 260
A3. Response Rates After Nonresponse Conversion Efforts 262
A4. Frequency of Technical Edit Failures by Failure Type 263
B1. Energy Sources Used as Reported on Building Questionnaire and Energy Supplier Survey, Number of Buildings 275
B2. Energy Sources Used as Reported on Building Questionnaire and Energy Supplier Survey, Floorspace 275
B3. Days of Data from Outside Calendar Year 1986 Used to Obtain Annual Estimates 280
B4. Days of Reported Consumption Data for Electricity, Natural Gas, and District Heat 281
B5. Days of Reported Expenditures Data for Electricity, Natural Gas, and District Heat 281
B6. Completeness of Reported Consumption Data for Fuel Oil and Propane 283
B7. Completeness of Reported Expenditures Data for Fuel Oil and Propane 283
B8. Item Response for Peak Electricity Demand Data 288

Illustrations

		Page
1.	Electricity, Natural Gas, and Fuel Oil Intensities by Year Constructed	7
2.	Distribution of Electricity Intensity	8
3.	Electricity and Natural Gas Intensities by Weekly Operating Hours	10
4.	Electricity and Natural Gas Intensities by Building Size	11
5.	Energy Consumption and Intensity of Major Fuels by Census Region	17
6.	Electricity and Natural Gas Intensities by Percent Lit	18
7.	Percent of Buildings with Metered Demand and Distribution of Load Factors by Electricity Consumption Level	22
8.	Distribution of Electric Energy Intensity and Peak Demand Intensity by Principal Building Activity for Buildings with Metered Demand Peak	23
A1.	Multistage Area Probability Sample Stages and Activities	250
A2.	1986 NBECS Sample Design	252
B1.	Comparison of Estimates Based on 1979, 1983, and 1986 NBECS	273
B2.	Use of RSE Row and Column Factors	293

Photo Credits

National Association of Manufacturers, p. 311

Executive Summary

Commercial buildings in 1986 consumed a total of 2.4 quadrillion Btu (quads) of electricity, 1.7 quads of natural gas, and 0.4 quads of fuel oil (Table ES1). These findings are from the 1986 Nonresidential Buildings Energy Consumption Survey (NBECS). Compared with the findings in the previous NBECS, conducted in 1983, total electricity consumption did not change much, natural gas consumption dropped substantially, and fuel oil consumption increased somewhat, but was still well below the 1979 level measured in the first NBECS.

Table ES1. Commercial Buildings Energy Consumption in 1986

Energy Source	Total Consumption (quadrillion Btu)	Energy Intensity (thousand Btu per square foot)
Electricity	2.4	42.3
Natural Gas	1.7	46.2
Fuel Oil	0.4	40.1
Propane, Steam, and Hot Water	0.5	61.9

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Total expenditures for all major fuels averaged $15,200 per building in 1986. This average was essentially the same whether the primary heating fuel was electricity, natural gas, or fuel oil. Of the total major fuel expenditures, electricity accounted for the largest share, $11,900 per building. Average expenditures per building for natural gas and fuel oil were both about $3,800.

One significant finding in the 1986 NBECS was the lower intensity of natural gas use in more recently constructed buildings compared to older buildings (Table ES2). The intensity of natural gas consumption for buildings constructed after 1980 was lower than the average intensity for buildings built in prior years. The fraction of commercial buildings using natural gas was also lower for more recent construction. Should these trends continue, the result would be a decline in total natural gas consumption in commercial buildings. A similar, but even more dramatic, downward trend was apparent for fuel oil. On the other hand, the average intensity of electricity consumption in buildings constructed after 1980 was above the average across all earlier construction years. Consequently, a continuation of current building practices and energy use patterns would lead to continued growth in electricity consumption.

Table ES2. Energy Intensity by Year Constructed (Thousand Btu per Square Foot)

Energy Source	Year Constructed: Older Buildings (Before 1980)	Year Constructed: Newly Constructed Buildings (1980 Through 1986)
Electricity	41.0	48.6
Natural Gas	47.8	37.3
Fuel Oil	44.1	15.8

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

The main text of this report highlights some of the principal findings from the 1986 NBECS. The "Detailed Tables" section presents a detailed statistical profile of energy consumption and expenditures in U.S. commercial buildings during 1986.

The 1986 NBECS had several enhancements over previous surveys: The scope of the survey was expanded to include Alaska and Hawaii, but buildings of 1,000 square feet or less in size are no longer covered. Consumption of steam and hot water delivered from central plants or utilities is covered more comprehensively than in previous surveys. More detailed information about lighting was collected, including the percent of floorspace lit during operating hours and the percent lit by various types of equipment. Data were collected for the first time on buildings' yearly maximum rate of electricity consumption, or peak demand. Findings on these topics are discussed in the text and presented in the "Detailed Tables."

Introduction

Consumption and expenditure statistics from the 1986 Nonresidential Buildings Energy Consumption Survey (NBECS) are presented in this report. The NBECS provides basic statistical information on the consumption of and expenditures for energy in commercial buildings, and on the energy-related characteristics of these buildings. EIA conducts this national sample survey of commercial buildings and their energy suppliers on a triennial basis. This survey is the only source of national-level data on commercial building characteristics and energy consumption. A previous report covered the characteristics that affect energy use in the 1986 commercial building stock. This report covers energy consumption and expenditures.

Annual consumption and expenditure estimates are provided for electricity, natural gas, fuel oil (including kerosene), propane (and other forms of liquefied petroleum gas), and district heat (steam or hot water from a central plant or utility). These are the principal energy sources for which billing data were collected as part of the NBECS, and are referred to as major fuels in this report. Limited statistics are also presented on district chilled water (from a central plant or utility). For other fuels, such as wood and coal, the use of the fuel in the building was determined, but no billing data were collected.

This report presents national- and regional-level estimates of calendar year 1986 consumption and expenditure totals for commercial buildings. The estimates are provided within categories defined by the following characteristics:

- Building floorspace
- Year constructed
- Building use
- Location
- Energy sources and end uses
- Heating and cooling equipment and practices
- Lighting equipment and practices
- Building structure

Conservation features are included among the characteristics describing heating and cooling, lighting, and building structure in the "Detailed Tables" section.

Following an overview of the 1986 energy consumption and expenditures of commercial buildings, changes over time are examined, both by looking across different surveys and by comparing buildings of different vintages within the 1986 survey. A subsequent section examines the relationship between energy consumption rates and various building characteristics, including building use, location, and energy-using features. The final section presents some consumption statistics not available from previous NBECS.

Two types of tables appear in this report. Extensive tabulations of consumption and expenditure indices by various building characteristics appear in the "Detailed Tables" section following the main text. Tables interspersed through the text (Tables 1 through 10) highlight information of special interest.

The statistics published in this report are based on a complex sample from the population of all commercial buildings in the United States as of December 31, 1986. Because data were not collected from the entire population, but only from a small percentage of buildings, all the results given here are estimates rather than exact measures for the population. The accuracy of each estimate is indicated by the Relative Standard Error (RSE), as described in Appendix B, "Sampling and Nonsampling Errors." All the tables of estimates in this report include summaries of the corresponding RSE's. Statistical significance reported here was tested at the 5 percent level.

The findings of the survey are presented for a general audience interested in energy. For more statistically oriented readers, information on the sample design and data collection procedures are provided in Appendix A, "How the Survey Was Conducted." Details of data processing and factors affecting data quality are discussed in Appendix B, "Sampling and Nonsampling Errors." A glossary of terms has been included to assist users in understanding the statistical and engineering terminology used in this publication. Where a general term is used in a restricted sense for this report, both the general use and the restrictions are explained in the "Glossary."

A detailed description of the principal building activity categories is contained in Appendix C, "Building Types." Appendix D contains a map showing the Climate Zones by which the statistics are reported, while Appendix E is a map showing the U.S. Census regions and divisions used in this report.

All estimates in this report are based on data collected on Forms EIA-871A, "Building Characteristics Questionnaire," and Forms EIA-871B through F, "Energy Supplier Forms." Copies of all the forms are contained in Appendix F, "Survey Forms." A list of related energy-consumption publications appears in Appendix G for readers interested in earlier NBECS publications or consumption reports for the other sectors. Previous NBECS were conducted in 1979 and in 1983. EIA also conducts energy consumption surveys in the residential, residential transportation, and manufacturing sectors.

The information presented in this report was collected and published by the EIA to fulfill its responsibilities as specified in the Federal Energy Administration Act of 1974 (Public Law 93-275), as amended.

The EIA gratefully acknowledges the cooperation of the respondents in supplying the information used to produce the estimates in this report.

Commercial Buildings Energy Consumption and Expenditures 1986

In 1986, the total consumption of major fuels was 5.0 quadrillion Btu in commercial buildings, at a combined cost of $60.8 billion. The energy sources included in the major fuels totals are electricity, natural gas, fuel oil and kerosene, propane, and district heat. District heat includes both steam and hot water delivered to the building from a central plant or utility.

The buildings covered by the 1986 NBECS were roofed and walled structures used predominantly for a commercial purpose, with floorspace greater than 1,000 square feet. The word "commercial" in this survey includes essentially any nonresidential, nonindustrial activity. Buildings such as schools, hospitals, churches, and prisons are all included. See Appendix C for a complete list of building activities covered by the NBECS.

The Relative Standard Error (RSE) for the total major fuel consumption is 4.9 percent, so that an approximate 95 percent confidence interval for the total consumption is 5.0 $\pm$ 0.5 quadrillion Btu. For the total major fuel expenditures, the RSE is 4.8 percent and the approximate 95 percent confidence interval is $60.8 $\pm$ 5.7 billion. These two RSE's are lower than those for the corresponding aggregates from the 1979 and 1983 surveys, indicating that the 1986 survey estimates of commercial totals are somewhat more precise than those from previous surveys.

Of the 5.0 quadrillion Btu of major fuels consumed, electricity and natural gas together accounted for roughly 80 percent, with 2.4 and 1.7 quadrillion Btu, respectively (Table 1). In the 1983 NBECS, the total for natural gas was nearly identical to that for electricity. The 1986 totals represent no significant change for electricity (at the 5 percent significance level), but a substantial decrease for natural gas, as discussed further below. The remainder of the major fuel total in 1986 was nearly equally divided between fuel oil and district heat, with propane accounting for only a little over one percent of the total. At 0.44 quadrillion Btu, the estimated fuel oil total was higher than in 1983, but not statistically significantly higher, and was still well below the 1979 total.

Consumption is reported for all fuels in terms of energy (Btu) delivered to the site of end use. That is, no adjustment is made for primary fuels consumed to produce electricity or district heat. Any such adjustment would only be approximate, especially for district heat. Generation of electricity and steam or hot water for district systems usually occurs in buildings that would be classified as industrial. As a result, the 1986 NBECS, which surveyed commercial buildings, did not collect data on input fuels for electricity or district heat generation.

The average size of a commercial building using any major fuel was 14,000 square feet. All but a small fraction of these buildings used electricity. Buildings that used natural gas were slightly (but statistically significantly) larger on average, at 17,000 square feet. Those using fuel oil were significantly larger than the overall average, at 21,000 square feet.

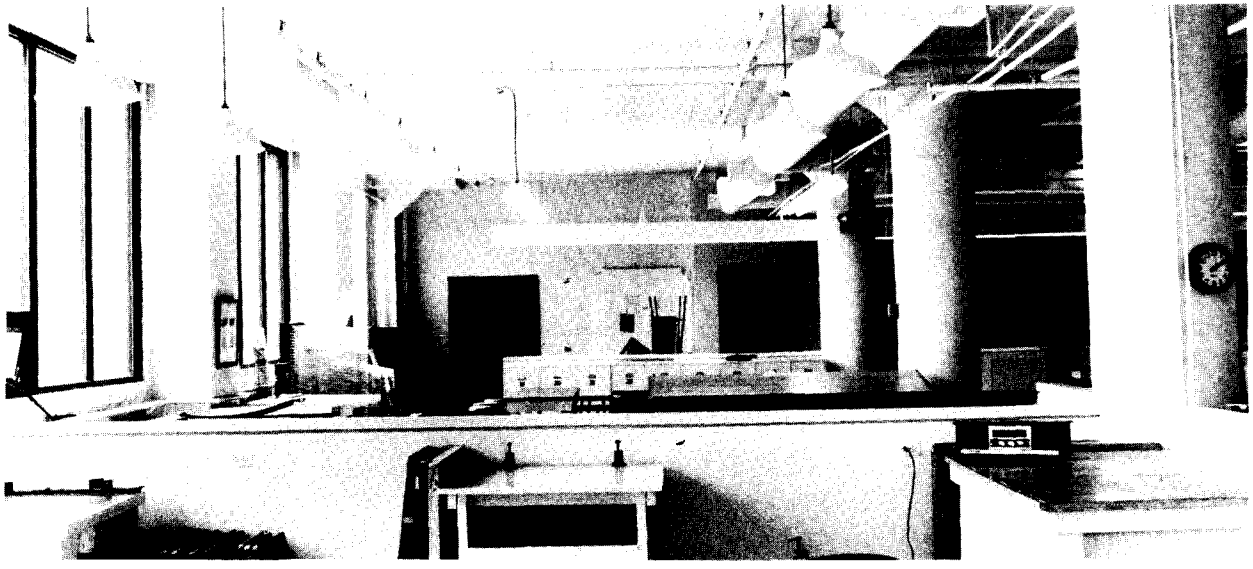
The consumption rates of the different fuels can be measured by the energy intensity, computed in this report as the ratio of total consumption to the total floorspace of buildings using the fuel. For electricity, natural gas, and fuel oil, the energy intensities were between 40,000 and 50,000 Btu per square foot. Buildings with district heat were dramatically different, averaging 60,000 square feet in size, with a consumption rate for this energy source of over 90,000 Btu per square foot. At the other extreme, propane-using buildings tended to be small, averaging only

Table 1. Consumption and Expenditures by Major Fuel

Major Fuel	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.008	0.876	0.902	1.330	1.184	1.085	1.129	1.229	1.097	1.008	0.480	
Sum of All Major Fuels	3,992	56,825	14.2	5,040	1,262	88.7	68.8	60,762	15.2	1.07	12.06	3.98
Electricity	3,965	56,508	14.3	2,390	603	42.3	32.7	47,186	11.9	.84	19.74	4.30
Natural Gas	2,214	37,263	16.8	1,723	778	46.2	35.2	8,355	3.8	.22	4.85	4.39
Fuel Oil	534	11,005	20.6	442	827	40.1	27.7	2,059	3.9	.19	4.66	8.85
District Heat	77	4,625	59.7	422	5,446	91.2	52.4	2,620	33.8	.57	6.21	16.37
Propane	344	3,213	9.3	63	184	19.7	17.6	543	1.6	.17	8.59	13.30

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.



The studio space in this education building is lit by incandescent bulbs, fluorescent lights, and natural day light. The HVAC system uses forced air in ducts.

9,300 square feet. Propane consumption per square foot was also low, at 20,000 Btu.

Electricity alone, which represented a little less than one half the total energy consumed, accounted for almost 80 percent of the total expenditures, with an average price of $20 per million Btu. Average prices for natural gas and fuel oil were slightly less than $5 per million Btu, while propane was significantly more expensive at nearly $9 per million Btu. District heat averaged over $6 per million Btu. However, as discussed further below, the statistics on district heat expenditures are not entirely comparable to those for other fuels.

Changes in Commercial Buildings Energy Consumption

Electricity consumption and expenditures per square foot did not change significantly between 1983 and 1986, although the average price of electricity did increase significantly, by 6 percent (Table 2). For natural gas, on the other hand, consumption per square foot dropped significantly. Expenditures per square foot also dropped, reflecting both the lower consumption rate and a significantly lower average price per million Btu. The lower energy intensity for natural gas despite lower prices may be due, in part, to the fact that fuel oil prices dropped still more, so that buildings that could shift between the two would have tended to consume more fuel oil. The estimated fuel oil consumption per square foot was higher in 1986 than in 1983, but the increase was not statistically significant.

The population of buildings covered by the 1986 survey differed slightly from that covered in 1979 and 1983 as indicated by the comparison of coverage completeness, below Table 2. The difference affects comparison of total consumption or expenditures between the 1986 and earlier surveys. However, comparisons on a per-square-foot basis are more meaningful. See Appendix B, "Sampling and Nonsampling Errors" for a discussion of the changes in survey coverage and of their possible effects. An analysis is underway of changes in consumption patterns based on a common definition of the commercial buildings population; this analysis will be the subject of a future publication.

Another way to look at changes over time is to examine the 1986 buildings population by construction year. Such a cross-sectional analysis by building vintage shows the changes being made in construction practices over time, and so, indicates trends that may result as more new buildings are added and older ones retired.

Table 2. Consumption and Expenditure Indices by Survey Year

	Survey Year		
	1979	1983	1986
Electricity			
Floorspace Fraction[a]	0.999	0.997	0.994
Energy Intensity (MBtu/sq. ft.)	43	44	42
Expenditures per sq. ft. ($)	0.54	0.81	0.84
Aggregate Price ($/MMBtu)	12.58	18.56	19.74
Natural Gas			
Floorspace Fraction[a]	0.71	0.70	0.66
Energy Intensity (MBtu/sq. ft.)	70	62	46
Expenditures per sq. ft. ($)	0.19	0.34	0.22
Aggregate Price ($/MMBtu)	2.69	5.52	4.85
Fuel Oil			
Floorspace Fraction[a]	0.27	0.20	0.19
Energy Intensity (MBtu/sq. ft.)	61	35	40
Expenditures per sq. ft. ($)	0.25	0.23	0.19
Aggregate Price ($/MMBtu)	4.10	6.69	4.66

[a]Floorspace for buildings using the energy source divided by floorspace in buildings using any major fuel.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1979, 1983, and 1986 Nonresidential Buildings Energy Consumption Surveys.

NBECS Coverage Completeness by Survey Year

Buildings Population	Survey Year		
	1979	1983	1986
Agricultural	Excluded	Excluded	Excluded
Manufacturing	Excluded	Excluded	Excluded
100% Residential	Excluded	Excluded	Excluded
50 to 99% Residential	Included	Included	Excluded
1000 sq. ft. or smaller	Included	Included	Excluded
1980-83 construction under 50,000 sq. ft.	--	Incomplete	Included
Some small buildings	Incomplete	Incomplete	Included
Alaska and Hawaii	Excluded	Excluded	Included

Electricity intensity decreased for newer construction after peaking with the 1961 to 1970 vintage, though the level remained above the overall average (Figure 1). Thus, for the most recent construction-year group, 1984 through 1986, the electricity intensity was higher than for any 1960 or earlier vintages. Therefore, unless post-1986 construction has still lower electricity intensity, or substantial conservation takes place in the surviving stock, the retirement of older buildings and the addition of new ones would be expected to result in higher overall electricity consumption. This same pattern was repeated in the four Census regions, and within broad size categories. (See Tables 20 and 24 of the "Detailed Tables.")

Natural gas intensities also peaked with the 1961 to 1970 construction-year group, but the drop after the peak was sharper than for electricity. Natural gas intensities for all construction-year categories after 1973 were lower than for any earlier group, and lower than the overall aggregate. If this pattern persists in post-1986 construction, declining overall natural gas intensities would be expected as older buildings are retired and new ones added. The apparent increase in the most recent age group (1984 to 1986) for this fuel was not statistically significant.

Buildings built since 1980 had significantly lower fuel oil intensity than those constructed before, with the peak intensity for this fuel in the 1921 to 1945 construction-year group. The somewhat erratic behavior of fuel oil intensity by building vintage in part reflects the higher uncertainties associated with the fuel oil estimates as a result of the relatively small number of buildings using the fuel.

Energy Consumption and Expenditures by Building Characteristics

Energy consumption levels varied dramatically across the population of commercial buildings. For electricity, for example, the median building consumption was 20,000 Btu per square foot, but 25 percent of commercial buildings consumed over twice this amount, 10 percent of buildings consumed over five times as much, and about 1 percent of buildings consumed over 20 times as much (Figure 2). This diversity of consumption rates reflects the diversity of building characteristics, including structure, uses, and location.

Principal Building Activity

The building activity is related to the energy-using functions performed in the building, the usual operating hours, the amount of floorspace per worker, and building size (Table 3). All of these characteristics, in turn, affect the use of energy in the building.

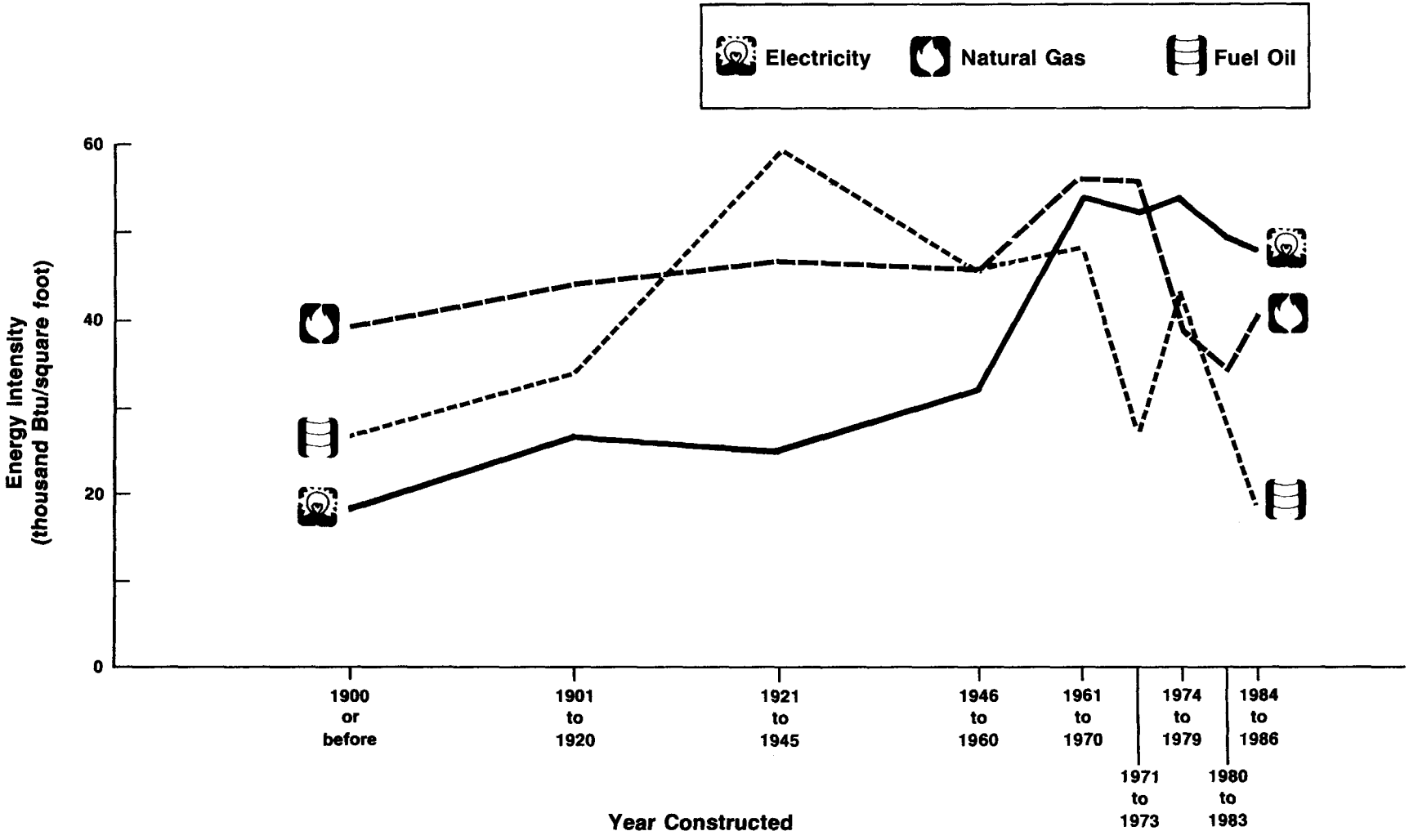
The principal building activity was the activity that occupied the most floorspace in the building at the time of interview. In the great majority of buildings, the principal activity occupied at least 75 percent of the floorspace. The NBECS activity categories are described in Appendix C.

Mercantile and service buildings constituted the largest activity category, in terms of both number of buildings and total floorspace. These buildings were close to the overall average in terms of floorspace, weekly operating hours, and floorspace per worker. Their consumption per square foot, per operating hour, and per worker was also close to the overall level, for both electricity and natural gas.

Office buildings were also close to the overall average in terms of floorspace per building, but were lower in terms of weekly operating hours, and very low in terms of floorspace per worker. These buildings had relatively high electricity consumption per square foot and per hour, and somewhat low consumption per worker. For natural gas, office buildings had substantially lower consumption per worker than any other building type.

The 1986 NBECS was the first to distinguish between food sales (such as grocery stores) and food service (such as restaurants) as building activities. Both types of buildings tended to be small, to operate for long hours, and to have relatively low floorspace per worker. While these shared characteristics led to many similarities in consumption patterns, there were also strong differences in the way the two types of buildings consumed energy. These two types had the highest electricity consumption per square foot. Even so, the rate for food sales buildings was significantly higher, at 140,000 Btu per square foot. For natural gas, too, both types of food buildings were high consumers per square foot. In terms of consumption per operating hour, both types were relatively low for both gas and electricity, indicating that the high consumption rates per square foot were driven by the long

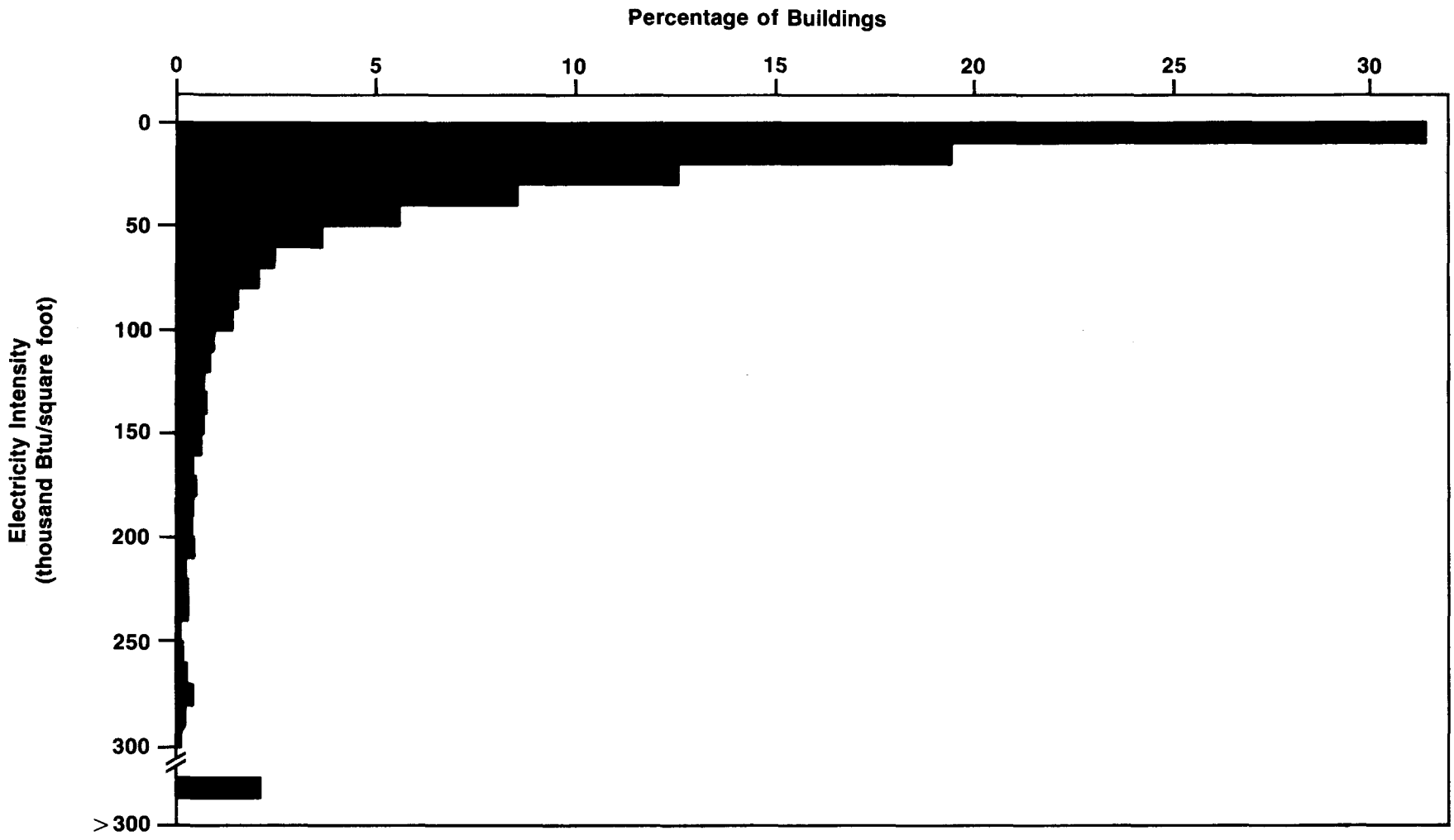
Figure 1. Electricity, Natural Gas, and Fuel Oil Intensities by Year Constructed



Note: The horizontal position of each year category corresponds to the median construction year of all buildings in the category.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Figure 2. Distribution of Electricity Intensity



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Table 3. Electricity and Natural Gas Consumption Indices by Principal Building Activity

Principal Building Activity	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Workers (thousand)	Floorspace per Building (thousand square feet)	Mean Weekly Operating Hours	Floorspace per Worker (square feet)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Weekly Operating Hour (million Btu)	Energy Consumed per Worker (million Btu)	RSE Row Factor
RSE Column Factor:	0.905	1.048	1.328	1.011	0.413	1.018	1.159	1.345	1.199	
Electricity										
All Buildings	3,965	56,508	73,022	14.3	61	774	42.3	9.9	32.7	3.68
Principal Building Activity										
Assembly	571	7,287	4,297	12.8	39	1,696	22.5	7.4	38.1	10.07
Education	240	7,200	6,751	30.0	46	1,066	24.9	16.3	26.5	6.87
Food Sales	102	712	1,511	7.0	97	471	138.6	10.0	65.3	10.62
Food Service	201	1,277	3,559	6.4	82	359	94.4	7.3	33.9	9.96
Health Care	51	2,104	5,030	41.5	78	418	62.8	33.5	26.3	13.03
Lodging	137	2,785	2,277	20.4	152	1,223	43.1	5.8	52.8	9.83
Mercantile and Service	1,273	12,710	15,796	10.0	63	805	42.2	6.7	33.9	7.00
Office	607	9,499	24,870	15.6	52	382	67.5	20.4	25.8	6.51
Public Order and Safety	50	665	1,344	13.2	130	495	45.3	4.6	22.4	19.49
Warehouse	487	8,540	5,312	17.5	55	1,608	29.5	9.4	47.4	10.58
Other	94	1,700	1,562	18.1	69	1,088	48.8	12.9	53.2	15.33
Vacant	152	2,030	713	13.3	33	2,846	17.0	6.9	48.4	15.75
Natural Gas										
All Buildings	2,214	37,263	48,911	16.8	61	762	46.2	12.7	35.2	4.17
Principal Building Activity										
Assembly	335	5,021	2,948	15.0	44	1,703	31.3	10.8	53.3	10.23
Education	162	5,515	5,076	34.0	46	1,087	46.0	34.0	50.0	8.38
Food Sales	57	491	1,044	8.7	86	471	91.5	9.2	43.1	15.78
Food Service	142	922	2,734	6.5	84	337	124.1	9.5	41.9	8.53
Health Care	32	1,615	4,364	51.2	91	370	127.2	71.6	47.1	12.60
Lodging	69	1,868	1,743	27.0	163	1,071	56.1	9.3	60.1	10.67
Mercantile and Service	740	8,743	10,781	11.8	61	811	38.0	7.3	30.8	8.70
Office	349	5,726	14,890	16.4	52	385	45.1	14.3	17.3	9.74
Public Order and Safety	32	394	826	12.3	140	477	64.3	5.6	30.6	17.75
Warehouse	177	4,852	3,042	27.4	49	1,595	29.5	16.6	47.0	10.80
Other	33	895	952	27.1	68	939	51.6	20.5	48.4	19.10
Vacant	86	1,222	510	14.2	39	2,396	30.9	11.3	73.9	17.01

Note: • To obtain the RSE percentage for any table cell, multiply the cell's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

hours. The very high electric energy intensity for food sales buildings was reflected also in electricity consumption per worker, which was very high for food sales buildings but not for food service buildings.

While food buildings were the smallest on average, health care buildings were the largest. Health buildings were similar to food buildings, though, in having long operating hours and low floorspace per worker. Reflecting these characteristics of intense building use, health buildings had the highest natural gas consumption per square foot and per operating hour. Their electricity consumption was also high on both of these bases.

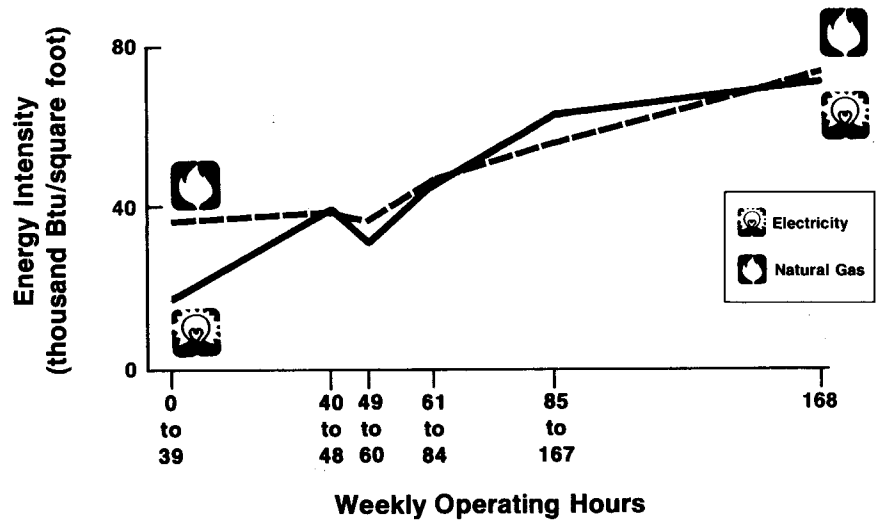
Assembly, warehouse, and vacant buildings were similar to each other in having low consumption per square foot and per operating hour for both electricity and natural gas. These are the building types with the highest floorspace per worker, and all have moderately high consumption per worker for both fuels. All three can be characterized as open-space buildings.

Size and Operating Hours

Just as differences in size, operating hours, and number of workers affect differences in consumption rates by principal building activity, so does the activity appear to affect the relationship between energy intensity and these other factors. Natural gas and electricity energy intensities both increased with weekly operating hours in general, but were both lower for buildings operating 49 to 60 hours per week than for those operating 40 to 48 hours (Figure 3). A factor that may account for this reversal is that the shorter hours category had a higher proportion of office buildings, while the longer hours category had a higher proportion of mercantile and service buildings. Office buildings had higher intensities for both electricity and natural gas than did mercantile and service buildings. Similar activity differences may account for the irregularities in the relationship between energy intensity and building size (Figure 4).

When the effects of building size and operating hours are considered together, (Table 4) the highest consumption per square foot of both natural gas and electricity was found for buildings under 5,000 square feet, that were open more than 84 hours per week. This group of buildings had a high proportion of food sales and food

Figure 3. Electricity and Natural Gas Intensities by Weekly Operating Hours



Note: The horizontal position of each hours category corresponds to the median weekly operating hours of all buildings in the category.

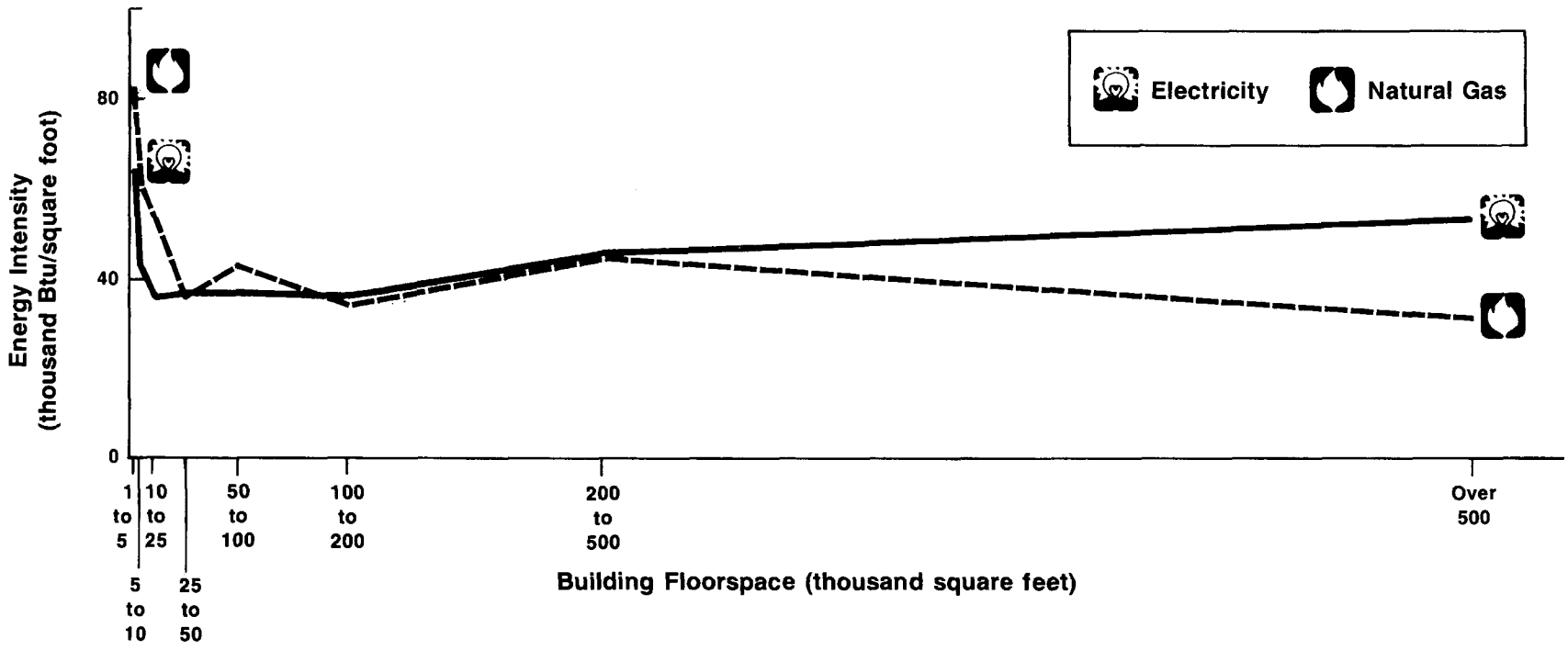
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

service buildings. The lowest rates for both fuels were found in buildings between 100,000 and 200,000 square feet in size, and open fewer than 40 hours per week. These tended to be open-space buildings.

Special Measures of Occupancy

For five building activity categories, the 1986 NBECS collected special measures of occupancy relevant to the particular activity. These special measures offer another indicator of activity levels as a basis for understanding energy

Figure 4. Electricty and Natural Gas Intensities by Building Size



Note: Each floorspace category excludes the lower endpoint and includes the upper endpoint. For example, the category indicated as "1 to 5" includes buildings from 1,001 through 5,000 square feet. The horizontal position of each floorspace category corresponds to the mean floorspace of all electricity-using buildings in the category.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Table 4. Electricty and Natural Gas Intensity by Building Size and Weekly Operating Hours (Thousand Btu per Square Foot)

Building Floorspace	Weekly Operating Hours							RSE Row Factor
	All Buildings	39 or Fewer	40 to 48	49 to 60	61 to 84	85 to 167	168 (Open Continuously)	
RSE Column Factor:	0.607	1.294	1.028	0.883	1.048	1.148	1.166	
Electricity								
All Buildings	42.3	17.3	39.7	31.6	45.4	62.6	70.7	8.98
Building Floorspace (Square Feet)								
1,001 to 5,000	63.7	23.9	45.0	32.8	68.5	151.1	207.7	18.60
5,001 to 10,000	42.2	14.9	51.2	28.1	69.3	57.7	53.3	17.09
10,001 to 25,000	35.3	14.3	35.1	23.9	38.0	94.6	50.7	17.27
25,001 to 50,000	36.7	16.1	35.9	25.7	30.0	48.6	87.2	15.33
50,001 to 100,000	37.0	16.2	40.6	23.0	37.6	48.1	55.3	18.92
100,001 to 200,000	35.4	13.1	34.5	36.3	44.6	41.5	46.1	18.26
200,001 to 500,000	45.7	25.4	40.1	51.2	39.6	46.1	65.8	20.23
Over 500,000	53.4	Q	41.4	54.4	53.0	Q	70.4	35.38
Natural Gas								
All Buildings	46.2	37.1	39.4	36.7	47.2	56.1	73.2	8.87
Building Floorspace (Square Feet)								
1,001 to 5,000	82.6	56.2	65.1	53.8	94.3	185.2	146.7	14.13
5,001 to 10,000	58.7	38.0	60.6	44.7	73.9	81.1	80.2	14.14
10,001 to 25,000	53.5	35.6	43.7	39.6	92.3	61.8	76.8	15.74
25,001 to 50,000	36.2	23.3	32.9	29.1	42.7	42.2	64.6	14.39
50,001 to 100,000	42.4	28.1	42.9	26.5	44.0	44.1	65.2	16.72
100,001 to 200,000	34.2	17.4	29.5	45.8	34.3	39.8	46.5	23.61
200,001 to 500,000	44.0	Q	24.2	29.5	29.5	29.1	70.5	23.27
Over 500,000	31.5	Q	23.1	16.1	9.4	Q	93.8	38.59

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

consumption. In an education building, for example, the number of classroom seats may be a better indicator of energy requirements than the building size.

In many respects, the consumption per unit measure of occupancy showed similar patterns to consumption per square foot. Among food service buildings, for example, electricity consumption per square foot and per seat were both much lower in the Northeast than in the other three regions, which were similar with respect to both measures (Table 5). Among inpatient health care buildings, consumption per square foot and per bed were lowest in the West.

In some cases, though, the two indices told very different stories. For education, health care, and lodging buildings, electricity consumption per unit measure of occupancy was over twice as high for buildings larger than 100,000 square feet than for smaller buildings, while consumption per square foot varied much less across building sizes. For natural gas in lodging buildings, on the other hand, consumption per square foot varied far more with building size than did consumption per guest room.

Vacant Buildings

Vacant buildings were another type for which the 1986 NBECS collected special additional information. Vacancy was treated the same way as the other activities in assigning the principal building activity. A building with more floorspace vacant (that is, unoccupied) at the time of interview than was devoted to any other activity type was classified as vacant. A building with more than 50 percent of its floorspace vacant was considered predominantly vacant. (In some cases, no one activity, including vacant, occupied more than 50 percent of the floorspace.)

The 1986 NBECS used two ways to relate vacancy to the building activity when nonvacant. The first was by determining the previous or intended use of predominantly vacant buildings. The second was by determining for all building types whether any portion of the building had been vacant for three or more months during the calendar year. In contrast to the activity designation, which was based on vacancy at one point in time, just after the end of the survey year, the three-month vacancy identified buildings that had been vacant for an extended period of time

Large buildings, though relatively few in number, account for a high proportion of the energy consumed in commercial buildings.

Table 5. Electricity and Natural Gas Indices by Special Measures of Occupancy

Building Characteristics	Principal Building Activity and Energy Index										RSE Row Factor
	Education		Food Service		Health Care (inpatient)		Skilled Nursing		Lodging		
	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Classroom Seat (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Seat (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Bed (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Bed (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Guest Room (million Btu)	
RSE Column Factor:	0.712	0.770	0.885	1.031	0.943	1.063	1.208	1.233	1.250	1.073	
Electricity											
All Buildings	24.9	2.3	94.4	5.0	66.7	69.3	48.5	21.9	41.7	21.6	12.66
Census Region											
Northeast	22.9	2.3	63.6	2.2	66.9	81.1	Q	Q	28.3	14.5	19.71
Midwest	23.3	2.8	103.5	6.3	74.5	83.8	Q	Q	22.4	13.6	19.58
South	26.0	2.1	96.4	6.1	65.8	76.5	Q	Q	52.3	26.2	15.73
West	28.1	2.0	103.2	5.3	53.7	35.0	Q	Q	46.4	23.1	17.48
Building Floorspace (Square Feet)											
1,000 to 10,000	26.4	1.3	110.2	4.7	Q	Q	Q	Q	61.9	20.8	13.75
10,000 to 100,000	22.8	1.8	Q	Q	57.0	34.1	62.8	24.0	34.8	17.0	14.10
Over 100,000	27.0	3.7	Q	Q	68.7	85.2	Q	Q	44.7	39.5	14.52
Natural Gas											
All Buildings	46.0	4.3	124.1	6.7	122.8	126.7	65.9	29.2	52.4	29.5	11.69
Census Region											
Northeast	32.8	3.3	144.3	5.4	95.6	123.1	Q	Q	Q	24.7	24.60
Midwest	62.6	7.5	120.4	7.6	158.1	206.2	Q	Q	54.5	34.9	18.76
South	35.2	2.9	73.4	4.7	106.5	109.8	Q	Q	46.2	24.3	18.42
West	46.7	3.4	189.4	8.7	109.2	67.6	Q	Q	68.4	35.5	22.65
Building Floorspace (Square Feet)											
1,000 to 10,000	75.0	3.6	160.5	7.2	Q	Q	Q	Q	90.9	28.1	20.48
10,000 to 100,000	51.4	4.2	96.4	5.1	107.9	64.3	81.8	29.1	64.9	33.6	17.74
Over 100,000	35.7	4.7	Q	Q	124.4	151.9	Q	Q	18.8	18.9	15.29

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or fewer than 20 buildings were sampled.

Note: • To obtain the RSE percentage for any table cell, multiply the cell's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

during the calendar year. However, this question was only asked for buildings that had either heating or cooling.

For both natural gas and electricity, former and intended office buildings that were predominantly vacant at the time of interview had very high consumption per square foot compared to other types of vacant buildings (Table 6). For electricity, the rate was still significantly less than for nonvacant office buildings, but for natural gas it was actually higher, though not significantly. For other fuels, the number of predominantly vacant buildings using the fuel was too small to allow detailed examination of consumption patterns.

In general, buildings that had some space vacant for three or more months during 1986 tended to have lower consumption per square foot than buildings that did not. However, the consumption per square foot did not consistently decline with increasing percentage vacant (Table 7). This lack of a consistent trend may simply reflect the relatively small number of sampled buildings in each percentage group.

Census Region

Variations in consumption patterns by region (Figure 5) reflect differences in climate, construction practices, and fuel choices. Electricity was consumed in nearly all buildings, with the South accounting for the largest portion of total consumption, at 867 trillion Btu, or 36 percent of the total. Natural gas and district heat were found predominantly in the Midwest. This region accounted for 43 percent of the natural gas and 46 percent of the district heat consumption, at 742 trillion Btu and 196 trillion Btu, respectively. The Northeast had 61 percent of the fuel oil consumption, or 270 trillion Btu. For each of these four fuels, the region with the highest total consumption had the greatest floorspace in buildings using the fuel, and also the highest or close to the highest consumption per square foot in those buildings.

The Census division data in the 1986 NBECS offer more geographic detail than was previously available. For example, the South was the second largest consumer

Table 6. Electricity and Natural Gas Intensities by Previous or Intended Use of Vacant Buildings

Previous or Intended Use	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Energy Consumed (trillion Btu)	Total Expenditures (million dollars)	Energy Consumed per Square Foot (thousand Btu)	Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor	0.795	0.867	1.234	1.265	0.963	0.966	
Electricity							
Office	22	235	8	153	35.3	0.65	32.50
Mercantile and Service	42	464	7	148	14.7	.32	32.26
Industrial	24	576	7	166	13.0	.29	35.68
All Other	47	520	8	152	14.5	.29	24.41
Natural Gas							
Office	13	145	9	52	63.7	.36	47.12
Mercantile and Service	27	358	7	37	18.2	.10	28.25
Industrial	7	238	10	50	44.0	.21	47.92
All Other	25	343	6	31	17.2	.09	26.60

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 7. Energy Intensities by Percent Vacant Three or More Months

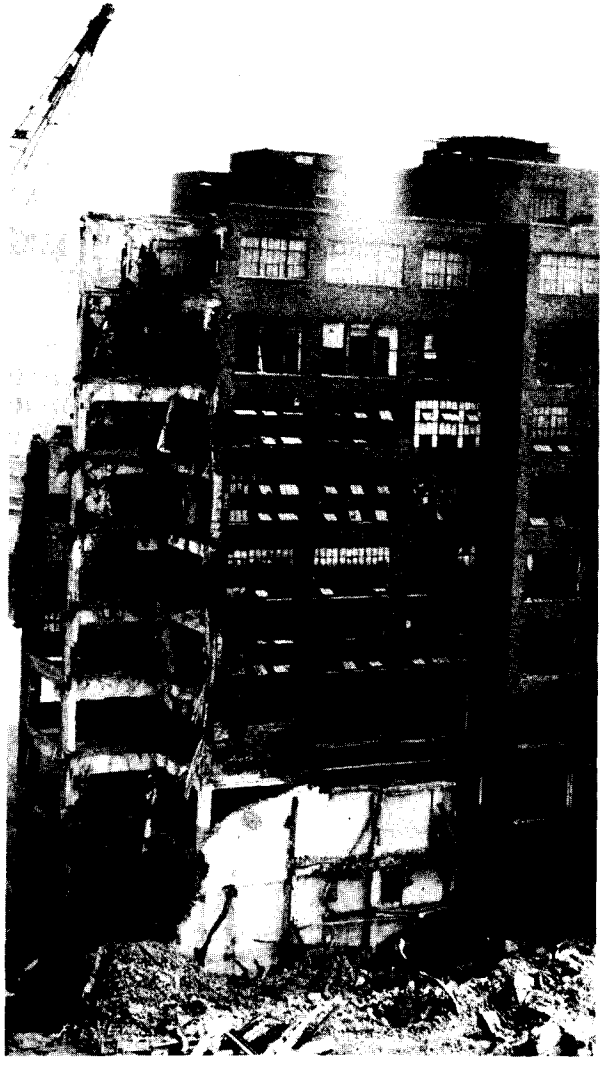
Percent Vacant Three or More Months	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Energy Consumed (trillion Btu)	Total Expenditures (million dollars)	Energy Consumed per Square Foot (thousand Btu)	Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor	0.807	0.831	1.245	1.144	1.081	0.968	
Electricity							
Not Determined [a]	290	2,089	35	683	16.7	0.33	17.78
0	3,044	40,457	1,806	35,297	44.7	.87	5.06
1 to 25	184	7,110	314	6,604	44.2	.93	13.99
26 to 50	126	2,296	113	2,256	49.3	.98	16.93
51 to 99	76	2,135	62	1,147	28.8	.54	19.70
100	244	2,420	60	1,198	25.0	.50	12.64
Natural Gas							
Not Determined [a]	25	256	6	33	22.5	.13	38.42
0	1,829	27,199	1,378	6,729	50.7	.25	4.81
1 to 25	103	5,146	185	830	35.9	.16	16.99
26 to 50	82	1,678	49	250	29.1	.15	16.06
51 to 99	48	1,405	47	228	33.3	.16	20.88
100	127	1,579	58	285	36.9	.18	15.14
Fuel Oil							
Not Determined [a]	10	45	Q	Q	Q	Q	10.45
0	449	7,681	354	1,661	46.1	.22	33.70
1 to 25	32	2,482	65	281	26.3	.11	47.47
26 to 50	15	297	7	40	25.0	.14	56.04
51 to 99	11	212	Q	Q	Q	Q	42.58
100	18	289	10	49	33.4	.17	18.07
District Heat							
Not Determined [a]	*	*	*	*	*	*	25.82
0	67	3,797	373	2,297	98.3	.60	59.03
1 to 100	10	829	49	323	59.0	.39	17.19
Propane							
Not Determined [a]	15	66	Q	Q	Q	Q	15.58
0	268	2,512	48	416	19.3	.17	15.52
1 to 100	60	634	14	119	22.1	.19	29.58

[a] The percent vacant three or more months was not determined for buildings that reported 0 percent heated and 0 percent cooled during 1986.

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

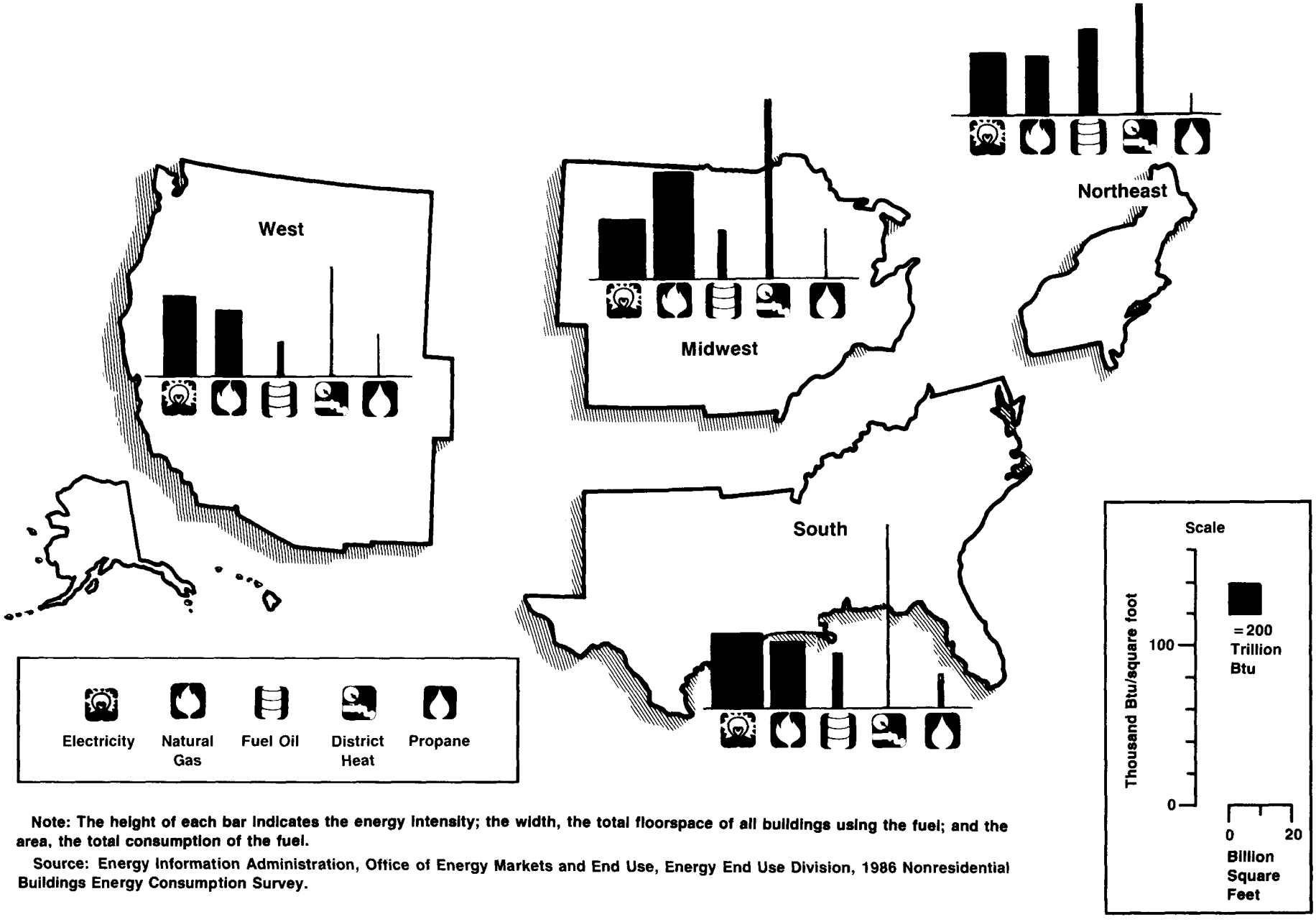
Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.



Incomplete buildings, undergoing demolition or construction, are out of scope for the NBECS.

Figure 5. Energy Consumption and Intensity of Major Fuels by Census Region



Note: The height of each bar indicates the energy intensity; the width, the total floorspace of all buildings using the fuel; and the area, the total consumption of the fuel.

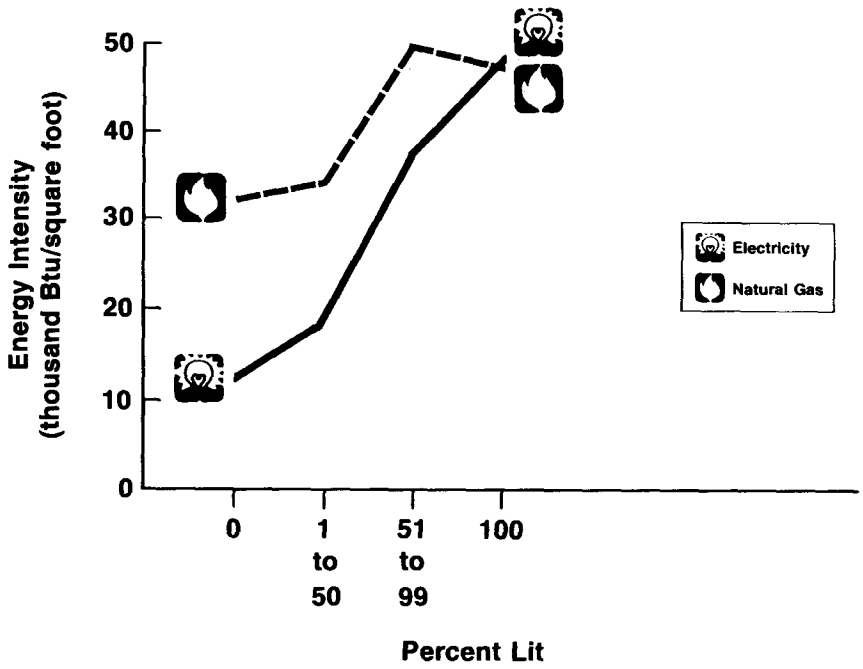
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

of fuel oil. Within this region, nearly all the fuel oil consumption was in the South Atlantic Census division. Thus, fuel oil use was concentrated not simply in the Northeast and South Census regions, but more specifically along the East coast.

Lighting

A new feature of the 1986 NBECS was the collection of lighting information, both the overall percent of floorspace lit during operating hours, and the percent lit by various types of equipment. Electricity consumption per square foot increased dramatically with the overall percent lit (Figure 6). However, this strong relationship between consumption rate and percent lit affected a relatively small portion of the buildings, since two-thirds of commercial buildings were 100 percent lit.

Figure 6. Electricity and Natural Gas Intensities by Percent Lit



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

The increasing consumption rates reflect not only electricity used directly for lighting, but also increased air conditioning loads with higher lighting levels. Perhaps more importantly, higher fractions of lit floorspace indicate higher levels of building use in general. This relationship is indicated by the finding that natural gas used in buildings heated by natural gas also increased with the percent of floorspace lit.

Primary Heating Fuel

Another new feature of the 1986 NBECS was distinguishing between primary and secondary heating fuels. The consumption per square foot for the primary heating fuel was similar for electricity, natural gas, and fuel oil, between 50,000 and 60,000 Btu (Table 8). The average expenditures per building for all major fuels combined was also about the same for all three heating fuels, at $15,000 to $17,000 per building. This cost similarity held even though the average price of electricity was about four times that of the other two fuels. One reason is that electrically-heated buildings had relatively little consumption of other fuels, electricity accounting for over 80 percent of the major fuel total in these buildings. By contrast, for buildings with natural gas or fuel oil as the primary heating fuel, the heating fuel accounted for only about 60 percent of the major fuel total. Electricity accounted for much of the remainder in these buildings; nonelectrically heated buildings consumed electricity at a rate of 39,000 Btu per square foot. (See Table 14 of the "Detailed Tables.")

For propane-heated buildings, both the consumption per square foot of the primary heating fuel and the total expenditures per square foot for all major fuels combined were much lower, while for buildings with district heat as the primary heating fuel both were higher than for the other three fuels. These differences across primary heating fuels reflect not only differences in heating requirements and heating efficiencies, but also differences in other energy-using activities for buildings using the different heating fuels.

Table 8. Consumption and Expenditure Indices by Primary Heating Fuel

Index and Primary Heating Fuel	Number of Buildings (thousand)	Total Floorspace (million square foot)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor	0.910	0.907	0.905	1.271	1.176	1.067	1.279	1.197	1.109	0.495	
Indices for Primary Heating Fuel											
Primary Heating Fuel											
Electricity	859	12,224	14.2	738	860	60.4	13,826	16.1	1.13	18.73	6.10
Natural Gas	1,949	29,066	14.9	1,479	759	50.9	7,162	3.7	.25	4.84	4.54
Fuel Oil	429	6,382	14.9	381	888	59.7	1,783	4.2	.28	4.68	9.17
District Heat	71	4,270	59.8	385	5,398	90.2	2,461	34.5	.58	6.39	18.99
Propane	214	1,244	5.8	36	168	28.8	291	1.4	.23	8.14	15.07
Indices for the Sum of Major Fuels											
All Heated Buildings	3,617	53,780	14.9	4,934	1,364	91.7	59,068	16.3	1.10	11.97	4.08
Primary Heating Fuel											
Electricity	859	12,224	14.2	870	1,014	71.2	14,596	17.0	1.19	16.77	6.71
Natural Gas	1,949	29,066	14.9	2,663	1,366	91.6	29,430	15.1	1.01	11.05	5.17
Fuel Oil	429	6,382	14.9	596	1,389	93.4	6,627	15.4	1.04	11.12	12.27
District Heat	71	4,270	59.8	721	10,105	168.9	7,274	101.9	1.70	10.09	15.29
Propane	214	1,244	5.8	60	279	47.9	830	3.9	.67	13.93	14.39
Minor Fuels	163	1,557	9.6	112	687	71.9	1,377	8.4	.88	12.30	18.29

Note: • To obtain the RSE percentage for any table cell, multiply the cell's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

District heat consumption rates are somewhat more uncertain than those for electricity, natural gas, or fuel oil, as indicated by the relatively high RSE's. Reasons for these higher uncertainties are discussed in Appendix B, "Sampling and Nonsampling Errors."

Fuel Oil Tank Capacity

For buildings that used fuel oil during 1986, the NBECS obtained the combined capacity of all fuel oil tanks serving the buildings. The total capacity of all tanks serving commercial buildings was 1.6 billion gallons (Table 9). This total represents capacity in active use during 1986; any capacity associated with buildings that did not use fuel oil in that year is excluded.

Across all buildings using fuel oil, the total consumption in 1986 was twice as great as the total (active) tank capacity. The ratio of consumption to capacity varied somewhat across different kinds of buildings. In the Northeast, for example, the ratio was 3.5, suggesting that deliveries were more frequent, on average; in the South, the ratio of 1.1 indicates less frequent need for deliveries. The total capacity in the South was about the same as the total for the Northeast, even though consumption in the South was only one-third as great.

Conservation Features

The NBECS series monitors conservation activity by collecting information on the presence of various conservation features in commercial buildings. However, while consumption rates can be compared between buildings with and without a given feature, the energy savings attributable to the feature is difficult to discern from the NBECS data alone. An important reason is that buildings with a given feature tend to differ from those without in many other respects as well, so that any difference in consumption rates may be due to factors other than conservation activity.

The 1986 NBECS collected data on the presence of energy conservation features in the building shell, the HVAC system, and lighting. As has been seen in previous NBECS, energy consumption per building, and, to a lesser extent, per square foot, tended to be higher for buildings with conservation features present than for those without. (See Tables 13 through 17 of the "Detailed Tables" section.)

Even in cases where the consumption rate was less for buildings with a particular feature than for those without, the difference does not represent the savings attributable to the conservation feature, since other building differences are involved in the comparison. This caveat is well illustrated by the fact that both natural gas and fuel oil consumption per square foot were significantly lower for buildings with lighting conservation features than for those without. The only substantial direct effects of these features would be expected for electricity, where no significant difference was found.

New Energy Consumption Data for 1986

Peak Electricity Demand

For electricity, not only the amount consumed during the year, but also the peak load or peak demand is of interest. Whereas consumption refers to the amount of electricity consumed over a period of time (in this report, calendar year 1986), load refers to the instantaneous consumption rate at a point in time, and peak load or peak demand to the maximum consumption rate over a period of time. Limiting peak demand reduces a utility's need to construct additional generating capacity. For this reason, most utilities have charges not only according to the amount of electricity consumed, but also according to the peak demand during a billing period. These demand charges are incentives for customers to restrict their demand during periods of intensive use.

NBECS statistics on annual peak demand are presented for the first time in this report. Although virtually all consumers have consumption meters, peak-demand meters are usually installed only where it is economical for the utility to do so. Of the 3,965,000 buildings with electricity consumption in 1986, 1,673,000 or 42 percent had metered peak demand. However, these buildings contained 60 percent of the commercial floorspace and 73 percent of the total electricity consumed in commercial buildings in 1986. (See Table 40 of the "Detailed Tables.") The presence of peak-demand metering is strongly associated with higher levels of electricity consumption. The percentage of buildings with demand metering

Table 9. Fuel Oil Tank Capacity

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Tank Capacity (million gallons)	Total Fuel Oil Consumed (trillion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Unit Tank Capacity	RSE Row Factor
RSE Column Factor:	0.911	0.832	1.073	1.093	1.091	1.031	
All Buildings Using Fuel Oil	534	11,005	1,601	442	3,168	2.0	12.67
Building Floorspace (Square Feet)							
1,001 to 10,000	386	1,711	352	114	825	2.3	13.71
10,001 to 100,000	131	3,967	659	206	1,483	2.3	14.11
Over 100,000	17	5,327	Q	121	860	1.5	25.12
Year Constructed							
1960 or Before	315	5,472	795	249	1,788	2.3	13.13
1961 to 1986	220	5,533	807	193	1,379	1.7	18.80
Principal Building Activity							
Assembly	72	1,504	242	42	305	1.3	19.12
Education	33	1,680	398	103	740	1.9	27.84
Health Care	10	971	106	Q	Q	2.6	39.08
Lodging	17	525	43	20	141	3.3	24.25
Mercantile and Service	208	2,424	239	105	759	3.2	19.07
Office	74	1,763	240	39	278	1.2	16.93
Warehouse	52	1,158	186	48	340	1.8	23.26
All Others	68	980	146	45	328	2.2	27.12
Census Region							
Northeast	259	5,087	547	270	1,936	3.5	11.25
Midwest	107	2,040	197	63	453	2.3	27.25
South	134	2,522	Q	86	616	1.1	21.17
West	35	Q	Q	Q	Q	.5	16.93
Fuel Oil End Uses							
Primary Space Heating	429	6,382	1,030	381	2,734	2.7	14.59
Secondary Space Heating	79	2,378	462	60	427	.9	28.91
Water Heating	121	2,873	370	207	1,484	4.0	14.96
Fuel Oil Consumption (gallons)							
1,000 or Less	185	1,242	102	12	89	.9	18.19
1,001 to 5,000	234	2,655	306	75	543	1.8	11.58
5,001 to 10,000	57	1,947	Q	54	391	.7	19.99
10,001 to 25,000	30	2,015	264	66	472	1.8	17.02
Over 25,000	28	3,129	402	234	1,672	4.2	17.40

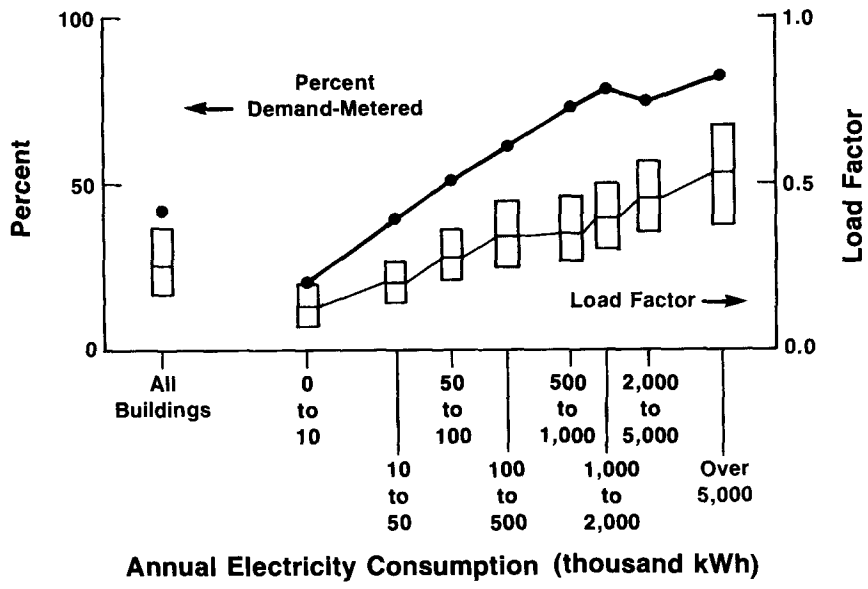
Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

increased from 20 percent for buildings with an annual consumption of 10,000 kWh or less to 82 percent of those buildings with annual consumption greater than 5,000,000 kWh (Figure 7).

Figure 7. Percent of Buildings with Metered Demand and Distribution of Load Factors by Electricity Consumption Level



Note: For each electricity consumption category, the box covers 50 percent of the buildings, from the 25th to the 75th percentile. The bar in the middle of each box indicates the median. The points indicate the percent of buildings in the category that have metered demand. Each consumption category excludes the lower endpoint and includes the upper endpoint. For example, the category indicated as "10 to 50" includes buildings consuming from 10,001 kWh through 50,000 kWh. The horizontal position of each consumption category corresponds to the logarithm of the mean consumption of all demand-metered buildings in the category.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

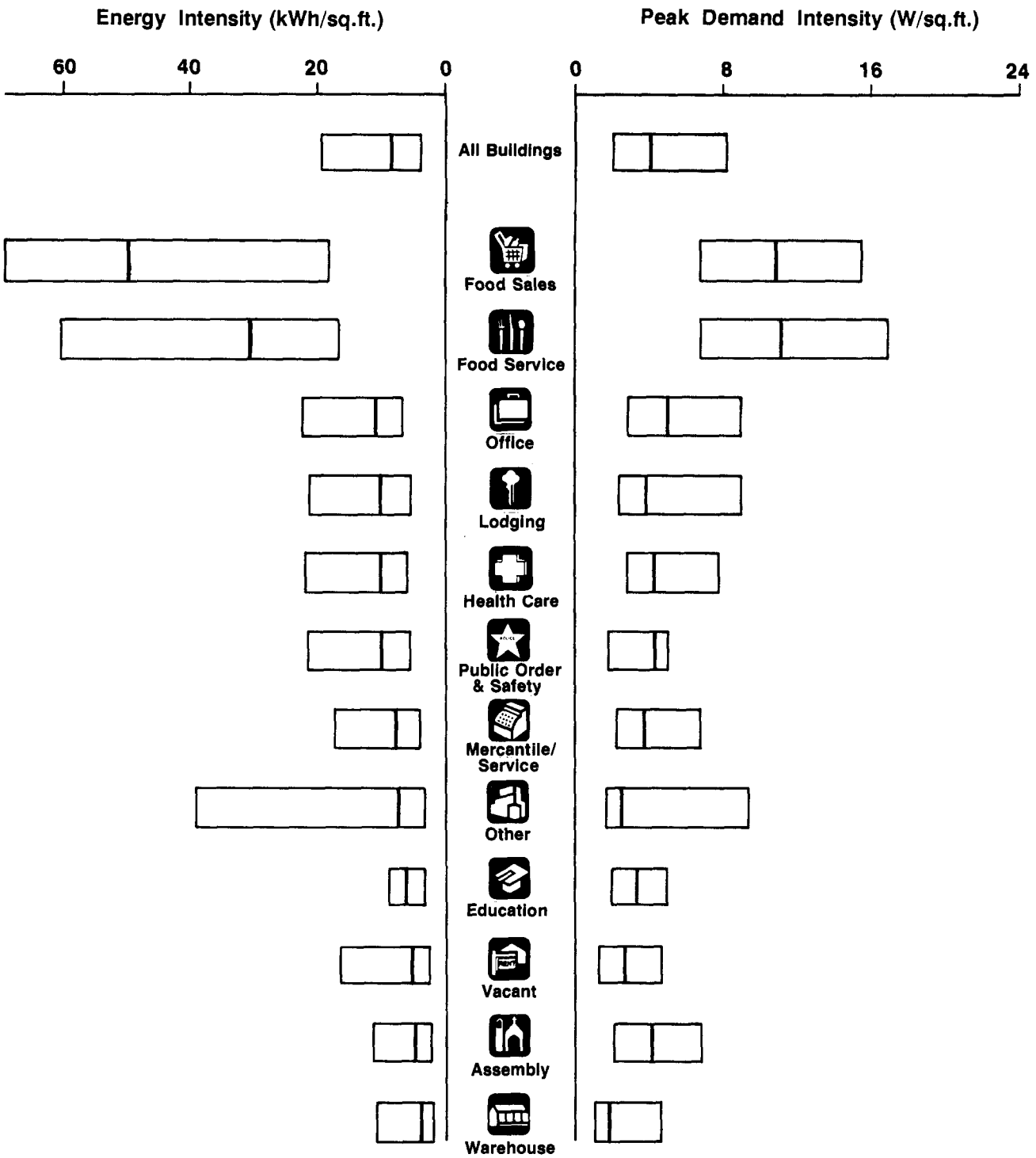
It is more important to utilities to monitor and charge for demand in buildings that contribute more to the utilities' peaks. As a result, buildings with higher peaks would be more likely to have metered demand. Because higher consumers tend to have higher peaks, metered demand is more common among high-consuming buildings. Among those buildings that are demand metered, higher peaks are strongly associated with higher consumption levels. For example, although two-thirds of demand-metered buildings had peaks of 50 kW or less, these buildings accounted for only 11 percent of the electricity consumed in demand-metered buildings. By contrast, the 1 percent of demand-metered buildings that had an annual peak over 1,000 kW consumed 37 percent of the electricity in this group of buildings. Just as higher consumption levels are associated with larger buildings, longer operating hours, and more workers, higher peaks were also associated with these factors. (See Table 42 of the "Detailed Tables.")

One measure of the relationship between consumption and peak demand is the load factor. This factor is the ratio of the average demand to the peak demand. The load factor can also be thought of as the ratio of total (annual) consumption to the total that would be consumed if the demand were at its peak level continuously for the year. (See the Glossary for the definition of the load factor.)

The association of higher peaks with higher consumption levels is somewhat mitigated by the association also of higher load factors with higher consumption levels (Figure 7 above). This association means that a building with consumption twice as high as another building's would typically have peak demand less than twice as high. Many of the factors related to higher consumption, including longer hours of operation, larger floorspace, more workers, and food sales and food service activities, are associated also with higher load factors. (See Table 43 of the "Detailed Tables.")

Reflecting the fact that peak demand rose less than proportionately with consumption level, peak-demand intensity (watts per square foot) varied less across building types than did energy intensity (kWh per square foot) (Figure 8). Like energy intensity, which is used as an index in much of this report, the peak-demand intensity allows comparison across building types with a size difference adjustment. Just as energy intensity represents the average energy requirement per

Figure 8. Distribution of Electric Energy Intensity and Peak Demand Intensity by Principal Building Activity for Buildings with Metered Demand Peak



Note: For each principal building activity, the box covers 50 percent of the buildings, from the 25th to the 75th percentile. The bar in the middle of each box indicates the median.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

square foot, peak demand intensity represents the average capacity requirement per square foot.

Median peak-demand intensity, at 11 watts per square foot (W/sf) was significantly higher for food sales and food service buildings than for any other building type. Next highest were office buildings, at 5 W/sf. The lowest median was for warehouse buildings, at 2 W/sf. A similar pattern across building types was found for electric energy intensity, except that food sales buildings were by far the highest, with a median over 60 percent higher than that for food service buildings.

As explained in Appendix B "Sampling and Nonsampling Errors," the aggregated peak, that is, the sum of the individual building peaks, is not a very meaningful summary, since the peaks are not coincident. For this reason, ratios involving peak loads, namely, load factors and peak intensities, are summarized in terms of medians of the individual buildings' ratios, rather than in terms of aggregate ratios as are used elsewhere in this report. (See Table 43 of the "Detailed Tables.")

While the NBECS could not collect data with sufficient detail to determine coincident peaks, the timing of peaks could at least be determined at the seasonal level. For 58 percent of the demand-metered buildings, the annual peak occurred in the summer (cooling) season. Winter peaks occurred in 31 percent of the buildings, while the remaining 11 percent had exactly the same peak reported in both summer and winter. Although the season of peak demand did not vary significantly by Census region, it did vary by electricity end use. Buildings that used electricity as the primary space heating fuel had winter (heating season) peaks in 51 percent of the cases, and summer peaks in 41 percent of the cases. (See Table 41 of the "Detailed Tables.")

District Heating and Cooling

District heat in this report refers to steam or hot water piped into a building from an outside plant. The plant may be a utility, or a central power plant on the same facility or complex as the building of interest or it may belong to a utility or other offsite supplier. Thus, both nonpurchased and purchased district heat are included in the aggregates presented. This treatment represents a departure from previous NBECS, which attempted to collect data only for purchased district steam. As a result, the total district heat consumption and expenditures reported for the 1986 NBECS are much larger than the corresponding totals for purchased steam in previous NBECS. Most of the district heat consumption was nonpurchased steam (Table 10). Data on district hot water were too sparse to provide separate estimates for this energy source.

The 1986 NBECS also collected consumption and expenditures data on district chilled water. However, chilled water consumption data were too sparse to provide a reliable consumption estimate, even for the national total. An upper bound (at the 95 percent confidence level) for total commercial consumption of chilled water is 15 billion ton-hours. Expenditures for this cooling total were estimated at $591 million, with a relative standard error of 39 percent. Because the data on this source were so sparse, district chilled water is not included in the other tables of this report. Chilled water is also not included in the sum of major fuels.

Table 10. District Steam, Purchased and Nonpurchased

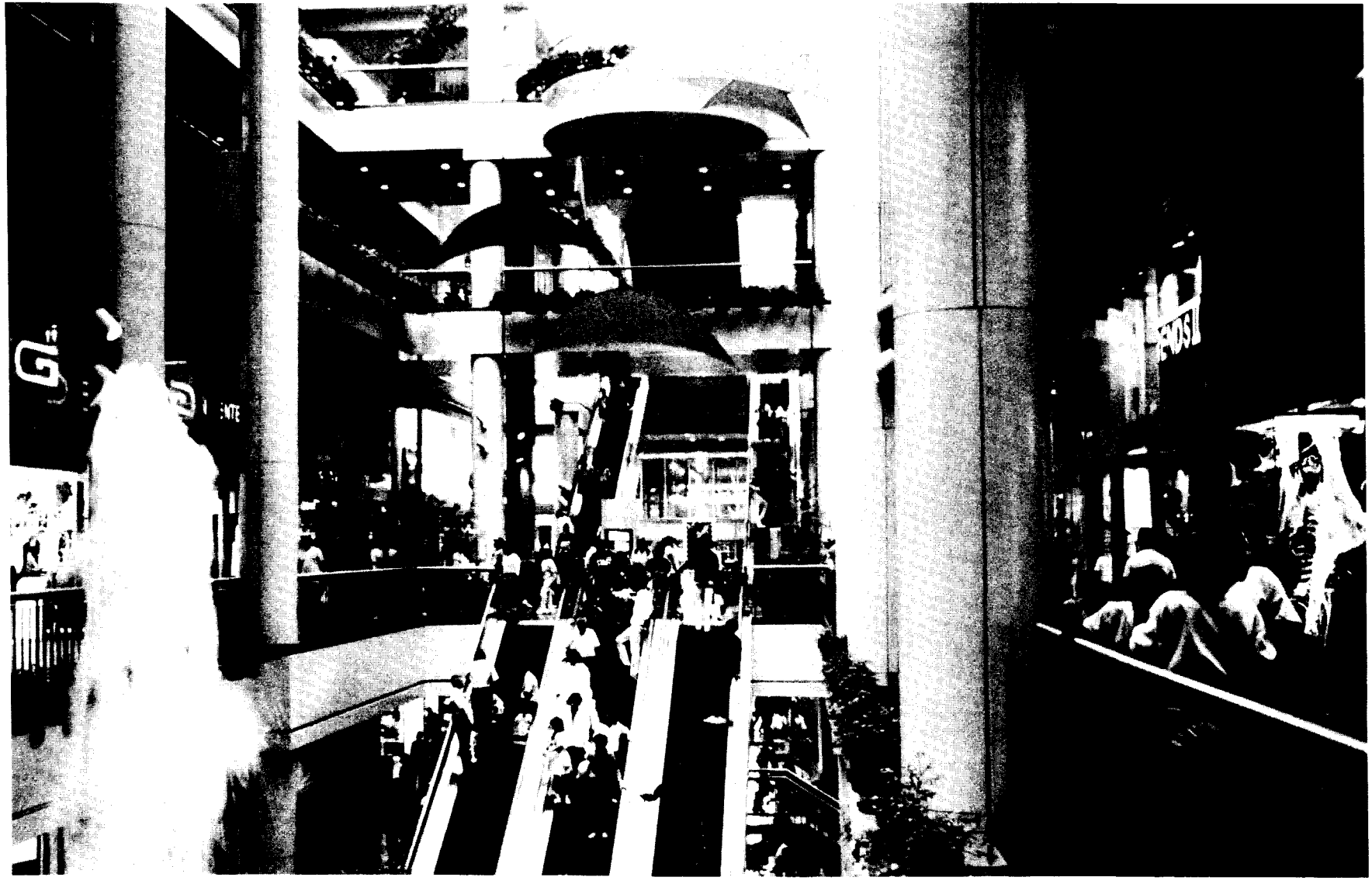
Building Characteristics	Buildings Using Steam		Buildings Using Purchased Steam				Buildings Using Nonpurchased Steam				RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Steam Consumed (billion pounds)	Total Expenditures (million dollars)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Steam Consumed (billion pounds)	Total Expenditures [a] (million dollars)	
RSE Column Factor	0.924	0.720	1.483	0.959	1.057	0.989	0.967	0.922	1.043	1.088	
All Buildings	71	4,061	16	1,383	91	726	54	2,678	275	1,609	17.47
Census Region											
Northeast	14	1,149	Q	626	34	304	10	523	42	255	27.31
Midwest	21	1,767	4	579	40	292	17	1,188	151	848	28.25
South	24	579	Q	Q	Q	Q	20	512	46	305	28.29
West	12	566	Q	Q	Q	Q	7	455	37	200	37.90
Building Floorspace (Square Feet)											
1,001 to 10,000	25	92	Q	Q	Q	Q	18	72	Q	Q	52.80
10,001 to 100,000	37	1,273	7	265	27	192	30	1,008	110	673	21.64
Over 100,000	9	2,696	3	1,099	60	505	7	1,598	150	838	20.65
Principal Building Activity											
Office	16	1,294	Q	726	26	264	Q	568	40	222	31.68
Education	7	690	Q	Q	Q	Q	7	590	75	402	36.56
Health Care	4	455	Q	Q	Q	Q	3	361	48	264	24.47
All Other	45	1,622	12	463	44	317	33	1,159	112	720	22.95
Year Constructed											
1960 or Before	38	2,125	8	698	30	286	30	1,428	137	830	22.05
1961 to 1986	32	1,935	8	685	62	440	24	1,250	138	779	22.29

[a] For buildings using nonpurchased steam, expenditures for steam were imputed as if the steam had been purchased. These expenditures thus represent an equivalent cost of the energy.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.



Mercantile and service buildings, including shopping malls, accounted for one-fifth of the electricity, natural gas, and fuel oil used in commercial buildings in 1986.

Detailed Tables

Guide to the Detailed Tables

The tables in this section present energy consumption and expenditure statistics by detailed building characteristics. Tables 11 and 12, respectively, give total consumption and total expenditures for each of the major fuels and for the sum of all major fuels. The final set of tables, 40 through 43, are electricity peak demand tables. All the remaining tables are in sets, one for each energy source or for the sum of all major fuels. The guide below indicates which tables present particular statistics for each energy source.

		Table Numbers by Energy Source					
Statistics	Cross Classification Level	Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane
Total Consumption	1-Factor	11	11	11	11	11	11
Total Expenditures	1-Factor	12	12	12	12	12	12
Consumption and Expenditure Indices	Detailed 1-Factor	13	14	15	16	17	18
Consumption, Intensity, and Mean Floorspace							
by Census Region	2-Factor	19	20	21	22		
by Building Size	2-Factor	23	24	25	26		
by Selected Building Activity	2-Factor	27	28	29			
Consumption and Expenditure Intensities for Major Fuels and for Heating Fuels	1-Factor		30-32	33	34	35	
Expenditures, Intensities, and Mean Price by Census Region	2-Factor	36	37	38	39		
Peak Demand Indices	1-Factor		40-43				

Tables 13 through 18 present several types of consumption and expenditure statistics by single-factor classifications. These tables have the most detailed single-factor breakdowns. Tables 19 through 29 present energy intensities, along with consumption totals and mean floorspace, by two-factor classifications. The first factor is Census region in Tables 19 through 22, building size in Tables 23 through 26 and principal building activity in Tables 27 through 29. Tables 30 through 35 are heating (and cooling) tables. These tables give consumption and expenditures, total and per square foot, for buildings using a particular fuel for heating. The consumption and expenditure indices are given both for the heating fuel itself and for the sum of all major fuels in those buildings. For electricity, there are three tables, for buildings with different combinations of electric heating and cooling. Tables 36 through 39 are regional expenditure tables. These tables give the total expenditures and the expenditures per million Btu and per square foot by Census region, crossed with other building characteristics.

Row and Column Factors

These tables present estimates of consumption and expenditures for commercial buildings in the United States. Since the estimates are based on the sample surveyed, they are subject to sampling error. To help the reader compute an approximate relative standard error (RSE) for each of the estimates in the detailed tables, row and column factors are displayed on the top line and in the far right column of each table. To calculate the RSE for a specific estimate, multiply the row factor by the column factor. For more details, see Figure B2 and the related discussion in Appendix B, "Sampling and Nonsampling Errors."

Table 11. Total Energy Consumption by Major Fuel

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.496	0.515	0.685	0.803	0.830	1.603	2.296	2.328	
All Buildings	3,992	56,825	5,040	2,390	1,723	442	422	63	7.49
Building Floorspace (Square Feet)									
1,001 to 5,000	2,113	5,943	719	376	248	52	Q	29	11.64
5,001 to 10,000	901	6,638	598	278	236	62	Q	15	11.56
10,001 to 25,000	541	8,873	724	312	305	60	35	11	13.02
25,001 to 50,000	239	8,551	662	312	191	101	54	4	13.84
50,001 to 100,000	118	8,217	640	303	220	45	70	Q	15.08
100,001 to 200,000	51	7,128	577	249	180	59	89	Q	18.51
200,001 to 500,000	23	6,737	680	307	229	44	99	Q	20.96
Over 500,000	6	4,738	440	253	114	Q	55	Q	27.32
Year Constructed									
1900 or Before	179	2,294	129	42	54	23	Q	Q	24.30
1901 to 1920	237	3,520	274	96	109	31	37	Q	21.00
1921 to 1945	596	8,077	666	201	254	108	97	7	15.31
1946 to 1960	843	9,410	754	302	308	87	44	12	12.57
1961 to 1970	715	11,352	1,252	615	435	91	98	13	14.44
1971 to 1973	238	4,290	474	226	158	22	Q	Q	19.71
1974 to 1979	557	8,186	739	438	196	56	Q	9	16.35
1980 to 1983	342	5,179	398	254	102	16	Q	10	17.20
1984 to 1986	286	4,517	354	216	106	8	Q	8	18.55
BUILDING USE									
Principal Building Activity									
Assembly	572	7,305	401	164	157	42	31	7	13.34
Education	241	7,292	635	179	254	103	97	3	15.28
Food Sales	102	712	151	99	45	Q	Q	Q	24.12
Food Service	201	1,281	260	121	114	Q	Q	12	18.34
Health Care	52	2,107	457	132	205	Q	80	Q	23.14
Lodging	137	2,785	311	120	105	20	Q	12	19.10
Mercantile and Service	1,280	12,781	1,002	536	332	105	Q	17	14.12
Office	610	9,532	1,010	641	258	39	71	Q	14.80
Public Order and Safety	53	678	86	30	25	Q	Q	Q	33.48
Warehouse	491	8,558	466	252	143	48	Q	Q	19.28
Other	94	1,704	169	83	46	Q	Q	Q	28.15
Vacant	160	2,090	92	35	38	Q	Q	Q	23.94

Table 11. Total Energy Consumption by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.496	0.515	0.685	0.803	0.830	1.603	2.296	2.328	
Ownership and Occupancy									
Nongovernment Owned	3,516	44,936	3,773	1,922	1,328	276	190	57	8.01
Owner Occupied	2,329	28,329	2,535	1,227	903	198	164	44	9.59
Nonowner Occupied	1,188	16,607	1,238	695	425	78	26	13	12.27
Government Owned	476	11,889	1,267	468	395	166	232	6	12.64
Workers									
Fewer than 5	1,878	11,828	611	248	237	79	24	23	12.65
5 to 9	839	6,533	483	238	172	43	Q	9	12.06
10 to 19	584	7,880	518	215	201	41	Q	12	11.80
20 to 49	433	8,841	915	419	342	79	63	12	12.47
50 to 99	152	6,480	666	315	240	76	Q	Q	17.52
100 to 249	73	6,436	623	291	171	49	108	Q	15.60
250 or More	33	8,828	1,225	663	361	74	127	Q	17.80
Weekly Operating Hours									
39 or Fewer	753	8,212	431	141	200	73	Q	7	19.43
40 to 48	1,067	14,958	1,110	590	384	89	41	7	10.69
49 to 60	911	10,736	749	338	242	95	63	10	11.47
61 to 84	553	9,751	895	440	317	63	Q	10	14.37
85 to 167	371	5,503	652	340	213	39	48	13	16.47
168 (Open Continuously)	337	7,664	1,203	541	368	83	193	17	16.60
LOCATION									
Census Region									
Northeast	639	11,506	1,046	430	244	270	94	9	13.61
Midwest	1,036	15,728	1,603	584	742	63	196	19	14.34
South	1,517	18,882	1,485	867	426	86	81	26	12.59
West	800	10,708	906	510	311	Q	51	Q	17.44
Metropolitan Status									
Metropolitan	2,631	44,130	4,000	1,925	1,373	329	342	31	8.19
Nonmetropolitan	1,361	12,695	1,040	465	350	113	Q	32	14.45
Climate Zone: 45-Year Average									
Under 2,000 CDD and --									
Over 7,000 HDD	401	4,821	576	191	222	70	83	Q	25.50
5,500-7,000 HDD	893	15,986	1,477	539	670	120	139	9	13.28
4,000-5,499 HDD	828	13,404	1,206	580	287	201	119	19	16.85
Under 4,000 HDD	986	13,430	1,043	575	370	38	Q	17	17.69
2,000 CDD or More and --									
Under 4,000 HDD	884	9,184	738	506	173	Q	Q	Q	21.31

Table 11. Total Energy Consumption by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.496	0.515	0.685	0.803	0.830	1.603	2.296	2.328	
ENERGY SOURCES AND END USES [a]									
Energy Sources Used (Solely or in Combination)									
Electricity	3,965	56,508	5,029	2,390	1,716	438	422	63	7.60
Natural Gas	2,214	37,263	3,603	1,535	1,723	160	183	Q	9.26
Fuel Oil	534	11,005	1,227	446	270	442	Q	6	16.48
District Heat	77	4,625	830	281	111	Q	422	Q	23.62
District Chilled Water	Q	1,208	Q	99	Q	Q	Q	NC	67.78
Propane	344	3,213	272	113	Q	58	Q	63	21.31
Minor Fuels	161	1,547	112	55	32	10	Q	Q	30.70
Energy End Uses									
Space Heating	3,624	53,905	4,944	2,322	1,713	438	409	62	7.63
Cooling	2,853	46,127	4,391	2,176	1,459	340	369	46	8.04
Water Heating	2,857	48,189	4,509	2,062	1,601	405	389	53	7.68
Cooking	560	17,050	1,981	898	691	177	190	24	11.09
Manufacturing	130	3,056	450	207	192	Q	Q	Q	26.68
Space-Heating Fuels (Solely or in Combination)									
Electricity	1,166	18,223	1,297	930	265	60	19	22	11.51
Natural Gas	2,018	31,542	2,943	1,253	1,543	86	Q	Q	10.65
Fuel Oil	504	8,708	997	334	210	427	Q	5	16.10
District Heat	74	4,389	751	250	102	Q	395	Q	22.37
Propane	250	1,819	109	48	Q	Q	NC	46	25.15
Minor Fuels	144	1,164	59	25	18	Q	Q	Q	30.42
Building Not Heated	377	3,055	106	78	10	Q	Q	Q	24.61
Air-Conditioning Fuels (Solely or in Combination)									
Electricity	2,712	42,145	3,903	2,012	1,306	307	231	46	8.12
Natural Gas	139	2,862	231	86	132	Q	Q	Q	18.09
District Chilled Water	13	1,141	261	92	41	Q	Q	NC	48.41
District Steam	2	508	80	27	Q	Q	Q	Q	64.77
Other Fuels	148	3,176	284	99	136	41	Q	Q	18.91
Building Not Air Conditioned	1,117	10,372	638	212	257	100	52	17	17.09

Table 11. Total Energy Consumption by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.504	0.514	0.705	0.805	0.872	1.665	2.373	1.974	
Water-Heating Fuels (Solely or in Combination)									
Electricity	1,387	20,956	1,488	937	330	148	50	24	10.67
Natural Gas	1,323	24,498	2,470	966	1,320	90	93	Q	11.21
Fuel Oil	132	4,045	569	177	142	231	Q	Q	21.65
District Heat	33	3,363	588	211	67	Q	298	Q	26.26
Propane	100	958	107	42	Q	Q	Q	30	33.52
Minor Fuels	11	240	39	Q	Q	Q	Q	NC	66.34
Water Heating Not Performed	1,135	8,636	531	329	122	37	Q	10	15.08
Cooking Fuels (Solely or in Combination)									
Electricity	232	7,207	751	405	197	63	83	Q	13.85
Natural Gas	315	10,780	1,338	555	587	90	105	Q	13.82
District Heat	3	565	127	29	22	Q	73	Q	39.88
Propane	66	960	110	48	Q	36	Q	22	30.64
Minor Fuels and Fuel Oil	Q	Q	Q	Q	Q	Q	NC	Q	b
Cooking Not Performed	3,433	39,775	3,059	1,493	1,031	264	232	39	9.15
Manufacturing Fuels (Solely or in Combination)									
Electricity	106	2,232	280	144	104	Q	Q	Q	27.18
Natural Gas	20	791	182	68	96	Q	Q	Q	50.95
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	3,862	53,768	4,590	2,183	1,531	407	407	62	7.41
HEATING AND COOLING									
Percent Heated									
Not Heated	334	2,510	71	55	9	Q	Q	Q	25.67
1 to 50	595	8,446	326	169	108	19	Q	9	15.88
51 to 99	458	7,047	575	288	196	32	44	16	15.08
100	2,605	38,810	4,067	1,878	1,410	387	355	37	8.21

Table 11. Total Energy Consumption by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.504	0.514	0.705	0.805	0.872	1.665	2.373	1.974	
Percent Cooled									
Not Cooled	1,102	9,867	596	180	256	96	47	17	17.08
1 to 50	969	18,520	1,299	442	532	176	134	15	11.75
51 to 99	499	9,968	1,113	527	392	77	107	10	15.39
100	1,422	18,465	2,032	1,241	544	93	Q	21	10.83

• Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 12. Total Energy Expenditures by Major Fuel

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Expenditures (million dollars)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.512	0.532	0.720	0.783	0.797	1.540	2.251	2.358	
All Buildings	3,992	56,825	60,762	47,186	8,355	2,059	2,620	543	7.05
Building Floorspace (Square Feet)									
1,001 to 5,000	2,113	5,943	10,133	8,175	1,316	301	Q	243	11.36
5,001 to 10,000	901	6,638	7,647	5,962	1,206	315	Q	126	10.97
10,001 to 25,000	541	8,873	8,374	6,265	1,519	311	178	101	11.92
25,001 to 50,000	239	8,551	7,856	6,060	967	451	342	36	14.12
50,001 to 100,000	118	8,217	7,445	5,720	1,057	208	433	Q	15.18
100,001 to 200,000	51	7,128	6,153	4,514	848	235	550	Q	17.59
200,001 to 500,000	23	6,737	7,779	6,067	965	175	567	Q	21.99
Over 500,000	6	4,738	5,375	4,422	476	Q	412	Q	26.49
Year Constructed									
1900 or Before	179	2,294	1,376	891	278	126	Q	Q	23.66
1901 to 1920	237	3,520	3,559	2,597	521	163	268	Q	24.42
1921 to 1945	596	8,077	6,698	4,233	1,324	491	596	54	14.40
1946 to 1960	843	9,410	8,717	6,428	1,495	405	279	109	12.13
1961 to 1970	715	11,352	14,741	11,574	2,038	413	613	103	14.04
1971 to 1973	238	4,290	5,418	4,175	755	99	369	Q	19.22
1974 to 1979	557	8,186	9,837	8,326	912	247	Q	73	14.42
1980 to 1983	342	5,179	5,632	4,862	520	74	Q	89	16.99
1984 to 1986	286	4,517	4,783	4,100	510	43	Q	63	18.85
BUILDING USE									
Principal Building Activity									
Assembly	572	7,305	5,009	3,707	811	221	214	56	13.82
Education	241	7,292	5,782	3,606	1,189	448	519	20	14.35
Food Sales	102	712	2,176	1,923	201	Q	Q	Q	25.63
Food Service	201	1,281	3,241	2,451	604	Q	Q	112	17.97
Health Care	52	2,107	3,824	2,287	884	Q	486	Q	23.20
Lodging	137	2,785	3,330	2,251	523	92	Q	104	18.01
Mercantile and Service	1,280	12,781	13,231	10,781	1,706	516	Q	140	12.97
Office	610	9,532	14,777	12,884	1,178	194	507	Q	14.00
Public Order and Safety	53	678	720	475	133	Q	Q	Q	31.10
Warehouse	491	8,558	5,620	4,537	722	204	Q	Q	17.62
Other	94	1,704	2,013	1,568	204	Q	Q	Q	26.67
Vacant	160	2,090	1,040	715	200	Q	Q	Q	23.93

Table 12. Total Energy Expenditures by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Expenditures (million dollars)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.512	0.532	0.720	0.783	0.797	1.540	2.251	2.358	
Ownership and Occupancy									
Nongovernment Owned	3,516	44,936	48,131	38,403	6,543	1,343	1,350	492	7.85
Owner Occupied	2,329	28,329	30,545	23,733	4,332	955	1,150	374	9.13
Nonowner Occupied	1,188	16,607	17,586	14,669	2,211	387	200	118	13.01
Government Owned	476	11,889	12,631	8,783	1,811	716	1,270	51	12.10
Workers									
Fewer than 5	1,878	11,828	7,301	5,324	1,194	423	161	198	12.16
5 to 9	839	6,533	6,454	5,146	904	226	Q	73	11.67
10 to 19	584	7,880	6,110	4,496	1,035	219	Q	102	10.87
20 to 49	433	8,841	11,105	8,513	1,715	383	383	112	12.55
50 to 99	152	6,480	8,006	6,314	1,134	315	Q	Q	16.30
100 to 249	73	6,436	7,066	5,366	852	209	616	Q	14.67
250 or More	33	8,828	14,720	12,027	1,521	285	885	Q	18.01
Weekly Operating Hours									
39 or Fewer	753	8,212	4,304	2,900	932	337	Q	59	16.89
40 to 48	1,067	14,958	14,792	12,133	1,878	424	295	62	11.62
49 to 60	911	10,736	9,140	6,981	1,209	469	400	82	10.89
61 to 84	553	9,751	11,232	8,991	1,531	297	324	89	14.42
85 to 167	371	5,503	8,380	6,626	1,143	183	319	108	15.57
168 (Open Continuously)	337	7,664	12,913	9,554	1,661	349	1,206	143	16.65
LOCATION									
Census Region									
Northeast	639	11,506	14,362	10,886	1,472	1,272	639	93	14.16
Midwest	1,036	15,728	15,848	10,869	3,400	278	1,170	131	13.24
South	1,517	18,882	17,945	14,856	1,958	394	516	221	12.11
West	800	10,708	12,607	10,575	1,524	Q	294	Q	16.91
Metropolitan Status									
Metropolitan	2,631	44,130	49,068	38,526	6,687	1,496	2,087	272	7.80
Nonmetropolitan	1,361	12,695	11,694	8,660	1,668	563	Q	271	14.41
Climate Zone: 45-Year Average									
Under 2,000 CDD and --									
Over 7,000 HDD	401	4,821	5,134	3,315	987	329	423	Q	25.08
5,500-7,000 HDD	893	15,986	15,448	10,694	3,222	562	890	80	11.27
4,000-5,499 HDD	828	13,404	16,313	12,840	1,536	941	826	170	16.92
Under 4,000 HDD	986	13,430	13,500	11,135	1,823	168	Q	143	17.83
2,000 CDD or More and --									
Under 4,000 HDD	884	9,184	10,367	9,202	787	Q	Q	Q	21.86

Table 12. Total Energy Expenditures by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Expenditures (million dollars)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.512	0.532	0.720	0.783	0.797	1.540	2.251	2.358	
ENERGY SOURCES AND END USES ▪									
Energy Sources Used (Solely or in Combination)									
Electricity	3,965	56,508	60,700	47,186	8,316	2,037	2,619	542	7.17
Natural Gas	2,214	37,263	40,681	30,440	8,355	682	1,187	Q	9.22
Fuel Oil	534	11,005	12,922	9,190	1,231	2,059	Q	63	17.52
District Heat	77	4,625	8,139	5,004	455	Q	2,620	Q	21.61
District Chilled Water	Q	1,208	Q	1,503	Q	Q	Q	NC	70.57
Propane	344	3,213	3,373	2,375	Q	274	Q	543	20.45
Minor Fuels	161	1,547	1,377	1,074	157	45	Q	Q	30.41
Energy End Uses									
Space Heating	3,624	53,905	59,227	45,783	8,297	2,038	2,579	530	7.19
Cooling	2,853	46,127	54,051	42,715	7,020	1,547	2,370	398	7.47
Water Heating	2,857	48,189	53,647	41,134	7,757	1,855	2,448	454	7.18
Cooking	560	17,050	22,985	17,538	3,302	777	1,151	216	11.24
Manufacturing	130	3,056	5,241	4,192	811	Q	Q	Q	28.89
Space-Heating Fuels (Solely or in Combination)									
Electricity	1,166	18,223	19,583	17,590	1,355	285	161	192	11.48
Natural Gas	2,018	31,542	33,222	25,053	7,483	349	Q	Q	10.52
Fuel Oil	504	8,708	10,161	7,083	942	1,981	Q	54	16.59
District Heat	74	4,389	7,544	4,603	412	Q	2,510	Q	20.87
Propane	250	1,819	1,430	986	Q	Q	NC	381	24.45
Minor Fuels	144	1,164	686	514	84	Q	Q	Q	28.18
Building Not Heated	377	3,055	1,694	1,556	58	Q	Q	Q	22.62
Air-Conditioning Fuels (Solely or in Combination)									
Electricity	2,712	42,145	49,281	39,639	6,327	1,425	1,492	398	7.88
Natural Gas	139	2,862	2,432	1,753	618	Q	Q	Q	17.16
District Chilled Water	13	1,141	2,377	1,398	169	Q	Q	NC	46.51
District Steam	2	508	828	539	Q	Q	280	Q	43.64
Other Fuels	148	3,176	2,861	2,019	642	156	Q	Q	17.93
Building Not Air Conditioned	1,117	10,372	6,623	4,433	1,297	501	248	144	17.00

Table 12. Total Energy Expenditures by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Expenditures (million dollars)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.524	0.536	0.715	0.773	0.839	1.609	2.304	2.072	
Water-Heating Fuels (Solely or in Combination)									
Electricity	1,387	20,956	21,030	18,037	1,715	713	359	206	10.47
Natural Gas	1,323	24,498	26,825	19,554	6,330	382	544	Q	11.48
Fuel Oil	132	4,045	5,810	4,088	590	1,027	Q	Q	23.82
District Heat	33	3,363	6,069	3,848	273	Q	1,903	Q	24.72
Propane	100	958	1,330	919	Q	Q	Q	249	31.62
Minor Fuels	11	240	Q	Q	Q	Q	Q	NC	64.02
Water Heating Not Performed	1,135	8,636	7,115	6,052	598	204	Q	89	14.95
Cooking Fuels (Solely or in Combination)									
Electricity	232	7,207	9,237	7,473	917	287	525	Q	13.69
Natural Gas	315	10,780	14,895	10,993	2,815	367	712	Q	14.96
District Heat	3	565	999	510	88	Q	387	Q	37.46
Propane	66	960	1,474	1,080	Q	168	Q	199	29.47
Minor Fuels and Fuel Oil	Q	Q	Q	Q	Q	Q	NC	Q	b
Cooking Not Performed	3,430	39,642	37,598	29,482	5,052	1,279	1,458	327	8.24
Manufacturing Fuels (Solely or in Combination)									
Electricity	106	2,232	3,104	2,510	450	Q	Q	Q	25.50
Natural Gas	20	791	1,471	1,000	391	Q	Q	Q	45.46
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	3,862	53,768	55,521	42,994	7,543	1,928	2,521	534	6.97
HEATING AND COOLING									
Percent Heated									
Not Heated	334	2,510	1,228	1,126	54	Q	Q	Q	24.55
1 to 50	595	8,446	4,354	3,499	559	109	Q	76	14.52
51 to 99	458	7,047	7,372	5,819	967	161	295	130	14.42
100	2,605	38,810	47,803	36,738	6,774	1,766	2,204	322	7.81

Table 12. Total Energy Expenditures by Major Fuel (continued)

Building Characteristics	All Buildings Using Any Major Fuel		Total Energy Expenditures (million dollars)						RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	All Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	Propane	
RSE Column Factor:	0.524	0.536	0.715	0.773	0.839	1.609	2.304	2.072	
Percent Cooled									
Not Cooled	1,102	9,867	5,951	3,825	1,287	485	210	144	16.59
1 to 50	969	18,520	13,512	9,112	2,545	815	909	130	10.59
51 to 99	499	9,968	12,740	9,905	1,776	344	620	94	13.62
100	1,422	18,465	28,555	24,339	2,746	414	880	175	10.82

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 13. Major Fuel Consumption and Expenditures

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.929	0.947	0.801	1.238	1.187	0.956	1.019	1.268	1.186	1.023	0.644	
All Buildings	3,992	56,825	14.2	5,040	1,262	88.7	68.8	60,762	15.2	1.07	12.06	4.07
Building Floorspace (Square Feet)												
1,001 to 5,000	2,113	5,943	2.8	719	340	121.0	65.4	10,133	4.8	1.71	14.09	6.48
5,001 to 10,000	901	6,638	7.4	598	663	90.1	61.3	7,647	8.5	1.15	12.79	5.19
10,001 to 25,000	541	8,873	16.4	724	1,337	81.6	67.5	8,374	15.5	.94	11.57	5.31
25,001 to 50,000	239	8,551	35.8	662	2,766	77.4	75.9	7,856	32.8	.92	11.88	5.73
50,001 to 100,000	118	8,217	69.6	640	5,421	77.9	78.5	7,445	63.1	.91	11.63	6.86
100,001 to 200,000	51	7,128	139.2	577	11,269	81.0	74.3	6,153	120.1	.86	10.66	8.40
200,001 to 500,000	23	6,737	298.9	680	30,147	100.9	76.0	7,779	345.0	1.15	11.45	12.41
Over 500,000	6	4,738	842.0	440	78,274	93.0	53.3	5,375	955.1	1.13	12.20	17.00
Year Constructed												
1900 or Before	179	2,294	12.8	129	723	56.3	81.6	1,376	7.7	.60	10.66	12.26
1901 to 1920	237	3,520	14.9	274	1,158	77.8	78.1	3,559	15.0	1.01	12.99	17.82
1921 to 1945	596	8,077	13.5	666	1,117	82.4	82.6	6,698	11.2	.83	10.06	8.38
1946 to 1960	843	9,410	11.2	754	894	80.1	66.9	8,717	10.3	.93	11.57	7.36
1961 to 1970	715	11,352	15.9	1,252	1,752	110.3	77.9	14,741	20.6	1.30	11.77	7.51
1971 to 1973	238	4,290	18.0	474	1,988	110.4	70.0	5,418	22.7	1.26	11.44	10.43
1974 to 1979	557	8,186	14.7	739	1,326	90.3	66.8	9,837	17.7	1.20	13.31	8.87
1980 to 1983	342	5,179	15.1	398	1,165	76.9	48.4	5,632	16.5	1.09	14.14	9.57
1984 to 1986	286	4,517	15.8	354	1,239	78.4	52.5	4,783	16.7	1.06	13.50	9.93
BUILDING USE												
Principal Building Activity												
Assembly	572	7,305	12.8	401	701	54.9	93.2	5,009	8.8	.69	12.49	9.20
Education	241	7,292	30.2	635	2,633	87.1	93.1	5,782	24.0	.79	9.11	7.92
Food Sales	102	712	7.0	151	1,480	211.6	99.7	2,176	21.4	3.06	14.44	12.10
Food Service	201	1,281	6.4	260	1,291	202.6	72.9	3,241	16.1	2.53	12.49	9.86
Health Care	52	2,107	40.5	457	8,790	216.9	90.5	3,824	73.5	1.81	8.36	14.99
Lodging	137	2,785	20.4	311	2,276	111.6	136.5	3,330	24.4	1.20	10.71	11.12
Mercantile and Service	1,280	12,781	10.0	1,002	783	78.4	63.3	13,231	10.3	1.04	13.20	7.60
Office	610	9,532	15.6	1,010	1,657	106.0	40.4	14,777	24.2	1.55	14.63	9.73
Public Order and Safety	53	678	12.7	86	1,614	126.7	62.8	720	13.5	1.06	8.38	17.12
Warehouse	491	8,558	17.4	466	951	54.5	87.7	5,620	11.5	.66	12.05	9.91
Other	94	1,704	18.1	169	1,800	99.5	108.3	2,013	21.4	1.18	11.88	14.93
Vacant	160	2,090	13.1	92	576	44.0	129.0	1,040	6.5	.50	11.30	14.11

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.929	0.947	0.801	1.238	1.187	0.956	1.019	1.268	1.186	1.023	0.644	
Ownership and Occupancy												
Nongovernment Owned	3,516	44,936	12.8	3,773	1,073	84.0	65.7	48,131	13.7	1.07	12.76	4.49
Owner Occupied	2,329	28,329	12.2	2,535	1,089	89.5	71.1	30,545	13.1	1.08	12.05	5.25
Single Establishment	2,049	22,521	11.0	2,124	1,037	94.3	82.1	24,932	12.2	1.11	11.74	5.80
Multiple Establishment	272	5,694	20.9	401	1,471	70.4	41.2	5,469	20.1	.96	13.65	7.73
Nonowner Occupied	1,188	16,607	14.0	1,238	1,042	74.5	57.0	17,586	14.8	1.06	14.20	6.66
Unoccupied	44	433	9.7	14	311	31.9	373.0	162	3.6	.37	11.70	29.44
Single Establishment	859	9,213	10.7	690	803	74.9	64.1	9,116	10.6	.99	13.22	6.14
Multiple Establishment	284	6,961	24.5	534	1,882	76.8	48.8	8,308	29.3	1.19	15.55	12.33
Government Owned	476	11,889	25.0	1,267	2,661	106.6	79.6	12,631	26.5	1.06	9.97	7.22
Federal	48	1,078	22.5	127	2,652	117.7	43.5	1,570	32.8	1.46	12.39	28.75
State	95	3,191	33.6	427	4,498	133.8	109.5	4,267	45.0	1.34	9.99	13.90
Local	347	8,085	23.3	748	2,155	92.5	78.8	7,210	20.8	.89	9.64	8.07
Workers												
Fewer than 5	1,878	11,828	6.3	611	325	51.7	167.6	7,301	3.9	.62	11.95	5.71
5 to 9	839	6,533	7.8	483	575	73.9	88.0	6,454	7.7	.99	13.36	7.64
10 to 19	584	7,880	13.5	518	886	65.7	69.9	6,110	10.5	.78	11.81	6.33
20 to 49	433	8,841	20.4	915	2,112	103.5	73.0	11,105	25.6	1.26	12.13	6.31
50 to 99	152	6,480	42.7	666	4,391	102.8	67.7	8,006	52.8	1.24	12.02	8.34
100 to 249	73	6,436	87.8	623	8,499	96.7	61.4	7,066	96.4	1.10	11.35	8.31
250 or More	33	8,828	264.5	1,225	36,703	138.7	50.5	14,720	441.1	1.67	12.02	10.75
Weekly Operating Hours												
39 or Fewer	753	8,212	10.9	431	572	52.5	100.6	4,304	5.7	.52	9.99	11.36
40 to 48	1,067	14,958	14.0	1,110	1,041	74.2	53.9	14,792	13.9	.99	13.32	6.66
49 to 60	911	10,736	11.8	749	822	69.7	50.1	9,140	10.0	.85	12.21	5.58
61 to 84	553	9,751	17.6	895	1,618	91.8	62.5	11,232	20.3	1.15	12.55	8.30
85 to 167	371	5,503	14.8	652	1,756	118.5	84.0	8,380	22.6	1.52	12.85	8.50
168 (Open Continuously)	337	7,664	22.8	1,203	3,574	157.0	105.5	12,913	38.4	1.68	10.73	9.96

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.929	0.947	0.801	1.238	1.187	0.956	1.019	1.268	1.186	1.023	0.644	
LOCATION												
Census Region												
Northeast	639	11,506	18.0	1,046	1,636	90.9	64.8	14,362	22.5	1.25	13.73	7.97
New England	185	3,336	18.0	270	1,456	81.0	58.0	3,139	16.9	.94	11.62	12.47
Middle Atlantic	454	8,171	18.0	776	1,709	95.0	67.5	11,223	24.7	1.37	14.46	9.57
Midwest	1,036	15,728	15.2	1,603	1,547	101.9	91.2	15,848	15.3	1.01	9.88	7.15
East North Central	702	10,804	15.4	1,032	1,470	95.5	85.3	10,722	15.3	.99	10.39	7.74
West North Central	335	4,924	14.7	572	1,708	116.1	104.0	5,126	15.3	1.04	8.97	14.54
South	1,517	18,882	12.4	1,485	979	78.6	59.3	17,945	11.8	.95	12.08	6.16
South Atlantic	638	9,183	14.4	767	1,201	83.5	59.6	9,572	15.0	1.04	12.49	9.33
East South Central	338	3,960	11.7	256	759	64.7	49.1	2,896	8.6	.73	11.30	10.41
West South Central	541	5,739	10.6	462	855	80.5	66.2	5,477	10.1	.95	11.85	10.37
West	800	10,708	13.4	906	1,132	84.6	62.4	12,607	15.8	1.18	13.92	9.46
Mountain	263	3,056	11.6	362	1,376	118.3	93.6	4,445	16.9	1.45	12.29	16.88
Pacific	537	7,652	14.3	544	1,013	71.1	51.1	8,162	15.2	1.07	15.00	10.64
Metropolitan Status												
Metropolitan	2,631	44,130	16.8	4,000	1,520	90.6	65.1	49,068	18.6	1.11	12.27	4.56
Nonmetropolitan	1,361	12,695	9.3	1,040	764	81.9	87.9	11,694	8.6	.92	11.24	8.48
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	401	4,821	12.0	576	1,438	119.5	102.7	5,134	12.8	1.06	8.91	13.73
5,500-7,000 HDD	893	15,986	17.9	1,477	1,654	92.4	76.8	15,448	17.3	.97	10.46	6.86
4,000-5,499 HDD	828	13,404	16.2	1,206	1,456	90.0	68.9	16,313	19.7	1.22	13.53	10.36
Under 4,000 HDD	986	13,430	13.6	1,043	1,058	77.7	54.2	13,500	13.7	1.01	12.94	8.00
2,000 CDD or More and --												
Under 4,000 HDD	884	9,184	10.4	738	834	80.3	62.9	10,367	11.7	1.13	14.06	11.15
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	447	5,735	12.8	626	1,400	109.2	100.2	5,682	12.7	.99	9.07	13.45
5,500-7,000 HDD	819	14,534	17.8	1,431	1,748	98.5	77.2	14,884	18.2	1.02	10.40	7.42
4,000-5,499 HDD	839	13,594	16.2	1,166	1,389	85.8	67.5	15,703	18.7	1.16	13.47	10.81
Under 4,000 HDD	1,014	13,432	13.2	1,119	1,103	83.3	57.0	15,018	14.8	1.12	13.42	9.34
2,000 CDD or More and --												
Under 4,000 HDD	873	9,530	10.9	698	799	73.2	60.1	9,475	10.9	.99	13.58	10.39

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.929	0.947	0.801	1.238	1.187	0.956	1.019	1.268	1.186	1.023	0.644	
ENERGY SOURCES AND END USES												
Energy Sources Used (Solely or in Combination)												
Electricity	3,965	56,508	14.3	5,029	1,268	89.0	68.9	60,700	15.3	1.07	12.07	4.10
Natural Gas	2,214	37,263	16.8	3,603	1,627	96.7	73.7	40,681	18.4	1.09	11.29	4.65
Fuel Oil	534	11,005	20.6	1,227	2,297	111.5	76.9	12,922	24.2	1.17	10.53	11.54
District Heat	77	4,625	59.7	830	10,711	179.4	103.1	8,139	105.0	1.76	9.81	14.15
District Chilled Water	Q	1,208	91.6	Q	21,321	232.8	Q	Q	Q	2.10	9.04	36.28
Propane	344	3,213	9.3	272	791	84.6	75.6	3,373	9.8	1.05	12.41	13.47
Minor Fuels	161	1,547	9.6	112	695	72.4	89.4	1,377	8.5	.89	12.30	18.23
Energy End Uses												
Space Heating	3,624	53,905	14.9	4,944	1,364	91.7	69.1	59,227	16.3	1.10	11.98	4.15
Cooling	2,853	46,127	16.2	4,391	1,539	95.2	66.7	54,051	18.9	1.17	12.31	4.40
Water Heating	2,857	48,189	16.9	4,509	1,578	93.6	69.3	53,647	18.8	1.11	11.90	4.19
Cooking	560	17,050	30.5	1,981	3,540	116.2	74.4	22,985	41.1	1.35	11.60	6.48
Manufacturing	130	3,056	23.5	450	3,460	147.2	113.7	5,241	40.3	1.71	11.65	17.83
***Space-Heating Fuels* (Solely or in Combination)**												
Electricity	1,166	18,223	15.6	1,297	1,112	71.2	52.1	19,583	16.8	1.07	15.10	5.35
Natural Gas	2,018	31,542	15.6	2,943	1,458	93.3	71.7	33,222	16.5	1.05	11.29	5.31
Fuel Oil	504	8,708	17.3	997	1,980	114.5	85.6	10,161	20.2	1.17	10.19	11.18
District Heat	74	4,389	59.4	751	10,155	171.1	97.9	7,544	102.0	1.72	10.05	13.67
Propane	250	1,819	7.3	109	436	60.0	72.8	1,430	5.7	.79	13.11	15.27
Minor Fuels	144	1,164	8.1	59	409	50.6	67.3	686	4.8	.59	11.65	16.19
Building Not Heated	377	3,055	8.1	106	282	34.7	53.7	1,694	4.5	.55	15.96	13.57
Air-Conditioning Fuels (Solely or in Combination)												
Electricity	2,712	42,145	15.5	3,903	1,439	92.6	65.2	49,281	18.2	1.17	12.63	4.57
Natural Gas	139	2,862	20.5	231	1,659	80.7	61.4	2,432	17.5	.85	10.53	10.74
District Chilled Water	13	1,141	89.6	261	20,498	228.7	133.3	2,377	186.8	2.08	9.11	26.98
District Steam	2	508	261.6	80	40,955	156.5	79.3	828	426.3	1.63	10.41	30.59
Other Fuels	148	3,176	21.5	284	1,922	89.5	66.6	2,861	19.3	.90	10.06	10.32
Building Not Air Conditioned	1,117	10,372	9.3	638	571	61.5	89.4	6,623	5.9	.64	10.38	10.14

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.884	0.916	0.869	1.198	1.184	0.991	1.050	1.208	1.173	1.040	0.654	
Water-Heating Fuels (Solely or in Combination)												
Electricity	1,387	20,956	15.1	1,488	1,073	71.0	51.5	21,030	15.2	1.00	14.13	5.44
Natural Gas	1,323	24,498	18.5	2,470	1,867	100.8	77.4	26,825	20.3	1.10	10.86	5.58
Fuel Oil	132	4,045	30.6	569	4,308	140.6	86.4	5,810	44.0	1.44	10.22	16.06
District Heat	33	3,363	100.4	588	17,566	174.9	100.6	6,069	181.3	1.80	10.32	15.66
Propane	100	958	9.5	107	1,061	111.3	99.6	1,330	13.2	1.39	12.47	20.57
Minor Fuels	11	240	22.1	39	Q	164.8	124.6	Q	Q	Q	13.54	37.58
Water Heating Not Performed	1,135	8,636	7.6	531	468	61.5	64.5	7,115	6.3	.82	13.41	10.08
Cooking Fuels (Solely or in Combination)												
Electricity	232	7,207	31.1	751	3,240	104.2	68.7	9,237	39.9	1.28	12.30	8.29
Natural Gas	315	10,780	34.2	1,338	4,247	124.1	80.2	14,895	47.3	1.38	11.13	7.92
District Heat	3	565	176.8	127	39,634	224.2	102.5	999	312.8	1.77	7.89	23.00
Propane	66	960	14.6	110	1,672	114.8	70.2	1,474	22.3	1.54	13.37	17.36
Minor Fuels and Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Cooking Not Performed	560	17,050	30.5	1,981	3,540	116.2	74.4	22,985	41.1	1.35	11.60	6.48
Manufacturing Fuels (Solely or in Combination)												
Electricity	106	2,232	21.0	280	2,628	125.3	99.9	3,104	29.2	1.39	11.10	16.35
Natural Gas	20	791	38.9	182	8,962	230.5	140.6	1,471	72.3	1.86	8.07	27.32
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	3,862	53,768	13.9	4,590	1,188	85.4	66.2	55,521	14.4	1.03	12.10	3.90
HEATING AND COOLING												
Percent Heated												
Not Heated	334	2,510	7.5	71	213	28.3	59.4	1,228	3.7	.49	17.27	13.80
1 to 50	595	8,446	14.2	326	549	38.6	59.2	4,354	7.3	.52	13.34	8.83
51 to 99	458	7,047	15.4	575	1,257	81.7	56.6	7,372	16.1	1.05	12.81	7.45
100	2,605	38,810	14.9	4,067	1,561	104.8	72.1	47,803	18.3	1.23	11.75	4.46
Percent Cooled												
Not Cooled	1,102	9,867	9.0	596	541	60.4	103.0	5,951	5.4	.60	9.98	8.85
1 to 50	969	18,520	19.1	1,299	1,340	70.1	79.1	13,512	13.9	.73	10.40	6.93
51 to 99	499	9,968	20.0	1,113	2,229	111.6	62.4	12,740	25.5	1.28	11.45	7.63
100	1,422	18,465	13.0	2,032	1,430	110.1	61.1	28,555	20.1	1.55	14.05	6.13

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.884	0.916	0.869	1.198	1.184	0.991	1.050	1.208	1.173	1.040	0.654	
Heat Production Equipment												
Warm-Air Furnaces	1,786	17,930	10.0	1,259	705	70.2	62.4	15,231	8.5	0.85	12.10	4.57
Boilers	627	19,407	31.0	2,078	3,316	107.1	76.6	22,402	35.8	1.15	10.78	7.04
Individual Space Heaters or Electric Baseboards	1,060	13,935	13.1	1,131	1,066	81.1	68.9	13,078	12.3	.94	11.57	7.96
Packaged Heating Units	538	12,256	22.8	1,189	2,211	97.0	64.3	15,833	29.4	1.29	13.32	7.56
Air-Source Heat Pumps	317	5,040	15.9	375	1,181	74.4	46.7	5,076	16.0	1.01	13.54	13.02
Receives District Heat	74	4,389	59.4	751	10,155	171.1	97.9	7,544	102.0	1.72	10.05	13.67
Cooling Production Equipment												
Central Cooling	1,108	21,677	19.6	2,169	1,957	100.0	61.6	25,779	23.3	1.19	11.89	6.00
Individual Air Conditioners	921	14,401	15.6	1,388	1,507	96.4	75.8	15,445	16.8	1.07	11.13	7.15
Packaged Air-Conditioning Units	726	17,869	24.6	1,838	2,531	102.9	64.9	23,282	32.1	1.30	12.67	6.64
Air-Source Heat Pumps	317	5,040	15.9	375	1,181	74.4	46.7	5,076	16.0	1.01	13.54	13.02
Receives District Chilled Water	13	1,141	89.6	261	20,498	228.7	133.3	2,377	186.8	2.08	9.11	26.98
Heating and Cooling Distribution Equipment												
Ducted Forced Air	2,514	39,898	15.9	3,741	1,488	93.8	64.1	46,237	18.4	1.16	12.36	4.54
For Heating Only	595	5,635	9.5	438	737	77.8	93.6	4,473	7.5	.79	10.20	9.75
For Cooling Only	157	3,268	20.8	317	2,020	97.0	69.6	4,018	25.6	1.23	12.68	13.74
For Both Heating and Cooling	1,762	30,995	17.6	2,986	1,695	96.3	60.7	37,745	21.4	1.22	12.64	5.09
Fan-Coil Units	409	14,486	35.4	1,662	4,063	114.8	80.8	18,064	44.2	1.25	10.87	8.56
For Heating Only	193	5,256	27.3	472	2,450	89.8	87.8	4,455	23.1	.85	9.44	9.89
For Cooling Only	51	1,296	25.6	172	3,407	133.1	98.0	2,801	55.3	2.16	16.24	26.40
For Both Heating and Cooling	166	7,934	47.8	1,018	6,139	128.3	75.8	10,807	65.2	1.36	10.62	10.37
Steam Radiators or Baseboards	229	7,967	34.8	999	4,359	125.4	92.5	9,738	42.5	1.22	9.75	12.58
Hot-Water Radiators or Baseboards	271	7,842	28.9	945	3,486	120.5	86.1	8,731	32.2	1.11	9.24	9.92
Heating Panels	200	3,331	16.6	328	1,637	98.4	70.6	3,721	18.6	1.12	11.35	11.61
Other	7	265	Q	32	4,435	121.2	Q	395	Q	1.49	12.27	35.34

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	[illegible] (thousand square feet)	[illegible] (million Btu)	[illegible] per Building (million Btu)	[illegible] (thousand Btu)	[illegible] (million Btu)	Expenditures (million dollars)	[illegible] (thousand dollars)	[illegible]	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.884	0.916	0.869	1.198	1.184	0.951	1.050	1.208	[illegible]	[illegible]	0.654	
Occupant Control of:												
Heating Only	639	5,939	9.3	495	775	83.4	106.7	5,058	7.9	0.85	10.21	11.68
Cooling Only	83	1,835	22.0	182	2,185	99.2	62.2	2,152	25.8	1.17	11.82	20.91
Heating and Cooling	1,995	25,182	12.6	2,243	1,124	89.1	63.8	28,028	14.0	1.11	12.50	5.89
Reduced Use--Off Hours												
Heating Only	752	7,605	10.1	500	665	65.8	97.4	4,952	6.6	.65	9.90	7.92
Cooling Only	106	1,453	13.7	175	1,652	120.3	103.4	1,979	18.7	1.36	11.32	15.26
Heating and Cooling	2,322	36,510	15.7	3,100	1,335	84.9	59.7	38,941	16.8	1.07	12.56	4.55
HVAC Conservation Features												
Any HVAC Conservation Feature	2,148	41,902	19.5	4,223	1,966	100.8	68.8	50,560	23.5	1.21	11.97	4.43
Preventive Maintenance Program	2,069	40,842	19.7	4,095	1,979	100.3	68.4	49,161	23.8	1.20	12.00	4.56
Waste-Heat Recovery	149	6,484	43.6	777	5,226	119.9	66.5	8,378	56.3	1.29	10.78	10.81
EMCS	203	11,020	54.2	1,238	6,085	112.4	63.2	14,568	71.6	1.32	11.77	8.17
Time-Clock Thermostat	64	2,121	33.0	206	3,201	97.0	67.8	2,278	35.4	1.07	11.07	13.54
Economizer Cycle	17	1,111	65.2	110	6,450	98.9	41.9	1,681	98.7	1.51	15.31	18.29
Other HVAC Features	76	2,785	36.5	317	4,153	113.7	72.3	3,682	48.3	1.32	11.63	19.97
LIGHTING												
Percent Lit--Open Hours												
Not Lit	89	690	7.8	16	184	23.7	108.2	200	2.3	.29	12.22	28.98
1 to 50	620	7,347	11.8	376	606	51.2	79.5	4,290	6.9	.58	11.42	8.36
51 to 99	643	9,381	14.6	813	1,265	86.7	63.1	9,407	14.6	1.00	11.57	5.73
100	2,641	39,406	14.9	3,835	1,452	97.3	69.0	46,865	17.7	1.19	12.22	5.00
Percent Lit--Off Hours												
Not Lit	1,951	17,592	9.0	993	509	56.4	62.0	11,815	6.1	.67	11.90	5.36
1 to 50	1,850	34,802	18.8	3,287	1,777	94.4	65.7	40,989	22.2	1.18	12.47	4.68
51 to 99	63	2,226	35.4	283	4,504	127.1	71.3	2,889	46.0	1.30	10.21	15.66
100	129	2,204	17.1	478	3,705	216.7	145.0	5,069	39.3	2.30	10.61	16.93

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.884	0.916	0.869	1.198	1.184	0.991	1.050	1.208	1.173	1.040	0.654	
Lighting Equipment Types (Solely or in Combination)												
Standard Fluorescent	2,545	32,064	12.6	2,777	1,091	86.6	71.2	32,803	12.9	1.02	11.81	4.87
Energy-Efficient Fluorescent	1,058	24,434	23.1	2,369	2,239	97.0	63.1	28,906	27.3	1.18	12.20	5.64
Standard Incandescent	1,629	22,882	14.0	2,029	1,245	88.7	74.7	23,779	14.6	1.04	11.72	5.28
Energy-Efficient Incandescent	397	10,115	25.5	978	2,461	96.7	60.7	12,057	30.3	1.19	12.33	8.87
High-Intensity Discharge	251	10,075	40.1	936	3,728	92.9	74.7	11,031	43.9	1.09	11.79	8.31
Other	54	1,266	23.7	90	1,678	70.9	50.8	1,154	21.6	.91	12.85	25.23
Lighting Conservation Features												
Any Lighting Conservation Feature	1,438	33,012	23.0	3,057	2,126	92.6	65.2	37,166	25.8	1.13	12.16	5.22
High-Efficiency Ballasts	1,016	24,373	24.0	2,236	2,200	91.8	64.0	27,371	26.9	1.12	12.24	6.04
Delamping Program	329	11,957	36.4	1,233	3,750	103.1	64.6	14,352	43.7	1.20	11.64	6.93
Natural Lighting Control Sensors	155	5,338	34.3	422	2,712	79.0	59.4	5,167	33.2	.97	12.25	10.92
Other Lighting Controls	418	12,581	30.1	1,170	2,797	93.0	59.0	14,955	35.7	1.19	12.78	7.74
Other Lighting Features	78	2,074	26.6	189	2,419	90.9	46.7	2,496	32.0	1.20	13.23	12.49
STRUCTURE												
Floors												
One	2,561	23,054	9.0	1,795	701	77.9	67.2	23,053	9.0	1.00	12.84	5.52
Two	957	14,020	14.7	1,157	1,210	82.6	67.3	14,666	15.3	1.05	12.67	5.52
Three	318	7,855	24.7	796	2,502	101.4	95.5	8,087	25.4	1.03	10.15	10.49
Over Three	156	11,896	76.2	1,291	8,271	108.6	61.4	14,956	95.8	1.26	11.58	9.57
Wall and Frame Materials												
Masonry Over --												
Wood Frame	709	7,470	10.5	542	764	72.5	58.1	7,086	10.0	.95	13.08	10.01
Masonry Frame	1,464	22,150	15.1	2,132	1,456	96.2	80.9	23,643	16.2	1.07	11.09	4.83
Steel Frame	294	10,083	34.3	961	3,264	95.3	63.8	12,346	41.9	1.22	12.85	8.94
Siding Over --												
Wood Frame	690	4,106	6.0	269	391	65.6	59.5	3,725	5.4	.91	13.82	9.97
Masonry Frame	84	880	10.4	86	1,022	97.8	74.7	986	11.7	1.12	11.45	19.97
Metal Panels	465	4,759	10.2	401	862	84.3	71.0	5,199	11.2	1.09	12.97	10.21
Concrete Panels	134	4,592	34.2	424	3,158	92.3	62.8	4,967	37.0	1.08	11.72	14.59
Other	152	2,784	18.3	226	1,484	81.0	50.0	2,809	18.5	1.01	12.45	13.79

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.884	0.916	0.869	1.198	1.184	0.991	1.050	1.208	1.173	1.040	0.654	
Roof Materials												
Built-Up	1,707	32,107	18.8	3,128	1,833	97.4	67.9	36,756	21.5	1.14	11.75	4.96
Shingles (Not Wood)	1,087	8,664	8.0	553	509	63.8	63.5	6,566	6.0	.76	11.87	6.35
Metal Surfacing	794	7,000	8.8	468	589	66.8	71.6	5,876	7.4	.84	12.56	8.38
Synthetic or Rubber	129	4,560	35.2	444	3,431	97.4	62.3	5,166	39.9	1.13	11.63	8.41
Slate or Tile	108	1,936	18.0	216	2,008	111.5	118.5	3,252	30.2	1.68	15.06	21.37
Wood Shingles, Shakes or Other Wooden Materials	104	722	6.9	92	885	127.5	89.3	1,269	12.2	1.76	13.79	23.14
Other	63	1,837	29.0	139	2,191	75.6	68.4	1,878	29.6	1.02	13.52	19.65
Roof Square Footage												
5,000 or Less	2,313	9,109	3.9	962	416	105.6	65.6	12,671	5.5	1.39	13.18	6.72
5,001 to 10,000	836	8,936	10.7	731	874	81.8	64.0	9,465	11.3	1.06	12.95	6.39
10,001 to 25,000	515	12,121	23.5	1,030	2,000	85.0	64.4	12,485	24.2	1.03	12.12	5.26
25,001 to 50,000	181	8,693	48.1	737	4,082	84.8	71.4	8,979	49.7	1.03	12.19	9.55
50,001 to 100,000	96	8,498	88.1	735	7,624	86.5	71.6	8,029	83.3	.94	10.92	9.89
100,001 to 200,000	39	5,365	139.0	494	12,795	92.0	77.8	5,212	135.0	.97	10.55	14.05
Over 200,000	13	4,104	310.8	352	26,633	85.7	81.8	3,920	297.0	.96	11.15	15.14
Window Glass: Percent of Exterior Walls												
25 or Less	3,371	41,937	12.4	3,566	1,058	85.0	74.3	42,407	12.6	1.01	11.89	4.75
26 to 50	515	10,733	20.8	1,051	2,041	97.9	60.3	12,893	25.0	1.20	12.27	6.33
51 to 75	81	2,832	35.1	294	3,637	103.7	55.7	3,743	46.4	1.32	12.75	15.26
Over 75	26	1,323	50.9	129	4,981	97.8	49.5	1,718	66.1	1.30	13.28	16.46
Building-Shell Conservation Features												
Any Conservation Feature	3,267	49,527	15.2	4,531	1,387	91.5	67.5	53,821	16.5	1.09	11.88	4.14
Roof or Ceiling Insulation	2,713	42,019	15.5	3,810	1,404	90.7	65.8	45,845	16.9	1.09	12.03	4.49
Wall Insulation	1,987	29,029	14.6	2,632	1,325	90.7	62.2	31,694	16.0	1.09	12.04	5.51
Storm or Multiple Glazing	1,239	21,643	17.5	1,977	1,596	91.3	64.7	22,628	18.3	1.05	11.45	4.70
Tinted, Reflective or Shading Glass or Film	879	20,397	23.2	1,946	2,215	95.4	60.5	24,451	27.8	1.20	12.56	6.49
Exterior or Interior Shadings or Awnings	1,261	20,530	16.3	2,000	1,586	97.4	59.9	24,438	19.4	1.19	12.22	4.95
Weather Stripping or Caulking	2,526	41,152	16.3	3,802	1,505	92.4	67.4	44,529	17.6	1.08	11.71	4.27
Other Shell Features	112	1,726	15.5	166	1,488	96.2	68.1	2,062	18.5	1.19	12.42	19.29

Table 13. Major Fuel Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Any Major Fuel: Number of Buildings (thousand)	All Buildings Using Any Major Fuel: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Energy Consumed (trillion Btu)	Energy Consumed per Building (million Btu)	Energy Consumed per Square Foot (thousand Btu)	Energy Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.884	0.916	0.869	1.198	1.184	0.991	1.050	1.208	1.173	1.040	0.654	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	527	16,367	31.0	1,882	3,570	115.0	71.2	22,546	42.8	1.38	11.98	6.73
Before 1980	86	3,479	40.4	456	5,290	131.0	71.6	5,142	59.7	1.48	11.28	14.42
1980 to 1983	175	6,145	35.0	737	4,199	119.9	79.2	7,731	44.1	1.26	10.49	9.21
1984 to 1985	173	5,635	32.5	614	3,538	108.9	68.1	8,328	48.0	1.48	13.57	14.17
1986	135	2,967	21.9	320	2,366	107.8	59.4	4,066	30.1	1.37	12.71	11.09
Building Never Audited	3,465	40,458	11.7	3,158	911	78.0	67.4	38,216	11.0	.94	12.10	4.33

▪ Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 14. Electricity Consumption and Expenditures

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total Electricity Consumed (trillion Btu)	Total Electricity Consumed (billion kWh)	Electricity Consumed per Building (million Btu)	Electricity Consumed per Square Foot (thousand Btu)	Electricity Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.844	0.855	0.730	1.338	1.338	1.280	1.099	1.071	1.262	1.186	1.076	0.437	
All Buildings	3,965	56,508	14.3	2,390	700.6	603	42.3	32.7	47,186	11.9	0.84	19.74	4.41
Building Floorspace (Square Feet)													
1,001 to 5,000	2,098	5,899	2.8	376	110.2	179	63.7	34.3	8,175	3.9	1.39	21.74	8.59
5,001 to 10,000	893	6,588	7.4	278	81.4	311	42.2	28.7	5,962	6.7	.90	21.47	6.76
10,001 to 25,000	540	8,843	16.4	312	91.6	579	35.3	29.3	6,265	11.6	.71	20.05	6.40
25,001 to 50,000	238	8,499	35.8	312	91.5	1,313	36.7	35.9	6,060	25.5	.71	19.42	6.26
50,001 to 100,000	118	8,178	69.5	303	88.7	2,574	37.0	37.4	5,720	48.6	.70	18.89	7.30
100,001 to 200,000	51	7,042	139.0	249	73.0	4,920	35.4	32.2	4,514	89.1	.64	18.12	8.31
200,001 to 500,000	23	6,730	298.8	307	90.1	13,651	45.7	34.4	6,067	269.4	.90	19.73	12.75
Over 500,000	6	4,728	842.7	253	74.1	45,032	53.4	30.6	4,422	788.1	.94	17.50	17.80
Year Constructed													
1900 or Before	178	2,287	12.9	42	12.2	234	18.2	26.3	891	5.0	.39	21.44	16.71
1901 to 1920	232	3,461	14.9	96	28.3	417	27.9	27.9	2,597	11.2	.75	26.91	23.16
1921 to 1945	593	8,032	13.6	201	58.8	339	25.0	24.9	4,233	7.1	.53	21.09	9.18
1946 to 1960	838	9,273	11.1	302	88.6	361	32.6	27.1	6,428	7.7	.69	21.26	7.96
1961 to 1970	711	11,339	15.9	615	180.3	865	54.2	38.3	11,574	16.3	1.02	18.82	8.50
1971 to 1973	237	4,285	18.1	226	66.2	954	52.7	33.5	4,175	17.6	.97	18.48	10.84
1974 to 1979	554	8,166	14.7	438	128.5	791	53.7	39.6	8,326	15.0	1.02	19.00	8.64
1980 to 1983	339	5,160	15.2	254	74.3	748	49.2	31.1	4,862	14.3	.94	19.17	9.82
1984 to 1986	284	4,505	15.9	216	63.4	762	48.0	32.1	4,100	14.4	.91	18.95	10.29
BUILDING USE													
Principal Building Activity													
Assembly	571	7,287	12.8	164	48.0	287	22.5	38.1	3,707	6.5	.51	22.62	11.15
Education	240	7,200	30.0	179	52.4	745	24.9	26.5	3,606	15.0	.50	20.15	7.53
Food Sales	102	712	7.0	99	28.9	969	138.6	65.3	1,923	18.9	2.70	19.49	11.04
Food Service	201	1,277	6.4	121	35.4	601	94.4	33.9	2,451	12.2	1.92	20.32	12.50
Health Care	51	2,104	41.5	132	38.7	2,606	62.8	26.3	2,287	45.1	1.09	17.32	13.02
Lodging	137	2,785	20.4	120	35.2	880	43.1	52.8	2,251	16.5	.81	18.74	10.82
Mercantile and Service	1,273	12,710	10.0	536	157.1	421	42.2	33.9	10,781	8.5	.85	20.12	8.31
Office	607	9,499	15.6	641	187.8	1,055	67.5	25.8	12,884	21.2	1.36	20.11	9.49
Public Order and Safety	50	665	13.2	30	8.8	597	45.3	22.4	475	9.4	.71	15.76	20.61
Warehouse	487	8,540	17.5	252	73.8	516	29.5	47.4	4,537	9.3	.53	18.03	11.54
Other	94	1,700	18.1	83	24.3	882	48.8	53.2	1,568	16.7	.92	18.89	15.57
Vacant	152	2,030	13.3	35	10.1	227	17.0	48.4	715	4.7	.35	20.72	15.29

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.844	0.855	0.730	1.338	1.338	1.280	1.099	1.071	1.262	1.186	1.076	0.437	
Ownership and Occupancy													
Nongovernment Owned	3,494	44,692	12.8	1,922	563.4	550	43.0	33.6	38,403	11.0	0.86	19.98	4.89
Owner Occupied	2,314	28,253	12.2	1,227	359.6	530	43.4	34.5	23,733	10.3	.84	19.34	5.66
Single Establishment	2,039	22,467	11.0	1,012	296.5	496	45.0	39.2	19,247	9.4	.86	19.03	6.35
Multiple Establishment	270	5,681	21.1	210	61.4	777	36.9	21.7	4,364	16.2	.77	20.83	8.12
Nonowner Occupied	1,179	16,440	13.9	695	203.8	590	42.3	32.1	14,669	12.4	.89	21.09	7.35
Unoccupied	41	391	9.6	6	1.7	139	14.5	153.4	118	2.9	.30	20.72	28.65
Single Establishment	856	9,100	10.6	356	104.4	416	39.1	33.2	7,298	8.5	.80	20.50	6.61
Multiple Establishment	282	6,948	24.6	334	97.8	1,182	48.0	30.6	7,253	25.7	1.04	21.73	13.50
Government Owned	471	11,816	25.1	468	137.2	994	39.6	29.7	8,783	18.6	.74	18.76	7.44
Federal	48	1,078	22.5	70	20.6	1,468	65.1	24.1	1,268	Q	1.18	18.07	27.10
State	95	3,191	33.6	140	41.0	1,474	43.8	35.9	2,799	29.5	.88	20.01	13.40
Local	342	8,012	23.4	274	80.3	801	34.2	29.3	5,048	14.8	.63	18.43	9.43
Workers													
Fewer than 5	1,859	11,725	6.3	248	72.7	133	21.2	68.5	5,324	2.9	.45	21.46	8.22
5 to 9	837	6,470	7.7	238	69.7	284	36.8	43.5	5,146	6.1	.80	21.64	9.92
10 to 19	580	7,864	13.6	215	63.1	372	27.4	29.3	4,496	7.8	.57	20.87	7.08
20 to 49	431	8,818	20.4	419	122.8	971	47.5	33.6	8,513	19.7	.97	20.31	7.23
50 to 99	151	6,394	42.3	315	92.4	2,088	49.3	32.2	6,314	41.8	.99	20.02	8.68
100 to 249	73	6,430	88.1	291	85.4	3,993	45.3	28.8	5,366	73.5	.83	18.41	7.56
250 or More	33	8,808	265.7	663	194.3	20,005	75.3	27.4	12,027	362.9	1.37	18.14	10.82
Weekly Operating Hours													
39 or Fewer	745	8,150	10.9	141	41.3	189	17.3	32.9	2,900	3.9	.36	20.57	9.66
40 to 48	1,060	14,869	14.0	590	173.0	557	39.7	28.9	12,133	11.5	.82	20.55	7.89
49 to 60	908	10,719	11.8	338	99.1	373	31.6	22.7	6,981	7.7	.65	20.64	5.73
61 to 84	550	9,684	17.6	440	128.8	799	45.4	30.8	8,991	16.4	.93	20.45	8.32
85 to 167	367	5,431	14.8	340	99.6	926	62.6	44.0	6,626	18.1	1.22	19.50	9.67
168 (Open Continuously)	335	7,656	22.8	541	158.7	1,616	70.7	47.5	9,554	28.5	1.25	17.64	10.91

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.844	0.855	0.730	1.338	1.338	1.280	1.099	1.071	1.262	1.186	1.076	0.437	
LOCATION													
Census Region													
Northeast	635	11,429	18.0	430	125.9	677	37.6	26.7	10,886	17.2	0.95	25.34	9.37
New England	185	3,336	18.0	96	28.2	519	28.9	20.7	2,162	11.7	.65	22.46	12.39
Middle Atlantic	449	8,093	18.0	333	97.7	742	41.2	29.2	8,723	19.4	1.08	26.18	11.11
Midwest	1,028	15,680	15.3	584	171.1	568	37.2	33.2	10,869	10.6	.69	18.62	7.51
East North Central	695	10,772	15.5	393	115.2	566	36.5	32.5	7,543	10.9	.70	19.19	9.25
West North Central	333	4,907	14.7	191	55.8	572	38.8	34.7	3,326	10.0	.68	17.45	12.36
South	1,506	18,753	12.5	867	254.1	576	46.2	34.8	14,856	9.9	.79	17.14	6.91
South Atlantic	632	9,091	14.4	465	136.2	735	51.1	36.6	7,886	12.5	.87	16.97	10.64
East South Central	338	3,960	11.7	144	42.1	425	36.3	27.5	2,385	7.1	.60	16.61	10.89
West South Central	536	5,702	10.6	259	75.8	483	45.4	37.1	4,585	8.6	.80	17.73	11.97
West	796	10,647	13.4	510	149.5	641	47.9	35.2	10,575	13.3	.99	20.73	10.83
Mountain	261	3,054	11.7	210	61.6	805	68.8	54.4	3,827	14.7	1.25	18.22	19.01
Pacific	535	7,594	14.2	300	88.0	561	39.5	28.3	6,748	12.6	.89	22.48	11.95
Metropolitan Status													
Metropolitan	2,616	43,915	16.8	1,925	564.3	736	43.8	31.4	38,526	14.7	.88	20.01	4.90
Nonmetropolitan	1,348	12,593	9.3	465	136.3	345	36.9	39.6	8,660	6.4	.69	18.63	9.78
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	398	4,806	12.1	191	55.8	479	39.6	34.0	3,315	8.3	.69	17.40	13.73
5,500-7,000 HDD	882	15,891	18.0	539	157.8	611	33.9	28.1	10,694	12.1	.67	19.86	7.22
4,000-5,499 HDD	821	13,313	16.2	580	170.0	707	43.6	33.3	12,840	15.6	.96	22.14	11.13
Under 4,000 HDD	985	13,351	13.6	575	168.7	584	43.1	30.1	11,135	11.3	.83	19.35	9.67
2,000 CDD or More and --													
Under 4,000 HDD	879	9,147	10.4	506	148.2	575	55.3	43.2	9,202	10.5	1.01	18.19	12.25
1986 Degree-Days													
Under 2,000 CDD and --													
Over 7,000 HDD	440	5,653	12.9	201	59.0	458	35.6	32.6	3,646	8.3	.64	18.12	14.07
5,500-7,000 HDD	812	14,505	17.9	525	153.8	647	36.2	28.3	10,287	12.7	.71	19.60	7.83
4,000-5,499 HDD	833	13,508	16.2	565	165.5	678	41.8	32.9	12,384	14.9	.92	21.93	11.35
Under 4,000 HDD	1,012	13,349	13.2	649	190.1	641	48.6	33.2	12,622	12.5	.95	19.46	10.97
2,000 CDD or More and --													
Under 4,000 HDD	868	9,493	10.9	451	132.2	519	47.5	38.9	8,246	9.5	.87	18.29	11.49

Building Characteristics	Number of Buildings (thousand)	Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Consumed per Building (million Btu)	Consumed per Square Foot (thou-sand Btu)	Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.844	0.855	0.730	1.338	1.338	1.280	1.099	1.071	1.262	1.186	1.076	0.437	
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	3,965	56,508	14.3	2,390	700.6	603	42.3	32.7	47,186	11.9	0.84	19.74	4.41
Natural Gas	2,197	37,047	16.9	1,535	449.9	699	41.4	31.5	30,440	13.9	.82	19.83	5.31
Fuel Oil	526	10,901	20.7	446	130.8	848	41.0	28.1	9,190	17.5	.84	20.59	15.07
District Heat	77	4,619	59.6	281	82.5	3,633	60.9	35.0	5,004	64.6	1.08	17.78	15.34
District Chilled Water	Q	1,208	91.6	99	29.0	7,492	81.8	46.2	1,503	113.9	1.24	15.21	31.09
Propane	339	3,191	9.4	113	33.0	332	35.3	31.9	2,375	7.0	.74	21.10	14.97
Minor Fuels	160	1,496	9.4	55	16.1	344	36.7	44.3	1,074	6.7	.72	19.57	21.76
Energy End Uses													
Space Heating	3,598	53,597	14.9	2,322	680.5	645	43.3	32.6	45,783	12.7	.85	19.72	4.49
Cooling	2,853	46,127	16.2	2,176	637.9	763	47.2	33.1	42,715	15.0	.93	19.63	4.68
Water Heating	2,840	47,979	16.9	2,062	604.3	726	43.0	31.8	41,134	14.5	.86	19.95	4.34
Cooking	558	16,999	30.5	898	263.1	1,609	52.8	33.8	17,538	31.4	1.03	19.53	7.01
Manufacturing	130	3,053	23.5	207	60.7	1,593	67.9	52.4	4,192	32.2	1.37	20.23	20.20
Space-Heating Fuels													
Electricity	1,166	18,223	15.6	930	272.7	798	51.1	37.3	17,590	15.1	.97	18.91	5.71
Primary	859	12,224	14.2	738	216.3	860	60.4	40.5	13,826	16.1	1.13	18.73	6.99
With Secondary	120	2,569	21.4	144	42.3	1,201	56.1	40.1	2,571	21.4	1.00	17.82	15.71
Natural Gas Only	47	1,228	26.4	81	23.7	1,738	65.9	45.1	1,413	30.3	1.15	17.45	22.87
Other Fuel or Combinations	74	1,347	18.2	63	18.6	856	47.0	35.0	1,158	15.7	.86	18.30	17.72
With No Secondary	737	9,622	13.0	593	173.7	804	61.6	40.7	11,226	15.2	1.17	18.95	7.60
Secondary	346	6,952	20.1	240	70.4	693	34.6	30.4	4,624	13.3	.67	19.25	7.74
Other Fuels Excluding Electricity	2,432	35,374	14.5	1,391	407.8	572	39.3	30.0	28,193	11.6	.80	20.26	5.80
Building Not Heated	374	3,038	8.1	78	22.7	207	25.5	40.2	1,556	4.2	.51	20.06	14.79
Air-Conditioning Fuels													
Electricity	2,712	42,145	15.5	2,012	589.6	742	47.7	33.6	39,639	14.6	.94	19.70	4.94
Solely	2,691	41,429	15.4	1,965	576.0	730	47.4	33.5	38,852	14.4	.94	19.77	5.01
With Other Fuels or Combinations	21	716	34.2	47	13.7	2,223	65.1	38.9	788	37.6	1.10	16.91	29.07
Other Fuels Excluding Electricity	141	3,982	28.2	165	48.2	1,164	41.3	27.6	3,076	21.8	.77	18.69	10.21
Building Not Air Conditioned	1,108	10,333	9.3	212	62.1	191	20.5	29.8	4,433	4.0	.43	20.93	12.64

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.798	0.820	0.790	1.296	1.296	1.277	1.138	1.085	1.221	1.189	1.099	0.458	
Water-Heating Fuels													
Electricity	1,387	20,956	15.1	937	274.6	676	44.7	32.4	18,037	13.0	0.86	19.25	5.99
Other Fuels Excluding Electricity	1,453	27,023	18.6	1,125	329.7	774	41.6	31.2	23,096	15.9	.85	20.53	5.88
Water Heating Not Performed	1,125	8,530	7.6	329	96.3	292	38.5	40.6	6,052	5.4	.71	18.42	12.06
Cooking Fuels													
Electricity	232	7,207	31.1	405	118.6	1,746	56.2	37.0	7,473	32.2	1.04	18.46	8.67
Other Fuels Excluding Electricity	326	9,792	30.0	493	144.5	1,511	50.4	31.6	10,065	30.8	1.03	20.41	9.37
Cooking Not Performed	3,407	39,509	11.6	1,493	437.4	438	37.8	32.1	29,648	8.7	.75	19.86	5.10
Manufacturing Fuels													
Electricity	106	2,232	21.0	144	42.3	1,357	64.7	51.6	2,510	23.6	1.12	17.38	18.45
Other Fuels Excluding Electricity	29	1,114	38.5	104	30.5	Q	93.5	64.6	Q	Q	1.98	21.14	31.40
Manufacturing Not Performed	3,835	53,456	13.9	2,183	639.9	569	40.8	31.6	42,994	11.2	.80	19.69	4.13
HEATING AND COOLING													
Percent Heated													
Not Heated	333	2,501	7.5	55	16.1	165	21.9	46.1	1,126	3.4	.45	20.51	15.84
1 to 50	593	8,441	14.2	169	49.5	285	20.0	30.7	3,499	5.9	.41	20.70	9.73
51 to 99	456	7,032	15.4	288	84.4	632	41.0	28.4	5,819	12.8	.83	20.20	7.29
100	2,583	38,522	14.9	1,878	550.5	727	48.8	33.4	36,738	14.2	.95	19.56	5.00
Percent Cooled													
Not Cooled	1,094	9,827	9.0	180	52.8	165	18.3	31.2	3,825	3.5	.39	21.23	11.31
1 to 50	959	18,332	19.1	442	129.5	461	24.1	27.1	9,112	9.5	.50	20.62	5.96
51 to 99	496	9,953	20.1	527	154.4	1,062	52.9	29.6	9,905	20.0	1.00	18.81	7.12
100	1,416	18,390	13.0	1,241	363.8	877	67.5	37.5	24,339	17.2	1.32	19.61	6.68
Heat Production Equipment													
Warm-Air Furnaces	1,775	17,875	10.1	558	163.5	314	31.2	27.8	11,588	6.5	.65	20.77	5.79
Boilers	616	19,177	31.1	830	243.2	1,346	43.3	30.8	16,510	26.8	.86	19.90	7.89
Individual Space Heaters or Electric Baseboards	1,055	13,915	13.2	535	156.9	507	38.5	32.6	10,200	9.7	.73	19.06	7.41
Packaged Heating Units	538	12,256	22.8	697	204.1	1,295	56.8	37.7	13,357	24.8	1.09	19.18	8.13
Air-Source Heat Pumps	313	5,015	16.0	220	64.4	702	43.8	27.7	4,323	13.8	.86	19.69	10.41
Receives District Heat	74	4,382	59.3	250	73.2	3,378	57.0	32.6	4,603	62.3	1.05	18.43	14.19

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.798	0.820	0.790	1.296	1.296	1.277	1.138	1.085	1.221	1.189	1.099	0.458	
Cooling Production Equipment													
Central Cooling	1,105	21,614	19.6	1,058	309.9	957	48.9	30.1	20,286	18.4	0.94	19.18	6.21
Individual Air Conditioners	914	14,226	15.6	532	156.0	582	37.4	29.2	11,012	12.1	.77	20.69	8.29
Packaged Air-Conditioning Units	725	17,860	24.6	977	286.5	1,348	54.7	34.5	19,046	26.3	1.07	19.49	6.48
Air-Source Heat Pumps	313	5,015	16.0	220	64.4	702	43.8	27.7	4,323	13.8	.86	19.69	10.41
Receives District Chilled Water	13	1,141	89.6	92	27.1	7,258	81.0	47.2	1,398	109.8	1.23	15.13	23.74
Heating and Cooling Distribution Equipment													
Ducted Forced Air	2,502	39,798	15.9	1,904	558.0	761	47.8	32.7	36,821	14.7	.93	19.34	4.96
For Heating Only	590	5,615	9.5	133	39.1	226	23.7	28.5	2,888	4.9	.51	21.68	13.95
For Cooling Only	155	3,263	21.0	149	43.7	959	45.7	32.8	3,095	19.9	.95	20.77	16.09
For Both Heating and Cooling	1,757	30,920	17.6	1,622	475.3	923	52.4	33.1	30,838	17.6	1.00	19.02	5.15
Fan-Coil Units	405	14,337	35.4	711	208.5	1,756	49.6	34.7	13,498	33.3	.94	18.98	8.86
For Heating Only	189	5,139	27.2	157	46.0	830	30.5	29.5	2,935	15.5	.57	18.70	11.72
For Cooling Only	50	1,274	25.3	117	34.2	2,313	91.5	66.2	2,541	50.4	1.99	21.79	28.97
For Both Heating and Cooling	166	7,924	47.9	438	128.3	2,645	55.2	32.7	8,022	48.5	1.01	18.33	8.70
Steam Radiators or Baseboards	222	7,831	35.3	284	83.2	1,279	36.2	26.4	6,177	27.8	.79	21.76	14.08
Hot-Water Radiators or Baseboards	270	7,831	29.0	281	82.2	1,041	35.8	25.6	5,483	20.3	.70	19.55	9.45
Heating Panels	200	3,282	16.4	148	43.4	741	45.1	32.5	2,830	14.2	.86	19.11	13.01
Other	7	265	Q	14	4.1	Q	52.5	28.2	304	Q	1.15	21.81	28.00
Occupant Control of:													
Heating Only	634	5,855	9.2	163	47.7	257	27.8	35.3	3,313	5.2	.57	20.36	15.31
Cooling Only	83	1,781	21.5	74	21.8	896	41.7	25.6	1,582	19.1	.89	21.31	23.44
Heating and Cooling	1,982	25,066	12.6	1,104	323.6	557	44.0	31.5	22,147	11.2	.88	20.06	6.03
Reduced Use--Off Hours													
Heating Only	743	7,492	10.1	138	40.4	185	18.4	27.0	3,072	4.1	.41	22.29	10.76
Cooling Only	104	1,450	13.9	78	23.0	751	54.1	46.4	1,447	13.9	1.00	18.46	19.09
Heating and Cooling	2,313	36,353	15.7	1,528	448.0	661	42.0	29.6	30,864	13.3	.85	20.19	4.95

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.798	0.820	0.790	1.296	1.296	1.277	1.138	1.085	1.221	1.189	1.099	0.458	
HVAC Conservation Features													
Any HVAC Conservation Feature	2,136	41,724	19.5	2,036	596.8	953	48.8	33.3	39,499	18.5	0.95	19.40	4.81
Preventive Maintenance Program	2,057	40,664	19.8	1,972	578.1	959	48.5	33.1	38,437	18.7	.95	19.49	4.95
Waste-Heat Recovery	148	6,475	43.7	367	107.7	2,478	56.7	31.4	6,419	43.3	.99	17.47	11.95
EMCS	203	10,981	54.1	642	188.2	3,164	58.5	32.9	11,534	56.8	1.05	17.96	8.29
Time-Clock Thermostat	64	2,121	33.0	85	25.0	1,326	40.2	28.1	1,691	26.3	.80	19.84	11.96
Economizer Cycle	17	1,111	65.2	77	22.6	4,532	69.5	29.4	1,525	89.6	1.37	19.77	18.16
Other HVAC Features	76	2,775	36.4	185	54.2	2,425	66.6	42.2	3,031	39.8	1.09	16.40	21.26
LIGHTING													
Percent Lit--Open Hours													
Not Lit	86	654	7.6	Q	Q	Q	12.3	Q	154	1.8	.24	19.24	32.20
1 to 50	616	7,317	11.9	134	39.2	217	18.3	28.5	2,980	4.8	.41	22.26	8.91
51 to 99	641	9,366	14.6	348	102.1	544	37.2	27.0	7,038	11.0	.75	20.20	5.60
100	2,622	39,172	14.9	1,900	556.9	725	48.5	34.4	37,014	14.1	.94	19.48	5.50
Percent Lit--Off Hours													
Not Lit	1,937	17,400	9.0	406	118.9	209	23.3	25.4	8,721	4.5	.50	21.50	6.62
1 to 50	1,836	34,678	18.9	1,610	471.9	877	46.4	32.3	32,295	17.6	.93	20.06	4.89
51 to 99	63	2,226	35.4	124	36.3	1,971	55.6	31.2	2,110	33.6	.95	17.04	14.81
100	129	2,204	17.1	251	73.5	1,946	113.8	76.1	4,060	31.5	1.84	16.18	17.32
Lighting Equipment Types (Solely or in Combination)													
Standard Fluorescent	2,527	31,972	12.7	1,249	366.0	494	39.1	32.1	24,905	9.9	.78	19.94	5.38
Energy-Efficient Fluorescent	1,053	24,281	23.1	1,185	347.3	1,125	48.8	31.7	22,926	21.8	.94	19.34	6.10
Standard Incandescent	1,616	22,764	14.1	878	257.2	543	38.6	32.4	17,749	11.0	.78	20.22	6.22
Energy-Efficient Incandescent	396	10,063	25.4	453	132.6	1,142	45.0	28.2	9,383	23.7	.93	20.73	9.59
High-Intensity Discharge	251	10,065	40.1	490	143.5	1,952	48.6	39.2	8,813	35.1	.88	18.00	9.01
Other	54	1,266	23.7	45	13.3	849	35.9	25.7	919	17.2	.73	20.22	22.70

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.798	0.820	0.790	1.296	1.296	1.277	1.138	1.085	1.221	1.189	1.099	0.458	
Lighting Conservation Features													
Any Lighting Conservation Feature	1,429	32,860	23.0	1,510	442.5	1,057	46.0	32.3	29,265	20.5	0.89	19.38	5.77
High-Efficiency Ballasts	1,010	24,253	24.0	1,112	325.9	1,101	45.9	31.9	21,672	21.5	.89	19.49	6.65
Delamping Program	327	11,840	36.2	596	174.7	1,821	50.3	31.5	11,063	33.8	.93	18.56	8.26
Natural Lighting Control Sensors	154	5,331	34.6	211	61.7	1,368	39.5	29.6	4,058	26.4	.76	19.27	11.62
Other Lighting Controls	416	12,456	29.9	624	183.0	1,500	50.1	31.7	12,173	29.2	.98	19.49	7.99
Other Lighting Features	78	2,074	26.6	96	28.2	1,236	46.4	23.8	1,996	25.6	.96	20.72	12.40
STRUCTURE													
Floors													
One	2,545	22,946	9.0	952	279.0	374	41.5	35.7	18,747	7.4	.82	19.69	6.39
Two	951	13,979	14.7	584	171.3	614	41.8	34.1	11,680	12.3	.84	19.99	6.37
Three	313	7,726	24.7	285	83.5	912	36.9	34.5	5,608	17.9	.73	19.67	10.95
Over Three	155	11,858	76.3	569	166.7	3,658	48.0	27.1	11,151	71.7	.94	19.60	10.01
Wall and Frame Materials													
Masonry Over --													
Wood Frame	707	7,453	10.5	273	80.0	386	36.6	29.5	5,714	8.1	.77	20.93	11.39
Masonry Frame	1,449	21,987	15.2	892	261.6	616	40.6	34.0	17,532	12.1	.80	19.64	5.32
Steel Frame	293	10,067	34.3	488	143.1	1,664	48.5	32.5	9,873	33.6	.98	20.22	10.28
Siding Over --													
Wood Frame	685	4,088	6.0	127	37.3	186	31.1	28.2	2,874	4.2	.70	22.60	13.46
Masonry Frame	82	861	10.6	49	14.5	607	57.4	43.8	787	9.7	.91	15.93	24.59
Metal Panels	463	4,749	10.3	245	71.9	530	51.7	43.7	4,401	9.5	.93	17.93	11.49
Concrete Panels	134	4,539	33.9	194	56.9	1,450	42.8	28.9	3,781	28.2	.83	19.48	11.82
Other	152	2,764	18.2	120	35.3	793	43.5	27.1	2,224	14.7	.80	18.49	15.32
Roof Materials													
Built-Up	1,692	31,940	18.9	1,480	433.8	875	46.3	32.2	28,443	16.8	.89	19.21	5.00
Shingles (Not Wood)	1,082	8,625	8.0	217	63.5	200	25.1	25.0	4,756	4.4	.55	21.95	6.88
Metal Surfacing	787	6,967	8.8	246	72.2	313	35.4	37.8	4,715	6.0	.68	19.14	9.58
Synthetic or Rubber	129	4,538	35.2	216	63.4	1,677	47.7	30.7	4,035	31.3	.89	18.66	8.39
Slate or Tile	107	1,933	18.0	91	26.5	845	46.8	49.7	2,557	23.9	1.32	28.25	25.80
Wood Shingles, Shakes or Other Wooden Materials	104	722	6.9	58	17.1	562	81.0	56.8	1,085	10.4	1.50	18.57	26.23
Other	63	1,784	28.3	82	24.0	1,297	45.9	40.7	1,594	25.3	.89	19.47	21.07

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.798	0.820	0.790	1.296	1.296	1.277	1.138	1.085	1.221	1.189	1.099	0.458	
Roof Square Footage													
5,000 or Less	2,292	9,031	3.9	480	140.8	210	53.2	33.0	10,009	4.4	1.11	20.83	8.79
5,001 to 10,000	833	8,916	10.7	328	96.0	394	36.8	28.7	7,286	8.8	.82	22.24	7.09
10,001 to 25,000	513	12,022	23.4	477	139.9	930	39.7	30.1	9,596	18.7	.80	20.10	5.56
25,001 to 50,000	179	8,609	48.1	338	98.9	1,887	39.2	32.8	6,923	38.7	.80	20.51	10.65
50,001 to 100,000	96	8,466	88.4	353	103.5	3,685	41.7	34.4	6,167	64.4	.73	17.47	9.68
100,001 to 200,000	39	5,362	138.9	229	67.3	5,947	42.8	36.2	4,038	104.6	.75	17.60	12.35
Over 200,000	13	4,104	310.8	185	54.2	14,002	45.0	43.0	3,166	239.9	.77	17.13	17.93
Window Glass: Percent of Exterior Walls													
25 or Less	3,347	41,755	12.5	1,661	486.8	496	39.8	34.7	32,691	9.8	.78	19.68	4.91
26 to 50	512	10,615	20.7	497	145.6	971	46.8	28.6	10,019	19.6	.94	20.16	7.16
51 to 75	81	2,815	35.0	155	45.5	1,927	55.1	29.8	3,064	38.1	1.09	19.75	18.01
Over 75	26	1,323	50.9	77	22.7	2,975	58.4	29.5	1,412	54.3	1.07	18.26	20.84
Building-Shell Conservation Features													
Any Conservation Feature	3,247	49,315	15.2	2,157	632.1	664	43.7	32.3	41,709	12.8	.85	19.34	4.49
Roof or Ceiling Insulation	2,698	41,832	15.5	1,847	541.4	685	44.2	32.0	35,845	13.3	.86	19.41	4.67
Wall Insulation	1,978	28,912	14.6	1,335	391.4	675	46.2	31.6	25,095	12.7	.87	18.79	5.39
Storm or Multiple Glazing	1,228	21,532	17.5	887	260.1	722	41.2	29.3	17,082	13.9	.79	19.25	4.60
Tinted, Reflective or Shading Glass or Film	876	20,354	23.2	1,054	309.0	1,204	51.8	32.9	20,026	22.9	.98	18.99	6.83
Exterior or Interior Shadings or Awnings	1,257	20,452	16.3	980	287.3	780	47.9	29.5	19,147	15.2	.94	19.53	5.05
Weather Stripping or Caulking	2,511	41,017	16.3	1,774	520.1	707	43.3	31.6	34,148	13.6	.83	19.24	4.38
Other Shell Features	112	1,720	15.4	86	25.2	771	50.0	35.3	1,664	14.9	.97	19.34	22.55

Table 14. Electricity Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Electricity: Number of Buildings (thousand)	All Buildings Using Electricity: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Elec-tricity Consumed (tril-lion Btu)	Total Elec-tricity Consumed (billion kWh)	Elec-tricity Consumed per Building (million Btu)	Elec-tricity Consumed per Square Foot (thou-sand Btu)	Elec-tricity Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.798	0.820	0.790	1.296	1.296	1.277	1.138	1.085	1.221	1.189	1.099	0.458	
Energy Audit Year (Most Recent)													
Buildings Ever Audited	524	16,267	31.0	934	273.7	1,780	57.4	35.4	17,893	34.1	1.10	19.16	7.45
Before 1980	85	3,470	40.9	211	61.9	2,493	60.9	33.2	3,887	45.9	1.12	18.40	16.29
1980 to 1983	175	6,116	35.0	311	91.0	1,777	50.8	33.6	5,711	32.7	.93	18.39	10.35
1984 to 1985	173	5,581	32.2	360	105.5	2,079	64.5	40.1	7,114	41.1	1.27	19.76	14.44
1986	135	2,960	22.0	173	50.7	1,285	58.5	32.2	3,320	24.6	1.12	19.18	12.09
Building Never Audited	3,440	40,241	11.7	1,457	426.9	423	36.2	31.2	29,293	8.5	.73	20.11	4.65

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 15. Natural Gas Consumption and Expenditures

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.963	0.969	0.822	1.311	1.311	1.213	1.065	1.219	1.218	1.107	0.968	0.368	
All Buildings	2,214	37,263	16.8	1,723	16,743	778	46.2	35.2	8,355	3.8	0.22	4.85	4.48
Building Floorspace (Square Feet)													
1,001 to 5,000	1,051	3,007	2.9	248	2,415	236	82.6	38.2	1,316	1.3	.44	5.30	5.93
5,001 to 10,000	539	4,024	7.5	236	2,296	438	58.7	38.4	1,206	2.2	.30	5.11	5.67
10,001 to 25,000	345	5,700	16.5	305	2,965	885	53.5	44.0	1,519	4.4	.27	4.98	6.88
25,001 to 50,000	147	5,274	36.0	191	1,853	1,301	36.2	38.3	967	6.6	.18	5.07	6.25
50,001 to 100,000	74	5,172	70.3	220	2,134	2,985	42.4	40.4	1,057	14.4	.20	4.82	7.71
100,001 to 200,000	38	5,251	139.4	180	1,746	4,769	34.2	31.5	848	22.5	.16	4.72	10.29
200,001 to 500,000	17	5,204	300.7	229	2,224	13,221	44.0	31.5	965	55.8	.19	4.22	15.29
Over 500,000	4	3,632	832.2	114	1,111	26,192	31.5	19.3	476	109.0	.13	4.16	22.15
Year Constructed													
1900 or Before	117	1,374	11.8	54	522	460	39.1	49.5	278	2.4	.20	5.18	13.76
1901 to 1920	155	2,473	15.9	109	1,058	701	44.0	40.3	521	3.4	.21	4.78	14.81
1921 to 1945	380	5,440	14.3	254	2,466	668	46.6	44.8	1,324	3.5	.24	5.22	9.78
1946 to 1960	509	6,704	13.2	308	2,995	606	46.0	38.4	1,495	2.9	.22	4.85	8.10
1961 to 1970	406	7,779	19.2	435	4,231	1,072	56.0	38.7	2,038	5.0	.26	4.68	8.87
1971 to 1973	130	2,848	22.0	158	1,540	1,221	55.6	35.4	755	5.8	.27	4.76	11.39
1974 to 1979	255	5,069	19.9	196	1,905	768	38.7	28.8	912	3.6	.18	4.65	12.90
1980 to 1983	144	2,940	20.5	102	995	713	34.8	21.4	520	3.6	.18	5.08	12.59
1984 to 1986	119	2,636	22.1	106	1,031	889	40.3	25.9	510	4.3	.19	4.81	11.06
BUILDING USE													
Principal Building Activity													
Assembly	335	5,021	15.0	157	1,527	469	31.3	53.3	811	2.4	.16	5.16	8.87
Education	162	5,515	34.0	254	2,465	1,563	46.0	50.0	1,189	7.3	.22	4.69	8.88
Food Sales	57	491	8.7	45	437	795	91.5	43.1	201	3.6	.41	4.47	19.44
Food Service	142	922	6.5	114	1,112	804	124.1	41.9	604	4.2	.66	5.28	8.90
Health Care	32	1,615	51.2	205	1,996	6,507	127.2	47.1	884	28.0	.55	4.30	15.53
Lodging	69	1,868	27.0	105	1,018	1,515	56.1	60.1	523	7.6	.28	4.99	12.56
Mercantile and Service	740	8,743	11.8	332	3,226	448	38.0	30.8	1,706	2.3	.20	5.14	9.62
Office	349	5,726	16.4	258	2,510	739	45.1	17.3	1,178	3.4	.21	4.56	14.79
Public Order and Safety	32	394	12.3	25	246	791	64.3	30.6	133	4.1	.34	5.25	17.53
Warehouse	177	4,852	27.4	143	1,390	809	29.5	47.0	722	4.1	.15	5.04	11.44
Other	33	895	27.1	46	448	1,395	51.6	48.4	204	6.2	.23	4.43	19.30
Vacant	86	1,222	14.2	38	366	440	30.9	73.9	200	2.3	.16	5.30	14.32

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.963	0.969	0.822	1.311	1.311	1.213	1.065	1.219	1.218	1.107	0.968	0.368	
Ownership and Occupancy													
Nongovernment Owned	1,941	29,044	15.0	1,328	12,904	684	45.7	35.6	6,543	3.4	0.23	4.93	5.16
Owner Occupied	1,258	18,035	14.3	903	8,773	718	50.1	38.9	4,332	3.4	.24	4.80	6.64
Single Establishment	1,075	13,989	13.0	781	7,585	726	55.8	46.4	3,714	3.5	.27	4.76	7.16
Multiple Establishment	177	3,978	22.5	118	1,147	667	29.7	18.6	598	3.4	.15	5.07	10.63
Nonowner Occupied	683	11,009	16.1	425	4,131	623	38.6	30.1	2,211	3.2	.20	5.20	6.83
Unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Single Establishment	496	6,090	12.3	264	2,563	532	43.3	38.7	1,386	2.8	.23	5.26	7.81
Multiple Establishment	163	4,722	29.0	155	1,509	955	32.9	21.4	795	4.9	.17	5.12	10.61
Government Owned	274	8,219	30.0	395	3,839	1,444	48.1	34.0	1,811	6.6	.22	4.59	7.53
Federal	20	663	33.0	28	274	1,403	42.5	Q	117	5.8	.18	4.15	27.01
State	53	1,963	37.1	102	993	1,931	52.0	38.4	464	8.8	.24	4.54	15.54
Local	210	5,930	28.2	279	2,708	1,326	47.0	38.1	1,288	6.1	.22	4.62	8.58
Workers													
Fewer than 5	907	6,418	7.1	237	2,299	261	36.9	122.8	1,194	1.3	.19	5.05	6.98
5 to 9	483	4,041	8.4	172	1,671	356	42.6	54.1	904	1.9	.22	5.26	7.01
10 to 19	360	4,808	13.3	201	1,957	559	41.9	43.8	1,035	2.9	.22	5.14	6.32
20 to 49	292	5,945	20.3	342	3,320	1,168	57.5	40.6	1,715	5.9	.29	5.02	6.80
50 to 99	101	4,921	48.8	240	2,328	2,373	48.7	36.9	1,134	11.2	.23	4.73	11.31
100 to 249	46	4,441	97.5	171	1,663	3,757	38.5	26.7	852	18.7	.19	4.98	9.76
250 or More	25	6,687	272.3	361	3,505	14,683	53.9	20.1	1,521	61.9	.23	4.22	14.18
Weekly Operating Hours													
39 or Fewer	375	5,390	14.4	200	1,945	534	37.1	70.7	932	2.5	.17	4.66	16.43
40 to 48	607	9,749	16.1	384	3,731	632	39.4	30.5	1,878	3.1	.19	4.89	6.59
49 to 60	502	6,595	13.1	242	2,350	482	36.7	26.9	1,209	2.4	.18	5.00	6.91
61 to 84	349	6,712	19.2	317	3,076	906	47.2	30.3	1,531	4.4	.23	4.84	9.03
85 to 167	218	3,793	17.4	213	2,069	975	56.1	38.3	1,143	5.2	.30	5.37	9.46
168 (Open Continuously)	163	5,025	30.9	368	3,572	2,259	73.2	43.3	1,661	10.2	.33	4.52	9.27

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (trillion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.963	0.969	0.822	1.311	1.311	1.213	1.065	1.219	1.218	1.107	0.968	0.368	
LOCATION													
Census Region													
Northeast	287	6,885	24.0	244	2,369	849	35.4	24.5	1,472	5.1	0.21	6.04	10.18
New England	51	1,689	33.2	40	388	784	23.6	17.3	260	5.1	.15	6.50	20.91
Middle Atlantic	236	5,197	22.0	204	1,981	863	39.2	26.6	1,212	5.1	.23	5.95	11.06
Midwest	721	12,424	17.2	742	7,210	1,029	59.7	52.2	3,400	4.7	.27	4.58	7.82
East North Central	493	8,694	17.6	529	5,144	1,074	60.9	53.6	2,521	5.1	.29	4.76	8.00
West North Central	228	3,729	16.4	213	2,066	933	57.0	49.0	879	3.9	.24	4.13	17.07
South	719	10,426	14.5	426	4,138	592	40.8	29.5	1,958	2.7	.19	4.60	7.93
South Atlantic	186	3,752	20.1	156	1,514	836	41.5	26.8	820	4.4	.22	5.26	12.00
East South Central	171	2,346	13.7	91	886	534	38.9	26.8	406	2.4	.17	4.46	15.01
West South Central	362	4,328	12.0	179	1,738	494	41.3	34.3	732	2.0	.17	4.09	11.10
West	487	7,528	15.4	311	3,026	639	41.4	30.2	1,524	3.1	.20	4.89	8.70
Mountain	187	2,213	11.8	143	1,389	764	64.6	51.2	565	3.0	.26	3.96	13.93
Pacific	300	5,314	17.7	168	1,637	561	31.7	22.4	959	3.2	.18	5.69	10.62
Metropolitan Status													
Metropolitan	1,568	30,254	19.3	1,373	13,340	876	45.4	32.7	6,687	4.3	.22	4.87	5.18
Nonmetropolitan	647	7,009	10.8	350	3,403	541	50.0	50.6	1,668	2.6	.24	4.76	8.44
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	188	2,854	15.2	222	2,162	1,181	78.0	67.7	987	5.2	.35	4.44	17.30
5,500-7,000 HDD	631	12,264	19.4	670	6,512	1,061	54.6	44.9	3,222	5.1	.26	4.81	7.09
4,000-5,499 HDD	389	8,188	21.0	287	2,788	737	35.0	26.5	1,536	3.9	.19	5.35	11.22
Under 4,000 HDD	567	9,107	16.0	370	3,597	652	40.6	27.3	1,823	3.2	.20	4.92	9.65
2,000 CDD or More and --													
Under 4,000 HDD	438	4,849	11.1	173	1,683	396	35.7	27.5	787	1.8	.16	4.54	10.90
1986 Degree-Days													
Under 2,000 CDD and --													
Over 7,000 HDD	209	3,390	16.2	243	2,358	1,163	71.6	66.3	1,119	5.4	.33	4.61	17.00
5,500-7,000 HDD	593	11,330	19.1	649	6,312	1,095	57.3	44.5	3,102	5.2	.27	4.78	7.70
4,000-5,499 HDD	404	8,400	20.8	282	2,744	700	33.6	26.5	1,510	3.7	.18	5.35	12.30
Under 4,000 HDD	568	9,099	16.0	373	3,624	657	41.0	26.9	1,840	3.2	.20	4.94	10.20
2,000 CDD or More and --													
Under 4,000 HDD	441	5,044	11.4	175	1,705	398	34.8	28.5	783	1.8	.16	4.46	10.88

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.963	0.969	0.822	1.311	1.311	1.213	1.065	1.219	1.218	1.107	0.968	0.368	
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	2,197	37,047	16.9	1,716	16,677	781	46.3	35.2	8,316	3.8	0.22	4.85	4.62
Natural Gas	2,214	37,263	16.8	1,723	16,743	778	46.2	35.2	8,355	3.8	.22	4.85	4.48
Fuel Oil	96	5,896	61.3	270	2,625	2,809	45.8	26.5	1,231	12.8	.21	4.56	14.17
District Heat	25	2,011	79.9	111	1,076	4,402	55.1	27.8	455	18.1	.23	4.10	23.54
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	41	772	18.9	32	307	774	41.0	54.7	157	3.8	.20	4.96	23.69
Energy End Uses													
Space Heating	2,184	36,986	16.9	1,713	16,647	784	46.3	35.2	8,297	3.8	.22	4.84	4.49
Cooling	1,785	31,906	17.9	1,459	14,181	818	45.7	32.5	7,020	3.9	.22	4.81	4.98
Water Heating	1,808	33,839	18.7	1,601	15,557	886	47.3	35.9	7,757	4.3	.23	4.85	4.71
Cooking	409	13,484	32.9	691	6,719	1,689	51.3	32.5	3,302	8.1	.24	4.78	6.72
Manufacturing	81	2,396	29.7	192	1,866	2,383	80.2	60.8	811	10.1	.34	4.23	17.27
Space-Heating Fuels													
Natural Gas	2,018	31,542	15.6	1,543	14,998	765	48.9	37.6	7,483	3.7	.24	4.85	4.65
Primary	1,949	29,066	14.9	1,479	14,378	759	50.9	39.6	7,162	3.7	.25	4.84	4.75
With Secondary	295	6,814	23.1	361	3,506	1,224	52.9	37.8	1,668	5.7	.24	4.62	9.30
Electricity Only	214	4,128	19.3	146	1,418	681	35.3	31.6	724	3.4	.18	4.97	8.51
Fuel Oil Only	42	1,931	45.9	175	1,699	4,159	90.5	44.9	745	17.7	.39	4.26	16.23
Other Fuel or combinations	39	770	19.8	40	391	1,032	52.2	38.5	198	5.1	.26	4.93	21.95
With No Secondary	1,649	22,191	13.5	1,114	10,827	676	50.2	40.1	5,473	3.3	.25	4.91	5.25
Secondary	87	2,890	33.2	81	790	933	28.1	18.9	417	4.8	.14	5.13	15.43
Other Fuels Excluding Natural Gas	11	689	61.1	20	197	1,793	29.3	16.4	90	8.0	.13	4.47	25.77
Building Not Heated	30	277	9.2	10	96	328	35.8	44.9	58	1.9	.21	5.83	28.33
Air-Conditioning Fuels													
Natural Gas	123	2,497	20.2	117	1,134	946	46.7	33.7	540	4.4	.22	4.63	12.95
Other Fuels Excluding Natural Gas	1,662	29,409	17.7	1,343	13,047	808	45.7	32.4	6,480	3.9	.22	4.83	5.24
Building Not Air Conditioned	414	5,138	12.4	257	2,498	621	50.0	66.8	1,297	3.1	.25	5.04	10.87

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.904	0.913	0.899	1.258	1.258	1.241	1.117	1.269	1.162	1.126	1.017	0.364	
Water-Heating Fuels													
Natural Gas	1,323	24,498	18.5	1,320	12,831	998	53.9	41.4	6,330	4.8	0.26	4.79	5.33
Other Fuels Excluding Natural Gas	485	9,341	19.3	280	2,725	579	30.0	22.1	1,427	2.9	.15	5.09	7.19
Water Heating Not Performed	407	3,424	8.4	122	1,186	300	35.6	28.3	598	1.5	.17	4.90	12.75
Cooking Fuels													
Natural Gas	315	10,780	34.2	587	5,706	1,863	54.5	35.2	2,815	8.9	.26	4.80	7.33
Other Fuels Excluding Natural Gas	94	2,705	28.7	104	1,013	1,106	38.5	22.6	487	5.2	.18	4.67	10.76
Cooking Not Performed	1,805	23,778	13.2	1,031	10,024	571	43.4	37.4	5,052	2.8	.21	4.90	5.55
Manufacturing Fuels													
Natural Gas	20	791	38.9	96	930	4,704	121.0	73.8	391	19.2	.49	4.09	24.91
Other Fuels Excluding Natural Gas	63	1,821	28.8	108	1,050	1,711	59.3	49.0	473	7.5	.26	4.37	19.63
Manufacturing Not Performed	2,134	34,867	16.3	1,531	14,877	717	43.9	33.5	7,543	3.5	.22	4.93	4.47
HEATING AND COOLING													
Percent Heated													
Not Heated	32	281	8.7	9	91	291	33.5	56.9	54	1.7	.19	5.77	28.15
1 to 50	297	5,096	17.2	108	1,045	363	21.1	33.7	559	1.9	.11	5.20	10.84
51 to 99	287	4,740	16.5	196	1,904	682	41.3	29.3	967	3.4	.20	4.94	9.67
100	1,598	27,146	17.0	1,410	13,702	882	51.9	36.3	6,774	4.2	.25	4.80	4.81
Percent Cooled													
Not Cooled	406	4,897	12.1	256	2,484	629	52.2	94.4	1,287	3.2	.26	5.04	9.87
1 to 50	600	12,943	21.6	532	5,169	886	41.1	44.8	2,545	4.2	.20	4.78	9.05
51 to 99	345	7,185	20.8	392	3,807	1,136	54.5	31.0	1,776	5.2	.25	4.53	10.04
100	863	12,238	14.2	544	5,283	630	44.4	25.1	2,746	3.2	.22	5.05	5.68
Heat Production Equipment													
Warm-Air Furnaces	1,270	14,034	11.1	577	5,604	454	41.1	36.6	2,923	2.3	.21	5.07	5.06
Boilers	406	15,448	38.0	866	8,412	2,132	56.0	38.6	4,071	10.0	.26	4.70	7.34
Individual Space Heaters or Electric Baseboards	561	9,202	16.4	457	4,438	814	49.6	39.9	2,139	3.8	.23	4.68	10.43
Packaged Heating Units	379	9,296	24.5	386	3,754	1,019	41.6	27.5	1,927	5.1	.21	4.99	6.99
Air-Source Heat Pumps	95	2,356	24.7	124	1,209	1,306	52.8	32.2	555	5.8	.24	4.46	26.08
Receives District Heat	24	1,850	77.0	102	995	4,259	55.3	27.7	412	17.2	.22	4.03	20.40

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.904	0.913	0.899	1.258	1.258	1.241	1.117	1.269	1.162	1.126	1.017	0.364	
Cooling Production Equipment													
Central Cooling	736	16,255	22.1	779	7,570	1,058	47.9	30.2	3,654	5.0	0.22	4.69	7.65
Individual Air Conditioners	546	10,472	19.2	503	4,890	921	48.1	37.0	2,443	4.5	.23	4.85	7.80
Packaged Air-Conditioning Units	520	13,629	26.2	643	6,251	1,237	47.2	30.9	3,058	5.9	.22	4.75	8.70
Air-Source Heat Pumps	95	2,356	24.7	124	1,209	1,306	52.8	32.2	555	5.8	.24	4.46	26.08
Receives District Chilled Water	6	458	74.3	41	402	6,707	90.3	37.4	169	27.4	.37	4.08	26.74
Heating and Cooling Distribution Equipment													
Ducted Forced Air	1,613	27,911	17.3	1,274	12,385	790	45.7	32.1	6,174	3.8	.22	4.84	5.12
For Heating Only	388	3,992	10.3	198	1,927	511	49.7	59.4	1,021	2.6	.26	5.15	9.14
For Cooling Only	95	2,255	23.8	83	805	874	36.8	29.5	416	4.4	.18	5.02	15.23
For Both Heating and Cooling	1,130	21,663	19.2	993	9,653	879	45.9	29.6	4,737	4.2	.22	4.77	5.96
Fan-Coil Units	256	10,697	41.7	573	5,567	2,234	53.5	37.5	2,583	10.1	.24	4.51	9.27
For Heating Only	115	3,864	33.5	196	1,906	1,700	50.8	52.0	916	7.9	.24	4.67	11.18
For Cooling Only	28	870	31.4	27	260	966	30.8	23.7	125	4.5	.14	4.67	21.46
For Both Heating and Cooling	113	5,963	52.6	350	3,401	3,089	58.7	33.7	1,543	13.6	.26	4.41	13.32
Steam Radiators or Baseboards	138	5,704	41.3	353	3,431	2,556	61.9	41.8	1,636	11.9	.29	4.64	13.52
Hot-Water Radiators or Baseboards	162	5,597	34.6	371	3,605	2,293	66.3	48.7	1,692	10.5	.30	4.56	12.90
Heating Panels	108	2,373	22.0	110	1,067	1,017	46.2	29.8	530	4.9	.22	4.83	13.79
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:													
Heating Only	309	3,575	11.6	224	2,175	723	62.6	87.4	1,073	3.5	.30	4.79	12.70
Cooling Only	31	1,187	38.5	49	481	1,606	41.7	Q	245	8.0	.21	4.96	18.08
Heating and Cooling	1,261	17,456	13.8	787	7,647	624	45.1	33.5	3,793	3.0	.22	4.82	6.95
Reduced Use--Off Hours													
Heating Only	374	4,682	12.5	228	2,219	611	48.8	81.5	1,149	3.1	.25	5.03	8.84
Cooling Only	45	793	17.6	45	442	1,009	57.4	46.4	224	5.0	.28	4.93	17.08
Heating and Cooling	1,502	25,667	17.1	1,076	10,452	716	41.9	30.3	5,212	3.5	.20	4.85	5.36

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.904	0.913	0.899	1.258	1.258	1.241	1.117	1.269	1.162	1.126	1.017	0.364	
HVAC Conservation Features													
Any HVAC Conservation Feature	1,314	29,151	22.2	1,395	13,555	1,061	47.8	33.3	6,709	5.1	0.23	4.81	4.95
Preventive Maintenance Program	1,261	28,293	22.4	1,348	13,096	1,068	47.6	33.1	6,467	5.1	.23	4.80	5.23
Waste-Heat Recovery	86	4,769	55.2	260	2,525	3,010	54.5	30.7	1,146	13.3	.24	4.41	13.40
EMCS	147	8,146	55.6	375	3,643	2,557	46.0	26.5	1,725	11.8	.21	4.60	9.79
Time-Clock Thermostat	47	1,685	36.0	91	886	1,947	54.1	43.0	433	9.3	.26	4.75	18.70
Economizer Cycle	9	720	79.8	24	233	2,662	33.4	14.7	108	12.0	.15	4.51	22.78
Other HVAC Features	44	2,115	48.1	86	835	1,954	40.6	27.5	420	9.6	.20	4.89	25.60
LIGHTING													
Percent Lit--Open Hours													
Not Lit	20	176	8.8	6	55	284	32.4	295.6	28	1.4	.16	4.94	26.49
1 to 50	328	4,530	13.8	155	1,504	472	34.2	53.3	787	2.4	.17	5.08	10.59
51 to 99	385	6,239	16.2	311	3,020	807	49.8	35.8	1,529	4.0	.25	4.92	7.35
100	1,481	26,318	17.8	1,252	12,163	845	47.6	33.6	6,011	4.1	.23	4.80	5.66
Percent Lit--Off Hours													
Not Lit	928	10,049	10.8	397	3,863	428	39.6	44.5	2,015	2.2	.20	5.07	6.35
1 to 50	1,194	24,519	20.5	1,092	10,613	915	44.5	31.5	5,316	4.5	.22	4.87	4.94
51 to 99	34	1,491	44.2	90	872	2,659	60.2	30.0	412	12.2	.28	4.59	16.85
100	58	1,203	20.7	144	1,395	2,468	119.3	63.2	611	10.5	.51	4.26	25.42
Lighting Equipment Types (Solely or in Combination)													
Standard Fluorescent	1,455	21,369	14.7	1,012	9,835	695	47.4	39.0	4,907	3.4	.23	4.85	5.54
Energy-Efficient Fluorescent	636	16,694	26.3	726	7,056	1,142	43.5	28.3	3,499	5.5	.21	4.82	6.15
Standard Incandescent	954	15,910	16.7	733	7,124	769	46.1	37.9	3,591	3.8	.23	4.90	4.98
Energy-Efficient Incandescent	260	7,457	28.6	366	3,558	1,406	49.1	31.3	1,746	6.7	.23	4.77	9.25
High-Intensity Discharge	157	7,409	47.2	302	2,937	1,925	40.8	32.5	1,409	9.0	.19	4.66	8.66
Other	39	1,070	27.7	28	272	724	26.1	19.2	142	3.7	.13	5.08	30.56

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.904	0.913	0.899	1.258	1.258	1.241	1.117	1.269	1.162	1.126	1.017	0.364	
Lighting Conservation Features													
Any Lighting Conservation Feature	901	23,195	25.7	1,000	9,723	1,110	43.1	31.1	4,854	5.4	0.21	4.85	5.38
High-Efficiency Ballasts	613	16,646	27.1	727	7,063	1,185	43.7	30.7	3,533	5.8	.21	4.86	6.35
Delamping Program	214	8,450	39.5	363	3,523	1,695	42.9	27.9	1,725	8.1	.20	4.76	7.26
Natural Lighting Control Sensors	106	3,881	36.6	150	1,454	1,411	38.6	27.5	717	6.8	.18	4.79	12.52
Other Lighting Controls	276	9,290	33.7	390	3,795	1,417	42.0	27.6	1,909	6.9	.21	4.89	9.55
Other Lighting Features	47	1,530	32.8	63	615	1,360	41.4	20.2	312	6.7	.20	4.92	15.74
STRUCTURE													
Floors													
One	1,313	13,558	10.3	630	6,120	480	46.4	38.2	3,119	2.4	.23	4.95	5.89
Two	599	9,986	16.7	409	3,976	683	41.0	34.8	2,067	3.5	.21	5.05	6.33
Three	201	5,723	28.5	313	3,043	1,558	54.7	52.2	1,445	7.2	.25	4.61	12.94
Over Three	101	7,995	78.9	371	3,604	3,658	46.4	25.3	1,723	17.0	.22	4.65	9.89
Wall and Frame Materials													
Masonry Over --													
Wood Frame	447	5,176	11.6	193	1,880	433	37.4	28.3	979	2.2	.19	5.06	9.33
Masonry Frame	891	14,878	16.7	800	7,774	898	53.8	44.6	3,789	4.3	.25	4.74	6.35
Steel Frame	187	7,475	39.9	295	2,864	1,575	39.4	27.9	1,472	7.9	.20	5.00	8.35
Siding Over --													
Wood Frame	291	1,707	5.9	88	855	302	51.5	41.1	481	1.7	.28	5.47	9.99
Masonry Frame	44	545	12.3	26	249	580	47.1	37.1	123	2.8	.23	4.78	20.42
Metal Panels	187	2,351	12.6	105	1,023	563	44.8	34.5	511	2.7	.22	4.85	11.90
Concrete Panels	78	3,352	42.8	150	1,453	1,910	44.6	29.9	686	8.8	.20	4.59	24.98
Other	89	1,781	20.0	66	645	745	37.3	24.8	314	3.5	.18	4.73	14.26
Roof Materials													
Built-Up	1,086	22,427	20.6	1,080	10,496	994	48.2	34.4	5,170	4.8	.23	4.79	6.11
Shingles (Not Wood)	590	5,422	9.2	231	2,241	391	42.5	42.7	1,146	1.9	.21	4.97	8.07
Metal Surfacing	303	3,389	11.2	140	1,364	464	41.4	41.7	717	2.4	.21	5.11	10.77
Synthetic or Rubber	82	3,198	39.1	146	1,422	1,790	45.7	28.9	689	8.4	.22	4.71	10.68
Slate or Tile	67	1,340	19.9	58	568	869	43.6	39.9	295	4.4	.22	5.04	16.27
Wood Shingles, Shakes or Other Wooden Materials	53	381	7.2	30	295	573	79.5	43.5	158	3.0	.42	5.23	21.22
Other	34	1,105	32.9	37	357	1,094	33.3	24.8	180	5.4	.16	4.89	24.93

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.904	0.913	0.899	1.258	1.258	1.241	1.117	1.269	1.162	1.126	1.017	0.364	
Roof Square Footage													
5,000 or Less	1,193	5,079	4.3	344	3,340	288	67.7	39.0	1,770	1.5	0.35	5.15	6.72
5,001 to 10,000	496	5,655	11.4	263	2,558	530	46.5	36.3	1,376	2.8	.24	5.23	7.34
10,001 to 25,000	316	7,742	24.5	370	3,598	1,173	47.8	36.2	1,809	5.7	.23	4.89	6.84
25,001 to 50,000	111	5,721	51.7	217	2,105	1,957	37.9	32.4	1,110	10.0	.19	5.12	8.82
50,001 to 100,000	59	5,707	97.4	229	2,227	3,911	40.2	30.8	988	16.9	.17	4.31	12.08
100,001 to 200,000	29	3,958	135.4	198	1,926	6,776	50.1	39.3	837	28.6	.21	4.22	19.14
Over 200,000	10	3,400	330.8	102	990	9,911	30.0	29.5	464	45.2	.14	4.56	14.45
Window Glass: Percent of Exterior Walls													
25 or Less	1,846	27,127	14.7	1,279	12,429	693	47.1	39.5	6,160	3.3	.23	4.82	5.42
26 to 50	308	7,530	24.5	328	3,190	1,066	43.6	27.3	1,634	5.3	.22	4.98	6.48
51 to 75	44	1,712	39.1	82	797	1,872	47.9	26.7	390	8.9	.23	4.76	14.45
Over 75	17	894	52.5	34	327	1,972	37.6	23.8	170	10.0	.19	5.06	20.73
Building-Shell Conservation Features													
Any Conservation Feature	1,915	33,667	17.6	1,554	15,106	812	46.2	34.9	7,501	3.9	.22	4.83	4.56
Roof or Ceiling Insulation	1,554	28,490	18.3	1,318	12,807	848	46.3	34.3	6,322	4.1	.22	4.80	4.90
Wall Insulation	1,109	19,230	17.3	883	8,581	796	45.9	31.8	4,205	3.8	.22	4.76	6.12
Storm or Multiple Glazing	753	14,985	19.9	696	6,761	924	46.4	33.6	3,332	4.4	.22	4.79	5.95
Tinted, Reflective or Shading Glass or Film	554	14,259	25.7	635	6,168	1,146	44.5	29.4	2,960	5.3	.21	4.66	7.00
Exterior or Interior Shadings or Awnings	779	13,981	18.0	669	6,504	859	47.9	29.4	3,271	4.2	.23	4.89	6.35
Weather Stripping or Caulking	1,479	28,055	19.0	1,341	13,032	907	47.8	35.4	6,451	4.4	.23	4.81	5.04
Other Shell Features	65	1,116	17.3	59	573	913	52.8	36.2	283	4.4	.25	4.80	20.38

Table 15. Natural Gas Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Natural Gas: Number of Buildings (thousand)	All Buildings Using Natural Gas: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Natural Gas Consumed (tril-lion Btu)	Total Natural Gas Consumed (million cubic feet)	Natural Gas Consumed per Building (million Btu)	Natural Gas Consumed per Square Foot (thou-sand Btu)	Natural Gas Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.904	0.913	0.899	1.258	1.258	1.241	1.117	1.269	1.162	1.126	1.017	0.364	
Energy Audit Year (Most Recent)													
Buildings Ever Audited	326	11,936	36.7	545	5,292	1,672	45.6	28.7	2,571	7.9	0.22	4.72	7.98
Before 1980	52	2,493	47.8	119	1,157	2,282	47.8	26.2	555	10.6	.22	4.66	18.15
1980 to 1983	106	4,379	41.2	235	2,279	2,209	53.6	36.7	1,083	10.2	.25	4.62	11.55
1984 to 1985	108	4,348	40.2	171	1,664	1,582	39.4	23.9	815	7.5	.19	4.76	16.42
1986	85	2,017	23.9	85	823	1,001	42.0	23.8	414	4.9	.20	4.89	12.87
Building Never Audited	1,889	25,326	13.4	1,178	11,451	624	46.5	39.4	5,783	3.1	.23	4.91	5.22

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 16. Fuel Oil Consumption and Expenditures

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.062	0.989	0.838	1.304	1.302	1.230	1.113	1.202	1.215	1.134	1.032	0.286	
All Buildings	534	11,005	20.6	442	3,168	827	40.1	27.7	2,059	3.9	0.19	4.66	9.06
Building Floorspace (Square Feet)													
1,001 to 5,000	247	703	2.8	52	375	210	73.9	47.6	301	1.2	.43	5.79	9.63
5,001 to 10,000	139	1,009	7.3	62	450	450	61.9	46.2	315	2.3	.31	5.04	13.75
10,001 to 25,000	69	1,103	15.9	60	434	869	54.6	49.1	311	4.5	.28	5.16	15.71
25,001 to 50,000	41	1,460	35.8	101	724	2,469	68.9	53.8	451	11.1	.31	4.48	17.38
50,001 to 100,000	21	1,405	66.6	45	326	2,150	32.3	28.2	208	9.9	.15	4.59	16.77
100,001 to 200,000	8	1,217	145.9	59	427	7,106	48.7	31.9	235	28.1	.19	3.96	28.77
200,001 to 500,000	7	2,169	307.3	44	307	6,197	20.2	11.2	175	24.9	.08	4.01	17.69
Over 500,000	2	1,941	935.2	Q	Q	Q	Q	Q	Q	Q	Q	3.49	32.97
Year Constructed													
1900 or Before	46	866	18.7	23	167	501	26.8	43.7	126	2.7	.15	5.42	17.83
1901 to 1920	49	897	18.3	31	218	622	34.0	22.2	163	3.3	.18	5.35	18.60
1921 to 1945	92	1,806	19.7	108	776	1,179	59.7	52.6	491	5.4	.27	4.55	23.48
1946 to 1960	128	1,903	14.9	87	627	684	45.9	33.8	405	3.2	.21	4.63	14.82
1961 to 1970	93	1,916	20.5	91	650	975	47.5	30.4	413	4.4	.22	4.53	17.41
1971 to 1973	26	808	31.0	22	157	843	27.2	12.3	99	3.8	.12	4.49	25.81
1974 to 1979	59	1,290	22.0	56	400	952	43.3	24.6	247	4.2	.19	4.42	22.36
1980 to 1983	21	1,093	52.2	16	112	Q	14.3	10.5	74	Q	.07	4.72	27.35
1984 to 1986	21	426	20.8	8	60	406	19.6	9.3	43	2.1	.10	5.16	32.39
BUILDING USE													
Principal Building Activity													
Assembly	72	1,504	20.8	42	305	587	28.2	35.5	221	3.1	.15	5.21	18.41
Education	33	1,680	51.0	103	740	3,134	61.4	54.6	448	13.6	.27	4.34	20.31
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Food Service	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Health Care	10	971	96.3	Q	Q	Q	Q	Q	Q	Q	.16	4.01	42.48
Lodging	17	525	31.7	20	141	1,184	37.3	26.9	92	5.6	.18	4.69	22.07
Mercantile and Service	208	2,424	11.7	105	759	507	43.5	36.1	516	2.5	.21	4.90	16.45
Office	74	1,763	23.7	39	278	521	22.0	8.5	194	2.6	.11	5.00	14.43
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	52	1,158	22.2	48	340	925	41.6	70.8	204	3.9	.18	4.23	24.66
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.062	0.989	0.838	1.304	1.302	1.230	1.113	1.202	1.215	1.134	1.032	0.286	
Ownership and Occupancy													
Nongovernment Owned	463	7,845	17.0	276	1,977	596	35.1	24.5	1,343	2.9	0.17	4.87	9.37
Owner Occupied	342	5,169	15.1	198	1,418	578	38.3	27.7	955	2.8	.18	4.83	10.73
Single Establishment	293	3,694	12.6	169	1,208	575	45.7	35.5	804	2.7	.22	4.77	11.82
Multiple Establishment	49	1,474	30.1	29	210	595	19.8	12.2	151	3.1	.10	5.18	17.28
Nonowner Occupied	120	2,677	22.3	78	559	649	29.1	18.8	387	3.2	.14	4.97	15.88
Unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Single Establishment	84	1,347	16.0	39	282	466	29.2	19.5	202	2.4	.15	5.15	18.60
Multiple Establishment	34	1,301	38.6	37	266	1,101	28.5	17.5	177	5.3	.14	4.78	25.12
Government Owned	72	3,160	44.1	166	1,191	2,316	52.5	35.3	716	10.0	.23	4.31	18.11
Federal	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
State	10	764	76.0	Q	Q	Q	Q	Q	Q	Q	Q	4.16	39.30
Local	52	2,294	44.3	123	879	2,368	53.5	38.9	533	10.3	.23	4.35	18.88
Workers													
Fewer than 5	241	1,554	6.4	79	572	329	51.0	151.1	423	1.8	.27	5.33	16.36
5 to 9	123	1,034	8.4	43	310	351	41.6	53.2	226	1.8	.22	5.24	14.22
10 to 19	70	985	14.0	41	298	589	42.0	47.7	219	3.1	.22	5.28	17.46
20 to 49	56	1,390	24.7	79	569	1,405	56.8	48.1	383	6.8	.28	4.85	14.61
50 to 99	20	1,102	56.0	76	543	3,855	68.9	57.0	315	16.0	.29	4.14	24.74
100 to 249	13	1,568	122.3	49	353	3,837	31.4	27.0	209	16.3	.13	4.25	18.99
250 or More	11	3,373	301.5	74	522	6,602	21.9	8.2	265	25.5	.08	3.86	24.68
Weekly Operating Hours													
39 or Fewer	97	1,463	15.1	73	522	750	49.8	64.9	337	3.5	.23	4.63	22.04
40 to 48	123	2,239	18.2	89	637	719	39.6	28.0	424	3.4	.19	4.78	14.37
49 to 60	151	2,080	13.8	95	683	630	45.6	28.4	469	3.1	.23	4.94	17.78
61 to 84	74	2,227	30.0	63	451	849	28.3	25.1	297	4.0	.13	4.71	15.03
85 to 167	48	934	19.3	39	279	802	41.5	45.7	183	3.8	.20	4.73	23.36
168 (Open Continuously)	41	2,063	50.8	83	596	2,055	40.5	16.8	349	8.6	.17	4.18	24.55

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.062	0.989	0.838	1.304	1.302	1.230	1.113	1.202	1.215	1.134	1.032	0.286	
LOCATION													
Census Region													
Northeast	259	5,087	19.7	270	1,936	1,043	53.0	37.4	1,272	4.9	0.25	4.72	10.32
New England	109	2,096	19.3	104	746	955	49.5	35.5	486	4.5	.23	4.68	15.10
Middle Atlantic	150	2,992	20.0	166	1,190	1,107	55.4	38.7	786	5.2	.26	4.74	14.35
Midwest	107	2,040	19.1	63	453	590	31.0	23.0	278	2.6	.14	4.40	27.57
East North Central	87	1,632	18.8	31	220	355	18.9	15.5	153	1.8	.09	4.95	16.51
West North Central	20	409	20.3	Q	Q	Q	79.0	42.8	Q	Q	.31	3.88	34.24
South	134	2,522	18.8	86	616	643	34.1	21.8	394	2.9	.16	4.58	17.43
South Atlantic	103	2,143	20.8	80	571	774	37.3	23.5	361	3.5	.17	4.51	18.11
East South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
West South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
West	35	Q	39.0	Q	Q	656	16.8	11.1	Q	3.3	.08	5.02	32.28
Mountain	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Pacific	24	Q	50.5	Q	Q	900	17.8	12.1	Q	4.5	.09	4.98	32.82
Metropolitan Status													
Metropolitan	321	8,564	26.7	329	2,354	1,025	38.4	24.8	1,496	4.7	.17	4.55	10.39
Nonmetropolitan	214	2,441	11.4	113	814	529	46.3	41.8	563	2.6	.23	4.98	16.25
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	113	1,097	9.7	70	501	619	63.7	48.1	329	2.9	.30	4.70	21.52
5,500-7,000 HDD	149	3,445	23.1	120	865	808	34.9	23.8	562	3.8	.16	4.68	14.57
4,000-5,499 HDD	194	4,620	23.8	201	1,442	1,035	43.5	34.1	941	4.8	.20	4.68	16.95
Under 4,000 HDD	61	1,429	23.5	38	266	617	26.3	13.3	168	2.8	.12	4.47	21.75
2,000 CDD or More and --													
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1986 Degree-Days													
Under 2,000 CDD and --													
Over 7,000 HDD	122	1,157	9.5	74	530	609	64.0	47.2	349	2.9	.30	4.72	20.59
5,500-7,000 HDD	138	3,073	22.2	127	911	915	41.2	25.1	586	4.2	.19	4.63	16.42
4,000-5,499 HDD	194	4,845	25.0	183	1,315	947	37.8	33.0	863	4.5	.18	4.71	16.52
Under 4,000 HDD	60	1,421	23.8	Q	Q	562	23.6	11.2	Q	2.5	.10	4.42	34.30
2,000 CDD or More and --													
Under 4,000 HDD	Q	510	24.3	Q	Q	1,155	47.5	30.5	Q	5.4	.22	4.65	31.40

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.062	0.989	0.838	1.304	1.302	1.230	1.113	1.202	1.215	1.134	1.032	0.286	
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	526	10,901	20.7	438	3,139	831	40.1	27.6	2,037	3.9	0.19	4.66	9.43
Natural Gas	96	5,896	61.3	160	1,141	1,663	27.1	15.7	682	7.1	.12	4.26	18.77
Fuel Oil	534	11,005	20.6	442	3,168	827	40.1	27.7	2,059	3.9	.19	4.66	9.06
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	52	910	17.4	58	415	1,104	63.3	50.3	274	5.3	.30	4.76	19.58
Minor Fuels	33	405	12.3	10	71	301	24.4	28.0	45	1.4	.11	4.55	30.31
Energy End Uses													
Space Heating	528	10,919	20.7	438	3,142	830	40.1	27.6	2,038	3.9	.19	4.65	9.21
Cooling	316	8,826	27.9	340	2,434	1,074	38.5	23.7	1,547	4.9	.18	4.55	9.65
Water Heating	394	10,018	25.4	405	2,901	1,026	40.4	27.0	1,855	4.7	.19	4.58	9.53
Cooking	84	5,286	63.0	177	1,272	2,114	33.6	21.1	777	9.3	.15	4.38	17.10
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Space-Heating Fuels													
Fuel Oil	504	8,708	17.3	427	3,063	848	49.1	36.7	1,981	3.9	.23	4.64	9.45
Primary	429	6,382	14.9	381	2,734	888	59.7	54.0	1,783	4.2	.28	4.68	10.24
With Secondary	80	1,917	24.0	108	773	1,353	56.3	52.1	467	5.9	.24	4.33	21.02
Electricity Only	49	963	19.5	46	331	939	48.1	42.0	213	4.3	.22	4.60	22.63
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	22	305	13.6	25	178	1,095	80.7	108.2	111	4.9	.36	4.51	29.44
With No Secondary	347	4,421	12.7	272	1,956	783	61.6	54.9	1,313	3.8	.30	4.83	11.49
Secondary	79	2,378	30.0	60	427	758	25.2	13.0	258	3.3	.11	4.30	30.83
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	312	8,600	27.5	313	2,245	1,003	36.4	22.3	1,448	4.6	17	4.62	8.93
Building Not Air Conditioned	215	2,102	9.8	100	719	465	47.5	65.4	501	2.3	.24	5.02	16.84

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.018	0.926	0.926	1.302	1.303	1.230	1.105	1.231	1.218	1.132	1.037	0.282	
Water-Heating Fuels													
Fuel Oil	132	4,045	30.6	231	1,660	1,752	57.2	35.1	1,027	7.8	0.25	4.44	12.95
Other Fuels Excluding Fuel Oil	262	5,973	22.8	173	1,241	661	29.0	20.7	828	3.2	.14	4.77	11.86
Water Heating Not Performed	140	988	7.1	37	267	265	37.5	37.0	204	1.5	.21	5.51	16.83
Cooking Fuels													
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	84	5,241	62.7	176	1,261	2,105	33.5	21.1	769	9.2	.15	4.37	17.29
Cooking Not Performed	450	5,719	12.7	264	1,896	587	46.2	34.9	1,282	2.8	.22	4.85	9.79
Manufacturing Fuels													
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	519	10,203	19.7	407	2,925	784	39.9	27.8	1,928	3.7	.19	4.74	9.58
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	84	1,199	14.3	19	138	229	16.0	26.0	109	1.3	.09	5.67	16.44
51 to 99	60	1,677	27.9	32	227	529	19.0	12.0	161	2.7	.10	5.07	20.40
100	378	8,022	21.2	387	2,775	1,022	48.2	31.0	1,766	4.7	.22	4.57	10.10
Percent Cooled													
Not Cooled	210	1,912	9.1	96	694	459	50.4	70.8	485	2.3	.25	5.03	17.14
1 to 50	160	4,015	25.1	176	1,258	1,099	43.7	44.2	815	5.1	.20	4.64	11.80
51 to 99	55	2,755	50.1	77	552	1,396	27.9	14.3	344	6.3	.12	4.48	28.24
100	109	2,323	21.2	93	663	849	40.0	17.7	414	3.8	.18	4.46	17.45
Heat Production Equipment													
Warm-Air Furnaces	246	2,441	9.9	95	683	385	38.8	30.4	477	1.9	.20	5.03	13.33
Boilers	238	7,773	32.6	354	2,537	1,487	45.6	30.0	1,599	6.7	.21	4.51	10.44
Individual Space Heaters or Electric Baseboards	139	2,784	20.0	71	509	510	25.5	16.2	346	2.5	.12	4.86	13.95
Packaged Heating Units	13	1,668	124.7	42	295	3,124	25.1	13.7	163	12.2	.10	3.91	34.53
Air-Source Heat Pumps	18	449	25.5	Q	Q	Q	Q	Q	Q	Q	.14	4.27	33.37
Receives District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (trillion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.018	0.926	0.926	1.302	1.303	1.230	1.105	1.231	1.218	1.132	1.037	0.282	
Cooling Production Equipment													
Central Cooling	128	5,398	42.1	164	1,171	1,277	30.3	15.6	724	5.6	0.13	4.42	15.25
Individual Air Conditioners	177	4,138	23.4	195	1,400	1,104	47.2	30.8	910	5.1	.22	4.66	13.20
Packaged Air-Conditioning Units	48	3,252	67.4	110	778	2,271	33.7	17.4	464	9.6	.14	4.24	15.94
Air-Source Heat Pumps	18	449	25.5	Q	Q	Q	Q	Q	Q	Q	.14	4.27	33.37
Receives District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling Distribution Equipment													
Ducted Forced Air	310	6,981	22.5	258	1,846	831	37.0	21.5	1,158	3.7	.17	4.49	12.26
For Heating Only	161	1,421	8.8	70	506	437	49.5	51.4	339	2.1	.24	4.82	20.29
For Cooling Only	33	668	20.4	44	313	1,337	65.5	38.1	199	6.1	.30	4.56	18.28
For Both Heating and Cooling	117	4,892	41.9	144	1,027	1,232	29.4	15.2	620	5.3	.13	4.31	17.10
Fan-Coil Units	87	4,833	55.4	169	1,211	1,943	35.0	20.5	720	8.3	.15	4.25	17.09
For Heating Only	48	1,670	34.5	78	564	1,621	47.0	42.9	340	7.0	.20	4.34	22.87
For Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Both Heating and Cooling	26	2,680	101.7	68	484	Q	25.2	11.9	285	10.8	.11	4.22	31.81
Steam Radiators or Baseboards	85	3,080	36.2	179	1,283	2,102	58.1	43.5	808	9.5	.26	4.52	18.37
Hot-Water Radiators or Baseboards	110	2,984	27.1	139	1,002	1,265	46.7	27.9	642	5.8	.22	4.61	15.23
Heating Panels	24	775	32.5	Q	Q	Q	53.4	Q	Q	Q	Q	4.23	29.49
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:													
Heating Only	157	1,383	8.8	59	426	377	42.7	56.0	310	2.0	.22	5.25	13.41
Cooling Only	23	565	24.6	35	250	1,516	61.6	54.8	159	6.9	.28	4.56	27.62
Heating and Cooling	180	4,587	25.5	162	1,162	901	35.3	23.5	749	4.2	.16	4.63	15.74
Reduced Use--Off Hours													
Heating Only	185	2,126	11.5	98	706	529	46.1	61.7	484	2.6	.23	4.93	18.29
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	261	6,876	26.3	251	1,800	962	36.5	22.9	1,163	4.5	.17	4.63	9.30

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.018	0.926	0.926	1.302	1.303	1.230	1.105	1.231	1.218	1.132	1.037	0.282	
HVAC Conservation Features													
Any HVAC Conservation Feature	353	9,597	27.2	383	2,742	1,084	39.9	25.5	1,754	5.0	0.18	4.59	9.67
Preventive Maintenance Program	348	9,537	27.4	381	2,731	1,096	40.0	25.6	1,747	5.0	.18	4.58	9.69
Waste-Heat Recovery	28	2,557	91.7	75	532	2,697	29.4	13.8	310	11.1	.12	4.12	18.83
EMCS	29	3,139	108.2	70	498	2,403	22.2	10.6	289	10.0	.09	4.15	17.83
Time-Clock Thermostat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Economizer Cycle	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other HVAC Features	9	1,096	Q	30	209	Q	27.1	17.8	110	Q	.10	3.71	39.11
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	103	1,335	13.0	47	338	458	35.3	51.0	248	2.4	.19	5.27	16.87
51 to 99	86	1,893	21.9	57	411	660	30.2	18.0	278	3.2	.15	4.87	14.64
100	343	7,742	22.5	337	2,418	982	43.6	28.4	1,531	4.5	.20	4.54	10.67
Percent Lit--Off Hours													
Not Lit	237	2,732	11.6	120	864	509	44.1	52.3	595	2.5	.22	4.94	14.85
1 to 50	271	7,038	26.0	255	1,831	940	36.2	23.1	1,198	4.4	.17	4.70	11.26
51 to 99	13	588	44.2	Q	Q	Q	Q	Q	Q	Q	Q	3.95	37.91
100	Q	647	48.8	Q	Q	Q	51.5	Q	135	Q	.21	4.05	47.01
Lighting Equipment Types (Solely or in Combination)													
Standard Fluorescent	372	5,954	16.0	268	1,919	719	45.0	34.4	1,264	3.4	.21	4.72	12.16
Energy-Efficient Fluorescent	150	5,793	38.7	202	1,445	1,351	34.9	21.4	898	6.0	.15	4.44	12.81
Standard Incandescent	201	4,544	22.6	164	1,179	819	36.2	29.8	780	3.9	.17	4.74	14.19
Energy-Efficient Incandescent	55	2,622	47.3	90	641	1,616	34.2	16.8	403	7.3	.15	4.49	15.42
High-Intensity Discharge	24	2,317	97.4	69	495	2,913	29.9	22.1	299	12.6	.13	4.32	23.66
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.018	0.926	0.926	1.302	1.303	1.230	1.105	1.231	1.218	1.132	1.037	0.282	
Lighting Conservation Features													
Any Lighting Conservation Feature	188	7,203	38.4	235	1,684	1,254	32.7	19.6	1,065	5.7	0.15	4.53	11.50
High-Efficiency Ballasts	147	5,629	38.2	172	1,237	1,171	30.6	17.3	794	5.4	.14	4.60	13.27
Delamping Program	52	3,646	70.4	113	808	2,185	31.0	18.8	485	9.4	.13	4.29	19.78
Natural Lighting Control Sensors	12	1,405	115.3	22	160	1,833	15.9	9.6	97	7.9	.07	4.34	25.76
Other Lighting Controls	47	3,271	70.3	91	650	1,948	27.7	15.9	396	8.5	.12	4.37	20.57
Other Lighting Features	14	469	34.2	8	57	580	17.0	6.7	39	2.9	.08	4.92	35.37
STRUCTURE													
Floors													
One	260	2,841	10.9	137	990	529	48.4	48.7	669	2.6	.24	4.87	12.14
Two	147	2,120	14.5	102	731	693	47.9	36.5	492	3.4	.23	4.84	15.58
Three	81	1,808	22.2	96	682	1,173	52.8	47.2	424	5.2	.23	4.44	23.66
Over Three	46	4,236	91.6	107	765	2,315	25.3	12.8	474	10.2	.11	4.42	20.02
Wall and Frame Materials													
Masonry Over --													
Wood Frame	75	1,265	16.8	45	324	599	35.6	45.4	230	3.1	.18	5.12	19.53
Masonry Frame	234	4,460	19.1	229	1,637	978	51.3	33.9	1,041	4.4	.23	4.55	12.37
Steel Frame	36	2,552	70.1	81	583	2,235	31.9	18.8	361	9.9	.14	4.43	19.08
Siding Over --													
Wood Frame	104	722	6.9	29	208	278	40.1	37.5	159	1.5	.22	5.48	17.36
Masonry Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Metal Panels	40	406	10.3	Q	Q	568	Q	Q	103	2.6	.26	4.60	32.58
Concrete Panels	Q	808	Q	Q	Q	Q	Q	Q	Q	Q	Q	4.15	33.48
Other	25	672	27.2	13	91	514	18.9	14.9	64	2.6	.09	5.00	26.60
Roof Materials													
Built-Up	232	6,388	27.5	259	1,851	1,115	40.5	24.2	1,176	5.1	.18	4.55	10.78
Shingles (Not Wood)	156	1,183	7.6	55	400	357	46.9	48.7	301	1.9	.25	5.43	18.72
Metal Surfacing	86	844	9.9	41	293	475	48.2	57.0	197	2.3	.23	4.86	27.47
Synthetic or Rubber	23	1,304	55.7	46	330	1,957	35.1	22.9	197	8.4	.15	4.30	33.12
Slate or Tile	20	608	30.2	Q	Q	Q	Q	Q	Q	Q	Q	4.58	34.29
Wood Shingles, Shakes or Other Wooden Materials	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.018	0.926	0.926	1.302	1.303	1.230	1.105	1.231	1.218	1.132	1.037	0.282	
Roof Square Footage													
5,000 or Less	302	1,339	4.4	77	555	255	57.5	40.2	433	1.4	0.32	5.63	8.55
5,001 to 10,000	114	1,643	14.4	89	642	784	54.4	44.9	424	3.7	.26	4.75	15.52
10,001 to 25,000	63	1,870	29.6	74	529	1,165	39.3	25.9	352	5.6	.19	4.79	15.54
25,001 to 50,000	28	1,818	64.9	83	599	2,975	45.8	30.5	356	12.7	.20	4.28	24.49
50,001 to 100,000	19	2,243	117.7	58	415	3,037	25.8	18.8	265	13.9	.12	4.57	28.79
100,001 to 200,000	5	986	191.3	35	247	6,709	35.1	17.8	136	26.4	.14	3.94	27.43
Over 200,000	3	1,107	335.6	26	181	Q	Q	Q	93	28.1	.08	3.53	33.10
Window Glass: Percent of Exterior Walls													
25 or Less	435	7,098	16.3	291	2,085	668	41.0	31.8	1,385	3.2	.20	4.76	10.76
26 to 50	80	2,988	37.3	120	864	1,501	40.3	22.5	538	6.7	.18	4.47	19.96
51 to 75	18	780	44.3	25	182	1,435	32.4	22.2	114	6.5	.15	4.52	23.56
Over 75	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building-Shell Conservation Features													
Any Conservation Feature	452	9,707	21.5	386	2,768	854	39.8	25.7	1,789	4.0	.18	4.63	9.72
Roof or Ceiling Insulation	364	7,785	21.4	283	2,031	777	36.3	22.6	1,311	3.6	.17	4.64	11.51
Wall Insulation	257	5,336	20.7	176	1,264	683	32.9	20.2	840	3.3	.16	4.78	13.29
Storm or Multiple Glazing	206	5,065	24.6	205	1,472	995	40.4	26.9	933	4.5	.18	4.55	13.13
Tinted, Reflective or Shading Glass or Film	68	3,895	57.5	98	698	1,447	25.2	13.4	430	6.3	.11	4.39	16.72
Exterior or Interior Shadings or Awnings	158	4,418	28.0	171	1,229	1,084	38.7	21.4	779	4.9	.18	4.56	15.48
Weather Stripping or Caulking	348	8,289	23.8	306	2,192	877	36.9	23.5	1,413	4.1	.17	4.62	10.72
Other Shell Features	Q	264	17.1	11	79	712	41.6	22.0	53	3.4	.20	4.81	31.43

Table 16. Fuel Oil Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Fuel Oil: Number of Buildings (thousand)	All Buildings Using Fuel Oil: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Fuel Oil Consumed (tril-lion Btu)	Total Fuel Oil Consumed (million gallons)	Fuel Oil Consumed per Building (million Btu)	Fuel Oil Consumed per Square Foot (thou-sand Btu)	Fuel Oil Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.018	0.926	0.926	1.302	1.303	1.230	1.105	1.231	1.218	1.132	1.037	0.282	
Energy Audit Year (Most Recent)													
Buildings Ever Audited	76	4,600	60.4	159	1,137	2,092	34.6	18.9	673	8.8	0.15	4.22	14.59
Before 1980	13	919	68.5	31	221	2,310	33.7	20.4	131	9.8	.14	4.23	28.63
1980 to 1983	28	1,733	61.2	53	381	1,877	30.6	20.5	237	8.4	.14	4.46	21.31
1984 to 1985	24	1,742	72.3	60	424	2,485	34.3	17.1	235	9.8	.13	3.93	29.00
1986	17	664	38.5	28	205	1,652	42.9	19.0	125	7.3	.19	4.39	24.65
Building Never Audited	458	6,406	14.0	282	2,031	617	44.1	37.5	1,386	3.0	.22	4.91	10.69

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 17. District Heat Consumption and Expenditures

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.088	1.051	0.744	1.271	1.271	1.007	0.853	1.161	1.220	1.068	0.818	0.685	
All Buildings	77	4,625	59.7	422	422	5,446	91.2	52.4	2,620	33.8	0.57	6.21	16.81
Building Floorspace (Square Feet)													
1,001 to 5,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
5,001 to 10,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
10,001 to 25,000	19	312	16.5	35	35	1,845	111.7	78.7	178	9.4	.57	Q	27.81
25,001 to 50,000	12	429	37.1	54	54	4,696	126.5	104.4	342	29.6	.80	6.30	25.69
50,001 to 100,000	11	746	71.0	70	70	6,630	93.4	93.3	433	41.2	.58	6.22	26.26
100,001 to 200,000	6	777	139.6	89	89	15,909	113.9	78.8	550	98.9	.71	6.22	25.44
200,001 to 500,000	4	1,304	341.9	99	99	26,031	76.1	42.4	567	148.8	.44	5.72	24.49
Over 500,000	1	956	872.3	55	55	50,359	57.7	20.7	412	376.2	.43	7.47	27.29
Year Constructed													
1900 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1901 to 1920	10	547	53.2	37	37	3,596	67.6	38.4	268	26.0	.49	7.24	33.93
1921 to 1945	17	1,083	65.2	97	97	5,833	89.5	65.1	596	35.9	.55	6.15	26.23
1946 to 1960	12	526	45.0	44	44	3,776	83.9	46.7	279	23.9	.53	6.33	25.36
1961 to 1970	17	1,095	63.6	98	98	5,698	89.6	44.1	613	35.6	.56	6.24	32.04
1971 to 1973	2	544	220.3	Q	Q	26,287	119.3	Q	369	149.4	.68	5.68	39.39
1974 to 1979	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1980 to 1983	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1984 to 1986	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
BUILDING USE													
Principal Building Activity													
Assembly	9	471	51.7	31	31	3,380	65.4	93.2	214	23.5	.45	6.94	25.98
Education	9	828	90.3	97	97	10,551	116.8	129.4	519	56.6	.63	5.37	31.28
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Food Service	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Health Care	4	557	137.9	80	80	19,779	143.4	58.2	486	120.4	.87	6.09	23.21
Lodging	8	446	58.6	Q	Q	7,153	122.0	276.2	Q	47.4	.81	6.62	36.88
Mercantile and Service	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Office	18	1,452	82.7	71	71	4,014	48.6	16.0	507	28.8	.35	7.18	27.70
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.088	1.051	0.744	1.271	1.271	1.007	0.853	1.161	1.220	1.068	0.818	0.685	
Ownership and Occupancy													
Nongovernment Owned	47	2,637	56.0	190	190	4,040	72.1	39.4	1,350	28.7	0.51	7.10	20.94
Owner Occupied	42	2,235	52.6	164	164	3,855	73.3	39.3	1,150	27.1	.51	7.02	23.21
Single Establishment	37	1,520	40.9	123	123	3,307	80.8	Q	824	22.2	.54	6.70	27.57
Multiple Establishment	Q	715	135.0	41	41	7,706	57.1	24.7	326	61.7	.46	8.00	33.73
Nonowner Occupied	5	402	87.3	26	26	5,741	65.8	40.0	200	43.4	.50	7.55	31.31
Unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Single Establishment	4	226	60.1	Q	Q	Q	89.8	Q	141	37.4	.62	6.92	41.88
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Government Owned	30	1,989	65.4	232	232	7,622	116.6	72.0	1,270	41.7	.64	5.48	19.83
Federal	7	244	36.1	19	19	2,880	79.8	Q	141	20.9	.58	7.26	32.34
State	17	1,114	67.5	146	146	8,842	131.0	100.2	836	50.7	.75	5.73	23.45
Local	8	669	86.0	Q	Q	8,774	102.1	58.3	308	39.6	.46	4.52	31.43
Workers													
Fewer than 5	21	315	15.0	24	24	1,140	76.0	664.3	161	7.7	.51	6.74	28.59
5 to 9	9	192	20.7	Q	Q	Q	108.5	353.8	Q	Q	Q	5.05	42.85
10 to 19	11	425	37.3	Q	Q	4,170	111.7	312.0	Q	Q	Q	5.46	39.00
20 to 49	18	583	32.0	63	63	3,480	108.8	118.8	383	21.0	.66	6.04	26.11
50 to 99	4	292	71.6	Q	Q	7,620	106.4	116.3	Q	51.5	.72	6.76	33.88
100 to 249	9	940	108.7	108	108	12,538	115.3	86.8	616	71.3	.66	5.69	26.29
250 or More	5	1,879	381.9	127	127	25,802	67.6	22.1	885	179.8	.47	6.97	19.73
Weekly Operating Hours													
39 or Fewer	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
40 to 48	19	1,055	56.7	41	41	2,207	38.9	14.6	295	15.8	.28	7.17	28.13
49 to 60	17	793	45.8	63	63	3,660	80.0	33.6	400	23.1	.50	6.31	26.08
61 to 84	6	510	86.6	Q	Q	11,208	129.4	117.1	324	55.0	.63	4.91	30.80
85 to 167	6	546	95.5	48	48	8,357	87.5	78.8	319	55.8	.58	6.67	32.42
168 (Open Continuously)	20	1,542	75.3	193	193	9,450	125.5	91.7	1,206	58.9	.78	6.23	21.85

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (trillion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thousand Btu)	District Heat Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.088	1.051	0.744	1.271	1.271	1.007	0.853	1.161	1.220	1.068	0.818	0.685	
LOCATION													
Census Region													
Northeast	17	1,383	81.3	94	94	5,543	68.2	32.4	639	37.6	0.46	6.78	25.68
New England	5	326	60.1	Q	Q	5,169	86.0	54.6	Q	38.6	Q	7.48	39.51
Middle Atlantic	12	1,058	91.2	66	66	5,718	62.7	27.7	430	37.1	.41	6.48	30.13
Midwest	22	1,798	81.1	196	196	8,825	108.9	72.9	1,170	52.7	.65	5.98	27.52
East North Central	12	1,037	88.7	68	68	5,819	65.6	Q	426	36.4	.41	6.26	26.01
West North Central	10	761	72.5	128	128	12,180	167.9	147.8	Q	71.0	.98	5.83	34.41
South	25	708	28.3	81	81	3,226	113.8	83.8	516	20.7	.73	Q	30.54
South Atlantic	11	467	42.8	49	49	4,491	104.9	67.6	358	32.8	.77	7.30	34.69
East South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
West South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
West	13	736	55.3	51	51	3,854	69.7	34.4	294	22.0	.40	5.72	24.62
Mountain	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Pacific	7	554	81.6	44	44	6,541	80.2	39.4	251	36.9	.45	5.65	27.38
Metropolitan Status													
Metropolitan	71	4,201	59.6	342	342	4,845	81.3	44.5	2,087	29.6	.50	6.11	15.38
Nonmetropolitan	7	425	61.0	Q	Q	11,535	189.1	215.2	Q	76.5	Q	Q	27.63
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	8	577	69.1	83	83	9,926	143.6	114.5	423	50.6	.73	5.10	28.60
5,500-7,000 HDD	24	1,650	67.6	139	139	5,717	84.5	51.2	890	36.5	.54	6.38	30.66
4,000-5,499 HDD	21	1,583	75.1	119	119	5,649	75.2	37.6	826	39.2	.52	6.94	22.04
Under 4,000 HDD	6	503	77.3	Q	Q	6,653	86.0	39.4	Q	35.4	.46	5.32	32.50
2,000 CDD or More and --													
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1986 Degree-Days													
Under 2,000 CDD and --													
Over 7,000 HDD	10	707	71.7	96	96	9,756	136.0	125.1	469	47.6	.66	4.88	26.61
5,500-7,000 HDD	22	1,567	69.7	125	125	5,568	79.9	38.5	858	38.2	.55	6.86	34.61
4,000-5,499 HDD	21	1,508	72.1	117	117	5,612	77.8	45.4	801	38.3	.53	6.83	22.02
Under 4,000 HDD	7	518	73.3	46	46	6,488	88.5	41.2	Q	33.8	.46	5.21	32.18
2,000 CDD or More and --													
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.088	1.051	0.744	1.271	1.271	1.007	0.853	1.161	1.220	1.068	0.818	0.685	
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	77	4,619	59.6	422	422	5,446	91.3	52.4	2,619	33.8	0.57	6.21	17.29
Natural Gas	25	2,011	79.9	183	183	7,262	90.8	45.8	1,187	47.2	.59	6.50	22.38
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Heat	77	4,625	59.7	422	422	5,446	91.2	52.4	2,620	33.8	.57	6.21	16.81
District Chilled Water	Q	1,051	123.3	Q	Q	15,234	123.5	Q	Q	Q	Q	Q	38.97
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Energy End Uses													
Space Heating	76	4,567	60.4	409	409	5,408	89.6	51.3	2,579	34.1	.56	6.31	17.45
Cooling	61	4,003	66.0	369	369	6,090	92.3	47.4	2,370	39.1	.59	6.42	18.69
Water Heating	68	4,355	63.9	389	389	5,703	89.3	49.4	2,448	35.9	.56	6.30	17.40
Cooking	12	1,794	152.3	190	190	16,145	106.0	53.3	1,151	97.7	.64	6.05	20.79
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Space-Heating Fuels													
District Heat	74	4,389	59.4	395	395	5,341	90.0	51.5	2,510	34.0	.57	6.36	17.98
Primary	71	4,270	59.8	385	385	5,398	90.2	52.1	2,461	34.5	.58	6.39	18.56
With Secondary	10	861	85.1	72	72	7,154	84.1	36.2	459	45.4	.53	6.34	27.89
Electricity Only	Q	315	48.9	15	15	2,344	47.9	Q	126	19.5	Q	8.33	33.32
Other Fuel or Combinations	4	546	148.4	57	57	15,565	104.9	41.3	333	90.5	.61	5.82	30.81
With No Secondary	61	3,397	55.7	312	312	5,115	91.8	57.9	1,997	32.7	.59	6.40	20.69
Secondary	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
District Steam	2	507	261.8	Q	Q	26,091	99.7	Q	279	143.9	.55	5.51	36.14
Other Fuels Excluding District Steam	59	3,496	59.5	319	319	5,431	91.2	46.9	2,092	35.6	.60	6.56	20.69
Building Not Air Conditioned	17	617	36.7	52	52	3,121	85.1	207.6	248	14.8	.40	4.73	28.28

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.993	0.966	0.810	1.250	1.250	1.057	0.908	1.216	1.177	1.043	0.832	0.691	
Water-Heating Fuels													
District Heat	33	3,363	100.4	298	298	8,903	88.6	51.0	1,903	56.8	0.57	6.38	20.18
Other Fuels Excluding District Heat	35	991	28.6	91	91	2,614	91.4	44.6	545	15.7	.55	6.01	24.15
Water Heating Not Performed	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Cooking Fuels													
District Heat	3	565	176.8	73	73	22,945	129.8	59.4	387	121.2	.69	5.28	29.75
Other Fuels Excluding District Heat	9	1,229	143.1	117	117	13,616	95.1	50.1	764	89.0	.62	6.53	25.17
Cooking Not Performed	66	2,832	43.1	232	232	3,528	81.9	51.8	1,469	22.3	.52	6.34	23.63
Manufacturing Fuels													
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	75	4,369	58.3	407	407	5,433	93.1	53.0	2,521	33.7	.58	6.20	17.31
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
51 to 99	5	576	127.0	44	44	9,735	76.7	Q	295	65.0	.51	6.68	31.93
100	67	3,817	57.2	355	355	5,317	92.9	51.7	2,204	33.0	.58	6.22	19.23
Percent Cooled													
Not Cooled	16	585	36.0	47	47	2,903	80.5	231.6	210	13.0	.36	4.46	28.66
1 to 50	25	1,404	55.1	134	134	5,277	95.8	64.9	909	35.7	.65	6.76	25.61
51 to 99	11	1,320	116.2	107	107	9,426	81.1	33.9	620	54.6	.47	5.79	29.59
100	24	1,316	53.9	Q	Q	5,462	101.3	50.9	880	36.1	.67	6.60	26.23
Heat Production Equipment													
Warm-Air Furnaces	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Boilers	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Individual Space Heaters or Electric Baseboards	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Packaged Heating Units	Q	559	112.6	Q	Q	Q	98.2	Q	Q	Q	.55	5.60	42.30
Air-Source Heat Pumps	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Receives District Heat	74	4,389	59.4	395	395	5,341	90.0	51.5	2,510	34.0	.57	6.36	17.98

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.993	0.966	0.810	1.250	1.250	1.057	0.908	1.216	1.177	1.043	0.832	0.691	
Cooling Production Equipment													
Central Cooling	30	1,931	65.5	158	158	5,344	81.6	33.8	1,014	34.4	0.53	6.43	23.41
Individual Air Conditioners	25	1,425	56.9	139	139	5,556	97.6	48.8	921	36.8	.65	6.62	23.08
Packaged Air-Conditioning Units	10	1,178	122.0	95	95	9,876	81.0	35.6	607	62.8	.52	6.36	30.26
Air-Source Heat Pumps	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Receives District Chilled Water	8	1,014	121.3	Q	Q	15,003	123.7	Q	Q	Q	.79	6.41	40.83
Heating and Cooling Distribution Equipment													
Ducted Forced Air	41	3,143	77.6	267	267	6,603	85.1	40.7	1,764	43.5	.56	6.59	21.24
For Heating Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Cooling Only	9	481	54.7	Q	Q	4,578	Q	Q	298	33.8	.62	7.39	33.28
For Both Heating and Cooling	27	2,361	88.3	199	199	7,427	84.1	36.7	1,306	48.8	.55	6.58	25.50
Fan-Coil Units	30	2,177	73.4	201	201	6,781	92.4	47.4	1,190	40.1	.55	5.91	22.08
For Heating Only	12	614	51.3	38	38	3,149	61.4	Q	237	19.8	.39	6.29	28.01
For Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Both Heating and Cooling	16	1,409	89.9	159	159	10,124	112.6	50.8	921	58.8	.65	5.80	25.09
Steam Radiators or Baseboards	31	2,007	63.7	182	182	5,776	90.6	54.7	1,105	35.1	.55	6.08	22.57
Hot-Water Radiators or Baseboards	17	1,524	92.4	149	149	9,020	97.7	44.2	867	52.5	.57	5.82	29.21
Heating Panels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:													
Heating Only	12	386	31.8	Q	Q	3,122	98.2	Q	Q	Q	Q	6.66	28.68
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	33	1,373	42.0	159	159	4,857	115.7	59.2	1,073	32.8	.78	6.75	28.26
Reduced Use--Off Hours													
Heating Only	10	322	32.3	23	23	2,355	73.0	108.1	137	Q	.43	5.84	32.49
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	36	2,846	79.1	210	210	5,836	73.8	35.8	1,402	39.0	.49	6.67	19.53

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.993	0.966	0.810	1.250	1.250	1.057	0.908	1.216	1.177	1.043	0.832	0.691	
HVAC Conservation Features													
Any HVAC Conservation Feature	59	4,201	71.7	374	374	6,375	89.0	47.6	2,289	39.0	0.54	6.13	16.56
Preventive Maintenance Program	58	4,113	71.5	362	362	6,288	88.0	47.6	2,223	38.6	.54	6.14	17.19
Waste-Heat Recovery	5	976	198.0	69	69	14,010	70.8	28.7	458	93.0	.47	6.63	22.57
EMCS	13	1,942	149.5	149	149	11,498	76.9	32.8	1,000	77.0	.51	6.69	23.42
Time-Clock Thermostat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Economizer Cycle	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other HVAC Features	2	Q	Q	14	14	9,279	Q	Q	107	68.5	Q	7.38	37.36
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	9	405	46.9	32	32	3,729	79.5	137.0	209	24.2	.52	6.49	33.51
51 to 99	14	959	66.3	84	84	5,798	87.4	38.2	454	31.4	.47	5.42	20.15
100	53	3,199	60.9	304	304	5,788	95.0	54.1	1,944	37.0	.61	6.39	20.31
Percent Lit--Off Hours													
Not Lit	21	465	22.1	Q	Q	Q	89.5	88.7	256	12.2	.55	6.15	35.81
1 to 50	44	3,498	80.0	302	302	6,917	86.4	47.3	1,933	44.2	.55	6.39	19.03
51 to 99	3	331	130.1	34	34	13,198	101.4	46.0	214	83.9	.65	6.36	26.64
100	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Lighting Equipment Types (Solely or in Combination)													
Standard Fluorescent	42	2,078	50.0	205	205	4,935	98.8	58.9	1,351	32.5	.65	6.58	23.73
Energy-Efficient Fluorescent	34	2,900	84.7	247	247	7,202	85.0	44.8	1,494	43.6	.52	6.06	19.04
Standard Incandescent	30	2,249	75.9	219	219	7,386	97.3	70.0	1,354	45.7	.60	6.19	21.18
Energy-Efficient Incandescent	10	1,035	103.4	63	63	6,331	61.2	25.5	472	47.1	.46	7.45	24.91
High-Intensity Discharge	10	761	80.0	70	70	7,379	92.3	58.1	471	49.5	.62	6.71	32.98
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (trillion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thousand Btu)	District Heat Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.993	0.966	0.810	1.250	1.250	1.057	0.908	1.216	1.177	1.043	0.832	0.691	
Lighting Conservation Features													
Any Lighting Conservation Feature	38	3,134	82.2	294	294	7,703	93.7	45.6	1,826	47.9	0.58	6.22	18.65
High-Efficiency Ballasts	28	2,291	83.2	213	213	7,743	93.1	45.5	1,264	45.9	.55	5.92	20.60
Delamping Program	17	1,788	102.7	157	157	9,025	87.9	36.5	1,040	59.8	.58	6.62	24.15
Natural Lighting Control Sensors	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Lighting Controls	6	795	129.0	59	59	9,582	74.3	31.2	431	69.9	.54	7.30	25.65
Other Lighting Features	Q	280	204.1	21	21	15,028	73.6	31.5	145	105.9	.52	7.05	32.19
STRUCTURE													
Floors													
One	24	332	13.6	38	38	1,544	113.9	116.3	199	8.1	.60	Q	36.75
Two	15	396	26.5	43	43	2,882	108.9	Q	258	17.3	.65	5.99	33.65
Three	15	810	52.8	98	98	6,391	121.1	112.2	571	37.1	.70	5.81	34.18
Over Three	23	3,087	135.9	243	243	10,695	78.7	38.7	1,592	70.1	.52	6.55	19.14
Wall and Frame Materials													
Masonry Over --													
Wood Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Masonry Frame	31	1,935	62.0	190	190	6,098	98.3	72.2	1,105	35.4	.57	5.81	21.44
Steel Frame	12	1,286	107.3	93	93	7,734	72.1	40.2	606	50.6	.47	6.54	25.52
Siding Over --													
Wood Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Masonry Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Metal Panels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Concrete Panels	7	525	74.7	Q	Q	8,942	119.7	59.5	427	60.8	.81	6.80	33.23
Other	Q	Q	52.4	22	22	2,828	Q	Q	172	Q	Q	7.81	36.48
Roof Materials													
Built-Up	46	3,246	70.6	295	295	6,427	91.0	49.7	1,838	40.0	.57	6.22	19.73
Shingles (Not Wood)	8	250	30.4	26	26	3,111	102.5	62.8	161	19.6	.65	6.30	33.08
Metal Surfacing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Synthetic or Rubber	5	466	94.6	35	35	6,998	74.0	40.0	233	47.3	.50	6.75	32.93
Slate or Tile	10	391	38.0	40	40	3,904	102.8	66.0	271	Q	.69	6.74	33.04
Wood Shingles, Shakes or Other Wooden Materials	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (tril-lion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thou-sand Btu)	District Heat Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.993	0.966	0.810	1.250	1.250	1.057	0.908	1.216	1.177	1.043	0.832	0.691	
Roof Square Footage													
5,000 or Less	25	243	9.6	27	27	1,079	112.8	61.4	187	7.4	0.77	6.82	32.20
5,001 to 10,000	14	498	34.4	39	39	2,666	77.5	62.0	270	18.6	.54	6.99	32.14
10,001 to 25,000	20	949	47.2	97	97	4,820	102.1	57.9	615	30.6	.65	6.35	24.94
25,001 to 50,000	9	919	99.1	97	97	10,463	105.6	57.7	570	61.5	.62	5.88	23.07
50,001 to 100,000	6	1,086	196.2	92	92	16,697	85.1	Q	585	105.7	.54	6.33	28.74
100,001 to 200,000	2	414	237.3	Q	Q	18,028	76.0	59.3	200	114.4	.48	6.35	32.55
Over 200,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Window Glass: Percent of Exterior Walls													
25 or Less	54	2,582	47.4	285	285	5,227	110.2	87.4	1,739	31.9	.67	6.11	22.12
26 to 50	19	1,253	65.2	95	95	4,934	75.7	32.5	609	31.7	.49	6.42	19.03
51 to 75	Q	Q	Q	30	30	12,477	Q	Q	164	Q	Q	Q	35.02
Over 75	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building-Shell Conservation Features													
Any Conservation Feature	68	4,130	61.0	380	380	5,609	91.9	50.4	2,355	34.8	.57	6.21	18.11
Roof or Ceiling Insulation	58	3,398	58.9	312	312	5,418	91.9	49.5	1,945	33.7	.57	6.23	20.46
Wall Insulation	33	1,835	54.9	197	197	5,893	107.4	58.0	1,211	36.2	.66	6.14	23.60
Storm or Multiple Glazing	21	1,701	79.4	160	160	7,476	94.1	55.3	1,035	48.3	.61	6.46	22.28
Tinted, Reflective or Shading Glass or Film	13	1,660	122.9	146	146	10,786	87.7	42.3	916	67.9	.55	6.29	28.35
Exterior or Interior Shadings or Awnings	23	1,770	75.9	155	155	6,652	87.6	40.4	1,026	44.0	.58	6.61	18.46
Weather Stripping or Caulking	53	3,413	64.5	338	338	6,383	99.0	62.9	2,140	40.4	.63	6.33	18.84
Other Shell Features	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 17. District Heat Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using District Heat: Number of Buildings (thousand)	All Buildings Using District Heat: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total District Heat Consumed (trillion Btu)	Total District Heat Consumed (billion pounds)	District Heat Consumed per Building (million Btu)	District Heat Consumed per Square Foot (thousand Btu)	District Heat Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	0.993	0.966	0.810	1.250	1.250	1.057	0.908	1.216	1.177	1.043	0.832	0.691	
Energy Audit Year (Most Recent)													
Buildings Ever Audited	23	2,521	109.2	241	241	10,415	95.4	49.6	1,366	59.2	0.54	5.68	19.27
Before 1980	9	1,041	117.9	93	93	10,581	89.8	Q	558	63.1	.54	5.97	28.30
1980 to 1983	14	1,291	94.2	137	137	10,026	106.5	62.6	688	50.2	.53	5.01	25.63
1984 to 1985	2	346	203.6	Q	Q	Q	Q	Q	145	85.5	.42	Q	31.50
1986	4	378	103.5	Q	Q	8,991	86.8	Q	201	54.9	.53	6.11	33.51
Building Never Audited	54	2,104	38.7	181	182	3,336	86.3	56.7	1,253	23.0	.60	6.91	25.62

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] *Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.*

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 18. Propane Consumption and Expenditures

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.104	1.122	0.819	1.443	1.443	0.967	1.202	1.085	1.419	0.933	1.132	0.251	
All Buildings	344	3,213	9.3	63	692	184	19.7	17.6	543	1.6	0.17	8.59	13.75
Building Floorspace (Square Feet)													
1,001 to 5,000	220	613	2.8	29	313	130	46.7	35.4	243	1.1	.40	8.50	13.99
5,001 to 10,000	65	467	7.2	15	167	233	32.6	19.0	126	1.9	.27	8.31	18.10
10,001 to 25,000	32	522	16.2	11	126	355	22.0	28.9	101	3.1	.19	8.82	18.55
Over 25,000	26	1,612	62.2	8	87	306	4.9	5.0	72	2.8	.04	9.13	24.07
Year Constructed													
1900 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1901 to 1920	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1921 to 1945	39	398	10.1	7	72	167	16.6	Q	54	1.4	.14	8.27	26.00
1946 to 1960	72	513	7.1	12	128	162	22.8	19.9	109	1.5	.21	9.39	20.54
1961 to 1970	72	554	7.7	13	141	179	23.3	21.3	103	1.4	.19	7.99	25.08
1971 to 1973	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1974 to 1979	41	601	14.7	9	94	210	14.3	13.4	73	1.8	.12	8.51	26.80
1980 to 1983	34	305	8.9	10	112	298	33.5	17.0	89	2.6	.29	8.69	28.13
1984 to 1986	30	250	8.2	8	88	Q	32.2	21.1	63	Q	.25	7.84	28.14
BUILDING USE													
Principal Building Activity													
Assembly	77	582	7.6	7	73	87	11.5	23.8	56	.7	.10	8.40	18.85
Education	13	366	28.6	3	28	198	Q	Q	20	1.6	.06	8.08	34.01
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Food Service	35	200	5.7	12	134	347	61.0	29.3	112	3.2	.56	9.15	25.12
Health Care	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Lodging	35	381	10.8	12	131	339	31.4	31.4	104	2.9	.27	8.70	25.67
Mercantile and Service	94	639	6.8	17	185	181	26.5	21.6	140	1.5	.22	8.28	19.45
Office	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	28	431	15.2	Q	Q	Q	Q	Q	Q	Q	Q	8.78	26.14
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Ownership and Occupancy													
Nongovernment Owned	312	2,690	8.6	57	623	182	21.2	18.7	492	1.6	.18	8.65	13.90
Owner Occupied	239	1,955	8.2	44	479	183	22.4	20.1	374	1.6	.19	8.56	15.09
Nonowner Occupied	73	735	10.1	13	145	181	18.0	15.1	118	1.6	.16	8.96	25.64
Government Owned	32	523	16.5	6	69	200	12.1	Q	51	1.6	.10	8.04	27.03

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.104	1.122	0.819	1.443	1.443	0.967	1.202	1.085	1.419	0.933	1.132	0.251	
Workers													
Fewer than 5	215	960	4.5	23	254	108	24.1	54.7	198	0.9	0.21	8.55	16.86
5 to 9	44	287	6.5	9	101	210	32.2	32.8	73	1.7	.25	7.88	23.19
10 to 19	47	681	14.4	12	129	249	17.3	19.6	102	2.2	.15	8.67	22.19
20 to 49	24	475	19.8	12	134	510	25.8	16.7	112	4.6	.23	9.11	23.76
50 to 99	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
100 to 249	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
250 or More	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Weekly Operating Hours													
39 or Fewer	81	815	10.0	7	75	84	8.4	16.8	59	.7	.07	8.61	24.00
40 to 48	47	452	9.7	7	72	140	14.5	15.9	62	1.3	.14	9.45	22.51
49 to 60	74	479	6.5	10	112	138	21.3	13.8	82	1.1	.17	8.01	23.82
61 to 84	41	471	11.6	10	110	246	21.3	19.8	89	2.2	.19	8.94	26.75
85 to 167	58	439	7.6	13	139	218	28.8	21.2	108	1.9	.25	8.54	26.16
168 (Open Continuously)	43	557	12.9	17	186	393	30.5	18.1	143	3.3	.26	8.42	25.03
LOCATION													
Census Region													
Northeast	53	785	14.8	9	97	166	11.3	10.2	93	1.8	.12	10.53	27.31
New England	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Middle Atlantic	38	510	13.4	7	75	179	13.4	17.4	72	1.9	.14	10.54	32.91
Midwest	98	658	6.7	19	206	193	28.6	26.9	131	1.3	.20	6.94	29.50
East North Central	54	461	8.5	Q	Q	191	Q	22.5	Q	1.4	Q	7.58	30.99
West North Central	Q	Q	4.5	Q	Q	Q	Q	35.5	Q	Q	.27	6.17	38.21
South	146	1,350	9.3	26	282	177	19.1	18.3	221	1.5	.16	8.56	19.42
South Atlantic	95	915	9.6	17	189	181	18.9	15.1	149	1.6	.16	8.59	23.03
East South Central	39	255	6.6	Q	Q	175	26.7	39.5	Q	1.5	.23	8.52	33.90
West South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
West	Q	Q	8.9	Q	Q	207	23.3	Q	Q	2.1	.24	10.09	27.15
Mountain	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Pacific	Q	Q	9.1	Q	Q	214	23.5	Q	Q	2.2	.24	10.12	28.92
Metropolitan Status													
Metropolitan	152	1,500	9.9	31	344	207	21.0	16.5	272	1.8	.18	8.66	18.48
Nonmetropolitan	192	1,713	8.9	32	348	166	18.6	18.7	271	1.4	.16	8.52	20.18

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.104	1.122	0.819	1.443	1.443	0.967	1.202	1.085	1.419	0.933	1.132	0.251	
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	Q	383	8.3	Q	Q	229	27.5	17.8	Q	1.8	0.21	7.68	28.79
5,500-7,000 HDD	52	689	13.1	9	98	171	13.0	14.2	80	1.5	.12	8.89	32.77
4,000-5,499 HDD	103	892	8.7	19	208	184	21.3	16.3	170	1.7	.19	8.96	27.50
Under 4,000 HDD	96	790	8.2	17	182	173	21.0	27.6	143	1.5	.18	8.63	23.14
2,000 CDD or More and --													
Under 4,000 HDD	46	459	9.9	Q	Q	176	17.8	13.4	Q	1.5	.15	8.48	33.27
1986 Degree-Days													
Under 2,000 CDD and --													
Over 7,000 HDD	54	421	7.7	Q	Q	223	28.8	19.0	Q	1.8	.24	8.18	25.73
5,500-7,000 HDD	39	626	16.0	5	57	132	Q	9.1	51	1.3	Q	9.88	30.84
4,000-5,499 HDD	92	786	8.6	18	197	197	22.9	20.3	145	1.6	.18	8.03	30.12
Under 4,000 HDD	103	741	7.2	18	199	176	24.5	Q	167	1.6	.23	9.21	23.10
2,000 CDD or More and --													
Under 4,000 HDD	55	639	11.6	Q	Q	176	15.2	14.7	Q	1.5	.13	8.29	29.16
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	339	3,191	9.4	63	691	186	19.8	17.9	542	1.6	.17	8.59	13.78
Natural Gas	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Fuel Oil	52	910	17.4	6	68	119	6.8	5.4	63	1.2	.07	10.12	24.94
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
Propane	344	3,213	9.3	63	692	184	19.7	17.6	543	1.6	.17	8.59	13.75
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Energy End Uses													
Space Heating	327	3,062	9.4	62	679	190	20.3	18.2	530	1.6	.17	8.54	13.76
Cooling	210	2,439	11.6	46	507	221	19.0	16.4	398	1.9	.16	8.61	14.65
Water Heating	240	2,620	10.9	53	585	223	20.4	16.8	454	1.9	.17	8.51	14.11
Cooking	74	1,358	18.3	24	263	324	17.7	11.5	216	2.9	.16	9.01	19.90
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (trillion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thousand Btu)	Propane Consumed per Worker (million Btu)	Total Expenditures (million dollars)	Expenditures per Building (thousand dollars)	Expenditures per Square Foot (dollars)	Expenditures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.104	1.122	0.819	1.443	1.443	0.967	1.202	1.085	1.419	0.933	1.132	0.251	
Space-Heating Fuels													
Propane	250	1,819	7.3	46	507	185	25.5	30.9	381	1.5	0.21	8.23	14.66
Primary	214	1,244	5.8	36	392	168	28.8	35.6	291	1.4	.23	8.14	15.53
With Secondary	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
With No Secondary	185	996	5.4	31	342	169	31.3	35.9	255	1.4	.26	8.16	15.41
Secondary	40	579	14.6	11	117	270	18.4	21.6	91	2.3	.16	8.53	26.54
Other Fuels Excluding Propane	15	354	24.1	2	27	165	6.9	4.0	24	1.6	.07	9.81	34.50
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
Propane	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
Other Fuels Excluding Propane	210	2,439	11.6	46	507	221	19.0	16.4	398	1.9	.16	8.61	14.65
Building Not Air Conditioned	131	762	5.8	17	184	128	22.1	23.3	144	1.1	.19	8.52	20.05

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.051	1.116	0.859	1.407	1.407	0.957	1.234	1.135	1.384	0.928	1.162	0.251	
Water-Heating Fuels													
Propane	100	958	9.5	30	325	295	30.9	27.7	249	2.5	0.26	8.40	17.96
Other Fuels Excluding Propane	139	1,662	11.9	24	260	170	14.3	11.3	205	1.5	.12	8.65	18.15
Water Heating Not Performed	104	593	5.7	10	108	95	16.6	23.2	89	.9	.15	9.02	20.30
Cooking Fuels													
Propane	66	960	14.6	22	242	335	23.0	14.1	199	3.0	.21	8.98	20.53
Other Fuels Excluding Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Cooking Not Performed	269	1,855	6.9	39	429	146	21.1	26.0	327	1.2	.18	8.33	15.12
Manufacturing Fuels													
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	330	3,010	9.1	62	682	188	20.7	18.1	534	1.6	.18	8.58	13.93
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	54	387	7.1	9	99	168	23.5	32.7	76	1.4	.20	8.42	25.84
51 to 99	46	708	15.3	16	170	337	21.9	20.7	130	2.8	.18	8.40	24.25
100	225	1,970	8.7	37	409	166	19.0	15.6	322	1.4	.16	8.62	15.40
Percent Cooled													
Not Cooled	131	762	5.8	17	184	128	22.1	23.3	144	1.1	.19	8.52	20.05
1 to 50	76	1,103	14.5	15	161	193	13.3	15.5	130	1.7	.12	8.85	20.23
51 to 99	37	511	14.0	10	114	286	20.4	14.1	94	2.6	.18	9.03	27.23
100	100	836	8.4	21	233	213	25.4	18.0	175	1.8	.21	8.24	18.66
Heat Production Equipment													
Warm-Air Furnaces	163	1,123	6.9	28	307	172	25.0	19.5	233	1.4	.21	8.29	16.29
Boilers	37	850	23.1	9	95	237	10.2	8.2	78	2.1	.09	8.97	26.02
Individual Space Heaters or Electric Baseboards	157	1,310	8.3	23	254	148	17.7	19.0	202	1.3	.15	8.69	18.45
Packaged Heating Units	20	672	33.0	9	102	456	13.8	11.2	78	3.8	.12	8.39	28.78
Air-Source Heat Pumps	27	362	13.3	8	89	299	22.5	21.5	73	2.7	.20	8.94	30.46
Receives District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.051	1.116	0.859	1.407	1.407	0.957	1.234	1.135	1.384	0.928	1.162	0.251	
Cooling Production Equipment													
Central Cooling	64	905	14.0	11	120	170	12.1	10.2	101	1.6	0.11	9.19	18.85
Individual Air Conditioners	101	923	9.1	19	203	183	20.0	18.1	159	1.6	.17	8.59	18.65
Packaged Air-Conditioning Units	30	825	27.6	13	139	425	15.4	10.3	108	3.6	.13	8.48	24.98
Air-Source Heat Pumps	27	362	13.3	8	89	299	22.5	21.5	73	2.7	.20	8.94	30.46
Receives District Chilled Water	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
Heating and Cooling Distribution Equipment													
Ducted Forced Air	170	2,030	11.9	37	410	221	18.5	15.4	320	1.9	.16	8.53	14.92
For Heating Only	52	300	5.7	8	87	152	26.6	22.3	65	1.2	.22	8.14	26.22
For Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Both Heating and Cooling	110	1,506	13.7	29	313	260	19.0	16.0	245	2.2	.16	8.56	16.33
Fan-Coil Units	34	666	19.4	8	83	221	11.4	9.0	72	2.1	.11	9.49	27.69
For Heating Only	21	293	13.9	3	31	135	9.7	7.5	27	1.3	.09	9.40	31.68
For Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Both Heating and Cooling	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Steam Radiators or Baseboards	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Hot-Water Radiators or Baseboards	20	481	24.3	5	56	259	10.7	Q	47	2.4	.10	9.25	31.76
Heating Panels	23	270	11.9	Q	Q	Q	Q	Q	Q	Q	Q	10.07	24.08
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:													
Heating Only	87	491	5.6	12	132	138	24.5	24.4	109	1.2	.22	9.07	21.84
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	143	1,256	8.8	31	342	219	24.8	18.7	265	1.9	.21	8.51	15.92
Reduced Use--Off Hours													
Heating Only	100	672	6.7	13	139	127	18.9	18.8	110	1.1	.16	8.69	23.17
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	178	1,923	10.8	35	382	196	18.2	17.2	299	1.7	.16	8.57	16.01

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.051	1.116	0.859	1.407	1.407	0.957	1.234	1.135	1.384	0.928	1.162	0.251	
HVAC Conservation Features													
Any HVAC Conservation Feature	178	2,207	12.4	35	388	199	16.1	12.9	309	1.7	0.14	8.71	15.83
Preventive Maintenance Program	168	2,054	12.2	33	356	193	15.8	12.6	287	1.7	.14	8.81	16.36
Waste-Heat Recovery	21	491	23.8	6	61	272	11.4	9.1	45	2.2	.09	8.08	31.77
EMCS	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Time-Clock Thermostat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Economizer Cycle	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other HVAC Features	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	56	363	6.5	8	86	142	21.8	27.6	67	1.2	.18	8.50	22.02
51 to 99	57	616	10.7	13	142	226	21.1	13.8	108	1.9	.18	8.34	26.61
100	227	2,217	9.8	42	460	185	18.9	17.8	365	1.6	.16	8.68	16.07
Percent Lit--Off Hours													
Not Lit	198	1,182	6.0	28	303	140	23.4	25.2	228	1.2	.19	8.23	19.00
1 to 50	129	1,782	13.8	27	301	213	15.4	13.5	247	1.9	.14	8.98	17.74
51 to 99	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
100	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Lighting Equipment Types (Solely or in Combination)													
Standard Fluorescent	223	2,028	9.1	44	479	196	21.6	18.5	376	1.7	.19	8.60	14.96
Energy-Efficient Fluorescent	55	1,185	21.5	10	105	175	8.1	7.6	90	1.6	.08	9.31	20.95
Standard Incandescent	192	1,603	8.4	35	384	183	21.9	17.9	306	1.6	.19	8.72	16.78
Energy-Efficient Incandescent	24	451	18.6	6	65	245	13.2	10.7	53	2.2	.12	8.95	30.89
High-Intensity Discharge	14	419	29.1	Q	Q	323	Q	Q	Q	2.7	.09	8.22	36.22
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.051	1.116	0.859	1.407	1.407	0.957	1.234	1.135	1.384	0.928	1.162	0.251	
Lighting Conservation Features													
Any Lighting Conservation Feature	77	1,479	19.1	17	191	225	11.8	9.3	155	2.0	0.10	8.90	19.64
High-Efficiency Ballasts	56	1,143	20.3	12	129	209	10.3	8.2	108	1.9	.09	9.12	22.36
Delamping Program	18	526	28.7	4	46	230	8.0	Q	38	2.1	.07	9.05	29.81
Natural Lighting Control Sensors	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Lighting Controls	14	478	33.1	6	61	383	11.6	8.8	44	3.1	.09	8.00	31.50
Other Lighting Features	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
STRUCTURE													
Floors													
One	221	1,659	7.5	38	414	171	22.8	19.7	318	1.4	.19	8.42	16.70
Two	95	899	9.5	19	209	201	21.3	21.4	168	1.8	.19	8.78	19.22
Three	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Over Three	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Wall and Frame Materials													
Masonry Over --													
Wood Frame	59	503	8.5	6	66	102	12.1	Q	52	.9	.10	8.60	24.27
Masonry Frame	93	1,303	13.9	20	224	219	15.7	13.5	177	1.9	.14	8.67	18.77
Steel Frame	11	211	19.9	Q	Q	Q	17.7	Q	Q	Q	.16	9.14	26.55
Siding Over --													
Wood Frame	113	635	5.6	19	207	168	29.9	25.8	166	1.5	.26	8.77	21.17
Masonry Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Metal Panels	45	370	8.2	8	92	186	22.6	26.3	62	1.4	.17	7.43	29.40
Concrete Panels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Roof Materials													
Built-Up	65	1,266	19.6	14	152	215	11.0	7.4	128	2.0	.10	9.25	22.71
Shingles (Not Wood)	154	903	5.9	25	270	160	27.3	29.5	202	1.3	.22	8.19	19.24
Metal Surfacing	94	610	6.5	19	205	200	30.6	33.7	155	1.7	.25	8.32	19.52
Synthetic or Rubber	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Slate or Tile	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Wood Shingles, Shakes or Other Wooden Materials	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.051	1.116	0.859	1.407	1.407	0.957	1.234	1.135	1.384	0.928	1.162	0.251	
Roof Square Footage													
5,000 or Less	227	732	3.2	33	364	147	45.4	36.0	272	1.2	0.37	8.18	14.95
5,001 to 10,000	63	615	9.8	12	132	192	19.6	15.7	109	1.7	.18	9.02	23.31
10,001 to 25,000	36	718	20.0	12	133	338	16.9	14.9	113	3.1	.16	9.29	19.62
25,001 to 50,000	10	333	34.1	2	27	254	7.5	Q	20	2.0	.06	8.02	33.30
50,001 to 100,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
100,001 to 200,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Over 200,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Window Glass: Percent of Exterior Walls													
25 or Less	295	2,385	8.1	51	556	172	21.3	22.2	433	1.5	.18	8.52	14.27
26 to 50	37	602	16.2	11	116	284	17.5	12.3	93	2.5	.16	8.86	24.18
51 to 75	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Over 75	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building-Shell Conservation Features													
Any Conservation Feature	289	2,854	9.9	54	596	188	19.1	16.3	466	1.6	.16	8.56	14.24
Roof or Ceiling Insulation	250	2,456	9.8	50	546	200	20.3	17.5	421	1.7	.17	8.45	14.79
Wall Insulation	206	1,857	9.0	41	445	197	21.9	17.8	342	1.7	.18	8.42	15.47
Storm or Multiple Glazing	119	1,384	11.6	29	315	242	20.8	16.0	246	2.1	.18	8.55	18.29
Tinted, Reflective or Shading Glass or Film	49	938	19.1	14	150	278	14.6	10.6	121	2.5	.13	8.80	23.73
Exterior or Interior Shadings or Awnings	98	1,067	10.9	24	264	247	22.6	15.0	216	2.2	.20	8.95	17.48
Weather Stripping or Caulking	224	2,288	10.2	44	478	195	19.1	15.7	377	1.7	.16	8.65	15.41
Other Shell Features	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 18. Propane Consumption and Expenditures (continued)

Building Characteristics	All Buildings Using Propane: Number of Buildings (thousand)	All Buildings Using Propane: Total Floor-space (million square feet)	Floor-space per Building (thousand square feet)	Total Propane Consumed (tril-lion Btu)	Total Propane Consumed (million gallons)	Propane Consumed per Building (million Btu)	Propane Consumed per Square Foot (thou-sand Btu)	Propane Consumed per Worker (million Btu)	Total Expend-itures (million dollars)	Expend-itures per Building (thousand dollars)	Expend-itures per Square Foot (dollars)	Expend-itures per Million Btu (dollars)	RSE Row Factor
RSE Column Factor:	1.051	1.116	0.859	1.407	1.407	0.957	1.234	1.135	1.384	0.928	1.162	0.251	
Energy Audit Year (Most Recent)													
Buildings Ever Audited	36	727	20.0	4	49	123	6.1	4.3	43	1.2	0.06	9.54	25.89
Before 1980	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1980 to 1983	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1984 to 1985	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1986	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Never Audited	307	2,486	8.1	59	643	191	23.6	22.9	500	1.6	.20	8.52	13.27

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 19. Major Fuel Consumption and Intensity by Census Region

Building Characteristics	Total Major Fuel Consumption (trillion Btu)				Major Fuel Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Any Major Fuel (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.193	1.228	1.195	1.559	0.901	0.941	0.888	1.253	0.854	0.767	0.675	0.877	
All Buildings	1,046	1,603	1,485	906	90.9	101.9	78.6	84.6	18.0	15.2	12.4	13.4	7.40
Building Floorspace (Square Feet)													
1,001 to 5,000	104	192	242	180	126.9	132.3	98.9	147.8	2.9	2.8	2.8	2.8	8.08
5,001 to 10,000	105	195	187	110	80.0	99.6	83.6	98.3	7.4	7.3	7.4	7.3	6.18
10,001 to 25,000	127	220	247	130	90.4	94.2	77.5	66.9	16.1	16.6	16.4	16.3	7.54
25,001 to 50,000	173	160	183	146	91.9	82.4	62.7	80.6	36.1	35.1	35.6	36.3	7.96
50,001 to 100,000	139	212	183	106	92.2	90.9	61.7	75.4	71.6	70.4	68.7	68.1	8.62
100,001 to 200,000	103	199	143	133	71.9	92.7	72.0	84.6	137.9	141.0	139.8	137.0	11.00
200,001 to 500,000	174	262	167	76	98.8	125.9	81.7	89.8	310.8	308.8	281.5	295.4	12.54
Over 500,000	121	163	133	24	87.3	110.1	121.8	30.3	890.6	820.7	897.4	742.3	20.66
Year Constructed													
1900 or Before	53	57	Q	Q	62.2	51.9	Q	Q	14.5	13.1	Q	8.2	23.14
1901 to 1920	107	78	64	26	83.7	82.0	73.3	60.6	19.1	12.4	13.6	14.5	24.98
1921 to 1945	212	239	116	99	96.5	98.1	62.3	62.4	19.4	14.6	9.7	12.8	15.83
1946 to 1960	162	218	251	123	91.5	102.5	66.8	69.9	14.1	11.3	10.8	9.7	13.64
1961 to 1970	224	400	367	262	112.3	131.8	88.7	119.6	19.5	16.5	14.9	14.4	15.41
1971 to 1973	74	145	157	97	108.0	119.2	102.9	113.2	24.1	15.0	17.2	21.7	19.87
1974 to 1979	113	251	272	102	85.8	111.7	90.7	63.3	19.5	17.4	12.7	13.0	16.11
1980 to 1983	58	112	135	93	Q	89.4	71.6	76.8	20.0	20.1	11.5	16.2	20.86
1984 to 1986	43	103	115	93	73.9	75.8	69.2	101.9	16.5	21.0	12.7	16.6	18.92
BUILDING USE													
Principal Building Activity													
Assembly	94	114	111	82	76.3	57.9	40.8	59.2	17.4	12.8	11.4	12.8	15.89
Education	165	228	144	99	102.7	103.1	67.0	74.0	54.4	52.9	26.8	14.8	14.53
Food Sales	Q	50	48	Q	Q	229.0	Q	Q	10.0	9.4	Q	Q	28.64
Food Service	41	93	61	65	186.1	208.7	156.6	286.2	5.5	7.1	6.8	5.6	18.31
Health Care	76	175	127	78	232.7	313.8	158.2	188.1	34.4	64.4	46.8	25.0	21.67
Lodging	60	91	99	61	98.9	143.1	104.5	102.1	27.3	21.2	17.9	19.0	22.89
Mercantile and Service	220	299	359	124	79.1	85.2	80.0	62.0	12.3	10.2	9.3	8.7	15.25
Office	194	300	261	255	109.0	118.4	92.1	106.8	19.5	16.6	12.0	18.3	16.71
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	98	137	184	48	52.3	64.1	57.7	35.1	20.5	16.5	16.3	18.5	19.32
Other	30	57	42	40	85.0	93.8	118.6	103.9	20.5	24.7	11.6	17.9	29.92
Vacant	10	39	21	22	37.7	54.6	30.3	52.4	Q	14.7	10.5	12.4	26.39
Ownership and Occupancy													
Nongovernment Owned	745	1,217	1,116	695	86.9	95.8	73.3	82.6	15.0	13.6	11.3	12.6	8.43
Owner Occupied	509	870	724	432	88.3	102.0	77.1	93.0	13.7	12.6	11.1	12.1	9.68
Nonowner Occupied	236	347	391	263	83.9	83.0	67.1	69.7	18.7	16.1	11.8	13.4	12.28
Government Owned	301	386	369	210	102.8	128.0	101.1	92.0	42.8	29.6	21.2	17.2	13.54

Table 19. Major Fuel Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)				Major Fuel Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Any Major Fuel (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.193	1.228	1.195	1.559	0.901	0.941	0.888	1.253	0.854	0.767	0.675	0.877	
Workers													
Fewer than 5	92	195	203	122	53.7	50.5	48.0	59.6	6.8	7.0	5.7	6.0	11.16
5 to 9	77	139	130	137	72.4	69.1	58.7	110.3	7.9	10.5	6.9	6.6	12.73
10 to 19	113	161	154	90	60.5	94.8	56.5	56.4	15.8	12.4	13.4	12.6	13.05
20 to 49	189	309	283	134	106.7	145.7	83.0	87.4	20.5	20.7	21.5	17.8	12.53
50 to 99	159	147	211	149	110.3	92.2	114.6	92.8	52.7	51.3	31.9	45.2	16.09
100 to 249	136	246	151	90	99.9	129.9	77.9	72.1	96.1	103.8	73.1	86.6	14.13
250 or More	280	408	353	184	122.1	159.0	139.9	127.3	336.1	306.5	244.8	183.6	17.78
Weekly Operating Hours													
39 or Fewer	85	176	117	52	63.5	65.9	39.8	41.9	15.2	11.7	9.9	9.0	17.69
40 to 48	207	306	399	198	78.3	79.8	70.5	70.3	18.7	16.5	12.4	11.8	12.47
49 to 60	193	224	158	174	82.5	80.9	49.6	71.1	13.1	11.6	9.9	14.3	10.45
61 to 84	210	282	244	159	92.4	95.4	89.5	88.5	19.7	20.0	13.9	19.2	15.74
85 to 167	161	237	161	93	111.8	166.6	97.3	94.1	21.8	12.1	15.4	12.2	16.37
168 (Open Continuously)	190	378	406	229	129.5	182.4	149.6	162.3	30.0	28.7	19.8	18.0	17.11
LOCATION													
Metropolitan Status													
Metropolitan	885	1,227	1,154	735	92.7	105.3	84.4	79.3	19.1	20.8	14.2	15.3	8.06
Nonmetropolitan	161	377	331	171	82.3	92.4	63.5	118.4	14.0	8.6	9.5	7.5	13.88
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	78	455	NC	44	89.6	Q	NC	117.4	11.8	Q	NC	11.3	18.89
5,500-7,000 HDD	449	887	NC	142	80.9	Q	NC	97.7	17.4	Q	NC	15.5	10.10
4,000-5,499 HDD	519	260	306	121	102.1	83.5	88.0	69.9	20.6	12.4	16.0	15.3	17.54
Under 4,000 HDD	NC	Q	623	418	NC	Q	82.5	Q	NC	5.0	14.0	Q	6.93
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	557	181	NC	NC	70.8	Q	NC	NC	10.3	Q	13.25
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	1,042	1,600	1,482	905	91.2	102.0	79.0	85.0	18.0	15.3	12.5	13.4	7.55
Natural Gas	644	1,302	935	721	93.6	104.8	89.7	95.8	24.0	17.2	14.5	15.4	9.00
Fuel Oil	514	279	320	114	101.1	136.9	126.8	83.9	19.7	19.1	18.8	39.0	20.06
District Heat	184	346	198	103	132.7	192.5	279.2	139.4	81.3	81.1	28.3	55.3	23.38
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	87	64	87	Q	110.9	97.8	64.1	80.7	14.8	6.7	9.3	8.9	24.74
Minor Fuels	17	35	26	Q	48.3	81.8	50.6	Q	11.0	8.5	9.3	10.6	32.02

Table 19. Major Fuel Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)				Major Fuel Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Any Major Fuel (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.193	1.228	1.195	1.559	0.901	0.941	0.888	1.253	0.854	0.767	0.675	0.877	
Energy End Uses													
Space Heating	1,040	1,597	1,438	869	92.6	105.1	82.0	87.4	18.9	15.8	12.6	14.6	7.52
Cooling	844	1,378	1,384	785	98.8	110.3	82.7	93.9	22.2	18.8	13.3	15.3	8.03
Water Heating	958	1,518	1,221	812	96.1	108.4	83.0	85.4	20.6	18.0	14.8	15.8	7.60
Cooking	459	616	553	352	114.1	132.8	103.8	115.2	37.5	31.2	28.7	26.0	12.44
Manufacturing	83	153	156	58	150.7	157.6	160.2	103.2	33.4	28.0	18.6	21.1	28.77
Space-Heating Fuels (Solely or in Combination)													
Electricity	204	254	571	269	82.2	67.8	69.1	71.9	19.2	22.7	13.6	14.2	11.32
Natural Gas	451	1,112	802	579	88.4	101.6	87.3	91.6	20.8	16.0	13.9	14.9	9.91
Fuel Oil	468	210	248	71	104.7	150.4	119.5	92.9	18.1	14.2	16.2	25.4	18.99
District Heat	181	341	154	75	132.9	192.1	233.7	125.8	81.3	80.8	27.4	53.3	22.39
Propane	Q	32	39	Q	87.9	79.7	Q	Q	13.2	5.0	Q	6.1	25.61
Minor Fuels	16	21	Q	Q	52.5	62.0	Q	Q	10.3	6.9	Q	8.1	31.05
Building Not Heated	7	6	56	37	23.1	11.8	38.4	48.1	6.4	6.8	10.8	6.5	24.19
Air-Conditioning Fuels (Solely or in Combination)													
Electricity	749	1,143	1,302	709	97.8	102.9	81.9	94.6	21.1	18.0	13.0	14.7	8.44
Natural Gas	37	94	42	59	72.9	105.5	56.1	80.8	22.1	20.0	21.8	19.1	22.36
District Chilled Water	Q	Q	94	Q	Q	275.5	Q	Q	Q	85.9	Q	Q	36.67
District Steam	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Other Fuels	65	118	42	59	91.4	122.6	55.6	79.5	26.2	20.8	21.1	19.3	21.67
Building Not Air Conditioned	199	223	97	120	68.6	70.0	48.3	52.3	11.6	8.7	8.0	9.1	16.39

Table 19. Major Fuel Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)				Major Fuel Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Any Major Fuel (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.135	1.198	1.171	1.436	0.928	0.890	0.904	1.091	0.962	0.864	0.704	0.919	
Water-Heating Fuels (Solely or in Combination)													
Electricity	283	432	555	219	72.8	82.0	65.7	65.0	17.9	17.2	13.7	13.7	11.28
Natural Gas	377	945	628	520	103.1	112.6	94.3	89.8	20.9	19.1	18.3	16.7	9.45
Fuel Oil	305	123	98	Q	115.4	264.6	Q	Q	26.7	51.4	Q	Q	21.09
District Heat	144	254	Q	68	138.4	182.1	306.2	127.6	147.9	112.7	64.1	67.6	22.71
Propane	Q	Q	36	15	Q	Q	91.9	Q	7.7	7.9	13.2	Q	29.63
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Water Heating Not Performed	88	85	264	Q	57.2	49.5	63.2	Q	9.9	6.6	8.0	6.1	19.33
Cooking Fuels (Solely or in Combination)													
Electricity	168	208	250	125	114.2	122.6	88.4	102.9	35.8	28.7	29.7	33.5	18.01
Natural Gas	289	478	355	216	110.5	139.5	126.8	111.6	48.6	36.3	31.0	25.3	15.15
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	47	Q	35	Q	Q	Q	Q	Q	Q	9.6	Q	Q	23.11
Minor Fuels and Fuel Oil	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	b
Cooking Not Performed	459	616	553	352	114.1	132.8	103.8	115.2	37.5	31.2	28.7	26.0	12.44
Manufacturing Fuels (Solely or in Combination)													
Electricity	46	65	121	Q	126.2	99.9	155.7	108.6	32.5	23.3	17.0	20.5	27.96
Natural Gas	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	963	1,450	1,329	848	87.9	98.3	74.2	83.5	17.6	14.7	12.2	13.1	7.24
HEATING AND COOLING													
Percent Heated													
Not Heated	3	6	34	28	16.3	11.8	29.5	41.6	5.1	6.6	10.0	6.3	26.70
1 to 50	43	72	123	88	32.1	37.4	42.0	39.3	16.2	13.1	11.0	22.6	15.73
51 to 99	90	121	207	157	65.2	74.2	93.9	86.1	18.3	16.7	13.0	15.9	15.72
100	909	1,405	1,121	632	106.2	120.0	89.1	106.1	19.5	16.2	13.0	12.5	8.39
Percent Cooled													
Not Cooled	161	222	94	119	61.6	70.0	50.3	53.8	10.6	8.8	7.5	9.0	15.73
1 to 50	362	481	292	163	82.9	85.0	53.0	54.7	25.7	20.8	14.3	21.1	12.45
51 to 99	182	399	372	158	102.5	134.5	112.4	83.3	22.9	25.5	16.6	18.1	14.69
100	340	501	726	465	124.1	127.6	88.7	128.7	18.9	13.7	12.0	11.7	11.52

Table 19. Major Fuel Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)				Major Fuel Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Any Major Fuel (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.135	1.198	1.171	1.436	0.928	0.890	0.904	1.091	0.962	0.864	0.704	0.919	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	3	Q	Q	Q	Q	Q	Q	7.4	Q	Q	32.62
1 to 50	87	158	76	55	52.1	58.7	35.5	64.6	12.6	13.4	10.3	10.6	15.07
51 to 99	179	266	198	170	94.1	92.1	76.4	85.0	17.4	16.6	11.7	14.6	12.18
100	778	1,171	1,208	678	99.6	117.8	86.8	87.7	20.3	15.7	13.1	13.8	9.19

• Statistics presented under the **"Energy Sources and End Uses"** *headings represent overall consumption for all end uses combined, not consumption of a particular* fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 20. Electricity Consumption and Intensity by Census Region

Building Characteristics	Total Electricity Consumption (trillion Btu)				Electricity Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Electricity (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.411	1.201	1.142	1.551	1.149	0.972	0.914	1.320	0.747	0.720	0.603	0.763	
All Buildings	430	584	867	510	37.6	37.2	46.2	47.9	18.0	15.3	12.5	13.4	8.86
Building Floorspace (Square Feet)													
1,001 to 5,000	41	81	137	118	49.7	56.3	56.1	97.4	2.9	2.8	2.8	2.8	10.06
5,001 to 10,000	32	59	125	62	24.5	30.3	56.1	55.4	7.4	7.3	7.4	7.3	7.59
10,001 to 25,000	42	86	123	61	30.3	37.1	38.8	31.1	16.0	16.6	16.4	16.3	8.96
25,001 to 50,000	54	61	111	86	28.7	31.5	38.5	47.8	36.1	35.1	35.6	36.3	9.14
50,001 to 100,000	55	73	117	58	36.8	31.4	39.8	40.9	71.6	70.4	68.6	68.1	9.22
100,001 to 200,000	38	68	78	66	26.9	31.5	39.2	43.7	138.7	141.0	139.8	135.7	11.98
200,001 to 500,000	87	82	95	43	49.6	39.5	46.5	50.8	310.7	308.8	281.5	295.4	13.37
Over 500,000	81	73	82	16	Q	49.8	75.7	20.3	891.8	822.0	897.4	742.3	21.13
Year Constructed													
1900 or Before	Q	16	Q	Q	21.4	14.5	19.4	Q	14.6	13.1	11.0	Q	30.21
1901 to 1920	Q	16	25	9	Q	17.3	28.3	21.2	19.3	12.4	13.9	14.5	26.79
1921 to 1945	52	62	44	42	23.8	25.6	24.1	26.8	19.3	14.8	9.6	12.8	17.47
1946 to 1960	65	54	135	49	36.6	25.4	36.5	28.9	14.1	11.4	10.7	9.4	14.99
1961 to 1970	104	154	206	151	52.2	50.9	49.8	69.1	19.5	16.5	15.0	14.5	18.33
1971 to 1973	32	60	81	53	46.2	49.1	53.3	62.2	24.1	15.0	17.4	21.7	19.81
1974 to 1979	58	110	196	75	43.9	48.9	65.5	46.3	19.5	17.6	12.8	13.0	16.70
1980 to 1983	31	58	98	65	37.7	46.7	52.7	54.2	20.0	20.1	11.6	16.2	23.95
1984 to 1986	23	54	79	61	40.1	39.6	47.4	66.9	16.5	21.0	12.7	16.9	19.34
BUILDING USE													
Principal Building Activity													
Assembly	34	24	60	45	28.2	12.2	22.1	32.8	17.5	12.8	11.4	12.8	19.36
Education	36	52	56	36	22.9	23.3	26.0	28.1	54.2	52.9	26.8	14.3	13.41
Food Sales	Q	28	30	Q	Q	129.4	155.7	Q	Q	9.4	4.1	Q	20.92
Food Service	14	46	38	23	63.6	103.5	96.4	103.2	5.5	7.0	6.8	5.6	21.19
Health Care	20	41	52	19	62.0	73.4	64.8	45.2	34.4	64.4	50.6	25.0	22.08
Lodging	23	18	52	28	38.2	28.3	54.3	46.2	27.3	21.2	17.9	19.0	23.95
Mercantile and Service	94	141	217	83	33.9	40.3	49.0	41.6	12.4	10.2	9.3	8.8	17.89
Office	121	143	192	185	68.1	56.3	68.5	77.6	19.5	16.6	12.0	18.3	15.91
Public Order and Safety	9	Q	Q	Q	30.8	Q	Q	Q	Q	Q	Q	Q	35.93
Warehouse	42	47	126	36	22.7	21.9	39.9	26.4	20.5	16.5	16.5	18.5	21.08
Other	11	29	22	20	32.7	47.1	62.8	53.5	20.3	Q	11.6	17.9	27.11
Vacant	Q	10	9	11	14.7	15.1	13.7	26.5	22.0	16.0	10.4	12.4	32.29
Ownership and Occupancy													
Nongovernment Owned	318	488	684	433	37.2	38.5	45.3	51.8	15.0	13.6	11.3	12.6	9.72
Owner Occupied	199	339	414	275	34.7	39.8	44.2	59.1	13.7	12.7	11.1	12.1	10.70
Nonowner Occupied	119	149	270	158	42.2	35.7	46.9	42.6	18.7	16.2	11.7	13.2	14.02
Government Owned	112	96	183	77	38.8	31.9	50.3	33.8	43.5	30.3	21.1	17.2	15.78

Table 20. Electricity Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)				Electricity Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Electricity (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.411	1.201	1.142	1.551	1.149	0.972	0.914	1.320	0.747	0.720	0.603	0.763	
Workers													
Fewer than 5	27	52	101	68	16.0	13.6	24.2	33.3	6.7	7.1	5.7	6.0	14.00
5 to 9	23	42	82	92	21.3	20.8	37.9	73.8	7.9	10.5	6.7	6.6	14.41
10 to 19	40	39	94	42	21.6	23.2	34.5	26.6	16.0	12.4	13.6	12.6	13.44
20 to 49	66	129	157	67	37.3	61.1	46.1	43.6	20.5	20.7	21.7	17.8	15.01
50 to 99	52	60	122	82	36.5	37.6	66.5	52.7	52.0	51.3	31.9	44.0	17.05
100 to 249	52	94	94	51	38.3	49.9	48.4	41.3	97.6	103.8	73.1	86.6	14.98
250 or More	170	167	217	108	74.3	65.3	86.6	75.0	335.9	306.5	248.5	183.6	18.83
Weekly Operating Hours													
39 or Fewer	18	43	55	25	13.5	16.3	18.8	20.1	15.1	11.9	9.8	9.0	17.95
40 to 48	97	120	248	125	37.4	31.5	44.1	44.3	18.7	16.5	12.5	11.8	15.94
49 to 60	76	82	96	84	32.5	29.7	30.2	34.5	13.1	11.6	9.9	14.4	11.97
61 to 84	98	109	141	92	42.9	37.0	52.9	51.2	19.7	20.0	13.8	19.2	16.85
85 to 167	74	118	98	50	52.1	82.9	59.3	53.4	21.8	12.3	15.4	11.8	17.69
168 (Open Continuously)	66	112	229	134	45.6	53.9	84.4	95.1	30.8	28.7	19.8	18.0	18.32
LOCATION													
Metropolitan Status													
Metropolitan	367	470	687	402	38.8	40.4	50.4	43.7	19.1	20.9	14.1	15.2	9.67
Nonmetropolitan	62	114	180	Q	31.9	28.1	35.1	75.2	14.0	8.6	9.5	7.5	14.87
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	26	148	NC	16	30.2	41.6	NC	43.1	11.8	12.2	NC	11.3	18.22
5,500-7,000 HDD	156	321	NC	62	28.4	35.8	NC	42.7	17.5	18.8	NC	15.8	10.86
4,000-5,499 HDD	247	113	161	58	48.7	36.4	47.3	33.8	20.5	12.4	16.1	15.4	19.28
Under 4,000 HDD	NC	Q	331	243	NC	Q	43.9	42.2	NC	Q	14.0	13.2	14.57
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	375	131	NC	NC	48.0	98.5	NC	NC	10.3	10.8	18.20
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	430	584	867	510	37.6	37.2	46.2	47.9	18.0	15.3	12.5	13.4	8.86
Natural Gas	264	452	449	369	38.8	36.5	43.3	49.4	24.1	17.4	14.5	15.4	11.02
Fuel Oil	170	83	142	51	33.4	41.1	58.1	38.0	19.6	19.5	18.9	39.0	24.13
District Heat	74	93	86	29	53.4	51.9	120.9	39.3	81.3	80.8	28.3	55.3	27.54
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	36	18	46	Q	45.4	27.7	34.1	31.9	14.8	6.8	9.4	9.0	26.71
Minor Fuels	9	8	11	Q	26.8	19.4	23.2	Q	11.0	8.5	8.6	10.6	33.71

Table 20. Electricity Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)				Electricity Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Electricity (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.411	1.201	1.142	1.551	1.149	0.972	0.914	1.320	0.747	0.720	0.603	0.763	
Energy End Uses													
Space Heating	425	578	828	490	38.1	38.2	47.6	49.5	18.9	15.9	12.6	14.6	9.05
Cooling	367	521	821	467	42.9	41.7	49.1	55.9	22.2	18.8	13.3	15.3	9.02
Water Heating	382	553	689	438	38.6	39.6	47.0	46.3	20.6	18.1	14.8	15.8	8.92
Cooking	185	230	298	185	46.6	49.6	55.9	60.5	37.4	31.3	28.7	26.0	14.31
Manufacturing	Q	48	70	Q	84.8	49.7	71.8	76.0	33.2	28.0	18.6	21.1	31.35
Space-Heating Fuels													
Electricity	123	166	442	198	49.8	44.5	53.5	53.0	19.2	22.7	13.6	14.2	12.34
Primary	79	123	375	161	64.2	55.3	61.2	61.0	15.4	24.7	12.6	13.0	15.21
With Secondary	17	37	76	14	77.5	55.7	59.7	Q	12.5	43.7	18.2	Q	29.75
Natural Gas Only	Q	27	Q	Q	Q	54.1	Q	Q	Q	61.5	18.5	Q	32.33
Fuel Oil Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	Q	37	Q	Q	Q	48.7	Q	Q	Q	20.7	Q	38.07
With No Secondary	61	86	299	146	61.3	54.9	61.6	66.3	16.3	20.9	11.7	11.9	16.86
Secondary	50	51	99	40	37.9	31.5	35.8	32.2	24.8	20.5	18.3	19.7	18.10
Other Fuels Excluding Electricity	302	412	386	291	34.8	36.1	42.3	47.4	18.8	14.5	11.9	14.8	11.84
Building Not Heated	4	5	47	21	14.8	10.1	32.4	27.2	6.4	6.8	10.9	6.5	23.69
Air-Conditioning Fuels													
Electricity	328	464	786	435	42.8	41.8	49.4	58.0	21.1	18.0	13.0	14.7	9.55
Solely	320	458	757	431	42.8	41.9	48.5	58.1	20.9	17.8	12.8	14.7	9.64
With Other Fuels or Combinations	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	44.7	Q	65.78
Other Fuels Excluding Electricity	39	57	35	33	44.2	41.3	42.2	37.5	40.6	28.3	25.5	23.1	20.94
Building Not Air Conditioned	63	62	44	43	21.8	19.6	22.1	18.7	11.6	8.8	8.0	9.2	22.50

Table 20. Electricity Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)				Electricity Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Electricity (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.226	1.194	1.146	1.433	1.140	0.950	0.896	1.150	0.877	0.817	0.617	0.843	
Water-Heating Fuels													
Electricity	150	234	389	164	38.5	44.5	46.2	48.6	17.9	17.2	13.7	13.7	12.83
Other Fuels Excluding Electricity	233	318	300	274	38.6	36.7	48.1	45.1	22.8	18.8	16.7	17.2	10.88
Water Heating Not Performed	Q	31	178	Q	Q	17.9	43.5	Q	9.9	6.7	7.9	6.1	18.80
Cooking Fuels													
Electricity	72	108	152	72	49.1	63.6	53.9	59.4	35.8	28.7	29.7	33.5	20.62
Other Fuels Excluding Electricity	113	122	146	112	45.1	41.5	58.2	61.1	38.5	33.0	27.6	22.6	17.14
Cooking Not Performed	244	354	569	325	32.8	32.0	42.4	42.9	14.1	12.6	10.2	11.2	10.67
Manufacturing Fuels													
Electricity	17	28	60	Q	47.9	43.2	77.4	87.9	32.5	23.3	17.0	20.5	33.31
Other Fuels Excluding Electricity	Q	26	Q	Q	Q	58.8	Q	Q	Q	56.7	Q	Q	30.94
Manufacturing Not Performed	383	535	797	468	35.2	36.4	44.8	46.4	17.6	14.8	12.2	13.1	8.53
HEATING AND COOLING													
Percent Heated													
Not Heated	2	4	32	17	8.9	9.3	27.4	25.4	5.1	6.6	10.1	6.3	26.03
1 to 50	18	24	77	50	13.6	12.4	26.4	22.0	16.2	13.2	11.0	22.6	17.50
51 to 99	43	42	120	83	30.9	26.1	54.5	45.6	18.2	16.7	13.1	15.9	14.86
100	366	513	638	360	43.2	44.0	51.2	61.1	19.5	16.3	13.0	12.4	10.26
Percent Cooled													
Not Cooled	32	62	44	42	12.4	19.6	23.5	19.2	10.6	8.8	7.5	9.1	17.99
1 to 50	117	125	132	68	27.2	22.2	24.1	23.2	26.0	20.9	14.3	20.8	12.47
51 to 99	80	162	196	90	44.6	54.7	59.1	47.1	22.9	25.9	16.7	18.1	14.07
100	201	234	496	310	73.3	59.8	61.1	85.9	18.9	13.7	12.0	11.7	12.52

Table 20. Electricity Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)				Electricity Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Electricity (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.226	1.194	1.146	1.433	1.140	0.950	0.896	1.150	0.877	0.817	0.617	0.843	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	1	Q	Q	Q	4.8	Q	Q	7.4	7.8	Q	32.71
1 to 50	23	40	42	28	14.2	14.9	19.8	32.8	12.8	13.4	10.3	10.6	16.18
51 to 99	58	98	119	72	30.6	34.2	46.1	36.3	17.4	16.6	11.7	14.6	11.34
100	347	441	704	408	44.7	44.4	51.0	53.2	20.2	15.8	13.2	13.7	10.93

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 21. Natural Gas Consumption and Intensity by Census Region

Building Characteristics	Total Natural Gas Consumption (trillion Btu)				Natural Gas Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Natural Gas (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.343	1.098	1.339	1.324	1.109	0.949	0.991	1.036	0.984	0.669	0.683	0.788	
All Buildings	244	742	426	311	35.4	59.7	40.8	41.4	24.0	17.2	14.5	15.4	8.99
Building Floorspace (Square Feet)													
1,001 to 5,000	27	92	74	55	87.8	97.6	68.9	81.0	2.9	3.0	2.8	2.8	8.96
5,001 to 10,000	35	109	48	44	56.2	73.4	41.9	57.6	7.5	7.4	7.5	7.5	8.34
10,001 to 25,000	39	115	90	61	56.9	62.9	50.6	43.3	16.5	16.5	16.6	16.4	9.91
25,001 to 50,000	36	66	49	40	35.1	41.2	33.0	34.2	36.2	35.1	35.3	37.9	9.49
50,001 to 100,000	44	94	43	39	49.5	51.9	27.3	42.9	74.5	70.9	69.4	67.0	10.32
100,001 to 200,000	19	70	40	51	17.7	39.8	32.9	42.2	140.5	140.1	140.3	136.6	12.58
200,001 to 500,000	31	121	60	17	25.9	68.3	39.1	23.8	322.2	305.7	287.9	283.6	14.85
Over 500,000	11	75	23	Q	10.8	60.7	35.9	Q	884.7	811.0	908.9	Q	26.60
Year Constructed													
1900 or Before	10	34	Q	Q	28.9	42.8	Q	Q	14.6	11.2	Q	Q	26.09
1901 to 1920	22	43	33	10	28.0	57.1	55.6	31.7	30.0	11.9	12.7	17.8	26.12
1921 to 1945	60	120	41	32	41.9	64.4	38.2	30.2	23.8	14.1	9.8	13.8	18.56
1946 to 1960	40	126	83	60	37.1	68.4	32.8	47.1	18.7	13.6	12.5	11.1	16.82
1961 to 1970	51	184	115	85	41.6	77.2	48.4	47.5	21.9	20.2	19.3	16.5	17.45
1971 to 1973	19	46	51	42	38.4	54.1	59.2	66.6	32.5	16.9	24.8	21.7	21.85
1974 to 1979	15	110	49	22	25.6	60.0	30.8	21.0	29.6	22.1	17.3	17.4	23.70
1980 to 1983	14	39	26	24	Q	38.4	42.7	31.5	Q	27.0	11.1	20.2	24.32
1984 to 1986	12	40	23	32	36.0	36.7	34.5	56.4	25.9	35.6	14.6	17.9	23.93
BUILDING USE													
Principal Building Activity													
Assembly	24	69	40	24	32.5	43.8	23.9	23.3	23.7	14.8	13.9	13.4	18.75
Education	37	115	53	49	32.8	62.6	35.2	46.7	62.6	50.8	30.2	17.9	17.35
Food Sales	Q	20	Q	Q	Q	103.8	Q	Q	Q	10.6	Q	Q	36.79
Food Service	21	42	19	33	144.3	120.4	73.4	189.4	5.0	7.3	7.6	5.4	19.09
Health Care	25	84	51	46	97.1	161.1	102.9	133.7	57.1	Q	52.1	27.3	25.42
Lodging	20	29	26	30	46.2	66.5	45.7	69.4	39.3	28.4	22.9	24.1	28.33
Mercantile and Service	49	133	114	35	29.1	44.7	41.9	26.2	16.9	11.4	10.8	10.7	18.68
Office	23	130	51	53	26.9	70.3	36.5	33.3	23.6	16.3	12.7	18.2	21.80
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	29	72	30	11	24.2	44.9	25.8	13.2	41.8	23.7	22.0	32.3	24.51
Other	Q	19	Q	Q	Q	41.1	Q	60.7	Q	49.2	Q	17.6	50.33
Vacant	Q	19	7	10	Q	41.1	23.2	30.9	Q	14.9	10.6	14.4	26.95
Ownership and Occupancy													
Nongovernment Owned	201	581	314	232	40.2	57.9	38.3	39.9	19.7	15.4	13.0	14.3	10.66
Owner Occupied	142	404	218	139	44.6	62.1	42.1	43.8	18.3	14.4	13.3	13.1	12.13
Nonowner Occupied	59	177	96	93	32.4	50.2	31.8	35.1	22.8	17.9	12.6	15.9	15.73
Government Owned	43	160	112	80	22.8	67.3	50.1	46.4	56.4	33.8	24.9	21.5	14.89

Table 21. Natural Gas Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)				Natural Gas Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Natural Gas (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.343	1.098	1.339	1.324	1.109	0.949	0.991	1.036	0.984	0.669	0.683	0.788	
Workers													
Fewer than 5	20	107	66	44	32.3	42.1	31.7	37.2	8.1	7.7	6.5	6.5	15.89
5 to 9	25	73	34	40	42.6	43.2	31.2	58.7	8.8	11.1	7.0	6.3	16.42
10 to 19	40	87	35	40	32.7	63.3	30.6	36.8	16.2	13.0	11.7	13.1	13.96
20 to 49	48	145	93	55	51.8	83.4	42.5	51.0	22.5	19.5	23.3	16.0	15.18
50 to 99	43	66	73	58	39.9	47.5	65.6	42.9	61.2	58.0	35.9	47.4	21.52
100 to 249	32	81	37	21	41.0	54.6	32.0	20.4	103.5	108.2	80.2	103.3	19.86
250 or More	37	183	88	53	21.6	82.7	53.0	47.3	372.2	295.4	256.6	185.5	19.06
Weekly Operating Hours													
39 or Fewer	13	122	39	26	17.3	59.6	23.8	27.4	26.5	14.9	12.6	11.8	21.97
40 to 48	48	159	113	64	27.2	53.2	36.1	34.1	27.7	17.9	13.9	12.4	13.27
49 to 60	35	106	42	58	34.3	49.2	23.1	37.0	16.5	12.1	11.0	16.7	14.22
61 to 84	53	118	90	55	37.6	48.0	62.9	39.2	20.8	21.3	14.5	20.9	20.75
85 to 167	42	90	44	36	45.9	80.4	45.6	46.3	24.7	14.6	20.4	13.9	20.11
168 (Open Continuously)	52	146	97	72	52.3	88.8	67.9	75.9	36.8	36.3	28.0	24.4	19.54
LOCATION													
Metropolitan Status													
Metropolitan	189	590	327	266	32.0	61.3	41.1	39.3	24.8	21.2	16.6	17.1	9.89
Nonmetropolitan	55	152	98	45	55.4	54.1	39.9	60.1	20.1	10.5	10.3	8.1	16.92
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	Q	195	NC	27	Q	79.0	NC	82.1	Q	15.5	NC	12.0	24.16
5,500-7,000 HDD	144	453	NC	73	40.6	59.4	NC	66.9	22.9	18.9	NC	14.9	13.61
4,000-5,499 HDD	99	94	68	26	30.2	40.3	40.4	29.0	25.2	14.7	24.5	28.0	16.54
Under 4,000 HDD	NC	NC	230	140	NC	NC	49.8	31.2	NC	NC	16.6	15.6	11.68
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	128	45	NC	NC	31.0	62.5	NC	NC	11.1	10.9	16.39
ENERGY SOURCES AND END USES •													
Energy Sources Used (Solely or in Combination)													
Electricity	240	740	425	311	35.2	59.7	41.0	41.6	24.1	17.4	14.5	15.4	9.23
Natural Gas	244	742	426	311	35.4	59.7	40.8	41.4	24.0	17.2	14.5	15.4	8.99
Fuel Oil	63	116	68	Q	25.5	84.1	60.0	Q	61.1	50.8	Q	Q	23.41
District Heat	12	57	Q	Q	Q	72.8	Q	Q	125.7	86.6	Q	Q	43.04
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 21. Natural Gas Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)				Natural Gas Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Natural Gas (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.343	1.098	1.339	1.324	1.109	0.949	0.991	1.036	0.984	0.669	0.683	0.788	
Energy End Uses													
Space Heating	243	741	424	306	35.3	60.0	41.0	41.1	24.1	17.3	14.5	15.8	9.03
Cooling	197	609	394	259	35.9	59.0	40.0	41.6	25.3	19.8	14.9	16.3	9.83
Water Heating	230	703	369	298	37.6	61.1	40.8	41.6	24.7	19.1	16.9	17.0	9.26
Cooking	126	270	179	117	40.1	64.5	49.0	46.4	43.8	35.2	28.8	27.3	14.00
Manufacturing	21	89	67	14	46.1	98.6	103.9	37.1	45.1	35.3	22.2	24.7	31.82
Space-Heating Fuels													
Natural Gas	215	683	385	260	42.2	62.4	42.0	41.1	20.8	16.0	13.9	14.9	9.43
Primary	206	658	359	256	47.7	64.5	42.2	42.4	18.3	15.3	13.5	14.5	9.54
With Secondary	58	147	114	42	65.4	68.2	45.6	32.9	27.9	24.9	21.6	20.9	17.26
Electricity Only	14	46	58	28	33.0	38.8	35.9	30.9	21.5	21.2	17.9	18.7	18.62
Fuel Oil Only	37	80	48	Q	96.4	127.2	69.1	Q	65.5	38.7	50.6	Q	28.96
Other Fuel or Combinations	Q	21	Q	Q	Q	61.8	Q	Q	Q	23.5	Q	Q	49.77
With No Secondary	147	507	245	214	43.3	63.3	40.8	45.0	16.8	13.9	11.6	13.5	10.91
Secondary	11	33	31	6	13.1	37.9	38.4	16.2	79.3	35.0	20.4	32.5	28.63
Other Fuels Excluding Natural Gas	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
Natural Gas	14	54	19	30	30.4	71.2	31.3	43.8	24.2	18.3	19.9	20.7	28.41
Other Fuels Excluding Natural Gas	184	554	375	229	36.4	58.0	40.5	41.3	25.4	19.9	14.6	15.8	10.31
Building Not Air Conditioned	43	132	31	52	32.5	63.8	60.6	41.4	20.2	10.7	9.8	12.0	21.29

Table 21. Natural Gas Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)				Natural Gas Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Natural Gas (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.224	1.001	1.243	1.238	1.084	0.877	0.956	1.047	1.082	0.753	0.681	1.004	
Water-Heating Fuels													
Natural Gas	182	572	307	260	49.7	68.2	46.0	44.8	20.9	19.1	18.3	16.7	9.96
Other Fuels Excluding Natural Gas	49	131	62	39	19.6	42.0	26.3	28.0	33.8	19.0	13.9	18.2	15.10
Water Heating Not Performed	13	39	57	Q	17.7	42.1	40.8	37.0	19.5	7.8	7.6	5.4	27.14
Cooking Fuels													
Natural Gas	95	242	156	94	36.2	70.6	55.9	48.5	48.6	36.3	31.0	25.3	15.70
Other Fuels Excluding Natural Gas	31	28	22	23	60.1	37.1	26.4	39.2	29.3	30.7	23.3	37.4	23.81
Cooking Not Performed	118	471	247	195	31.5	57.3	36.4	38.9	17.4	13.7	11.4	12.7	10.83
Manufacturing Fuels													
Natural Gas	Q	Q	Q	Q	Q	179.4	Q	Q	Q	51.4	Q	Q	35.97
Other Fuels Excluding Natural Gas	Q	34	48	Q	Q	52.2	99.1	30.5	Q	32.4	19.9	25.8	33.55
Manufacturing Not Performed	223	652	359	297	34.6	56.7	36.7	41.6	23.2	16.6	14.2	15.1	9.11
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	14	38	31	25	17.3	28.0	23.2	15.5	23.3	14.0	12.6	27.0	23.78
51 to 99	22	59	57	59	Q	44.8	44.2	44.8	22.1	17.4	13.9	16.0	21.75
100	207	644	336	222	39.6	66.5	43.7	49.1	24.7	17.9	14.9	13.7	9.36
Percent Cooled													
Not Cooled	43	131	30	52	37.7	63.9	58.5	43.2	17.5	10.8	10.0	11.9	20.71
1 to 50	90	272	107	63	31.0	56.0	35.8	28.7	32.5	21.7	15.4	23.6	15.20
51 to 99	51	161	122	58	40.7	67.0	57.3	41.2	22.7	24.3	19.0	17.7	21.98
100	60	178	166	139	37.7	57.1	34.7	50.8	20.4	14.9	13.3	12.7	11.25

Table 21. Natural Gas Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)				Natural Gas Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Natural Gas (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.224	1.001	1.243	1.238	1.084	0.877	0.956	1.047	1.082	0.753	0.681	1.004	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	30	83	25	17	26.4	43.0	23.4	41.6	18.1	14.0	11.8	10.9	22.58
51 to 99	62	129	57	64	57.8	53.0	41.8	45.9	18.1	18.5	13.5	14.7	16.54
100	152	526	344	230	32.5	66.1	43.1	40.2	28.4	18.2	15.1	16.3	10.68

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 22. Fuel Oil Consumption and Intensity by Census Region

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)				Fuel Oil Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Fuel Oil (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	0.792	1.620	1.223	9.999	0.627	1.407	0.935	1.642	0.538	0.783	0.906	1.232	
All Buildings	270	63	86	Q	53.0	31.0	34.1	16.8	19.7	19.1	18.8	39.0	20.81
Building Floorspace (Square Feet)													
1,001 to 5,000	31	6	11	Q	98.9	41.9	54.8	Q	3.0	2.9	2.6	Q	14.34
5,001 to 10,000	36	Q	Q	Q	63.7	79.9	Q	Q	7.3	7.2	Q	Q	10.60
10,001 to 25,000	40	Q	Q	Q	68.8	Q	Q	Q	15.5	Q	Q	Q	23.58
25,001 to 50,000	75	Q	Q	Q	84.8	Q	Q	Q	35.8	Q	Q	Q	21.10
50,001 to 100,000	21	Q	Q	Q	42.5	Q	Q	Q	70.0	Q	Q	Q	23.33
100,001 to 200,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
200,001 to 500,000	30	Q	Q	Q	29.4	Q	Q	Q	333.8	Q	Q	Q	19.77
Over 500,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Year Constructed													
1900 or Before	20	Q	Q	Q	33.3	Q	Q	Q	17.3	Q	Q	Q	35.32
1901 to 1920	27	Q	Q	Q	38.7	Q	Q	Q	19.8	Q	Q	Q	33.20
1921 to 1945	63	Q	Q	Q	77.8	Q	Q	Q	17.3	Q	Q	Q	43.59
1946 to 1960	50	11	22	Q	57.3	46.4	34.9	Q	17.2	9.8	16.6	Q	31.60
1961 to 1970	54	9	Q	Q	68.0	20.0	Q	Q	23.4	Q	20.8	Q	26.54
1971 to 1973	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1974 to 1979	25	Q	Q	Q	62.1	Q	Q	Q	16.0	Q	Q	Q	43.81
1980 to 1983	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1984 to 1986	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
BUILDING USE													
Principal Building Activity													
Assembly	26	Q	6	Q	45.7	Q	15.2	Q	19.3	Q	18.7	Q	34.21
Education	68	Q	Q	Q	75.2	Q	Q	Q	56.8	Q	Q	Q	45.19
Food Sales	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Food Service	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Health Care	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Lodging	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Mercantile and Service	73	Q	13	Q	54.2	Q	37.7	Q	12.9	14.5	7.2	Q	24.01
Office	26	Q	Q	Q	36.4	Q	Q	Q	18.9	Q	Q	Q	32.33
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	22	Q	Q	Q	34.1	Q	Q	Q	27.0	Q	Q	Q	39.03
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Ownership and Occupancy													
Nongovernment Owned	175	39	48	Q	47.1	25.3	28.5	Q	15.9	17.1	14.9	34.6	21.08
Owner Occupied	124	32	35	Q	48.5	26.9	36.4	Q	14.3	15.9	12.9	Q	23.46
Nonowner Occupied	51	Q	13	Q	44.0	Q	18.2	Q	21.4	Q	18.6	Q	30.02
Government Owned	95	Q	38	Q	68.9	Q	45.5	Q	53.9	29.6	40.5	Q	40.20

Table 22. Fuel Oil Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)				Fuel Oil Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Fuel Oil (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	0.792	1.620	1.223	9.999	0.627	1.407	0.935	1.642	0.538	0.783	0.906	1.232	
Workers													
Fewer than 5	42	Q	15	Q	64.6	Q	40.3	Q	6.3	6.7	6.0	Q	23.13
5 to 9	25	Q	Q	Q	58.0	Q	26.3	Q	7.7	Q	8.8	Q	25.32
10 to 19	29	Q	Q	Q	49.8	Q	Q	Q	14.6	Q	Q	Q	36.89
20 to 49	53	Q	Q	Q	64.9	Q	Q	Q	22.3	Q	Q	Q	23.81
50 to 99	59	Q	Q	Q	93.0	Q	Q	Q	49.2	Q	Q	Q	40.13
100 to 249	26	Q	Q	Q	39.4	Q	Q	Q	106.1	Q	Q	Q	37.10
250 or More	35	Q	Q	Q	27.0	Q	Q	Q	350.5	Q	254.0	Q	27.39
Weekly Operating Hours													
39 or Fewer	49	Q	Q	Q	63.4	Q	Q	Q	17.9	Q	Q	Q	45.49
40 to 48	54	7	24	Q	51.7	17.5	40.8	Q	18.9	18.3	17.2	Q	26.71
49 to 60	61	Q	8	Q	59.8	52.2	26.3	Q	13.0	10.8	Q	Q	29.58
61 to 84	46	Q	Q	Q	42.5	Q	Q	Q	25.8	Q	Q	Q	28.59
85 to 167	27	Q	Q	Q	54.7	Q	Q	Q	21.8	Q	Q	Q	45.86
168 (Open Continuously)	33	Q	Q	Q	48.5	Q	Q	Q	38.5	93.5	46.4	Q	41.50
LOCATION													
Metropolitan Status													
Metropolitan	230	Q	47	Q	51.3	25.8	34.4	10.5	22.2	33.6	26.0	58.4	20.31
Nonmetropolitan	40	Q	39	Q	65.4	47.2	33.9	Q	10.8	8.1	14.2	Q	31.22
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	42	28	NC	Q	70.8	56.2	NC	Q	10.9	8.9	NC	Q	34.76
5,500-7,000 HDD	103	16	NC	Q	47.2	13.2	NC	Q	20.0	34.1	NC	Q	23.40
4,000-5,499 HDD	125	Q	40	Q	54.0	Q	31.4	Q	24.2	Q	19.0	Q	30.74
Under 4,000 HDD	NC	Q	36	Q	NC	Q	38.2	Q	NC	Q	18.3	Q	18.90
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	Q	Q	NC	NC	Q	Q	NC	NC	Q	Q	b
ENERGY SOURCES AND END USES •													
Energy Sources Used (Solely or in Combination)													
Electricity	269	62	84	Q	53.1	30.4	34.3	16.8	19.6	19.5	18.9	39.0	21.47
Natural Gas	103	Q	22	Q	42.0	Q	19.3	Q	61.1	50.8	Q	Q	33.51
Fuel Oil	270	63	86	Q	53.0	31.0	34.1	16.8	19.7	19.1	18.8	39.0	20.81
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	36	Q	Q	Q	72.9	Q	Q	Q	17.5	Q	Q	Q	39.00
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 22. Fuel Oil Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)				Fuel Oil Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Fuel Oil (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	0.792	1.620	1.223	9.999	0.627	1.407	0.935	1.642	0.538	0.783	0.906	1.232	
Energy End Uses													
Space Heating	269	63	86	Q	53.0	31.0	34.1	Q	19.8	19.1	19.0	39.1	20.46
Cooling	200	51	76	Q	50.2	30.3	34.9	13.2	27.3	29.6	22.5	57.1	21.90
Water Heating	247	59	77	Q	53.0	31.0	35.1	17.1	23.0	23.9	25.3	49.3	21.02
Cooking	109	Q	Q	Q	49.5	Q	Q	Q	51.0	93.0	49.7	Q	37.45
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Space-Heating Fuels													
Fuel Oil	263	60	85	Q	58.9	43.2	40.8	Q	18.1	14.2	16.2	25.4	20.68
Primary	247	51	68	Q	62.8	72.9	53.7	Q	17.5	8.6	12.5	Q	21.52
With Secondary	63	Q	Q	Q	55.0	Q	48.3	Q	33.3	Q	22.3	Q	42.56
Electricity Only	28	Q	Q	Q	58.3	Q	Q	Q	25.8	Q	Q	Q	56.44
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
With No Secondary	184	28	48	Q	66.0	Q	58.5	Q	14.6	6.3	10.1	Q	21.66
Secondary	26	9	Q	Q	45.3	13.3	Q	Q	21.7	41.2	30.0	Q	37.22
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
Fuel Oil	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Other Fuels Excluding Fuel Oil	191	33	76	Q	49.9	20.5	35.0	13.2	26.7	29.2	22.6	57.1	22.29
Building Not Air Conditioned	70	12	Q	Q	63.4	34.2	Q	Q	9.8	7.0	Q	Q	22.32

Table 22. Fuel Oil Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)				Fuel Oil Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Fuel Oil (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	0.706	1.729	1.076	9.999	0.513	1.468	1.046	1.888	0.515	0.853	0.848	1.372	
Water-Heating Fuels													
Fuel Oil	168	Q	31	Q	63.7	Q	45.3	Q	26.7	Q	35.0	Q	30.27
Other Fuels Excluding Fuel Oil	79	35	46	Q	39.1	24.3	30.5	13.4	19.5	20.4	22.5	47.7	21.39
Water Heating Not Performed	22	Q	Q	Q	52.6	Q	Q	Q	7.6	Q	Q	Q	43.24
Cooking Fuels													
Fuel Oil	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	b
Other Fuels Excluding Fuel Oil	108	Q	Q	Q	49.7	Q	Q	Q	50.6	93.0	49.4	Q	40.30
Cooking Not Performed	161	37	57	Q	55.7	40.1	41.0	Q	13.4	9.8	12.5	Q	22.16
Manufacturing Fuels													
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	259	57	69	Q	54.3	31.4	29.5	17.4	18.9	17.6	18.0	38.2	21.89
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	8	Q	Q	Q	26.4	Q	Q	Q	10.5	Q	Q	Q	48.60
51 to 99	22	Q	Q	Q	29.9	Q	Q	Q	21.4	Q	Q	Q	30.89
100	238	55	77	Q	59.4	36.9	41.9	Q	21.2	20.2	20.8	25.5	22.51
Percent Cooled													
Not Cooled	68	12	Q	Q	66.3	34.2	Q	Q	9.3	7.0	Q	Q	23.67
1 to 50	125	Q	32	Q	56.3	30.7	34.3	Q	25.5	18.8	21.0	Q	27.39
51 to 99	36	Q	Q	Q	39.6	Q	Q	Q	45.4	67.3	36.6	Q	40.83
100	41	Q	Q	Q	43.4	Q	40.2	Q	23.1	15.6	19.2	Q	39.21

Table 22. Fuel Oil Consumption and Intensity by Census Region (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)				Fuel Oil Energy Intensity (thousand Btu/sq. ft.)				Floorspace per Building Using Fuel Oil (thousand square feet)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	0.706	1.729	1.076	9.999	0.513	1.468	1.046	1.888	0.515	0.853	0.848	1.372	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	NC	NC	NC	Q	NC	NC	NC	Q	NC	NC	NC	Q	b
1 to 50	30	Q	Q	Q	55.9	Q	Q	Q	9.7	Q	Q	Q	42.27
51 to 99	35	Q	7	Q	45.0	Q	16.2	Q	19.0	Q	20.0	Q	29.92
100	205	46	74	Q	54.3	38.0	39.3	14.5	23.2	18.7	20.5	35.3	24.70

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 23. Major Fuel Consumption and Intensity by Building Size

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.396	1.290	1.990	1.137	1.000	1.617	0.367	0.498	0.830	
All Buildings	1,317	2,026	1,697	104.7	79.0	91.2	4.2	28.5	234.3	4.77
Year Constructed										
1900 or Before	48	58	Q	69.5	57.9	Q	4.9	29.7	Q	14.08
1901 to 1920	89	77	108	113.2	50.0	90.6	4.5	27.8	187.0	16.02
1921 to 1945	160	290	216	88.8	75.2	89.3	4.1	26.9	217.9	10.01
1946 to 1960	221	329	203	83.3	73.7	89.0	4.0	27.1	204.6	8.69
1961 to 1970	302	516	433	141.6	97.7	110.3	4.1	29.5	216.6	9.58
1971 to 1973	95	129	250	120.7	84.8	125.9	4.4	29.3	249.3	13.28
1974 to 1979	210	306	223	117.8	80.7	85.4	4.2	31.5	306.4	11.88
1980 to 1983	101	164	133	93.8	80.7	64.4	4.1	26.9	303.5	12.63
1984 to 1986	90	156	108	104.7	73.2	70.8	4.2	28.7	236.4	11.50
BUILDING USE										
Principal Building Activity										
Assembly	119	213	69	65.7	54.1	44.4	4.4	25.5	224.0	10.44
Education	51	318	267	88.3	87.6	86.3	4.7	35.5	193.4	10.90
Food Sales	61	77	Q	238.2	177.7	Q	3.0	27.8	Q	16.55
Food Service	195	62	Q	240.9	207.7	Q	4.4	19.6	Q	16.54
Health Care	17	71	370	145.5	164.4	236.6	3.3	34.1	348.3	17.28
Lodging	51	192	68	146.2	116.0	86.9	4.5	29.8	208.0	13.89
Mercantile and Service	443	372	188	103.1	66.3	65.3	4.1	26.5	283.5	11.04
Office	225	319	466	113.7	89.6	116.7	4.2	28.7	289.7	10.93
Public Order and Safety	17	44	Q	110.1	130.8	Q	4.2	22.1	Q	18.18
Warehouse	73	224	170	48.2	57.3	54.0	4.4	30.6	188.4	13.29
Other	39	94	36	156.9	123.5	52.4	3.8	28.6	268.4	18.80
Vacant	27	41	Q	57.0	38.0	Q	4.0	28.4	Q	18.88
Ownership and Occupancy										
Nongovernment Owned	1,169	1,475	1,129	103.5	73.1	83.9	4.1	27.5	242.9	5.53
Owner Occupied	826	947	763	110.4	73.9	94.8	4.1	27.3	249.6	6.82
Nonowner Occupied	343	528	367	89.9	71.7	67.6	4.2	27.8	233.6	7.49
Government Owned	148	551	568	115.5	100.8	110.5	4.5	33.1	214.5	8.49
Workers										
Fewer than 5	417	170	25	69.1	36.6	21.4	3.6	23.4	153.2	8.92
5 to 9	334	137	Q	113.3	46.0	Q	4.2	23.5	Q	10.65
10 to 19	202	288	27	98.8	59.9	26.3	5.2	25.7	163.5	9.89
20 to 49	307	546	62	236.2	92.4	38.0	6.3	27.1	194.8	9.90
50 to 99	49	479	137	220.2	119.3	61.4	6.9	37.1	198.6	13.06
100 to 249	Q	302	313	Q	111.5	84.7	Q	52.2	201.4	9.22
250 or More	NC	104	1,121	NC	180.2	135.8	NC	65.7	335.3	11.24

Table 23. Major Fuel Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.396	1.290	1.990	1.137	1.000	1.617	0.367	0.498	0.830	
Weekly Operating Hours										
39 or Fewer	125	181	125	51.8	47.7	62.3	4.0	28.2	173.8	11.84
40 to 48	300	523	288	92.7	71.2	65.8	4.1	27.8	224.8	7.47
49 to 60	226	290	233	74.2	59.1	83.6	4.3	26.0	227.7	7.70
61 to 84	232	373	289	134.9	88.3	76.2	4.3	30.2	288.7	9.80
85 to 167	241	248	163	192.1	106.1	85.2	4.3	32.3	206.1	12.02
168 (Open Continuously)	192	411	600	211.6	135.7	160.9	4.1	30.7	271.7	12.50
LOCATION										
Census Region										
Northeast	210	438	398	98.1	91.5	86.9	4.6	29.9	260.4	8.32
Midwest	387	591	625	113.6	89.6	109.3	4.4	28.8	240.1	8.36
South	429	614	442	91.6	67.6	86.5	4.0	28.4	225.8	8.05
West	291	382	233	124.1	74.0	72.7	3.9	27.2	208.1	10.12
Metropolitan Status										
Metropolitan	888	1,584	1,528	107.8	83.2	90.6	4.3	29.2	243.7	5.10
Nonmetropolitan	429	441	170	98.8	66.8	97.3	3.9	26.7	170.6	10.46
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	167	235	174	124.9	99.8	154.4	4.3	26.5	235.5	15.31
5,500-7,000 HDD	320	631	526	105.9	93.1	85.1	4.7	31.1	239.3	7.54
4,000-5,499 HDD	246	454	507	99.4	79.5	97.0	4.1	28.9	239.6	9.04
Under 4,000 HDD	285	442	316	99.0	69.4	75.6	4.0	26.6	222.7	9.95
2,000 CDD or More and --										
Under 4,000 HDD	299	264	175	104.2	59.7	92.4	4.0	28.6	230.2	12.08
ENERGY SOURCES AND END USES [a]										
Energy Sources Used (Solely or in Combination)										
Electricity	1,312	2,023	1,695	105.0	79.2	91.6	4.2	28.5	234.8	5.01
Natural Gas	870	1,392	1,340	123.8	86.2	95.1	4.4	28.6	237.4	5.65
Fuel Oil	186	406	635	108.8	102.4	119.1	4.4	30.3	304.8	10.03
District Heat	Q	286	509	Q	192.5	167.5	Q	36.3	289.9	13.25
District Chilled Water	Q	Q	Q	Q	Q	215.8	Q	Q	313.7	18.33
Propane	94	124	Q	86.7	77.1	Q	3.8	28.9	Q	16.00
Minor Fuels	33	35	Q	71.2	43.5	Q	3.5	30.1	Q	21.32

Table 23. Major Fuel Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.396	1.290	1.990	1.137	1.000	1.617	0.367	0.498	0.830	
Energy End Uses										
Space Heating	1,273	1,983	1,688	111.1	81.8	92.8	4.3	28.5	236.1	4.88
Cooling	1,037	1,759	1,595	115.9	85.3	96.4	4.3	28.7	239.6	5.30
Water Heating	1,059	1,848	1,603	117.2	84.0	93.4	4.5	28.9	240.9	4.95
Cooking	330	641	1,010	214.1	110.1	104.3	4.4	34.2	266.4	7.17
Manufacturing	22	175	254	69.0	129.8	181.6	4.1	28.4	235.4	16.09
Space-Heating Fuels (Solely or in Combination)										
Electricity	357	589	351	98.3	66.1	61.8	4.3	30.2	237.4	7.43
Natural Gas	783	1,131	1,030	120.6	79.7	94.8	4.4	28.2	227.7	5.91
Fuel Oil	176	348	473	107.3	100.3	131.5	4.4	28.9	258.2	9.38
District Heat	Q	266	450	Q	188.3	156.5	Q	37.1	287.0	12.64
Propane	56	42	Q	72.0	49.5	Q	3.6	27.3	Q	20.43
Minor Fuels	27	16	Q	65.3	26.5	Q	3.4	29.0	Q	22.23
Building Not Heated	44	49	Q	38.6	33.7	Q	3.6	27.8	178.0	15.23
Air-Conditioning Fuels (Solely or in Combination)										
Electricity	981	1,603	1,319	114.8	82.8	92.7	4.3	28.6	237.6	5.50
Natural Gas	53	101	77	124.0	88.7	59.5	4.6	28.4	216.3	14.25
District Chilled Water	Q	72	184	Q	289.7	209.7	Q	38.5	314.0	21.09
District Steam	NC	Q	Q	NC	Q	158.1	NC	Q	386.7	17.86
Other Fuels	60	111	114	130.1	92.0	75.2	4.6	29.1	225.6	13.94
Building Not Air Conditioned	276	263	99	77.7	54.0	51.0	3.8	27.6	201.0	12.25

Table 23. Major Fuel Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.342	1.327	1.911	1.122	1.080	1.534	0.361	0.507	0.864	
Water-Heating Fuels (Solely or in Combination)										
Electricity	459	641	388	101.8	64.5	59.5	4.5	28.5	248.5	7.08
Natural Gas	541	1,027	901	133.4	91.8	97.4	4.5	29.0	231.7	5.99
Fuel Oil	54	173	342	142.6	115.4	157.6	5.1	30.4	261.9	12.34
District Heat	Q	173	407	Q	192.1	166.3	Q	42.8	306.0	14.47
Propane	41	36	Q	131.5	75.6	Q	3.8	26.0	Q	23.36
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Water Heating Not Performed	258	178	95	72.8	48.8	65.5	3.6	26.4	176.8	13.55
Cooking Fuels (Solely or in Combination)										
Electricity	126	240	384	196.5	103.7	90.4	4.3	34.8	259.9	11.55
Natural Gas	208	408	722	249.3	116.9	111.9	4.4	34.2	291.5	8.32
District Heat	NC	Q	111	NC	Q	223.7	NC	Q	317.7	16.04
Propane	33	64	Q	162.3	101.8	Q	4.3	34.9	Q	22.66
Minor Fuels and Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Cooking Not Performed	330	641	1,010	214.1	110.1	104.3	4.4	34.2	266.4	7.17
Manufacturing Fuels (Solely or in Combination)										
Electricity	14	126	139	54.1	122.0	148.8	3.9	29.8	185.4	17.01
Natural Gas	Q	59	Q	Q	158.2	Q	Q	26.3	Q	22.88
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	1,295	1,851	1,444	105.6	76.2	83.9	4.2	28.5	234.2	4.80
HEATING AND COOLING										
Percent Heated										
Not Heated	39	23	Q	37.8	21.1	Q	3.5	28.6	Q	18.37
1 to 50	120	132	74	62.9	34.1	28.0	4.3	27.9	207.4	12.49
51 to 99	144	215	217	103.9	70.8	82.5	4.2	25.8	267.6	10.69
100	1,014	1,656	1,397	122.8	93.9	108.1	4.2	29.2	237.0	5.19
Percent Cooled										
Not Cooled	274	254	68	77.7	55.3	38.9	3.8	27.0	193.3	11.34
1 to 50	258	591	450	86.7	64.4	70.6	4.7	29.9	213.2	8.15
51 to 99	168	399	546	110.8	99.5	122.9	4.4	28.5	320.4	9.05
100	617	782	633	135.2	99.4	104.9	4.1	27.9	227.2	7.34

Table 23. Major Fuel Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.342	1.327	1.911	1.122	1.080	1.534	0.361	0.507	0.864	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	10	Q	Q	33.6	Q	Q	3.6	Q	Q	35.89
1 to 50	157	155	63	77.8	44.4	34.6	4.3	25.4	207.1	10.54
51 to 99	175	371	267	88.3	75.3	107.8	4.3	28.6	222.3	7.18
100	975	1,495	1,365	117.6	88.0	96.6	4.1	29.2	240.6	5.80

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 24. Electricity Consumption and Intensity by Building Size

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.647	1.290	1.830	1.428	1.066	1.495	0.334	0.448	0.754	
All Buildings	654	927	809	52.4	36.3	43.7	4.2	28.5	234.8	5.61
Year Constructed										
1900 or Before	14	Q	8	20.1	19.6	13.4	4.9	29.7	206.4	17.98
1901 to 1920	27	20	Q	34.8	13.3	Q	4.5	27.8	190.0	17.18
1921 to 1945	53	91	57	29.7	23.8	23.4	4.1	26.9	217.7	11.64
1946 to 1960	104	129	69	39.4	29.4	30.9	4.0	27.0	204.7	10.04
1961 to 1970	163	224	228	76.6	42.4	58.0	4.1	29.5	216.6	10.99
1971 to 1973	56	58	112	71.2	38.2	56.5	4.4	29.3	249.3	13.54
1974 to 1979	124	202	112	70.2	53.4	42.9	4.2	31.5	306.4	12.29
1980 to 1983	56	95	103	52.3	46.7	50.0	4.1	26.9	303.5	13.23
1984 to 1986	58	87	71	67.3	41.0	46.9	4.2	28.8	236.4	12.99
BUILDING USE										
Principal Building Activity										
Assembly	47	80	37	25.8	20.5	23.7	4.4	25.6	224.0	14.48
Education	15	83	81	26.4	22.8	27.0	4.7	35.5	195.0	9.37
Food Sales	39	55	Q	152.6	127.5	Q	3.0	27.8	Q	14.18
Food Service	89	Q	Q	110.2	Q	Q	4.4	19.6	Q	12.94
Health Care	5	23	104	44.1	53.1	66.8	3.3	34.1	348.3	16.42
Lodging	21	69	29	61.4	41.8	37.8	4.5	29.8	208.0	14.67
Mercantile and Service	222	175	138	51.9	31.6	48.1	4.1	26.5	283.5	12.25
Office	137	209	295	69.6	59.1	73.8	4.2	28.7	289.7	11.27
Public Order and Safety	6	16	Q	43.0	47.8	Q	4.2	22.1	Q	26.59
Warehouse	46	125	80	30.8	32.0	25.7	4.4	30.6	188.1	15.84
Other	16	46	21	64.3	61.0	29.9	3.8	28.6	267.6	20.56
Vacant	10	16	8	23.3	14.9	15.9	4.0	27.9	184.4	21.58
Ownership and Occupancy										
Nongovernment Owned	591	743	588	52.7	37.0	43.9	4.1	27.5	243.1	6.38
Owner Occupied	405	456	366	54.5	35.6	45.5	4.1	27.4	249.5	7.81
Nonowner Occupied	186	287	222	49.1	39.4	41.5	4.3	27.7	233.9	8.72
Government Owned	62	185	221	49.3	33.9	43.3	4.5	33.0	215.7	10.29
Workers										
Fewer than 5	170	63	15	28.5	13.6	13.4	3.6	23.3	152.7	12.43
5 to 9	182	52	Q	61.7	17.9	Q	4.1	23.4	Q	12.63
10 to 19	100	105	Q	49.3	21.8	10.2	5.3	25.7	163.5	10.25
20 to 49	172	228	19	132.7	38.7	11.7	6.3	27.1	194.3	9.62
50 to 99	28	227	60	126.5	56.4	28.1	6.9	37.1	201.3	14.11
100 to 249	Q	171	118	Q	63.5	31.8	Q	52.4	201.4	8.93
250 or More	NC	81	582	NC	144.5	70.6	NC	65.5	335.3	11.95

Table 24. Electricity Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.647	1.290	1.830	1.428	1.066	1.495	0.334	0.448	0.754	
Weekly Operating Hours										
39 or Fewer	47	58	36	19.6	15.5	18.1	4.0	28.0	173.5	11.49
40 to 48	155	271	165	48.1	37.0	38.1	4.1	27.8	226.2	9.33
49 to 60	91	119	129	30.1	24.2	46.2	4.3	26.0	227.5	8.45
61 to 84	118	146	175	68.9	35.0	46.2	4.3	30.1	288.7	11.55
85 to 167	125	140	75	100.0	60.0	40.6	4.4	32.4	206.7	13.97
168 (Open Continuously)	119	194	229	131.6	64.1	61.4	4.0	30.7	271.7	13.94
LOCATION										
Census Region										
Northeast	73	151	206	34.3	31.7	45.3	4.6	29.9	262.7	10.28
Midwest	140	221	224	41.3	33.5	39.2	4.4	28.8	239.9	9.57
South	261	351	255	56.1	39.0	49.9	4.0	28.3	225.8	8.48
West	180	205	125	77.2	39.6	39.8	3.9	27.2	208.6	12.12
Metropolitan Status										
Metropolitan	439	745	742	53.6	39.3	44.3	4.3	29.2	244.4	5.87
Nonmetropolitan	215	182	68	50.1	27.8	38.8	3.9	26.6	170.6	11.29
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	64	79	47	48.2	33.7	42.0	4.3	26.5	235.5	16.27
5,500-7,000 HDD	106	221	211	35.4	32.7	34.4	4.7	31.1	240.6	8.54
4,000-5,499 HDD	109	213	258	44.7	37.7	49.4	4.1	28.9	239.5	10.77
Under 4,000 HDD	154	237	185	53.4	37.3	44.9	4.0	26.6	223.3	10.45
2,000 CDD or More and --										
Under 4,000 HDD	221	177	108	77.5	40.2	56.9	4.0	28.5	230.2	13.18
ENERGY SOURCES AND END USES *										
Energy Sources Used (Solely or in Combination)										
Electricity	654	927	809	52.4	36.3	43.7	4.2	28.5	234.8	5.61
Natural Gas	371	565	600	53.2	35.1	42.9	4.4	28.6	238.2	7.00
Fuel Oil	49	129	269	29.0	33.0	50.6	4.4	30.1	304.6	10.77
District Heat	Q	82	186	Q	55.3	61.5	Q	36.3	289.6	16.72
District Chilled Water	Q	Q	65	Q	Q	70.6	Q	Q	313.7	11.67
Propane	36	57	Q	33.6	35.2	Q	3.8	28.9	Q	16.83
Minor Fuels	12	17	Q	25.4	22.4	Q	3.5	29.7	Q	21.81

Table 24. Electricity Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.647	1.290	1.830	1.428	1.066	1.495	0.334	0.448	0.754	
Energy End Uses										
Space Heating	620	901	801	54.5	37.3	44.3	4.3	28.5	236.6	5.71
Cooling	552	861	763	61.7	41.8	46.1	4.3	28.7	239.6	5.99
Water Heating	504	825	733	56.1	37.6	43.0	4.5	28.9	241.6	5.51
Cooking	167	268	463	108.5	46.2	47.9	4.4	34.2	267.6	8.64
Manufacturing	9	71	127	29.9	52.7	91.1	4.1	28.4	235.1	16.48
Space-Heating Fuels										
Electricity	264	411	255	72.7	46.1	45.0	4.3	30.2	237.4	8.14
Primary	224	317	197	84.0	56.4	50.0	4.1	29.1	239.3	10.14
With Secondary	18	85	41	59.4	74.5	36.6	3.8	32.2	285.5	19.88
Natural Gas Only	Q	47	26	Q	108.9	39.7	Q	30.9	247.3	26.88
Fuel Oil Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	99.99
Other Fuel or Combinations	9	36	Q	68.2	54.7	Q	3.5	32.6	Q	b
With No Secondary	205	232	155	87.2	51.9	55.5	4.1	28.5	225.7	10.30
Secondary	47	122	71	44.8	32.4	33.3	4.8	32.5	252.4	10.41
Other Fuels Excluding Electricity	356	490	545	45.9	32.2	43.9	4.2	27.6	236.3	7.32
Building Not Heated	34	31	Q	30.4	21.6	Q	3.5	27.8	178.0	15.76
Air-Conditioning Fuels										
Electricity	531	813	668	62.2	42.0	46.9	4.3	28.6	237.6	6.22
Solely	527	792	646	62.2	41.4	46.7	4.3	28.6	235.6	6.27
With Other Fuels or Combinations	Q	Q	22	Q	Q	53.7	Q	Q	333.0	15.72
Other Fuels Excluding Electricity	21	48	96	51.4	38.4	41.2	4.5	30.1	252.8	12.48
Building Not Air Conditioned	101	65	Q	28.7	13.4	Q	3.8	27.6	200.7	13.60

Table 24. Electricity Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.527	1.338	1.752	1.421	1.168	1.476	0.327	0.450	0.776	
Water-Heating Fuels										
Electricity	285	404	248	63.2	40.7	38.0	4.5	28.5	248.5	7.88
Other Fuels Excluding Electricity	219	420	486	49.0	35.0	46.0	4.5	29.3	237.5	6.77
Water Heating Not Performed	150	103	76	42.7	28.7	52.7	3.6	26.2	176.8	16.16
Cooking Fuels										
Electricity	84	123	199	129.9	52.9	46.8	4.3	34.8	259.9	13.79
Other Fuels Excluding Electricity	83	146	264	93.1	41.8	48.9	4.4	33.9	274.1	10.07
Cooking Not Performed	487	659	346	44.5	33.4	39.2	4.2	27.2	207.1	6.87
Manufacturing Fuels										
Electricity	7	61	76	27.5	59.1	81.3	3.9	29.8	185.4	16.85
Other Fuels Excluding Electricity	Q	17	Q	Q	41.8	131.5	Q	26.4	381.9	25.33
Manufacturing Not Performed	644	856	682	52.9	35.4	39.9	4.2	28.5	234.8	5.49
HEATING AND COOLING										
Percent Heated										
Not Heated	29	18	Q	27.9	16.6	Q	3.5	28.6	Q	18.91
1 to 50	52	82	35	27.6	21.1	13.1	4.3	27.9	207.4	12.72
51 to 99	81	103	104	58.8	34.1	39.5	4.2	25.8	267.4	11.28
100	492	724	662	60.1	41.3	51.7	4.2	29.2	237.8	6.29
Percent Cooled										
Not Cooled	100	64	16	28.7	13.9	9.3	3.8	27.0	192.9	13.59
1 to 50	100	208	134	33.9	22.8	21.3	4.7	29.9	214.2	7.87
51 to 99	88	186	253	58.4	46.4	56.9	4.4	28.6	320.4	9.22
100	365	470	406	80.4	60.1	67.3	4.1	27.9	227.2	8.48

Table 24. Electricity Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.527	1.338	1.752	1.421	1.168	1.476	0.327	0.450	0.776	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	Q	Q	Q	Q	Q	Q	3.5	Q	Q	32.82
1 to 50	52	56	27	25.8	16.0	14.5	4.3	25.4	207.1	10.88
51 to 99	79	155	114	40.0	31.6	46.0	4.3	28.6	222.3	7.07
100	517	715	669	62.7	42.3	47.6	4.2	29.2	241.4	6.88

• Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

D No applicable RSE row factor.

NC No cases in responding sample.

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 25. Natural Gas Consumption and Intensity by Building Size

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.290	1.283	2.153	1.059	0.996	1.860	0.391	0.466	0.785	
All Buildings	485	715	523	68.9	44.3	37.1	4.4	28.6	237.4	5.69
Year Constructed										
1900 or Before	25	20	Q	54.3	38.0	Q	4.9	26.4	Q	15.79
1901 to 1920	48	33	28	97.6	30.9	30.6	4.4	28.1	193.1	18.10
1921 to 1945	78	118	57	66.4	49.1	30.8	4.3	25.7	232.1	13.15
1946 to 1960	84	134	90	51.9	43.2	45.5	4.2	27.5	199.6	10.05
1961 to 1970	105	195	135	87.4	54.7	44.9	4.5	29.1	208.3	11.96
1971 to 1973	33	53	72	77.4	53.9	50.3	4.9	27.8	248.3	14.63
1974 to 1979	51	69	77	62.1	30.3	38.6	4.5	33.2	340.1	15.68
1980 to 1983	33	46	23	73.9	42.8	16.4	4.5	28.2	318.9	18.70
1984 to 1986	27	47	32	71.1	41.2	28.8	4.8	31.5	254.5	15.73
BUILDING USE										
Principal Building Activity										
Assembly	54	85	18	52.8	30.9	14.5	4.6	25.7	231.1	12.57
Education	29	136	89	75.0	51.4	35.7	5.2	35.2	193.3	12.63
Food Sales	17	21	Q	119.1	64.4	Q	3.2	26.6	Q	28.65
Food Service	93	21	Q	160.5	96.4	Q	4.4	19.9	Q	15.84
Health Care	Q	31	165	Q	99.6	133.0	Q	34.4	314.5	16.17
Lodging	18	73	13	96.9	70.1	20.9	5.7	31.6	212.4	16.02
Mercantile and Service	148	137	47	56.8	38.9	17.9	4.3	27.1	287.5	13.98
Office	62	82	114	55.1	39.2	45.5	4.2	28.5	290.8	13.70
Public Order and Safety	8	13	Q	73.4	62.1	Q	4.9	22.3	Q	20.36
Warehouse	18	74	51	39.4	37.4	21.1	4.7	30.1	193.4	13.52
Other	16	23	Q	168.3	64.4	Q	5.0	27.2	Q	25.88
Vacant	13	19	Q	51.0	27.6	Q	4.3	26.9	Q	23.51
Ownership and Occupancy										
Nongovernment Owned	425	533	369	67.0	43.1	35.8	4.4	27.3	244.3	6.58
Owner Occupied	297	345	260	71.9	43.3	43.8	4.4	26.7	251.8	8.08
Nonowner Occupied	128	188	109	57.9	42.5	25.0	4.3	28.4	234.9	9.08
Government Owned	60	182	153	86.7	48.4	40.7	4.7	33.8	220.4	10.98
Workers										
Fewer than 5	159	70	Q	52.1	26.7	Q	3.9	23.8	Q	9.46
5 to 9	114	55	Q	67.0	27.3	Q	4.3	24.1	Q	11.39
10 to 19	79	112	10	65.2	39.8	13.2	5.2	23.1	158.9	10.57
20 to 49	114	211	16	126.1	54.2	14.2	6.3	27.3	204.3	11.12
50 to 99	Q	171	53	Q	61.8	26.3	Q	38.4	202.4	14.10
100 to 249	Q	81	86	Q	48.0	31.8	Q	56.8	209.1	10.59
250 or More	NC	15	345	NC	43.3	54.5	NC	64.1	332.7	15.29

Table 25. Natural Gas Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.290	1.283	2.153	1.059	0.996	1.860	0.391	0.466	0.785	
Weekly Operating Hours										
39 or Fewer	56	68	Q	45.7	28.3	Q	4.4	28.6	174.5	11.08
40 to 48	112	185	87	62.8	39.9	26.1	4.2	27.6	226.1	8.64
49 to 60	79	98	65	48.3	33.3	32.0	4.4	25.1	227.0	9.47
61 to 84	93	166	57	82.2	58.5	20.9	4.6	30.6	319.2	12.68
85 to 167	97	69	47	121.4	47.8	30.3	4.7	34.1	203.4	13.07
168 (Open Continuously)	47	129	191	106.4	68.6	70.9	4.8	31.0	284.4	12.44
LOCATION										
Census Region										
Northeast	63	120	62	66.6	45.8	18.5	4.9	31.7	264.9	11.63
Midwest	201	275	266	82.8	52.5	55.8	4.7	28.8	240.1	8.78
South	122	181	123	55.0	37.6	36.2	4.2	28.2	229.9	10.47
West	99	139	73	68.6	40.2	27.9	4.2	26.8	213.8	9.91
Metropolitan Status										
Metropolitan	341	568	464	69.5	45.3	36.2	4.5	29.7	246.6	6.45
Nonmetropolitan	144	148	59	67.7	40.8	46.5	4.3	25.4	172.4	10.94
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	61	82	Q	101.0	61.0	Q	4.5	27.0	219.1	15.41
5,500-7,000 HDD	174	291	206	80.0	56.3	41.8	4.8	32.0	250.0	8.57
4,000-5,499 HDD	78	116	92	67.1	37.0	23.8	4.5	27.5	242.6	11.08
Under 4,000 HDD	115	156	99	68.7	36.6	31.4	4.2	26.9	218.0	12.16
2,000 CDD or More and --										
Under 4,000 HDD	57	70	46	40.3	31.6	37.9	4.0	27.5	242.5	13.29
ENERGY SOURCES AND END USES [a]										
Energy Sources Used (Solely or in Combination)										
Electricity	482	714	521	69.1	44.4	37.2	4.4	28.6	238.2	5.94
Natural Gas	485	715	523	68.9	44.3	37.1	4.4	28.6	237.4	5.69
Fuel Oil	19	65	187	81.9	51.4	42.4	4.6	37.6	327.9	19.31
District Heat	Q	Q	67	Q	Q	43.6	Q	Q	284.6	16.27
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane and Minor Fuels	16	17	Q	102.3	33.4	Q	4.0	41.7	Q	30.38

Table 25. Natural Gas Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.290	1.283	2.153	1.059	0.996	1.860	0.391	0.466	0.785	
Energy End Uses										
Space Heating	476	714	522	68.6	44.5	37.3	4.4	28.5	237.5	5.71
Cooling	370	597	493	64.9	43.9	39.1	4.5	28.8	241.4	6.07
Water Heating	407	682	512	71.4	46.0	38.4	4.6	29.2	243.2	5.82
Cooking	135	229	327	120.6	53.9	40.3	4.4	34.2	266.9	7.71
Manufacturing	10	96	85	59.4	101.8	66.9	4.5	26.5	244.4	20.86
Space-Heating Fuels										
Natural Gas	444	637	463	68.4	44.9	42.6	4.4	28.2	227.7	5.94
Primary	431	617	431	68.4	45.7	46.6	4.4	28.0	219.8	6.13
With Secondary	53	121	187	58.1	40.2	64.4	4.8	32.1	229.0	10.57
Electricity Only	36	72	38	54.4	30.9	33.3	4.9	31.4	208.1	12.82
Fuel Oil Only	8	37	130	74.9	88.2	92.4	4.4	36.6	277.1	18.87
Other Fuel or combinations	9	11	20	62.3	45.1	53.2	4.9	32.4	170.0	26.89
With No Secondary	374	496	244	69.7	47.4	38.4	4.4	27.0	215.6	7.45
Secondary	15	26	40	62.9	31.6	21.9	4.4	33.1	253.2	20.72
Other Fuels Excluding Natural Gas	Q	Q	14	Q	Q	29.8	Q	Q	310.9	19.97
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels										
Natural Gas	31	55	31	81.9	57.2	26.6	4.5	28.0	220.4	17.47
Other Fuels Excluding Natural Gas	339	542	462	63.7	42.9	40.3	4.5	28.9	243.7	6.35
Building Not Air Conditioned	112	117	28	87.8	47.3	20.1	4.0	27.2	212.8	13.45

Table 25. Natural Gas Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.254	1.260	2.153	1.014	1.009	2.032	0.367	0.472	0.815	
Water-Heating Fuels										
Natural Gas	324	570	426	80.0	51.0	46.0	4.5	29.0	231.7	6.31
Other Fuels Excluding Natural Gas	82	112	86	50.3	30.8	21.2	4.7	29.6	273.8	11.03
Water Heating Not Performed	78	33	Q	58.5	25.1	Q	3.9	23.3	167.8	16.37
Cooking Fuels										
Natural Gas	120	190	277	143.5	54.5	42.9	4.4	34.2	291.5	8.50
Other Fuels Excluding Natural Gas	15	39	50	53.7	51.2	30.1	4.5	34.2	201.0	15.28
Cooking Not Performed	349	486	196	59.1	40.9	32.8	4.4	27.0	206.4	7.82
Manufacturing Fuels										
Natural Gas	Q	39	Q	Q	104.3	Q	Q	26.3	Q	25.49
Other Fuels Excluding Natural Gas	5	62	41	41.1	93.6	39.8	3.9	27.6	210.4	21.85
Manufacturing Not Performed	474	619	438	69.2	40.7	34.1	4.4	28.7	236.7	5.58
HEATING AND COOLING										
Percent Heated										
Not Heated	8	Q	Q	84.4	Q	Q	3.3	Q	Q	34.14
1 to 50	46	36	26	49.9	18.0	11.7	4.4	26.5	215.5	14.86
51 to 99	45	80	71	54.9	40.8	36.3	4.1	23.9	272.1	13.13
100	385	599	425	74.3	49.5	43.2	4.5	29.8	236.8	6.18
Percent Cooled										
Not Cooled	111	117	27	88.5	47.9	22.9	4.0	27.2	200.3	13.32
1 to 50	107	235	191	58.6	40.4	35.9	4.8	29.2	221.4	9.80
51 to 99	68	147	177	63.0	54.2	52.1	4.5	28.7	311.8	12.45
100	199	217	128	69.2	41.8	30.6	4.3	28.5	226.4	7.00

Table 25. Natural Gas Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.254	1.260	2.153	1.014	1.009	2.032	0.367	0.472	0.815	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	77	61	17	67.5	30.3	12.3	4.7	24.7	223.9	15.23
51 to 99	72	153	86	61.1	49.1	44.2	4.4	28.8	220.5	9.69
100	334	499	419	71.7	45.7	39.0	4.4	29.3	242.5	6.77

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 26. Fuel Oil Consumption and Intensity by Building Size

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)			Fuel Oil Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Fuel Oil (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.301	1.480	2.152	0.956	1.277	1.822	0.376	0.490	0.589	
All Buildings	114	206	121	66.9	52.0	22.7	4.4	30.3	304.8	11.69
Year Constructed										
1900 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1901 to 1920	11	12	Q	51.9	34.8	Q	5.9	27.5	Q	21.94
1921 to 1945	23	53	Q	98.9	66.1	Q	3.8	30.6	Q	21.19
1946 to 1960	23	44	Q	58.0	47.0	Q	4.1	31.2	Q	17.53
1961 to 1970	18	43	Q	61.3	57.9	Q	4.4	34.0	235.7	23.19
1971 to 1973	Q	Q	11	Q	Q	18.5	Q	Q	292.1	22.21
1974 to 1979	Q	Q	Q	117.8	Q	Q	4.2	Q	Q	39.96
1980 to 1983	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1984 to 1986	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
BUILDING USE										
Principal Building Activity										
Assembly	12	25	Q	55.5	36.3	Q	4.8	26.1	Q	17.00
Education	Q	69	29	Q	82.0	37.6	Q	42.6	178.6	17.86
Food Sales	Q	Q	NC	Q	Q	NC	Q	Q	NC	b
Food Service	Q	Q	NC	Q	Q	NC	Q	Q	NC	b
Health Care	Q	Q	Q	Q	Q	Q	Q	Q	368.7	29.17
Lodging	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Mercantile and Service	56	48	Q	76.7	49.6	Q	4.4	24.5	Q	20.75
Office	15	Q	8	58.3	Q	7.0	4.3	Q	368.9	22.16
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	6	12	Q	44.6	28.0	Q	3.9	33.1	Q	30.20
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Ownership and Occupancy										
Nongovernment Owned	95	120	60	63.9	41.2	17.6	4.3	28.1	367.2	13.84
Owner Occupied	75	76	47	67.9	40.3	21.6	4.2	26.0	329.3	15.69
Single Establishment	65	65	39	72.4	40.0	33.0	4.0	25.8	265.7	17.64
Multiple Establishment	10	Q	Q	48.1	Q	Q	5.5	Q	Q	21.16
Nonowner Occupied	21	44	13	52.7	42.8	10.6	4.6	33.2	458.2	19.71
Government Owned	19	86	61	87.5	81.6	32.2	6.0	38.3	232.7	20.80
Federal	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
State	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Local	Q	70	39	Q	81.9	30.2	Q	38.1	238.5	20.49

Table 26. Fuel Oil Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)			Fuel Oil Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Fuel Oil (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.301	1.480	2.152	0.956	1.277	1.822	0.376	0.490	0.589	
Workers										
Fewer than 5	56	23	Q	70.9	31.4	Q	3.8	22.8	Q	21.88
5 to 9	29	13	Q	62.4	26.9	Q	4.5	25.5	Q	18.86
10 to 19	14	26	Q	48.4	46.7	Q	5.9	28.6	Q	19.57
20 to 49	10	62	Q	67.7	71.6	Q	6.8	26.7	Q	17.75
50 to 99	Q	58	Q	Q	82.9	Q	Q	40.7	Q	22.95
100 to 249	Q	17	30	Q	36.2	27.7	Q	61.7	229.8	18.57
250 or More	NC	Q	67	NC	Q	20.8	NC	Q	386.2	19.37
Weekly Operating Hours										
39 or Fewer	16	45	Q	46.8	68.2	Q	4.5	32.3	Q	22.58
40 to 48	22	48	18	61.3	52.4	19.1	4.1	29.8	257.2	19.19
49 to 60	43	42	10	76.0	49.1	14.9	4.7	29.8	254.8	21.12
61 to 84	16	31	Q	81.1	47.5	Q	4.3	25.8	Q	18.40
85 to 167	9	18	Q	59.1	42.3	Q	4.5	32.8	Q	29.95
168 (Open Continuously)	Q	22	Q	Q	48.3	35.2	Q	35.4	323.3	23.99
LOCATION										
Census Region										
Northeast	67	137	66	76.4	69.2	29.4	4.9	28.3	304.6	11.73
Midwest	27	12	Q	66.1	19.3	Q	4.6	35.2	364.9	24.92
South	17	44	Q	46.4	43.6	Q	3.7	31.8	265.8	22.20
West	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Metropolitan Status										
Metropolitan	66	151	111	67.0	56.9	22.6	4.5	30.6	312.4	12.50
Nonmetropolitan	48	55	Q	66.7	41.8	Q	4.3	29.5	Q	19.37
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	33	30	Q	75.9	55.8	Q	4.8	25.2	Q	24.91
5,500-7,000 HDD	32	58	30	62.1	51.8	16.7	4.9	29.1	374.0	16.45
4,000-5,499 HDD	42	94	65	73.8	53.6	28.4	4.2	33.9	255.6	18.04
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	358.8	40.50
2,000 CDD or More and --										
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 26. Fuel Oil Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)			Fuel Oil Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Fuel Oil (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.301	1.480	2.152	0.956	1.277	1.822	0.376	0.490	0.589	
ENERGY SOURCES AND END USES [a]										
Energy Sources Used (Solely or in Combination)										
Electricity	112	204	121	66.7	52.4	22.8	4.4	30.1	304.6	12.14
Natural Gas	10	60	90	44.0	47.5	20.4	4.6	37.6	327.9	22.55
Fuel Oil	114	206	121	66.9	52.0	22.7	4.4	30.3	304.8	11.69
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	11	Q	Q	60.4	Q	Q	4.9	Q	Q	28.70
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Energy End Uses										
Space Heating	113	204	121	67.2	52.1	22.7	4.4	30.2	304.8	11.78
Cooling	68	158	114	71.5	54.3	22.9	4.6	31.2	304.9	13.60
Water Heating	95	190	120	74.5	52.6	23.3	4.8	31.5	311.1	12.27
Cooking	13	88	77	68.0	66.5	20.3	4.8	41.2	332.3	19.04
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Space-Heating Fuels										
Fuel Oil	112	199	116	68.6	57.3	32.2	4.4	28.9	258.2	11.67
Primary	107	187	87	73.8	64.6	42.6	4.6	28.1	246.0	12.61
With Secondary	21	43	44	68.8	63.6	47.1	5.2	38.0	293.3	21.96
Electricity Only	11	Q	Q	53.3	Q	Q	5.6	Q	Q	21.56
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
With No Secondary	86	144	42	75.3	64.9	39.8	4.4	26.0	221.1	14.36
Secondary	Q	20	Q	Q	32.8	Q	Q	34.2	276.5	21.07
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels										
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	67	157	89	71.4	54.4	18.7	4.6	31.1	305.8	13.49
Building Not Air Conditioned	46	46	Q	61.1	46.9	Q	4.3	27.2	Q	18.82

Table 26. Fuel Oil Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)			Fuel Oil Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Fuel Oil (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.232	1.514	2.264	0.946	1.290	2.099	0.382	0.445	0.543	
Water-Heating Fuels										
Fuel Oil	38	111	82	101.2	74.3	37.6	5.1	30.4	261.9	15.20
Other Fuels Excluding Fuel Oil	57	79	38	63.2	37.2	12.9	4.7	32.3	360.9	18.05
Water Heating Not Performed	20	Q	Q	44.7	Q	Q	3.6	Q	Q	19.02
Cooking Fuels										
Fuel Oil	NC	Q	Q	NC	Q	Q	NC	Q	Q	b
Other Fuels Excluding Fuel Oil	13	87	75	68.0	66.8	20.2	4.8	41.1	331.6	19.22
Cooking Not Performed	101	118	45	66.7	44.7	28.8	4.4	26.7	253.6	13.72
Manufacturing Fuels										
Fuel Oil	Q	NC	Q	Q	NC	Q	Q	NC	Q	b
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	113	203	91	67.9	52.8	19.4	4.4	29.9	304.0	12.23
HEATING AND COOLING										
Percent Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	9	Q	Q	37.8	Q	Q	4.1	Q	Q	29.76
51 to 99	10	14	Q	46.3	40.1	Q	5.1	24.4	Q	23.90
100	94	182	111	78.1	60.1	29.3	4.4	32.5	288.0	13.56
Percent Cooled										
Not Cooled	46	45	Q	61.0	54.3	Q	4.3	24.9	Q	19.40
1 to 50	35	85	55	72.0	47.0	32.2	5.0	33.5	237.5	15.23
51 to 99	6	Q	Q	37.4	63.1	Q	5.1	28.3	400.9	23.90
100	28	41	Q	87.1	53.0	19.8	3.9	31.8	299.7	25.51

Table 26. Fuel Oil Consumption and Intensity by Building Size (continued)

Building Characteristics	Total Fuel Oil Consumption (trillion Btu)			Fuel Oil Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Fuel Oil (thousand square feet)			RSE Row Factor
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	
RSE Column Factor:	1.232	1.514	2.264	0.946	1.290	2.099	0.382	0.445	0.543	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	NC	Q	NC	NC	Q	NC	NC	Q	NC	b
1 to 50	20	21	Q	59.9	41.6	Q	4.2	24.0	Q	20.03
51 to 99	11	30	16	36.7	36.9	20.4	5.3	31.3	262.5	21.10
100	83	155	99	77.7	59.2	24.5	4.3	31.6	304.7	14.49

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 27. Major Fuel Consumption and Intensity by Selected Principal Building Activity

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.475	1.623	0.902	1.262	1.248	0.682	0.806	0.946	0.565	
All Buildings	1,002	1,010	3,028	78.4	106.0	93.4	10.0	15.6	16.7	7.65
Building Floorspace (Square Feet)										
1,001 to 5,000	228	131	360	111.1	131.1	136.4	2.7	2.9	2.8	8.64
5,001 to 10,000	215	94	289	95.7	96.1	90.5	7.3	7.4	7.4	6.32
10,001 to 25,000	171	120	433	74.9	93.6	87.0	16.1	17.4	16.3	7.20
25,001 to 50,000	121	108	433	74.3	88.3	82.4	34.9	34.8	36.2	7.48
50,001 to 100,000	80	90	470	47.0	86.3	91.0	73.0	71.0	68.5	8.62
100,001 to 200,000	63	118	396	77.8	108.9	80.4	139.1	139.1	139.4	10.59
200,001 to 500,000	44	225	410	58.4	146.1	95.7	265.6	340.9	293.0	12.88
Over 500,000	80	123	237	Q	89.7	119.4	905.0	913.9	759.8	17.94
Year Constructed										
1900 or Before	23	28	78	43.8	81.1	59.1	9.5	12.7	15.6	20.66
1901 to 1920	42	102	130	51.3	148.5	87.9	9.5	19.1	17.3	21.42
1921 to 1945	110	98	458	72.8	76.8	92.5	7.8	13.9	17.3	14.62
1946 to 1960	128	104	521	62.6	103.5	85.7	7.3	9.4	14.2	11.50
1961 to 1970	267	292	694	114.3	168.6	100.9	11.6	16.6	17.9	14.94
1971 to 1973	61	82	330	83.9	122.4	116.3	9.6	17.0	25.0	17.74
1974 to 1979	188	117	434	81.5	89.1	98.1	12.8	14.6	16.2	15.26
1980 to 1983	86	116	196	65.0	82.3	85.0	12.0	22.0	14.3	20.34
1984 to 1986	97	70	186	82.0	64.7	86.9	12.0	22.2	17.0	16.69
BUILDING USE										
Ownership and Occupancy										
Nongovernment Owned	911	870	1,992	75.3	104.2	88.1	9.8	15.1	14.3	8.24
Owner Occupied	503	613	1,418	75.5	115.1	90.1	8.9	14.1	13.5	9.89
Nonowner Occupied	408	257	573	75.1	85.0	83.4	11.2	17.0	16.6	10.69
Government Owned	91	140	1,036	133.3	118.2	105.6	15.0	21.4	26.9	15.40
Workers										
Fewer than 5	151	Q	416	53.6	Q	57.7	4.4	3.2	7.3	9.53
5 to 9	153	74	256	77.8	102.0	70.6	6.2	4.3	10.5	13.91
10 to 19	131	57	330	58.7	62.5	71.6	11.9	7.3	17.6	11.59
20 to 49	210	137	567	117.7	100.4	103.9	18.6	12.1	25.3	12.06
50 to 99	138	100	428	129.7	101.7	97.0	41.7	24.1	51.9	13.53
100 to 249	73	137	413	61.1	94.2	109.9	100.2	56.2	108.0	14.75
250 or More	146	461	618	84.9	124.2	184.4	364.9	239.6	259.8	18.48

Table 27. Major Fuel Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.475	1.623	0.902	1.262	1.248	0.682	0.806	0.946	0.565	
Weekly Operating Hours										
39 or Fewer	22	Q	340	60.1	Q	52.7	5.2	8.2	11.6	18.15
40 to 48	148	468	494	62.4	99.2	65.8	7.4	14.0	19.7	10.37
49 to 60	236	238	274	59.6	94.3	69.3	8.4	16.7	14.8	9.85
61 to 84	364	111	421	83.0	77.2	109.6	17.5	25.1	16.2	15.52
85 to 167	162	32	459	132.8	124.5	117.8	10.7	16.5	16.7	17.38
168 (Open Continuously)	71	Q	1,039	147.3	Q	153.7	8.5	24.7	25.6	21.14
LOCATION										
Census Region										
Northeast	220	194	632	79.1	109.0	94.7	12.3	19.5	21.5	13.00
Midwest	299	300	1,004	85.2	118.4	111.9	10.2	16.6	18.3	13.50
South	359	261	865	80.0	92.1	79.5	9.3	12.0	14.8	10.23
West	124	255	527	62.0	106.8	89.4	8.7	18.3	14.6	15.52
Metropolitan Status										
Metropolitan	800	866	2,334	81.6	104.5	95.4	11.2	19.2	19.9	8.59
Nonmetropolitan	203	144	694	68.0	115.3	87.2	7.3	7.0	11.2	14.86
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	143	116	316	119.5	183.6	112.5	8.8	11.4	14.6	23.28
5,500-7,000 HDD	234	271	972	74.6	95.9	103.0	10.6	20.2	22.1	11.20
4,000-5,499 HDD	263	232	711	73.4	113.9	99.0	12.3	19.2	17.9	13.68
Under 4,000 HDD	199	219	624	74.8	88.0	79.3	9.3	15.3	15.7	14.74
2,000 CDD or More and --										
Under 4,000 HDD	163	171	403	73.9	110.8	78.8	8.2	10.6	12.2	17.48
ENERGY SOURCES AND END USES										
Energy Sources Used (Solely or in Combination)										
Electricity	1,001	1,009	3,019	78.7	106.2	93.6	10.0	15.6	16.7	7.68
Natural Gas	694	688	2,221	79.4	120.2	102.9	11.8	16.4	20.8	9.55
Fuel Oil	188	198	841	77.7	112.4	126.7	11.7	23.7	27.7	15.90
District Heat	Q	184	622	Q	126.8	219.0	Q	82.7	64.5	19.13
District Chilled Water	Q	Q	Q	Q	Q	280.7	Q	Q	88.7	49.10
Propane	49	Q	216	77.1	Q	91.4	6.8	Q	10.6	19.12
Minor Fuels	19	Q	65	49.3	Q	64.2	5.1	Q	13.9	27.80
Energy End Uses										
Space Heating	984	1,008	2,952	79.4	106.6	97.5	10.4	15.8	17.8	7.74
Cooling	804	999	2,588	77.4	107.1	102.9	11.8	16.2	19.4	7.88
Water Heating	815	913	2,781	82.3	103.5	99.8	12.2	16.7	19.8	7.96
Cooking	245	269	1,467	90.3	118.0	123.4	37.3	111.9	26.0	13.68
Manufacturing	74	98	279	150.6	182.9	153.8	10.7	64.7	27.1	26.44

Table 27. Major Fuel Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.475	1.623	0.902	1.262	1.248	0.682	0.806	0.946	0.565	
Space-Heating Fuels (Solely or in Combination)										
Electricity	278	294	724	68.4	82.1	72.5	13.0	15.1	17.1	9.72
Natural Gas	633	582	1,728	80.0	118.0	97.3	11.3	15.0	19.5	10.16
Fuel Oil	165	118	714	91.7	129.2	122.8	8.8	13.2	26.7	16.24
District Heat	Q	168	560	Q	122.5	207.9	Q	80.1	65.7	18.48
Propane	29	Q	78	64.3	Q	62.6	6.0	Q	8.2	21.52
Minor Fuels	19	Q	31	49.3	Q	43.3	5.1	Q	12.2	31.29
Building Not Heated	19	Q	82	45.4	Q	37.6	4.7	Q	9.0	20.98
Air-Conditioning Fuels (Solely or in Combination)										
Electricity	777	894	2,232	77.5	106.1	99.2	11.7	15.7	18.4	8.25
Natural Gas	27	44	160	63.8	109.1	82.3	12.8	13.1	26.6	16.85
District Chilled Water	Q	49	211	Q	132.3	278.0	Q	93.2	87.3	34.33
District Steam	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels	30	52	203	70.2	107.9	93.1	12.7	13.5	28.5	16.97
Building Not Air Conditioned	196	9	433	84.9	56.7	60.7	5.9	5.0	11.2	16.14

Table 27. Major Fuel Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.377	1.472	0.858	1.198	1.088	0.658	0.947	1.204	0.588	
Water-Heating Fuels (Solely or in Combination)										
Electricity	457	336	696	74.3	82.8	68.0	13.7	14.4	16.6	8.69
Natural Gas	372	445	1,654	88.2	117.4	106.1	12.3	17.4	22.0	10.28
Fuel Oil	52	91	426	122.9	155.4	146.0	12.5	20.0	45.7	21.70
District Heat	Q	126	457	Q	114.4	218.0	Q	235.7	86.3	20.01
Propane	Q	Q	94	Q	Q	120.8	Q	Q	10.6	34.00
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Water Heating Not Performed	187	Q	247	65.2	Q	54.3	6.2	8.7	8.5	15.38
Cooking Fuels (Solely or in Combination)										
Electricity	127	141	483	98.0	97.3	109.8	32.7	133.4	25.0	16.76
Natural Gas	139	149	1,050	79.2	128.9	135.6	55.3	99.4	29.1	18.79
District Heat	NC	Q	116	NC	Q	251.5	NC	Q	160.3	34.73
Propane	Q	Q	92	Q	Q	114.3	Q	Q	13.8	26.94
Minor Fuels and Fuel Oil	NC	Q	Q	NC	Q	Q	NC	Q	Q	b
Cooking Not Performed	245	269	1,467	90.3	118.0	123.4	37.3	111.9	26.0	13.68
Manufacturing Fuels (Solely or in Combination)										
Electricity	60	57	163	149.0	154.3	125.9	10.0	51.4	25.1	29.13
Natural Gas	Q	Q	150	Q	Q	258.1	Q	Q	44.4	45.75
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	929	912	2,749	75.6	101.4	89.8	10.0	15.0	16.3	7.45
HEATING AND COOLING										
Percent Heated										
Not Heated	12	Q	59	37.7	Q	30.8	4.3	Q	8.2	23.07
1 to 50	75	49	203	33.5	59.8	40.4	10.0	14.0	17.8	18.38
51 to 99	112	111	353	57.8	74.9	103.8	11.4	19.2	17.4	12.79
100	804	850	2,412	96.7	117.7	109.3	10.2	15.3	17.9	8.24
Percent Cooled										
Not Cooled	166	8	423	76.3	62.4	61.5	5.6	4.1	10.9	15.93
1 to 50	251	Q	891	58.2	Q	75.4	10.9	16.8	27.3	10.31
51 to 99	190	246	677	79.0	93.1	143.3	15.1	23.4	22.6	14.28
100	396	598	1,038	101.5	117.5	115.2	11.5	13.9	13.5	10.14

Table 27. Major Fuel Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Major Fuel Consumption (trillion Btu)			Major Fuel Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Any Major Fuel (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.377	1.472	0.858	1.198	1.088	0.658	0.947	1.204	0.588	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	Q	NC	16	Q	NC	55.9	Q	NC	5.2	37.65
1 to 50	64	52	259	39.0	73.6	57.9	9.1	9.6	13.4	13.28
51 to 99	145	163	505	67.4	79.4	100.3	10.3	14.6	18.3	10.51
100	792	795	2,248	88.4	117.4	99.4	10.2	17.1	17.7	9.05

• Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

NC No cases in responding sample.

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 28. Electricity Consumption and Intensity by Selected Principal Building Activity

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.523	1.450	0.957	1.348	1.222	0.798	0.770	0.873	0.535	
All Buildings	536	641	1,214	42.2	67.5	37.6	10.0	15.6	16.7	7.94
Building Floorspace (Square Feet)										
1,001 to 5,000	113	Q	180	55.2	Q	68.6	2.7	2.9	2.8	7.01
5,001 to 10,000	109	54	114	48.9	55.7	36.0	7.3	7.5	7.4	7.42
10,001 to 25,000	67	69	177	29.3	53.8	35.7	16.1	17.4	16.3	7.73
25,001 to 50,000	55	80	177	35.0	65.6	33.6	34.9	34.8	36.2	8.81
50,001 to 100,000	53	60	190	31.4	57.9	36.7	73.0	70.9	68.5	8.75
100,001 to 200,000	42	84	123	51.3	78.0	25.4	139.1	139.1	139.3	10.47
200,001 to 500,000	29	119	159	37.7	77.5	37.2	265.6	340.9	293.0	12.07
Over 500,000	Q	91	93	Q	66.4	47.3	905.0	913.9	760.8	18.60
Year Constructed										
1900 or Before	7	9	25	13.9	27.2	18.9	9.5	12.7	15.7	24.62
1901 to 1920	11	Q	28	13.9	83.4	19.4	9.6	19.1	17.5	21.31
1921 to 1945	35	38	128	23.2	30.0	25.8	7.8	13.9	17.3	14.16
1946 to 1960	54	61	187	27.0	62.3	31.0	7.2	9.2	14.1	12.21
1961 to 1970	148	177	290	63.5	102.3	42.2	11.7	16.6	17.9	15.58
1971 to 1973	34	59	133	47.6	87.8	46.7	9.7	17.0	25.0	17.91
1974 to 1979	118	86	233	51.4	65.6	52.9	12.8	14.6	16.3	15.76
1980 to 1983	55	99	100	41.7	70.7	43.3	12.0	22.4	14.4	20.90
1984 to 1986	72	53	91	60.7	49.0	42.7	12.0	22.2	17.1	18.00
BUILDING USE										
Ownership and Occupancy										
Nongovernment Owned	473	566	883	39.3	68.0	39.2	9.8	15.1	14.3	8.55
Owner Occupied	229	383	615	34.4	72.0	39.2	8.9	14.2	13.6	10.36
Nonowner Occupied	244	183	268	45.4	60.8	39.4	11.1	17.0	16.5	11.77
Government Owned	Q	75	331	91.9	63.8	33.9	15.0	21.2	26.9	16.36
Workers										
Fewer than 5	48	Q	172	17.2	Q	24.0	4.4	3.2	7.3	9.71
5 to 9	76	50	112	39.7	68.6	31.0	6.1	4.3	10.5	17.06
10 to 19	60	27	129	26.9	30.0	27.9	11.9	7.3	17.7	13.04
20 to 49	111	78	230	62.1	58.1	42.1	18.6	12.2	25.3	13.19
50 to 99	68	63	184	64.3	63.9	42.6	41.7	24.1	51.2	13.92
100 to 249	56	95	141	46.5	65.6	37.5	100.2	56.2	108.7	14.94
250 or More	117	299	247	68.1	81.1	73.6	364.9	242.0	259.7	18.26

Table 28. Electricity Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.523	1.450	0.957	1.348	1.222	0.798	0.770	0.873	0.535	
Weekly Operating Hours										
39 or Fewer	11	Q	113	29.7	54.5	17.5	5.2	8.2	11.6	21.30
40 to 48	72	308	210	30.5	65.6	28.2	7.5	14.0	19.7	13.45
49 to 60	85	157	97	21.4	62.2	24.5	8.4	16.7	14.9	10.55
61 to 84	209	70	161	48.3	48.9	42.0	17.4	25.6	16.2	15.57
85 to 167	106	18	216	87.5	69.2	56.5	11.0	16.5	16.5	19.58
168 (Open Continuously)	53	Q	416	111.5	Q	61.7	8.5	24.7	25.7	21.48
LOCATION										
Census Region										
Northeast	94	121	214	33.9	68.1	32.4	12.4	19.5	21.5	15.97
Midwest	141	143	300	40.3	56.3	33.5	10.2	16.6	18.3	13.75
South	217	192	458	49.0	68.5	42.1	9.3	12.0	14.8	9.75
West	83	185	242	41.6	77.6	41.5	8.8	18.3	14.5	17.98
Metropolitan Status										
Metropolitan	441	541	944	45.0	65.5	38.8	11.3	19.2	19.8	8.62
Nonmetropolitan	95	100	270	32.6	80.5	34.0	7.2	7.0	11.2	16.91
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	63	39	89	52.3	61.7	31.5	8.8	11.4	14.6	22.20
5,500-7,000 HDD	91	147	301	29.2	52.0	32.1	10.7	20.2	22.1	12.66
4,000-5,499 HDD	149	153	278	42.3	75.4	38.8	12.2	19.4	18.0	15.76
Under 4,000 HDD	109	156	310	40.9	63.3	39.7	9.3	15.2	15.6	14.60
2,000 CDD or More and --										
Under 4,000 HDD	124	146	236	56.4	94.4	46.2	8.2	10.6	12.2	18.57
ENERGY SOURCES AND END USES *										
Energy Sources Used (Solely or in Combination)										
Electricity	536	641	1,214	42.2	67.5	37.6	10.0	15.6	16.7	7.94
Natural Gas	351	388	796	40.2	68.1	37.1	11.9	16.3	20.8	10.42
Fuel Oil	66	120	260	28.0	68.6	39.3	11.6	23.5	27.9	18.60
District Heat	Q	92	181	Q	63.7	63.7	Q	82.7	64.4	23.03
District Chilled Water	Q	Q	Q	Q	Q	86.6	Q	Q	88.7	29.90
Propane	17	Q	92	26.8	Q	39.0	6.8	Q	10.7	20.07
Minor Fuels	5	Q	27	15.2	Q	26.1	4.5	Q	13.9	26.87
Energy End Uses										
Space Heating	522	639	1,160	42.4	67.8	38.5	10.4	15.8	17.8	8.06
Cooling	449	637	1,090	43.2	68.3	43.4	11.8	16.2	19.4	7.98
Water Heating	423	562	1,076	42.7	63.8	38.8	12.2	16.7	19.8	7.97
Cooking	172	185	541	63.4	81.1	45.7	37.3	111.9	26.0	14.41
Manufacturing	16	73	118	32.5	137.2	65.3	10.7	64.7	27.1	24.65

Table 28. Electricity Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.523	1.450	0.957	1.348	1.222	0.798	0.770	0.873	0.535	
Space-Heating Fuels										
Electricity	205	256	469	50.5	71.5	46.9	13.0	15.1	17.1	10.53
Primary	173	211	354	63.0	74.4	57.0	12.4	14.8	14.7	12.62
With Secondary	36	31	77	60.3	59.7	53.2	16.2	15.8	29.7	26.42
Natural Gas Only	23	Q	51	58.4	Q	70.2	24.2	Q	38.8	35.80
Fuel Oil Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	23	24	Q	59.1	35.8	Q	21.8	27.5	38.01
With No Secondary	136	180	276	63.8	78.1	58.1	11.6	14.5	12.7	13.68
Secondary	43	65	132	29.7	60.9	30.8	13.9	17.7	24.9	15.28
Other Fuels Excluding Electricity	317	383	692	38.4	65.5	34.3	9.5	16.1	18.1	10.23
Building Not Heated	14	Q	59	33.4	Q	27.1	4.7	Q	9.0	20.66
Air-Conditioning Fuels										
Electricity	437	587	988	43.6	69.6	43.9	11.7	15.7	18.4	8.38
Solely	435	581	949	43.8	70.0	43.1	11.7	15.5	18.2	8.48
With Other Fuels or Combinations	Q	Q	Q	Q	Q	78.5	Q	Q	35.9	54.45
Other Fuels Excluding Electricity	12	51	102	33.5	56.4	38.7	12.2	24.0	36.3	16.59
Building Not Air Conditioned	86	3	123	37.3	17.2	17.3	5.9	5.0	11.2	20.45

Table 28. Electricity Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.377	1.398	0.894	1.244	1.141	0.800	0.855	1.084	0.552	
Water-Heating Fuels										
Electricity	290	258	388	47.2	63.7	38.0	13.7	14.4	16.6	9.48
Other Fuels Excluding Electricity	133	304	688	35.4	63.8	39.3	10.3	19.4	22.3	10.05
Water Heating Not Performed	113	Q	137	40.2	Q	30.4	6.1	8.5	8.5	18.21
Cooking Fuels										
Electricity	102	94	208	78.9	64.8	47.4	32.7	133.4	25.0	18.37
Other Fuels Excluding Electricity	70	91	332	49.3	109.8	44.7	42.9	87.1	26.6	19.60
Cooking Not Performed	364	456	673	36.4	63.2	32.9	8.3	12.3	13.8	9.22
Manufacturing Fuels										
Electricity	12	43	89	30.3	116.5	69.0	10.0	51.4	25.1	26.46
Other Fuels Excluding Electricity	Q	Q	62	Q	Q	85.5	Q	Q	40.4	52.08
Manufacturing Not Performed	520	568	1,096	42.6	63.3	36.0	10.0	15.0	16.3	7.81
HEATING AND COOLING										
Percent Heated										
Not Heated	7	Q	48	21.4	Q	25.1	4.3	Q	8.2	21.00
1 to 50	39	19	111	17.4	22.9	22.2	10.0	14.0	17.8	17.22
51 to 99	66	77	144	34.5	52.3	42.5	11.4	19.2	17.4	12.96
100	424	544	910	51.4	75.7	41.5	10.2	15.3	17.9	8.94
Percent Cooled										
Not Cooled	57	2	121	26.2	18.5	17.7	5.7	4.1	10.9	20.57
1 to 50	94	46	302	22.1	27.5	25.8	10.8	16.8	27.2	11.81
51 to 99	96	161	270	40.0	60.7	57.3	15.1	23.4	22.7	13.47
100	289	432	520	74.1	85.4	57.8	11.5	13.9	13.5	11.25

Table 28. Electricity Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Electricity Consumption (trillion Btu)			Electricity Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Electricity (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.377	1.398	0.894	1.244	1.141	0.800	0.855	1.084	0.552	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	Q	NC	Q	Q	NC	Q	Q	NC	5.2	23.61
1 to 50	24	24	86	14.7	33.4	19.3	9.2	9.6	13.4	14.47
51 to 99	70	95	184	32.4	46.1	36.7	10.3	14.6	18.3	10.10
100	442	523	936	49.6	77.5	41.6	10.2	17.1	17.7	9.49

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] *Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.*

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 29. Natural Gas Consumption and Intensity by Selected Principal Building Activity

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.452	1.747	0.840	1.338	1.402	0.641	0.852	0.905	0.507	
All Buildings	332	258	1,133	38.0	45.1	52.5	11.8	16.4	20.8	9.97
Building Floorspace (Square Feet)										
1,001 to 5,000	79	33	136	69.0	59.3	114.5	2.9	2.9	2.9	8.45
5,001 to 10,000	69	29	138	47.1	51.0	74.7	7.4	7.7	7.4	7.63
10,001 to 25,000	84	42	179	56.6	51.1	56.4	16.7	17.4	16.3	9.42
25,001 to 50,000	31	18	141	33.6	29.2	41.4	35.0	36.7	36.1	8.49
50,001 to 100,000	22	22	176	19.7	33.7	53.9	73.3	72.4	68.9	9.74
100,001 to 200,000	21	27	131	30.0	44.6	34.9	137.6	134.2	140.9	13.37
200,001 to 500,000	Q	Q	141	Q	Q	42.6	Q	349.8	295.7	12.80
Over 500,000	10	14	90	8.6	18.1	55.9	902.3	929.1	750.4	22.57
Year Constructed										
1900 or Before	10	Q	32	31.7	63.9	37.8	8.1	12.5	14.6	25.43
1901 to 1920	26	24	59	42.7	49.2	56.9	10.1	24.2	18.9	26.56
1921 to 1945	52	31	171	51.2	32.1	52.5	7.9	14.6	19.0	18.01
1946 to 1960	46	30	232	30.7	50.1	52.2	8.2	8.8	18.3	14.14
1961 to 1970	90	Q	253	57.2	91.7	51.1	14.7	16.5	22.3	17.33
1971 to 1973	23	18	117	50.7	45.3	59.4	11.4	16.2	31.4	19.30
1974 to 1979	38	23	135	24.5	29.3	51.7	17.5	18.2	22.7	21.73
1980 to 1983	24	13	65	Q	18.0	56.2	19.1	30.8	17.3	21.84
1984 to 1986	21	15	69	29.1	26.9	53.0	17.7	20.6	28.7	21.06
BUILDING USE										
Ownership and Occupancy										
Nongovernment Owned	322	230	776	38.7	46.6	52.7	11.5	15.9	17.9	11.16
Owner Occupied	201	173	529	43.7	54.3	53.1	10.6	14.7	17.1	13.70
Nonowner Occupied	121	58	247	32.5	32.7	51.7	12.8	18.6	19.7	12.93
Government Owned	10	28	357	Q	35.4	52.1	28.8	20.7	32.0	18.39
Workers										
Fewer than 5	58	9	169	35.9	41.4	44.8	4.6	3.5	8.8	15.27
5 to 9	53	17	102	42.8	37.6	46.1	6.9	4.6	11.2	14.49
10 to 19	52	24	126	35.0	49.7	45.7	12.5	7.2	16.5	12.58
20 to 49	66	46	230	64.1	56.2	57.9	17.8	11.5	25.5	13.74
50 to 99	62	27	151	69.5	44.7	44.2	44.9	23.6	61.4	19.08
100 to 249	16	27	128	18.0	31.7	48.0	113.7	64.5	111.0	16.75
250 or More	24	109	228	15.5	47.1	81.5	417.2	237.8	252.8	22.50

Table 29. Natural Gas Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.452	1.747	0.840	1.338	1.402	0.641	0.852	0.905	0.507	
Weekly Operating Hours										
39 or Fewer	10	Q	140	34.3	Q	32.9	7.0	10.8	15.5	21.13
40 to 48	50	118	216	35.1	40.2	41.4	8.2	14.7	23.9	12.60
49 to 60	93	42	107	35.8	30.8	44.4	9.3	17.2	18.9	12.29
61 to 84	123	29	165	36.0	33.3	69.5	21.4	27.2	15.8	18.35
85 to 167	47	9	157	62.8	46.7	57.8	12.0	16.3	20.1	20.03
168 (Open Continuously)	9	Q	348	34.7	Q	75.4	11.5	Q	34.4	22.77
LOCATION										
Census Region										
Northeast	49	23	171	29.1	26.9	40.7	16.9	23.6	28.5	17.69
Midwest	133	130	478	44.7	70.3	67.2	11.4	16.3	22.7	15.50
South	114	51	260	41.9	36.5	43.4	10.8	12.7	18.3	15.95
West	35	53	223	26.2	33.3	52.5	10.7	18.2	17.0	14.96
Metropolitan Status										
Metropolitan	262	226	885	37.6	45.9	50.8	13.1	20.2	23.5	11.56
Nonmetropolitan	70	32	248	39.4	40.1	59.5	8.5	7.6	13.9	14.83
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	53	Q	104	68.5	Q	65.2	11.0	13.3	20.3	23.58
5,500-7,000 HDD	109	87	474	41.5	44.3	65.2	11.5	20.7	25.2	13.12
4,000-5,499 HDD	58	29	200	25.8	30.4	43.2	16.3	18.7	25.0	16.06
Under 4,000 HDD	81	58	231	45.5	33.2	43.5	11.4	17.0	18.7	18.66
2,000 CDD or More and --										
Under 4,000 HDD	31	19	124	23.7	27.8	44.6	8.9	9.4	13.7	18.96
ENERGY SOURCES AND END USES [a]										
Energy Sources Used (Solely or in Combination)										
Electricity	332	258	1,126	38.0	45.3	52.5	11.9	16.3	20.8	10.10
Natural Gas	332	258	1,133	38.0	45.1	52.5	11.8	16.4	20.8	9.97
Fuel Oil	Q	23	232	Q	20.7	60.0	Q	123.5	68.6	31.06
District Heat	Q	19	88	Q	Q	62.5	Q	102.2	96.8	35.34
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	Q	Q	21	Q	Q	37.6	Q	Q	29.5	43.61

Table 29. Natural Gas Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.452	1.747	0.840	1.338	1.402	0.641	0.852	0.905	0.507	
Energy End Uses										
Space Heating	327	258	1,128	37.6	45.2	52.7	11.9	16.4	20.9	9.98
Cooling	259	254	947	34.5	45.3	52.5	13.0	16.7	22.2	11.04
Water Heating	286	242	1,073	39.9	44.7	53.2	13.5	17.1	22.7	10.81
Cooking	56	53	582	25.0	30.9	62.1	45.0	114.6	27.9	15.76
Manufacturing	57	19	116	135.6	49.4	80.9	11.3	80.6	40.6	31.67
Space-Heating Fuels										
Natural Gas	313	235	996	39.6	47.6	56.0	11.3	15.0	19.5	10.34
Primary	296	231	952	40.1	50.8	58.8	11.0	14.4	18.3	10.54
With Secondary	44	26	291	36.0	34.0	61.3	12.9	20.8	30.2	17.22
Electricity Only	32	18	96	33.9	36.4	36.4	16.1	16.0	22.1	19.00
Fuel Oil Only	Q	Q	165	Q	Q	98.1	Q	Q	80.6	29.61
Other Fuel or combinations	6	Q	30	38.3	Q	67.6	9.9	Q	25.5	38.81
With No Secondary	253	204	657	40.9	54.3	57.6	10.7	13.5	15.7	11.09
Secondary	18	7	56	29.4	14.1	31.8	16.0	35.3	51.0	27.04
Other Fuels Excluding Natural Gas	Q	Q	15	Q	Q	27.6	Q	Q	81.1	47.83
Building Not Heated	Q	Q	5	Q	Q	30.0	Q	Q	10.2	62.90
Air-Conditioning Fuels										
Natural Gas	13	19	85	37.8	53.0	49.6	11.8	12.0	27.5	21.77
Other Fuels Excluding Natural Gas	246	235	862	34.3	44.8	52.8	13.0	17.2	21.7	11.66
Building Not Air Conditioned	73	Q	179	59.4	Q	52.6	7.7	Q	15.5	17.81

Table 29. Natural Gas Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.320	1.714	0.744	1.236	1.402	0.608	0.966	1.082	0.539	
Water-Heating Fuels										
Natural Gas	201	194	926	47.7	51.1	59.4	12.3	17.4	22.0	12.13
Other Fuels Excluding Natural Gas	85	49	147	28.7	29.8	32.3	15.6	16.5	25.1	14.45
Water Heating Not Performed	46	16	60	29.0	52.1	42.3	7.5	9.2	9.5	23.36
Cooking Fuels										
Natural Gas	45	39	503	25.8	33.8	64.9	55.3	99.4	29.1	18.68
Other Fuels Excluding Natural Gas	11	14	79	21.9	25.1	48.9	26.9	166.1	23.3	21.48
Cooking Not Performed	276	205	551	42.4	51.2	45.1	9.4	12.0	17.4	10.88
Manufacturing Fuels										
Natural Gas	Q	Q	Q	Q	Q	134.0	Q	Q	44.4	47.65
Other Fuels Excluding Natural Gas	Q	Q	39	138.0	Q	44.9	10.3	Q	38.4	35.36
Manufacturing Not Performed	275	239	1,016	33.1	44.8	50.5	11.8	15.5	20.1	9.56
HEATING AND COOLING										
Percent Heated										
Not Heated	Q	NC	5	Q	NC	Q	Q	NC	9.5	63.65
1 to 50	26	14	68	18.2	27.7	22.8	12.2	14.7	22.8	23.91
51 to 99	31	26	139	22.2	31.6	58.1	13.0	17.7	19.6	18.08
100	270	219	921	46.0	49.6	57.4	11.6	16.4	20.8	10.81
Percent Cooled										
Not Cooled	72	Q	179	65.7	Q	53.1	7.1	Q	15.4	17.32
1 to 50	104	Q	349	34.8	Q	41.7	12.0	20.5	31.2	13.49
51 to 99	71	61	260	37.1	40.4	72.0	15.7	19.9	27.2	18.60
100	84	115	345	30.8	38.4	55.4	12.8	14.6	14.9	11.01

Table 29. Natural Gas Consumption and Intensity by Selected Principal Building Activity (continued)

Building Characteristics	Total Natural Gas Consumption (trillion Btu)			Natural Gas Energy Intensity (thousand Btu/sq. ft.)			Floorspace per Building Using Natural Gas (thousand square feet)			RSE Row Factor
	Mercantile	Office	All Others	Mercantile	Office	All Others	Mercantile	Office	All Others	
RSE Column Factor:	1.320	1.714	0.744	1.236	1.402	0.608	0.966	1.082	0.539	
LIGHTING										
Percent Lit--Open Hours										
Not Lit	Q	NC	6	Q	NC	124.8	Q	NC	4.3	51.96
1 to 50	27	23	105	22.9	54.2	39.3	11.5	9.7	16.2	19.70
51 to 99	61	37	214	44.0	28.4	61.6	11.3	15.1	20.5	14.23
100	245	199	808	39.5	49.5	52.6	12.0	18.2	22.2	12.03

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

NC No cases in responding sample.

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.898	0.980	0.779	1.068	0.927	1.086	0.951	1.177	1.052	1.139	1.011	
All Buildings	1,167	18,237	15.6	1,297	71.1	19,583	1.07	930	51.0	17,590	0.96	6.06
Building Floorspace (Square Feet)												
1,001 to 5,000	580	1,689	2.9	183	108.3	3,155	1.87	139	82.2	2,891	1.71	9.33
5,001 to 10,000	266	1,945	7.3	174	89.5	2,871	1.48	125	64.4	2,585	1.33	13.61
10,001 to 25,000	171	2,810	16.5	212	75.3	3,148	1.12	141	50.1	2,730	.97	10.87
25,001 to 50,000	78	2,808	36.1	181	64.6	2,496	.89	123	44.0	2,216	.79	9.58
50,001 to 100,000	47	3,312	69.9	196	59.2	2,906	.88	147	44.3	2,633	.79	11.65
100,001 to 200,000	15	2,150	140.4	133	62.0	1,990	.93	98	45.6	1,824	.85	15.15
200,001 to 500,000	7	1,946	288.3	127	65.3	1,756	.90	87	44.9	1,563	.80	16.62
Over 500,000	2	1,576	856.9	90	57.3	1,261	.80	70	44.5	1,148	.73	16.53
Year Constructed												
1900 or Before	36	766	21.0	35	45.5	419	.55	Q	22.3	324	.42	35.47
1901 to 1920	30	467	15.5	30	64.2	337	.72	12	25.7	249	.53	27.77
1921 to 1945	110	1,553	14.2	93	60.1	1,327	.85	52	33.2	1,077	.69	16.12
1946 to 1960	203	2,183	10.8	145	66.4	2,234	1.02	93	42.6	1,943	.89	13.29
1961 to 1970	201	3,282	16.4	240	73.0	3,343	1.02	160	48.7	2,926	.89	11.61
1971 to 1973	73	1,539	21.1	122	79.3	1,851	1.20	85	55.2	1,646	1.07	12.44
1974 to 1979	239	3,821	16.0	299	78.2	4,838	1.27	249	65.1	4,576	1.20	12.89
1980 to 1983	150	2,440	16.3	165	67.7	2,714	1.11	138	56.4	2,549	1.04	16.48
1984 to 1986	126	2,188	17.4	168	76.8	2,520	1.15	126	57.6	2,300	1.05	14.98
BUILDING USE												
Principal Building Activity												
Assembly	160	2,098	13.1	93	44.5	1,396	.67	61	29.2	1,213	.58	17.81
Education	74	1,592	21.6	101	63.3	1,233	.77	51	31.8	992	.62	12.03
Food Sales	43	335	7.9	67	201.0	1,121	3.34	55	162.8	1,046	3.12	19.32
Food Service	53	438	8.3	90	204.7	1,289	2.95	58	132.4	1,103	2.52	30.61
Health Care	19	583	31.3	43	74.5	512	.88	24	40.7	407	.70	31.57
Lodging	66	1,315	19.8	122	92.6	1,676	1.28	74	56.0	1,393	1.06	13.09
Mercantile and Service	314	4,069	13.0	278	68.4	4,207	1.03	205	50.5	3,838	.94	13.39
Office	237	3,586	15.1	294	82.1	5,111	1.43	256	71.5	4,890	1.36	9.69
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	123	2,631	21.5	126	47.8	1,965	.75	96	36.7	1,800	.68	19.39
Other	30	840	27.8	41	49.0	560	.67	25	30.1	481	.57	23.59
Vacant	33	590	18.1	23	39.0	303	.51	14	23.7	259	.44	27.32

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.898	0.980	0.779	1.068	0.927	1.086	0.951	1.177	1.052	1.139	1.011	
Ownership and Occupancy												
Nongovernment Owned	1,046	15,432	14.8	1,090	70.6	16,843	1.09	796	51.6	15,217	0.99	6.49
Owner Occupied	651	9,248	14.2	700	75.7	10,425	1.13	491	53.1	9,273	1.00	7.84
Nonowner Occupied	395	6,185	15.7	390	63.0	6,418	1.04	305	49.4	5,944	.96	9.70
Government Owned	121	2,805	23.3	207	73.7	2,740	.98	134	47.8	2,373	.85	14.10
Workers												
Fewer than 5	453	3,027	6.7	129	42.8	2,031	.67	87	28.9	1,780	.59	10.58
5 to 9	274	2,491	9.1	154	61.7	2,629	1.06	113	45.2	2,406	.97	17.55
10 to 19	188	2,352	12.5	136	57.9	2,055	.87	87	37.0	1,786	.76	13.22
20 to 49	147	2,872	19.5	244	85.0	3,583	1.25	168	58.6	3,144	1.09	12.73
50 to 99	61	2,148	35.0	197	91.6	2,920	1.36	136	63.5	2,614	1.22	14.82
100 to 249	30	2,253	73.9	171	76.0	2,438	1.08	124	55.1	2,199	.98	10.57
250 or More	12	3,094	257.4	266	85.9	3,927	1.27	215	69.4	3,660	1.18	15.13
Weekly Operating Hours												
39 or Fewer	193	2,200	11.4	93	42.4	1,174	.53	52	23.5	975	.44	14.31
40 to 48	347	5,129	14.8	323	63.0	5,120	1.00	251	48.9	4,745	.93	10.37
49 to 60	230	3,005	13.0	173	57.4	2,719	.90	125	41.6	2,446	.81	9.79
61 to 84	153	3,459	22.6	282	81.7	4,349	1.26	199	57.5	3,901	1.13	14.08
85 to 167	95	1,697	17.8	156	92.1	2,422	1.43	118	69.3	2,201	1.30	15.71
168 (Open Continuously)	147	2,747	18.6	269	98.0	3,799	1.38	186	67.8	3,320	1.21	15.21
LOCATION												
Census Region												
Northeast	129	2,480	19.2	204	82.2	3,360	1.35	123	49.8	2,877	1.16	12.18
Midwest	165	3,740	22.7	254	67.8	3,416	.91	166	44.5	2,973	.79	13.60
South	610	8,280	13.6	571	69.0	8,434	1.02	442	53.4	7,746	.94	9.20
West	263	3,738	14.2	269	71.9	4,373	1.17	198	53.0	3,993	1.07	14.32
Metropolitan Status												
Metropolitan	822	14,408	17.5	1,066	74.0	16,154	1.12	765	53.1	14,519	1.01	6.99
Nonmetropolitan	344	3,829	11.1	231	60.3	3,429	.90	165	43.2	3,071	.80	11.42
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	58	1,143	19.6	85	74.2	1,074	.94	50	43.7	899	.79	19.97
5,500-7,000 HDD	161	3,556	22.1	260	73.0	3,501	.98	161	45.2	2,993	.84	14.33
4,000-5,499 HDD	249	4,149	16.7	303	73.1	4,870	1.17	212	51.0	4,315	1.04	12.50
Under 4,000 HDD	320	5,018	15.7	299	59.6	4,616	.92	218	43.4	4,167	.83	9.93
2,000 CDD or More and --												
Under 4,000 HDD	378	4,372	11.6	350	80.1	5,522	1.26	290	66.4	5,215	1.19	15.31

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.898	0.980	0.779	1.068	0.927	1.086	0.951	1.177	1.052	1.139	1.011	
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	67	1,244	18.6	87	69.6	1,107	0.89	50	40.4	922	0.74	19.58
5,500-7,000 HDD	155	3,438	22.2	259	75.2	3,472	1.01	161	46.7	2,971	.86	15.20
4,000-5,499 HDD	248	4,179	16.8	296	70.7	4,623	1.11	206	49.3	4,084	.98	12.55
Under 4,000 HDD	337	4,973	14.8	318	63.9	4,997	1.00	232	46.6	4,514	.91	11.91
2,000 CDD or More and --												
Under 4,000 HDD	359	4,404	12.3	338	76.8	5,384	1.22	282	64.1	5,099	1.16	16.53
ENERGY SOURCES AND END USES [a]												
Energy Sources Used (Solely or in Combination)												
Electricity	1,167	18,237	15.6	1,297	71.1	19,583	1.07	930	51.0	17,590	.96	6.06
Natural Gas	389	8,711	22.4	695	79.8	8,993	1.03	399	45.8	7,460	.86	8.77
Fuel Oil	84	2,195	26.3	174	79.4	2,162	.98	89	40.7	1,734	.79	15.38
District Heat	8	411	53.1	44	107.6	597	1.46	21	51.3	420	1.02	26.06
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	73	1,004	13.8	95	94.8	1,440	1.43	58	57.8	1,169	1.16	21.11
Minor Fuels	21	367	17.3	Q	Q	Q	Q	Q	Q	Q	Q	37.14
Energy End Uses												
Space Heating	1,166	18,223	15.6	1,297	71.2	19,583	1.07	930	51.1	17,590	.97	6.07
Cooling	1,000	16,527	16.5	1,227	74.2	18,631	1.13	893	54.1	16,814	1.02	6.32
Water Heating	933	16,322	17.5	1,179	72.2	17,709	1.08	827	50.7	15,809	.97	6.34
Cooking	182	5,481	30.2	496	90.5	7,260	1.32	336	61.4	6,380	1.16	9.88
Manufacturing	39	975	25.3	81	83.1	1,044	1.07	48	49.1	885	.91	21.68
Space-Heating Fuels												
Electricity	1,166	18,223	15.6	1,297	71.2	19,583	1.07	930	51.1	17,590	.97	6.07
Primary	859	12,224	14.2	870	71.2	14,596	1.19	738	60.4	13,826	1.13	7.53
With Secondary	120	2,569	21.4	185	72.0	2,816	1.10	144	56.1	2,571	1.00	15.97
Natural Gas Only	47	1,228	26.4	107	87.5	1,552	1.26	81	65.9	1,413	1.15	22.61
Other Fuel or Combinations	74	1,347	18.2	78	57.6	1,265	.94	63	47.0	1,158	.86	20.63
With No Secondary	737	9,622	13.0	684	71.1	11,751	1.22	593	61.6	11,226	1.17	8.21
Secondary	346	6,952	20.1	478	68.8	5,868	.84	240	34.6	4,624	.67	8.35
Air-Conditioning Fuels												
Electricity	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Other Fuels Excluding Electricity	34	1,004	29.3	67	66.8	751	.75	26	26.3	529	.53	19.82
Building Not Air Conditioned	166	1,700	10.2	69	40.5	933	.55	36	21.1	757	.45	17.19

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.877	0.949	0.882	1.058	0.942	1.060	0.955	1.158	1.056	1.100	1.003	
Water-Heating Fuels												
Electricity	694	11,344	16.3	752	66.3	12,166	1.07	597	52.6	11,329	1.00	7.44
Other Fuels Excluding Electricity	239	4,978	20.8	427	85.7	5,543	1.11	231	46.4	4,480	.90	11.38
Water Heating Not Performed	233	1,915	8.2	118	61.7	1,874	.98	103	53.8	1,780	.93	18.88
Cooking Fuels												
Electricity	96	2,877	30.1	253	88.0	4,125	1.43	204	71.0	3,850	1.34	15.97
Other Fuels Excluding Electricity	86	2,603	30.2	243	93.3	3,135	1.20	132	50.8	2,530	.97	11.48
Cooking Not Performed	985	12,757	13.0	801	62.8	12,323	.97	594	46.6	11,209	.88	6.49
Manufacturing Fuels												
Electricity	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Electricity	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	1,128	17,262	15.3	1,216	70.4	18,539	1.07	883	51.1	16,705	.97	6.21
HEATING AND COOLING												
Percent Heated												
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	225	3,719	16.5	128	34.5	2,048	.55	95	25.5	1,855	.50	15.71
51 to 99	164	2,682	16.4	186	69.3	2,899	1.08	135	50.3	2,600	.97	10.27
100	771	11,788	15.3	981	83.3	14,618	1.24	699	59.3	13,117	1.11	7.16
Percent Cooled												
Not Cooled	164	1,614	9.8	68	42.3	932	.58	36	22.4	760	.47	16.55
1 to 50	290	5,862	20.2	268	45.8	3,709	.63	145	24.8	3,053	.52	10.62
51 to 99	168	3,320	19.8	276	83.2	4,136	1.25	206	62.1	3,742	1.13	9.34
100	545	7,436	13.6	684	92.0	10,802	1.45	542	72.9	10,030	1.35	8.82
Heat Production Equipment												
Warm-Air Furnaces	379	4,830	12.7	322	66.7	4,512	.93	210	43.5	3,918	.81	12.14
Boilers	110	4,017	36.6	348	86.6	4,431	1.10	194	48.4	3,678	.92	13.32
Individual Space Heaters or Electric Baseboards	462	7,563	16.4	458	60.6	6,459	.85	294	38.9	5,605	.74	8.83
Packaged Heating Units	240	5,695	23.7	497	87.2	7,623	1.34	369	64.7	6,950	1.22	10.90
Air-Source Heat Pumps	253	3,698	14.6	217	58.6	3,658	.99	169	45.8	3,376	.91	13.20
Receives District Heat	7	388	53.2	42	109.3	571	1.47	19	50.3	396	1.02	23.63

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.877	0.949	0.882	1.058	0.942	1.060	0.955	1.158	1.056	1.100	1.003	
Cooling Production Equipment												
Central Cooling	362	6,942	19.2	531	76.6	7,908	1.14	382	55.1	7,112	1.02	7.98
Individual Air Conditioners	287	4,474	15.6	339	75.7	4,476	1.00	190	42.5	3,689	.82	9.10
Packaged Air-Conditioning Units	272	6,767	24.9	567	83.7	8,851	1.31	426	63.0	8,110	1.20	9.80
Air-Source Heat Pumps	253	3,698	14.6	217	58.6	3,658	.99	169	45.8	3,376	.91	13.20
Receives District Chilled Water	Q	213	Q	Q	Q	455	Q	Q	Q	Q	Q	47.33
Heating and Cooling Distribution Equipment												
Ducted Forced Air	814	14,329	17.6	1,048	73.2	15,983	1.12	781	54.5	14,536	1.01	6.83
For Heating Only	73	943	12.9	52	55.6	698	.74	28	29.3	561	.59	23.43
For Cooling Only	36	670	18.4	37	55.4	624	.93	28	41.4	559	.83	24.60
For Both Heating and Cooling	705	12,715	18.0	959	75.4	14,660	1.15	726	57.1	13,415	1.06	7.00
Fan-Coil Units	107	3,939	36.8	326	82.8	4,416	1.12	217	55.1	3,844	.98	14.00
For Heating Only	40	1,027	26.0	73	71.1	866	.84	37	36.4	695	.68	25.68
For Cooling Only	11	409	36.0	45	111.3	591	1.45	36	87.6	546	1.34	39.14
For Both Heating and Cooling	56	2,504	44.5	208	83.0	2,959	1.18	144	57.4	2,602	1.04	16.10
Steam Radiators or Baseboards	35	1,151	33.1	99	85.9	1,026	.89	34	30.0	690	.60	20.01
Hot-Water Radiators or Baseboards	50	1,118	22.2	92	82.1	951	.85	35	31.1	656	.59	17.50
Heating Panels	117	1,671	14.3	126	75.6	1,849	1.11	87	52.1	1,622	.97	19.77
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:												
Heating Only	138	1,373	9.9	66	48.3	1,042	.76	37	27.2	879	.64	20.55
Cooling Only	7	273	40.1	21	76.2	245	.90	7	26.9	179	.65	31.44
Heating and Cooling	729	9,730	13.3	688	70.7	10,472	1.08	498	51.1	9,439	.97	7.72
Reduced Use--Off Hours												
Heating Only	150	1,919	12.8	85	44.2	1,267	.66	49	25.4	1,080	.56	18.36
Cooling Only	15	245	16.5	Q	127.5	Q	1.50	Q	Q	Q	Q	36.90
Heating and Cooling	800	13,024	16.3	908	69.7	13,713	1.05	640	49.1	12,270	.94	6.76

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.877	0.949	0.882	1.058	0.942	1.060	0.955	1.158	1.056	1.100	1.003	
HVAC Conservation Features												
Any HVAC Conservation Feature	695	14,055	20.2	1,098	78.1	16,397	1.17	792	56.4	14,754	1.05	6.70
Preventive Maintenance Program	668	13,748	20.6	1,058	77.0	15,838	1.15	759	55.2	14,227	1.03	6.94
Waste-Heat Recovery	46	2,158	47.1	170	78.7	2,388	1.11	125	58.2	2,168	1.00	13.36
EMCS	69	3,830	55.4	320	83.6	4,651	1.21	243	63.4	4,259	1.11	14.32
Time-Clock Thermostat	21	579	28.1	46	79.1	623	1.08	30	51.4	550	.95	23.98
Economizer Cycle	7	410	60.7	32	78.3	557	1.36	28	68.4	538	1.31	23.89
Other HVAC Features	33	889	27.3	63	71.3	936	1.05	52	58.0	865	.97	26.40
LIGHTING												
Percent Lit--Open Hours												
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	169	2,271	13.5	94	41.3	1,441	.63	59	26.2	1,252	.55	16.40
51 to 99	214	3,335	15.6	208	62.5	3,086	.93	141	42.4	2,729	.82	10.46
100	779	12,587	16.2	994	79.0	15,052	1.20	729	58.0	13,605	1.08	7.49
STRUCTURE												
Floors												
One	769	8,312	10.8	559	67.2	8,801	1.06	426	51.3	8,100	.97	9.06
Two	279	4,707	16.9	368	78.3	5,445	1.16	252	53.6	4,803	1.02	10.17
Three	78	1,706	21.8	122	71.5	1,810	1.06	78	46.0	1,570	.92	12.34
Over Three	40	3,512	87.7	248	70.6	3,526	1.00	173	49.4	3,116	.89	13.64
Wall and Frame Materials												
Masonry Over --												
Wood Frame	219	2,220	10.2	182	81.8	2,843	1.28	132	59.4	2,576	1.16	18.45
Masonry Frame	388	6,397	16.5	462	72.3	6,879	1.08	324	50.6	6,136	.96	8.24
Steel Frame	104	3,685	35.4	269	73.0	3,926	1.07	196	53.1	3,557	.97	14.46
Siding Over --												
Wood Frame	198	1,509	7.6	79	52.2	1,350	.89	50	33.1	1,160	.77	19.23
Masonry Frame	22	231	10.3	Q	155.0	465	2.01	Q	139.4	448	1.94	37.65
Metal Panels	154	1,882	12.2	128	68.1	1,936	1.03	91	48.6	1,742	.93	12.39
Concrete Panels	46	1,585	34.4	91	57.3	1,431	.90	68	42.7	1,293	.82	14.92
Other	36	728	20.4	51	69.7	753	1.03	38	52.3	677	.93	20.00

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.877	0.949	0.882	1.058	0.942	1.060	0.955	1.158	1.056	1.100	1.003	
Roof Materials												
Built-Up	497	10,343	20.8	768	74.2	11,511	1.11	560	54.1	10,400	1.01	7.91
Shingles (Not Wood)	308	2,632	8.5	137	52.1	2,073	.79	88	33.3	1,785	.68	10.40
Metal Surfacing	241	2,405	10.0	160	66.4	2,375	.99	110	45.9	2,106	.88	14.72
Synthetic or Rubber	39	1,616	41.8	122	75.7	1,893	1.17	93	57.2	1,747	1.08	15.41
Slate or Tile	23	411	17.7	27	65.3	426	1.04	16	38.0	352	.86	28.16
Wood Shingles, Shakes or Other Wooden Materials	37	268	7.3	Q	Q	Q	Q	Q	Q	Q	Q	24.58
Other	21	561	26.2	51	91.0	791	1.41	37	66.2	717	1.28	26.94
Roof Square Footage												
5,000 or Less	638	2,697	4.2	267	99.0	4,288	1.59	200	74.2	3,902	1.45	12.83
5,001 to 10,000	254	2,811	11.1	220	78.4	3,619	1.29	150	53.4	3,210	1.14	13.16
10,001 to 25,000	156	3,708	23.7	260	70.2	3,977	1.07	187	50.3	3,547	.96	9.03
25,001 to 50,000	62	2,720	44.2	171	63.0	2,417	.89	121	44.3	2,151	.79	9.19
50,001 to 100,000	39	3,087	78.6	193	62.4	2,750	.89	149	48.4	2,535	.82	15.36
100,001 to 200,000	12	1,722	145.0	100	58.2	1,405	.82	67	39.1	1,252	.73	18.86
Over 200,000	5	1,491	295.7	85	57.3	1,126	.75	57	37.9	993	.67	17.91
Window Glass: Percent of Exterior Walls												
25 or Less	974	13,796	14.2	921	66.7	13,560	.98	639	46.3	12,054	.87	6.48
26 to 50	161	3,192	19.9	274	85.8	4,374	1.37	206	64.6	3,992	1.25	12.38
51 to 75	24	742	31.5	47	63.6	787	1.06	37	49.3	725	.98	15.35
Over 75	9	508	58.7	55	108.6	862	1.70	48	95.0	819	1.61	34.29
Building-Shell Conservation Features												
Any Conservation Feature	1,044	16,516	15.8	1,225	74.2	18,460	1.12	889	53.9	16,645	1.01	6.31
Roof or Ceiling Insulation	902	14,337	15.9	1,049	73.2	15,962	1.11	765	53.3	14,440	1.01	5.97
Wall Insulation	721	11,482	15.9	866	75.4	12,942	1.13	643	56.0	11,756	1.02	7.55
Storm or Multiple Glazing	394	7,717	19.6	540	70.0	8,106	1.05	390	50.6	7,284	.94	7.55
Tinted, Reflective or Shading Glass or Film	365	8,312	22.8	609	73.3	9,594	1.15	471	56.7	8,869	1.07	9.01
Exterior or Interior Shadings or Awnings	457	7,235	15.8	565	78.1	8,950	1.24	428	59.1	8,161	1.13	8.46
Weather Stripping or Caulking	846	14,439	17.1	1,056	73.2	15,896	1.10	774	53.6	14,358	.99	6.24
Other Shell Features	38	638	16.8	34	52.5	527	.83	23	36.6	473	.74	22.15

Table 30. Energy and Expenditure Intensities for Buildings Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.877	0.949	0.882	1.058	0.942	1.060	0.955	1.158	1.056	1.100	1.003	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	175	4,981	28.5	442	88.7	6,657	1.34	339	68.0	6,107	1.23	9.95
Before 1980	22	705	32.7	77	109.2	1,170	1.66	56	79.7	1,043	1.48	33.19
1980 to 1983	58	1,786	31.0	122	68.2	1,781	1.00	86	48.3	1,590	.89	14.06
1984 to 1985	65	1,877	29.1	172	91.6	2,599	1.38	137	72.8	2,422	1.29	15.11
1986	37	878	23.6	89	101.6	1,363	1.55	73	83.1	1,276	1.45	21.25
Building Never Audited	992	13,257	13.4	855	64.5	12,925	.98	592	44.6	11,482	.87	6.77

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.899	0.963	0.766	1.077	0.936	1.093	0.961	1.173	1.061	1.130	1.013	
All Buildings	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Building Floorspace (Square Feet)												
1,001 to 5,000	469	1,392	3.0	161	115.9	2,804	2.01	126	90.7	2,599	1.87	10.14
5,001 to 10,000	224	1,624	7.3	161	98.9	2,643	1.63	117	71.9	2,383	1.47	14.82
10,001 to 25,000	143	2,361	16.5	182	77.2	2,874	1.22	133	56.4	2,570	1.09	11.67
25,001 to 50,000	66	2,366	35.9	163	69.0	2,308	.98	114	48.3	2,069	.87	10.20
50,001 to 100,000	43	2,973	69.5	185	62.1	2,752	.93	142	47.6	2,517	.85	11.45
100,001 to 200,000	13	1,802	139.4	117	64.8	1,791	.99	90	50.1	1,671	.93	16.09
200,001 to 500,000	6	1,669	286.7	113	67.8	1,585	.95	80	48.1	1,420	.85	17.97
Over 500,000	1	1,335	898.0	78	58.3	1,125	.84	64	48.2	1,056	.79	16.00
Year Constructed												
1900 or Before	28	678	24.1	32	46.6	387	.57	Q	23.9	Q	.45	37.49
1901 to 1920	19	300	16.0	22	74.0	258	.86	10	34.5	208	.69	32.12
1921 to 1945	90	1,197	13.3	80	66.7	1,176	.98	47	39.4	980	.82	17.47
1946 to 1960	153	1,792	11.7	119	66.5	1,894	1.06	79	44.0	1,668	.93	15.69
1961 to 1970	164	2,680	16.3	212	79.0	2,991	1.12	147	54.7	2,652	.99	13.18
1971 to 1973	65	1,276	19.8	108	84.9	1,637	1.28	77	60.4	1,459	1.14	13.22
1974 to 1979	206	3,314	16.1	279	84.2	4,562	1.38	237	71.5	4,344	1.31	13.27
1980 to 1983	132	2,277	17.3	156	68.7	2,619	1.15	134	59.0	2,485	1.09	16.87
1984 to 1986	108	2,010	18.6	152	75.6	2,354	1.17	119	59.4	2,184	1.09	16.21
BUILDING USE												
Principal Building Activity												
Assembly	121	1,628	13.5	77	47.5	1,177	.72	54	33.2	1,042	.64	20.41
Education	60	1,259	20.9	81	64.5	1,060	.84	44	35.1	876	.70	13.17
Food Sales	43	335	7.9	67	201.0	1,121	3.34	55	162.8	1,046	3.12	19.32
Food Service	47	408	8.6	86	210.9	1,245	3.05	56	138.4	1,072	2.63	31.84
Health Care	18	Q	Q	33	63.0	433	.82	21	38.8	364	.69	30.00
Lodging	54	1,065	19.6	106	99.8	1,481	1.39	68	63.7	1,263	1.19	15.65
Mercantile and Service	253	3,743	14.8	257	68.6	3,910	1.04	195	52.1	3,599	.96	14.48
Office	223	3,334	14.9	276	82.8	4,834	1.45	246	73.8	4,666	1.40	9.91
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	82	2,116	25.8	109	51.6	1,715	.81	85	40.0	1,575	.74	21.21
Other	21	564	26.7	33	58.5	465	.82	21	36.8	401	.71	25.70
Vacant	31	426	14.0	18	42.3	253	.59	12	27.2	221	.52	29.07

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.899	0.963	0.766	1.077	0.936	1.093	0.961	1.173	1.061	1.130	1.013	
Ownership and Occupancy												
Nongovernment Owned	868	13,397	15.4	991	73.9	15,493	1.16	746	55.7	14,150	1.06	6.71
Owner Occupied	533	8,086	15.2	628	77.6	9,422	1.17	453	56.0	8,465	1.05	8.61
Nonowner Occupied	335	5,311	15.8	363	68.4	6,071	1.14	294	55.3	5,685	1.07	9.98
Government Owned	97	2,126	22.0	169	79.6	2,387	1.12	121	56.8	2,136	1.00	15.62
Workers												
Fewer than 5	324	2,142	6.6	95	44.5	1,511	.71	67	31.1	1,344	.63	12.50
5 to 9	242	1,911	7.9	129	67.6	2,317	1.21	101	52.8	2,159	1.13	19.14
10 to 19	168	2,035	12.1	117	57.4	1,831	.90	79	39.1	1,627	.80	13.74
20 to 49	135	2,581	19.2	229	88.7	3,421	1.33	163	63.1	3,028	1.17	13.32
50 to 99	57	1,973	34.6	188	95.5	2,844	1.44	134	67.8	2,571	1.30	14.57
100 to 249	30	2,131	71.9	162	75.9	2,355	1.11	123	57.5	2,158	1.01	10.76
250 or More	10	2,750	261.9	240	87.2	3,601	1.31	201	73.0	3,399	1.24	16.01
Weekly Operating Hours												
39 or Fewer	146	1,564	10.7	67	42.6	933	.60	43	27.7	817	.52	15.44
40 to 48	290	4,397	15.2	287	65.3	4,614	1.05	232	52.7	4,324	.98	11.41
49 to 60	191	2,655	13.9	159	59.9	2,512	.95	117	44.0	2,274	.86	10.78
61 to 84	135	3,182	23.6	271	85.0	4,190	1.32	194	60.8	3,776	1.19	14.96
85 to 167	84	1,549	18.5	146	94.3	2,297	1.48	114	73.6	2,120	1.37	16.81
168 (Open Continuously)	120	2,177	18.2	231	106.0	3,334	1.53	167	76.9	2,975	1.37	15.41
LOCATION												
Census Region												
Northeast	88	1,852	21.0	166	89.4	2,921	1.58	109	58.9	2,568	1.39	14.32
Midwest	115	3,102	27.0	227	73.2	3,130	1.01	157	50.6	2,781	.90	15.02
South	565	7,721	13.7	542	70.2	8,083	1.05	426	55.2	7,465	.97	9.53
West	198	2,847	14.4	225	79.1	3,747	1.32	175	61.4	3,472	1.22	15.40
Metropolitan Status												
Metropolitan	702	12,439	17.7	966	77.7	14,958	1.20	723	58.1	13,636	1.10	7.27
Nonmetropolitan	263	3,084	11.7	194	62.9	2,922	.95	144	46.8	2,650	.86	11.21
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	25	734	29.5	67	91.0	868	1.18	41	56.4	741	1.01	20.59
5,500-7,000 HDD	118	2,863	24.2	224	78.1	3,122	1.09	148	51.8	2,730	.95	15.50
4,000-5,499 HDD	185	3,421	18.5	268	78.3	4,413	1.29	196	57.4	3,982	1.16	12.47
Under 4,000 HDD	273	4,308	15.8	265	61.4	4,072	.95	194	45.1	3,690	.86	10.67
2,000 CDD or More and --												
Under 4,000 HDD	364	4,198	11.5	337	80.3	5,404	1.29	286	68.2	5,143	1.23	15.12

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.899	0.963	0.766	1.077	0.936	1.093	0.961	1.173	1.061	1.130	1.013	
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	30	771	26.0	68	88.5	895	1.16	41	53.8	758	0.98	20.05
5,500-7,000 HDD	113	2,738	24.2	222	81.0	3,085	1.13	148	54.0	2,704	.99	16.26
4,000-5,499 HDD	200	3,605	18.0	266	73.7	4,288	1.19	195	54.1	3,862	1.07	13.53
Under 4,000 HDD	278	4,197	15.1	273	65.1	4,299	1.02	203	48.4	3,910	.93	12.47
2,000 CDD or More and --												
Under 4,000 HDD	344	4,210	12.2	331	78.6	5,313	1.26	280	66.4	5,052	1.20	16.33
ENERGY SOURCES AND END USES •												
Energy Sources Used (Solely or in Combination)												
Electricity	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Natural Gas	319	7,181	22.5	609	84.8	8,148	1.13	372	51.7	6,919	.96	9.42
Fuel Oil	56	1,755	31.5	144	82.2	1,852	1.06	79	45.2	1,526	.87	18.08
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	58	914	15.8	86	94.6	1,331	1.46	55	60.5	1,106	1.21	22.46
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Energy End Uses												
Space Heating	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Cooling	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Water Heating	802	13,991	17.4	1,056	75.5	16,279	1.16	775	55.4	14,756	1.05	6.49
Cooking	157	4,746	30.3	443	93.3	6,690	1.41	316	66.5	5,985	1.26	10.62
Manufacturing	27	716	26.0	65	90.9	888	1.24	41	56.7	766	1.07	20.37
Space-Heating Fuels												
Electricity	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Primary	736	10,920	14.8	819	75.0	13,851	1.27	709	64.9	13,204	1.21	7.69
With Secondary	103	2,440	23.6	179	73.2	2,753	1.13	142	58.2	2,531	1.04	16.62
Natural Gas Only	43	1,167	27.1	104	89.1	1,529	1.31	80	69.0	1,403	1.20	23.19
Other Fuel or Combinations	61	1,280	21.1	75	58.3	1,225	.96	62	48.1	1,128	.88	21.53
With No Secondary	631	8,447	13.4	640	75.7	11,069	1.31	566	67.0	10,644	1.26	8.64
Secondary	266	5,546	20.8	391	70.5	4,903	.88	205	37.0	3,938	.71	9.17
Air-Conditioning Fuels												
Electricity	965	15,523	16.1	1,160	74.7	17,880	1.15	867	55.8	16,286	1.05	6.30
Solely	961	15,369	16.0	1,126	73.3	17,528	1.14	844	54.9	15,985	1.04	6.33
With Other Fuels or Combinations	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.903	0.941	0.874	1.081	0.942	1.072	0.948	1.154	1.035	1.100	0.992	
Water-Heating Fuels												
Electricity	603	9,872	16.4	689	69.8	11,352	1.15	564	57.1	10,690	1.08	7.44
Other Fuels Excluding Electricity	199	4,120	20.7	367	89.2	4,927	1.20	211	51.2	4,067	.99	12.75
Water Heating Not Performed	163	1,532	9.4	104	67.8	1,601	1.05	92	60.1	1,529	1.00	21.73
Cooking Fuels												
Electricity	83	2,476	29.9	230	92.9	3,816	1.54	193	77.9	3,614	1.46	17.16
Other Fuels Excluding Electricity	74	2,270	30.7	213	93.7	2,874	1.27	123	54.0	2,371	1.04	12.35
Cooking Not Performed	808	10,777	13.3	717	66.5	11,190	1.04	551	51.2	10,301	.96	6.87
Manufacturing Fuels												
Electricity	26	677	26.0	59	87.8	818	1.21	39	57.3	720	1.06	21.86
Other Fuels Excluding Electricity	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	938	14,807	15.8	1,095	73.9	16,992	1.15	826	55.8	15,520	1.05	6.47
HEATING AND COOLING												
Percent Heated												
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	173	2,869	16.6	109	38.0	1,764	.61	83	28.9	1,616	.56	17.53
51 to 99	136	2,269	16.7	165	72.5	2,595	1.14	123	54.2	2,352	1.04	10.71
100	656	10,357	15.8	886	85.5	13,515	1.30	661	63.8	12,312	1.19	7.59
Percent Cooled												
Not Cooled	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	279	5,292	19.0	252	47.5	3,550	.67	140	26.4	2,954	.56	11.02
51 to 99	160	3,058	19.2	256	83.6	3,881	1.27	197	64.4	3,547	1.16	9.55
100	526	7,134	13.6	652	91.4	10,434	1.46	529	74.2	9,770	1.37	8.95
Heat Production Equipment												
Warm-Air Furnaces	314	4,086	13.0	293	71.7	4,171	1.02	200	48.9	3,682	.90	12.80
Boilers	89	3,289	37.1	304	92.4	4,061	1.23	182	55.5	3,459	1.05	13.50
Individual Space Heaters or Electric Baseboards	318	5,711	18.0	371	64.9	5,301	.93	249	43.7	4,675	.82	9.66
Packaged Heating Units	225	5,353	23.7	473	88.4	7,350	1.37	360	67.2	6,755	1.26	11.33
Air-Source Heat Pumps	242	3,485	14.4	205	58.8	3,492	1.00	163	46.9	3,239	.93	13.74
Receives District Heat	6	207	32.1	25	122.3	349	1.68	12	55.6	237	1.14	24.61

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.903	0.941	0.874	1.081	0.942	1.072	0.948	1.154	1.035	1.100	0.992	
Cooling Production Equipment												
Central Cooling	352	6,409	18.2	503	78.4	7,626	1.19	373	58.2	6,940	1.08	7.99
Individual Air Conditioners	277	4,184	15.1	314	74.9	4,233	1.01	182	43.6	3,541	.85	9.34
Packaged Air-Conditioning Units	262	6,405	24.5	538	84.1	8,543	1.33	415	64.8	7,893	1.23	10.07
Air-Source Heat Pumps	242	3,485	14.4	205	58.8	3,492	1.00	163	46.9	3,239	.93	13.74
Receives District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling Distribution Equipment												
Ducted Forced Air	749	12,834	17.1	969	75.5	15,063	1.17	749	58.4	13,877	1.08	6.86
For Heating Only	36	403	11.2	34	84.5	471	1.17	21	51.1	400	.99	28.89
For Cooling Only	34	418	12.1	32	77.0	564	1.35	26	61.3	522	1.25	21.14
For Both Heating and Cooling	678	12,014	17.7	903	75.1	14,027	1.17	703	58.5	12,955	1.08	7.13
Fan-Coil Units	80	3,217	40.1	283	88.1	3,985	1.24	202	62.9	3,549	1.10	14.46
For Heating Only	20	606	29.6	55	91.3	697	1.15	32	52.8	584	.96	24.90
For Cooling Only	8	286	Q	40	139.3	489	1.71	Q	Q	449	1.57	43.45
For Both Heating and Cooling	52	2,325	44.9	188	81.0	2,799	1.20	139	59.8	2,517	1.08	17.34
Steam Radiators or Baseboards	25	765	30.8	74	96.1	821	1.07	28	36.8	584	.76	23.82
Hot-Water Radiators or Baseboards	40	864	21.8	68	78.8	756	.88	30	34.3	559	.65	17.69
Heating Panels	70	1,133	16.2	105	92.4	1,597	1.41	76	67.2	1,431	1.26	22.03
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:												
Heating Only	20	223	11.1	23	101.3	407	1.82	16	69.4	368	1.65	28.88
Cooling Only	7	273	40.1	21	76.2	245	.90	7	26.9	178	.65	31.44
Heating and Cooling	706	9,266	13.1	660	71.2	10,102	1.09	485	52.3	9,146	.99	7.82
Reduced Use--Off Hours												
Heating Only	17	460	26.9	33	72.5	606	1.32	26	55.7	564	1.23	34.12
Cooling Only	15	245	16.4	Q	127.8	Q	1.50	Q	Q	Q	Q	36.91
Heating and Cooling	766	12,211	15.9	848	69.4	13,033	1.07	616	50.4	11,778	.96	6.88

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.903	0.941	0.874	1.081	0.942	1.072	0.948	1.154	1.035	1.100	0.992	
HVAC Conservation Features												
Any HVAC Conservation Feature	612	12,362	20.2	999	80.8	15,274	1.24	752	60.8	13,940	1.13	6.82
Preventive Maintenance Program	589	12,098	20.5	962	79.5	14,741	1.22	719	59.5	13,434	1.11	7.06
Waste-Heat Recovery	44	1,988	44.9	158	79.4	2,288	1.15	121	61.1	2,110	1.06	13.83
EMCS	65	3,338	51.1	293	87.8	4,373	1.31	231	69.1	4,058	1.22	14.19
Time-Clock Thermostat	20	569	28.0	45	78.9	614	1.08	29	51.7	544	.96	24.44
Economizer Cycle	7	325	49.7	28	86.4	477	1.47	25	75.7	459	1.41	22.03
Other HVAC Features	29	873	30.2	63	72.1	929	1.06	51	58.7	859	.98	26.87
LIGHTING												
Percent Lit--Open Hours												
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	128	1,931	15.0	85	44.3	1,318	.68	55	28.7	1,155	.60	17.76
51 to 99	188	2,993	15.9	186	62.2	2,799	.94	128	42.8	2,497	.83	11.35
100	644	10,586	16.4	888	83.9	13,760	1.30	683	64.5	12,631	1.19	7.69
STRUCTURE												
Floors												
One	638	7,221	11.3	509	70.5	8,111	1.12	401	55.6	7,537	1.04	9.40
Two	234	4,113	17.6	334	81.3	4,993	1.21	233	56.7	4,439	1.08	10.81
Three	65	1,420	21.7	112	78.6	1,709	1.20	75	52.9	1,499	1.06	11.82
Over Three	28	2,770	100.4	205	74.0	3,068	1.11	157	56.7	2,811	1.01	14.26
Wall and Frame Materials												
Masonry Over --												
Wood Frame	177	1,797	10.1	167	92.8	2,638	1.47	125	69.5	2,421	1.35	19.43
Masonry Frame	341	5,449	16.0	407	74.6	6,263	1.15	299	54.9	5,676	1.04	8.78
Steel Frame	92	3,332	36.2	249	74.8	3,711	1.11	188	56.3	3,398	1.02	15.65
Siding Over --												
Wood Frame	145	1,101	7.6	60	54.9	1,070	.97	40	36.6	939	.85	20.19
Masonry Frame	21	207	9.7	Q	168.0	453	2.19	Q	153.6	439	2.12	38.42
Metal Panels	119	1,536	12.9	110	71.8	1,717	1.12	83	54.2	1,570	1.02	13.23
Concrete Panels	40	1,413	34.9	86	60.7	1,332	.94	64	45.1	1,201	.85	15.27
Other	29	688	23.6	46	66.9	697	1.01	36	52.6	643	.93	20.83

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.903	0.941	0.874	1.081	0.942	1.072	0.948	1.154	1.035	1.100	0.992	
Roof Materials												
Built-Up	420	8,933	21.3	698	78.1	10,662	1.19	526	58.9	9,736	1.09	7.88
Shingles (Not Wood)	255	2,084	8.2	122	58.8	1,861	.89	81	39.0	1,624	.78	11.04
Metal Surfacing	193	2,016	10.5	138	68.3	2,109	1.05	101	50.2	1,908	.95	16.36
Synthetic or Rubber	37	1,466	39.9	112	76.2	1,767	1.21	86	58.9	1,643	1.12	16.47
Slate or Tile	17	329	18.9	19	58.4	330	1.00	Q	Q	292	.89	29.95
Wood Shingles, Shakes or Other Wooden Materials	27	228	8.3	Q	Q	Q	Q	Q	Q	Q	Q	29.92
Other	16	467	29.2	41	88.8	689	1.47	34	73.1	649	1.39	28.04
Roof Square Footage												
5,000 or Less	516	2,130	4.1	238	111.7	3,857	1.81	184	86.2	3,545	1.66	13.18
5,001 to 10,000	217	2,371	10.9	197	82.9	3,324	1.40	141	59.6	2,991	1.26	14.01
10,001 to 25,000	132	3,112	23.6	225	72.2	3,541	1.14	169	54.4	3,220	1.03	10.02
25,001 to 50,000	51	2,345	46.2	157	67.1	2,274	.97	116	49.5	2,057	.88	9.70
50,001 to 100,000	35	2,739	78.1	184	67.2	2,672	.98	146	53.5	2,485	.91	16.00
100,001 to 200,000	10	1,455	142.0	82	56.4	1,167	.80	56	38.7	1,047	.72	20.82
Over 200,000	4	1,371	320.2	77	56.3	1,045	.76	54	39.2	942	.69	18.91
Window Glass: Percent of Exterior Walls												
25 or Less	813	11,782	14.5	825	70.0	12,393	1.05	596	50.6	11,167	.95	6.83
26 to 50	125	2,524	20.2	235	93.2	3,886	1.54	188	74.3	3,615	1.43	12.55
51 to 75	19	709	37.6	44	62.7	739	1.04	35	49.4	685	.97	16.31
Over 75	9	508	58.7	55	108.6	862	1.70	48	95.0	819	1.61	34.29
Building-Shell Conservation Features												
Any Conservation Feature	888	14,281	16.1	1,114	78.0	17,146	1.20	841	58.9	15,665	1.10	6.50
Roof or Ceiling Insulation	766	12,498	16.3	954	76.3	14,820	1.19	723	57.9	13,579	1.09	6.18
Wall Insulation	607	10,167	16.7	798	78.5	12,163	1.20	615	60.5	11,194	1.10	7.82
Storm or Multiple Glazing	338	6,789	20.1	494	72.7	7,576	1.12	370	54.5	6,890	1.01	8.00
Tinted, Reflective or Shading Glass or Film	346	7,648	22.1	581	76.0	9,227	1.21	455	59.5	8,566	1.12	8.75
Exterior or Interior Shadings or Awnings	413	6,834	16.5	537	78.6	8,599	1.26	415	60.7	7,905	1.16	8.82
Weather Stripping or Caulking	720	12,605	17.5	963	76.4	14,814	1.18	734	58.3	13,570	1.08	6.46
Other Shell Features	36	613	17.0	33	54.2	523	.85	23	37.8	470	.77	22.54

Table 31. Energy and Expenditure Intensities for Buildings Heated and Cooled by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.903	0.941	0.874	1.081	0.942	1.072	0.948	1.154	1.035	1.100	0.992	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	155	4,301	27.7	398	92.5	6,176	1.44	320	74.5	5,755	1.34	10.72
Before 1980	21	653	31.7	69	106.0	1,084	1.66	53	81.4	989	1.52	35.39
1980 to 1983	51	1,511	29.6	104	68.6	1,580	1.05	78	51.8	1,445	.96	15.84
1984 to 1985	57	1,590	27.8	153	96.2	2,395	1.51	129	81.2	2,265	1.42	16.58
1986	32	781	24.7	87	111.1	1,338	1.71	72	92.1	1,258	1.61	21.33
Building Never Audited	810	11,222	13.9	762	67.9	11,704	1.04	547	48.7	10,531	.94	6.97

▪ Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: *Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986* Nonresidential Buildings Energy Consumption Survey.

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.799	0.822	0.668	1.155	0.889	1.187	0.956	1.355	1.090	1.270	1.043	
All Buildings	1,747	26,622	15.2	2,743	103.0	31,401	1.18	1,145	43.0	23,354	0.88	6.47
Building Floorspace (Square Feet)												
1,001 to 5,000	872	2,442	2.8	353	144.4	4,859	1.99	167	68.5	3,797	1.55	13.69
5,001 to 10,000	411	3,083	7.5	306	99.3	3,621	1.17	121	39.1	2,670	.87	6.73
10,001 to 25,000	259	4,211	16.3	391	92.8	4,135	.98	141	33.5	2,863	.68	8.92
25,001 to 50,000	115	3,989	34.8	348	87.3	4,202	1.05	160	40.0	3,221	.81	9.92
50,001 to 100,000	51	3,469	68.3	334	96.2	3,579	1.03	124	35.7	2,516	.73	9.91
100,001 to 200,000	25	3,520	139.6	330	93.7	3,198	.91	122	34.6	2,167	.62	11.38
200,001 to 500,000	12	3,544	302.9	426	120.2	4,880	1.38	177	50.0	3,778	1.07	18.09
Over 500,000	3	2,364	856.9	256	108.2	2,928	1.24	134	56.5	2,343	.99	24.45
Year Constructed												
1900 or Before	87	1,021	11.8	64	63.0	671	.66	18	17.8	409	.40	17.44
1901 to 1920	109	1,735	15.9	160	92.2	2,433	1.40	69	39.5	Q	Q	25.62
1921 to 1945	311	3,921	12.6	370	94.4	3,656	.93	100	25.5	2,229	.57	10.32
1946 to 1960	394	5,001	12.7	455	91.0	4,955	.99	165	32.9	3,538	.71	10.10
1961 to 1970	338	5,708	16.9	745	130.5	8,406	1.47	337	59.0	6,415	1.12	11.65
1971 to 1973	99	2,045	20.6	268	131.0	2,825	1.38	116	56.6	2,060	1.01	17.77
1974 to 1979	207	3,172	15.3	346	108.9	4,053	1.28	163	51.3	3,170	1.00	13.08
1980 to 1983	113	2,251	20.0	186	82.8	2,477	1.10	99	44.0	2,023	.90	15.97
1984 to 1986	89	1,767	19.8	149	84.2	1,925	1.09	79	44.8	1,578	.89	14.71
BUILDING USE												
Principal Building Activity												
Assembly	259	3,500	13.5	206	58.9	2,669	.76	78	22.2	1,961	.56	14.07
Education	103	3,875	37.7	315	81.4	2,924	.75	91	23.4	1,850	.48	9.85
Food Sales	52	337	6.5	65	192.4	864	2.56	36	106.5	736	2.18	19.15
Food Service	119	664	5.6	145	218.3	1,688	2.54	55	82.6	1,178	1.77	11.09
Health Care	27	1,280	46.9	336	262.2	2,722	2.13	91	71.0	1,590	1.24	15.42
Lodging	42	948	22.6	131	137.8	1,197	1.26	30	31.7	643	.68	16.12
Mercantile and Service	602	6,289	10.4	520	82.7	6,538	1.04	242	38.5	5,113	.81	9.46
Office	313	5,094	16.3	618	121.3	8,487	1.67	341	66.8	7,130	1.40	15.58
Public Order and Safety	20	332	16.7	39	118.8	342	1.03	14	42.4	211	.64	28.20
Warehouse	119	3,017	25.4	228	75.6	2,355	.78	105	34.7	1,754	.58	18.69
Other	26	535	20.2	90	169.0	1,101	2.06	49	90.7	878	1.64	19.83
Vacant	64	750	11.6	49	65.4	513	.68	15	19.6	311	.41	25.32

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.799	0.822	0.668	1.155	0.889	1.187	0.956	1.355	1.090	1.270	1.043	
Ownership and Occupancy												
Nongovernment Owned	1,554	20,798	13.4	2,102	101.0	25,163	1.21	927	44.6	19,175	0.92	7.50
Owner Occupied	1,024	13,070	12.8	1,396	106.8	15,499	1.19	580	44.4	11,394	.87	8.54
Nonowner Occupied	530	7,728	14.6	705	91.3	9,665	1.25	347	44.9	7,781	1.01	11.28
Government Owned	193	5,824	30.2	641	110.1	6,237	1.07	218	37.4	4,179	.72	10.69
Workers												
Fewer than 5	698	4,251	6.1	263	61.9	2,972	.70	98	23.1	2,069	.49	12.43
5 to 9	397	2,679	6.7	241	89.8	2,883	1.08	99	37.1	2,149	.80	14.66
10 to 19	294	3,802	12.9	278	73.1	3,150	.83	98	25.8	2,149	.57	9.07
20 to 49	232	4,634	20.0	495	106.9	5,974	1.29	197	42.4	4,430	.96	9.02
50 to 99	70	3,159	45.4	345	109.2	4,026	1.27	151	47.9	3,103	.98	11.94
100 to 249	37	3,323	89.6	339	102.0	3,563	1.07	132	39.8	2,527	.76	12.30
250 or More	18	4,774	258.6	782	163.9	8,832	1.85	369	77.4	6,928	1.45	16.91
Weekly Operating Hours												
39 or Fewer	279	3,644	13.1	223	61.1	2,000	.55	60	16.4	1,232	.34	16.23
40 to 48	490	7,249	14.8	603	83.2	7,922	1.09	287	39.6	6,284	.87	12.20
49 to 60	416	5,369	12.9	427	79.5	4,929	.92	170	31.7	3,619	.67	8.54
61 to 84	255	4,493	17.6	424	94.3	4,952	1.10	175	38.9	3,767	.84	10.91
85 to 167	184	2,509	13.6	366	145.7	4,473	1.78	167	66.5	3,365	1.34	9.32
168 (Open Continuously)	123	3,358	27.4	701	208.9	7,124	2.12	286	85.3	5,086	1.51	15.45
LOCATION												
Census Region												
Northeast	275	5,806	21.1	583	100.4	8,005	1.38	219	37.6	5,971	1.03	13.74
Midwest	501	8,002	16.0	916	114.5	8,755	1.09	307	38.4	5,852	.73	8.67
South	658	8,173	12.4	760	93.0	8,032	.98	360	44.0	6,072	.74	10.27
West	312	4,641	14.9	483	104.2	6,608	1.42	260	56.0	5,458	1.18	16.87
Metropolitan Status												
Metropolitan	1,170	21,059	18.0	2,206	104.7	25,586	1.21	920	43.7	19,133	.91	6.96
Nonmetropolitan	577	5,563	9.6	537	96.6	5,814	1.05	225	40.5	4,220	.76	16.11
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	153	2,116	13.8	323	152.6	2,640	1.25	88	41.8	1,540	.73	15.11
5,500-7,000 HDD	427	8,156	19.1	826	101.3	8,500	1.04	286	35.1	5,839	.72	7.98
4,000-5,499 HDD	346	6,156	17.8	640	104.0	8,432	1.38	273	44.3	6,473	1.05	14.91
Under 4,000 HDD	443	6,421	14.5	633	98.6	7,617	1.19	318	49.5	6,039	.94	13.62
2,000 CDD or More and --												
Under 4,000 HDD	378	3,773	10.0	321	85.0	4,152	1.10	180	47.7	3,462	.92	21.79

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.799	0.822	0.668	1.155	0.889	1.187	0.956	1.355	1.090	1.270	1.043	
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	156	2,239	14.4	332	148.5	2,821	1.26	92	41.2	1,675	0.75	14.73
5,500-7,000 HDD	409	7,508	18.4	803	106.9	8,162	1.09	277	36.8	5,560	.74	8.73
4,000-5,499 HDD	359	6,501	18.1	635	97.8	8,385	1.29	269	41.3	6,391	.98	15.35
Under 4,000 HDD	440	6,377	14.5	692	108.4	8,685	1.36	375	58.8	7,113	1.12	15.63
2,000 CDD or More and --												
Under 4,000 HDD	383	3,997	10.4	281	70.3	3,347	.84	133	33.2	2,614	.65	11.46
ENERGY SOURCES AND END USES [a]												
Energy Sources Used (Solely or in Combination)												
Electricity	1,747	26,622	15.2	2,743	103.0	31,401	1.18	1,145	43.0	23,354	.88	6.47
Natural Gas	1,337	21,648	16.2	2,235	103.2	25,308	1.17	931	43.0	18,910	.87	7.03
Fuel Oil	253	6,313	24.9	824	130.5	8,781	1.39	302	47.9	6,329	1.00	17.28
District Heat	43	2,471	57.1	477	193.2	4,815	1.95	172	69.6	3,068	1.24	22.07
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	151	1,487	9.8	134	90.1	1,479	.99	45	30.2	957	.64	19.66
Minor Fuels	47	591	12.6	40	67.6	479	.81	17	28.0	350	.59	23.70
Energy End Uses												
Space Heating	1,671	25,909	15.5	2,698	104.1	30,633	1.18	1,113	43.0	22,673	.88	6.68
Cooling	1,747	26,622	15.2	2,743	103.0	31,401	1.18	1,145	43.0	23,354	.88	6.47
Water Heating	1,366	23,467	17.2	2,503	106.7	28,302	1.21	1,006	42.9	20,796	.89	6.33
Cooking	293	9,212	31.5	1,166	126.6	13,138	1.43	477	51.8	9,713	1.05	9.85
Manufacturing	60	1,650	27.3	322	195.4	3,801	2.30	145	88.2	3,063	1.86	24.86
Air-Conditioning Fuels												
Electricity	1,747	26,622	15.2	2,743	103.0	31,401	1.18	1,145	43.0	23,354	.88	6.47
Solely	1,731	26,061	15.1	2,670	102.5	30,621	1.18	1,122	43.0	22,866	.88	6.58

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.763	0.817	0.783	1.126	0.924	1.115	0.964	1.312	1.103	1.203	1.053	
Water-Heating Fuels												
Electricity	473	7,231	15.3	564	78.0	6,998	0.97	276	38.1	5,427	0.75	8.75
Other Fuels Excluding Electricity	893	16,236	18.2	1,939	119.4	21,304	1.31	730	45.0	15,368	.95	7.39
Water Heating Not Performed	381	3,155	8.3	240	76.0	3,098	.98	139	44.1	2,558	.81	21.86
Cooking Fuels												
Electricity	109	3,640	33.4	402	110.4	4,308	1.18	169	46.4	3,134	.86	11.77
Other Fuels Excluding Electricity	184	5,572	30.3	764	137.1	8,830	1.58	308	55.3	6,579	1.18	12.55
Cooking Not Performed	1,454	17,410	12.0	1,577	90.6	18,263	1.05	668	38.4	13,641	.78	7.66
Manufacturing Fuels												
Electricity	48	1,057	22.1	172	162.4	1,845	1.75	87	82.8	1,483	1.40	26.59
Other Fuels Excluding Electricity	13	593	47.1	151	254.0	Q	3.30	Q	97.8	Q	2.66	35.03
Manufacturing Not Performed	1,686	24,973	14.8	2,421	96.9	27,600	1.11	999	40.0	20,290	.81	5.98
HEATING AND COOLING												
Percent Heated												
Not Heated	43	412	9.7	29	69.3	496	1.21	20	48.7	442	1.07	27.64
1 to 50	229	3,031	13.2	138	45.7	1,649	.54	58	19.1	1,228	.41	12.65
51 to 99	220	3,586	16.3	298	83.0	3,607	1.01	127	35.3	2,665	.74	12.40
100	1,256	19,594	15.6	2,278	116.3	25,648	1.31	940	48.0	19,019	.97	7.33
Percent Cooled												
Not Cooled	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	630	11,365	18.0	960	84.5	9,021	.79	277	24.3	5,580	.49	8.07
51 to 99	297	5,834	19.7	666	114.1	7,237	1.24	273	46.7	5,337	.91	9.49
100	820	9,419	11.5	1,116	118.5	15,139	1.61	595	63.2	12,434	1.32	10.12
Heat Production Equipment												
Warm-Air Furnaces	972	9,745	10.0	731	75.0	8,574	.88	293	30.0	6,328	.65	6.10
Boilers	347	11,538	33.3	1,336	115.8	14,351	1.24	514	44.6	10,497	.91	10.15
Individual Space Heaters or Electric Baseboards	365	4,460	12.2	468	105.0	4,619	1.04	173	38.7	3,253	.73	13.26
Packaged Heating Units	257	5,510	21.4	598	108.5	7,279	1.32	297	53.9	5,765	1.05	12.32
Air-Source Heat Pumps	59	1,187	20.1	146	122.9	1,247	1.05	44	37.2	815	.69	21.31
Receives District Heat	42	2,290	54.9	411	179.6	4,293	1.87	144	62.8	2,726	1.19	20.05

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.763	0.817	0.783	1.126	0.924	1.115	0.964	1.312	1.103	1.203	1.053	
Cooling Production Equipment												
Central Cooling	694	13,327	19.2	1,465	110.0	16,171	1.21	619	46.5	12,014	0.90	8.17
Individual Air Conditioners	608	8,828	14.5	928	105.2	9,635	1.09	291	32.9	6,341	.72	10.75
Packaged Air-Conditioning Units	414	9,974	24.1	1,143	114.6	13,202	1.32	510	51.2	10,113	1.01	8.85
Air-Source Heat Pumps	59	1,187	20.1	146	122.9	1,247	1.05	44	37.2	815	.69	21.31
Receives District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling Distribution Equipment												
Ducted Forced Air	1,293	20,270	15.7	2,116	104.4	24,658	1.22	945	46.6	18,785	.93	7.15
For Heating Only	224	2,023	9.0	157	77.7	1,648	.81	46	22.8	1,073	.53	11.79
For Cooling Only	114	2,502	21.9	270	108.0	3,302	1.32	119	47.5	2,474	.99	17.85
For Both Heating and Cooling	955	15,745	16.5	1,689	107.3	19,707	1.25	780	49.6	15,238	.97	7.45
Fan-Coil Units	219	7,952	36.3	1,001	125.8	10,699	1.35	405	51.0	7,925	1.00	12.79
For Heating Only	80	2,749	34.4	277	100.7	2,567	.93	95	34.6	1,693	.62	14.49
For Cooling Only	37	841	22.5	126	149.2	Q	2.61	81	95.9	Q	2.37	33.80
For Both Heating and Cooling	102	4,361	42.8	598	137.2	5,933	1.36	229	52.6	4,239	.97	12.81
Steam Radiators or Baseboards	120	4,403	36.7	604	137.2	6,134	1.39	171	38.9	3,953	.90	18.30
Hot-Water Radiators or Baseboards	142	4,877	34.5	632	129.5	5,963	1.22	196	40.2	3,848	.79	12.67
Heating Panels	61	1,245	20.3	139	111.2	1,380	1.11	49	39.5	958	.77	15.30
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:												
Heating Only	48	861	17.8	159	184.4	1,418	1.65	54	62.4	908	1.06	30.08
Cooling Only	74	1,297	17.5	123	94.6	1,286	.99	37	28.8	844	.65	15.61
Heating and Cooling	1,174	13,970	11.9	1,381	98.8	15,849	1.13	554	39.6	11,701	.84	8.68
Reduced Use--Off Hours												
Heating Only	49	641	13.1	57	88.5	525	.82	Q	Q	346	.54	27.53
Cooling Only	89	1,188	13.4	142	119.7	1,601	1.35	54	45.8	1,115	.94	17.04
Heating and Cooling	1,412	21,024	14.9	1,923	91.5	22,402	1.07	795	37.8	16,723	.80	7.00

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.763	0.817	0.783	1.126	0.924	1.115	0.964	1.312	1.103	1.203	1.053	
HVAC Conservation Features												
Any HVAC Conservation Feature	1,033	20,686	20.0	2,343	113.3	26,787	1.29	1,003	48.5	20,129	0.97	7.28
Preventive Maintenance Program	995	20,072	20.2	2,272	113.2	26,090	1.30	976	48.6	19,657	.98	7.45
Waste-Heat Recovery	81	3,391	42.0	506	149.1	4,969	1.47	209	61.6	3,589	1.06	16.33
EMCS	105	5,795	55.0	713	123.0	8,008	1.38	333	57.5	6,144	1.06	11.36
Time-Clock Thermostat	36	1,286	35.7	115	89.8	1,272	.99	44	34.4	899	.70	17.42
Economizer Cycle	10	627	63.1	74	118.0	1,065	1.70	46	73.8	933	1.49	26.80
Other HVAC Features	32	1,636	51.0	187	114.5	2,062	1.26	102	62.4	1,667	1.02	28.96
LIGHTING												
Percent Lit--Open Hours												
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	264	3,023	11.5	178	59.0	1,862	.62	51	16.9	1,163	.38	11.30
51 to 99	301	4,383	14.6	432	98.5	4,748	1.08	155	35.3	3,319	.76	8.10
100	1,174	19,090	16.3	2,128	111.5	24,744	1.30	938	49.1	18,847	.99	7.77
STRUCTURE												
Floors												
One	1,046	9,573	9.2	888	92.8	10,496	1.10	401	41.9	8,048	.84	10.04
Two	467	6,675	14.3	620	92.9	7,345	1.10	268	40.1	5,543	.83	8.36
Three	149	4,074	27.4	467	114.5	4,643	1.14	162	39.7	3,184	.78	14.89
Over Three	85	6,300	74.1	768	121.9	8,916	1.42	314	49.8	6,579	1.04	14.14
Wall and Frame Materials												
Masonry Over --												
Wood Frame	342	3,307	9.7	250	75.6	2,870	.87	93	28.0	2,087	.63	11.22
Masonry Frame	733	11,180	15.3	1,214	108.6	12,935	1.16	459	41.1	9,242	.83	7.04
Steel Frame	144	5,018	34.9	576	114.9	7,270	1.45	259	51.7	5,594	1.11	14.60
Siding Over --												
Wood Frame	237	1,434	6.1	127	88.3	1,660	1.16	59	41.2	1,260	.88	21.35
Masonry Frame	29	456	15.8	31	68.1	362	.79	13	27.7	261	.57	21.90
Metal Panels	139	1,571	11.3	170	108.2	2,021	1.29	94	59.9	1,635	1.04	20.91
Concrete Panels	53	2,159	40.9	251	116.1	2,738	1.27	103	47.9	2,054	.95	21.55
Other	71	1,496	21.1	124	83.2	1,545	1.03	64	43.0	1,221	.82	20.84

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.763	0.817	0.783	1.126	0.924	1.115	0.964	1.312	1.103	1.203	1.053	
Roof Materials												
Built-Up	853	15,743	18.4	1,837	116.7	20,068	1.27	763	48.5	14,769	0.94	7.07
Shingles (Not Wood)	483	4,153	8.6	287	69.1	3,227	.78	98	23.5	2,213	.53	11.74
Metal Surfacing	242	2,441	10.1	170	69.7	1,964	.80	70	28.8	1,421	.58	9.85
Synthetic or Rubber	62	2,106	33.9	215	102.3	2,399	1.14	93	44.3	1,795	.85	13.57
Slate or Tile	51	1,089	21.5	121	111.4	Q	2.06	Q	54.0	Q	1.74	29.98
Wood Shingles, Shakes or Other Wooden Materials	31	200	6.4	Q	225.0	Q	Q	Q	Q	Q	Q	27.93
Other	24	889	36.4	67	Q	899	1.01	34	Q	743	Q	34.25
Roof Square Footage												
5,000 or Less	976	3,860	4.0	458	118.6	5,875	1.52	202	52.4	4,466	1.16	13.02
5,001 to 10,000	377	4,115	10.9	364	88.4	4,290	1.04	132	32.0	3,049	.74	9.60
10,001 to 25,000	243	5,805	23.9	567	97.7	6,665	1.15	239	41.1	4,963	.85	7.96
25,001 to 50,000	85	4,389	51.5	426	97.1	5,425	1.24	187	42.5	4,169	.95	16.03
50,001 to 100,000	39	3,833	98.6	426	111.1	4,172	1.09	162	42.3	2,941	.77	12.18
100,001 to 200,000	20	2,681	131.9	307	114.4	2,713	1.01	115	42.9	1,922	.72	16.73
Over 200,000	6	1,938	308.5	196	101.1	2,260	1.17	109	56.1	1,842	.95	26.46
Window Glass: Percent of Exterior Walls												
25 or Less	1,452	18,982	13.1	1,900	100.1	21,422	1.13	779	41.1	15,831	.83	7.34
26 to 50	247	5,450	22.1	608	111.5	6,931	1.27	244	44.8	5,077	.93	9.67
51 to 75	37	1,575	42.1	188	119.3	2,482	1.58	102	64.6	2,044	1.30	24.78
Over 75	11	615	54.9	48	77.4	566	.92	20	32.1	402	.65	24.17
Building-Shell Conservation Features												
Any Conservation Feature	1,543	24,478	15.9	2,540	103.8	28,372	1.16	1,065	43.5	20,976	.86	6.37
Roof or Ceiling Insulation	1,242	20,417	16.4	2,099	102.8	23,798	1.17	903	44.2	17,803	.87	6.76
Wall Insulation	866	13,457	15.5	1,384	102.8	15,096	1.12	580	43.1	11,126	.83	8.16
Storm or Multiple Glazing	597	10,755	18.0	1,110	103.2	11,678	1.09	413	38.4	8,177	.76	6.95
Tinted, Reflective or Shading Glass or Film	421	10,089	24.0	1,082	107.2	12,475	1.24	511	50.6	9,764	.97	9.05
Exterior or Interior Shadings or Awnings	644	10,753	16.7	1,147	106.6	12,916	1.20	471	43.8	9,480	.88	7.37
Weather Stripping or Caulking	1,181	20,201	17.1	2,099	103.9	22,829	1.13	830	41.1	16,479	.82	6.28
Other Shell Features	42	795	19.0	75	93.9	876	1.10	31	38.6	660	.83	19.14

Table 32. Energy and Expenditure Intensities for Buildings Cooled but Not Heated by Electricity (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Electricity: Total Electricity Consumed (trillion Btu)	Electricity: Electricity Consumed per Square Foot (thousand Btu)	Electricity: Total Expenditures (million dollars)	Electricity: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.763	0.817	0.783	1.126	0.924	1.115	0.964	1.312	1.103	1.203	1.053	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	232	8,149	35.1	1,029	126.2	11,863	1.46	453	55.6	9,093	1.12	11.89
Before 1980	31	1,874	60.1	257	137.3	2,626	1.40	103	54.8	1,840	.98	19.66
1980 to 1983	76	3,081	40.7	413	133.9	3,974	1.29	150	48.7	2,751	.89	12.25
1984 to 1985	81	2,961	36.6	344	116.0	4,800	1.62	192	64.8	4,099	1.38	22.61
1986	64	1,364	21.4	168	123.0	2,044	1.50	77	56.7	1,598	1.17	17.40
Building Never Audited	1,515	18,473	12.2	1,715	92.8	19,538	1.06	692	37.5	14,261	.77	6.84

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.880	0.916	0.716	1.235	0.950	1.227	0.978	1.251	0.980	1.151	0.872	
All Buildings	2,018	31,542	15.6	2,943	93.3	30,610	0.97	1,543	48.9	7,483	0.24	5.10
Building Floorspace (Square Feet)												
1,001 to 5,000	970	2,779	2.9	425	152.8	4,944	1.78	226	81.2	1,189	.43	8.53
5,001 to 10,000	498	3,710	7.5	358	96.5	3,952	1.07	218	58.8	1,102	.30	5.85
10,001 to 25,000	310	5,152	16.6	420	81.5	4,139	.80	268	51.9	1,325	.26	6.92
25,001 to 50,000	132	4,696	35.6	335	71.3	3,843	.82	175	37.4	893	.19	7.39
50,001 to 100,000	61	4,342	70.7	376	86.6	3,797	.87	193	44.6	940	.22	8.30
100,001 to 200,000	31	4,235	137.6	328	77.5	2,880	.68	164	38.6	776	.18	11.31
200,001 to 500,000	14	4,170	297.3	442	106.1	4,620	1.11	208	49.9	879	.21	15.59
Over 500,000	3	2,459	847.2	259	105.4	2,435	.99	92	37.3	379	.15	26.44
Year Constructed												
1900 or Before	104	1,109	10.7	69	62.3	684	.62	46	41.4	242	.22	15.32
1901 to 1920	141	2,046	14.5	176	86.0	2,221	1.09	101	49.4	474	.23	14.64
1921 to 1945	352	4,488	12.7	392	87.3	3,485	.78	237	52.9	1,247	.28	9.78
1946 to 1960	472	5,991	12.7	456	76.1	4,287	.72	278	46.4	1,341	.22	9.33
1961 to 1970	366	6,539	17.8	800	122.3	8,774	1.34	389	59.5	1,828	.28	10.58
1971 to 1973	118	2,452	20.7	300	122.3	2,925	1.19	144	58.7	679	.28	14.04
1974 to 1979	231	4,044	17.5	352	87.0	3,622	.90	173	42.8	806	.20	14.27
1980 to 1983	133	2,663	20.1	210	78.9	2,490	.93	90	33.9	461	.17	14.03
1984 to 1986	101	2,210	21.8	188	85.2	2,122	.96	84	38.2	406	.18	12.75
BUILDING USE												
Principal Building Activity												
Assembly	309	4,227	13.7	235	55.7	2,517	.60	146	34.5	754	.18	10.34
Education	146	4,587	31.4	351	76.6	3,020	.66	239	52.0	1,118	.24	9.16
Food Sales	50	433	8.6	85	196.9	1,011	2.33	35	81.9	150	.35	18.91
Food Service	112	740	6.6	146	198.1	1,513	2.05	89	120.4	467	.63	11.88
Health Care	28	1,307	47.0	333	255.0	2,353	1.80	177	135.3	766	.59	17.52
Lodging	45	1,097	24.5	130	118.4	1,262	1.15	74	67.6	377	.34	15.49
Mercantile and Service	701	7,911	11.3	633	80.0	7,290	.92	313	39.6	1,605	.20	10.68
Office	329	4,933	15.0	582	118.0	7,432	1.51	235	47.6	1,077	.22	15.19
Public Order and Safety	31	350	11.4	35	98.9	324	.93	25	71.1	130	.37	18.79
Warehouse	164	4,431	27.1	279	63.0	2,560	.58	137	30.8	684	.15	14.64
Other	28	594	21.4	81	136.9	829	1.40	42	70.2	183	.31	23.98
Vacant	76	933	12.3	52	55.2	498	.53	32	34.7	172	.18	18.93

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.880	0.916	0.716	1.235	0.950	1.227	0.978	1.251	0.980	1.151	0.872	
Ownership and Occupancy												
Nongovernment Owned	1,775	25,093	14.1	2,302	91.8	24,680	0.98	1,192	47.5	5,864	0.23	5.89
Owner Occupied	1,151	15,398	13.4	1,496	97.1	15,179	.99	793	51.5	3,789	.25	7.60
Nonowner Occupied	624	9,695	15.5	807	83.2	9,501	.98	400	41.2	2,075	.21	7.12
Government Owned	243	6,450	26.5	641	99.3	5,930	.92	351	54.4	1,619	.25	8.82
Workers												
Fewer than 5	839	5,668	6.8	334	59.0	3,361	.59	223	39.4	1,122	.20	8.13
5 to 9	453	3,634	8.0	262	72.0	2,875	.79	154	42.3	811	.22	9.59
10 to 19	330	4,297	13.0	278	64.8	2,965	.69	178	41.4	929	.22	7.24
20 to 49	251	5,161	20.6	526	102.0	5,662	1.10	295	57.2	1,481	.29	8.42
50 to 99	88	4,052	46.2	410	101.2	4,298	1.06	218	53.9	1,018	.25	11.34
100 to 249	39	3,735	96.8	338	90.5	3,548	.95	160	42.9	793	.21	10.95
250 or More	20	4,996	254.4	794	159.0	7,902	1.58	315	63.0	1,329	.27	14.94
Weekly Operating Hours												
39 or Fewer	341	4,603	13.5	275	59.7	2,390	.52	190	41.2	874	.19	16.22
40 to 48	581	8,790	15.1	678	77.1	7,504	.85	367	41.7	1,796	.20	7.17
49 to 60	468	5,693	12.6	405	68.8	4,246	.72	225	38.2	1,127	.19	7.51
61 to 84	306	5,726	18.7	520	90.9	5,623	.98	274	47.9	1,305	.23	10.66
85 to 167	192	2,909	15.1	383	131.7	4,357	1.50	184	63.1	999	.34	11.26
168 (Open Continuously)	130	3,621	27.8	682	188.3	6,489	1.79	304	83.9	1,383	.38	12.06
LOCATION												
Census Region												
Northeast	245	5,094	20.8	451	88.4	5,851	1.15	215	42.2	1,292	.25	12.73
Midwest	686	10,940	16.0	1,112	101.6	10,269	.94	683	62.4	3,153	.29	7.86
South	663	9,188	13.9	802	87.3	7,435	.81	385	42.0	1,775	.19	8.70
West	424	6,319	14.9	579	91.6	7,055	1.12	260	41.1	1,264	.20	11.89
Metropolitan Status												
Metropolitan	1,399	24,911	17.8	2,335	93.7	24,584	.99	1,208	48.5	5,879	.24	5.70
Nonmetropolitan	619	6,631	10.7	608	91.7	6,026	.91	335	50.6	1,604	.24	11.04

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.880	0.916	0.716	1.235	0.950	1.227	0.978	1.251	0.980	1.151	0.872	
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	181	2,496	13.8	343	137.6	2,822	1.13	211	84.6	939	0.38	17.97
5,500-7,000 HDD	593	10,514	17.7	955	90.8	9,106	.87	608	57.8	2,943	.28	7.36
4,000-5,499 HDD	337	6,354	18.9	601	94.5	6,788	1.07	256	40.3	1,357	.21	11.44
Under 4,000 HDD	512	8,012	15.6	692	86.3	7,966	.99	325	40.5	1,594	.20	11.61
2,000 CDD or More and --												
Under 4,000 HDD	395	4,167	10.5	353	84.7	3,927	.94	144	34.5	650	.16	15.63
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	203	3,037	15.0	369	121.6	3,117	1.03	232	76.3	1,073	.35	18.84
5,500-7,000 HDD	552	9,609	17.4	932	97.0	8,688	.90	586	61.0	2,820	.29	8.01
4,000-5,499 HDD	348	6,484	18.6	576	88.8	6,604	1.02	249	38.5	1,321	.20	13.36
Under 4,000 HDD	506	7,963	15.7	747	93.8	8,972	1.13	322	40.4	1,581	.20	12.80
2,000 CDD or More and --												
Under 4,000 HDD	409	4,449	10.9	319	71.7	3,228	.73	154	34.6	688	.15	11.53
ENERGY SOURCES AND END USES [a]												
Energy Sources Used (Solely or in Combination)												
Electricity	2,001	31,327	15.7	2,935	93.7	30,577	.98	1,537	49.0	7,445	.24	5.29
Natural Gas	2,018	31,542	15.6	2,943	93.3	30,610	.97	1,543	48.9	7,483	.24	5.01
Fuel Oil	63	4,025	63.9	587	145.9	5,548	1.38	234	58.3	1,046	.26	18.33
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	32	597	18.6	44	72.9	363	.61	23	38.0	111	.19	30.71

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.880	0.916	0.716	1.235	0.950	1.227	0.978	1.251	0.980	1.151	0.872	
Energy End Uses												
Space Heating	2,018	31,542	15.6	2,943	93.3	30,610	0.97	1,543	48.9	7,483	0.24	5.10
Cooling	1,635	27,117	16.6	2,578	95.1	27,371	1.01	1,295	47.8	6,229	.23	5.65
Water Heating	1,628	28,335	17.4	2,682	94.6	27,634	.98	1,424	50.3	6,902	.24	5.13
Cooking	335	10,332	30.8	1,222	118.3	12,785	1.24	594	57.5	2,835	.27	7.95
Manufacturing	74	2,027	27.5	342	168.6	3,725	1.84	171	84.4	717	.35	19.71
Space-Heating Fuels												
Natural Gas	2,018	31,542	15.6	2,943	93.3	30,610	.97	1,543	48.9	7,483	.24	5.10
Primary	1,949	29,066	14.9	2,663	91.6	27,654	.95	1,479	50.9	7,162	.25	5.26
With Secondary	295	6,814	23.1	719	105.5	6,844	1.00	361	52.9	1,668	.24	9.61
Electricity Only	214	4,128	19.3	280	67.9	3,106	.75	146	35.3	724	.18	9.36
Fuel Oil Only	42	1,931	45.9	359	186.0	2,952	1.53	175	90.5	745	.39	16.59
Other Fuel or combinations	39	770	19.8	80	103.3	788	1.02	40	52.2	198	.26	23.25
With No Secondary	1,649	22,191	13.5	1,937	87.3	20,755	.94	1,114	50.2	5,473	.25	5.84
Secondary	87	2,890	33.2	314	108.8	3,374	1.17	81	28.1	417	.14	15.52
Air-Conditioning Fuels												
Natural Gas	114	2,186	19.1	183	83.8	1,636	.75	107	48.9	498	.23	14.85
Other Fuels Excluding Natural Gas	1,520	24,931	16.4	2,395	96.1	25,735	1.03	1,188	47.7	5,731	.23	5.94
Building Not Air Conditioned	368	4,207	11.4	357	84.9	3,204	.76	242	57.5	1,216	.29	14.21

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.829	0.861	0.790	1.211	0.999	1.173	0.986	1.206	1.036	1.101	0.921	
Water-Heating Fuels												
Natural Gas	1,186	21,550	18.2	2,165	100.5	21,503	1.00	1,215	56.4	5,801	0.27	5.64
Other Fuels Excluding Natural Gas	442	6,785	15.4	516	76.1	6,132	.90	209	30.8	1,101	.16	9.71
Water Heating Not Performed	390	3,207	8.2	261	81.5	2,975	.93	119	37.2	581	.18	15.14
Cooking Fuels												
Natural Gas	257	8,022	31.3	989	123.3	10,208	1.27	507	63.2	2,427	.30	8.77
Other Fuels Excluding Natural Gas	78	2,311	29.5	234	101.1	2,577	1.12	87	37.9	408	.18	12.54
Cooking Not Performed	1,683	21,210	12.6	1,721	81.1	17,825	.84	949	44.7	4,648	.22	6.31
Manufacturing Fuels												
Natural Gas	18	639	35.0	150	234.1	1,196	1.87	80	125.9	324	.51	31.92
Other Fuels Excluding Natural Gas	58	1,550	26.8	243	156.7	2,994	1.93	100	64.7	439	.28	21.37
Manufacturing Not Performed	1,945	29,515	15.2	2,601	88.1	26,884	.91	1,372	46.5	6,766	.23	4.91
HEATING AND COOLING												
Percent Heated												
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	286	4,741	16.6	204	43.0	2,115	.45	104	21.9	535	.11	12.28
51 to 99	263	4,135	15.7	345	83.5	3,661	.89	170	41.1	853	.21	11.55
100	1,465	22,646	15.5	2,393	105.7	24,821	1.10	1,269	56.1	6,091	.27	5.30
Percent Cooled												
Not Cooled	360	3,975	11.0	326	81.9	2,631	.66	240	60.5	1,207	.30	13.97
1 to 50	559	11,021	19.7	790	71.7	6,904	.63	498	45.2	2,377	.22	9.06
51 to 99	319	5,943	18.6	670	112.8	6,510	1.10	335	56.3	1,530	.26	10.23
100	780	10,603	13.6	1,156	109.1	14,564	1.37	470	44.3	2,368	.22	7.49
Heat Production Equipment												
Warm-Air Furnaces	1,224	13,464	11.0	955	70.9	10,032	.75	556	41.3	2,804	.21	5.54
Boilers	370	13,466	36.4	1,541	114.4	15,332	1.14	832	61.8	3,875	.29	7.76
Individual Space Heaters or Electric Baseboards	522	7,711	14.8	752	97.5	7,136	.93	424	55.0	1,970	.26	10.97
Packaged Heating Units	339	7,939	23.4	773	97.4	8,464	1.07	337	42.4	1,673	.21	8.78
Air-Source Heat Pumps	77	1,937	25.1	168	86.9	1,326	.68	106	54.5	458	.24	27.39
Receives District Heat	4	444	Q	94	212.3	327	.74	29	65.6	Q	.28	39.49

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.829	0.861	0.790	1.211	0.999	1.173	0.986	1.206	1.036	1.101	0.921	
Cooling Production Equipment												
Central Cooling	688	14,011	20.4	1,419	101.3	14,360	1.02	712	50.8	3,339	0.24	7.95
Individual Air Conditioners	492	8,403	17.1	824	98.0	8,195	.98	443	52.8	2,158	.26	8.59
Packaged Air-Conditioning Units	463	11,521	24.9	1,200	104.2	12,414	1.08	576	50.0	2,718	.24	8.48
Air-Source Heat Pumps	77	1,937	25.1	168	86.9	1,326	.68	106	54.5	458	.24	27.39
Receives District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling Distribution Equipment												
Ducted Forced Air	1,501	24,141	16.1	2,280	94.4	23,934	.99	1,143	47.3	5,536	.23	5.99
For Heating Only	372	3,585	9.6	274	76.5	2,570	.72	183	51.0	946	.26	13.07
For Cooling Only	79	1,639	20.8	156	95.2	1,872	1.14	71	43.2	357	.22	18.35
For Both Heating and Cooling	1,050	18,917	18.0	1,849	97.8	19,493	1.03	889	47.0	4,233	.22	6.58
Fan-Coil Units	226	8,644	38.3	1,002	116.0	9,542	1.10	506	58.6	2,287	.26	10.28
For Heating Only	106	3,136	29.6	271	86.4	2,221	.71	182	57.9	854	.27	13.10
For Cooling Only	22	707	32.7	129	182.9	1,988	2.81	23	32.9	109	.15	29.01
For Both Heating and Cooling	98	4,801	48.8	602	125.4	5,332	1.11	301	62.7	1,324	.28	14.14
Steam Radiators or Baseboards	116	4,055	35.1	564	139.0	5,099	1.26	310	76.3	1,428	.35	14.00
Hot-Water Radiators or Baseboards	142	4,679	32.8	559	119.4	4,274	.91	330	70.5	1,515	.32	13.18
Heating Panels	100	1,965	19.6	173	87.9	1,664	.85	92	47.0	446	.23	13.73
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:												
Heating Only	290	3,234	11.2	321	99.3	2,769	.86	215	66.6	1,035	.32	15.97
Cooling Only	22	879	40.3	96	109.4	Q	1.23	46	52.5	225	.26	24.98
Heating and Cooling	1,171	15,290	13.1	1,395	91.2	14,554	.95	710	46.4	3,421	.22	7.33
Reduced Use--Off Hours												
Heating Only	351	3,904	11.1	283	72.6	2,423	.62	218	55.9	1,098	.28	10.48
Cooling Only	34	601	17.7	74	123.1	827	1.38	33	55.3	169	.28	23.14
Heating and Cooling	1,388	22,028	15.9	1,855	84.2	19,705	.89	954	43.3	4,627	.21	5.65

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.829	0.861	0.790	1.211	0.999	1.173	0.986	1.206	1.036	1.101	0.921	
HVAC Conservation Features												
Any HVAC Conservation Feature	1,189	24,233	20.4	2,480	102.3	26,095	1.08	1,241	51.2	5,965	0.25	5.80
Preventive Maintenance Program	1,140	23,463	20.6	2,381	101.5	25,171	1.07	1,196	51.0	5,737	.24	6.04
Waste-Heat Recovery	75	3,481	46.5	457	131.2	4,205	1.21	216	62.1	967	.28	15.04
EMCS	124	5,950	47.9	687	115.4	7,096	1.19	312	52.4	1,448	.24	11.33
Time-Clock Thermostat	45	1,528	33.8	136	88.8	1,299	.85	81	53.3	395	.26	19.39
Economizer Cycle	9	651	75.1	73	111.6	1,014	1.56	24	36.5	107	.16	25.90
Other HVAC Features	41	1,780	44.0	219	122.8	2,348	1.32	77	43.2	380	.21	29.92
LIGHTING												
Percent Lit--Open Hours												
Not Lit	15	129	8.9	Q	72.4	Q	Q	5	39.9	26	.20	35.59
1 to 50	308	3,842	12.5	205	53.3	1,874	.49	146	37.9	738	.19	11.76
51 to 99	350	5,242	15.0	481	91.7	4,846	.92	272	51.8	1,343	.26	7.05
100	1,346	22,330	16.6	2,248	100.7	23,795	1.07	1,121	50.2	5,377	.24	6.29
STRUCTURE												
Floors												
One	1,217	12,188	10.0	1,074	88.1	11,279	.93	579	47.5	2,863	.23	7.06
Two	545	8,939	16.4	710	79.4	7,974	.89	371	41.5	1,855	.21	7.09
Three	181	4,773	26.4	502	105.2	4,586	.96	290	60.8	1,348	.28	13.44
Over Three	76	5,643	74.5	657	116.4	6,771	1.20	303	53.7	1,417	.25	11.93
Wall and Frame Materials												
Masonry Over --												
Wood Frame	398	4,460	11.2	320	71.8	3,616	.81	175	39.1	877	.20	11.25
Masonry Frame	820	12,924	15.8	1,298	100.4	12,536	.97	726	56.2	3,453	.27	6.93
Steel Frame	167	5,627	33.7	567	100.7	6,371	1.13	259	46.1	1,304	.23	9.73
Siding Over --												
Wood Frame	264	1,519	5.8	137	90.3	1,451	.96	81	53.1	423	.28	12.75
Masonry Frame	42	504	11.9	55	109.0	505	1.00	24	47.3	115	.23	27.40
Metal Panels	173	2,003	11.6	215	107.3	2,426	1.21	94	46.7	452	.23	16.52
Concrete Panels	71	2,930	41.4	249	85.0	2,621	.89	133	45.4	606	.21	24.30
Other	83	1,575	19.0	102	64.8	1,082	.69	52	33.0	253	.16	14.59

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.829	0.861	0.790	1.211	0.999	1.173	0.986	1.206	1.036	1.101	0.921	
Roof Materials												
Built-Up	981	18,651	19.0	1,880	100.8	18,643	1.00	974	52.2	4,660	0.25	6.62
Shingles (Not Wood)	548	4,813	8.8	329	68.2	3,290	.68	215	44.7	1,058	.22	9.23
Metal Surfacing	281	3,094	11.0	235	76.1	2,522	.82	125	40.6	641	.21	12.93
Synthetic or Rubber	74	2,663	35.9	264	99.0	2,667	1.00	121	45.6	585	.22	12.17
Slate or Tile	56	1,004	18.0	116	115.7	2,092	2.08	51	50.6	257	.26	18.74
Wood Shingles, Shakes or Other Wooden Materials	49	348	7.1	57	164.3	Q	1.79	28	79.1	142	.41	28.84
Other	29	969	33.2	62	64.4	772	.80	29	30.0	140	.14	31.16
Roof Square Footage												
5,000 or Less	1,095	4,394	4.0	550	125.1	6,109	1.39	311	70.7	1,590	.36	8.85
5,001 to 10,000	453	4,885	10.8	398	81.5	4,547	.93	231	47.2	1,198	.25	7.61
10,001 to 25,000	287	6,771	23.6	567	83.8	5,834	.86	334	49.3	1,633	.24	6.47
25,001 to 50,000	98	4,884	49.7	425	87.0	4,883	1.00	193	39.6	999	.20	9.70
50,001 to 100,000	51	4,718	92.0	438	92.7	3,946	.84	206	43.7	895	.19	12.67
100,001 to 200,000	26	3,385	132.3	348	102.9	3,116	.92	185	54.7	782	.23	20.18
Over 200,000	9	2,506	293.0	217	86.6	2,176	.87	84	33.4	386	.15	17.42
Window Glass: Percent of Exterior Walls												
25 or Less	1,694	23,741	14.0	2,189	92.2	22,550	.95	1,159	48.8	5,575	.23	6.12
26 to 50	271	5,886	21.7	562	95.5	5,819	.99	289	49.1	1,444	.25	8.23
51 to 75	39	1,342	34.4	143	106.7	1,708	1.27	69	51.4	330	.25	21.28
Over 75	14	573	40.4	48	84.2	532	.93	27	46.3	135	.24	18.16
Building-Shell Conservation Features												
Any Conservation Feature	1,753	28,676	16.4	2,645	92.2	26,739	.93	1,389	48.4	6,701	.23	5.23
Roof or Ceiling Insulation	1,427	24,312	17.0	2,224	91.5	22,580	.93	1,170	48.1	5,617	.23	5.57
Wall Insulation	1,009	16,254	16.1	1,487	91.5	15,080	.93	775	47.7	3,692	.23	6.83
Storm or Multiple Glazing	688	12,570	18.3	1,195	95.1	11,641	.93	636	50.6	3,054	.24	6.52
Tinted, Reflective or Shading Glass or Film	502	11,897	23.7	1,155	97.1	12,137	1.02	560	47.1	2,600	.22	8.26
Exterior or Interior Shadings or Awnings	709	12,010	16.9	1,184	98.6	11,970	1.00	592	49.3	2,902	.24	6.77
Weather Stripping or Caulking	1,350	23,810	17.6	2,219	93.2	21,887	.92	1,190	50.0	5,727	.24	5.52
Other Shell Features	61	992	16.4	112	113.4	1,293	1.30	50	50.7	248	.25	26.25

Table 33. Energy and Expenditure Intensities for Buildings Heated by Natural Gas (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Natural Gas: Total Natural Gas Consumed (trillion Btu)	Natural Gas: Natural Gas Consumed per Square Foot (thousand Btu)	Natural Gas: Total Expenditures (million dollars)	Natural Gas: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.829	0.861	0.790	1.211	0.999	1.173	0.986	1.206	1.036	1.101	0.921	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	280	9,356	33.4	1,063	113.6	11,546	1.23	464	49.6	2,200	0.24	9.15
Before 1980	46	1,913	41.6	234	122.3	2,247	1.17	101	52.6	467	.24	18.47
1980 to 1983	92	3,373	36.7	403	119.4	3,972	1.18	203	60.3	957	.28	11.61
1984 to 1985	92	3,649	39.8	435	119.3	5,539	1.52	153	41.8	721	.20	18.56
1986	75	1,485	19.9	136	91.4	1,429	.96	69	46.3	337	.23	13.93
Building Never Audited	1,738	22,187	12.8	1,881	84.8	19,063	.86	1,079	48.6	5,283	.24	5.45

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, *not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and* Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of *abbreviations and definitions of terms used in this report.*

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.823	0.841	0.656	1.210	0.985	1.266	1.102	1.174	1.053	1.094	0.978	
All Buildings	504	8,708	17.3	997	114.5	10,161	1.17	427	49.1	1,981	0.23	11.41
Building Floorspace (Square Feet)												
1,001 to 5,000	239	679	2.8	81	119.1	947	1.39	51	75.1	296	.44	11.50
5,001 to 10,000	131	959	7.3	95	98.8	953	.99	61	64.0	308	.32	14.28
10,001 to 25,000	67	1,059	15.9	95	89.4	947	.89	59	56.0	306	.29	17.42
25,001 to 50,000	37	1,353	36.3	158	116.9	1,521	1.12	99	73.1	441	.33	17.60
50,001 to 100,000	16	1,057	65.6	95	90.0	802	.76	41	38.5	182	.17	19.16
100,001 to 200,000	7	1,026	149.6	119	115.8	1,006	.98	Q	56.1	227	.22	28.44
200,001 to 500,000	6	1,807	292.1	219	121.4	Q	1.55	42	23.1	165	.09	22.45
Over 500,000	1	767	851.1	135	Q	1,185	1.54	Q	Q	Q	Q	36.24
Year Constructed												
1900 or Before	45	812	17.8	42	51.8	459	.57	23	28.2	124	.15	27.54
1901 to 1920	48	787	16.3	Q	93.9	Q	Q	28	35.7	151	.19	23.17
1921 to 1945	87	1,605	18.4	190	118.1	1,558	.97	106	65.8	481	.30	22.71
1946 to 1960	119	1,745	14.7	179	102.6	1,814	1.04	84	48.1	385	.22	14.59
1961 to 1970	87	1,554	17.8	200	128.9	1,948	1.25	87	56.3	393	.25	23.10
1971 to 1973	26	661	25.8	94	142.5	839	1.27	22	33.1	98	.15	29.26
1974 to 1979	52	934	18.0	154	165.4	1,360	1.46	55	59.8	241	.26	24.27
1980 to 1983	19	343	17.6	38	110.5	440	1.28	14	41.5	66	.19	31.68
1984 to 1986	20	267	13.6	26	96.3	234	.88	8	30.4	42	.16	32.13
BUILDING USE												
Principal Building Activity												
Assembly	70	1,377	19.7	83	60.2	760	.55	41	29.9	214	.16	21.52
Education	32	1,627	51.4	160	98.3	1,242	.76	103	63.1	445	.27	19.39
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Food Service	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Health Care	9	728	85.3	214	293.4	1,679	2.31	Q	Q	Q	Q	27.25
Lodging	15	402	26.7	41	103.1	387	.96	19	47.1	88	.22	23.31
Mercantile and Service	204	1,800	8.8	165	91.7	1,747	.97	104	57.8	508	.28	17.67
Office	69	911	13.2	118	129.2	Q	2.32	35	38.1	172	.19	20.96
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	46	1,080	23.7	109	100.9	1,146	1.06	47	43.9	200	.18	30.68
Other	17	295	17.4	55	187.9	537	1.82	Q	72.1	Q	.35	34.06
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.823	0.841	0.656	1.210	0.985	1.266	1.102	1.174	1.053	1.094	0.978	
Ownership and Occupancy												
Nongovernment Owned	436	5,806	13.3	652	112.3	7,433	1.28	266	45.7	1,288	0.22	12.61
Owner Occupied	327	4,241	13.0	460	108.6	4,520	1.07	191	44.9	917	.22	12.75
Nonowner Occupied	109	1,564	14.3	192	122.5	Q	1.86	75	47.9	371	.24	19.58
Government Owned	68	2,902	42.9	345	118.9	2,728	.94	162	55.7	692	.24	19.00
Workers												
Fewer than 5	231	1,489	6.4	100	67.5	910	.61	78	52.6	418	.28	16.43
5 to 9	116	909	7.8	68	75.3	677	.75	42	46.1	219	.24	14.93
10 to 19	68	960	14.1	74	77.4	824	.86	41	42.6	215	.22	22.33
20 to 49	52	1,317	25.2	128	97.1	1,328	1.01	77	58.8	374	.28	15.92
50 to 99	18	1,031	55.8	108	104.8	960	.93	76	73.4	313	.30	25.92
100 to 249	10	1,188	117.3	128	107.5	1,156	.97	44	37.4	182	.15	21.61
250 or More	7	1,813	255.7	390	215.3	4,305	2.37	68	37.7	259	.14	28.87
Weekly Operating Hours												
39 or Fewer	94	1,381	14.7	104	75.5	879	.64	72	52.4	335	.24	21.61
40 to 48	117	1,806	15.5	189	104.8	Q	1.45	86	47.8	412	.23	18.65
49 to 60	141	1,759	12.5	158	90.0	1,513	.86	93	52.8	457	.26	17.12
61 to 84	71	1,274	18.0	113	88.7	1,235	.97	60	47.4	283	.22	17.51
85 to 167	48	880	18.5	73	83.4	770	.87	37	41.7	171	.19	25.88
168 (Open Continuously)	34	1,606	47.3	359	223.2	3,147	1.96	79	48.9	323	.20	26.77
LOCATION												
Census Region												
Northeast	247	4,467	18.1	468	104.7	5,527	1.24	263	58.9	1,239	.28	13.43
Midwest	98	1,397	14.2	210	150.4	1,541	1.10	60	43.2	263	.19	26.45
South	128	2,078	16.2	248	119.5	2,429	1.17	85	40.8	387	.19	21.22
West	30	Q	25.4	71	92.9	664	.87	Q	Q	Q	Q	38.77
Metropolitan Status												
Metropolitan	302	6,526	21.6	764	117.0	7,999	1.23	319	48.9	1,447	.22	13.07
Nonmetropolitan	201	2,182	10.8	234	107.0	2,162	.99	108	49.5	534	.24	19.53

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.823	0.841	0.656	1.210	0.985	1.266	1.102	1.174	1.053	1.094	0.978	
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	109	1,028	9.5	109	105.7	968	0.94	69	67.2	324	0.32	19.86
5,500-7,000 HDD	140	2,539	18.2	306	120.6	2,637	1.04	117	46.0	544	.21	15.40
4,000-5,499 HDD	184	4,019	21.9	399	99.3	4,787	1.19	195	48.5	910	.23	20.71
Under 4,000 HDD	59	933	15.9	161	172.6	1,566	1.68	37	39.5	164	.18	29.62
2,000 CDD or More and --												
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	116	1,077	9.3	114	105.8	1,017	.94	73	67.8	344	.32	19.76
5,500-7,000 HDD	131	2,405	18.4	316	131.4	2,685	1.12	122	50.6	562	.23	16.58
4,000-5,499 HDD	183	4,036	22.0	374	92.7	4,580	1.13	179	44.4	839	.21	20.14
Under 4,000 HDD	57	881	15.4	Q	176.2	Q	1.79	Q	37.1	Q	.16	36.91
2,000 CDD or More and --												
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
ENERGY SOURCES AND END USES [a]												
Energy Sources Used (Solely or in Combination)												
Electricity	497	8,611	17.3	993	115.3	10,138	1.18	423	49.2	1,961	.23	11.72
Natural Gas	82	4,027	49.1	590	146.5	5,983	1.49	151	37.4	634	.16	18.65
Fuel Oil	504	8,708	17.3	997	114.5	10,161	1.17	427	49.1	1,981	.23	11.57
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	46	834	18.2	93	111.9	982	1.18	54	64.8	254	.30	24.88
Minor Fuels	31	293	9.3	25	84.5	267	.91	9	32.0	42	.14	37.22

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.823	0.841	0.656	1.210	0.985	1.266	1.102	1.174	1.053	1.094	0.978	
Energy End Uses												
Space Heating	504	8,708	17.3	997	114.5	10,161	1.17	427	49.1	1,981	0.23	11.41
Cooling	297	6,676	22.4	860	128.8	8,979	1.35	327	49.0	1,481	.22	12.36
Water Heating	370	7,811	21.1	946	121.1	9,609	1.23	391	50.0	1,781	.23	12.12
Cooking	73	3,661	50.4	525	143.3	5,293	1.45	171	46.7	741	.20	20.69
Manufacturing	11	742	66.4	Q	229.9	Q	2.99	34	46.2	128	.17	38.79
Space-Heating Fuels												
Fuel Oil	504	8,708	17.3	997	114.5	10,161	1.17	427	49.1	1,981	.23	11.41
Primary	429	6,382	14.9	596	93.4	6,627	1.04	381	59.7	1,783	.28	12.20
With Secondary	80	1,917	24.0	201	104.9	Q	1.39	108	56.3	467	.24	23.98
Electricity Only	49	963	19.5	73	75.9	720	.75	46	48.1	213	.22	24.14
Natural Gas Only	8	649	81.4	Q	136.6	Q	Q	Q	Q	Q	Q	37.60
Other Fuel or Combinations	22	305	13.6	Q	128.8	Q	1.20	25	80.7	111	.36	39.00
With No Secondary	347	4,421	12.7	394	89.1	3,947	.89	272	61.6	1,313	.30	11.51
Secondary	79	2,378	30.0	416	174.9	3,620	1.52	60	25.2	258	.11	26.74
Air-Conditioning Fuels												
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	294	6,478	22.1	826	127.5	8,753	1.35	302	46.6	1,390	.21	12.15
Building Not Air Conditioned	203	1,955	9.6	135	69.0	1,170	.60	98	50.0	489	.25	16.83

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.806	0.790	0.731	1.185	0.980	1.246	1.032	1.195	1.064	1.126	1.004	
Water-Heating Fuels												
Fuel Oil	127	3,896	30.8	551	141.5	5,588	1.43	227	58.3	1,006	0.26	15.56
Other Fuels Excluding Fuel Oil	243	3,915	16.1	395	100.9	4,021	1.03	164	41.9	775	.20	15.89
Water Heating Not Performed	134	896	6.7	51	57.0	551	.62	36	40.5	200	.22	16.28
Cooking Fuels												
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	72	3,623	50.0	518	143.1	5,237	1.45	170	46.9	735	.20	20.88
Cooking Not Performed	431	5,047	11.7	473	93.6	4,867	.96	256	50.8	1,240	.25	12.51
Manufacturing Fuels												
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	11	612	56.5	Q	Q	Q	Q	Q	42.8	Q	.16	40.88
Manufacturing Not Performed	493	7,965	16.2	826	103.8	7,943	1.00	393	49.3	1,853	.23	10.17
HEATING AND COOLING												
Percent Heated												
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	80	892	11.1	47	52.9	443	.50	19	20.8	105	.12	23.45
51 to 99	57	987	17.3	111	112.6	1,113	1.13	31	31.0	155	.16	24.13
100	360	6,807	18.9	838	123.1	8,591	1.26	378	55.5	1,719	.25	12.48
Percent Cooled												
Not Cooled	200	1,858	9.3	130	70.1	1,120	.60	95	50.9	475	.26	17.31
1 to 50	155	3,530	22.8	304	86.0	2,757	.78	171	48.5	791	.22	14.23
51 to 99	46	1,541	33.6	273	177.5	2,463	1.60	73	47.1	323	.21	23.46
100	103	1,778	17.2	290	163.1	3,822	2.15	89	50.0	392	.22	22.90
Heat Production Equipment												
Warm-Air Furnaces	240	2,241	9.4	176	78.7	1,880	.84	93	41.7	469	.21	12.38
Boilers	228	6,474	28.4	820	126.7	8,365	1.29	347	53.6	1,562	.24	13.01
Individual Space Heaters or Electric Baseboards	128	2,092	16.3	215	102.6	2,084	1.00	68	32.4	328	.16	17.76
Packaged Heating Units	11	728	67.3	123	169.3	1,142	1.57	39	53.6	150	.21	36.11
Air-Source Heat Pumps	17	253	15.3	27	106.2	249	.98	Q	Q	Q	.23	30.54
Receives District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.806	0.790	0.731	1.185	0.980	1.246	1.032	1.195	1.064	1.126	1.004	
Cooling Production Equipment												
Central Cooling	119	3,734	31.3	548	146.8	5,197	1.39	157	42.0	686	0.18	16.48
Individual Air Conditioners	171	3,512	20.5	442	125.9	4,803	1.37	188	53.6	876	.25	16.79
Packaged Air-Conditioning Units	42	2,105	50.2	341	162.2	3,324	1.58	102	48.5	426	.20	19.96
Air-Source Heat Pumps	17	253	15.3	27	106.2	249	.98	Q	Q	Q	.23	30.54
Receives District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling Distribution Equipment												
Ducted Forced Air	293	5,179	17.7	689	133.1	6,577	1.27	247	47.8	1,102	.21	13.55
For Heating Only	155	1,286	8.3	104	80.8	960	.75	69	53.9	333	.26	19.02
For Cooling Only	30	573	18.9	78	136.5	779	1.36	41	71.6	183	.32	19.80
For Both Heating and Cooling	108	3,320	30.7	507	152.8	4,838	1.46	137	41.2	585	.18	18.78
Fan-Coil Units	78	3,413	43.8	509	149.0	5,456	1.60	162	47.4	681	.20	20.91
For Heating Only	45	1,327	29.8	141	106.3	1,210	.91	77	58.4	335	.25	23.97
For Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Both Heating and Cooling	21	1,663	78.8	277	166.8	2,536	1.53	Q	37.0	255	.15	28.40
Steam Radiators or Baseboards	81	2,681	32.9	329	122.7	3,550	1.32	174	64.8	783	.29	21.96
Hot-Water Radiators or Baseboards	106	2,594	24.5	325	125.1	2,735	1.05	135	52.1	621	.24	14.98
Heating Panels	21	615	29.1	90	146.8	803	1.31	Q	Q	Q	Q	29.67
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:												
Heating Only	151	1,251	8.3	89	71.3	822	.66	58	46.4	305	.24	14.97
Cooling Only	21	502	23.7	48	96.0	466	.93	32	64.0	143	.28	33.39
Heating and Cooling	174	3,232	18.6	438	135.5	4,977	1.54	157	48.6	727	.22	17.97
Reduced Use--Off Hours												
Heating Only	181	1,882	10.4	132	70.0	1,101	.59	97	51.5	477	.25	18.86
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	250	5,185	20.8	599	115.5	6,824	1.32	244	47.1	1,126	.22	12.98

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.806	0.790	0.731	1.185	0.980	1.246	1.032	1.195	1.064	1.126	1.004	
HVAC Conservation Features												
Any HVAC Conservation Feature	334	7,431	22.3	916	123.3	9,427	1.27	370	49.7	1,685	0.23	12.18
Preventive Maintenance Program	328	7,393	22.5	909	122.9	9,353	1.27	368	49.8	1,678	.23	12.25
Waste-Heat Recovery	25	1,551	62.6	301	194.3	2,647	1.71	72	46.6	296	.19	23.21
EMCS	23	1,850	78.9	294	158.9	2,716	1.47	66	35.7	271	.15	18.81
Time-Clock Thermostat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Economizer Cycle	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other HVAC Features	8	472	59.0	116	245.3	Q	2.07	29	60.9	106	.22	44.62
LIGHTING												
Percent Lit--Open Hours												
Not Lit	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
1 to 50	100	1,037	10.4	67	64.3	602	.58	46	44.2	241	.23	18.06
51 to 99	81	1,542	19.0	148	96.0	1,401	.91	53	34.3	258	.17	17.22
100	322	6,129	19.0	782	127.7	8,157	1.33	328	53.6	1,481	.24	13.52
STRUCTURE												
Floors												
One	243	2,328	9.6	213	91.6	2,110	.91	133	57.0	641	.28	12.58
Two	141	1,974	14.0	195	98.9	2,027	1.03	100	50.8	484	.25	17.37
Three	78	1,614	20.8	178	110.5	1,526	.95	94	57.9	413	.26	28.67
Over Three	42	2,792	65.9	410	147.0	4,499	1.61	101	36.1	442	.16	22.42
Wall and Frame Materials												
Masonry Over --												
Wood Frame	72	1,113	15.4	73	65.9	807	.72	44	39.6	225	.20	25.39
Masonry Frame	222	3,935	17.7	517	131.3	4,522	1.15	221	56.1	995	.25	12.95
Steel Frame	34	1,822	54.3	247	135.7	3,186	1.75	79	43.4	350	.19	23.90
Siding Over --												
Wood Frame	102	706	6.9	45	63.7	520	.74	28	39.9	155	.22	23.53
Masonry Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Metal Panels	35	322	9.2	32	100.1	300	.93	Q	Q	102	.32	33.89
Concrete Panels	Q	377	Q	48	126.9	475	1.26	Q	Q	Q	Q	33.02
Other	22	325	14.8	25	76.8	252	.78	12	37.0	60	.19	29.12

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.806	0.790	0.731	1.185	0.980	1.246	1.032	1.195	1.064	1.126	1.004	
Roof Materials												
Built-Up	222	5,312	23.9	664	125.0	6,273	1.18	252	47.5	1,140	0.21	13.50
Shingles (Not Wood)	147	1,009	6.9	77	76.4	778	.77	53	52.9	289	.29	17.80
Metal Surfacing	78	709	9.1	56	79.1	507	.71	38	54.1	184	.26	28.11
Synthetic or Rubber	21	785	36.6	85	108.4	764	.97	Q	55.0	185	.24	33.49
Slate or Tile	18	563	30.9	Q	133.1	Q	Q	Q	Q	Q	Q	40.41
Wood Shingles, Shakes or Other Wooden Materials	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Roof Square Footage												
5,000 or Less	293	1,290	4.4	121	93.6	1,354	1.05	75	58.3	423	.33	9.17
5,001 to 10,000	106	1,235	11.6	135	109.7	1,299	1.05	87	70.8	413	.33	15.45
10,001 to 25,000	57	1,517	26.7	148	97.8	1,574	1.04	71	46.7	339	.22	18.32
25,001 to 50,000	25	1,529	61.2	189	123.7	Q	1.61	81	52.7	341	.22	26.48
50,001 to 100,000	15	1,479	96.1	165	111.8	1,359	.92	53	36.0	239	.16	27.26
100,001 to 200,000	5	912	192.2	135	147.7	1,108	1.21	34	37.7	135	.15	30.36
Over 200,000	3	746	261.3	Q	Q	Q	Q	25	Q	89	.12	35.76
Window Glass: Percent of Exterior Walls												
25 or Less	411	5,761	14.0	698	121.1	7,265	1.26	281	48.8	1,333	.23	13.52
26 to 50	76	2,390	31.6	242	101.3	2,352	.98	116	48.5	514	.21	19.14
51 to 75	15	491	31.7	46	94.1	441	.90	25	50.9	113	.23	23.09
Over 75	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building-Shell Conservation Features												
Any Conservation Feature	427	7,447	17.5	879	118.1	8,196	1.10	372	50.0	1,716	.23	11.07
Roof or Ceiling Insulation	345	5,909	17.1	698	118.2	6,580	1.11	273	46.3	1,263	.21	11.93
Wall Insulation	239	3,928	16.4	486	123.8	4,628	1.18	169	43.0	802	.20	13.52
Storm or Multiple Glazing	195	3,858	19.8	489	126.8	4,421	1.15	200	51.9	910	.24	13.65
Tinted, Reflective or Shading Glass or Film	61	2,380	39.3	372	156.4	3,444	1.45	92	38.8	399	.17	18.55
Exterior or Interior Shadings or Awnings	149	3,362	22.5	418	124.3	3,772	1.12	164	48.9	746	.22	15.26
Weather Stripping or Caulking	328	6,202	18.9	762	122.9	7,324	1.18	297	47.8	1,367	.22	12.51
Other Shell Features	15	231	15.0	28	120.6	261	1.13	11	46.5	52	.22	31.99

Table 34. Energy and Expenditure Intensities for Buildings Heated by Fuel Oil (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	Fuel Oil: Total Fuel Oil Consumed (trillion Btu)	Fuel Oil: Fuel Oil Consumed per Square Foot (thousand Btu)	Fuel Oil: Total Expenditures (million dollars)	Fuel Oil: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	0.806	0.790	0.731	1.185	0.980	1.246	1.032	1.195	1.064	1.126	1.004	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	67	3,301	49.2	498	150.8	5,236	1.59	153	46.2	641	0.19	18.49
Before 1980	13	755	58.8	101	133.3	906	1.20	30	39.1	125	.17	33.51
1980 to 1983	25	1,274	51.8	182	142.8	1,554	1.22	51	39.9	225	.18	25.68
1984 to 1985	21	1,154	54.6	206	178.1	Q	2.23	58	50.1	225	.20	32.60
1986	15	556	36.0	71	128.5	756	1.36	28	49.6	120	.22	33.05
Building Never Audited	437	5,406	12.4	499	92.4	4,924	.91	275	50.8	1,340	.25	11.55

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

NC No cases in responding sample.

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.166	1.097	0.761	1.212	0.697	1.087	0.775	1.363	0.893	1.292	0.918	
All Buildings	74	4,389	59.4	751	171.1	7,544	1.72	395	90.0	2,510	0.57	15.87
Building Floorspace (Square Feet)												
1,001 to 5,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
5,001 to 10,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
10,001 to 25,000	17	286	16.7	Q	231.3	527	1.84	28	97.1	173	.60	30.32
25,001 to 50,000	11	398	37.6	75	187.3	687	1.72	49	123.9	313	.79	26.75
50,001 to 100,000	10	726	71.0	125	171.9	1,228	1.69	68	93.8	Q	.58	24.23
100,001 to 200,000	6	770	139.3	141	183.6	1,167	1.51	88	114.6	549	.71	22.64
200,001 to 500,000	3	1,202	348.8	165	137.1	1,602	1.33	88	73.1	519	.43	23.89
Over 500,000	1	905	862.6	144	159.2	1,809	Q	53	58.8	397	.44	24.29
Year Constructed												
1900 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1901 to 1920	10	539	52.5	62	114.8	717	1.33	37	68.4	267	.50	33.19
1921 to 1945	16	992	62.5	137	138.0	1,216	1.23	86	86.6	551	.56	26.00
1946 to 1960	11	494	44.4	108	218.9	1,053	2.13	42	84.8	265	.54	28.47
1961 to 1970	16	1,030	63.1	197	191.0	2,159	2.10	91	88.8	570	.55	31.57
1971 to 1973	2	544	220.3	107	196.4	935	1.72	Q	119.3	369	.68	34.08
1974 to 1979	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1980 to 1983	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1984 to 1986	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
BUILDING USE												
Principal Building Activity												
Assembly	8	451	54.6	59	131.5	Q	Q	30	67.6	211	.47	27.20
Education	9	814	89.2	143	175.3	1,195	1.47	97	118.5	518	.64	27.06
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Food Service	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Health Care	3	507	155.8	149	294.7	1,160	2.29	77	151.1	464	.92	21.11
Lodging	8	446	58.6	Q	182.9	Q	1.35	Q	122.0	Q	.81	36.02
Mercantile and Service	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Office	17	1,369	80.1	168	122.5	2,310	1.69	60	43.8	465	.34	24.50
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.166	1.097	0.761	1.212	0.697	1.087	0.775	1.363	0.893	1.292	0.918	
Ownership and Occupancy												
Nongovernment Owned	46	2,543	55.2	389	153.1	4,243	1.67	187	73.5	1,325	0.52	20.96
Owner Occupied	42	2,151	51.8	333	154.8	3,435	1.60	161	74.8	1,128	.52	22.17
Nonowner Occupied	5	393	85.7	56	143.7	807	2.06	26	66.5	197	.50	31.78
Government Owned	28	1,845	66.3	361	195.9	3,301	1.79	208	112.7	1,185	.64	19.41
Workers												
Fewer than 5	21	314	15.1	35	111.4	323	1.03	24	76.1	161	.51	29.38
5 to 9	9	186	21.0	Q	162.4	Q	Q	Q	111.4	Q	Q	49.56
10 to 19	10	393	40.6	82	208.5	Q	1.45	Q	Q	Q	Q	40.44
20 to 49	18	564	32.0	107	190.2	1,217	2.16	59	103.8	355	.63	30.53
50 to 99	4	290	71.3	Q	157.2	Q	1.34	Q	107.3	Q	.73	33.66
100 to 249	8	912	109.6	170	186.1	1,499	1.64	107	117.0	605	.66	23.69
250 or More	5	1,729	383.0	281	162.5	3,283	1.90	113	65.6	821	.47	19.79
Weekly Operating Hours												
39 or Fewer	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
40 to 48	18	1,032	56.9	128	124.4	1,737	1.68	41	39.4	291	.28	30.43
49 to 60	17	716	42.0	107	150.1	1,245	1.74	53	74.2	360	.50	22.35
61 to 84	5	478	92.8	98	205.8	753	1.57	Q	127.4	Q	.61	28.83
85 to 167	5	538	98.8	91	168.7	1,102	2.05	48	88.5	318	.59	30.25
168 (Open Continuously)	19	1,445	77.4	311	215.0	2,569	1.78	182	126.1	1,171	.81	20.51
LOCATION												
Census Region												
Northeast	17	1,358	81.3	181	132.9	2,548	1.88	94	69.0	635	.47	22.45
Midwest	22	1,776	80.8	341	192.1	2,871	1.62	195	109.7	1,163	.65	25.35
South	24	660	27.4	154	233.7	1,346	2.04	72	109.6	503	.76	29.39
West	11	594	53.3	75	125.8	780	1.31	34	57.0	210	.35	26.93
Metropolitan Status												
Metropolitan	68	3,991	59.0	650	162.8	6,745	1.69	317	79.3	1,991	.50	14.71
Nonmetropolitan	6	Q	63.8	Q	253.7	Q	2.01	Q	196.7	Q	Q	23.32

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.166	1.097	0.761	1.212	0.697	1.087	0.775	1.363	0.893	1.292	0.918	
Climate Zone: 45-Year Average												
Under 2,000 CDD and --												
Over 7,000 HDD	8	562	71.1	125	222.1	840	1.50	82	145.8	415	0.74	26.66
5,500-7,000 HDD	24	1,611	67.8	266	164.9	2,478	1.54	139	86.1	885	.55	27.21
4,000-5,499 HDD	20	1,482	73.9	233	156.9	3,023	2.04	108	72.9	781	.53	21.40
Under 4,000 HDD	5	442	82.7	63	141.9	657	1.49	Q	69.1	189	.43	35.97
2,000 CDD or More and --												
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1986 Degree-Days												
Under 2,000 CDD and --												
Over 7,000 HDD	9	692	73.5	139	201.6	916	1.32	95	137.6	462	.67	26.10
5,500-7,000 HDD	22	1,528	70.0	255	166.7	2,475	1.62	124	81.4	852	.56	30.52
4,000-5,499 HDD	20	1,407	70.7	224	158.8	2,915	2.07	106	75.6	757	.54	21.51
Under 4,000 HDD	6	457	77.4	68	148.7	691	1.51	33	72.5	198	.43	34.80
2,000 CDD or More and --												
Under 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
ENERGY SOURCES AND END USES [a]												
Energy Sources Used (Solely or in Combination)												
Electricity	74	4,382	59.3	751	171.3	7,543	1.72	395	90.1	2,510	.57	16.30
Natural Gas	24	1,850	77.0	373	201.5	3,312	1.79	169	91.2	1,121	.61	20.65
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Heat	74	4,389	59.4	751	171.1	7,544	1.72	395	90.0	2,510	.57	15.87
District Chilled Water	Q	1,040	122.7	Q	233.9	Q	2.04	Q	124.4	Q	Q	40.82
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.166	1.097	0.761	1.212	0.697	1.087	0.775	1.363	0.893	1.292	0.918	
Energy End Uses												
Space Heating	74	4,389	59.4	751	171.1	7,544	1.72	395	90.0	2,510	0.57	15.87
Cooling	59	3,792	64.7	687	181.1	7,025	1.85	349	92.1	2,266	.60	17.51
Water Heating	66	4,150	62.9	705	169.9	7,116	1.71	373	89.9	2,368	.57	15.95
Cooking	10	1,625	161.1	330	202.8	2,944	1.81	171	105.4	1,057	.65	18.93
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Space-Heating Fuels												
District Heat	74	4,389	59.4	751	171.1	7,544	1.72	395	90.0	2,510	.57	15.87
Primary	71	4,270	59.8	721	168.9	7,274	1.70	385	90.2	2,461	.58	16.42
With Secondary	10	861	85.1	143	166.1	1,310	1.52	72	84.1	459	.53	25.48
Electricity Only	Q	315	48.9	34	106.7	452	1.44	15	47.9	126	Q	35.19
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Fuel Oil Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
With No Secondary	61	3,397	55.7	577	169.9	5,955	1.75	312	91.8	1,997	.59	18.71
Secondary	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels												
District Steam	2	507	261.8	79	155.8	823	1.62	Q	99.7	279	.55	29.18
Other Fuels Excluding District Steam	57	3,285	57.9	608	185.0	6,201	1.89	299	91.0	1,987	.60	19.87
Building Not Air Conditioned	15	591	38.7	64	108.5	518	.88	45	77.0	244	.41	27.19

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.089	1.041	0.873	1.155	0.696	1.017	0.791	1.356	0.994	1.263	0.917	
Water-Heating Fuels												
District Heat	32	3,262	101.1	544	166.8	5,667	1.74	294	90.2	1,874	0.57	18.70
Other Fuels Excluding District Heat	34	888	26.3	161	181.4	1,450	1.63	79	88.8	494	.56	23.27
Water Heating Not Performed	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Cooking Fuels												
District Heat	2	527	216.3	119	224.8	930	1.76	71	134.0	370	.70	25.21
Other Fuels Excluding District Heat	8	1,098	143.5	211	192.3	2,014	1.83	101	91.6	687	.63	24.84
Cooking Not Performed	64	2,763	43.3	421	152.4	4,600	1.66	224	80.9	1,454	.53	21.77
Manufacturing Fuels												
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	71	4,167	58.4	703	168.8	7,132	1.71	381	91.5	2,423	.58	16.47
HEATING AND COOLING												
Percent Heated												
Not Heated	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
1 to 50	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
51 to 99	4	558	136.2	85	152.1	807	1.45	44	78.7	293	.52	33.27
100	64	3,690	57.5	651	176.5	6,592	1.79	340	92.0	2,147	.58	17.79
Percent Cooled												
Not Cooled	15	559	38.1	58	104.3	470	.84	40	71.7	206	.37	27.63
1 to 50	25	1,299	52.8	217	166.7	2,016	1.55	118	90.8	832	.64	27.30
51 to 99	11	1,266	116.7	232	183.5	2,216	1.75	106	83.4	609	.48	26.77
100	24	1,264	53.2	244	192.7	2,842	2.25	Q	103.8	864	.68	24.20
Heat Production Equipment												
Warm-Air Furnaces	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Boilers	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Individual Space Heaters or Electric Baseboards	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Packaged Heating Units	Q	506	103.5	Q	192.0	883	1.75	Q	104.8	Q	.58	35.87
Air-Source Heat Pumps	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Receives District Heat	74	4,389	59.4	751	171.1	7,544	1.72	395	90.0	2,510	.57	15.87

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.089	1.041	0.873	1.155	0.696	1.017	0.791	1.356	0.994	1.263	0.917	
Cooling Production Equipment												
Central Cooling	29	1,784	62.2	303	169.7	3,371	1.89	145	81.0	953	0.53	22.07
Individual Air Conditioners	24	1,369	56.1	253	184.5	2,221	1.62	132	96.3	876	.64	24.53
Packaged Air-Conditioning Units	9	1,095	118.1	184	168.2	1,987	1.81	91	83.1	576	.53	28.07
Air-Source Heat Pumps	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Receives District Chilled Water	8	1,009	120.9	230	227.8	2,033	2.02	Q	124.0	Q	.79	32.77
Heating and Cooling Distribution Equipment												
Ducted Forced Air	38	2,938	76.8	502	170.8	5,537	1.88	248	84.4	1,664	.57	20.65
For Heating Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Cooling Only	8	460	55.0	67	Q	Q	Q	Q	Q	287	Q	39.41
For Both Heating and Cooling	25	2,195	86.2	393	179.0	4,373	1.99	185	84.5	1,244	.57	22.09
Fan-Coil Units	29	2,022	70.3	360	178.0	3,484	1.72	183	90.7	1,101	.54	19.59
For Heating Only	11	596	52.2	84	140.3	829	1.39	33	55.2	209	.35	27.62
For Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
For Both Heating and Cooling	15	1,306	85.3	267	204.2	2,534	1.94	147	112.5	871	.67	22.32
Steam Radiators or Baseboards	29	1,946	66.9	303	155.6	2,820	1.45	174	89.3	1,092	.56	20.81
Hot-Water Radiators or Baseboards	15	1,404	92.4	268	190.7	2,626	1.87	133	94.8	794	.57	31.65
Heating Panels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Occupant Control of:												
Heating Only	12	379	32.4	Q	169.1	525	1.38	Q	99.4	Q	Q	32.62
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	32	1,346	41.9	274	203.6	2,554	1.90	158	117.6	1,068	.79	24.11
Reduced Use--Off Hours												
Heating Only	10	317	31.8	47	147.1	411	1.30	23	74.0	137	.43	35.81
Cooling Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Heating and Cooling	35	2,687	77.0	402	149.7	4,453	1.66	192	71.6	1,314	.49	18.29

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.089	1.041	0.873	1.155	0.696	1.017	0.791	1.356	0.994	1.263	0.917	
HVAC Conservation Features												
Any HVAC Conservation Feature	56	3,981	71.4	681	171.0	6,785	1.70	352	88.3	2,210	0.56	15.34
Preventive Maintenance Program	55	3,893	71.2	656	168.4	6,628	1.70	340	87.3	2,144	.55	15.84
Waste-Heat Recovery	5	922	189.7	155	168.6	1,556	1.69	67	72.3	440	.48	21.33
EMCS	13	1,904	147.8	313	164.1	3,078	1.62	148	77.9	992	.52	20.53
Time-Clock Thermostat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Economizer Cycle	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other HVAC Features	Q	Q	Q	Q	130.3	591	Q	13	Q	95	Q	34.90
LIGHTING												
Percent Lit--Open Hours												
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	8	398	48.5	Q	99.8	Q	.91	32	80.4	208	.52	35.80
51 to 99	14	869	61.6	148	170.4	1,381	1.59	73	84.1	411	.47	18.80
100	50	3,058	61.5	561	183.3	5,781	1.89	288	94.1	1,879	.61	19.36
Percent Lit--Off Hours												
Not Lit	21	458	21.8	67	145.6	623	1.36	Q	90.2	254	.55	37.46
1 to 50	41	3,340	81.0	546	163.4	5,692	1.70	284	85.1	1,844	.55	18.42
51 to 99	2	305	123.3	71	233.8	634	2.08	33	107.5	208	.68	24.62
100	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Lighting Equipment Types (Solely or in Combination)												
Standard Fluorescent	39	1,943	49.9	346	177.9	3,712	1.91	190	97.6	1,291	.66	22.17
Energy-Efficient Fluorescent	33	2,738	82.4	438	159.9	4,179	1.53	233	85.1	1,429	.52	17.51
Standard Incandescent	28	2,093	76.0	369	176.3	3,317	1.58	201	95.9	1,266	.60	19.94
Energy-Efficient Incandescent	10	981	103.3	124	126.6	1,544	1.57	62	63.1	461	.47	24.63
High-Intensity Discharge	9	658	74.9	129	196.8	1,375	2.09	59	89.9	425	.65	32.80
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.089	1.041	0.873	1.155	0.696	1.017	0.791	1.356	0.994	1.263	0.917	
Lighting Conservation Features												
Any Lighting Conservation Feature	37	2,961	80.4	550	185.7	5,402	1.82	280	94.4	1,758	0.59	17.69
High-Efficiency Ballasts	27	2,161	80.8	376	174.1	3,729	1.73	201	93.2	1,211	.56	20.31
Delamping Program	16	1,629	100.7	303	185.8	2,976	1.83	144	88.3	978	.60	24.26
Natural Lighting Control Sensors	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Lighting Controls	6	755	124.3	126	166.4	1,427	1.89	58	76.5	421	.56	23.78
Other Lighting Features	Q	266	200.5	42	157.2	463	1.74	20	75.3	141	.53	27.89
STRUCTURE												
Floors												
One	23	298	12.8	Q	Q	Q	1.97	30	99.6	Q	.63	34.70
Two	14	365	26.4	75	206.5	Q	2.23	38	104.2	Q	Q	34.76
Three	14	754	52.1	160	212.6	1,434	1.90	96	127.5	555	.74	32.05
Over Three	22	2,972	133.2	448	150.9	4,711	1.59	231	77.7	1,539	.52	17.18
Wall and Frame Materials												
Masonry Over --												
Wood Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Masonry Frame	30	1,835	61.3	318	173.5	3,110	1.70	179	97.8	1,074	.59	20.91
Steel Frame	11	1,193	108.3	166	139.5	1,682	1.41	82	68.7	564	.47	25.82
Siding Over --												
Wood Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Masonry Frame	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Metal Panels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Concrete Panels	6	501	81.1	97	192.7	943	1.88	Q	115.9	398	.80	30.97
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Roof Materials												
Built-Up	44	3,040	68.9	520	171.0	5,207	1.71	275	90.6	1,735	.57	18.27
Shingles (Not Wood)	8	244	31.2	38	155.5	362	1.48	25	104.6	160	.66	30.40
Metal Surfacing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Synthetic or Rubber	5	461	93.6	84	182.8	774	1.68	34	74.7	232	.50	27.33
Slate or Tile	10	385	39.1	67	174.0	Q	2.11	40	103.3	268	.70	32.81
Wood Shingles, Shakes or Other Wooden Materials	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	b
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.089	1.041	0.873	1.155	0.696	1.017	0.791	1.356	0.994	1.263	0.917	
Roof Square Footage												
5,000 or Less	25	237	9.5	43	183.2	517	2.18	27	114.0	184	0.78	31.69
5,001 to 10,000	14	488	34.7	69	141.6	768	1.57	38	78.5	268	.55	28.99
10,001 to 25,000	19	908	48.6	171	188.8	1,983	2.19	86	94.2	584	.64	25.87
25,001 to 50,000	9	828	96.9	148	178.3	1,460	1.76	86	104.1	527	.64	23.11
50,001 to 100,000	5	1,044	200.9	189	181.0	1,724	1.65	90	86.1	567	.54	30.43
100,001 to 200,000	2	414	237.3	61	148.2	529	1.28	Q	76.0	200	.48	28.79
Over 200,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Window Glass: Percent of Exterior Walls												
25 or Less	53	2,428	45.6	463	190.9	4,144	1.71	272	111.9	1,679	.69	19.76
26 to 50	18	1,213	67.1	186	153.4	2,058	1.70	92	76.2	593	.49	19.64
51 to 75	Q	Q	Q	Q	163.0	999	Q	Q	Q	Q	Q	15.52
Over 75	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building-Shell Conservation Features												
Any Conservation Feature	65	3,911	60.5	693	177.2	6,992	1.79	357	91.3	2,274	.58	16.84
Roof or Ceiling Insulation	55	3,243	59.0	584	180.1	6,006	1.85	293	90.4	1,887	.58	19.02
Wall Insulation	32	1,723	53.7	342	198.2	3,183	1.85	186	107.9	1,165	.68	20.88
Storm or Multiple Glazing	20	1,655	81.3	292	176.2	2,627	1.59	159	96.1	1,026	.62	21.01
Tinted, Reflective or Shading Glass or Film	13	1,568	125.0	289	184.1	3,132	2.00	141	90.2	886	.57	26.33
Exterior or Interior Shadings or Awnings	22	1,636	74.0	293	178.9	2,960	1.81	142	86.8	966	.59	18.35
Weather Stripping or Caulking	51	3,225	63.8	598	185.5	5,643	1.75	319	99.0	2,045	.63	16.41
Other Shell Features	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 35. Energy and Expenditure Intensities for Buildings Heated by District Heat (continued)

Building Characteristics	Number of Buildings (thousand)	Total Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Sum of All Major Fuels: Total Energy Consumed (trillion Btu)	Sum of All Major Fuels: Energy Consumed per Square Foot (thousand Btu)	Sum of All Major Fuels: Total Expenditures (million dollars)	Sum of All Major Fuels: Expenditures per Square Foot (dollars)	District Heat: Total District Heat Consumed (trillion Btu)	District Heat: District Heat Consumed per Square Foot (thousand Btu)	District Heat: Total Expenditures (million dollars)	District Heat: Expenditures per Square Foot (dollars)	RSE Row Factor
RSE Column Factor:	1.089	1.041	0.873	1.155	0.696	1.017	0.791	1.356	0.994	1.263	0.917	
Energy Audit Year (Most Recent)												
Buildings Ever Audited	21	2,346	111.0	423	180.3	4,185	1.78	216	92.1	1,276	0.54	18.39
Before 1980	9	1,022	116.3	179	175.2	1,728	1.69	93	90.9	554	.54	30.83
1980 to 1983	12	1,197	96.4	213	178.1	1,911	1.60	120	100.3	643	.54	25.36
1984 to 1985	2	295	182.5	55	185.3	600	2.03	Q	Q	131	.44	30.90
1986	3	360	116.2	Q	161.8	737	2.05	Q	77.9	173	.48	29.28
Building Never Audited	53	2,043	38.7	328	160.5	3,359	1.64	179	87.5	1,235	.60	24.57

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 36. Major Fuel Expenditures by Census Region

Building Characteristics	Total Major Fuel Expenditures (million dollars)				Major Fuel Expenditures per Million Btu (dollars)				Major Fuel Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.506	1.255	1.269	1.783	0.662	0.700	0.490	0.608	1.220	1.037	0.968	1.385	
All Buildings	14,362	15,848	17,945	12,607	13.73	9.88	12.08	13.92	1.25	1.01	0.95	1.18	7.07
Building Floorspace (Square Feet)													
1,001 to 5,000	1,679	2,248	3,377	2,829	16.07	11.69	13.95	15.69	2.04	1.55	1.38	2.32	12.31
5,001 to 10,000	1,411	1,988	2,630	1,618	13.43	10.18	14.03	14.67	1.07	1.01	1.17	1.44	9.91
10,001 to 25,000	1,627	2,318	2,700	1,728	12.84	10.56	10.92	13.26	1.16	.99	.85	.89	11.09
25,001 to 50,000	1,869	1,645	2,239	2,102	10.82	10.30	12.20	14.44	.99	.85	.77	1.16	11.79
50,001 to 100,000	1,806	2,028	2,252	1,359	13.03	9.56	12.30	12.78	1.20	.87	.76	.96	13.57
100,001 to 200,000	1,033	1,900	1,618	1,602	10.05	9.53	11.35	12.09	.72	.88	.82	1.02	15.68
200,001 to 500,000	2,861	2,166	1,763	988	16.42	8.26	10.59	12.92	1.62	1.04	.86	1.16	21.01
Over 500,000	2,074	1,555	1,365	380	17.10	9.55	10.29	16.04	1.49	1.05	1.25	.49	21.34
Year Constructed													
1900 or Before	618	549	Q	Q	11.64	9.68	11.27	Q	.72	.50	.51	Q	19.52
1901 to 1920	Q	654	629	292	18.62	8.43	9.88	11.18	Q	.69	.72	.68	17.38
1921 to 1945	2,248	2,155	1,102	1,193	10.61	9.00	9.53	12.07	1.02	.88	.59	.75	13.27
1946 to 1960	2,327	1,940	2,926	1,524	14.41	8.90	11.65	12.40	1.32	.91	.78	.87	12.35
1961 to 1970	3,004	3,924	4,239	3,574	13.41	9.81	11.56	13.64	1.51	1.29	1.03	1.63	14.21
1971 to 1973	962	1,429	1,772	1,255	12.92	9.87	11.28	12.90	1.39	1.18	1.16	1.46	14.62
1974 to 1979	1,638	2,651	3,708	1,840	14.49	10.54	13.62	18.00	1.24	1.18	1.24	1.14	12.50
1980 to 1983	895	1,286	1,932	1,518	15.32	11.47	14.31	16.36	1.08	1.03	1.02	1.26	14.40
1984 to 1986	685	1,260	1,537	1,301	15.90	12.18	13.39	14.01	1.18	.92	.93	1.43	14.85
BUILDING USE													
Principal Building Activity													
Assembly	1,403	998	1,432	1,176	14.97	8.73	12.89	14.36	1.14	.51	.53	.85	14.11
Education	1,431	1,821	1,503	1,027	8.69	7.98	10.47	10.42	.89	.82	.70	.77	11.48
Food Sales	Q	586	631	Q	Q	11.71	13.10	Q	Q	2.68	3.29	Q	20.46
Food Service	576	1,112	838	715	14.16	11.96	13.70	11.04	2.64	2.50	2.14	3.16	15.89
Health Care	712	1,246	1,167	699	9.33	7.10	9.16	8.97	2.17	2.23	1.45	1.69	17.48
Lodging	762	746	1,098	725	12.78	8.19	11.08	11.87	1.26	1.17	1.16	1.21	17.06
Mercantile and Service	3,118	3,489	4,550	2,074	14.17	11.66	12.69	16.66	1.12	.99	1.02	1.03	12.64
Office	3,813	3,362	3,654	3,948	19.63	11.20	14.00	15.51	2.14	1.33	1.29	1.66	14.55
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	1,295	1,302	2,103	920	13.26	9.50	11.46	19.13	.69	.61	.66	.67	14.70
Other	366	642	490	514	12.17	11.22	11.57	12.93	1.03	1.05	1.37	1.34	21.59
Vacant	115	371	243	310	11.30	9.57	11.77	13.87	.43	.52	.36	.73	21.53
Ownership and Occupancy													
Nongovernment Owned	11,032	12,797	14,015	10,287	14.81	10.51	12.56	14.80	1.29	1.01	.92	1.22	7.79
Owner Occupied	6,755	8,903	8,559	6,328	13.28	10.24	11.82	14.64	1.17	1.04	.91	1.36	8.12
Nonowner Occupied	4,277	3,894	5,456	3,959	18.09	11.21	13.94	15.07	1.52	.93	.94	1.05	10.94
Government Owned	3,330	3,051	3,930	2,320	11.06	7.90	10.64	11.02	1.14	1.01	1.08	1.01	12.74

Table 36. Major Fuel Expenditures by Census Region (continued)

Building Characteristics	Total Major Fuel Expenditures (million dollars)				Major Fuel Expenditures per Million Btu (dollars)				Major Fuel Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.506	1.255	1.269	1.783	0.662	0.700	0.490	0.608	1.220	1.037	0.968	1.385	
Workers													
Fewer than 5	1,111	1,898	2,546	1,746	12.13	9.74	12.54	14.35	0.65	0.49	0.60	0.85	9.12
5 to 9	994	1,398	1,933	2,128	12.88	10.08	14.86	15.55	.93	.70	.87	1.72	11.47
10 to 19	1,479	1,502	1,886	1,243	13.12	9.35	12.25	13.80	.79	.89	.69	.78	10.08
20 to 49	2,650	3,291	3,410	1,754	14.03	10.66	12.04	13.05	1.50	1.55	1.00	1.14	11.77
50 to 99	1,794	1,651	2,483	2,077	11.27	11.23	11.78	13.96	1.24	1.04	1.35	1.30	14.09
100 to 249	1,602	2,333	1,861	1,270	11.78	9.49	12.32	14.16	1.18	1.23	.96	1.02	11.91
250 or More	4,731	3,775	3,826	2,388	16.87	9.26	10.85	12.97	2.06	1.47	1.52	1.65	16.56
Weekly Operating Hours													
39 or Fewer	798	1,460	1,430	617	9.34	8.29	12.20	11.81	.59	.55	.49	.49	14.41
40 to 48	3,598	3,231	4,849	3,114	17.35	10.56	12.15	15.74	1.36	.84	.86	1.11	11.78
49 to 60	2,529	2,350	2,140	2,121	13.14	10.49	13.54	12.18	1.08	.85	.67	.87	8.52
61 to 84	2,958	2,889	3,104	2,281	14.06	10.25	12.73	14.35	1.30	.98	1.14	1.27	13.54
85 to 167	2,251	2,740	2,078	1,310	14.01	11.54	12.92	14.10	1.57	1.92	1.26	1.33	12.70
168 (Open Continuously)	2,227	3,178	4,344	3,164	11.74	8.41	10.70	13.79	1.52	1.53	1.60	2.24	12.47
LOCATION													
Metropolitan Status													
Metropolitan	12,614	12,297	13,867	10,291	14.25	10.02	12.02	14.01	1.32	1.06	1.01	1.11	7.78
Nonmetropolitan	1,748	3,552	4,078	2,315	10.85	9.43	12.31	13.54	.89	.87	.78	1.60	12.84
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	881	3,907	NC	346	11.31	8.59	NC	7.91	1.01	1.09	NC	.93	15.75
5,500-7,000 HDD	5,022	9,025	NC	1,400	11.19	10.18	NC	9.89	.90	1.00	NC	.97	8.18
4,000-5,499 HDD	8,459	2,886	3,551	1,418	16.29	11.10	11.61	11.72	1.66	.93	1.02	.82	15.72
Under 4,000 HDD	NC	Q	6,883	6,587	NC	Q	11.05	15.75	NC	Q	.91	1.13	9.01
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	7,512	2,855	NC	NC	13.50	15.78	NC	NC	.96	2.15	14.26
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	14,339	15,829	17,929	12,603	13.76	9.89	12.10	13.93	1.25	1.01	.96	1.18	7.08
Natural Gas	8,848	12,466	9,998	9,368	13.74	9.58	10.69	12.99	1.29	1.00	.96	1.24	7.77
Fuel Oil	6,267	2,271	3,116	1,267	12.19	8.13	9.74	11.14	1.23	1.11	1.24	.93	17.41
District Heat	2,579	2,924	1,676	960	14.04	8.45	8.48	9.36	1.86	1.63	2.37	1.30	20.51
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	1,100	615	1,179	Q	12.64	9.55	13.62	14.13	1.40	.93	.87	1.14	19.42
Minor Fuels	252	292	272	Q	14.84	8.45	10.48	16.30	.72	.69	.53	Q	24.20

Table 36. Major Fuel Expenditures by Census Region (continued)

Building Characteristics	Total Major Fuel Expenditures (million dollars)				Major Fuel Expenditures per Million Btu (dollars)				Major Fuel Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.506	1.255	1.269	1.783	0.662	0.700	0.490	0.608	1.220	1.037	0.968	1.385	
Energy End Uses													
Space Heating	14,224	15,728	17,301	11,973	13.68	9.85	12.03	13.77	1.27	1.03	0.99	1.20	7.22
Cooling	12,166	13,806	16,889	11,190	14.42	10.02	12.20	14.26	1.42	1.11	1.01	1.34	7.44
Water Heating	12,998	14,921	14,657	11,071	13.56	9.83	12.00	13.63	1.30	1.07	1.00	1.16	7.45
Cooking	6,242	5,803	6,306	4,633	13.60	9.41	11.40	13.15	1.55	1.25	1.18	1.52	11.80
Manufacturing	Q	1,296	1,413	920	19.35	8.46	9.07	15.96	2.92	1.33	1.45	1.65	24.13
Space-Heating Fuels (Solely or in Combination)													
Electricity	3,360	3,416	8,434	4,373	16.48	13.47	14.77	16.28	1.35	.91	1.02	1.17	9.15
Natural Gas	6,486	10,570	8,478	7,688	14.39	9.51	10.57	13.28	1.27	.97	.92	1.22	9.60
Fuel Oil	5,527	1,541	2,429	664	11.82	7.33	9.78	9.33	1.24	1.10	1.17	.87	20.29
District Heat	2,548	2,871	1,346	780	14.11	8.41	8.72	10.43	1.88	1.62	2.04	1.31	18.42
Propane	Q	375	509	Q	14.14	11.75	12.91	Q	1.24	.94	.55	Q	19.57
Minor Fuels	245	196	155	Q	14.95	9.47	9.77	Q	.78	.59	.39	Q	29.58
Building Not Heated	140	122	789	644	21.28	19.31	14.03	17.36	.49	.23	.54	.83	20.59
Air-Conditioning Fuels (Solely or in Combination)													
Electricity	10,925	11,885	16,115	10,355	14.59	10.40	12.37	14.61	1.43	1.07	1.01	1.38	7.84
Natural Gas	542	814	451	624	14.80	8.65	10.84	10.65	1.08	.91	.61	.86	15.24
District Chilled Water	Q	Q	839	Q	Q	Q	8.95	Q	Q	2.17	2.35	Q	31.06
District Steam	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Other Fuels	801	967	461	631	12.40	8.18	10.91	10.65	1.13	1.00	.61	.85	15.67
Building Not Air Conditioned	2,174	2,026	1,011	1,411	10.95	9.09	10.48	11.78	.75	.64	.51	.62	17.77

Table 36. Major Fuel Expenditures by Census Region (continued)

Building Characteristics	Total Major Fuel Expenditures (million dollars)				Major Fuel Expenditures per Million Btu (dollars)				Major Fuel Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor	1.515	1.233	1.249	1.729	0.721	0.710	0.467	0.597	1.267	1.035	1.004	1.317	
Water-Heating Fuels (Solely or in Combination)													
Electricity	4,358	5,198	7,878	3,595	15.42	12.03	14.21	16.41	1.12	0.99	0.93	1.07	9.00
Natural Gas	5,052	8,616	6,567	6,590	13.39	9.12	10.46	12.68	1.38	1.03	.99	1.14	10.05
Fuel Oil	3,696	813	902	Q	12.13	6.60	9.16	Q	1.40	1.75	1.33	Q	26.56
District Heat	2,076	2,211	Q	703	14.45	8.71	8.76	10.41	2.00	1.59	2.68	1.33	20.97
Propane	Q	Q	467	221	Q	Q	13.03	14.50	Q	1.14	1.20	1.23	23.74
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Water Heating Not Performed	1,364	927	3,289	1,536	15.54	10.85	12.46	16.41	.89	.54	.79	1.28	19.75
Cooking Fuels (Solely or in Combination)													
Electricity	2,153	2,331	3,087	1,666	12.85	11.21	12.36	13.29	1.47	1.37	1.09	1.37	14.28
Natural Gas	4,026	4,359	3,638	2,871	13.92	9.12	10.26	13.27	1.54	1.27	1.30	1.48	14.20
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	622	Q	488	Q	13.11	Q	14.07	Q	1.89	Q	1.55	Q	23.81
Minor Fuels and Fuel Oil	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	b
Cooking Not Performed	6,242	5,803	6,306	4,633	13.60	9.41	11.40	13.15	1.55	1.25	1.18	1.52	11.80
Manufacturing Fuels (Solely or in Combination)													
Electricity	479	683	1,129	Q	10.50	10.47	9.34	16.93	1.33	1.05	1.45	1.84	20.96
Natural Gas	Q	618	Q	Q	Q	6.91	Q	Q	Q	1.80	Q	Q	35.40
Other Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	12,751	14,552	16,532	11,687	13.24	10.04	12.44	13.78	1.16	.99	.92	1.15	6.32
HEATING AND COOLING													
Percent Heated													
Not Heated	74	98	534	521	21.92	17.75	15.52	18.79	.36	.21	.46	.78	21.79
1 to 50	629	742	1,609	1,374	14.53	10.36	13.08	15.53	.47	.39	.55	.61	13.48
51 to 99	1,345	1,299	2,603	2,126	14.86	10.72	12.59	13.53	.97	.79	1.18	1.16	10.50
100	12,314	13,705	13,199	8,584	13.55	9.76	11.78	13.58	1.44	1.17	1.05	1.44	8.35
Percent Cooled													
Not Cooled	1,547	2,013	997	1,395	9.61	9.07	10.57	11.73	.59	.64	.53	.63	14.26
1 to 50	4,159	4,158	3,212	1,982	11.48	8.65	10.99	12.14	.95	.74	.58	.66	9.99
51 to 99	2,472	3,849	4,165	2,254	13.55	9.64	11.18	14.23	1.39	1.30	1.26	1.19	10.81
100	6,183	5,825	9,571	6,976	18.16	11.63	13.18	15.01	2.25	1.48	1.17	1.93	10.62

Table 36. Major Fuel Expenditures by Census Region (continued)

Building Characteristics	Total Major Fuel Expenditures (million dollars)				Major Fuel Expenditures per Million Btu (dollars)				Major Fuel Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.515	1.233	1.249	1.729	0.721	0.710	0.467	0.597	1.267	1.035	1.004	1.317	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	37	Q	Q	12.11	12.63	Q	Q	Q	0.16	Q	37.63
1 to 50	1,023	1,443	1,030	795	11.79	9.14	13.59	14.33	0.61	0.54	.48	0.93	11.92
51 to 99	2,210	2,788	2,471	1,939	12.36	10.48	12.46	11.42	1.16	.96	.95	.97	9.27
100	11,101	11,512	14,408	9,844	14.26	9.83	11.93	14.52	1.42	1.16	1.04	1.27	8.54

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 37. Electricity Expenditures by Census Region

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures per Million Btu (dollars)				Electricity Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.719	1.413	1.367	1.933	0.622	0.502	0.410	0.406	1.436	1.195	1.072	1.628	
All Buildings	10,886	10,869	14,856	10,575	25.34	18.62	17.14	20.73	0.95	0.69	0.79	0.99	7.11
Building Floorspace (Square Feet)													
1,001 to 5,000	1,274	1,633	2,777	2,491	31.16	20.27	20.34	21.09	1.55	1.14	1.14	2.05	13.75
5,001 to 10,000	967	1,333	2,306	1,356	30.48	22.59	18.48	21.80	.75	.69	1.04	1.21	9.22
10,001 to 25,000	1,130	1,662	2,120	1,353	26.85	19.26	17.17	22.31	.81	.72	.67	.69	10.50
25,001 to 50,000	1,259	1,139	1,878	1,785	23.35	18.64	16.97	20.67	.67	.59	.65	.99	11.39
50,001 to 100,000	1,318	1,350	1,922	1,130	23.82	18.45	16.49	19.58	.88	.58	.66	.80	13.84
100,001 to 200,000	728	1,189	1,310	1,287	19.41	17.53	16.86	19.46	.52	.55	.66	.85	13.95
200,001 to 500,000	2,399	1,395	1,439	834	27.56	16.93	15.19	19.29	1.37	.67	.71	.98	16.93
Over 500,000	1,811	1,168	1,104	339	22.35	Q	13.39	21.38	1.31	.79	1.01	.43	19.63
Year Constructed													
1900 or Before	413	336	Q	Q	22.72	21.31	18.43	Q	.49	.31	.36	Q	20.56
1901 to 1920	Q	333	454	191	34.85	20.33	18.49	20.98	Q	.35	.52	.44	16.16
1921 to 1945	1,389	1,225	718	902	26.68	19.72	16.28	21.22	.64	.50	.39	.57	13.70
1946 to 1960	1,777	1,129	2,360	1,163	27.48	21.07	17.51	23.60	1.01	.53	.64	.68	10.90
1961 to 1970	2,355	2,741	3,495	2,983	22.69	17.76	17.00	19.71	1.19	.90	.85	1.36	14.75
1971 to 1973	707	1,042	1,368	1,057	22.19	17.47	16.88	19.80	1.02	.86	.90	1.23	13.27
1974 to 1979	1,309	2,022	3,302	1,693	22.65	18.44	16.84	22.63	.99	.90	1.10	1.05	10.76
1980 to 1983	744	1,034	1,726	1,359	23.70	17.67	17.56	20.76	.89	.82	.92	1.12	13.71
1984 to 1986	573	1,008	1,363	1,156	24.54	18.74	17.34	19.07	.98	.74	.82	1.28	12.92
BUILDING USE													
Principal Building Activity													
Assembly	1,043	521	1,159	983	30.37	21.74	19.24	21.68	.86	.27	.43	.71	15.07
Education	796	1,003	1,084	723	22.22	19.46	19.47	20.14	.51	.45	.51	.57	10.76
Food Sales	Q	483	560	Q	Q	17.07	18.72	Q	Q	2.21	2.92	Q	15.37
Food Service	381	871	705	495	27.36	19.05	18.71	21.18	1.74	1.97	1.80	2.19	14.01
Health Care	408	683	779	417	20.09	16.65	15.00	22.22	1.24	1.22	.97	1.01	12.92
Lodging	559	329	826	537	24.29	18.29	16.03	19.47	.93	.52	.87	.90	17.89
Mercantile and Service	2,399	2,698	3,843	1,841	25.52	19.07	17.71	22.06	.87	.77	.87	.92	12.60
Office	3,352	2,596	3,319	3,617	27.63	18.19	17.31	19.56	1.88	1.02	1.19	1.52	13.15
Public Order and Safety	118	Q	Q	Q	13.66	Q	Q	Q	.42	Q	Q	Q	27.25
Warehouse	977	877	1,832	851	23.07	18.76	14.50	23.54	.52	.41	.58	.62	14.76
Other	274	497	381	415	23.95	17.34	16.99	20.30	.78	.82	1.07	1.09	17.57
Vacant	80	210	179	245	20.74	20.40	19.83	21.70	.30	.31	.27	.58	23.38
Ownership and Occupancy													
Nongovernment Owned	8,492	9,171	11,822	8,917	26.73	18.81	17.28	20.60	.99	.72	.78	1.07	7.92
Owner Occupied	4,911	6,301	7,030	5,492	24.67	18.61	16.96	19.99	.86	.74	.75	1.18	8.45
Nonowner Occupied	3,581	2,870	4,792	3,425	30.20	19.26	17.77	21.66	1.27	.69	.83	.92	9.96
Government Owned	2,393	1,698	3,034	1,658	21.40	17.68	16.59	21.44	.83	.56	.83	.72	11.68

Table 37. Electricity Expenditures by Census Region (continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures per Million Btu (dollars)				Electricity Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.719	1.413	1.367	1.933	0.622	0.502	0.410	0.406	1.436	1.195	1.072	1.628	
Workers													
Fewer than 5	736	1,175	1,965	1,448	27.36	22.63	19.37	21.36	0.44	0.31	0.47	0.71	10.60
5 to 9	674	910	1,682	1,879	29.73	21.89	20.52	20.52	.63	.46	.78	1.51	11.67
10 to 19	1,034	884	1,592	985	25.85	22.48	16.99	23.23	.56	.52	.59	.62	9.48
20 to 49	1,958	2,374	2,781	1,401	29.63	18.38	17.74	20.87	1.11	1.12	.82	.91	11.30
50 to 99	1,242	1,200	2,097	1,775	24.11	20.03	17.14	21.75	.88	.75	1.14	1.15	11.47
100 to 249	1,140	1,593	1,580	1,053	21.97	16.87	16.84	20.52	.84	.84	.81	.85	11.25
250 or More	4,101	2,733	3,159	2,035	24.06	16.32	14.57	18.77	1.79	1.07	1.26	1.41	15.13
Weekly Operating Hours													
39 or Fewer	454	862	1,106	479	25.19	20.04	20.12	19.12	.34	.33	.38	.38	13.60
40 to 48	2,977	2,322	4,104	2,731	30.63	19.28	16.55	21.90	1.14	.61	.73	.97	12.55
49 to 60	1,861	1,643	1,797	1,679	24.57	20.02	18.72	19.90	.80	.59	.57	.69	8.57
61 to 84	2,319	2,077	2,657	1,938	23.72	19.04	18.87	21.08	1.02	.70	1.00	1.08	11.57
85 to 167	1,719	2,069	1,744	1,093	23.10	17.61	17.79	21.96	1.20	1.46	1.05	1.17	11.91
168 (Open Continuously)	1,556	1,896	3,447	2,655	23.43	16.99	15.05	19.76	1.07	.92	1.27	1.88	12.46
LOCATION													
Metropolitan Status													
Metropolitan	9,680	8,703	11,580	8,563	26.37	18.53	16.86	21.30	1.02	.75	.85	.93	7.81
Nonmetropolitan	1,205	2,166	3,276	Q	19.29	18.99	18.18	18.59	.62	.53	.64	1.40	11.73
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	595	2,470	NC	Q	22.67	16.67	NC	15.53	.69	.69	NC	.67	13.24
5,500-7,000 HDD	3,406	6,211	NC	1,077	21.86	19.35	NC	17.44	.62	.69	NC	.74	8.99
4,000-5,499 HDD	6,885	2,161	2,720	1,075	27.82	19.12	16.88	18.41	1.36	.70	.80	.62	15.78
Under 4,000 HDD	NC	Q	5,559	5,550	NC	Q	16.82	22.79	NC	Q	.74	.96	9.99
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	6,578	2,624	NC	NC	17.53	20.10	NC	NC	.84	1.98	14.64
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	10,886	10,869	14,856	10,575	25.34	18.62	17.14	20.73	.95	.69	.79	.99	7.11
Natural Gas	6,672	8,467	7,678	7,623	25.23	18.72	17.10	20.63	.98	.68	.74	1.02	7.56
Fuel Oil	4,544	1,447	2,243	956	26.78	17.35	15.81	18.58	.90	.71	.92	.71	18.01
District Heat	1,876	1,521	1,041	564	25.38	16.34	12.18	19.52	1.36	.85	1.47	.77	23.67
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	809	354	890	Q	22.69	19.61	19.51	24.32	1.03	.54	.66	.78	18.67
Minor Fuels	212	165	191	Q	22.50	20.15	17.83	19.05	.60	.39	.41	Q	24.33

Table 37. Electricity Expenditures by Census Region (continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures per Million Btu (dollars)				Electricity Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.719	1.413	1.367	1.933	0.622	0.502	0.410	0.406	1.436	1.195	1.072	1.628	
Energy End Uses													
Space Heating	10,761	10,754	14,226	10,042	25.30	18.59	17.17	20.51	0.96	0.71	0.82	1.02	7.26
Cooling	9,433	9,652	14,056	9,575	25.72	18.52	17.12	20.49	1.10	.77	.84	1.15	7.33
Water Heating	9,782	10,214	11,983	9,155	25.58	18.48	17.40	20.91	.99	.73	.82	.97	7.37
Cooking	4,709	4,022	5,019	3,788	25.45	17.49	16.85	20.49	1.18	.87	.94	1.24	10.14
Manufacturing	Q	859	1,081	834	30.44	17.76	15.48	19.67	Q	.88	1.11	1.49	19.12
Space-Heating Fuels													
Electricity	2,877	2,973	7,746	3,993	23.32	17.86	17.51	20.15	1.16	.79	.94	1.07	8.93
Primary	1,915	2,171	6,538	3,201	24.29	17.62	17.46	19.84	1.56	.97	1.07	1.21	11.11
With Secondary	423	633	1,204	311	24.40	17.04	15.93	21.89	1.89	.95	.95	Q	18.24
Natural Gas Only	Q	443	547	Q	Q	16.49	14.86	Q	Q	.89	1.17	Q	23.46
Fuel Oil Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	Q	637	Q	Q	Q	17.01	Q	Q	Q	.83	Q	18.94
With No Secondary	1,492	1,525	5,333	2,875	24.26	17.82	17.84	19.63	1.49	.98	1.10	1.30	11.80
Secondary	1,077	950	1,743	854	21.54	18.55	17.53	21.61	.82	.59	.63	.70	10.86
Other Fuels Excluding Electricity	7,884	7,781	6,480	6,049	26.11	18.89	16.79	20.75	.91	.68	.71	.98	9.52
Building Not Heated	125	117	773	541	29.70	21.65	16.46	25.78	.44	.22	.53	.70	17.70
Air-Conditioning Fuels													
Electricity	8,540	8,633	13,537	8,930	26.07	18.61	17.23	20.55	1.12	.78	.85	1.19	7.76
Solely	8,313	8,522	13,159	8,858	26.01	18.63	17.39	20.53	1.11	.78	.84	1.19	7.82
With Other Fuels or Combinations	Q	Q	Q	Q	Q	Q	13.00	Q	Q	Q	Q	Q	15.72
Other Fuels Excluding Electricity	893	1,019	519	645	22.85	17.75	14.68	19.71	1.01	.73	.62	.74	15.25
Building Not Air Conditioned	1,452	1,212	770	999	23.12	19.48	17.47	23.37	.50	.38	.39	.44	18.90

Table 37. Electricity Expenditures by Census Region (continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures per Million Btu (dollars)				Electricity Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.639	1.420	1.390	1.934	0.631	0.533	0.437	0.368	1.487	1.188	1.067	1.567	
Water-Heating Fuels													
Electricity	3,549	4,221	6,994	3,274	23.73	18.01	17.96	20.00	0.91	0.80	0.83	0.97	8.92
Other Fuels Excluding Electricity	6,233	5,993	4,990	5,881	26.77	18.82	16.66	21.45	1.03	.69	.80	.97	9.23
Water Heating Not Performed	Q	655	2,872	1,421	23.41	21.21	16.13	19.62	Q	.38	.70	1.19	19.71
Cooking Fuels													
Electricity	1,639	1,848	2,569	1,416	22.74	17.13	16.86	19.57	1.12	1.09	.91	1.16	12.81
Other Fuels Excluding Electricity	3,070	2,173	2,450	2,371	27.17	17.80	16.83	21.08	1.22	.74	.98	1.29	11.78
Cooking Not Performed	6,176	6,847	9,836	6,788	25.27	19.36	17.29	20.86	.83	.62	.73	.89	8.52
Manufacturing Fuels													
Electricity	328	517	905	Q	18.92	18.38	15.07	19.53	.91	.79	1.17	1.72	20.57
Other Fuels Excluding Electricity	Q	430	Q	Q	Q	16.49	Q	Q	Q	.97	Q	Q	20.32
Manufacturing Not Performed	9,468	10,010	13,775	9,741	24.72	18.70	17.28	20.82	.87	.68	.77	.97	6.48
HEATING AND COOLING													
Percent Heated													
Not Heated	64	92	520	450	34.61	21.01	16.38	26.59	.31	.20	.45	.68	19.78
1 to 50	472	491	1,370	1,166	25.65	20.78	17.71	23.50	.35	.26	.47	.52	12.70
51 to 99	1,054	876	2,118	1,770	24.63	20.64	17.72	21.27	.76	.54	.96	.97	9.03
100	9,296	9,406	10,848	7,188	25.37	18.33	17.00	19.94	1.10	.81	.87	1.22	8.40
Percent Cooled													
Not Cooled	872	1,202	765	986	27.04	19.43	17.47	23.31	.33	.38	.41	.45	13.99
1 to 50	2,812	2,406	2,394	1,499	24.00	19.21	18.19	22.10	.65	.43	.44	.51	9.22
51 to 99	1,882	2,822	3,285	1,917	23.66	17.42	16.80	21.37	1.06	.95	.99	1.01	10.09
100	5,320	4,434	8,411	6,173	26.52	18.92	16.96	19.89	1.94	1.13	1.04	1.71	10.21

Table 37. Electricity Expenditures by Census Region (continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures per Million Btu (dollars)				Electricity Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.639	1.420	1.390	1.934	0.631	0.533	0.437	0.368	1.487	1.188	1.067	1.567	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	25	Q	Q	18.34	24.23	Q	Q	Q	0.12	Q	25.72
1 to 50	650	848	843	639	27.93	21.18	19.87	22.70	0.40	0.32	.39	0.74	10.71
51 to 99	1,516	1,984	2,066	1,472	26.05	20.15	17.32	20.33	.80	.69	.80	.74	8.57
100	8,700	7,952	11,922	8,441	25.05	18.05	16.93	20.68	1.12	.80	.86	1.10	8.51

• Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 38. Natural Gas Expenditures by Census Region

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures per Million Btu (dollars)				Natural Gas Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.876	1.468	1.721	1.811	0.418	0.352	0.550	0.449	1.505	1.228	1.250	1.388	
All Buildings	1,472	3,400	1,958	1,524	6.04	4.58	4.60	4.89	0.21	0.27	0.19	0.20	6.47
Building Floorspace (Square Feet)													
1,001 to 5,000	180	482	372	282	6.64	5.21	5.05	5.11	.58	.51	.35	.41	10.14
5,001 to 10,000	233	520	224	229	6.58	4.79	4.66	5.17	.37	.35	.20	.30	11.03
10,001 to 25,000	256	553	405	306	6.50	4.79	4.52	5.04	.37	.30	.23	.22	11.00
25,001 to 50,000	220	313	230	203	6.04	4.78	4.72	5.10	.21	.20	.16	.17	9.57
50,001 to 100,000	262	422	203	170	5.98	4.49	4.71	4.42	.30	.23	.13	.19	13.29
100,001 to 200,000	98	347	176	227	5.16	4.98	4.37	4.48	.09	.20	.14	.19	14.65
200,001 to 500,000	164	465	256	79	5.26	3.83	4.31	4.76	.14	.26	.17	.11	20.56
Over 500,000	58	297	93	Q	5.16	3.98	4.06	Q	.06	.24	.15	Q	24.88
Year Constructed													
1900 or Before	68	161	Q	Q	6.56	4.74	Q	Q	.19	.20	Q	Q	15.78
1901 to 1920	135	197	139	50	6.07	4.57	4.16	4.90	.17	.26	.23	.16	15.59
1921 to 1945	369	591	205	159	6.11	4.91	4.96	5.01	.26	.32	.19	.15	14.17
1946 to 1960	249	597	380	270	6.25	4.74	4.59	4.51	.23	.32	.15	.21	12.95
1961 to 1970	294	809	492	443	5.81	4.40	4.26	5.20	.24	.34	.21	.25	11.93
1971 to 1973	115	214	234	191	5.95	4.66	4.57	4.57	.23	.25	.27	.30	13.22
1974 to 1979	90	463	242	117	5.87	4.23	4.95	5.25	.15	.25	.15	.11	14.03
1980 to 1983	85	183	125	127	6.23	4.65	4.83	5.41	Q	.18	.21	.17	13.76
1984 to 1986	66	185	118	141	5.54	4.63	5.23	4.45	.20	.17	.18	.25	13.86
BUILDING USE													
Principal Building Activity													
Assembly	152	336	202	121	6.33	4.86	5.02	5.06	.21	.21	.12	.12	11.21
Education	204	510	246	229	5.48	4.44	4.66	4.68	.18	.28	.16	.22	12.13
Food Sales	Q	90	Q	Q	Q	4.53	Q	Q	Q	.47	Q	Q	22.19
Food Service	144	203	97	160	7.03	4.87	5.13	4.80	1.01	.59	.38	.91	13.03
Health Care	121	351	217	196	4.82	4.19	4.24	4.30	.47	.68	.44	.58	17.61
Lodging	111	131	125	156	5.65	4.49	4.73	5.27	.26	.30	.22	.37	14.31
Mercantile and Service	322	669	528	187	6.57	5.01	4.63	5.29	.19	.22	.19	.14	11.72
Office	142	559	215	261	6.07	4.29	4.20	4.90	.16	.30	.15	.16	15.82
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	179	330	147	65	6.18	4.57	4.84	5.70	.15	.21	.12	.08	17.28
Other	Q	83	Q	52	Q	4.31	Q	4.25	Q	.18	Q	.26	27.99
Vacant	Q	96	39	59	Q	4.97	5.66	5.69	Q	.20	.13	.18	15.55
Ownership and Occupancy													
Nongovernment Owned	1,233	2,703	1,452	1,156	6.14	4.65	4.62	4.99	.25	.27	.18	.20	7.53
Owner Occupied	858	1,818	949	706	6.06	4.50	4.35	5.09	.27	.28	.18	.22	8.99
Nonowner Occupied	375	885	503	449	6.34	4.99	5.24	4.85	.21	.25	.17	.17	10.65
Government Owned	239	697	507	369	5.55	4.35	4.53	4.62	.13	.29	.23	.21	9.71

Table 38. Natural Gas Expenditures by Census Region (continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures per Million Btu (dollars)				Natural Gas Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.876	1.468	1.721	1.811	0.418	0.352	0.550	0.449	1.505	1.228	1.250	1.388	
Workers													
Fewer than 5	117	516	339	221	5.96	4.83	5.15	5.01	0.19	0.20	0.16	0.19	11.45
5 to 9	164	364	160	215	6.56	5.01	4.76	5.31	.28	.22	.15	.31	11.58
10 to 19	258	403	175	199	6.50	4.63	5.02	4.99	.21	.29	.15	.18	9.86
20 to 49	302	702	439	273	6.33	4.83	4.69	4.95	.33	.40	.20	.25	11.33
50 to 99	260	320	295	259	6.07	4.85	4.05	4.48	.24	.23	.27	.19	14.36
100 to 249	188	370	180	114	5.81	4.56	4.87	5.53	.24	.25	.16	.11	14.54
250 or More	183	725	370	243	5.00	3.97	4.21	4.56	.11	.33	.22	.22	14.33
Weekly Operating Hours													
39 or Fewer	88	524	195	126	6.54	4.28	5.06	4.87	.11	.25	.12	.13	16.04
40 to 48	292	736	528	322	6.12	4.62	4.67	5.06	.17	.25	.17	.17	9.36
49 to 60	206	514	214	275	5.81	4.86	5.05	4.72	.20	.24	.12	.17	9.89
61 to 84	347	559	362	263	6.53	4.72	4.02	4.78	.25	.23	.25	.19	13.02
85 to 167	262	471	224	187	6.26	5.20	5.07	5.13	.29	.42	.23	.24	13.19
168 (Open Continuously)	277	597	435	352	5.31	4.09	4.47	4.87	.28	.36	.30	.37	12.03
LOCATION													
Metropolitan Status													
Metropolitan	1,168	2,708	1,468	1,343	6.20	4.59	4.48	5.04	.20	.28	.18	.20	7.29
Nonmetropolitan	304	692	490	182	5.50	4.56	4.99	4.04	.30	.25	.20	.24	12.14
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	Q	892	NC	91	Q	4.57	NC	3.39	Q	.36	NC	.28	20.21
5,500-7,000 HDD	843	2,095	NC	284	5.85	4.63	NC	3.88	.24	.27	NC	.26	8.55
4,000-5,499 HDD	624	414	353	145	6.30	4.40	5.21	5.57	.19	.18	.21	.16	12.92
Under 4,000 HDD	NC	NC	1,015	808	NC	NC	4.41	5.77	NC	NC	.22	.18	8.55
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	590	197	NC	NC	4.61	4.35	NC	NC	.14	.27	11.35
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	1,450	3,390	1,955	1,521	6.04	4.58	4.60	4.89	.21	.27	.19	.20	6.71
Natural Gas	1,472	3,400	1,958	1,524	6.04	4.58	4.60	4.89	.21	.27	.19	.20	6.47
Fuel Oil	349	462	298	Q	5.58	3.98	4.40	Q	.14	.33	.26	Q	15.84
District Heat	Q	229	Q	Q	4.08	4.05	Q	Q	.09	.29	Q	Q	33.56
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 38. Natural Gas Expenditures by Census Region (continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures per Million Btu (dollars)				Natural Gas Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.876	1.468	1.721	1.811	0.418	0.352	0.550	0.449	1.505	1.228	1.250	1.388	
Energy End Uses													
Space Heating	1,464	3,396	1,949	1,488	6.04	4.58	4.60	4.87	0.21	0.27	0.19	0.20	6.49
Cooling	1,197	2,747	1,811	1,266	6.07	4.51	4.59	4.88	.22	.27	.18	.20	7.09
Water Heating	1,374	3,221	1,698	1,464	5.96	4.58	4.60	4.91	.22	.28	.19	.20	6.81
Cooking	744	1,193	804	563	5.92	4.41	4.50	4.82	.24	.28	.22	.22	9.44
Manufacturing	115	354	263	79	5.50	3.96	3.91	5.49	.25	.39	.41	.20	20.23
Space-Heating Fuels													
Natural Gas	1,292	3,153	1,775	1,264	6.01	4.62	4.60	4.86	.25	.29	.19	.20	6.51
Primary	1,228	3,045	1,647	1,242	5.97	4.63	4.58	4.85	.28	.30	.19	.21	6.58
With Secondary	308	628	530	201	5.30	4.28	4.65	4.79	.35	.29	.21	.16	11.05
Electricity Only	97	221	277	130	6.84	4.82	4.80	4.60	.23	.19	.17	.14	11.49
Fuel Oil Only	181	304	215	Q	4.82	3.81	4.45	Q	.46	.49	.31	Q	15.20
Other Fuel or combinations	Q	103	Q	Q	Q	4.88	Q	Q	Q	.30	Q	Q	29.40
With No Secondary	918	2,397	1,116	1,041	6.23	4.73	4.55	4.86	.27	.30	.19	.22	7.49
Secondary	73	152	154	38	6.86	4.58	4.96	5.90	.09	.17	.19	.10	17.58
Other Fuels Excluding Natural Gas	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
Natural Gas	80	241	90	129	5.92	4.45	4.78	4.27	.18	.32	.15	.19	15.55
Other Fuels Excluding Natural Gas	1,116	2,506	1,721	1,137	6.08	4.52	4.58	4.96	.22	.26	.19	.21	7.48
Building Not Air Conditioned	255	642	144	255	5.92	4.88	4.68	4.95	.19	.31	.28	.21	15.04

Table 38. Natural Gas Expenditures by Census Region (continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures per Million Btu (dollars)				Natural Gas Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.801	1.452	1.673	1.772	0.431	0.337	0.568	0.491	1.508	1.221	1.230	1.408	
Water-Heating Fuels													
Natural Gas	1,079	2,594	1,382	1,274	5.93	4.53	4.51	4.91	0.29	0.31	0.21	0.22	7.38
Other Fuels Excluding Natural Gas	295	626	316	190	6.07	4.79	5.07	4.90	.12	.20	.13	.14	9.50
Water Heating Not Performed	98	179	260	60	7.34	4.63	4.58	4.60	.13	.19	.19	.17	19.59
Cooking Fuels													
Natural Gas	576	1,067	708	464	6.08	4.41	4.53	4.94	.22	.31	.25	.24	10.23
Other Fuels Excluding Natural Gas	167	126	96	98	5.42	4.42	4.29	4.35	.33	.16	.11	.17	13.73
Cooking Not Performed	728	2,207	1,155	962	6.17	4.68	4.67	4.94	.19	.27	.17	.19	7.79
Manufacturing Fuels													
Natural Gas	Q	229	Q	Q	Q	3.71	Q	Q	Q	.67	Q	Q	18.89
Other Fuels Excluding Natural Gas	Q	153	175	Q	Q	4.51	3.64	5.71	Q	.24	.36	.17	16.62
Manufacturing Not Performed	1,357	3,046	1,695	1,445	6.09	4.67	4.73	4.87	.21	.26	.17	.20	6.55
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	98	185	137	139	7.09	4.88	4.42	5.61	.12	.14	.10	.09	15.62
51 to 99	137	288	262	280	6.30	4.91	4.63	4.76	Q	.22	.20	.21	12.41
100	1,231	2,923	1,550	1,070	5.94	4.54	4.61	4.82	.23	.30	.20	.24	6.86
Percent Cooled													
Not Cooled	253	638	141	255	5.91	4.88	4.65	4.93	.22	.31	.27	.21	14.97
1 to 50	524	1,215	513	294	5.82	4.46	4.79	4.69	.18	.25	.17	.13	10.59
51 to 99	301	677	521	277	5.92	4.21	4.26	4.80	.24	.28	.24	.20	13.60
100	395	870	783	698	6.56	4.89	4.72	5.02	.25	.28	.16	.25	9.26

Table 38. Natural Gas Expenditures by Census Region (continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures per Million Btu (dollars)				Natural Gas Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.801	1.452	1.673	1.772	0.431	0.337	0.568	0.491	1.508	1.221	1.230	1.408	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	187	387	131	81	6.23	4.65	5.33	4.81	0.16	0.20	0.12	0.20	14.44
51 to 99	353	611	262	303	5.73	4.73	4.64	4.76	.33	.25	.19	.22	10.40
100	929	2,382	1,562	1,137	6.13	4.53	4.54	4.94	.20	.30	.20	.20	7.99

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A and EIA-871C of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 39. Fuel Oil Expenditures by Census Region

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures per Million Btu (dollars)				Fuel Oil Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.172	2.319	1.786	9.999	0.223	0.503	0.500	0.558	0.922	1.888	1.417	2.668	
All Buildings	1,272	278	394	Q	4.72	4.40	4.58	5.02	0.25	0.14	0.16	0.08	13.18
Building Floorspace (Square Feet)													
1,001 to 5,000	176	38	68	Q	5.60	6.15	6.18	Q	.55	.26	.34	Q	11.66
5,001 to 10,000	189	93	Q	Q	5.27	4.52	Q	Q	.34	.36	Q	Q	15.70
10,001 to 25,000	206	Q	Q	Q	5.11	Q	Q	Q	.35	Q	Q	Q	21.93
25,001 to 50,000	331	Q	Q	Q	4.43	Q	Q	Q	.38	Q	Q	Q	24.12
50,001 to 100,000	98	Q	Q	Q	4.56	Q	Q	Q	.19	Q	Q	Q	30.73
100,001 to 200,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
200,001 to 500,000	122	Q	Q	Q	4.10	Q	Q	Q	.12	Q	Q	Q	25.31
Over 500,000	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Year Constructed													
1900 or Before	109	Q	Q	Q	5.38	Q	Q	Q	.18	Q	Q	Q	20.45
1901 to 1920	145	Q	Q	Q	5.32	Q	Q	Q	.21	Q	Q	Q	21.16
1921 to 1945	288	Q	Q	Q	4.59	Q	Q	Q	.36	Q	Q	Q	28.74
1946 to 1960	230	47	100	Q	4.65	4.29	4.53	Q	.27	.20	.16	Q	18.08
1961 to 1970	243	48	Q	Q	4.51	5.50	4.11	Q	.31	.11	.20	Q	18.34
1971 to 1973	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1974 to 1979	113	Q	Q	Q	4.48	Q	Q	Q	.28	Q	Q	Q	24.99
1980 to 1983	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1984 to 1986	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
BUILDING USE													
Principal Building Activity													
Assembly	136	Q	34	Q	5.17	Q	5.63	Q	.24	Q	.09	Q	16.91
Education	289	Q	Q	Q	4.25	Q	Q	Q	.32	Q	Q	Q	20.95
Food Sales	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Food Service	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Health Care	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Lodging	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Mercantile and Service	360	Q	70	Q	4.93	4.46	5.19	Q	.27	.13	.20	Q	15.40
Office	125	Q	Q	Q	4.81	Q	Q	Q	.18	Q	Q	Q	18.58
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Warehouse	105	Q	Q	Q	4.79	Q	Q	Q	.16	Q	Q	Q	30.50
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Ownership and Occupancy													
Nongovernment Owned	871	181	224	Q	4.97	4.64	4.66	4.95	.23	.12	.13	Q	13.92
Owner Occupied	618	143	156	Q	4.98	4.50	4.50	Q	.24	.12	.16	Q	16.16
Nonowner Occupied	252	Q	68	Q	4.94	Q	5.10	Q	.22	Q	.09	Q	17.17
Government Owned	401	Q	Q	Q	4.25	4.02	4.47	Q	.29	Q	Q	Q	22.56

Table 39. Fuel Oil Expenditures by Census Region (continued)

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures per Million Btu (dollars)				Fuel Oil Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.172	2.319	1.786	9.999	0.223	0.503	0.500	0.558	0.922	1.888	1.417	2.668	
Workers													
Fewer than 5	229	Q	82	Q	5.48	4.84	5.59	Q	0.35	0.22	0.23	Q	16.94
5 to 9	129	Q	Q	Q	5.13	Q	5.65	Q	.30	Q	.15	Q	17.96
10 to 19	153	Q	Q	Q	5.26	Q	Q	Q	.26	Q	Q	Q	25.85
20 to 49	256	Q	Q	Q	4.86	Q	Q	Q	.32	Q	Q	Q	13.08
50 to 99	247	Q	Q	Q	4.16	Q	Q	Q	.39	Q	Q	Q	23.41
100 to 249	114	Q	Q	Q	4.33	Q	Q	Q	.17	Q	Q	Q	24.30
250 or More	143	Q	Q	Q	4.08	Q	3.43	Q	.11	Q	Q	Q	25.28
Weekly Operating Hours													
39 or Fewer	219	Q	Q	Q	4.47	Q	Q	Q	.28	Q	Q	Q	26.70
40 to 48	250	38	116	Q	4.65	5.16	4.85	Q	.24	.09	.20	Q	14.66
49 to 60	308	Q	45	Q	5.05	4.41	5.37	Q	.30	.23	.14	Q	21.80
61 to 84	217	Q	Q	Q	4.71	Q	Q	Q	.20	Q	Q	Q	19.70
85 to 167	130	Q	Q	Q	4.87	Q	Q	Q	.27	Q	Q	Q	26.51
168 (Open Continuously)	147	Q	Q	Q	4.47	3.66	3.88	Q	.22	Q	Q	Q	16.12
LOCATION													
Metropolitan Status													
Metropolitan	1,069	166	200	Q	4.66	4.18	4.26	4.89	.24	.11	.15	0.05	13.47
Nonmetropolitan	203	112	195	Q	5.05	4.79	4.96	Q	.33	.23	.17	Q	17.05
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	203	125	NC	Q	4.88	4.43	NC	Q	.35	.25	NC	Q	21.07
5,500-7,000 HDD	480	78	NC	Q	4.64	4.86	NC	Q	.22	.06	NC	Q	14.83
4,000-5,499 HDD	589	Q	196	Q	4.72	Q	4.85	Q	.26	Q	.15	Q	16.05
Under 4,000 HDD	NC	Q	157	Q	NC	Q	4.41	Q	NC	Q	.17	Q	23.82
2,000 CDD or More and --													
Under 4,000 HDD	NC	NC	Q	Q	NC	NC	Q	Q	NC	NC	Q	Q	b
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	1,271	270	382	Q	4.72	4.38	4.56	5.02	.25	.13	.16	.08	13.89
Natural Gas	455	Q	82	Q	4.41	4.05	3.76	Q	.19	Q	.07	Q	19.96
Fuel Oil	1,272	278	394	Q	4.72	4.40	4.58	5.02	.25	.14	.16	.08	13.18
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	169	Q	Q	Q	4.68	Q	Q	Q	.34	Q	Q	Q	23.12
Minor Fuels	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b

Table 39. Fuel Oil Expenditures by Census Region (continued)

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures per Million Btu (dollars)				Fuel Oil Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.172	2.319	1.786	9.999	0.223	0.503	0.500	0.558	0.922	1.888	1.417	2.668	
Energy End Uses													
Space Heating	1,269	278	392	Q	4.72	4.40	4.57	4.90	0.25	0.14	0.16	Q	12.93
Cooling	929	212	341	Q	4.65	4.14	4.48	5.06	.23	.13	.16	0.07	14.40
Water Heating	1,150	255	343	Q	4.65	4.31	4.46	4.97	.25	.13	.16	.08	13.65
Cooking	478	Q	Q	Q	4.40	3.95	4.53	Q	.22	Q	Q	Q	19.67
Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Space-Heating Fuels													
Fuel Oil	1,239	263	387	Q	4.71	4.35	4.56	4.86	.28	.19	.19	Q	13.16
Primary	1,166	220	324	Q	4.72	4.31	4.77	Q	.30	.31	.26	Q	14.06
With Secondary	277	Q	Q	Q	4.37	Q	4.52	Q	.24	Q	.22	Q	18.98
Electricity Only	125	Q	Q	Q	4.40	Q	Q	Q	.26	Q	Q	Q	28.55
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
With No Secondary	889	128	236	Q	4.84	4.63	4.87	Q	.32	.34	.28	Q	16.46
Secondary	117	42	Q	Q	4.57	4.57	3.78	Q	.21	.06	Q	Q	20.75
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Air-Conditioning Fuels													
Fuel Oil	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	b
Other Fuels Excluding Fuel Oil	892	150	340	Q	4.67	4.53	4.48	5.06	.23	.09	.16	.07	14.38
Building Not Air Conditioned	342	66	Q	Q	4.90	5.51	Q	Q	.31	.19	Q	Q	16.04

Table 39. Fuel Oil Expenditures by Census Region (continued)

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures per Million Btu (dollars)				Fuel Oil Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.094	2.233	1.617	9.999	0.186	0.644	0.524	0.629	0.805	1.707	1.528	3.060	
Water-Heating Fuels													
Fuel Oil	762	Q	136	Q	4.53	Q	4.42	Q	0.29	Q	0.20	Q	19.72
Other Fuels Excluding Fuel Oil	389	165	207	Q	4.92	4.71	4.49	5.02	.19	0.11	.14	0.07	17.51
Water Heating Not Performed	122	Q	Q	Q	5.42	Q	Q	Q	.29	Q	Q	Q	27.29
Cooking Fuels													
Fuel Oil	Q	NC	Q	Q	Q	NC	Q	Q	Q	NC	Q	Q	b
Other Fuels Excluding Fuel Oil	473	Q	Q	Q	4.39	3.95	4.53	Q	.22	Q	Q	Q	20.20
Cooking Not Performed	794	177	263	Q	4.93	4.72	4.60	Q	.27	.19	.19	Q	15.43
Manufacturing Fuels													
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuels Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Manufacturing Not Performed	1,225	253	338	Q	4.73	4.47	4.89	5.01	.26	.14	.14	.09	13.39
HEATING AND COOLING													
Percent Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	48	Q	Q	Q	5.79	Q	Q	Q	.15	Q	Q	Q	19.89
51 to 99	116	Q	Q	Q	5.23	Q	Q	Q	.16	Q	Q	Q	25.85
100	1,104	235	347	Q	4.63	4.24	4.51	4.99	.28	.16	.19	Q	13.23
Percent Cooled													
Not Cooled	336	66	Q	Q	4.91	5.51	Q	Q	.33	.19	Q	Q	17.04
1 to 50	579	62	143	Q	4.64	4.61	4.51	Q	.26	.14	.15	Q	18.60
51 to 99	165	Q	Q	Q	4.65	3.92	4.75	Q	.18	Q	Q	Q	27.11
100	192	Q	126	Q	4.68	4.05	4.32	Q	.20	Q	.17	Q	22.94

Table 39. Fuel Oil Expenditures by Census Region (continued)

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures per Million Btu (dollars)				Fuel Oil Expenditures per Square Foot (dollars)				RSE Row Factor
	Northeast	Midwest	South	West	Northeast	Midwest	South	West	Northeast	Midwest	South	West	
RSE Column Factor:	1.094	2.233	1.617	9.999	0.186	0.644	0.524	0.629	0.805	1.707	1.528	3.060	
LIGHTING													
Percent Lit--Open Hours													
Not Lit	NC	NC	NC	Q	NC	NC	NC	Q	NC	NC	NC	Q	b
1 to 50	163	Q	Q	Q	5.51	Q	Q	Q	0.31	Q	Q	Q	24.18
51 to 99	172	Q	35	Q	4.86	Q	5.11	Q	.22	Q	0.08	Q	17.81
100	937	195	332	Q	4.58	4.28	4.47	5.28	.25	0.16	.18	Q	16.03

• Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A and EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 40. Electricity Peak Demand-Metered Buildings

Building Characteristics	All Buildings Using Electricity			Demand-Metered Buildings			Buildings Not Demand-Metered			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	
RSE Column Factor:	0.667	0.689	1.093	1.010	1.101	1.399	0.891	0.916	1.568	
All Buildings	3,965	56,508	700.6	1,673	33,978	513.3	2,292	22,531	187.3	5.35
Building Floorspace (Square Feet)										
1,001 to 5,000	2,098	5,899	110.2	741	2,144	67.8	1,357	3,755	42.5	9.41
5,001 to 10,000	893	6,588	81.4	388	2,892	46.0	505	3,696	35.3	7.80
10,001 to 25,000	540	8,843	91.6	278	4,532	59.9	261	4,311	31.7	8.28
25,001 to 50,000	238	8,499	91.5	131	4,835	67.2	106	3,665	24.2	9.77
50,001 to 100,000	118	8,178	88.7	76	5,291	69.4	42	2,887	19.3	10.59
100,001 to 200,000	51	7,042	73.0	36	5,010	60.5	15	2,032	12.5	13.00
200,001 to 500,000	23	6,730	90.1	18	5,228	74.5	5	1,502	15.6	15.08
Over 500,000	6	4,728	74.1	5	4,047	67.9	1	682	6.2	24.03
Year Constructed										
1900 or Before	178	2,287	12.2	45	723	6.9	132	1,564	5.3	20.87
1901 to 1920	232	3,461	28.3	84	1,891	21.0	148	1,570	7.3	17.78
1921 to 1945	593	8,032	58.8	209	3,849	37.0	383	4,183	21.9	10.27
1946 to 1960	838	9,273	88.6	363	5,441	62.0	475	3,832	26.6	9.71
1961 to 1970	711	11,339	180.3	320	7,082	138.5	391	4,257	41.7	9.61
1971 to 1973	237	4,285	66.2	114	3,217	50.9	122	1,069	15.3	12.63
1974 to 1979	554	8,166	128.5	239	5,424	95.5	315	2,742	33.0	10.65
1980 to 1983	339	5,160	74.3	169	3,539	59.3	170	1,620	15.1	12.68
1984 to 1986	284	4,505	63.4	129	2,811	42.2	155	1,694	21.2	13.11
BUILDING USE										
Principal Building Activity										
Assembly	571	7,287	48.0	186	3,473	31.6	385	3,813	16.4	11.44
Education	240	7,200	52.4	141	4,743	36.4	100	2,457	16.0	9.79
Food Sales	102	712	28.9	61	463	21.7	40	249	7.2	18.09
Food Service	201	1,277	35.4	112	803	20.6	89	474	14.7	14.81
Health Care	51	2,104	38.7	30	1,621	27.7	20	483	11.1	19.02
Lodging	137	2,785	35.2	68	1,783	25.4	69	1,002	9.8	14.32
Mercantile and Service	1,273	12,710	157.1	505	7,359	113.9	768	5,351	43.2	9.70
Office	607	9,499	187.8	258	6,358	150.3	350	3,141	37.5	9.51
Public Order and Safety	50	665	8.8	26	387	7.3	24	278	1.5	24.52
Warehouse	487	8,540	73.8	206	5,005	54.8	282	3,536	18.9	13.24
Other	94	1,700	24.3	39	1,038	17.0	55	662	7.3	21.92
Vacant	152	2,030	10.1	41	945	6.6	111	1,085	3.5	17.03

Table 40. Electricity Peak Demand-Metered Buildings (continued)

Building Characteristics	All Buildings Using Electricity			Demand-Metered Buildings			Buildings Not Demand-Metered			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	
RSE Column Factor:	0.667	0.689	1.093	1.010	1.101	1.399	0.891	0.916	1.568	
Ownership and Occupancy										
Nongovernment Owned	3,494	44,692	563.4	1,427	26,447	409.5	2,067	18,246	153.9	5.72
Owner Occupied	2,314	28,253	359.6	929	16,538	263.4	1,385	11,715	96.2	6.67
Nonowner Occupied	1,179	16,440	203.8	498	9,909	146.1	682	6,531	57.7	8.06
Government Owned	471	11,816	137.2	246	7,531	103.8	225	4,285	33.4	9.28
Workers										
Fewer than 5	1,859	11,725	72.7	604	4,361	40.6	1,256	7,364	32.1	8.86
5 to 9	837	6,470	69.7	345	2,965	38.9	492	3,505	30.9	9.50
10 to 19	580	7,864	63.1	287	4,341	41.4	293	3,522	21.8	9.49
20 to 49	431	8,818	122.8	257	5,444	82.1	174	3,374	40.7	8.64
50 to 99	151	6,394	92.4	94	4,254	70.7	57	2,139	21.8	12.26
100 to 249	73	6,430	85.4	59	5,401	71.5	14	1,029	13.9	12.16
250 or More	33	8,808	194.3	27	7,211	168.1	6	1,596	26.2	12.95
Weekly Operating Hours										
39 or Fewer	745	8,150	41.3	234	3,681	25.3	512	4,469	16.1	11.46
40 to 48	1,060	14,869	173.0	476	8,709	128.4	583	6,160	44.6	7.60
49 to 60	908	10,719	99.1	343	5,962	67.5	565	4,757	31.7	7.32
61 to 84	550	9,684	128.8	262	6,663	99.6	288	3,021	29.3	10.79
85 to 167	367	5,431	99.6	183	3,474	69.8	184	1,957	29.8	12.02
168 (Open Continuously)	335	7,656	158.7	175	5,488	122.8	160	2,168	35.9	12.71
LOCATION										
Census Region										
Northeast	635	11,429	125.9	266	6,068	86.1	369	5,361	39.7	11.21
Midwest	1,028	15,680	171.1	344	8,562	118.8	684	7,118	52.3	10.02
South	1,506	18,753	254.1	718	12,328	192.3	788	6,424	61.7	8.96
West	796	10,647	149.5	345	7,020	116.0	451	3,628	33.6	13.99
Metropolitan Status										
Metropolitan	2,616	43,915	564.3	1,246	28,211	424.9	1,370	15,704	139.4	6.01
Nonmetropolitan	1,348	12,593	136.3	427	5,767	88.4	922	6,827	47.9	11.36
Climate Zone: 45-Year Average										
Under 2,000 CDD and --										
Over 7,000 HDD	398	4,806	55.8	126	2,679	44.5	273	2,127	11.3	20.61
5,500-7,000 HDD	882	15,891	157.8	347	8,349	97.8	535	7,542	60.1	10.43
4,000-5,499 HDD	821	13,313	170.0	326	8,226	131.7	494	5,087	38.3	14.76
Under 4,000 HDD	985	13,351	168.7	435	8,908	130.2	550	4,444	38.4	14.04
2,000 CDD or More and --										
Under 4,000 HDD	879	9,147	148.2	438	5,816	109.1	441	3,331	39.2	16.06

Table 40. Electricity Peak Demand-Metered Buildings (continued)

Building Characteristics	All Buildings Using Electricity			Demand-Metered Buildings			Buildings Not Demand-Metered			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	
RSE Column Factor:	0.667	0.689	1.093	1.010	1.101	1.399	0.891	0.916	1.568	
ENERGY SOURCES AND END USES [a]										
Energy Sources Used (Solely or in Combination)										
Electricity	3,965	56,508	700.6	1,673	33,978	513.3	2,292	22,531	187.3	5.35
Natural Gas	2,197	37,047	449.9	1,009	22,890	339.5	1,188	14,158	110.4	6.75
Fuel Oil	526	10,901	130.8	198	6,710	98.5	328	4,190	32.3	13.53
District Heat	77	4,619	82.5	48	3,402	68.4	29	1,217	14.0	20.54
District Chilled Water	Q	1,208	29.0	Q	Q	Q	Q	Q	Q	48.18
Propane	339	3,191	33.0	98	1,620	22.3	241	1,571	10.7	19.55
Minor Fuels	160	1,496	16.1	43	654	12.1	117	842	3.9	20.82
Energy End Uses										
Space Heating	3,598	53,597	680.5	1,546	32,434	499.9	2,052	21,163	180.6	5.46
Cooling	2,853	46,127	637.9	1,350	29,597	472.9	1,504	16,530	164.9	5.59
Water Heating	2,840	47,979	604.3	1,296	29,840	438.5	1,544	18,139	165.8	5.33
Cooking	558	16,999	263.1	309	11,905	197.4	249	5,095	65.8	8.07
Manufacturing	130	3,053	60.7	65	2,105	51.7	65	947	9.0	17.40
Space-Heating Fuels										
Electricity	1,166	18,223	272.7	536	11,373	194.9	631	6,850	77.8	7.99
Primary	859	12,224	216.3	390	7,866	153.6	469	4,358	62.7	9.88
With Secondary	120	2,569	42.3	64	1,901	37.4	57	668	4.9	20.29
Natural Gas Only	47	1,228	23.7	24	875	Q	23	353	2.6	27.14
Other Fuel or Combinations	74	1,347	18.6	40	1,026	16.3	34	321	2.3	24.72
With No Secondary	737	9,622	173.7	326	5,949	116.1	411	3,673	57.5	10.45
Secondary	346	6,952	70.4	170	4,284	54.2	177	2,668	16.2	10.78
Other Fuels Excluding Electricity	2,432	35,374	407.8	1,010	21,061	305.0	1,422	14,313	102.8	6.61
Building Not Heated	374	3,038	22.7	128	1,612	15.8	246	1,426	6.9	14.75
Air-Conditioning Fuels										
Electricity	2,712	42,145	589.6	1,279	26,971	435.7	1,434	15,174	154.0	5.85
Solely	2,691	41,429	576.0	1,268	26,440	423.9	1,423	14,989	152.1	5.90
With Other Fuels or Combinations	21	716	13.7	10	531	Q	11	185	1.8	25.83
Other Fuels Excluding Electricity	141	3,982	48.2	71	2,626	37.3	70	1,356	11.0	14.25
Building Not Air Conditioned	1,108	10,333	62.1	322	4,348	39.8	786	5,984	22.3	14.19

Table 40. Electricity Peak Demand-Metered Buildings (continued)

Building Characteristics	All Buildings Using Electricity			Demand-Metered Buildings			Buildings Not Demand-Metered			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	
RSE Column Factor:	0.731	0.778	0.988	0.993	1.147	1.237	0.918	0.963	1.428	
Water-Heating Fuels										
Electricity	1,387	20,956	274.6	628	13,026	197.7	758	7,930	76.9	7.82
Other Fuels Excluding Electricity	1,453	27,023	329.7	667	16,814	240.8	785	10,209	88.9	6.82
Water Heating Not Performed	1,125	8,530	96.3	377	4,138	74.7	748	4,392	21.5	11.37
Cooking Fuels										
Electricity	232	7,207	118.6	127	5,286	86.3	104	1,921	32.3	11.33
Other Fuels Excluding Electricity	326	9,792	144.5	182	6,618	111.1	145	3,174	33.5	9.86
Cooking Not Performed	3,407	39,509	437.4	1,363	22,073	315.9	2,043	17,436	121.6	6.05
Manufacturing Fuels										
Electricity	106	2,232	42.3	49	1,468	34.8	57	765	7.5	19.39
Other Fuels Excluding Electricity	24	820	Q	16	638	16.9	8	183	Q	28.68
Manufacturing Not Performed	3,835	53,456	639.9	1,608	31,872	461.6	2,227	21,583	178.3	5.30
HEATING AND COOLING										
Percent Heated										
Not Heated	333	2,501	16.1	109	1,289	10.4	224	1,212	5.7	16.44
1 to 50	593	8,441	49.5	226	4,332	35.3	367	4,109	14.2	10.89
51 to 99	456	7,032	84.4	208	4,457	55.7	248	2,575	28.7	10.49
100	2,583	38,522	550.5	1,130	23,892	411.9	1,453	14,630	138.6	6.06
Percent Cooled										
Not Cooled	1,094	9,827	52.8	317	4,093	31.1	777	5,734	21.8	13.23
1 to 50	959	18,332	129.5	436	10,402	90.3	523	7,931	39.2	7.15
51 to 99	496	9,953	154.4	245	6,910	114.8	251	3,043	39.6	9.45
100	1,416	18,390	363.8	675	12,572	277.1	741	5,818	86.7	7.61
LIGHTING										
Percent Lit--Open Hours										
Not Lit	86	654	Q	Q	Q	Q	64	343	Q	24.45
1 to 50	616	7,317	39.2	212	3,466	26.0	404	3,851	13.2	10.83
51 to 99	641	9,366	102.1	292	5,712	69.9	348	3,654	32.2	8.09
100	2,622	39,172	556.9	1,147	24,489	416.6	1,475	14,683	140.3	6.82

Table 40. Electricity Peak Demand-Metered Buildings (continued)

Building Characteristics	All Buildings Using Electricity			Demand-Metered Buildings			Buildings Not Demand-Metered			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floorspace (million square feet)	Electricity Consumed (billion kWh)	
RSE Column Factor:	0.731	0.778	0.988	0.993	1.147	1.237	0.918	0.963	1.428	
ELECTRICITY DEMAND										
Annual Consumption (kWh)										
10,000 or Less	1,016	5,236	4.9	206	1,136	1.1	810	4,100	3.8	9.93
10,001 to 50,000	1,443	10,682	35.9	564	4,444	14.7	879	6,237	21.2	7.01
50,001 to 100,000	582	6,755	41.0	302	3,481	21.8	280	3,274	19.2	7.17
100,001 to 500,000	715	13,486	151.9	440	8,521	96.7	275	4,965	55.2	7.06
500,001 to 1,000,000	87	4,519	61.4	64	3,233	46.3	23	1,285	15.1	13.08
1,000,001 to 2,000,000	66	5,337	90.1	52	4,202	71.4	13	1,135	18.7	12.66
2,000,001 to 5,000,000	40	5,458	121.5	30	4,755	91.7	9	702	29.7	15.35
Over 5,000,000	17	5,036	194.0	14	4,205	169.5	2	831	24.5	15.79
Peak Electricity Demand (kW)										
10 or Less	--	--	--	328	1,736	4.2	--	--	--	17.70
11 to 25	--	--	--	459	3,353	17.3	--	--	--	8.53
26 to 50	--	--	--	353	3,706	32.8	--	--	--	8.21
51 to 100	--	--	--	258	4,876	54.0	--	--	--	10.51
101 to 250	--	--	--	150	5,096	65.4	--	--	--	10.34
251 to 1,000	--	--	--	101	8,753	149.9	--	--	--	10.42
Over 1,000	--	--	--	23	6,457	189.7	--	--	--	17.36
Season of Peak Electricity Demand										
Summer Peaking	--	--	--	974	20,891	347.5	--	--	--	7.60
Winter Peaking	--	--	--	517	10,858	141.6	--	--	--	9.90
Summer and Winter Peaking	--	--	--	181	2,229	24.1	--	--	--	15.85

• Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

Q Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 41. Season of Peak Electricity Demand

Building Characteristics	All Demand-Metered Buildings			Summer Peaking			Winter Peaking			Summer and Winter Peaking			RSE Row Factor
	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	
RSE Column Factor:	0.597	0.651	0.830	0.706	0.749	1.027	0.959	1.077	1.134	1.480	1.681	1.959	
All Demand-Metered Buildings	1,673	33,978	513.3	974	20,891	347.5	517	10,858	141.6	181	2,229	24.1	9.03
Building Floorspace (Square Feet)													
1,001 to 5,000	741	2,144	67.8	428	1,227	49.2	221	651	14.2	91	266	4.4	14.74
5,001 to 10,000	388	2,892	46.0	226	1,712	30.2	117	861	12.5	45	319	3.4	12.63
10,001 to 25,000	278	4,532	59.9	162	2,603	39.2	90	1,499	17.3	26	430	3.4	14.26
25,001 to 50,000	131	4,835	67.2	78	2,851	43.6	42	1,528	19.8	Q	Q	Q	17.48
50,001 to 100,000	76	5,291	69.4	40	2,832	37.1	30	2,110	28.0	Q	Q	Q	18.24
100,001 to 200,000	36	5,010	60.5	23	3,232	44.6	12	1,661	14.7	Q	Q	Q	21.78
200,001 to 500,000	18	5,228	74.5	14	3,971	60.1	4	1,040	12.6	Q	Q	Q	24.69
Over 500,000	5	4,047	67.9	3	2,463	43.5	2	1,508	22.5	Q	Q	Q	40.40
Year Constructed													
1900 or Before	45	723	6.9	23	352	5.0	Q	Q	Q	Q	Q	Q	43.31
1901 to 1920	84	1,891	21.0	47	1,199	16.8	22	571	3.4	Q	Q	Q	28.92
1921 to 1945	209	3,849	37.0	128	2,362	24.3	61	1,198	11.0	Q	Q	Q	20.00
1946 to 1960	363	5,441	62.0	218	3,383	45.9	104	1,677	12.9	41	382	3.2	16.28
1961 to 1970	320	7,082	138.5	197	4,663	102.5	88	2,025	29.9	34	395	6.2	16.05
1971 to 1973	114	3,217	50.9	76	2,103	36.3	31	966	12.2	Q	Q	Q	19.66
1974 to 1979	239	5,424	95.5	126	3,187	55.1	92	1,804	34.7	22	434	5.7	19.68
1980 to 1983	169	3,539	59.3	106	2,231	37.4	49	1,173	20.5	Q	Q	Q	23.26
1984 to 1986	129	2,811	42.2	53	1,411	24.2	57	1,196	15.6	Q	Q	Q	20.95
BUILDING USE													
Principal Building Activity													
Assembly	186	3,473	31.6	120	2,295	22.8	45	796	6.2	Q	Q	Q	24.09
Education	141	4,743	36.4	90	2,864	23.8	47	1,774	12.1	Q	Q	Q	16.97
Food Sales	61	463	21.7	46	394	18.0	Q	Q	Q	Q	Q	Q	28.78
Food Service	112	803	20.6	85	612	16.0	Q	Q	Q	Q	Q	Q	20.77
Health Care	30	1,621	27.7	18	1,295	20.8	Q	Q	Q	Q	Q	Q	27.22
Lodging	68	1,783	25.4	33	1,061	12.8	25	620	11.5	Q	Q	Q	24.22
Mercantile and Service	505	7,359	113.9	241	3,944	74.5	192	2,725	32.2	72	689	7.2	16.65
Office	258	6,358	150.3	171	4,399	111.3	69	1,736	34.5	17	223	4.5	16.16
Public Order and Safety	26	367	7.3	19	248	4.8	Q	Q	Q	Q	Q	Q	41.04
Warehouse	206	5,005	54.8	110	2,870	29.5	67	1,657	22.3	28	478	Q	22.22
Other	39	1,038	17.0	22	504	11.0	12	454	5.2	Q	Q	Q	36.86
Vacant	41	945	6.6	19	405	2.4	17	481	3.0	Q	Q	Q	37.74

Table 41. Season of Peak Electricity Demand (continued)

Building Characteristics	All Demand-Metered Buildings			Summer Peaking			Winter Peaking			Summer and Winter Peaking			RSE Row Factor
	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	
RSE Column Factor:	0.597	0.651	0.830	0.706	0.749	1.027	0.959	1.077	1.134	1.480	1.681	1.959	
Ownership and Occupancy													
Nongovernment Owned	1,427	26,447	409.5	820	16,146	273.1	438	8,357	116.6	169	1,943	19.9	9.69
Owner Occupied	929	16,538	263.4	524	10,271	176.1	297	5,087	75.7	108	1,180	11.6	11.63
Nonowner Occupied	498	9,909	146.1	296	5,876	97.0	141	3,270	40.8	61	763	8.3	13.35
Government Owned	246	7,531	103.8	154	4,744	74.5	80	2,501	25.0	12	286	4.3	16.49
Workers													
Fewer than 5	604	4,361	40.6	321	2,059	24.7	204	1,716	11.4	78	586	4.5	16.47
5 to 9	345	2,965	38.9	192	1,660	23.4	105	977	11.9	48	328	3.5	16.17
10 to 19	287	4,341	41.4	171	2,391	25.0	86	1,518	13.6	30	433	2.8	16.68
20 to 49	257	5,444	82.1	172	3,524	57.8	71	1,662	22.0	14	259	2.3	16.09
50 to 99	94	4,254	70.7	60	2,390	49.3	26	1,657	18.4	Q	Q	Q	19.73
100 to 249	59	5,401	71.5	39	3,821	48.9	18	1,343	19.3	Q	Q	Q	20.36
250 or More	27	7,211	168.1	19	5,047	118.4	7	1,986	45.0	Q	Q	Q	23.94
Weekly Operating Hours													
39 or Fewer	234	3,681	25.3	140	2,228	16.1	76	1,226	7.7	18	Q	Q	20.82
40 to 48	476	8,709	128.4	272	5,656	86.3	150	2,482	34.9	54	570	7.2	13.83
49 to 60	343	5,962	67.5	181	3,586	43.6	110	1,928	20.3	52	449	3.5	13.63
61 to 84	262	6,663	99.6	158	4,089	71.5	78	2,155	23.5	26	420	4.5	18.00
85 to 167	183	3,474	69.8	120	1,814	47.9	49	1,292	18.3	Q	Q	Q	20.16
168 (Open Continuously)	175	5,488	122.8	103	3,518	82.2	55	1,775	36.8	Q	Q	Q	19.38
LOCATION													
Census Region													
Northeast	266	6,068	86.1	147	3,460	61.6	89	2,253	21.0	30	355	Q	19.69
Midwest	344	8,562	118.8	191	5,254	79.4	107	2,676	33.3	45	632	6.1	18.31
South	718	12,328	192.3	435	8,019	122.8	212	3,596	62.7	71	713	6.8	13.27
West	345	7,020	116.0	201	4,158	83.8	109	2,332	24.6	35	529	7.5	18.86
Metropolitan Status													
Metropolitan	1,246	28,211	424.9	739	17,709	286.1	373	8,767	119.6	134	1,735	19.2	10.54
Nonmetropolitan	427	5,767	88.4	235	3,182	61.4	144	2,091	22.0	47	493	4.9	19.13
Climate Zone: 45-Year Average													
Under 2,000 CDD and --													
Over 7,000 HDD	126	2,679	44.5	55	1,472	29.7	51	956	12.3	Q	Q	Q	30.01
5,500-7,000 HDD	347	8,349	97.8	195	4,792	64.5	105	2,853	25.9	48	704	7.3	19.82
4,000-5,499 HDD	326	8,226	131.7	173	4,801	90.2	130	3,211	38.8	23	214	Q	20.28
Under 4,000 HDD	435	8,908	130.2	264	5,811	85.6	139	2,572	38.6	33	525	6.1	18.82
2,000 CDD or More and --													
Under 4,000 HDD	438	5,816	109.1	288	4,015	77.6	93	1,267	26.0	57	534	5.5	19.51

Table 41. Season of Peak Electricity Demand (continued)

Building Characteristics	All Demand-Metered Buildings			Summer Peaking			Winter Peaking			Summer and Winter Peaking			RSE Row Factor
	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	
RSE Column Factor:	0.597	0.651	0.830	0.706	0.749	1.027	0.959	1.077	1.134	1.480	1.681	1.959	
ENERGY SOURCES AND END USES [a]													
Energy Sources Used (Solely or in Combination)													
Electricity	1,673	33,978	513.3	974	20,891	347.5	517	10,858	141.6	181	2,229	24.1	9.03
Natural Gas	1,009	22,890	339.5	668	15,102	244.2	229	6,408	82.0	112	1,380	13.4	11.73
Fuel Oil	198	6,710	98.5	103	4,212	70.5	72	2,175	26.3	Q	Q	Q	19.96
District Heat	48	3,402	68.4	32	2,282	45.2	13	975	20.7	Q	Q	Q	32.10
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Propane	98	1,620	22.3	45	828	11.8	42	647	8.7	Q	Q	Q	33.89
Minor Fuels	43	654	12.1	23	321	Q	Q	Q	Q	Q	Q	Q	41.86
Energy End Uses													
Space Heating	1,546	32,434	499.9	891	19,984	337.8	487	10,372	139.0	168	2,079	23.0	9.43
Cooling	1,350	29,597	472.9	861	19,431	322.3	359	8,397	129.3	129	1,770	21.3	9.02
Water Heating	1,296	29,840	438.5	773	18,656	289.2	387	9,317	128.3	135	1,867	21.1	9.57
Cooking	309	11,905	197.4	207	7,731	137.9	80	3,681	52.6	Q	Q	Q	13.83
Manufacturing	65	2,105	51.7	34	1,274	32.4	21	576	15.4	Q	Q	Q	29.64
Space-Heating Fuels													
Electricity	536	11,373	194.9	249	6,083	108.4	244	4,775	77.1	42	515	9.4	14.09
Primary	390	7,866	153.6	158	3,819	79.0	199	3,619	65.8	33	429	8.8	17.25
With Secondary	64	1,901	37.4	27	1,173	16.1	32	633	19.1	Q	Q	Q	36.32
Natural Gas Only	24	875	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	53.44
Fuel Oil Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
Other Fuel or Combinations	33	929	15.1	Q	Q	Q	20	347	8.5	Q	Q	Q	38.20
With No Secondary	326	5,949	116.1	131	2,630	62.8	167	2,985	46.7	28	334	6.6	17.26
Secondary	170	4,284	54.2	98	2,701	32.9	60	1,447	19.0	Q	Q	Q	17.69
Other Fuels Excluding Electricity	1,010	21,061	305.0	642	13,901	229.4	242	5,597	61.9	126	1,563	13.7	11.74
Building Not Heated	128	1,612	15.8	84	967	12.1	31	495	2.6	13	150	Q	26.35
Air-Conditioning Fuels													
Electricity	1,279	26,971	435.7	811	17,893	298.7	342	7,498	118.6	125	1,580	18.4	9.20
Solely	1,268	26,440	423.9	804	17,437	291.9	340	7,428	113.6	125	1,575	18.4	9.17
With Other Fuels or Combinations	10	531	Q	8	456	6.8	Q	Q	Q	Q	Q	Q	45.73
Other Fuels Excluding Electricity	71	2,626	37.3	50	1,538	23.7	17	899	10.7	Q	Q	Q	26.68
Building Not Air Conditioned	322	4,348	39.8	112	1,433	24.8	158	2,456	12.2	52	459	2.8	24.06

Table 41. Season of Peak Electricity Demand (continued)

Building Characteristics	All Demand-Metered Buildings			Summer Peaking			Winter Peaking			Summer and Winter Peaking			RSE Row Factor
	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	
RSE Column Factor:	0.602	0.699	0.748	0.714	0.821	0.890	0.994	1.188	1.164	1.429	1.748	1.771	
Water-Heating Fuels													
Electricity	628	13,026	197.7	326	7,305	119.5	241	4,923	67.1	62	797	11.0	13.66
Other Fuels Excluding Electricity	667	16,814	240.8	447	11,351	169.6	147	4,394	61.2	74	1,069	10.1	12.72
Water Heating Not Performed	377	4,138	74.7	201	2,235	58.4	130	1,541	13.3	46	362	3.0	18.46
Cooking Fuels													
Electricity	127	5,286	86.3	81	3,235	56.3	38	1,780	26.3	Q	Q	Q	18.23
Other Fuels Excluding Electricity	182	6,618	111.1	126	4,496	81.5	42	1,901	26.3	Q	Q	Q	16.98
Cooking Not Performed	1,363	22,073	315.9	767	13,160	209.7	437	7,177	89.1	159	1,736	17.1	9.75
Manufacturing Fuels													
Electricity	49	1,468	34.8	30	996	21.7	14	299	10.0	Q	Q	Q	32.14
Other Fuels Excluding Electricity	16	638	16.9	Q	Q	Q	Q	Q	Q	Q	Q	Q	46.30
Manufacturing Not Performed	1,608	31,872	461.6	941	19,616	315.1	496	10,282	126.2	171	1,973	20.2	9.16
HEATING AND COOLING													
Percent Heated													
Not Heated	109	1,289	10.4	73	690	7.6	25	467	2.0	Q	Q	Q	31.33
1 to 50	226	4,332	35.3	106	2,335	19.3	83	1,556	13.3	37	440	2.7	18.69
51 to 99	208	4,457	55.7	128	2,710	38.7	58	1,500	14.6	Q	Q	Q	19.23
100	1,130	23,892	411.9	667	15,156	282.0	352	7,328	111.7	111	1,409	18.2	11.10
Percent Cooled													
Not Cooled	317	4,093	31.1	111	1,267	Q	154	2,367	11.9	52	459	2.8	22.36
1 to 50	436	10,402	90.3	247	6,159	55.3	126	3,246	28.2	63	996	6.8	11.51
51 to 99	245	6,910	114.8	179	5,063	83.6	45	1,624	26.9	Q	Q	Q	18.26
100	675	12,572	277.1	436	8,401	192.3	193	3,621	74.6	47	550	10.2	12.60
LIGHTING													
Percent Lit--Open Hours													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	b
1 to 50	212	3,466	26.0	110	2,150	18.4	68	908	5.7	34	408	1.9	20.14
51 to 99	292	5,712	69.9	186	3,689	51.1	86	1,784	17.3	Q	Q	Q	16.34
100	1,147	24,489	416.6	666	14,945	277.5	357	7,976	118.4	124	1,567	20.8	10.52

Table 41. Season of Peak Electricity Demand (continued)

Building Characteristics	All Demand-Metered Buildings			Summer Peaking			Winter Peaking			Summer and Winter Peaking			RSE Row Factor
	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	Number of Buildings (thousand)	Total Floor-space (million square feet)	Total Elec-tricity Consumed (billion kWh)	
RSE Column Factor:	0.602	0.699	0.748	0.714	0.821	0.890	0.994	1.188	1.164	1.429	1.748	1.771	
ELECTRICITY DEMAND													
Annual Consumption (kWh)													
10,000 or Less	206	1,136	1.1	94	414	0.5	79	489	0.4	33	Q	0.2	24.15
10,001 to 50,000	564	4,444	14.7	321	2,668	8.5	176	1,315	4.4	67	461	1.8	11.65
50,001 to 100,000	302	3,481	21.8	185	2,014	13.1	75	1,049	5.6	42	418	3.0	13.60
100,001 to 500,000	440	8,521	96.7	268	4,749	58.4	140	3,200	31.1	32	572	7.2	12.66
500,001 to 1,000,000	64	3,233	46.3	42	1,955	29.7	20	1,125	14.7	Q	Q	Q	18.80
1,000,001 to 2,000,000	52	4,202	71.4	34	2,783	47.2	17	1,287	22.1	Q	Q	Q	18.89
2,000,001 to 5,000,000	30	4,755	91.7	21	3,190	62.3	8	1,392	24.6	Q	Q	Q	24.94
Over 5,000,000	14	4,205	169.5	11	3,118	127.8	3	1,001	38.7	Q	Q	Q	26.98
Peak Electricity Demand (kW)													
10 or Less	328	1,736	4.2	153	717	2.0	111	588	1.4	64	431	.8	23.10
11 to 25	459	3,353	17.3	279	1,913	11.1	122	1,015	3.6	58	425	2.6	12.20
26 to 50	353	3,706	32.8	216	2,124	20.6	108	1,272	9.3	29	310	2.9	13.13
51 to 100	258	4,876	54.0	160	2,765	33.5	85	1,827	17.8	Q	Q	Q	14.77
101 to 250	150	5,096	65.4	86	2,839	39.3	53	1,955	21.4	Q	Q	Q	14.79
251 to 1,000	101	8,753	149.9	66	6,018	101.8	31	2,379	40.8	Q	Q	Q	13.90
Over 1,000	23	6,457	189.7	16	4,514	139.3	NC	NC	NC	NC	NC	NC	27.13

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 42. Peak Electricity Demand Category, Number of Buildings

Building Characteristics	All Demand-Metered Buildings	10 kW or Less	11 to 25 kW	26 to 50 kW	51 to 100 kW	101 to 250 kW	251 to 1,000 kW	Over 1,000 kW	RSE Row Factor
RSE Column Factor:	0.574	1.335	0.869	0.894	1.026	1.052	1.020	1.524	
All Demand-Metered Buildings	1,673	328	459	353	258	150	101	23	9.21
Building Floorspace (Square Feet)									
1,001 to 5,000	741	256	257	148	55	16	Q	Q	14.72
5,001 to 10,000	388	45	138	102	79	19	Q	Q	16.38
10,001 to 25,000	278	16	45	80	76	51	10	Q	16.06
25,001 to 50,000	131	Q	13	16	33	37	23	Q	20.09
50,001 to 100,000	76	Q	Q	Q	11	20	30	Q	18.47
100,001 to 200,000	36	Q	Q	Q	Q	5	20	5	20.76
200,001 to 500,000	18	NC	NC	Q	Q	Q	8	7	18.15
Over 500,000	5	NC	NC	NC	NC	Q	Q	4	30.60
Year Constructed									
1900 or Before	45	Q	Q	Q	Q	Q	Q	Q	41.52
1901 to 1920	84	Q	Q	Q	Q	Q	Q	Q	30.66
1921 to 1945	209	44	68	43	30	14	9	2	24.61
1946 to 1960	363	96	117	62	45	26	15	2	15.82
1961 to 1970	320	55	82	72	49	29	25	8	16.10
1971 to 1973	114	Q	Q	25	23	12	10	3	22.34
1974 to 1979	239	Q	48	66	45	28	17	5	20.77
1980 to 1983	169	Q	48	39	28	16	12	2	21.75
1984 to 1986	129	Q	30	25	Q	16	9	2	24.45
BUILDING USE									
Principal Building Activity									
Assembly	186	26	46	49	34	21	8	Q	20.94
Education	141	29	23	24	27	20	17	Q	20.53
Food Sales	61	Q	Q	Q	Q	Q	Q	Q	31.26
Food Service	112	Q	Q	31	38	Q	Q	Q	22.37
Health Care	30	Q	Q	Q	Q	Q	3	2	24.51
Lodging	68	Q	Q	14	14	10	7	Q	28.08
Mercantile and Service	505	115	171	121	52	24	18	Q	17.27
Office	258	44	65	45	48	29	21	7	16.79
Public Order and Safety	26	Q	Q	Q	Q	Q	Q	Q	40.63
Warehouse	206	67	65	25	18	17	11	Q	22.58
Other	39	Q	Q	Q	Q	Q	Q	Q	38.53
Vacant	41	Q	Q	Q	Q	Q	Q	Q	32.79
Ownership and Occupancy									
Nongovernment Owned	1,427	287	400	311	219	118	75	17	10.54
Owner Occupied	929	197	253	196	149	75	48	11	12.96
Nonowner Occupied	498	89	147	115	70	42	28	6	15.44
Government Owned	246	42	59	42	39	33	26	6	16.85

Table 42. Peak Electricity Demand Category, Number of Buildings (continued)

Building Characteristics	All Demand-Metered Buildings	10 kW or Less	11 to 25 kW	26 to 50 kW	51 to 100 kW	101 to 250 kW	251 to 1,000 kW	Over 1,000 kW	RSE Row Factor
RSE Column Factor:	0.574	1.335	0.869	0.894	1.026	1.052	1.020	1.524	
Workers									
Fewer than 5	604	248	199	98	34	18	6	Q	18.23
5 to 9	345	48	147	91	36	14	Q	Q	18.44
10 to 19	287	25	77	97	64	20	Q	Q	17.68
20 to 49	257	Q	30	60	100	46	15	Q	16.91
50 to 99	94	Q	Q	Q	17	40	25	Q	20.02
100 to 249	59	Q	Q	Q	Q	13	30	5	17.62
250 or More	27	Q	NC	Q	Q	Q	14	11	18.19
Weekly Operating Hours									
39 or Fewer	234	77	52	53	28	15	8	Q	20.77
40 to 48	476	99	132	99	68	48	25	5	15.22
49 to 60	343	72	129	69	37	21	13	2	17.41
61 to 84	262	40	74	46	53	27	16	Q	21.64
85 to 167	183	Q	37	40	42	22	18	Q	21.45
168 (Open Continuously)	175	Q	35	46	30	17	21	6	22.02
LOCATION									
Census Region									
Northeast	266	41	90	61	42	15	12	4	20.42
Midwest	344	83	94	62	46	30	22	7	19.72
South	718	147	200	148	108	64	42	8	13.36
West	345	58	76	81	62	41	25	3	20.34
Metropolitan Status									
Metropolitan	1,246	219	352	269	194	114	78	20	10.54
Nonmetropolitan	427	109	107	84	64	37	24	Q	17.16
Climate Zone: 45-Year Average									
Under 2,000 CDD and --									
Over 7,000 HDD	126	Q	35	25	Q	15	9	Q	27.78
5,500-7,000 HDD	347	75	102	70	47	28	20	4	21.91
4,000-5,499 HDD	326	51	80	75	61	31	23	6	20.82
Under 4,000 HDD	435	68	126	86	72	49	31	4	18.65
2,000 CDD or More and --									
Under 4,000 HDD	438	113	115	97	60	28	19	6	20.64
ENERGY SOURCES AND END USES [a]									
Energy Sources Used (Solely or in Combination)									
Electricity	1,673	328	459	353	258	150	101	23	9.21
Natural Gas	1,009	184	280	203	169	92	67	15	11.33
Fuel Oil	198	Q	63	43	24	14	15	5	24.83
District Heat	48	Q	Q	Q	Q	Q	7	4	27.99
District Chilled Water	Q	NC	Q	Q	Q	Q	Q	Q	b
Propane	98	Q	Q	Q	Q	Q	Q	Q	32.60
Minor Fuels	43	Q	Q	Q	Q	Q	Q	Q	36.08

Table 42. Peak Electricity Demand Category, Number of Buildings (continued)

Building Characteristics	All Demand-Metered Buildings	10 kW or Less	11 to 25 kW	26 to 50 kW	51 to 100 kW	101 to 250 kW	251 to 1,000 kW	Over 1,000 kW	RSE Row Factor
RSE Column Factor:	0.574	1.335	0.869	0.894	1.026	1.052	1.020	1.524	
Energy End Uses									
Space Heating	1,546	282	420	327	250	144	100	23	9.52
Cooling	1,350	190	358	314	236	134	97	21	9.32
Water Heating	1,296	181	343	296	234	130	91	20	9.97
Cooking	309	Q	52	74	79	36	38	12	15.77
Manufacturing	65	Q	Q	Q	Q	Q	8	2	25.26
Space-Heating Fuels									
Electricity	536	62	110	134	108	68	45	10	15.91
Primary	390	44	85	94	73	51	34	8	19.33
With Secondary	64	Q	Q	Q	Q	Q	Q	Q	35.55
Natural Gas Only	24	Q	Q	Q	Q	Q	Q	Q	60.73
Fuel Oil Only	Q	NC	Q	NC	Q	NC	Q	Q	b
Other Fuel or Combinations	33	Q	Q	Q	Q	Q	Q	Q	42.09
With No Secondary	326	37	75	79	57	45	25	6	21.12
Secondary	170	Q	26	45	44	19	15	2	23.71
Other Fuels Excluding Electricity	1,010	221	311	193	142	76	55	13	11.97
Building Not Heated	128	46	40	26	Q	6	Q	Q	23.81
Air-Conditioning Fuels									
Electricity	1,279	183	344	294	226	122	92	18	9.90
Solely	1,268	183	344	288	224	121	91	18	9.96
With Other Fuels or Combinations	10	NC	NC	Q	Q	Q	Q	Q	72.59
Other Fuels Excluding Electricity	71	Q	Q	20	Q	12	5	2	30.68
Building Not Air Conditioned	322	138	101	38	22	15	Q	Q	22.30

Table 42. Peak Electricity Demand Category, Number of Buildings (continued)

Building Characteristics	All Demand-Metered Buildings	10 kW or Less	11 to 25 kW	26 to 50 kW	51 to 100 kW	101 to 250 kW	251 to 1,000 kW	Over 1,000 kW	RSE Row Factor
RSE Column Factor:	0.587	1.259	0.837	0.875	1.090	0.993	1.036	1.648	
Water-Heating Fuels									
Electricity	628	75	161	160	108	69	45	10	14.66
Other Fuels Excluding Electricity	667	106	182	136	126	61	46	10	12.54
Water Heating Not Performed	377	147	116	56	23	21	10	Q	20.39
Cooking Fuels									
Electricity	127	Q	Q	33	31	13	19	6	21.51
Other Fuels Excluding Electricity	182	Q	32	41	48	23	19	6	18.13
Cooking Not Performed	1,363	310	408	279	179	114	64	11	10.57
Manufacturing Fuels									
Electricity	49	Q	Q	Q	Q	Q	7	Q	28.11
Other Fuels Excluding Electricity	19	NC	Q	Q	Q	Q	Q	Q	46.76
Manufacturing Not Performed	1,608	319	443	338	249	142	93	21	9.39
HEATING AND COOLING									
Percent Heated									
Not Heated	109	42	34	21	Q	Q	Q	Q	26.25
1 to 50	226	51	92	42	16	12	10	Q	20.07
51 to 99	208	Q	42	59	40	21	13	2	20.32
100	1,130	203	292	230	195	114	78	18	10.74
Percent Cooled									
Not Cooled	317	136	100	39	22	15	Q	Q	22.78
1 to 50	436	63	156	102	53	38	21	Q	14.10
51 to 99	245	Q	45	58	54	29	21	6	18.20
100	675	97	159	154	130	69	55	11	12.27
LIGHTING									
Percent Lit--Open Hours									
Not Lit	Q	Q	Q	Q	Q	Q	Q	NC	b
1 to 50	212	60	67	41	21	14	8	Q	20.59
51 to 99	292	41	84	74	50	26	14	2	19.76
100	1,147	216	300	237	186	110	78	20	10.53

Table 42. Peak Electricity Demand Category, Number of Buildings (continued)

Building Characteristics	All Demand-Metered Buildings	10 kW or Less	11 to 25 kW	26 to 50 kW	51 to 100 kW	101 to 250 kW	251 to 1,000 kW	Over 1,000 kW	RSE Row Factor
RSE Column Factor:	0.587	1.259	0.837	0.875	1.090	0.993	1.036	1.648	
ELECTRICITY DEMAND									
Annual Consumption (kWh)									
10,000 or Less	206	156	36	Q	Q	Q	Q	NC	19.14
10,001 to 50,000	564	169	302	67	22	Q	Q	NC	14.27
50,001 to 100,000	302	Q	110	150	35	Q	Q	NC	15.28
100,001 to 500,000	440	Q	Q	123	194	98	12	Q	13.79
500,001 to 1,000,000	64	NC	NC	NC	Q	38	22	Q	18.90
1,000,001 to 2,000,000	52	NC	NC	NC	Q	8	40	Q	21.31
2,000,001 to 5,000,000	30	NC	NC	NC	NC	Q	23	7	18.16
Over 5,000,000	14	NC	NC	NC	NC	NC	Q	13	24.20
Season of Peak Electricity Demand									
Summer Peaking	974	153	279	216	160	86	66	16	10.77
Winter Peaking	517	111	122	108	85	53	31	7	15.94
Summer and Winter Peaking	181	64	58	29	Q	Q	Q	Q	22.91

[a] Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

[b] No applicable RSE row factor.

[NC] No cases in responding sample.

[Q] Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.

Note: • To obtain the RSE percentage for any table cell, multiply the cell 's corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table 43. Peak Electricity Demand Indices, Number of Buildings

Building Characteristics	kWh per Square Foot			Peak Watts per Square Foot			Load Factor		
	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile
All Buildings	3.57	8.21	19.59	2.17	4.17	8.28	0.17	0.26	0.36
Building Floorspace (Square Feet)									
1,001 to 5,000	4.23	10.04	27.44	3.00	5.50	11.52	.15	.24	.36
5,001 to 10,000	3.80	7.79	16.24	2.30	3.67	7.00	.17	.25	.33
10,001 to 25,000	3.05	6.39	13.27	1.74	3.20	5.91	.18	.26	.34
25,001 to 50,000	2.10	6.80	13.76	1.20	2.63	5.44	.19	.27	.39
50,001 to 100,000	2.59	6.39	16.10	1.19	2.92	5.38	.22	.30	.41
100,001 to 200,000	3.11	7.89	16.50	1.46	2.96	5.26	.25	.34	.45
200,001 to 500,000	3.95	8.17	16.64	1.39	2.98	4.69	.29	.38	.50
Over 500,000	3.33	10.47	24.39	.74	2.80	4.69	.37	.52	.69
Year Constructed									
1900 or Before	2.26	6.92	11.22	1.73	2.69	5.21	.14	.22	.31
1901 to 1920	2.26	4.95	10.61	1.21	2.25	5.41	.18	.26	.35
1921 to 1945	2.96	6.76	16.84	1.88	3.73	7.20	.16	.24	.32
1946 to 1960	3.05	6.48	14.11	2.10	3.63	6.67	.15	.22	.32
1961 to 1970	4.28	9.06	23.66	2.32	4.34	9.48	.17	.27	.38
1971 to 1973	4.30	9.49	18.05	2.25	4.17	7.78	.17	.27	.39
1974 to 1979	4.40	10.49	27.95	2.69	5.40	10.05	.18	.27	.39
1980 to 1983	4.64	10.69	26.19	3.33	5.35	9.34	.16	.26	.35
1984 to 1986	3.55	10.12	23.96	2.33	4.09	7.62	.21	.28	.40
BUILDING USE									
Principal Building Activity									
Assembly	2.00	4.65	11.37	2.12	4.21	7.00	.09	.13	.23
Education	3.09	5.98	8.82	2.10	3.39	5.06	.15	.18	.24
Food Sales	18.33	49.90	69.41	6.88	11.21	15.58	.42	.47	.59
Food Service	16.83	30.59	60.43	6.84	11.25	17.00	.30	.36	.43
Health Care	5.64	9.69	21.95	2.81	4.30	7.86	.17	.22	.42
Lodging	5.06	10.07	21.18	2.32	3.90	8.99	.23	.30	.36
Mercantile and Service	3.96	7.67	17.12	2.25	3.75	6.93	.19	.26	.34
Office	6.61	10.63	22.64	3.00	5.04	9.00	.21	.28	.36
Public Order and Safety	5.10	9.49	21.47	1.90	4.40	5.00	.33	.37	.51
Warehouse	1.81	3.57	10.70	1.11	2.06	4.70	.15	.24	.31
Other	3.02	7.26	39.39	1.63	2.58	9.44	.21	.31	.46
Vacant	2.21	4.95	16.40	1.27	2.75	4.73	.13	.20	.33
Ownership and Occupancy									
Nongovernment Owned	3.54	8.69	20.98	2.18	4.22	8.50	.17	.26	.36
Owner Occupied	3.31	8.30	20.73	2.24	4.32	8.57	.16	.25	.36
Nonowner Occupied	3.84	9.30	21.74	2.15	4.18	8.10	.20	.27	.37
Government Owned	3.85	7.07	13.40	2.14	3.62	6.77	.15	.23	.34

Table 43. Peak Electricity Demand Indices, Number of Buildings (continued)

Building Characteristics	kWh per Square Foot			Peak Watts per Square Foot			Load Factor		
	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile
Workers									
Fewer than 5	2.32	4.77	11.69	1.67	3.33	6.67	0.13	0.19	0.28
5 to 9	4.44	9.30	23.53	2.50	4.76	10.57	.17	.25	.35
10 to 19	4.59	8.66	15.12	2.37	3.71	6.93	.18	.26	.35
20 to 49	5.84	12.31	26.94	2.77	5.07	9.48	.23	.30	.39
50 to 99	9.02	17.22	32.06	2.95	6.00	9.33	.26	.36	.48
100 to 249	6.36	12.64	22.81	2.40	4.77	7.82	.27	.35	.42
250 or More	11.34	20.17	33.12	3.39	5.37	7.65	.36	.45	.56
Weekly Operating Hours									
39 or Fewer	1.73	3.60	7.85	1.71	3.33	6.45	.09	.15	.22
40 to 48	3.30	6.83	14.09	2.14	4.00	7.06	.16	.23	.30
49 to 60	3.50	6.66	12.96	2.00	3.33	5.70	.18	.24	.30
61 to 84	5.49	12.63	26.94	2.50	5.00	10.15	.23	.29	.39
85 to 167	9.54	20.28	50.18	3.75	7.57	14.58	.24	.36	.47
168 (Open Continuously)	6.67	14.06	42.91	2.33	4.71	10.80	.29	.39	.54
LOCATION									
Census Region									
Northeast	3.04	7.13	14.13	2.12	4.00	7.96	.17	.24	.33
Midwest	2.71	6.76	18.08	1.67	3.47	6.22	.17	.26	.36
South	3.69	8.93	21.04	2.41	4.60	8.75	.15	.24	.35
West	5.00	10.07	23.62	2.40	4.14	9.33	.19	.28	.39
Metropolitan Status									
Metropolitan	3.83	8.83	20.26	2.25	4.20	8.10	.17	.26	.37
Nonmetropolitan	3.17	6.54	17.81	2.05	4.09	8.89	.14	.23	.33
Climate Zone: 45-Year Average									
Under 2,000 CDD and --									
Over 7,000 HDD	3.37	8.23	17.81	1.89	3.04	6.83	.19	.28	.37
5,500-7,000 HDD	2.96	6.59	14.88	1.96	3.67	6.56	.15	.24	.33
4,000-5,499 HDD	3.66	8.21	21.18	2.28	4.30	8.41	.17	.25	.37
Under 4,000 HDD	4.28	9.65	21.47	2.50	4.55	8.73	.17	.27	.36
2,000 CDD or More and --									
Under 4,000 HDD	3.69	8.20	21.57	2.21	4.44	9.17	.15	.24	.35

Table 43. Peak Electricity Demand Indices, Number of Buildings (continued)

Building Characteristics	kWh per Square Foot			Peak Watts per Square Foot			Load Factor		
	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile
ENERGY SOURCES AND END USES *									
Energy Sources Used (Solely or in Combination)									
Electricity	3.57	8.21	19.59	2.17	4.17	8.28	0.17	0.26	0.36
Natural Gas	3.69	7.95	18.28	2.32	4.00	7.62	.17	.26	.36
Fuel Oil	3.20	6.46	13.34	2.13	3.64	5.78	.16	.25	.33
District Heat	5.64	9.85	24.17	1.54	2.39	6.39	.33	.44	.53
District Chilled Water	10.90	23.08	57.24	3.86	5.78	14.43	.30	.46	.59
Propane	3.18	5.31	14.34	1.88	3.90	6.83	.13	.22	.31
Minor Fuels	1.90	3.38	10.61	1.48	3.00	4.44	.12	.19	.30
Energy End Uses									
Space Heating	3.76	8.50	20.26	2.33	4.22	8.33	.17	.26	.36
Cooling	4.33	9.79	22.81	2.52	4.67	9.09	.17	.26	.37
Water Heating	4.40	9.50	21.57	2.43	4.44	8.57	.17	.27	.37
Cooking	6.94	16.84	41.43	3.18	6.47	12.83	.23	.33	.43
Manufacturing	3.99	7.11	14.71	2.56	4.73	6.86	.16	.22	.32
Space-Heating Fuels									
Electricity	5.00	12.01	30.84	3.16	6.00	11.00	.16	.27	.37
Primary	6.27	14.34	35.99	3.67	7.14	11.53	.17	.27	.40
With Secondary	5.85	13.55	34.93	3.64	6.50	11.11	.14	.28	.43
Natural Gas Only	6.38	13.55	40.90	3.33	5.60	10.29	.19	.30	.43
Fuel Oil Only	7.16	14.13	34.92	3.78	6.46	8.57	.11	.22	.46
Other Fuel or Combinations	5.85	11.33	31.07	4.09	6.88	11.35	.13	.27	.37
With No Secondary	6.44	14.43	36.36	3.68	7.35	11.75	.18	.27	.40
Secondary	4.09	8.96	21.95	2.69	4.43	8.45	.13	.23	.34
Other Fuels Excluding Electricity	3.38	7.01	15.43	2.01	3.64	6.49	.17	.25	.35
Building Not Heated	2.01	4.67	12.96	1.25	2.80	6.67	.16	.23	.33

Table 43. Peak Electricity Demand Indices, Number of Buildings (continued)

Building Characteristics	kWh per Square Foot			Peak Watts per Square Foot			Load Factor		
	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile
Air-Conditioning Fuels									
Electricity	4.30	9.59	22.61	2.53	4.70	9.09	0.17	0.26	0.37
Solely	4.30	9.62	22.56	2.52	4.70	9.09	.17	.26	.37
With Other Fuels or Combinations	4.00	9.55	27.44	2.89	4.49	7.81	.26	.32	.42
Other Fuels Excluding Electricity	6.21	12.36	23.53	2.50	4.15	9.26	.21	.31	.45
Building Not Air Conditioned	1.92	4.10	8.56	1.25	2.50	4.50	.15	.21	.29
Water-Heating Fuels									
Electricity	4.59	10.20	23.36	2.60	4.99	9.80	.17	.26	.36
Other Fuels Excluding Electricity	4.06	8.64	19.62	2.37	4.09	7.54	.18	.27	.38
Water Heating Not Performed	2.28	4.70	11.38	1.44	3.33	6.43	.15	.21	.29
Cooking Fuels									
Electricity	8.32	21.09	48.64	4.20	7.62	14.86	.21	.32	.43
Other Fuels Excluding Electricity	6.51	14.11	34.56	2.82	5.50	11.25	.25	.33	.42
Cooking Not Performed	3.19	7.13	15.76	2.00	3.85	7.20	.16	.24	.33
Manufacturing Fuels Electricity	3.82	7.16	16.60	2.47	4.44	6.85	.17	.21	.32
Other Fuels Excluding Electricity	5.14	5.51	12.61	3.43	4.91	9.80	.11	.24	.38
Manufacturing Not Performed	3.55	8.40	19.73	2.16	4.15	8.28	.17	.26	.36
HEATING AND COOLING									
Percent Heated									
Not Heated	2.00	4.41	12.95	1.18	2.19	7.33	.15	.23	.32
1 to 50	2.19	4.77	12.41	1.40	2.96	6.08	.14	.22	.31
51 to 99	4.76	9.72	25.66	2.53	4.91	9.00	.19	.27	.38
100	4.10	9.01	20.84	2.50	4.32	8.68	.17	.26	.37
Percent Cooled									
Not Cooled	1.90	4.10	8.56	1.21	2.48	4.50	.15	.21	.29
1 to 50	2.92	5.87	12.68	1.78	3.19	5.40	.17	.24	.34
51 to 99	5.80	12.25	25.48	2.78	5.24	10.50	.19	.28	.39
100	5.86	11.90	28.30	3.33	5.70	10.50	.17	.28	.39
LIGHTING									
Percent Lit--Open Hours									
Not Lit	.76	2.00	3.37	1.20	1.80	3.33	.08	.17	.20
1 to 50	2.03	4.46	10.41	1.43	2.70	5.96	.13	.20	.28
51 to 99	4.40	8.21	17.99	2.50	4.70	7.78	.17	.25	.36
100	3.92	9.39	22.21	2.37	4.30	8.96	.17	.26	.37

Table 43. Peak Electricity Demand Indices, Number of Buildings (continued)

Building Characteristics	kWh per Square Foot			Peak Watts per Square Foot			Load Factor		
	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile
ELECTRICITY DEMAND									
Annual Consumption (kWh)									
10,000 or Less	0.65	1.90	3.13	0.94	1.88	3.90	0.07	0.13	0.20
10,001 to 50,000	2.92	5.01	8.92	1.90	3.13	5.33	.14	.20	.27
50,001 to 100,000	5.63	10.49	20.73	2.48	4.40	8.25	.21	.28	.36
100,001 to 500,000	9.85	19.03	47.06	3.76	7.40	12.71	.25	.34	.45
500,001 to 1,000,000	10.47	21.95	46.56	3.88	7.55	13.00	.27	.35	.47
1,000,001 to 2,000,000	12.54	26.85	52.33	3.98	6.75	11.09	.30	.39	.50
2,000,001 to 5,000,000	16.79	27.91	46.38	4.23	7.10	9.40	.35	.46	.57
Over 5,000,000	22.87	52.21	257.71	5.00	10.15	41.21	.37	.53	.68
Peak Electricity Demand (kW)									
10 or Less	1.55	2.96	6.03	1.00	1.88	3.33	.14	.20	.28
11 to 25	3.40	6.33	12.25	2.19	3.60	6.11	.15	.23	.30
25 to 50	5.12	10.71	26.64	2.92	5.22	11.11	.17	.27	.39
51 to 100	6.54	14.43	35.50	3.47	6.56	11.52	.19	.29	.40
101 to 250	8.03	16.60	39.63	3.98	7.10	12.10	.21	.28	.42
251 to 1,000	10.21	18.38	39.28	4.13	6.84	11.52	.25	.34	.46
Over 1,000	16.77	27.65	118.37	4.99	8.00	41.21	.30	.38	.55
Season of Peak Electricity Demand									
Summer Peaking	3.93	9.30	22.45	2.48	4.49	8.70	.17	.26	.38
Winter Peaking	3.05	6.99	16.71	2.00	4.15	8.35	.15	.22	.31
Summer and Winter Peaking	2.99	6.83	13.20	1.67	2.89	5.39	.20	.27	.37

* Statistics presented under the **"Energy Sources and End Uses"** headings represent overall consumption for all end uses combined, not consumption of a particular fuel for a particular end use. For example, the row labelled "Electricity" under **"Space-Heating Fuels"** gives overall consumption statistics for all buildings that use electricity for space heating, not statistics on electricity consumed for space heating. Such end use data are not available from this survey. See "Energy Sources Used - Building and Supplier Survey Estimates" in Appendix B, "Sampling and Nonsampling Errors."

Note: Relative standard errors were not computed for statistics in this table. See Glossary for explanation of abbreviations and definitions of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Appendix A

How the Survey Was Conducted

Buildings that are 50 percent or more residential are out of scope for the 1986 NBECS.

Appendix A

How the Survey Was Conducted

Introduction

The Nonresidential Buildings Energy Consumption Survey (NBECS)[1] was designed by the Energy Information Administration (EIA) to provide basic statistical information on the consumption of energy and the expenditures for energy in U.S. commercial buildings, along with data on energy-related characteristics of these buildings. To obtain this information, a sample of nonresidential buildings was selected according to the design described in the "Sample Design" section below.

The NBECS was conducted in two stages. In the first stage, information about the selected buildings was collected in the Building Characteristics Survey through voluntary personal interviews with the buildings' owners, managers, or tenants. In the second stage, the Energy Supplier Survey, data concerning the actual consumption of energy were obtained from records maintained by energy suppliers to the building. This information was obtained by means of a mail survey conducted under EIA's mandatory data collection authority. Under EIA's direction, a survey research firm conducted both the personal interviews for the Building Characteristics Survey and the mail survey of energy suppliers.

This is the second report from the 1986 NBECS and includes data from both the Building Characteristics Survey and the Energy Supplier Survey. The first report, *Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings 1986*, was based solely on the Building Characteristics Survey data and was published in September 1988.

[1]As of the 1989 survey, the title of the survey has been changed to the Commercial Buildings Energy Consumption Survey (CBECS). See all future surveys and reports.

This appendix has three main sections: Sample Design, Building Characteristics Survey and Energy Supplier Survey. The latter two sections focus on the procedures to collect and process the survey data. In addition, there is a section at the end of this appendix on the special data collection for the Bureau of the Census, Form EIA-871G, the Construction Improvements and Maintenance and Repairs Supplement (Census Supplement). Copies of all the data collection questionnaires used in both parts of the NBECS (Forms EIA-871 A through G) are shown in Appendix F.

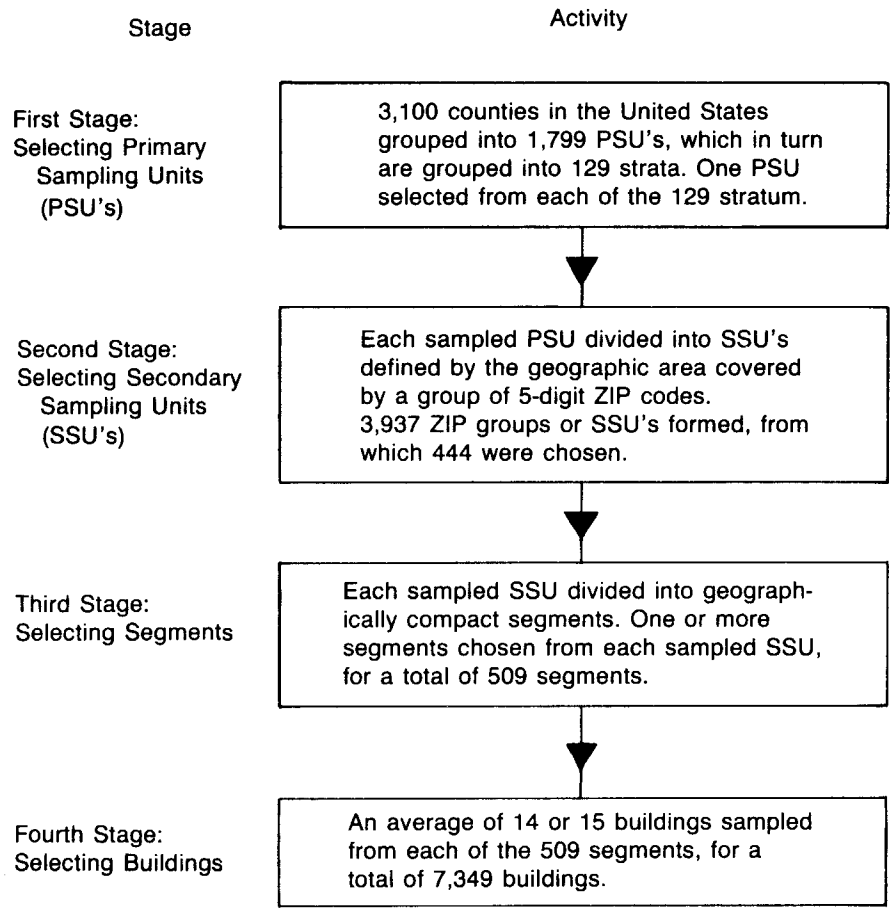
Sample Design

In the NBECS, the individual building is the basic sample unit. (See the Glossary for the definition of a building in this survey.) The sample design for the 1986 NBECS was similar to the design of the 1979 and 1983 NBECS. However, while the 1979/1983 sample was drawn from a previously existing frame developed for other purposes, the 1986 sample was drawn from a new frame developed specifically for the NBECS. For the 1986 sample, a total of 7,349 sample buildings were selected by use of multistage area probability methods. A supplementary sample of 1,840 buildings was obtained by sampling from lists of large and specialized buildings. Because "large" buildings had a higher probability of being selected into the sample than "small" buildings, certain very large buildings that were included in the 1986 NBECS were also included in previous NBECS. Except for these few buildings, the 1986 sample did not overlap with the earlier survey rounds.

Multistage Area Probability Sample

The area component of the 1986 NBECS sample used a four-stage stratified-cluster sampling design (Figure A1). In the first stage, 129 primary sampling

Figure A1. Multistage Area Probability Sample Stages and Activities



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

units (PSU's) were selected. A PSU typically consists of one or more contiguous counties, such as a metropolitan area with surrounding suburban counties, or a set of one or more rural counties. Essentially, the same PSU's were selected for both the 1986 NBECS and the 1984 Residential Energy Consumption Survey (RECS) (Energy Information Administration, May 1987). The two survey designs diverged at the second and subsequent stages.

To prepare for the first stage sample, the approximately 3,100 counties and independent cities of the United States were grouped into 1,799 PSU's. PSU's with similar characteristics were grouped to form 129 strata. Characteristics used to define the strata were Census division, Metropolitan Statistical Area (MSA) or non-MSA status, the predominant residential heating fuel in 1980, and climate zone (Energy Information Administration, May 1987). Within each stratum, one PSU was selected with probability proportional to its 1980 Census population.

Probability-proportional-to-size sampling (PPS) is commonly used to take advantage of knowledge about the sample units, that is, knowledge about measures of size (MOS) such as population, to improve the reliability of survey estimates. For quantities roughly proportional to these MOS's, estimates based on PPS sampling have lower variance than estimates based on equal-probability sampling. Despite being a measure of people rather than of buildings, the 1980 population of a PSU was a useful MOS because of its relationship with commercial activity and energy consumption.

Thirty-two PSU's had populations large enough that each of these PSU's formed a stratum by itself, so that each was selected with certainty. For the noncertainty PSU's, the Keyfitz method (Hansen, Hurwitz, and Madow, 1953) was used to assign selection probabilities. This method enhanced the probability of inclusion of specific PSU's that had been selected for the previous RECS, while, at the same time, ensuring that the current 1984 RECS selection probabilities were still proportional to 1980 population levels. Finally, controlled selection (Groves and Hess, 1975) was used to improve the geographic coverage of the sample by maximizing the number of different States represented by the sampled PSU's.

To form second-stage sampling units for NBECS, each sampled PSU was divided into areas corresponding to 5-digit ZIP Codes (Energy Information Administration, April 1987 and December 1986). ZIP Codes covering small areas or representing individual buildings or post office boxes were grouped together with larger area ZIP Codes. All second-stage sample units are, thus, referred to as ZIP groups. A total of 3,937 ZIP groups were formed within the sampled PSU's. Of these, 444 were selected, using probabilities proportional to a second-stage MOS. This MOS, designed to reflect the level of commercial activity, was the estimated number of buildings in the ZIP group, expressed as an integer multiple of 100. This MOS was

computed for each ZIP group using employment data from the U.S. Department of Commerce, Bureau of the Census's 1983 County Business Patterns (CBP) reports, and employee occupancy rates in different building types obtained from the 1979 NBECS.

The ZIP group MOS's were used to select ZIP groups into the sample, using a procedure that was closely integrated with the selection of the third-stage units. The 129 sampled PSU's were sorted into cells defined by Census region and MSA/non-MSA status. A size for each cell was defined as the sum of the PSU-weighted MOS's of all ZIP groups in the PSU's of that cell. The desired number of third-stage sample units (prior to selection) were allocated to the cells, proportional to the cell sizes. The third-stage units were then suballocated to the PSU's within the cells, again using the ZIP group MOS's.

Within each PSU, a controlled selection procedure was used to allocate third-stage units to the ZIP groups within that PSU, such that ZIP groups of various MOS's were represented in the sample. A ZIP group was considered to be selected into the sample if one or more third-stage units were allocated to it. Of the ZIP groups sampled, most were selected once. However, some ZIP groups with large MOS's were selected two or more times. A total of 509 selections occurred, representing 444 distinct ZIP groups. The number of times that a ZIP group was selected corresponded to the number of third-stage sample units to be drawn into the sample from that ZIP group.

The third-stage sample unit was the segment, which was a geographically compact area containing roughly 100 nonresidential buildings. Sampled ZIP groups were divided into segments based on field mapping and rough counting of nonresidential buildings. A total of 509 segments were selected from within sampled ZIP groups, using equal probability sampling. If the field mapping and counting procedures were performed in all PSU's and ZIP groups nationwide, approximately 43,260 potential segments would result. Thus, the 509 segments actually selected represented a sampling rate of roughly 1 in 85 segments such that 509 of the 43,260 potential segments nationwide were sampled with equal overall probabilities.

Once segments were selected, preparations were made for the fourth stage of sampling, selected nonresidential buildings from within segments. With a few exceptions, a building is defined as a structure totally enclosed by walls extending from the foundation to the roof. A nonresidential building is one that houses some type of nonresidential activity. (See the Glossary for a complete definition of a nonresidential building.) Field workers canvassed each sampled segment on foot, identifying and listing the addresses of all nonresidential buildings. Field workers also estimated the square footage and apparent principal usage of listed buildings, information that was subsequently used to assign buildings to strata for sampling. Buildings were sampled within these strata with equal probability. However, sampling fractions varied between strata so that strata containing large buildings were sampled more intensively than strata containing small buildings. For example, while the stratum of office buildings with less than 10,000 square feet was sampled at an overall rate of only 1 in 1,360, the stratum of office buildings with 50,000 square feet or more was sampled at a rate of 1 in 204. This stratified sampling is similar to PPS sampling in that each uses MOS's (but in a different way) to increase the reliability of estimates of square footage and energy consumption.

An average of 14 or 15 buildings were sampled from each segment. If during the interview a sample selection turned out to be a facility (for example, a university, college campus, or hospital complex) of two or three buildings rather than a single building, all buildings in the facility were taken into the sample. Facilities of four or more buildings were subsampled. A final total of 7,349 buildings was selected into the multistage area probability sample.

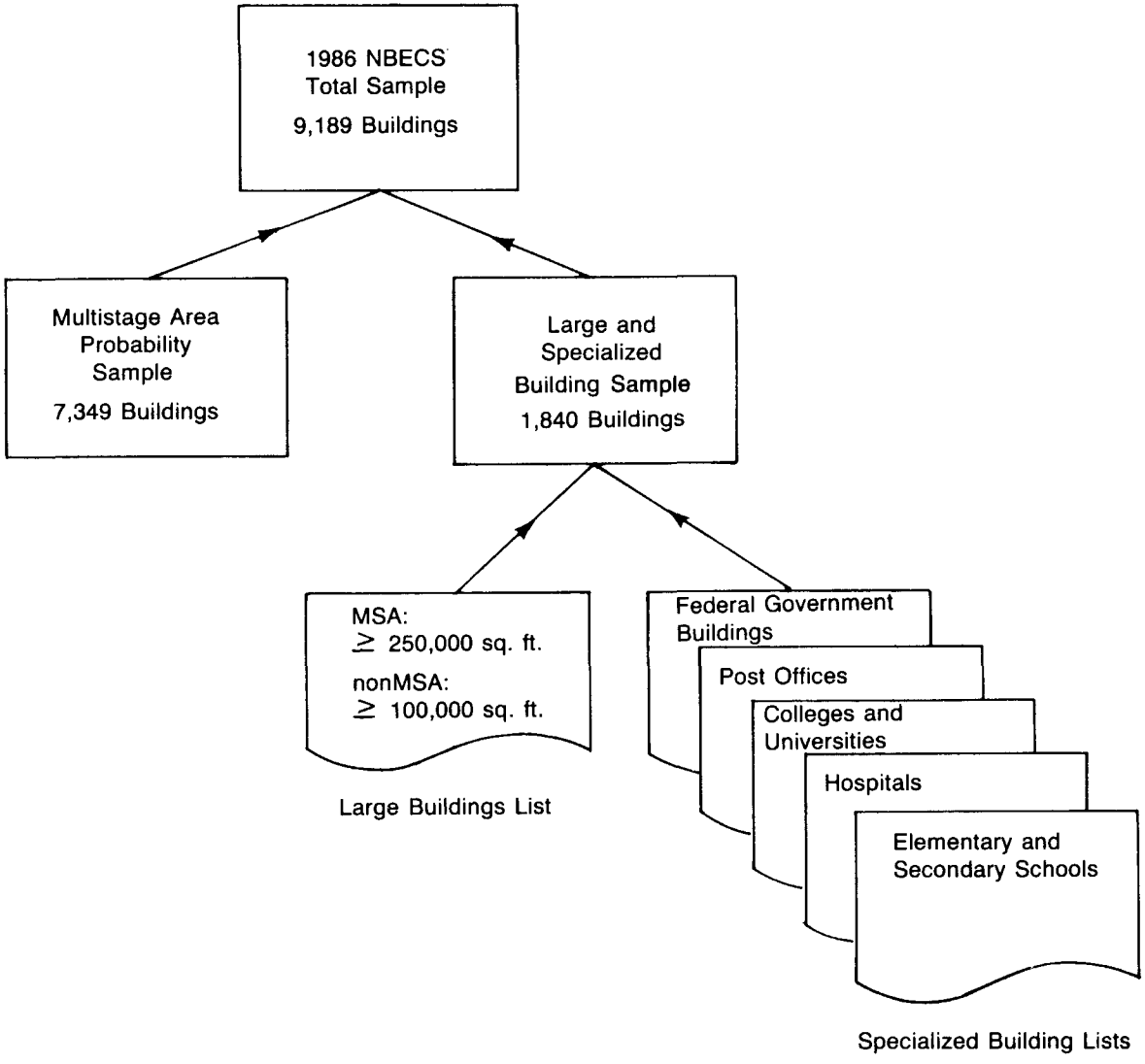
Supplementary Sample from Lists of Large and Specialized Buildings

To ensure adequate coverage of buildings that were significant energy users, the multistage area probability sample was supplemented within each selected PSU by a sample from a list of "large" buildings or facilities. In addition, to improve the precision of energy consumption estimates for certain types of buildings, a supplementary sample was also drawn from five lists of specialized buildings (Figure A2).

In PSU's that were MSA's, the list of large buildings contained buildings with 250,000 or more square feet of enclosed floorspace. In the non-MSA PSU's, this list contained buildings of 100,000 square feet or more. The list was compiled through inquires with Chambers of Commerce, other local sources, and special directories.

The five lists of specialized buildings were limited to certain types of buildings or facilities with 50,000 square feet or more. These lists were (1) hospitals, (2) colleges and universities, (3) elementary and secondary schools, (4) post offices, and (5) Federal Government buildings. These lists of specialized buildings were used for three reasons. First, they contained many large buildings and, thus, helped ensure adequate coverage of significant energy users. Second, they ensured good coverage for certain building types that are distinguished separately in NBECS reports, such as health care and education. Third, they compensated for inadequacies in the MOS's developed for ZIP groups using the 1983 CBP reports. The

Figure A2. 1986 NBECS Sample Design



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

CBP reports do not provide data on employees exempt from the Social Security System, such as the majority of the Federal workforce. The weighting procedure used for the final sample does not require that the supplemental lists be comprehensive to produce unbiased estimates. However, the more complete these lists are, the more efficient the sample design is.

The lists within each sampled PSU were stratified by building size and general usage, and buildings were sampled with equal probability within strata. In many cases, building size in square feet was estimated from available data such as the number of beds for hospitals, or the number of students for education buildings. As in the area sample, strata containing large buildings were sampled more intensively than strata of small buildings. Also as in the area sample, if a selected unit turned out to be a facility with three or fewer buildings, all were taken into the sample. Otherwise, the facility was subsampled.

The six lists (large buildings list and five specialized building lists) were sampled independently. The problem of overlap was handled by unduplicating the large buildings list to the extent possible, and by using a "priorities" approach. The priorities of the lists, in descending order, were as follows: (1) hospitals, (2) colleges and universities, (3) elementary and secondary schools, (4) post offices, (5) large buildings lists, and (6) Federal Government buildings. For example, if a given building was present on the hospitals list, its selection from another list was disregarded (Energy Information Administration, December 1986).

There was also a problem of overlap between the list sample and the multistage area probability sample. Computation of joint probabilities of selection would be somewhat intractable in the complex design. Instead, a less efficient, but unbiased, procedure was adopted where buildings were made self-representing if they were sampled from an area segment and also appeared on one of the list frames (Chu, 1987 and Goldberg and Gargiullo, 1988).

A total of 1,468 list entries were sampled. Because some entries were multibuilding facilities, the final list sample comprised 1,840 individual buildings.

Building Characteristics Survey

The Building Characteristics Survey data were collected on Form EIA-871A, which consists of the Building Characteristics Questionnaire together with the Authorization Form. The Authorization Form was used to secure the release of the buildings' energy consumption records to the data collection contractor during the Energy Supplier Survey.

This section defines the target population for the NBECS, and describes data collection procedures and data editing procedures. Information on the creation of the public use data tapes is included at the end of the "Energy Supplier Survey" section.

Description of the Target Population

To be eligible for the survey and to be included in this report, a building had to satisfy three criteria: (1) it had to meet the definition of a building, (2) it had to be used primarily for some commercial purpose, and (3) it had to have floorspace greater than 1,000 square feet. The eligibility of a building for inclusion in this report was evaluated at three points in the survey: during the initial listing of the sample, during the interviewing of the building owner or manager, and during the analysis of the data.

The first criterion, the building definition, has been used consistently in the 1979, 1983, and 1986 NBECS. The second criterion, of commercial activity, has been tightened in the successive surveys, to restrict attention to a well-defined population that does not overlap with a group covered by other EIA surveys. The third criterion, size, has been added to eliminate a large inherently ill-defined group of marginal buildings; those buildings contribute minimally to total commercial floorspace and energy consumption, yet different reasonable decisions on how to identify these buildings could lead to substantial variations in building counts. The effects of restricting the target population by criteria (2) and (3) are discussed by Burns (1988 and 1988a).

The definition of a building was the same one used in previous NBECS: a structure totally enclosed by walls that extend from the foundation to the roof. Thus, buildings such as water, radio and television towers were excluded from the survey. Also excluded were partially open structures not intended customarily for human access, such as lumber yards; enclosed structures , such as pumping stations and cooling towers at electric power plants, oil tanks, statues, and mausoleums; and dilapidated or uncompleted buildings missing a roof or a wall. Structures that were included in the survey by specific exception despite not being "totally enclosed by walls", were parking garages and structures on pillars.

The second criterion was that a building had to be primarily used for some commercial purpose; that is, over 50 percent of the building's floorspace must be devoted to activities that are neither residential, industrial, nor agricultural. Buildings that were 100 percent residential were out of scope for the 1986 survey (as in previous surveys) and should not have been included during the listing stage.

During the interviewing stage, screening questions instructed the interviewer to terminate the interview if the respondent indicated no nonresidential activities took place in the building.

However, interviews were conducted at buildings between 50 to 99 percent residential. Approximately 80 interviews were terminated because the building was used exclusively for residential purposes. In a major change from previous NBECS reports, during the analysis of the data, the scope of this report was restricted to eliminate the buildings that were 50 to 99 percent residential. This change was made so that all noncommercial uses would be treated the same way for this report. As a result of this additional restriction, 176 residential buildings were classified as out of scope for this report.

Some buildings for manufacturing or for processing agricultural products were included at the listing stage. However, in a change from previous surveys, the interview was terminated if 50 percent or more of the building was used for industrial or agricultural purposes. This change was made because results from the earlier NBECS indicated that this type of survey cannot cover industrial and agricultural activities reliably. In the 1986 survey, approximately 1,100 interviews were terminated because the activities were predominantly industrial or agricultural.

The third criterion was that a commercial building had to measure 1,001 square feet or more to be considered in scope for this report. There were 775 buildings 1,000 square feet or less that did not meet this criterion. Six of these buildings were also between 50 to 99 percent residential.

After weighting, the 775 buildings 1,000 square feet or less would represent an additional 1,057,000 buildings and, thus, increase the estimate of the building stock in the United States as of December 31, 1986, by approximately 25 percent. However, these buildings would add less than 1 percent to total floorspace and, based on consumption data from the 1979 and 1983 surveys, only 2 percent to total energy consumption. In addition, obtaining meaningful counts of buildings 1,000 square feet or less is difficult since in many instances it is difficult to distinguish some very small commercial buildings from nonbuildings during the listing stage.

Thus, buildings 1,000 square feet or less, like those between 50 and 99 percent residential, are considered out of scope for this report. All other interviewed buildings remained in scope for the report.

Response Rates

As mentioned in the "Sample Design" section, the total sample of the 1986 NBECS consisted of 9,189 buildings, 7,349 from the area sample and 1,840 from the list sample (Table A1). Of these, 7,539 buildings were eligible for interviews, 6,169 from the area sample and 1,370 from the list sample. Of the total number of buildings eligible for interview, interviews were completed at 93.2 percent or 7,024 buildings.

Data Collection

Data Collection Procedures

Initial contact with the building representative was made through an introductory letter sent to each building in the survey sample. The letter, signed by the Director of the Energy End Use Division of the EIA, was addressed to the building manager. The letter explained that the building had been selected for the survey, introduced the survey contractor, assured the building manager that the data would remain confidential, and discussed the uses and needs for the NBECS data in setting national energy policies. To protect confidentiality, the letter was addressed by the survey contractor after it was signed at EIA.

The data were collected by personal interview over a three-and-one-half month period from January 12 through April 24, 1987. Interviewers visited all sampled buildings in person to ascertain if the structure met the eligibility requirements of the survey, and to identify the individual meeting the criteria for a building representative or respondent. The respondent could be the owner of the building, a tenant, a hired building manager or engineer, or a spokesperson for a management company.

A limited number of interviews were conducted by telephone. This occurred as part of the nonresponse conversion effort, or if a knowledgeable building respondent was not located in the same PSU as the sampled building. However, in all cases, an interviewer had first visited and observed the sampled building.

The Interview

Each interview began with a series of screening questions designed to verify the building's address, location within the segment boundaries, and eligibility for the survey.

Table A1. Number and Distribution of 1986 NBECS Sample Buildings By Building Disposition

Building Disposition	Number of Buildings	Percent of All Buildings	Percent of Eligible Buildings	Percent of Interviewed Buildings
Total Sample				
Total	9,189	100.0	– –	– –
Eligible for Interview	7,539	82.0	100.0	– –
Interviewed	7,024	– –	93.2	100.0
In Scope for Report	6,072	– –	– –	86.5
Out of Scope for Report	952	– –	– –	13.5
Not Interviewed	515	– –	6.8	– –
Not Eligible for Interview	1,650	18.0	– –	– –
Area Sample				
Total	7,349	100.0	– –	– –
Eligible for Interview	6,169	83.9	100.0	– –
Interviewed	5,745	– –	93.1	100.0
In Scope for Report	4,853	– –	– –	84.5
Out of Scope for Report	892	– –	– –	15.5
Not Interviewed	424	– –	6.9	– –
Not Eligible for Interview	1,180	16.1	– –	– –
List Sample				
Total	1,840	100.0	– –	– –
Eligible for Interview	1,370	74.5	100.0	– –
Interviewed	1,279	– –	93.4	100.0
In Scope for Report	1,219	– –	– –	95.3
Out of Scope for Report	60	– –	– –	4.7
Not interviewed	91	– –	6.6	– –
Not Eligible for Interview	470	25.5	– –	– –

"– –" =Not applicable.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Respondents were asked about the building as a whole rather than individual establishments located within the building. The content of the 1986 NBECS questionnaire was similar to that used in the 1979 and 1983 surveys, with some wording and structural changes made to improve data quality. Experience with the prior surveys resulted in major changes being made to resolve ambiguities, and permit better description of the characteristics of the building. The questionnaire is shown in Appendix F.

Approximately one-half of the buildings in the sample were preselected to be asked the questions on Form EIA-871G, the Census Supplement, which collected data on expenditures for construction improvements and maintenance and repairs during 1986. For more information about data collection for the Census Supplement, see the section at the end of this appendix on "Special Data Collection for the Bureau of the Census."

The average completed building interview lasted 37 minutes. This included the time for the interviewer to ascertain and record if the listing was correct, to ask all questions on the building characteristics questionnaire, and to obtain a signed authorization form from the respondent. On the average, it took an additional 6 minutes to complete the Census Supplement. Thus, for the 4,591 buildings with the Census Supplement, the average total time per completed interview was 43 minutes. The average time for each completed case (including interviewer preparation, travel, callbacks, interviewing, and editing time) was 4 hours and 22 minutes.

Minimizing Nonresponse

Several approaches were employed in a planned effort to minimize nonresponse. As previously mentioned, before the initial contact was made with the building representative, a letter was sent to the owner or manager of each building from the Director of the Energy End Use Division. Then, during the field period, the interviewer assigned to the building made up to four callbacks at different times of the day throughout the week to minimize the number of uncontacted buildings. Approximately 400 interviews were initially refused. Reasons for refusals included being too busy, not believing in surveys, and seeing no value in participating in the NBECS itself.

In May and June 1987, each of the nonresponse cases was reviewed to determine if it was a candidate for conversion. Reasons given for the refusal and the history of the case were reviewed first by the regional supervisor and then by the central office staff. No attempts were made to convert respondents who reported policies against participating in surveys, were unwilling to spend time answering questions, or refused due to the subject of the survey. Cases where the respondent was located outside of a sample PSU or was unavailable during the field data collection period were among those targeted for conversion. Individualized letters explaining the importance of the survey were mailed to the 377 cases selected for nonresponse conversion. The cases were assigned to telephone interviewers with special training and experience in refusal conversion strategies. The nonresponse conversion effort resulted in 174 of the 377 cases (or 46.2 percent) being turned into completed interviews.

Interviewer Training and Supervision

The data were collected by the contractor's field staff consisting of 146 interviewers under the supervision of six regional supervisors and their assistants, and a central office staff consisting of a project manager, a field director, and an assistant field director. The six regional supervisors and their assistants were trained at a four-day supervisor training session. They were trained in data collection, field office procedures, and quality control. The supervisors were also trained to serve as small-group leaders at the interviewer training sessions.

Three-and-a-half-day interviewer training sessions were held at two locations during January 1987. All interviewers working on NBECS were trained at one of these sessions or at a replacement interviewer training course held in February. Twenty-four of the interviewing staff had worked on the field listing for NBECS. Of the remainder, 103 had prior interviewing experience, and 19 had no prior interviewing experience.

Each training session was conducted by the contractor's central office staff with the assistance of the regional supervisors. EIA personnel observed both sessions. The sessions covered general interviewing techniques, the background of the NBECS, the definition of a building, finding the sampled building, a question-by-question review of the questionnaire, and administrative information. A variety of training techniques were used including lectures, slide presentations, and small-group sessions to practice interviewing and administering the questionnaire. All interviewers had completed four scripted-practice interviews by the conclusion of the training session. Each trainee's performance was monitored and evaluated by the regional supervisors and only those judged qualified were given field assignments. Every interviewer was provided with an *NBECS Interviewers' Manual*, which included step-by-step instructions for planning, conducting, and recording interviews; and question-by-question specifications describing the intent of each question, definitions of terms used in the survey, and how each question was to be asked.

Several steps were taken to ensure that the interviews were conducted as intended. Questionnaires were edited twice; once by the interviewer and once by the supervisor before being mailed to the central office for data processing. For more information about how the data were edited, see the following section on "Data Editing."

In addition, the regional supervisor conducted a validation of a random sample of 10 percent of each interviewer's work. Interviewers were informed that a sample of their work would be validated, but they were not informed which cases would be checked. The regional supervisors telephoned the respondents identified on the interview to confirm that the interview had been conducted and to verify several of the 15 key data items.

Corrective actions were taken when problems with an interviewer's performance were identified. These actions included monitoring the interviewer's work more closely, retraining the interviewer on the sections of the questionnaire causing the problems and, as a last resort, firing the interviewer.

Each interviewer conducted an average of 48 interviews: 19 interviewers each completed 10 or fewer interviews, while five interviewers each completed over 100. Over half of the 7,024 completed interviews were conducted by 54 interviewers.

Data Editing

Data editing for the Building Characteristics Survey occurred at several points during data collection and processing. As mentioned in the previous section, questionnaires were edited twice in the field before being sent to the central office.

The first field edit was performed by the interviewer after completing the interview and before submitting it to the field supervisor. During this edit, the interviewer checked the form for legibility and completeness. Once received by the field supervisor, the form underwent a second field edit using the "Supervisor Scan Edit Form" to check a set of 15 specified data items. The purpose of this field edit was to provide the supervisor, the data collection contractor, and the interviewer with continuous feedback on the quality of the data being collected. The supervisor discussed the results of these edits in weekly telephone conferences with each interviewer and mailed a copy of the scan edit form with each questionnaire to the contractor's central office.

After the contractor received the questionnaire, it was manually edited and prepared for data entry. The scan edit checked for completeness and logical consistency and identified cases with missing data. Certain information was designated as a key data item. These key data items required telephone data retrieval if missing from the questionnaire. If retrieval of missing data for one or more items failed, or if it was not performed because the data was not a key data item, data values were supplied by imputation. For a description of the imputation process, see Appendix B, "Sampling and Nonsampling Errors." Cases proceeded to coding and data entry after telephone data retrieval was completed. Preparation for data entry involved checking the accuracy of the questionnaire skip patterns and that only allowable values or codes were entered. All data entry was performed with 100 percent verification of all keystrokes.

The contractor took several steps to resolve inconsistencies or ambiguities in the data. First, answers to other parts of the questionnaire were reviewed to see if they might help explain the problem. The interviewers had been asked to write comments after the interview or to explain any special cases in the margin of the questionnaire. These notes were relied upon extensively in this part of the review and were very helpful in explaining some of the inconsistencies. EIA personnel reviewed some of the hard-to-resolve cases and provided technical guidance on how to reconcile some questionnaire responses. When these efforts failed to resolve a problem, especially if it concerned the energy sources or heating and cooling equipment, the contractor contacted the respondent by telephone.

Telephone contacts to clarify both questionable and missing information were made to the respondents for 1,330 buildings. All changes made to any questionnaire response as a result of these reviews were carefully documented and explained on an error resolution sheet attached to the questionnaire.

Finally, the data were machine edited to further ensure completeness and logical consistency, and to verify that the values fell within allowable codes or within acceptable ranges. Items failing these edits were reviewed by trained editors to assess the nature of the problem and determine how to correct it. These edit failures were most often due to problems in coding or data entry. Items failing edits that could not be resolved were referred to the contractors' supervisory-level personnel for review and resolution. EIA personnel also provided technical guidance for the error resolution process.

Energy Supplier Survey

During the Building Characteristics Survey, each respondent was asked to give the name and address of all suppliers of energy to the building and all the building's account numbers with each supplier. In addition, respondents were asked to sign

the Authorization Form. Copies of this form were sent to the suppliers to secure the release of the buildings' billing records to the survey contractor. Attempts were made to contact all suppliers identified during the Building Characteristics Survey.

This section deals specifically with the Energy Supplier Survey, describing the forms, response rates, data collection and processing procedures and data preparation for the statistical reports. Included at the end of this section is a brief description of the public use data tape procedures.

Energy Supplier Forms

Each supplier of electricity, natural gas, fuel oil, bottled gas (LPG), or district steam, hot water, or chilled water was asked to provide consumption and expenditures data on a mailed survey form. Response to the form was mandatory for the supplier. The format of the form varied by the type of energy supplied, the number of customers served by the supplier in each building, and whether or not a signed waiver had been obtained. To meet these varying needs, 11 data-collection instruments were developed, 9 of which were in booklet or folder form and 2 of which were single sheets printed on two-part paper.

Generally, the reporting form for each energy source had one of three types of format:

1. Individual Form (Form Type -1). This format was used when a waiver had been obtained and there was only one customer in the building.

2. Aggregate Form (Form Type -2). This format was used when a waiver had been obtained and the supplier was asked to provide aggregate data, summed over all customers in a building.

3. Worksheet (Form Type -3). This was a special one-page form used when a waiver had not been obtained. The supplier was requested to aggregate cost and consumption data for a group of sampled buildings and to report the yearly totals. Only the total for all the buildings was supplied to EIA. This form was used only for suppliers of natural gas and electricity.

Both the Aggregate Form (Type -2) and the Worksheet (Type -3) asked for data summed over several customers. The Aggregate Form was for summation across customers or accounts within a single building in the sample, while the Worksheet was for summation across all accounts in a group of buildings. The Worksheet was used only for buildings for which no waiver was obtained, whether the building had one or more than one account, while the Aggregate Form was used for any building with multiple customers and a signed waiver.

The forms were color-coded by the energy supplied and numbered according to the format. Following is a brief list of the survey forms.

Form EIA-871B-1,-2: Usage of Bottled Gas (blue)
Form EIA-871C-1,-2,-3: Usage of Natural Gas (pink)
Form EIA-871D-1: District Heating and Cooling (white)
(Included were purchased and nonpurchased steam, hot water, and chilled water)
Form EIA-871E-1,-2,-3: Usage of Electricity (yellow)
Form EIA-871F-1,-2: Usage of Fuel Oil (green)

See Appendix F for copies of these forms.

Suppliers were not required to transcribe data onto the survey forms. Responses were accepted in any format (including computer printouts), as long as the necessary information was provided. Respondents to the Aggregate Form were not required to compute the sums across customers, but could report data for each account in the building, leaving the actual aggregation to be performed by EIA.

Since there were differences in data items by energy source, there were corresponding variations in the reporting forms as well. The electricity forms requested kilowatt (kW) demand; the natural gas forms included a system for reporting variable units of measures (such as therms, cubic feet, 1,000 cubic feet); and the fuel oil forms requested fuel-tank data.

Despite the above-mentioned differences, the forms for the different fuels were similar in terms of the data requested. In each case, the supplier was asked to report the following data: (1) quantity consumed or delivered, (2) cost, (3) unit of measure, (4) number of customers included in the consumption and cost data reported on the form, and (5) dates of deliveries or consumption. The data were requested for a 14-month period between December 1, 1985, and January 31, 1987. The 14-month period was required to ensure that data would cover a full calendar year no matter what the actual billing period had been. For example, if the billing period began on the 10th of each month, the first bill would be from December 10 through January 9. The bills were then prorated (annualized) to obtain data for the calendar year. (See Appendix B, "Sampling and Nonsampling Errors" for details on the annualization procedures).

Changes from Previous Surveys

Generally, the supplier forms were similar to those used in previous NBECS. Some changes and clarifications were made as a result of both experience from the previous data collections and in response to discussions with energy suppliers. The changes are summarized below.

- The purchased steam form was modified:
  - Columns were added to ask specifically for hot water and chilled water, in addition to steam.
  - The form was renamed "District Heating and Cooling" to reflect all the sources collected.
  - Questions were added to ascertain:
    . if the energy was purchased
    . if the building was a heating or cooling plant.
- Data were no longer collected from suppliers of coal and wood, since these data were costly to collect for the small amount of energy consumed.
- The "Other Sources" form used previously for coal, wood and propane was modified to collect propane information only and was renamed "Usage of Bottled Gas."
- Two questions were added to the natural gas forms to ask if the building was on interruptible service and if so, what alternate fuel was used during the interrupted period.
- Two changes were made to the fuel oil forms:
  - K factor data were no longer requested
  - The types of fuel oil categories were combined to create 3 major groupings and "other", instead of the previously requested 8 breakouts and "other."
- Several changes were made to the electricity forms.
  - kW demand was split into metered and billed components.
  - An alternate schedule was added to accommodate suppliers who wished to report data disaggregated by end use.
  - A question was added on 4 types of electric rate schedules or tariffs.
  - The question on the number of meters was deleted.

Response Rates

The overall response rate for the 1986 energy supplier survey was 88.4 percent (Table A2). The response rate is defined as:

$$\frac{\text{Usable Records}}{\text{All Records Minus Out-of-Scope Records}}$$

Each record corresponds to a single energy supplier for a particular energy source to a particular building. For example, a building with one electricity supplier, two fuel oil suppliers, and no other energy suppliers would have a total of 3 Energy Supplier records, one for electricity and two for fuel oil. Records were initially created on the basis of the Building Characteristics Survey respondents' reports or the names and addresses of their energy suppliers. A record was declared out of scope if it turned out to correspond to a supplier that did not actually serve the building during calendar year 1986.

Response rates for electricity and natural gas were 92 percent, similar to the results obtained during the 1983 survey. These suppliers accounted for 83 percent of all supplier forms. The overall response rate (88 percent) was lowered by the difficulties in obtaining responses from suppliers of fuel oil, bottled gas or liquefied petroleum gas (LPG), and district sources, especially nonpurchased district sources. In previous NBECS, no attempt was made to collect supplier data for nonpurchased district sources. A total of 445 forms could not be mailed and are included as nonrespondents. In the case of fuel oil, which accounted for one half of the cases in this category, mailing was often impossible because the supplier's name was not known. For electricity and natural gas, forms could not be mailed if the buildings had no waivers and could not be grouped on a worksheet. Grouping was impossible in cases where a second or third nonwaiver building was not available to allow the respondent to aggregate information.

Of the forms mailed, a total of 1,034 were classified as nonresponse. This included refusals, inability to respond within the data collection period, and inability to locate the correct account.

Table A2. Response Rates by Type of Energy Supplied

Activity	Electricity	Natural Gas	Fuel Oil	LPG	District Purchased	District Not Purchased	Total
A. Total Supplier Forms	6,826	4,023	1,187	488	174	481	13,179
B. Nonresponse: Could not be mailed	76	46	228	76	19	0	445
C. Total Mailed (A - B)	6,750	3,977	959	412	155	481	12,734
D. Out of Scope	75	133	130	42	6	37	423
E. Response Rate Base (A - D)	6,751	3,890	1,057	446	168	444	12,756
F. Nonresponse to Mailout	484	248	66	19	23	194	1,034
G. Total Nonresponse (B + F)	560	294	294	95	42	194	1,479
H. Total Usable Records (E - G)	6,191	3,596	763	351	126	250	11,277
I. Response Rate (H / E)	92%	92%	72%	79%	75%	56%	88%

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

In all, 58 percent of suppliers returned usable information for every energy source request it was sent. This ranged from 43 percent for district suppliers to 70 percent for the suppliers of fuel oil and bottled gas. Overall, 80 percent of all suppliers returned one or more usable forms.

When viewed from the building perspective, complete energy record coverage was obtained from 79 percent of the buildings using energy. At least one energy form was obtained for 94 percent of the buildings using some type of energy.

Energy record completeness varied consistently by occupant status. Vacant buildings had the lowest complete coverage rate (53 percent), with "owner-only-occupant" buildings having the highest rate (82 percent). The difficulties in obtaining complete information for all accounts in multitenant buildings is reflected in the lower than average completion rate of 72 percent. In fact, all occupant status buildings other than owner-only occupant had lower than average complete coverage rates.

Data Collection Procedures

Advance Mailings

Suppliers of electricity and natural gas known to serve areas included in the secondary sampling units (SSU's) for the 1986 NBECS sample of buildings were notified of the survey in letters mailed October 10, 1986. The letters and accompanying Fact Sheet explained the study and its purpose and asked for the supplier's cooperation. The letter also requested the suppliers to verify that the contact person information was current and to notify EIA of any changes. All these changes and updates were incorporated into the Supplier Name and Address File.

Under the schedule for the 1986 NBECS, suppliers received requests for data that was more than 12 months retrospective. To encourage companies to keep active, and not retire, the records that would be needed to respond to the survey, the suppliers were notified of the specific ZIP Codes in their service areas where the sampled buildings were located. These letters were mailed in December 1986, after the sample of buildings had been selected.

Survey Mailings

As the building interview forms and waivers with the lists of energy suppliers were received, buildings were grouped by energy supplier. The grouping together of data requests enabled one major mailing to each supplier asking for information for all the sampled buildings in their service area at one time. Some data requests were sent out after the initial mailing as energy-supplier information became available from later-responding buildings.

For the 7,024 buildings for which responses had been obtained in the building characteristics survey, a total of 12,734 energy supplier forms were mailed to 1,498 suppliers of energy. Suppliers were grouped into 2 major categories: natural gas and electricity suppliers (407 suppliers) and 1,091 suppliers of other sources, which included fuel oil, bottled gas or LPG, and district heating and cooling. The first mailing to suppliers of fuel oil, bottled gas and district heating and cooling was mailed April 27, 1987. Second and third mailings were sent on June 9, 1987 and July 24, 1987, respectively. The major mailing to natural gas and electricity suppliers was sent July 24, 1987. Receipt and processing of supplier forms continued over the next 8 months with receipt closeout of all supplier data on March 18, 1988. Letters were sent to natural gas and electricity suppliers in July 1988, thanking them for their cooperation and asking for their comments on the survey data collection forms. The suppliers' comments were used in the redesign of the questionnaires for the 1989 NBECS.

Nonresponse Conversion

Extensive efforts were used to obtain usable supplier data. Telephone prompts were made to natural gas and electricity suppliers throughout the data collection period (August 1987 through February 1988), to remind the suppliers to deliver their data within the required time period. For these two fuels, the telephone prompts were sufficient to produce high response rates. For the other suppliers of energy, additional followup effects were needed. Initial reminder letters were mailed to bottled gas and fuel oil suppliers in August 1987. Reminder letters including a clarification of the data required were mailed to district heating and cooling suppliers also in August 1987. A second followup to fuel oil and bottled gas suppliers was mailed in November 1987, with district heating and cooling suppliers receiving a special request in December 1987.

The collection of data by telephone for the suppliers of fuel oil, bottled gas, and district heating and cooling was begun in January 1988. Response rates for these fuels roughly doubled after the combination of nonresponse conversion efforts (Table A3).

Table A3. Response Rates After Nonresponse Conversion Efforts

Nonresponse Conversion Effort	Fuel Oil		Bottled Gas or LPG		District Supplier	
	Number of Forms	Cumulative Percent	Number of Forms	Cumulative Percent	Number of Forms	Cumulative Percent
Forms Mailed Out	959		412		636	
Final Completed Forms	763		351		376	
Final Response Rate[a]	80%		85%		59%	
Completed Prior to Any Conversion Effort	397	41	185	45	48	7
Received After 1st Mail Conversion (8/17/87)	144	56	69	62	144	30
Received After 2nd Mail Conversion (11/2/87)	160	73	56	75	92	45
Received After Telephone Conversion (1/15/88)	62	80	41	85	92	59

[a]The response rate base for this summary is the total number mailed out. In the previous table, the response rate base included suppliers that could not be mailed to, but excluded out-of-scope cases. See Table A2 above.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Data Editing

As the supplier forms were received, they were screened for accuracy and completeness. Forms were then keyed and extensive computer edits were performed. The EIA specified the ranges and values to be used for the technical edits. These values were based on previous NBECS responses and on knowledge of utility rates and practices. The first edits were range and basic logic checks, followed by consistency checks among data items. Edit failures at these levels were most often due to coder or data entry error. If the causes of the error was not apparent to the editor, it was referred to supervisory staff for resolution. Eleven subject-matter-specific or technical edit checks were specified by EIA and were performed on the data. These technical edits resulted in 14,908 edit failures which were reviewed by data analysts and sometimes referred to EIA personnel (Table A4). Of the 14,908 edit failures, 51 percent resulted in a record update. The remaining 7,304 failures were overridden for various reasons. Most (79 percent) of these overrides were made after the failure was reviewed and the discrepancy was either explainable or not definite.

Data Adjustments

Adjustments for unit nonresponse were performed in conjunction with weighting of the sample, as described in the "Unit Nonresponse Adjustments" section of Appendix B. Cases missing all or part of calendar year 1986 consumption or expenditures were considered as particular kinds of item nonresponse. Adjust-

Table A4. Frequency of Technical Edit Failures by Failure Type

Edit #	Edit Description	Number of Failures
1	The billing periods appeared too long or too short.	1,462
2.1	The "consumption ratio" indicated there was extreme variability across the period.	940
2.2	The quantity of fuel oil delivered exceeded the tank size, as reported by the building respondent.	841
2.3	The annualized consumption was not consistent with the building's characteristics.	904
3.1A	No expenditures were reported but consumption was present.	185
3.1B	No consumption was reported but there were expenditures.	0
3.1C	The expenditures reported were out of range for low consumption.	3,169
3.2	The price ratio indicated there was extreme variability across the periods.	1,047
3.3	The price per period was out of range, based on known market prices.	3,846
4A	The metered demand was out of range.	1,322
4B	The billed demand was out of range.	1,192
	Total Edit Failures	14,908

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

ments for these cases were made as described under "Annual Consumption and Expenditures" in Appendix B. For cases where the Energy Supplier Survey data covered more than the one sampled building or covered less than the entire building, the survey contractor implemented three special adjustment procedures to enable EIA to compute building-specific annualized consumption and expenditures. These special adjustments were disaggregation, aggregation, and worksheet processing.

Disaggregation

Disaggregation was generally necessary when either the supplier or the building respondent reported that the energy bill for a supplier included more than the sampled building. In a limited number of cases, the preliminary data reviewer designated a case for disaggregation, even if the supplier or building respondent had not. A disaggregation "factor" was calculated based on the square footage of the buildings involved.

Aggregation

Aggregation is the opposite of disaggregation and was used when a supplier could report consumption information for only a portion of the building, usually for a subset of the customers.

Worksheet Processing

Worksheet were used to request electricity and natural gas suppliers to report consumption when a waiver has not been obtained. The worksheet allowed the supplier to report consumption and expenditures aggregated across two or more buildings. This aggregation preserved the confidentiality of the data for the individual buildings. The identical aggregated consumption and expenditures data were keyed for each of the buildings involved and each was coded as a linked record with the others on the same worksheet.

Data Quality Verification

At the conclusion of the batch editing process, several additional data quality verifications were performed. These included the following steps:

- A manual review of the completeness of the discrete fuel sources was performed. Energy-source records that looked sporadic were reviewed.
- Energy-source record counts were compared with the number of energy sources indicated for the building by the building respondent.
- Worksheet records were checked to ensure that they had been linked correctly.
- Frequency distributions and crosstabulations were performed on the entire supplier file to verify overall consistency.
- A listing of prices of standardized quantities was run for all bill records, in price order. This list was reviewed to detect price errors that had been mistakenly overridden.
- A program was created to identify overridden flags that had been written to the file in error. These cases were reviewed and the flag was removed.

Weather Data

A file of heating and cooling degree-days for each of the billing periods reported by each building supplier was created in the following manner.

- A National Oceanic and Atmospheric Administration (NOAA) division code was assigned to each building in the NBECS sample. Working with NOAA division maps and building address information, one of 356 division codes was assigned to each building.
- Using a file of NOAA data covering the 33-month period from January 1985 to September 1987 (the most recent information available at the time), the average daily temperature for each day in the 33-month period was computed for each weather division.
- Daily heating and cooling degree-day averages were computed for each of ten base temperatures (degrees Fahrenheit): 50, 55, 57, 60, 65, 68, 70, 73, 75, 80. Only base temperature 65 is reported in this report.
- Degree-day totals were constructed for each billing period or gap between billing period, for each energy supplier for each building. In addition, degree-day totals were constructed for each of the 12 calendar months of 1986 for each sampled building, whether or not the building had any energy supplied in 1986.

- As part of the annualization and imputation procedures described in Appendix B, billing period dates were imputed. The cleaned dates were used for the final degree-day computations.

Data Preparation for Report

A final clean, edited data tape of Energy Supplier Survey data was delivered to the EIA in September 1988. After the edited data tape was provided by the survey contractor, EIA data analysts further reviewed and processed the data to prepare it for release in the statistical reports. First, crosstabulations were run, checked for internal consistency, and compared with data from previous NBECS. Data anomalies were flagged, and the energy supplier's filing reviewed to see if the anomaly could be explained by the supplier's response. In some instances, the supplier was called back for verification, explanation, or corrections. After the basic data were determined to be ready, annualization and imputation procedures were performed.

In some cases, investigation of anomalies revealed errors in the building characteristics data base. These findings were documented by EIA, but no changes were made to the building characteristics data set. This data set was considered finalized as of the publication of the building characteristics report.

One frequent discrepancy was between the building respondent's report of which fuels were used in the building and the determination ultimately made through followup contacts with energy suppliers. Rather than the building characteristics records being revised, the building response was retained and the supplier survey determination was coded separately. The supplier survey response was the basis for statistics published in this report. Appendix B, "Sampling and Nonsampling Errors" discusses in more detail the discrepancy between building respondent and supplier reports of fuels used.

Annualization was the estimation of calendar year 1986 consumption or expenditures from data that span a longer, shorter, or offset period. Proration of the reported data was the basis for the annualization procedures. For cases where consumption or expenditures data were completely missing, the annual amounts were imputed by regression. See Appendix B for details on the annualization and imputation process.

Once the annualized consumption and expenditures were computed or imputed for each building, statistical tables of aggregated data were produced and analyzed. The report text was based on these tables.

Public Use Tape Preparation

Following the publication of the statistical reports for both the Building Characteristics Survey and the Energy Supplier Survey of the NBECS, further work is performed on the basic survey data at the microlevel to prepare the final data tape for release to the public. This tape contains both the building characteristics and energy supplier data. Measures are taken to error inoculate or otherwise mask the data to ensure that the identity of individual respondents is kept confidential. All of these procedures culminate in the release of a final data tape to the public through the National Technical Information Service (NTIS). (See Appendix G for information on how to order these tapes.)

Special Data Collection for the Bureau of Census

For the 1986 NBECS, the EIA administered for the Bureau of the Census, U.S. Department of Commerce, a supplemental questionnaire (Form EIA-871G) on expenditures for construction improvements and for maintenance and repairs. Approximately one-half of the buildings sampled for the NBECS were randomly preselected for the supplement.

Any respondent who did not have access to the construction improvement or the maintenance and repair data was asked the name, address, and telephone number of the person who would have it. These individuals were later contacted if the building was selected for the subsequent followup study. Of the 4,591 buildings selected for the supplement, 826 cases had to be dropped from the sample when it was determined that the building was not eligible to be interviewed for the Building Characteristics Survey. Before the followup study was conducted, responses were obtained from 3,262 of the 3,765 remaining cases for a response rate of 86.6 percent.

In the fall of 1987, a three-part followup study was conducted with 884 owner and tenant representatives from a subsample of the original buildings selected for the Census Supplement. This followup was done to reduce both total and partial nonresponse to the supplement, as well as to verify independently the data that were obtained during the original interview. The building owners and tenant representatives were first sent a letter explaining the purpose of the survey, along with worksheets and definitions. The respondents were told to use the worksheets to calculate and record the amount of expenditures and to retain the worksheets pending a telephone call from the data collection contractor. Then, several weeks later, specially trained telephone interviewers called to obtain the data.

In the first phase of the followup study, a subsample of 34 buildings of 100,000 square feet or over were selected for nonresponse conversion. These cases were selected from buildings for which no data had been obtained for the supplemental questionnaire at the time of the building characteristics interview. The principal reason for having no supplement data for these 34 buildings was because of refusals. A total of 26 responses were obtained from this followup effort, bringing the overall response rate for the Census Supplement to 87.3 percent.

In the second phase of the followup study, data retrieval for item nonresponse was conducted. A subsample of 138 buildings selected from those for which the respondents provided a "don't know" response to one or both of the Census Supplement questions, and, instead, provided the name, address, and telephone number of the person or persons who would have the information. Referrals such as these were often to management companies not located in the same city as the sampled buildings. Followup for the 138 buildings required contact with 253 building owners or tenants, of whom 181 or 72.4 percent provided some additional information, covering 112 of the 138 sampled buildings.

In the third and final phase of the followup study, a sample of 596 buildings was selected to verify independently the data obtained in the original interview. Packages of materials explaining the verification study and requesting the respondent to provide data on the two types of expenditures were mailed to the original respondents to the Census Supplement. The respondents were then telephoned to obtain the data. Of the 596 original supplement respondents to the Census Supplement, 519 or 87.1 percent resubmitted the data.

The results of the followup study are being evaluated by the Bureau of the Census and will be used in the design of future surveys. The data are presented in *Expenditures for Nonresidential Improvements and Upkeep: 1986* (issued March 1989), a special study as part of the Current Construction Reports series published by the U.S. Department of Commerce, Bureau of the Census.

References

Burns, E. M. 1988. "The Edge of NBECS, Part 1: Little Buildings." NBECS Technical Note Number 65, Office of Energy Markets and End Use, Energy Information Administration, Energy End Use Division.

Burns, E. M. 1988a. "The Edge of NBECS, Part 2: Residential Buildings in a Nonresidential Buildings Survey," NBECS Technical Note Number 66, Office of Markets and End Use, Energy Information Administration, Energy End Use Division.

Chu, A. 1987. "Proof that the Assignment of Conditional Weights Will Produce Unbiased Estimates", in *Weighting Procedures for NBECS III*. Technical Memorandum, Westat Inc., Rockville, MD.

Energy Information Administration. December 1986. *Nonresidential Buildings Energy Consumption Survey, Materials Prepared for Documentation: Sample Design and Selection, Vol. I, Sections I and II*. Prepared for DOE/EIA by Response Analysis Corporation, Princeton, N.J.

Energy Information Administration. April 1987. *The 1986 Nonresidential Buildings Energy Consumption Survey: Sample Design Procedures Manual*. Prepared for DOE/EIA by The Orkand Corporation, Silver Spring, MD.

Energy Information Administration. May 1987. *Residential Energy Consumption Survey: Consumption and Expenditures, April 1984 Through March 1985, Part 2--Regional Data*, DOE/EIA-0321/2(84).

Goldberg, M. L. and Gargiullo, P. M. 1988. "Variance Estimation Using Pseudo-Strata for a List-Supplemented Area Probability Sample," Proceedings of the Section on Survey Research Methods, American Statistical Association New Orleans, LA.

Groves, R. M., and Hess, I. 1975. "An Algorithm for Controlled Selection" in Hess, I., Riedel, D., and Fitzpatrick, T., (eds.), *Probability Sampling of Hospitals and Patients*, 2nd ed., Ann Arbor, Michigan.

Hansen, M. H., Hurwitz, W. N., and Madow, W. G. 1953. *Sample Survey Methods and Theory*, Vol. II. John Wiley and Sons, New York.

Appendix B

Sampling and Nonsampling Errors

This enclosed market is lit by high-intensity discharge lights, fluorescent lights, and incandescent bulbs. Both food sales and food service activities occupy space in the building.

Appendix B

Sampling and Nonsampling Errors

Introduction

The quality of data collection and processing affects the accuracy of estimates based on the survey. All the statistics published in this report are estimates of population values, such as the total floorspace in U.S. commercial buildings. These estimates are based on observations from a randomly chosen subset of the entire population of commercial buildings. As a result, the estimates always differ from the true population values.

Differences that would be expected to occur in all possible samples, or in the average of all estimates from all possible samples, are known as systematic errors, or biases. The sections that follow this introduction describe some of the sources of this nonsampling error, and how the survey is designed and conducted to minimize such errors. Random differences between the survey estimate and the population value, which occur because of the particular sample that was selected by chance, are known as sampling errors. The average sampling error, averaged over all possible samples, would be zero. Although the sampling error is nonzero and unknown for the particular sample chosen, the sample design permits the likely size of the sampling error to be estimated. The final section of this appendix, "Computation of Standard Errors," describes how the magnitude of the sampling error is estimated and presented for statistics given in this report.

Unlike the sampling error, the systematic error's magnitude cannot be estimated from the sample data. For this reason, avoiding biases at the outset is a primary objective of all stages of survey design. The effects of changes in the survey design on comparisons among the three completed NBECS are discussed in the first section below, "NBECS Comparisons Over Time." Comparisons between estimates from the present report and those in its companion volume are then described in "Energy Sources Used - Building and Supplier Survey Estimates."

Even with a good sample design, bias can arise from systematic patterns of nonresponse, either for an entire sampled building (unit nonresponse) or for a particular item of interest from a responding building (item nonresponse). Most unit nonresponse cases were caused by a building representative's refusing to cooperate or being unavailable. The section "Unit Nonresponse Adjustments" presents in detail the procedures used to handle this type of nonresponse. Item nonresponse to Building Survey questions resulted when building representative did not know, or, less frequently, refused to give, the answer to a particular question. Adjustments for this type of item nonresponse have been discussed in the companion volume to this report (Energy Information Administration 1988).

For the present report, on the Energy Supplier Survey, a major effort was devoted to imputing for missing information from billing records, and computing annual consumption and expenditures from the completed records. These annualization procedures are described in the section "Annualizing Consumption and Expenditures." Special treatment required for certain types of consumption and expenditures data is described in the sections "Peak Electricity Demand Data," "District Heating and Cooling," and "Fuel Oil Tank Capacity."

NBECS Comparisons Over Time

The 1986 NBECS is the third in a series. Previous NBECS, conducted in 1979 and 1983, used the same sample, with an update addition in 1983 for new construction. However, the 1986 survey used not only a new sample, but also a new sample design and improved field procedures. (See Appendix A "How the Survey Was Conducted.") As discussed in more detail in the companion report to this volume, these improvements appear to have resulted in better coverage of small buildings, especially those under 10,000 square feet. In addition, Alaska and Hawaii were included in the NBECS design for the first time in 1986. On the other hand, the

1986 published estimates are restricted to buildings over 1,000 square feet, whose principal activity was not residential. While representing improvements to the survey procedures, these departures from the initial survey practices complicate comparisons across the three completed surveys.

In terms of floorspace, the apparent undercoverage from the 1979/83 design was largely offset by the inclusion in those surveys of the very small buildings and residential buildings, which were both "trimmed" from the scope of the 1986 publications. From the 1986 survey data, the total surviving floorspace that was constructed in 1979 or earlier, excluding these trimmed buildings, was 48.3 billion square feet. The estimate based on the 1979 survey data, also trimming these buildings, was only 43.5 billion square feet. The difference indicates an undercoverage in 1979 of roughly 10 percent or 5 billion square feet. However, including the residential and very small buildings, as in the originally published estimates, raises the 1979 survey estimate back by 3 billion square feet, to 46.6 billion square feet. Similarly, the 1983 survey data understates the total surviving floorspace in 1986 by 4 billion square feet, but with the residential and very small buildings included the difference is only 2 billion square feet (Figure B1).

The estimates of 1979 and 1983 stock based on the 1986 survey include all the buildings that were in scope for the 1986 report and were reported (or imputed) as constructed by the survey year. These estimates include no adjustment for demolished buildings, which existed during the year of interest, but were out of scope (or nonexisting) by 1986. If such an adjustment were made, the estimated total existing in 1979 (or 1983) would have been somewhat higher than the estimated number surviving to 1986.

No direct assessment of 1979 and 1983 consumption can be made from the 1986 survey as can be done for floorspace. One possibility is that energy was consumed in the missed buildings' floorspace at the same rate as in the covered floorspace. If this was the case, the 1979 and 1983 estimates of consumption for the in-scope floorspace would be understated by about the same magnitude as was the floorspace itself, or 10 percent. Unlike the floorspace understatement, though, the energy understatement might not be compensated by the inclusion of the trimmed buildings in the 1979 and 1983 estimates. The reason is that the trimmed buildings consumed relatively small amounts of energy, which was one justification for the trimming.

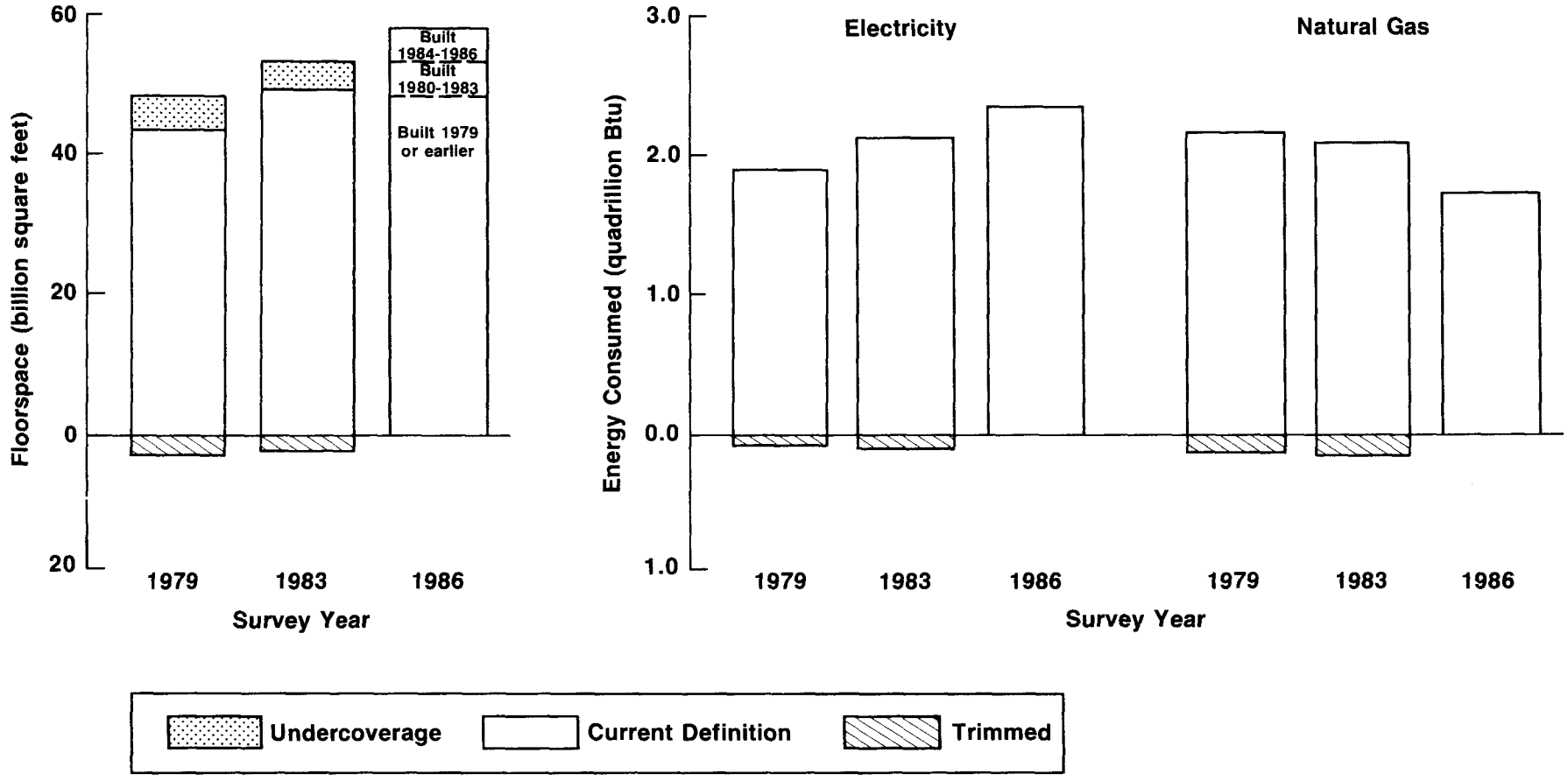
On the other hand, the buildings inadvertently missed in the 1979 and 1983 surveys may also have been low consumers. There is some evidence for this, based on estimates of undercoverage by building type. In this case, the effects of the undercoverage and the trimming might roughly balance for consumption as well as for floorspace, and the net differential would be slight. A further complication is that the relative effects of the trimming and undercoverage may well differ across energy sources. For electricity, trimmed buildings accounted for only a very small fraction of consumption in 1979 and 1983. For natural gas, though, trimmed buildings consumed about 10 percent of the total, similar to their proportion of total floorspace. A more thorough analysis is planned.

Energy Sources Used - Building and Supplier Survey Estimates

As explained in Appendix A, "How the Survey Was Conducted," the NBECS was conducted in two stages. During the first stage, the building representative was asked which energy sources were used in the building during 1986. In the second stage, the energy suppliers identified by the building representative during the first stage were asked to provide consumption and expenditures data. In some cases, contacts with the energy suppliers revealed inaccuracies in the Building Survey report as to which energy sources had been used in the building. All statistics in this report on energy sources used are based on the final determination made during the Energy Supplier Survey.

When a supplier reported that a particular building was not a customer during 1986, calls were made to the building respondent to determine the reason for the discrepancy. In some cases, a different supplier was identified for the same energy source. In others, it turned out that the energy source had not actually been used; in some of these cases, a different energy source was identified instead. For example, natural gas may have been reported originally, but the callback determined that natural gas was consumed only in a central plant outside the

Figure B1. Comparison of Estimates Based on 1979, 1983, and 1986 NBECS



Note: "Current definition" includes all buildings from the survey year except those that were predominantly industrial, agricultural, or residential and those that were 1,000 square feet or smaller. "Trimmed" buildings are those that were predominantly residential or 1,000 square feet or smaller. "Undercoverage" is the difference between the 1986 NBECS estimate of buildings surviving from 1979 or 1983 and the current-definition estimate based on data from that year's survey.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1979, 1983, and 1986 Nonresidential Buildings Energy Consumption Surveys.

sampled building, while the building itself used district steam, which had not been reported originally. In this case, natural gas would be coded as "not used in the building," and district steam would be added as "used in the building." The net discrepancies between the Building Survey and Supplier Survey estimates for the use of each energy source were small, for both the building counts and the floorspace totals (Tables B1 and B2).

The Energy Supplier Survey was able to correct the energy sources used only in cases where a supplier had been misreported as supplying a particular building with an energy source. If the Building Survey respondent happened to omit an energy supplier, but reported all the other supplier data correctly, the omitted supplier would not have been discovered. The number of such cases was probably quite small.

In some cases, a supplier reported that a particular building had been a customer for a given energy source, but not during calendar year 1986. For continuous-delivery energy sources (electricity, natural gas, and district heating and cooling), the building was classified as not using the energy source. For discrete-delivery energy sources (fuel oil and propane), though, the building was classed as using the energy source, but with zero consumption and expenditures for 1986. Thus, for example, those buildings whose respondents reported that fuel oil was used during 1986, but which received no fuel oil deliveries in that year, were included in the count of buildings and floorspace using fuel oil, though they did not contribute to the fuel oil delivery total.

The revised information on what energy sources were used had an effect on the energy end use data also. The Building Survey data on what energy sources were used for what end uses were collected in concert with the data on what energy sources were used at all. (See Appendix E for copies of the survey form.) Edit checks on the Building Survey data assured consistency between energy sources reported for end uses and energy sources reported at all. However, when the information on energy sources used at all was revised during the Energy Supplier Survey, no new information was obtained on energy sources used for particular end uses. As a result, some energy sources were dropped from a building's list of energy sources used, even though these energy sources had end uses reported. Conversely, energy sources that were added for a building had no associated end uses coded.

For any energy source whose use was changed from "yes" to "no" for a particular building, the use of that energy source for any given end use was also changed to "no." However, the end use was still treated as having been performed in the building. That is, it was assumed that the building respondent correctly reported which end uses were performed, even if the energy source used for the end use had been incorrectly reported. This approach left some buildings identified as having a particular end use, but with no energy source indicated for that use. This treatment differs from that of the 1979 and 1983 surveys. In those surveys, an end use was treated as "not performed" if all energy sources originally reported with that end use were revised to "not used in the building" based on the supplier survey.

Unit Nonresponse Adjustments

The response rate for the 1986 NBECS, as reported in Appendix A, was 93.2 percent. That is, of the 7,539 buildings eligible for interview, 6.8 percent did not respond at all to the Building Characteristics questionnaire. This rate was similar to that for the 1983 NBECS, and represents a low unit nonresponse rate for a survey of this length and complexity.

Weight adjustment was the method used to reduce unit nonresponse bias in the survey statistics. The NBECS sample was designed so that survey responses could be used to estimate characteristics of the entire stock of nonresidential buildings in the United States. The method of estimation was to calculate basic sampling weights (base weights) that related the sampled buildings to the entire stock of nonresidential buildings. In statistical terms, a base weight is the reciprocal of the probability of selecting a building into the sample. A base weight can be understood as the number of actual buildings represented by a sampled building: a sampled building that has a base weight of 1,000 represents itself and 999 similar (but unsampled) buildings in the total stock of buildings.

Table B1. Energy Sources Used as Reported on Building Questionnaire and Energy Supplier Survey, Number of Buildings (Thousand)

Reported Use	Energy Source						
	Electricity	Natural Gas	Fuel Oil	Propane	District Steam	District Hot Water	District Chilled Water
Total Reported on Building Questionnaire	4,013	2,278	542	351	70	11	15
Unchanged Based on Energy Supplier Survey	3,964	2,210	532	341	68	10	13
Deleted Based on Energy Supplier Survey	49	69	9	11	2	1	2
Added Based on Energy Supplier Survey	*	5	2	3	1	2	*
Total Based on Energy Supplier Survey (Final Resolution)	3,965	2,214	534	344	69	12	13
Not Used Based on Both Building and Energy Supplier Survey	141	1,871	3,610	3,800	4,083	4,141	4,139

* Value rounds to zero in the units displayed.
Note: See Glossary for explanation of abbreviations and definitions of terms used in this report.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

Table B2. Energy Sources Used as Reported on Building Questionnaire and Energy Supplier Survey, Floorspace (Million Square Feet)

Reported Use	Energy Source						
	Electricity	Natural Gas	Fuel Oil	Propane	District Steam	District Hot Water	District Chilled Water
Total Reported on Building Questionnaire	57,006	38,140	11,133	3,362	4,042	984	1,191
Unchanged Based on Energy Supplier Survey	56,494	37,185	10,964	3,199	4,009	835	1,168
Deleted Based on Energy Supplier Survey	511	955	169	164	34	149	24
Added Based on Energy Supplier Survey	14	78	42	14	19	93	41
Total Based on Energy Supplier Survey (Final Resolution)	56,508	37,263	11,005	3,213	4,027	928	1,208
Not Used Based on Both Building and Energy Supplier Survey	1,179	19,981	47,024	54,822	54,138	57,122	56,967

Note: See Glossary for explanation of abbreviations and definitions of terms used in this report.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Forms EIA-871A through EIA-871F of the 1986 Nonresidential Buildings Energy Consumption Survey.

To reduce the bias for unit nonresponse in the survey statistics, the base weights of respondent buildings were adjusted upward, so that the respondent buildings would represent not only the portion of the population they were selected to represent but also the portion designed to be represented by nonrespondent buildings. The base weights of respondent buildings were multiplied by the adjustment factor A, defined as

$$A = \frac{W}{R}$$

where W is the sum of the base weights over all buildings selected for the sample, and R is the corresponding sum over all respondent buildings. Respondent weights remained nonzero after weight adjustment. Nonrespondent weights were set to zero, because they were accounted for by the upward adjustment of respondent weights.

Unit nonrespondents tended to fall into certain categories. For example, nonresponse tended to be higher in the Northeast than in the Midwest. To reduce nonresponse bias as much as possible, adjustment factors were computed independently within subgroups created by sorting according to characteristics known for both responding and nonresponding buildings from the sampling stage. These characteristics included the general building activity, the rough size of the building, Census region, and metropolitan location.

Annual Consumption and Expenditures

This report presents estimates of total major-fuel consumption and expenditures in commercial buildings during calendar year 1986. These estimates were computed in a straightforward way from the annual consumption and expenditures determined for each building in the NBECS sample. However, these annual values could not be obtained directly for the sampled buildings. Rather, energy suppliers provided billing data, from which calendar year consumption and expenditures were calculated for each building, according to the procedures described in this section. Also described in this section are the imputation procedures used in cases where the energy supplier survey data were unavailable or inadequate.

To assure that 1986 consumption would be completely accounted for, the data requested from suppliers were bills covering the period from December 1985 through January 1987. These bills formed the basis for the annual energy consumption and expenditures estimates published in this report.

Billing Data – Ideal and Reality

The basic consumption and expenditures data were reported for each building by billing period. Ideally, the data for each continuous-delivery energy source (electricity, natural gas, and district heating and cooling) used in each sampled building should have been in the form of complete records for consecutive billing periods either totally or partially contained in calendar year 1986, covering exactly the energy consumed within the sampled building. The data for each discrete-delivery energy source (fuel oil and propane) should have been in the form of complete data records for all deliveries during 1986. For both continuous- and discrete-delivery energy sources, the delivered energy source should have been used entirely within the sampled building.

In practice, though, the billing data often covered more or less than the sampled building, or did not match the target time frame, calendar year 1986. There were several common types of discrepancy between the bill coverage and the ideal of a single building and fixed time frame.

- Bill coverage included days in 1985 and 1987 as well as calendar year 1986. This was the typical situation for a complete billing record. Very rarely would one billing period begin on January 1 and another end on December 31, 1986.
- Bill coverage spanned at least a one-year period, but did not include all of 1986. In most such cases, the time frame covered by the bills extended from the middle of 1986 into the middle of 1987. Many energy suppliers

maintain accessible billing records only for the most recent 13 months. Thus, at the time of reporting, between April, 1987 and January, 1988, the data available did not cover the beginning of 1986.

- Bill coverage spanned less than a one-year period.
- Bill coverage was for several sampled buildings combined. This occurred when no waiver was obtained to authorize the supplier to provide data for individual buildings. In such cases, the supplier reported only annual totals for a group of sampled buildings summed together, using the electricity or natural gas worksheet.
- Bill coverage included nonsampled buildings or equipment outside the sampled buildings, as well as the one sampled building.
- Bill coverage excluded some of the building's occupants or tenants. This undercoverage occurred when the energy supplier had several customers in a sampled building, and was unable to identify all of them on the basis of the information provided by the Building Survey respondent. In a few cases, energy suppliers were unwilling to release information on all customers in a building, even in aggregate form, without having a separate waiver from each.
- Compounding the problem of determining bill coverage, dates were incomplete. In the most common case, the billing period date included a month and year, but not the day of the month.

To deal with the discrepancies between the ideal billing data and what could actually be obtained, the following processing steps were taken:

Step 1. Classify each set of bills, from a particular energy supplier for a particular building, as to coverage in terms of both building and time frame;

Step 2. Complete the billing dates for all bills;

Step 3. Annualize bills with full-year time frame coverage;

Step 4. Annualize bills with part-year time frame coverage;

Step 5. Adjust annualized bills, other than worksheet cases, for building over- and under-coverage;

Step 6. Impute annual consumption and expenditures for buildings with completely missing data;

Step 7. Allocate worksheet totals among the buildings included on worksheets.

Each of these steps is explained below.

Step 1. Classifying Coverage of Building and Time Frame

This classification was performed by the NBECS contractor, as part of the data collection record keeping. To track responses to the mailed Energy Supplier Survey, determination had to be made whether a response received represented complete data for a building. In many cases, follow-up letters converted initial responses from partial to complete, or more nearly complete. In other cases, the incomplete response was all that could be obtained.

Determining Time Frame. An important aspect of the time-frame classification was determining why data were missing for part of calendar year 1986. The main question was whether consumption had actually taken place during the entire year, or was actually zero during the unreported time.

If consumption occurred through the entire year, data might be missing for several reasons. One is that the supplier's active records might not go back far enough. Another is that data may simply have been lost from the supplier's record, even though in general these records did go back to the beginning of 1986.

A trickier situation occurred when a new customer occupied a building in the middle of the target year. The data provided for this customer, for which the waiver was signed, would be complete, but the data for the previous occupant, who consumed energy in the first part of the year, would be missing. In any case where

part of the year's consumption data were missing, annual consumption would be understated if the reported 1986 data were treated as complete, rather than being inflated to account for the missing period.

The opposite situation could occur if a customer first occupied the building in the middle of the year, with no previous customer occupying the building. In this case, with no consumption during the first part of the year, annual consumption would be overstated if the reported data were annualized as if consumption occurred year round.

A special set of questions on the Energy Supplier Survey forms was designed to determine if any change in customers had occurred during the target year, and if so how these customers were covered in the reported data. However, most suppliers did not answer these questions. As a general rule, data were treated as complete if they covered a full year, whether calendar 1986 or not. Part-year data were treated as incomplete, unless the supplier specifically indicated otherwise.

Particularly complicated were some electricity cases where individual records were provided for each customer in a building with several customers. In most such cases, bills for all the customers covered the same time frame. Sometimes, though, different customers' records covered different time frames. In these cases, it was assumed that the data were complete for each customer, but the customers began or ended service at different times during the year. Aggregate consumption and expenditures were therefore computed for each time period by summing whichever customers had consumption during that period. If consumption was present for a particular customer in a particular period but expenditures were missing (or vice versa) aggregate expenditures (or consumption) were left as missing.

Determining Building Coverage. Building coverage was determined from information from both the Building Survey respondent and the energy supplier. If the Building Survey respondent indicated that a particular supplier's bill covered several buildings, the total square footage of buildings on that bill was requested. A disaggregation factor was then computed as the ratio of the sampled building's square footage to this total square footage. In some cases, the supplier indicated that a bill covered additional, nonsampled buildings, though the Building Survey respondent indicated otherwise. In these cases, the disaggregation ratio was computed using floorspace taken from listing information, or from the supplier's estimate. Disaggregation factors were always computed using the same source of information for both the total and the sampled building's floorspace: either the Building Survey respondent, the listing information, or the supplier. Some suppliers, particularly for district heating and cooling, did not provide floorspace figures, but did give an estimate of what percentage of the reported consumption took place in the sampled building; these percentages were used directly as disaggregation factors.

When the information required to compute a disaggregation factor was unavailable from any source, a flag indicated that disaggregation was needed, but not possible. In these cases, annual consumption and expenditures were imputed as if the data for the building were completely missing.

When the billing data omitted some customers in a building, an aggregation factor was computed. This factor was usually the ratio of the number of customers in the building to the number reported. Where more detailed information was available, the aggregation factor was the ratio of the total building floorspace to the floorspace occupied by the reported customers.

Step 2. Complete Billing Dates

Virtually all missing billing dates were one of two types. The first type of dates that were incomplete had the month and year entered, but the day was missing for the beginning and ending dates of all billing periods on a record. These cases were imputed by assigning "16" to each beginning date and "15" to each ending date.

The second type of incomplete dates were missing the day of the month for some, but not all, billing periods. For each case of this second type, the billing periods affected were either bounded (surrounded by billing periods with known beginning and ending dates), or unbounded (either at the beginning or end of the set of billing periods). Any set of consecutive bounded billing periods with missing dates was assigned billing dates that would make all billing periods in the set have as close

to the same number of days as possible. Unbounded billing periods were assigned beginning and/or ending dates as needed so that the number of days in each unbounded period was the same as the average number of days in billing periods of known length.

Step 3. Annualizing Full-Year Data

One of the main reasons that the NBECS requested energy supplier data from December 1985 through January 1987 was to assure that 1986 consumption would be completely accounted for in the case of a complete response. However, unless a billing period happened to end on December 31, 1985 or December 31, 1986, consumption as reported by the energy suppliers ran over from the target period of calendar 1986, forward into 1987 and backward into 1985. In general, then, procedures were required to trim away these excess data. For this trimming, different procedures were used for continuous- and discrete-delivery energy sources.

For continuous-delivery energy sources, consumption and expenditures for a billing period extending into 1987 were adjusted by splitting the overlapping period into two subperiods, one running from the beginning date through December 31, the other from January 1 through the billing or meter reading date. Consumption and expenditures were prorated according to the number of days in each subperiod, and the consumption and expenditures for the subperiod that fell in 1986 were included in the total expenditures and consumption for 1986. An analogous procedure was used for a billing period extending into 1985. The assumption that consumption of continuous-delivery energy sources took place at a constant rate throughout the billing period may be incorrect for any particular building. However, the procedure should yield approximately unbiased overall estimates.

Billing periods extending outside 1986 did not affect the discrete-delivery energy sources because, for these energy sources, all deliveries during 1986 were accumulated. For discrete-delivery energy sources, the ending dates on the bills were used to determine which bills were for deliveries during 1986. No attempt was made to prorate bills, since there was no necessary connection between billing dates and consumption, as was the case for continuous-delivery energy sources.

For cases where the bill time frame covered a full year, but was shifted so that either the beginning or the end of 1986 was not included, a similar procedure was used. In these cases, the data were annualized to a one-year period within the reported time frame, overlapping as much as possible with 1986. The amount of shifting required to obtain one-year periods is shown in Table B3 for electricity, natural gas, and district heat. A limited amount of shifting (involving 16 sampled buildings) was also performed for fuel oil and propane.

Step 4. Annualizing Part-Year Data

The annualization procedures for cases that had partial billing data, but less than a full year, were also different for continuous- and discrete-delivery energy sources.

Continuous-Delivery Energy Sources. For continuous-delivery energy sources, the number of reported days of consumption was at least as large as the number of reported days of expenditures for almost all sets of bills. Thus the major problem was to find methods of annualizing the incomplete consumption data. Expenditures were then annualized using the partial expenditures data and the annualized consumption data. The distributions of sampled buildings by days of reported consumption and expenditures data for continuous-delivery energy sources are given in Tables B4 and B5, respectively.

The part-year annualization method for continuous-delivery energy sources consumption depended on the number of days of reported consumption. If at least 331 days were reported, then consumption for the missing portion of the year was imputed by computing the average consumption per day for the adjacent billing period(s), then multiplying by the number of days of missing data. Summing all reported and imputed consumption then yielded the total annual consumption.

If the number of days of reported consumption was between 31 and 330, the missing consumption was imputed using a hot-decked proration factor, where all cases with 331 days or more of reported consumption served as a pool of potential "donors." For each case with 31 to 330 reported days of consumption, a donor was randomly selected from the subset of buildings in the same climate zone, with the same principal building activity, and in the same end use category for heating and air

Table B3. Days of Data from Outside Calendar Year 1986 Used to Obtain Annual Estimates

Energy Source	All Buildings With Reported Data	Shift of Reporting Period From Calendar Year 1986						
		No Days Shifted	Over 30 Days Into 1985	30 or Fewer Days Into 1985	30 or Fewer Days Into 1987	31 to 90 Days Into 1987	91 to 180 Days Into 1987	Over 180 Days Into 1987
				Sample Number of Buildings				
Electricity	5,281	4,120	22	129	155	166	443	246
Natural Gas	3,226	2,612	31	68	75	67	266	107
District Heat	280	211	42	4	3	2	3	15
				Population Number of Buildings (thousand)				
Electricity	3,574	2,738	15	94	115	136	300	175
Natural Gas	2,050	1,646	16	54	56	45	173	59
District Heat	35	25	6	0	0	0	0	3

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

conditioning as the building needing imputation (called the "receiver"). The donor's consumption was then calculated for the same part-year period for which the receiver had data, prorating the donor building data as necessary to compensate for mismatched time periods. A proration factor was then computed as the donor's ratio of annualized consumption to the computed part-year consumption. Multiplying the receiver's reporting period total by this proration factor gave the annualized consumption for the receiver building. That is,

$$R(t) = (D(t)/D(r))\ R(r),$$

where R(t) was the annualized total consumption for the receiver building, R(r) was the (part-year) reported consumption total for the receiver building, D(t) was the total annualized consumption for the donor building, and D(r) was the consumption of the donor building during the part-year period for which the receiver building had reported data.

Expenditure imputations were performed after all imputations for partially missing consumption since (1) consumption data were usually more complete than expenditures data and (2) given a value for consumption, the expenditures could be estimated without a great deal of difficulty.

Table B4. Days of Reported Consumption Data for Electricity, Natural Gas, and District Heat

Number of Days of Consumption Data	Electricity			Natural Gas			District Heat		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)
All Buildings.....	5,872	3,965	2,390	3,540	2,214	1,723	459	77	422
365 Days.....	4,794	3,262	1,886	2,882	1,840	1,386	260	28	242
331 to 364 Days....	70	46	33	34	18	14	6	1	11
31 to 330 Days.....	130	82	33	110	70	75	14	5	16
30 or Fewer Days...	591	391	235	314	164	120	179	43	153
Worksheets.....	287	183	204	200	123	128	--	--	--

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Table B5. Days of Reported Expenditures Data for Electricity, Natural Gas, and District Heat

Number of Days of Expenditures Data	Electricity			Natural Gas			District Heat		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)
All Buildings.....	5,872	3,965	47,186	3,540	2,214	8,355	459	77	2,620
365 Days.....	4,572	3,150	35,271	2,854	1,829	6,546	216	23	1,030
31 to 364 Days.....	330	208	2,222	153	95	487	13	6	64
30 or Fewer Days...	683	423	6,051	333	167	729	230	49	1,526
Worksheets.....	287	183	3,641	200	123	592	--	--	--

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

As was true for consumption, the imputation procedure for missing continuous-delivery expenditures was determined by the number of days of reported data. If 30 or fewer days of expenditures were reported, then the expenditures were treated as completely missing. Otherwise, expenditures were imputed based on average prices determined from the nonmissing billing periods within the set of bills for a given building.

If the expenditures were missing from either the beginning or the end of the year, the cost (expenditures/consumption) was calculated for the nearest adjacent billing period having both expenditures and consumption reported. This cost was then multiplied by the reported (or imputed) consumption in the period for which expenditures were missing to obtain the imputed expenditures.

If the expenditures data were missing from a period other than beginning or end of the year, the average cost in the two periods bounding the period was calculated. This average cost was then multiplied by the reported (or imputed) consumption to obtain the estimated expenditures.

Discrete-Delivery Energy Sources. For discrete-delivery energy sources, the billing dates are not linked to the time of consumption. Thus, for discrete-delivery energy sources, the annualized data represent the total deliveries of the energy source during the year. Furthermore, unlike continuous-delivery bills, discrete-delivery bills tend to be irregularly spaced. Gaps between bills could represent either missing data or periods during which no deliveries were required. The completeness of a set of bills was determined by relying on reports of suppliers. A set of bills was treated as complete if the supplier stated that the bills were complete for the year, and treated as missing otherwise, even if a partial set of bills was available. Tables B6 and B7 show the numbers of sampled buildings by the completeness of reported discrete-delivery data.

Buildings rarely had more than one supplier for a continuous-delivery energy source, such as electricity, but multiple suppliers for discrete-delivery energy sources, such as fuel oil, occurred frequently. If data for one or more of several suppliers were missing, even though responding suppliers had reported all their 1986 deliveries, these buildings were also treated as if no data were available.

Imputations for both deliveries and expenditures made use of the observed price(s). There were two cases to distinguish in making imputations. If the data were missing from either the beginning or the end of the set of bills, the price (expenditures divided by the amount delivered) was calculated in the adjacent period. If the missing data were the amount delivered, the imputed amount was obtained by dividing this price into the expenditures reported for the period with missing data. If the missing data were the expenditures, the imputed expenditures were obtained by multiplying this price by the quantity delivered.

If the data were missing from some bill other than the first or last of the year, the price was calculated in the two surrounding periods. Calling the price in the earlier period (on date i), "price(i)," and the price on the trailing period (on date j), "price(j,)" an average price for the missing billing date, "price(x)," was interpolated as follows:

$$\text{price}(x) = \text{price}(i) + (\text{price}(j) - \text{price}(i)) \frac{\#\ \text{days between i and x}}{\#\ \text{days between i and j}} .$$

If expenditures were missing, the imputed expenditures were equal to price(x) times the quantity delivered on date x. For missing deliveries, the reported expenditures were divided by price(x) to obtain the imputed amount delivered.

Step 5. Adjusting for Building Over- and Undercoverage (Other Than Worksheets)

The annualization procedures for full- and part-year data adjusted for inconsistent time-frame coverage. After the nonmissing consumption and expenditures data were annualized, the annual values were adjusted for building coverage. Where data were requested from the supplier for a single sampled building, but were provided only for a group of buildings including the sampled one, or were provided only for a portion of the building, the coverage adjustment was a simple multiplication of the annualized consumption and expenditures by the

Table B6. Completeness of Reported Consumption Data for Fuel Oil and Propane

Completeness of Consumption Data	Fuel Oil			Propane		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)
All Buildings.....	937	534	442	366	344	63
Complete.....	538	348	263	264	264	50
Partial.....	0	NC	NC	0	NC	NC
Missing.....	399	187	178	102	80	13

NC/ No cases in sample.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

Table B7. Completeness of Reported Expenditures Data for Fuel Oil and Propane

Completeness of Expenditures Data	Fuel Oil			Propane		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)
All Buildings.....	937	534	2,059	366	344	543
Complete.....	524	339	1,191	258	259	417
Partial.....	1	2	1	2	2	5
Missing.....	412	193	867	106	83	122

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

disaggregation or aggregation factor. As described above under Step 1, this factor was computed by the survey contractor directly on the basis of information received for the Building or Supplier Survey.

Step 6. Imputing for Completely Missing Consumption and Expenditures.

In a significant fraction of cases, the energy supplier did not provide the consumption or expenditures data for some or all billing periods or deliveries in 1986. Reasons for missing data included energy supplier refusal; archived, lost, or destroyed billing records; and waiver refusal on the part of the building respondent. In other cases, the energy supplier provided data, but either the building data were combined with those of nonsampled buildings, and could not be disaggregated, or the consumption and/or expenditures were incomplete enough to be treated as missing.

The general approach taken to the problem of imputing annual consumption or expenditures was to annualize the complete or partial sets of bills first, then to use these annualized bills in regression equations to develop imputed values for the data that were totally missing. The regression imputation approach was chosen because data from the Building Survey were already available for all of the buildings lacking energy supplier data. The first step was the estimation of missing consumption based on characteristics of buildings. After the consumption had been imputed, missing expenditures were estimated based on the reported or imputed consumption.

Completely Missing Consumption. Each of the energy sources presented in this report was imputed separately, although the overall methodology was similar for all. The consumption imputation method is therefore described in general terms, referring to individual energy sources only where necessary. The regression equations were developed primarily to serve as adequate predictors of building consumption based on structural characteristics. Simplicity and ease of estimation were also important considerations.

The data used to specify regression equations and estimate the regression parameters used for consumption imputation had to meet several criteria. Only cases with essentially complete consumption data were used. For continuous-delivery energy sources, "essentially complete data" included buildings with 331 to 365 days of reported consumption; for discrete-delivery energy sources, only buildings with completely reported deliveries were included. Any cases that were reported on forms with data from nonsampled buildings (or that lacked data for some customers within the sampled building) were eliminated if the disaggregation (or aggregation) factor (from Step 1) indicated that the sampled building accounted for less than half (or more than double) the total consumption of all the buildings reported on the form. Finally, any buildings with imputed values for building characteristics, such as square footage or number of employees, that were used as predictors in the regression equations were also eliminated.

The development of regression equations began by examining the distributions of the dependent variable, consumption. The distributions were found to be highly skewed. For example, annual electricity consumption ranged from several kWh to several hundred million kWh. The skewness of these distributions suggested that a transformation of the dependent variable would be useful. The logarithmic (log) tranformation, square root transformation, and several other power tranformations for electricity and natural gas consumption were evaluated using Box-Cox transformations (Draper and Smith 1981) in conjunction with some preliminary consumption regression equations. The results indicated that the log transformation of consumption was most appropriate.

Just as the consumption variable is highly skewed, so too were some of the potential regressor variables. Square footage, for instance, varied from less than one hundred to more than one million square feet. Transformations of independent variables were evaluated by simple regressions of the log of consumption on various transformations of each potential quantitative variable. Plots of residuals versus predicted values from these simple regressions were also examined. As a result of these analyses, several key potential regressor variables, including the number of employees, square footage, and heated square footage, were also transformed to the log scale.

The principal activity within the building is an important determinant of consumption patterns. Therefore, for electricity and natural gas, separate equations were developed for each of the twelve principal building activities. For fuel oil, propane, district heat, and district chilled water, sample sizes were not large enough to permit regression equations to be fit by principal building activity. A total of 28 equations were developed, one for each of the twelve principal building activities for electricity and natural gas, and one each for fuel oil, propane, district heat, and district chilled water.

The equations developed for the log of consumption were fit using ordinary least squares. Examination of residuals helped to isolate some reporting errors, but otherwise showed approximately normally distributed, homoscedastic residuals. However, the goal was to impute consumption, not the log of consumption. As an estimate of consumption, the back-transformed log prediction is a biased estimate.

If the log of consumption has a normal distribution with mean, M, and variance, V, then the expected value of consumption is exp(M + V/2), not simply exp(M) (Mood et al., 1974). If the predicted value from the log regressions, m, is used as an estimate for M, and the mean square error, v, as an estimate for V, then

$$\exp(M + V/2) = \exp(M)\exp(V/2).$$

Since exp(V/2) is a non-negative quantity, the biased estimator, exp(M), underestimates consumption (except in the case where a perfect linear relationship exists in the log regressions so that V is zero).

Accordingly, the consumption values were calculated using parameter values estimated in two stages: the initial regression of log consumption on structural characteristics, and a bias correction (Burns 1987). The bias corection coefficient was estimated by (1) summing the total actual consumption of cases used to estimate the regression parameters, (2) summing the total of the back-transformed predicted values (from the log regression) for these same cases, and (3) dividing the sum of the actual values (1) by the sum of the back-transformed values (2).

Completely Missing Expenditures. As for consumption, imputation for expenditures for each of the energy sources presented in this report was performed separately, although with a similar overall methodology. Again, the imputations are described in general terms, referring to individual energy sources only where necessary.

Energy supplier rate schedules are usually structured so that the price per unit of energy is lower as consumption increases. The rate schedule is usually a step function with the definition of steps and rates varying by energy supplier and by rate class. For the NBECS, rate schedules were not collected for the sampled buildings. Even the identity of the supplier was not disclosed to the Energy Information Administration. Therefore, a statistical procedure was needed to relate the expenditures to the consumption for imputation purposes.

As with the consumption imputations, the data used to specify the form and estimate the parameters of the expenditure imputation equations had to meet two criteria. First, only cases with essentially complete consumption and expenditures were used. For continuous-delivery energy sources, "essentially complete data" included buildings with 331 to 365 days of reported data for both consumption and expenditures; for discrete-delivery energy sources, only buildings with completely reported deliveries and expenditures were included. Any cases with data that were reported on forms with nonsampled buildings were eliminated if the disaggregation (or aggregation) factor (from Step 1) indicated that the sampled building accounted for less than half (or more than double) the total consumption of all the buildings reported on the form.

As a start, expenditures were plotted against consumption. Since both distributions were highly skewed, the log of expenditures was also plotted against the log of consumption. The latter set of plots disclosed a basically linear relationship between the log of expenditures and the log of consumption. The only noticeable departure from linearity was found at the low values of electricity and natural gas consumption, where the log of expenditures seemed to be unrelated to the log of the consumption. This cutoff apparently was due to base charges for these two energy sources, which dominated the total expenditures for low values of consumption. The breakpoint occurred at approximately 1,000 kWh for electricity

and at approximately 10,000 cubic feet for natural gas. Therefore, buildings with annual consumption below these values were eliminated from the data used to fit the regression equations.

The approximately linear relationship observed between the log of expenditures and the log of consumption suggested an equation of the form

$$\log(\text{expenditures}) = a + b \log(\text{consumption})$$

for consumption above the cutoff. Transformed back from the log scale, this equation becomes

$$\text{expenditures} = a\ \text{consumption}^{b},$$

which expresses a plausible general relationship. If b equals one, then the parameter a can be interpreted as the price per unit consumed. If b is less than one, then the equation describes a situation in which the price per unit consumed declines with increasing consumption.

The above equation was estimated separately for metropolitan and nonmetropolitan areas within each Census division for electricity and natural gas. However, the NBECS sample size was insufficient to support this level of estimation for fuel oil, propane, district heat, and district chilled water. For these four energy sources, the two parameters were estimated at the national level.

As was the case for consumption, the equations for the log of expenditures were fit using ordinary least squares. Transformation bias correction coefficients were also computed using the same procedure as for consumption.

If the reported or imputed value of electricity consumption for a building with missing expenditures was less than 1,000 kWh, then the expenditures were imputed as though the consumption were 1,000 kWh (the breakpoint identified in the plots of the log of expenditures versus the log of consumption). The same procedure was followed for natural gas, using a cutoff of 10,000 cubic feet for consumption. No cutoff was used for fuel oil, propane, district heat, or district chilled water consumption.

Step 7. Allocating Worksheet Totals

Worksheets combined consumption and expenditures for several sampled buildings, and were used only for electricity and natural gas data. For each of these energy sources, the number of buildings with supplier data reported on worksheets represented about 5 percent of all sample buildings supplied with the energy source.

The worksheet problem was not simply a matter of allocating an annual number among a set of buildings. In general, different reporting periods were given for each building on the worksheet, and the period lengths were rarely exactly 365 days long. In addition, the bills for a sampled building on a worksheet could include consumption in other, nonsampled, buildings just as was the case for sampled buildings not reported on worksheets.

A preliminary estimate of annual consumption and expenditures was made for each building on the worksheet using the regressions developed to impute completely missing data. A total for the set of cases on the worksheet was then estimated as

$$W^* = \sum_{i=1}^{n} \frac{\#\ \text{days}_i}{365} \quad \frac{x_i^*}{\text{adjrat}_i}$$

where

- W^* = the regression-estimated worksheet total,
- n = the number of buildings included on the worksheet,
- $\#\ \text{days}_i$ = the number of days of data reported for the ith building,
- x_i^* = the annual value estimated via regression for the ith building, and
- adjrat_i = the aggregation/disaggregation factor for the ith building (as discussed in Step 1).

The quantity $x_i^*/adjrat_i$ estimated the annual total that would have been reported for a building requiring aggregation or disaggregation by the factor $adjrat_i$. The fraction $\#days_i/365$ estimated the fraction (usually greater than one) of this annual total that would have appeared on the worksheet if $\#days_i$ of data were included for the building. The sum W* was thus the regression-based estimate of what the worksheet total would have been.

The quantity (consumption or expenditures) for the ith building, x_i , was then calculated as

$$x_i = \frac{W}{W^*} x_i^*$$

where W was the supplier-reported worksheet total for the worksheet that included the ith case. The ratio W/W* scaled the regression-imputed annual values, x_i^*, to be consistent with the reported worksheet totals.

Peak Electricity Demand Data

Peak electricity demand data were requested for the same billing periods for which electricity consumption and expenditures were reported. Electricity suppliers were asked to indicate billed demand separately from metered demand. (See Appendix E for copies of the electricity supplier forms.) When reported, the metered demand represented the maximum consumption rate (in kW) during the billing period.

Two special data problems affect the availability of peak electricity demand data. First, although virtually all electricity consumption is metered, peak electricity demand is metered where it is economical to do so. In general, peak demand meters are only installed for larger consumers. Second, in multicustomer buildings, each customer with a demand meter has its own peak demand. However, since these peaks would rarely be coincident, the building peak cannot be taken as the sum of individual peaks.

The peak electricity demand data was processed in three steps:

Step 1. Classify each set of electricity bills as demand-metered, not demand-metered, or unclassifiable;

Step 2. Determine for each building the annual peak demand, the season of the peak, and the annual load factor;

Step 3. Impute peak demand and season of peak for demand-metered buildings missing these data.

Step 1. Classification of Buildings

Buildings were classified based on what their supplier reported for peak demand. If half or more of the bills in a building's set of bills had nonzero demand reported, then the building was classified as a demand-metered building. If more than half of the bills had zero demand, then the building was classified as not demand-metered. Multicustomer buildings, buildings with "don't know" reported on more than half of the bills, and buildings where no reporting type predominated, were unclassifiable. Almost all of the unclassifiable cases were multicustomer buildings.

Step 2. Determination of Peak Demand and Related Items

For the buildings that were determined to be demand-metered in Step 1, the annual peak demand was taken as the maximum of the billing period peaks. For the few buildings that had part-year electricity billing data, the annual peak was taken as the maximum of the peaks in the reported billing periods. This approach results in a slight understatement of the annual peak, because the actual peak may have occurred during one of the unreported periods. However, since the number of buildings involved was relatively small, the difference between the part-year and full-year maxima would be small in most cases. In addition, attempting to impute for peaks outside the reported periods carried the risk of introducing spurious effects. Methods are being investigated for improving the annualization of peak data for buildings with only part-year reporting.

Before assigning the peak to a season, the month of the peak was found. Since the exact time of the billing period peak was unknown, the peak was taken to have occurred in whichever month contained the most days in the billing period during which the peak occurred. Peaks occurring November through April were then classified as winter peaks, while those occuring May through October were classified as summer peaks.

The annual load factor was then calculated, using previously calculated annual electricity consumption, as follows:

$$\text{annual load factor} = \frac{\text{annual consumption}}{365 * 24 * \text{annual peak demand}}.$$

Step 3. Imputation for Missing Peak Demand

Although any electricity consumer has a peak demand, three types of buildings were missing peak demand data:

1. buildings determined to be not demand-metered;
2. multicustomer buildings;
3. buildings with completely missing supplier data.

No attempt was made to impute for the first type of missing demand, for two reasons: (1) fewer than half of the sampled buildings had reported demand and (2) the non-demand-metered buildings tended to be smaller than the demand-metered buildings, so that imputation would involve extrapolation beyond the range of the reported data.

Once the decision had been made to exclude buildings that had not been demand-metered, imputation became a two-step process. First, it was necessary to impute whether the building with missing data was demand-metered. If the building was imputed to be a demand-metered building, then the peak and season of the peak were imputed. Table B8 shows the amount of each type of imputation that was necessary.

Imputation of the demand-metering attribute made use of the strong relationship observed within suppliers between demand-metering and annual electricity consumption. Using buildings with reported data, the probability of being a

Table B8. Item Response for Peak Electricity Demand Data

Response Category	Demand Metering		Peak and Season	
	Sample Number of Cases	Population Number of Buildings (thousand)	Sample Number of Cases	Population Number of Buildings (thousand)
Eligible Buildings...	5,872	3,965	3,204	1,673
Reported.....	4,062	2,840	2,139	1,181
Imputed.....	1,810	1,124	1,065	491

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

demand-metered building was estimated as a logistic function of the annual consumption. The parameters estimated from the reported data regression were used to estimate probabilities for each unclassifed building, and a uniform random number was generated. If the random number was less than or equal to the estimated probability, then the building was imputed to be demand-metered. For buildings imputed to be demand-metered, the season of peak demand was imputed by hot-decking, the same method used to impute missing items from the Building Survey.

Finally, annual load factors were imputed for each building imputed to be demand-metered. Values were imputed using parameters estimated from a linear regression of the logistic transformation of the annual load factor on various building characteristics (such as weekly operating hour, end-uses of electricity, and percent of floorspace heated). Separate imputation equations were estimated for each of the 12 principal building activities. The imputed annual peak demand was then calculated by solving the load factor equation for the annual peak.

Load factors and peak intensities were computed for each building reported or imputed to have metered demand. Of greater interest are the analogous ratios over a utility service region, or other large area. The ratio of a region's consumption to the annual peak for the region as a whole would represent the average utilization of the region's generating capacity. The ratio of the region's annual peak to the total floorspace in the region would represent the average capacity requirement per square foot. However, the regional peak cannot be determined from the individual annual (or even monthly) peaks alone, since these peaks are not coincident. That is, the individual peaks occur at different times, so that the sum of the individual peaks is considerably greater than the overall regional peak.

For this reason, aggregate ratios involving annual peak demand are not very meaningful. Instead, load factors and peak intensities were summarized in terms of the distribution over the commercial buildings population of individual building's values. One summary of individual values is given by the mean. However, the relative standard errors associated with estimates of mean load factors and mean peak intensities were very high, rendering the estimates all but meaningless. One reason for these high standard errors is that an individual building's ratio can be very large if the denominator is small, and can vary quite a bit with small perturbations of the denominator. The median of the ratios, on the other hand, tends to be much better determined, as are the 25th and 75th percentiles. These estimates also give more information about the distribution of population values than does the mean alone. For these reasons, these percentiles of load factors and peak intensities, rather than mean ratios or ratios of aggregates, were used to summarize the peak demand data.

District Heating and Cooling

The 1986 NBECS expanded the scope of district heat coverage, from just purchased steam, as in the 1979 and 1983 surveys, to both steam and hot water, and to both purchased and nonpurchased district heat. The distinction between purchased and nonpurchased appeared to be somewhat subject to interpretation by both the building respondent and the energy supplier. For this reason, and because the totals for the two types separately were small, purchased and nonpurchased district heat were combined in most of this report. Data on district hot water alone were also too small to report separately, so that steam and hot water were also combined. In the 1979 and 1983 reports, some of the reported steam data also appeared to be data for district hot water.

For most buildings with nonpurchased district heat, expenditures data were not provided. Treating expenditures as zero for these buildings would have the effect of assuming that the energy was cost-free. Instead, all missing district heat expenditures were imputed by the same procedures, without regard to the type of district heat reported. As a result, the expenditures estimated for district heat represent an equivalent cost as if all the district heat had been purchased, rather than a sum of direct costs to the buildings.

District cooling data were also collected in the 1986 NBECS. Both purchased and nonpurchased district chilled water data were requested although, as in the case of district heating, the purchased and nonpurchased chilled water were combined in this report. In the same manner as district heating expenditures, all missing district chilled water expenditures were imputed, thus treating all district cooling as purchased.

Fuel Oil Tank Capacity

Fuel oil tank capacity was ascertained in the Building Survey whenever the building respondent indicated that the sampled building received fuel oil. Since the energy sources used were revised based on Energy Supplier Survey results, some buildings had fuel oil added as an energy source and others had fuel oil deleted (Tables B1 and B2). The estimates in Table 9 are based on the final determination of fuel oil usage.

Buildings determined to use fuel oil during the Energy Supplier Survey were not recontacted to obtain their fuel oil tank capacity. Rather, these buildings, together with those buildings that did not respond to the Building Survey question, had their tank capacities imputed, using the hot-deck method.

Although storage tanks could be shared among several buildings, no allocation of storage capacity among the buildings (analogous to the diasaggregation of consumption) was attempted. The information necessary to perform this allocation was not obtained. As a result, there may be some double counting of tanks, so that estimates of aggregate fuel oil tank capacity in Table 9 may be overstated.

Computation of Standard Errors

Sampling error, as described in the introduction to this appendix, is the random difference between the survey estimate and the true population value. This difference arises because a random sample, rather than the whole population, is observed. The typical magnitude of the sampling error is measured by the standard error of the estimate. The standard error is computed as the square root of the variance; the variance is the average squared difference between the estimate based on a particular sample and the value that would be obtained by averaging estimates over all possible samples.

If the estimates are unbiased, meaning there is no systematic error, this average estimate over all possible samples is the true population value. In this case, the standard error is simply the root-mean-square difference between the survey estimate and the true population value. If systematic error is present, however, this bias is not included in the error measured by the standard error. Thus, the standard error tends to understate the total estimation error if there are non-negligible biases.

In principle, random errors can be contributed to the estimate by sources other than the sampling process. Such additional sources of random error include random errors by respondents and by data entry staff, and random unit nonresponse. To recognize these additional sources of variation, the definition of the sampling process can be expanded to include not just the selection of buildings but all steps required to obtain a set of responses. Under this expanded definition, all random errors can be regarded as sampling errors. The procedures designed to estimate the sampling error must therefore incorporate all random components of the estimation process.

Estimating Standard Errors

Throughout this report, standard errors are given as percents of their estimated values, that is, as relative standard errors (RSE's). The standard error of X^* is computed as:

$$S_{X^*} = (S^2_{X^*})^{1/2},$$

where $S^2_{X^*}$ is the estimated variance of X^*. The relative standard error (percent) of X^* is obtained from this standard error as:

$$RSE(X^*) = 100\ S_{X^*}/X^*.$$

For some types of surveys, a convenient algebraic formula for computing variances can be obtained. However, the NBECS used a list-supplemented, multistage area sample design (see Appendix A, "How the Survey Was Conducted") of such complexity that it is virtually impossible to construct an exact algebraic expression for estimating variances. In particular, convenient formulas based on an assumption of simple random sampling, typical of most standard statistical

packages, are entirely inappropriate for the NBECS estimates. Such formulas tend to give severely understated standard errors, making the estimates appear much more accurate than is the case.

The method used to estimate sampling variances for this survey was a jackknife replication method (National Center for Health Statistics 1966, 1969). This method calls for the formation of several "pseudoreplicates" of the sample by selecting subsets of the full sample. The subsets are selected in such a way that the observed variance of estimates based on the different pseudoreplicates estimates the sampling variance in the overall estimate.

The replication method is based on the assumption that two first-stage sampling units were sampled from each stratum. If, as was often the case for noncertainty PSU's, only one PSU was sampled from each stratum, then PSU's must be collapsed to form two PSU "pair members." For certainty PSU's, secondary sampling units were segregated into "pair members."

For the 1986 NBECS, 44 pairs of first-stage sampling units were formed. The jackknife method was applied to the 44 pairs. This approach was a departure from previous NBECS, where the method of Balanced Repeated Replications was used to obtain variance estimates using the half-sample pairs. The two methods are equivalent for linear statistics, and agree up to terms of second order for ratio estimates and regression estimates. Limited empirical work indicates, however, that the jackknife tends to have lower bias for the variance of nonlinear statistics, that is, for any statistic that is not a simple weighted sum (Rao and Wu, 1985).

The kth jackknife pseudoreplicate data set is obtained by deleting all observations from one of the two members in the kth pair, and multiplying the weights on all cases in the other pair member by 2. Observations in all other pairs are unaffected. The pair member deleted is chosen at random. The kth jackknife estimate is then obtained from this pseudoreplicate sample by following all the steps used to construct the full-sample estimate.

The variances are estimated from the jackknife estimates in the following way. Let X^* be a survey estimate (based on the full sample) of characteristic X for a certain category of buildings. For example, X may be the total square footage of buildings using natural gas in the Midwest. Let $X^*(k)$ be the jackknife estimate of X based on the kth pseudoreplicate. Then the variance of the kth pair of first-stage sampling units is estimated as $(X^*(k) - X^*)^2$. The estimated variance of the full-sample estimate X^* is given by:

$$S^2_{x^*} = \sum_{k=1}^{44} (X^*(k) - X^*)^2$$

For any linear statistic X , this variance expression is equivalent to the sum of the variances of the k pairs of first-stage sampling units.

Effects of Missing Data on Error Estimation

The preceding two sections of this appendix described the procedures used to adjust for unit and item nonresponse. Because the missing cases and the responding cases used to adjust for them arise randomly (within adjustment groups) nonresponse contributes to the estimation variance, even when appropriate adjustment procedures are used to remove the nonresponse bias. Half-sample replication estimates of variance account for this component of variance only if adjustments are made separately for each replicate.

To capture the effect of random nonresponse on the variance of estimates, a separate unit nonresponse adjustment factor, as described in the section on "Unit Nonresponse Adjustment," was computed for each pseudoreplicate. Thus, each replicate estimate was computed using a slightly different set of adjusted weights.

As noted above, each pseudoreplicate estimate should ideally be constructed by repeating for the pseudoreplicate sample all the estimation steps performed on the full sample. For item nonresponse, however, replicate imputations were not practical. In essence, creating replicate item imputations would entail the construction of an entire data set for each of the 44 replicates. The omission of this refinement is not expected to affect the accuracy of the variance estimates

substantially. Instead, relative standard errors of consumption, expenditures, and peak-demand related items were computed excluding cases that were imputed by regression. Relative standard errors of consumption and expenditures for the sum of major fuels were computed excluding cases where more than half of the quantity had been imputed by regression. The practice of eliminating imputed values was supported by a nonresponse simulation study (Burns 1987) which found the resulting relative standard error estimates to be reasonable approximations to the true relative standard errors.

Generalized Variances

For every estimate in this report, the relative standard error was computed by the methods described above. This was the relative standard error used for any statistical tests or confidence intervals given in the text, or to determine if the estimate was too inaccurate to publish (relative standard error greater than 50 percent).

Space limitations prevent publishing the complete set of RSE's with this document. Instead, a generalized variance technique is provided, by which the reader can compute an approximate RSE for each of the estimates in the main summary tables. For an estimate in the ith row and jth column of a particular table, the approximate RSE is given by the simple formula

$$RSE(i,j) = R(i)\,C(j),$$

where R(i) is the RSE row factor given in the last column of row i, and C(j) is the RSE column factor given at the top of column j.

The use of the row and column RSE factors is illustrated in Figure B2, for a portion of a table from a previous report. Using the row of the table labeled "Mercantile and Service," and the column labeled "Total Floorspace (million square feet)," gives an estimate of 12,805 million square feet for the total commercial floorspace contained in Mercantile and Service buildings. The RSE row factor is R(Mercantile and Service) = 5.17. The RSE column factor is C(Total Floorspace) = 1.096. The approximate RSE for the estimate is therefore computed as:

$$RSE(\text{Mercantile and Service, Total Floorspace}) = (5.17)(1.096) = 5.67 \text{ percent.}$$

The approximate standard error for the estimate is thus:

$$\text{Standard Error (Mercantile and Service, Total Floorspace)} = (.0567)(12{,}805) = 726 \text{ million square feet.}$$

This value for the standard error can be used to construct confidence intervals and to perform hypothesis tests by standard statistical methods. However, because the generalized variance procedure gives only approximate RSE's, such confidence intervals and statistical tests must also be regarded as only approximate. For the example above, the RSE determined directly by the half-sample method is actually 6.7, not 5.7.

Derivation of Row and Column Factors

The row and column factors are determined from a two-factor analysis of the table of RSE's, on the basis of the model

$$\log RSE(i,j) = m + a(i) + b(j).$$

The least-squares estimates for this model are given (Cochran and Cox, 1957) by

$$m = \overline{(\log\ RSE)}$$

$$a(i) = \overline{(\log RSE)}_{i.} - \overline{(\log RSE)}$$

$$b(j) = \overline{(\log RSE)}_{.j} - \overline{(\log RSE)},$$

Figure B2. Use of RSE Row and Column Factors

Table 1. Principal Building Activity

Building Characteristics	Number of Buildings (thousand)	Number of Buildings (percent)	Total Floorspace (million square feet)	Total Floorspace (percent)	RSE Row Factor
RSE Column Factor:	0.975	0.879	1.096	1.064	
All Buildings.....	4,154	100.0	58,229	100.0	3.13
Principal Building Activity					
Assembly.....	575	13.8	7,339	12.6	6.22
Education.....	241	5.8	7,321	12.6	6.62
Food Sales.....	102	2.5	712	1.2	13.65
Food Service.....	201	4.8	1,281	2.2	8.48
Health Care (inpatient).....	14	.3	1,757	3.0	20.29
Health Care (outpatient).....	38	.9	350	.6	19.96
Laboratory.....	17	.4	283	.5	28.19
Lodging.....	123	3.0	2,179	3.7	10.11
Mercantile and Service.....	1,287	31.0	12,805	22.0	5.17
Office.....	614	14.8	9,546	16.4	5.76
Public Order and Safety.....	55	1.3	680	1.2	14.96
Skilled Nursing.....	13	.3	605	1.0	23.46
Warehouse (nonrefrigerated)...	524	12.6	8,522	14.6	6.74
Warehouse (refrigerated).....	25	.6	474	.8	24.12
Other.....	86	2.1	1,442	2.5	15.37
Vacant	238	5.7	2,931	5.0	8.94

R(Mercantile and Service) = 5.17
C(Total Floorspace) = 1.096.
Approximate RSE(Mercantile and Service, Total Floorspace)
= (5.17)•(1.096) = 5.67 percent.
Approximate Standard Error(Mercantile and Service, Total Floorspace)
= (.0567)•(12,805) = 726 million square feet.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, 1986 Nonresidential Buildings Energy Consumption Survey.

where $\overline{(\log RSE)}$ is the mean of $\log RSE(i,j)$ over all rows i and columns j, $\overline{(\log RSE)}_{i.}$ is the mean over all columns j for a particular row i, and $\overline{(\log RSE)}_{.j}$ is the mean over all rows i for a particular column j. The row and column RSE factors are then computed as

$$R(i) = \text{antilog}\ (m + a(i)) = \text{antilog}\ \overline{(\log RSE)}_{i.}$$

$$C(j) = \text{antilog}\ b(j) = \text{antilog}\ (\overline{(\log RSE)}_{.j} - \overline{(\log RSE)}).$$

The RSE row factor, R(i), is thus the geometric mean of the RSE's in row i, and the RSE column factor, C(j), is an adjustment factor with geometric mean equal to 1.0.

For a few table cells, there were no sample cases, hence no estimate and no RSE. As a result, some of the arrays of direct estimates RSE(i,j) had a few missing values. In addition, in cases where a statistic was not publishable, because of a high RSE or small cell sample size, the value of RSE(i,j) was set to missing, so that the computed row and column factors are based only on published cases. In such cases, the formulas given above for row and column factors still apply, but only after appropriate estimates have been substituted for the missing values (Cochran and Cox 1957, p. 110). Further details on this generalized RSE method are given in Goldberg (1986). A description of the automated system used to produce both the RSE's and the row and column factors (as well as all the tables) appearing in this report can be found in Gargiullo and Goldberg (1989).

References

Burns, E. M. 1987. "Imputing for Missing Survey Data: Energy Consumption in Commercial Buildings," *Proceedings of the Business and Economic Statistics Section of the American Statistical Association.*

Cochran, W. G., and Cox, G. M. 1957. *Experimental Design* (2nd ed.), New York: John Wiley & Sons, Inc.

Draper, N. R., and Smith, H. 1981. *Applied Regression Analysis.* (2nd ed.), New York: John Wiley & Sons, Inc.

Energy Information Administration. September 1988. *Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings 1986.* DOE/EIA-0246(86).

Gargiullo, P. M. and Goldberg, M. L. 1989. "A Modified Table Producing Language (TPL) System for Producing Tables of Survey Statistics with Variances," *Proceedings of the Bureau of the Census Fifth Annual Research Conference.*

Goldberg, M. L. 1986. "Proposed Approach to Computing Generalized Variances for the NBECS 1983 Consumption and Expenditures Report," NBECS Technical Note 42, Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division.

Mood, A. M., Graybill, F. A., and Boes, D. C. 1974. *Introduction to the Theory of Statistics* (3rd ed.), New York: McGraw-Hill.

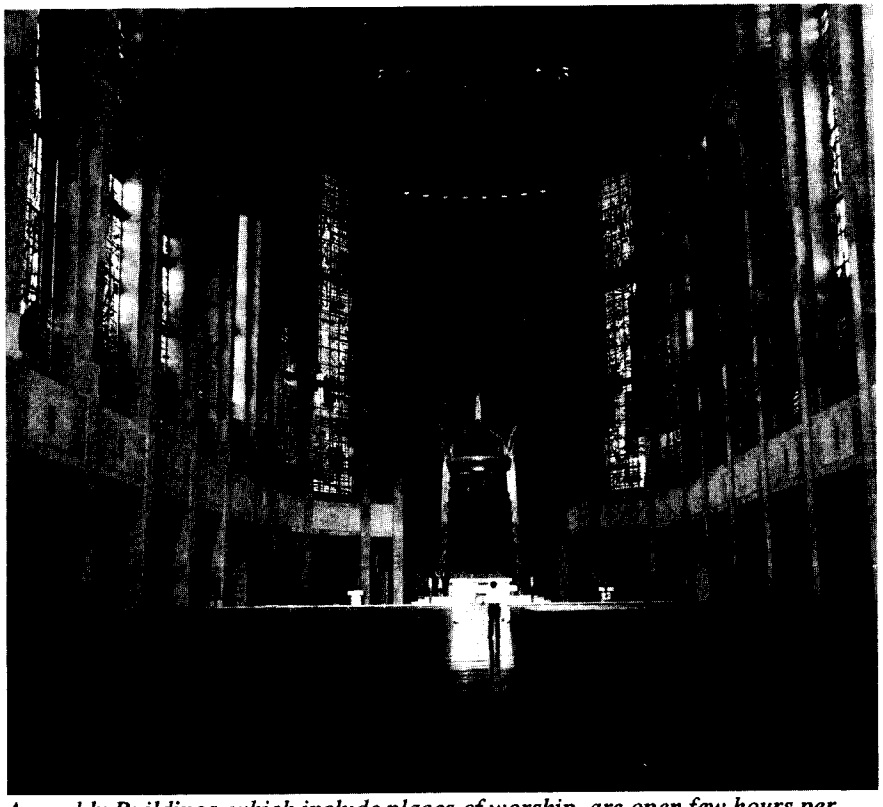
National Center for Health Statistics. April 1966. "Replication: An Approach to the Analysis of Data from Complex Surveys." *Vital and Health Statistics.* Public Health Service Publication No. 79-1269, Series 2/No.14, Washington, D.C.

National Center for Health Statistics. January 1969."Pseudoreplication: Further Evaluation and Application of the Balanced Half-Sample Technique." *Vital and Health Statistics.* Public Health Service Publication No. 73-1270, Series 2/No. 31, Washington, D.C.

Rao, J. N. K. and Wu, C. F. J. 1985. "Inference from Stratified Samples: Second-Order Analysis of Three Methods for Nonlinear Statistics," *Journal of the American Statistical Association*, 80, pp. 620-630.

Appendix C

Types of Buildings



Assembly Buildings, which include places of worship, are open few hours per week and have low energy intensities.

Appendix C

Types of Buildings

Buildings were classified according to principal activity, which was the primary business, commerce, or function carried on within each building. Buildings used for more than one of the activities described below were assigned to the activity occupying the most floorspace at the time of the interview. Thus, a building assigned to a particular principal activity category may have housed other activities in a portion of its space or at some time during the year.

Each of the principal activity categories is listed alphabetically and described below. Lists of specific types of buildings included in each category are presented for clarification, but are not intended to be exhaustive.

- **Assembly** signifies buildings used for the gathering of people for social, recreational, or religious activities. Included in this category are the following types of buildings:

  Entertainment Building:
  - Archive/art gallery/exhibit hall/library/museum
  - Coliseum/arena (enclosed)
  - Concert hall
  - Observatory/planetarium
  - Nightclub
  - Radio/TV station or studio
  - Theater/movie house/cinema

  Recreational Facility:
  - Amusement arcade
  - Bowling alley
  - Gymnasium/YMCA or YWCA/indoor racket sports, recreation center/athletic facility
  - Indoor pool
  - Poolroom
  - Skating rink (ice skating or roller skating)

  Religious Assembly:
  - Chapel
  - Church
  - Mosque
  - Synagogue

  Social/Public/Civic Assembly (fixed seating):
  - Assembly hall
  - Auditorium
  - Convention hall
  - Funeral home
  - Lecture hall
  - Lodge hall
  - Meeting hall
  - Student union
  - Town hall

  Other Enclosed Assembly Building:
  - Armory
  - Passenger terminal

- **Education** refers to buildings that house academic or technical instruction. This category includes the following:

  Schools:
  - Preschool
  - Elementary
  - Junior high
  - Senior high
  - College or university
  - Vocational school

  Excluded are the following specific types of buildings 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)
  - School for the Mentally Retarded (see Health Care)
  - Stadium (see Assembly)
  - Student Union (see Assembly)

- **Food Sales** includes buildings such as the following:

  - Convenience Store or Market
  - Farmer's Market, Fruit/Vegetable Market
  - Meat/Seafood Store
  - Retail Bakery
  - Specialty Food Store
  - Supermarket/Grocery Store

- **Food Service** includes buildings such as the following:

  Prepared-Meal Services:
  - Cafeteria

  Carryout Service:
  - Caterer
  - Fast-food establishment
  - Pizza parlor
  - Sandwich shop

  Full-Service Restaurant:
  - Bar
  - Bar and grill
  - Coffee shop
  - Diner
  - Full-menu-service establishment

- **Health Care** covers diagnostic and treatment facilities for both inpatient and outpatient care.

  Inpatient facilities treat the mentally or physically ill. Buildings for overnight care are in this grouping. This type of building includes the following:

  Medical Care Hospital:
  - Chronic disease
  - Ear, eye, nose, and throat
  - General medical and surgical
  - Maternity
  - Medical infirmary (connected with an institution)
  - Orthopedic
  - Tuberculosis/other respiratory disease

  Mental Facility:
  - Mental retardation/schools for the mentally retarded
  - Psychiatric

  Rehabilitation Facility:
  - Alcoholism
  - Substance abuse/narcotics/drug addiction
  - Physical therapy

  Veterinary Facility:
  - Hospital for animals
  - Kennel

Outpatient care may be medical, dental, or psychiatric. A building housing outpatient veterinary practices also falls into this category. Buildings of this type include:

Dental Clinic

Medical Clinic:
- Abortion/birth control
- Ear, eye, nose, and throat
- Emergency walk-in
- General
- Mental health/psychiatric clinic
- Veterinary

Excluded are skilled nursing or other residential care facilities (nursing homes). These buildings are classified as "Lodging" buildings.

- **Industrial/Manufacturing:** See **Other.**

- **Laboratory** activities utilize equipment for experimental testing or for analysis. Included are:

  Mechanical/Electrical Laboratory
  Medical/Dental Laboratory
  Agricultural Laboratory

  Laboratory buildings are included in the "Other" category in all tables in this report.

- **Lodging** refers to buildings that offer multiple accommodations for short-term or long-term residents (including nursing homes). The following types are included:

  Short-Term Residence:
  - Convention hotel
  - Hotel
  - Inn

  Motel
  - Shelter home
  - Tourist Home

  Long-Term Residence:
  - Boarding house
  - Convent/monastery
  - Dormitory/sorority/fraternity
  - Orphanage

  Skilled nursing homes are included in the "Lodging" category in all tables in this report except the one on special measures of occupancy.

- **Mercantile and Service** refers to buildings containing sales and displays of goods or services (excluding food). The category includes the following:

  Automotive Sales and Service:
  - Automobile dealers
  - Gasoline stations
  - Motor vehicle repair/service

  Retail Sales:
  - Building materials, garden supply, hardware stores
  - Department stores, apparel stores
  - Drugstores
  - Furniture, home-furnishings and home-equipment stores
  - Multiretail establishments

  Services (Except Food):
  - Laundry/dry cleaner/car wash
  - Multiservice establishment
  - Personal services
  - Post office
  - Shopping mall
  - Strip shopping center
  - Wholesale goods (except food)

- **Office** means buildings used for general office space, professional offices, and administrative offices. The category includes the following:

  Data Processing:
  - Computer center

Financial Office Building:
- Bank
- Brokerage firm
- Insurance
- Real estate
- Securities

Professional Office Building:
- Administration of an institution
- Consulting
- Corporate
- Engineering
- Law
- Management
- Medical
- Mixed professional

- **Other** covers buildings that do not fit into any of the previously named categories. This category includes the following:

  Crematorium
  Hangar
  Parking Garage
  Public Restrooms/Showers
  Telephone Exchange

  Also included in the "Other" category are buildings that are 50 perent or more commercial, but those principal activity is agricultural, industial/ manufacturing or residential.

- **Public Order and Safety** describes buildings used in the preservation of law and order or safety. The following are included:

  Courthouse
  Fire Station
  Jail/Prison
  Penitentiary
  Police Station
  Reformatory
  Sheriff's Office

- **Residential**: See **Other**

- **Skilled Nursing/Other Residential Care** facilities refers to buildings offering 24-hour nursing/medical care.

  Skilled Nursing/Other Residential Care:
  - Homes for the aged
  - Nursing homes

  Skilled nursing homes are included in the "Lodging" category in all tables in this report, except the table on special measures of occupancy.

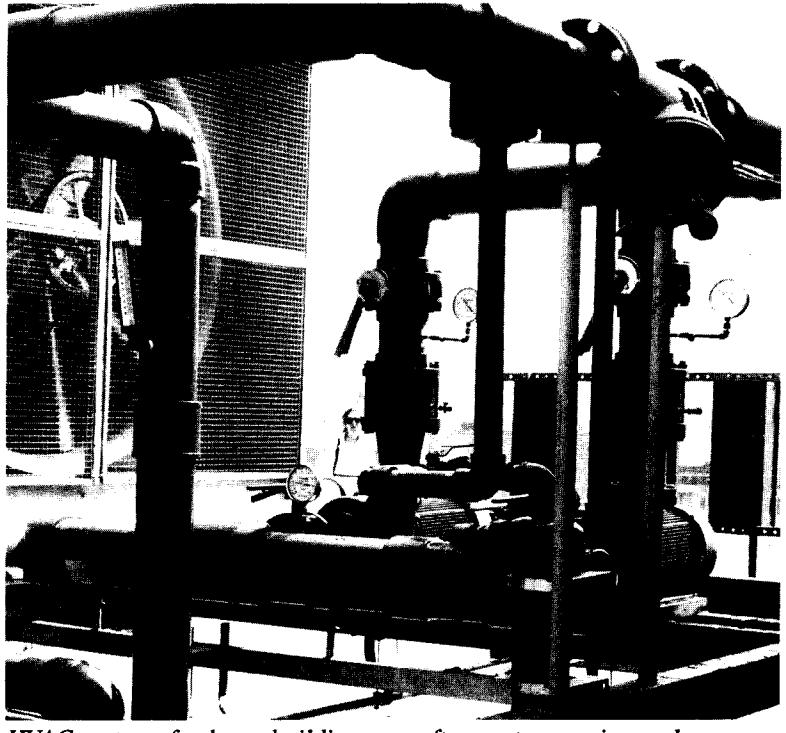
- **Warehouse and Storage** describes buildings used to store goods, manufactured products, merchandise, or raw materials. This category includes the following:

  Refrigerated Storage
  Nonrefrigerated Warehouse

- **Vacant** designates buildings in which more floorspace was vacant than was dedicated to any single activity (as defined above) at the time of interview. A vacant building, thus, may have some occupied floorspace.

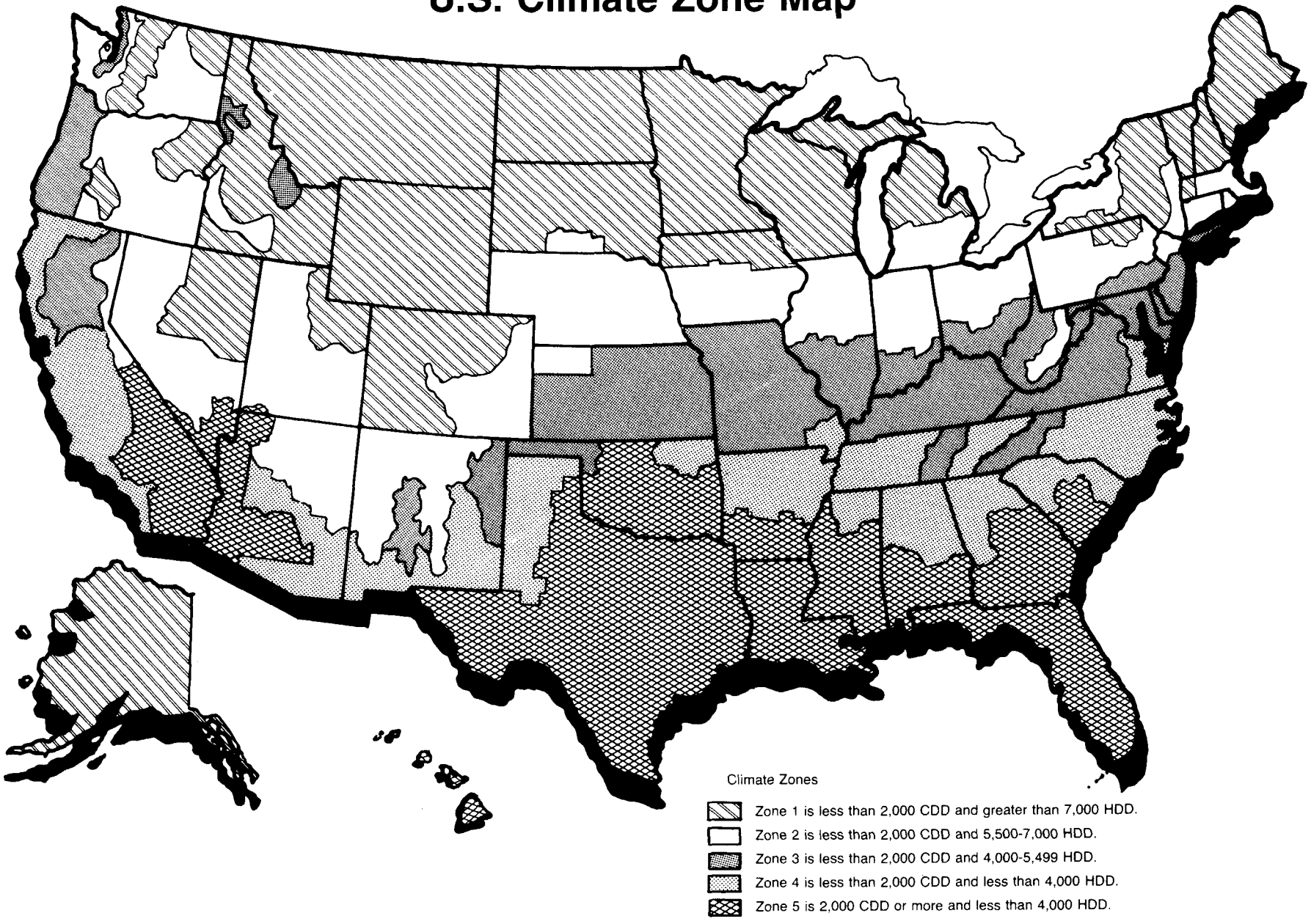
Appendix D

U.S. Climate Zone Map



HVAC systems for large buildings are often custom engineered.

Appendix D
U.S. Climate Zone Map

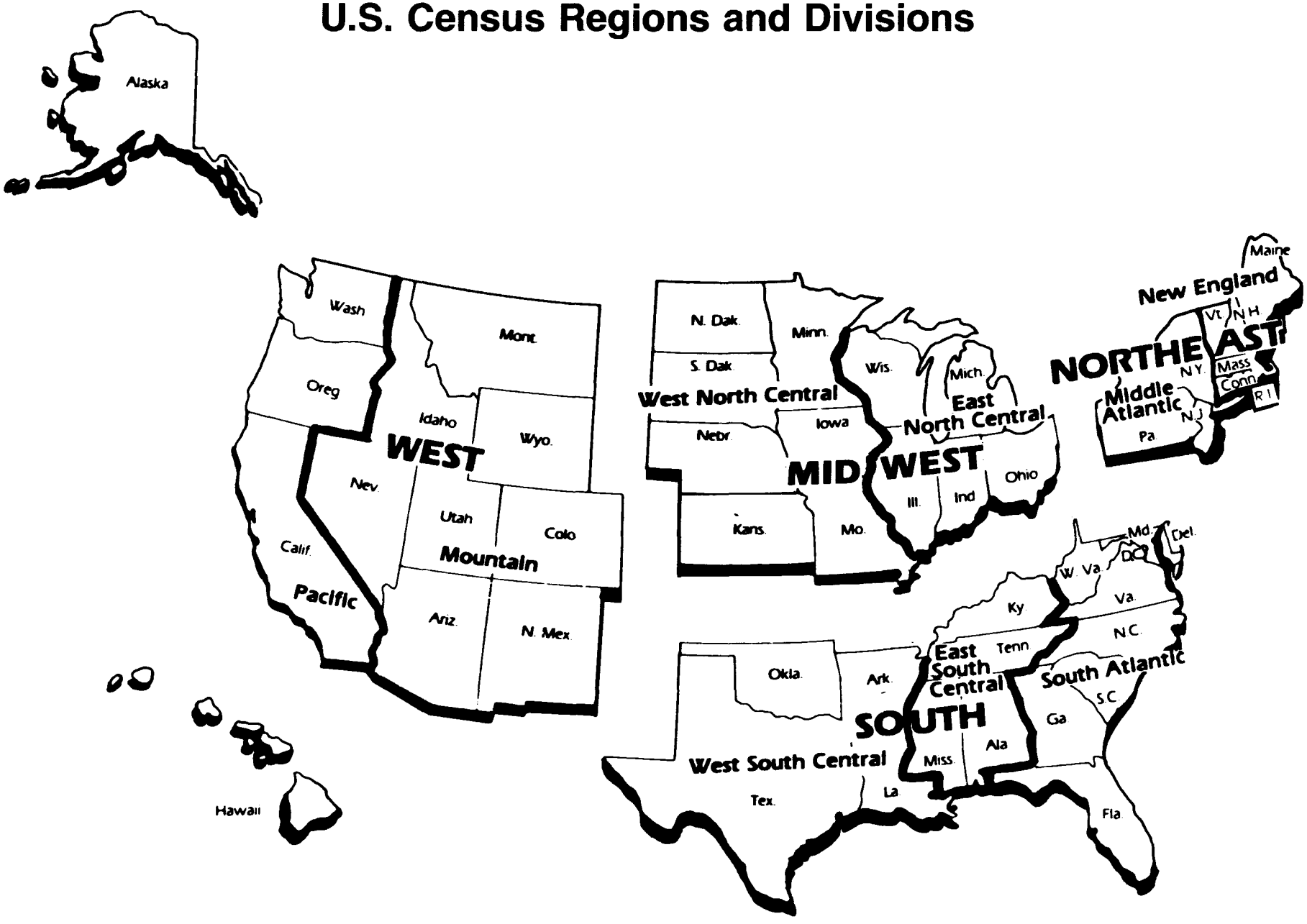


Appendix E

U.S. Census Regions and Divisions

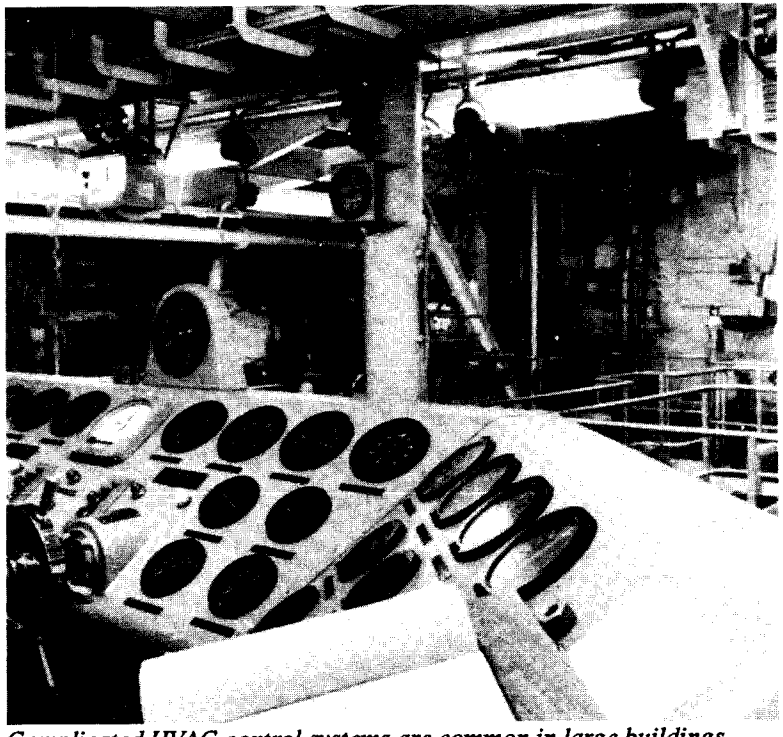
Food sales buildings tend to be small, to operate for long hours, and to have high energy intensities.

Appendix E
U.S. Census Regions and Divisions



Appendix F

Survey Forms



Complicated HVAC control systems are common in large buildings.

This Appendix contains the folloing data collection forms used in the 1986 NBECS.

- Form EIA-871A Building Questionnaire
- Form EIA-871G Construction Improvements and Maintenance and Repairs Supplement (Collected for the U.S. Bureau of the Census)
- Form EIA-871B-2 Aggregate Usage of Bottled Gas
- Form EIA-871C-2 Aggregate Usage of Natural Gas
- Form EIA-871D-1 District Heating and Cooling
- Form EIA-871E-1 Usage of Electricity
- Form EIA-871E-2 Aggregate Usage of Electricity
- Form EIA-871F-2 Aggregate Usage of Fuel Oil
- Form EIA-871C-3 Worksheet for Natural Gas
- Form EIA-871E-3 Worksheet for Electricity

Forms EIA-871A and G were collected in personal interviews with building owners, managers or tenants. Forms EIA-871B through F were mailed to energy suppliers.

FORM APPROVAL
OMB NO.: 1905-0145
EXPIRES: September 30, 1989
FORM EIA-871A

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY

ID: _____

BUILDING NAME: _____

ADDRESS: _____
STREET

_____
CITY STATE ZIP

COMMENTS: _____

_____

_____

INITIAL CONTACT TO DETERMINE RESPONDENT

I'm _____ from Westat, Inc., a social science research firm. We are conducting a study for the U.S. Department of Energy about energy consumption in nonresidential 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 address at which he/she might be located?

NAME: _____

TITLE: _____

LOCATION: _____ PHONE ( ) _____

INTRODUCTION TO INTERVIEW

Hello, I'm _____ from Westat, Inc., a social science research firm. We are conducting a study for the U.S. Department of Energy about energy consumption in nonresidential buildings *(HAND LETTER). Although your participation in this survey is voluntary, we 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. _____

(10/86)

Form EIA-871A--Building Questionnaire

TIME BEGAN: _____

A. BUILDING IDENTIFICATION QUESTIONS

BOX 1

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

☐ IF BUILDING IS FREE-STANDING, IS A SHOPPING CENTER/MALL, OR IS SAMPLED FROM THE SPECIAL BUILDING LIST, SKIP TO QUESTION A-3.

☐ *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.

A-1. Is the building at (READ AND RECORD ADDRESS(ES): _____), and the building at (READ AND RECORD ADDRESS(ES): _____) owned by the same person or organization?

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

A-2. Are there permanent walls that extend from the ground level to the top story of the building, at (READ AND RECORD ADDRESS(ES): _____) which totally separate it from the building at (READ AND RECORD 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

1

(10/86)

Form EIA-871A--Building Questionnaire

A-3. The questions I will be asking you will all be about this building. By this building, I am referring to the structure(s) at (READ NUMBER(S) OR NAME)/the entire shopping center or mall at (READ NUMBER(S) OR NAME).

(IF NAME OF BUILDING IS NOT KNOWN, ASK): What is the correct name and address of this building? RECORD BELOW. (IF BUILDING HAS NO NAME, ASK NAME OF MAJOR ESTABLISHMENT THAT OCCUPIES BUILDING AND RECORD BELOW.)

(IF NAME ON LABEL): Is the correct name and address of the building: (MENTION NAME AND ADDRESS)? RECORD VERIFIED NAME AND ADDRESS BELOW.

(CHECK ONE)

VERIFIED NAME: _____ |__| NAME OF BUILDING
|__| NAME OF MAJOR ESTABLISHMENT IN BUILDING

VERIFIED STREET ADDRESS: _____

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

( ) _____
AREA CODE

A-5. What is the building's ZIP Code?

_____
ZIP CODE

BOX 3

- IF AREA SAMPLE: CHECK TO SEE IF THE BUILDING'S ZIP IS LISTED ON THE LABEL (CHECK ONE BOX)

  |__| BUILDING ZIP IS LISTED: CONTINUE WITH INTERVIEW.

  |__| BUILDING ZIP IS NOT LISTED: VERIFY THAT YOU ARE AT THE CORRECT ADDRESS AND WITHIN THE SEGMENT BOUNDARIES. IF YOU ARE, CONTINUE WITH INTERVIEW. IF NOT, DISCONTINUE AND CALL YOUR SUPERVISOR.

- IF SPECIAL BUILDING SAMPLE: VERIFY THAT YOU ARE AT CORRECT ADDRESS AND CONTINUE WITH INTERVIEW.

B. PRINCIPAL BUILDING ACTIVITIES

B-1. What is the gross or total square footage of all the space enclosed within the exterior walls of this building? Please include indoor parking facilities and basements, and all space such as hallways, lobbies, stairways and elevator shafts both finished and unfinished.

_____ (B-3)
TOTAL SQUARE FOOTAGE

DON'T KNOW. 9-8 (B-2)

B-2. Here is a card that has several broad categories of total square feet. (HAND CARD 1) Which category in your estimation best applies to the total square feet in this building, including all areas just mentioned?

HAND CARD 1

5,000 square feet or less. 01	100,001 to 200,000 square feet. . . . 06
5,001 to 10,000 square feet. . . . 02	200,001 to 500,000 square feet. . . . 07
10,001 to 25,000 square feet . . . 03	500,001 to 1 million square feet. . . 08
25,001 to 50,000 square feet . . . 04	Over 1 million square feet. 09
50,001 to 100,000 square feet. . . 05	DON'T KNOW. 98

B-3. The purpose of the next few questions is to find out about the kinds of activities that occur within this building. By activity we mean what the building is used for. For example, space in a building may be used for (INTERVIEWER OBSERVATION OF BUILDING ACTIVITY).

Is any part of the building used for residential purposes? By residential we mean living quarters with kitchen facilities.

YES 1 (B-4)
NO. 2 (B-5)

B-4. Approximately what percentage of the (MENTION SQUARE FEET FROM B-1 OR B-2) square feet in the building is used for residential purposes?

100% . . . . . 1 (TERMINATE INTERVIEW)
75-99% 2 (C-1)
25-74% 3 (B-9)
LESS THAN 25%. 4 (B-5)
DON'T KNOW 8 (B-5)

B-5 INTERVIEWER: CODE BEST DESCRIPTION BASED ON YOUR OBSERVATION AND GO TO B-5a.

→ B-5a Considering all of the (MENTION SQUARE FEET FROM B-1 OR B-2) square feet in this building, would you estimate that 75 percent or more of this space is used for/is: (READ BUILDING ACTIVITY DESCRIPTION FOR CLASSIFICATION CODE CIRCLED ?

ACTIVITY	CIRCLE ONE	YES	NO
a. VACANT	01	1 (B-10a)	2 (B-7)
b. OFFICE/PROFESSIONAL BUILDING	02	1 (C-1)	2 (B-7)
c. SHOPPING CENTER/MALL/RETAIL/SERVICE	03	1 (C-1)	2 (B-7)
d. ASSEMBLY BUILDING	04	1 (C-1)	2 (B-7)
e. FOOD SALES	05	1 (C-1)	2 (B-7)
f. PUBLIC ORDER AND SAFETY	06	1 (C-1)	2 (B-7)
g. OUT-PATIENT HEALTH SERVICES/CLINIC	07	1 (C-1)	2 (B-7)
h. INDUSTRIAL PROCESSING AND MANUFACTURING	08	1 (TERMINATE)	2 (B-6)
i. AGRICULTURAL PURPOSES	09	1 (TERMINATE)	2 (B-6)
j. LABORATORY	10	1 (C-1)	2 (B-7)
k. REFRIGERATED WAREHOUSE OR STORAGE	11	1 (C-1)	2 (B-7)
l. NONREFRIGERATED WAREHOUSE OR STORAGE	12	1 (C-1)	2 (B-7)
m. EDUCATION	13	1 (B-10m)	2 (B-7)
n. FOOD SERVICES	14	1 (B-10n)	2 (B-7)
o. HOSPITAL/IN-PATIENT HEALTH SERVICES (IHS)	15	1 (B-10o)	2 (B-7)
p. SKILLED NURSING/OTHER RESIDENTIAL CARE (NURSING HOME)	16	1 (B-10p)	2 (B-7)
q. HOTEL/MOTEL/DORM, ETC.	17	1 (B-10q)	2 (B-7)
r. RESIDENTIAL	18	1 (C-1)	2 (B-7)
s. OTHER (SPECIFY): _____	19	1 (C-1)	2 (B-7)

B-6. Would you estimate that 50 percent or more of the space in this building is used for (industrial/agricultural) activities?

YES . . . . . 1 (TERMINATE INTERVIEW)
NO. 2 (B-7)

B-7. Considering all of the (MENTION SQUARE FEET FROM B-1 OR B-2) square feet in this building, is there one main activity that occupies 75 percent or more of the space?

YES 1 (B-8)
NO. 2 (B-9)

(10/86)

Form EIA-871A--Building Questionnaire

B-8 Here is a card with a list of activities that may take place within a building. (HAND CARD 2) Please tell me me which activity occupies over 75% of the space in this building? (CIRCLE ONE)

B-9 Here is a card with a list of activities that may take place in a building. Please tell me which activities occupy space in this building?

HAND CARD 2

ACTIVITY	CIRCLE ONE	B-9A OCCUPIES SPACE (CIRCLE ALL THAT APPLY)	B-9B Approximately what percentage of space does this activity occupy?
a. VACANT SPACE	01 (B-10a)	01 →	% → B-10 a. IF MORE THAN 50% VACANT, ASK: (What was this vacant space previously used for?/OR IF NEVER USED: what was this space intended to be used for?) _____
b. OFFICE/PROFESSIONAL BUILDING	02 (C-1)	02 →	%
c. SHOPPING CENTER/MALL/RETAIL	03 (C-1)	03 →	%
d. ASSEMBLY BUILDING	04 (C-1)	04 →	%
e. FOOD SALES	05 (C-1)	05 →	%
f. PUBLIC ORDER AND SAFETY	06 (C-1)	06 →	%
g. OUT-PATIENT HEALTH SERVICES	07 (C-1)	07 →	%
h. INDUSTRIAL AND MANUFACTURING	08 (TERMINATE)	08 →	%
i. AGRICULTURAL PURPOSES	09 (TERMINATE)	09 →	%
j. LABORATORY	10 (C-1)	10 →	%
k. REFRIG. WAREHOUSE OR STORAGE	11 (C-1)	11 →	%
l. NONREFRIG. WAREHOUSE OR STORAGE	12 (C-1)	12 →	%
m. EDUCATION	13 (B-10m)	13 →	_____ % → B-10 m. How many students can be seated in the classrooms in this building at one time? _____ STUDENTS
n. FOOD SERVICES	14 (B-10n)	14 →	_____ % → n. What is the seating capacity of this facility? _____ SEATS
o. HOSPITAL/INPATIENT HEALTH SERVICES	15 (B-10o)	15 →	_____ % → o. What is the licensed bed capacity of this facility? _____ BEDS
p. SKILLED NURSING/OTHER RES. CARE	16 (B-10p)	16 →	_____ % → p. What is the licensed bed capacity of this facility? _____ BEDS
q. HOTEL/MOTEL/DORM, ETC.	17 (B-10q)	17 →	_____ % → q. How many guest rooms are there in this facility? _____ ROOMS
r. RESIDENTIAL	18 (C-1)	18 →	_____ %
s. OTHER (SPECIFY) _____	19 (C-1)	19 →	_____ %

TOTAL SHOULD EQUAL 100%

ASK ALL APPROPRIATE B-10 QUESTIONS BEFORE GOING TO C-1

(10/86)

Form EIA-871A--Building Questionnaire

C. BUILDING OWNERSHIP AND OCCUPANCY CHARACTERISTICS

C-1. Is the building owned by: (READ EACH CATEGORY SEPARATELY)

	YES	NO	DK
1. A Federal Government agency?	1	2	8
2. A State Government agency?	1	2	8
3. A Local Government agency?	1	2	8

C-2. Is the building owner, or the owner's business, an occupant of this building?

YES 1
NO. 2
DON'T KNOW. 8

C-3. 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 during most of the year?

_____ (C-5)
NUMBER OF PEOPLE

DON'T KNOW OR WON'T ESTIMATE. 9-8 (C-4)

C-4. Here is a card which shows categories. (HAND CARD 3) Which category in your estimation best applies to the number of people who work in the building?

HAND CARD 3

1-4 01
5-9 02
10-19 03
20-49 04
50-99 05
100-249 06
250-499 07
500-999 08
1,000-2,499 09
2,500-4,999 10
5,000 or more 11
DON'T KNOW. 98

C-5. What were the usual operating hours for the building during calendar year 1986? By "in operation," we mean the usual number of hours each day at least 50% of the building's square footage was in full use. Let's start with: (READ EACH DAY)

DAY(S)	TIME	OPEN 24 HOURS	NOT OPEN
Monday through Friday	____ AM PM to ____ AM PM	☐	☐
Saturday	____ AM PM to ____ AM PM	☐	☐
Sunday	____ AM PM to ____ AM PM	☐	☐
Holidays	____ AM PM to ____ AM PM	☐	☐

D. BUILDING ENVELOPE CHARACTERISTICS

D-1. Now I would like to ask you some questions about the physical characteristics of the building. When was the construction of the major or largest portion of the building completed?

_____ (D-3)
YEAR

DON'T KNOW. 9-8 (D-2)

D-2. Here is a card which has several categories of years. (HAND CARD 4) Which category in your estimation best contains the year the largest portion of the building was completed?

HAND CARD 4

1900 or before. 01
1901-1920 02
1921-1945 03
1946-1960 04
1961-1970 05
1971-1973 06
1974-1979 07
1980-1983 08
1984 to present 09
DON'T KNOW. 98

D-3. How many floors are in the tallest section of the building? Please include basements, floors that may be used as a parking garage, or any other floors below ground level.

_____
OF FLOORS

D-4. Approximately what percentage of the exterior wall surface of this building is covered with glass doors or window glass? By glass doors or window glass we mean glass that can be seen through from the inside.

_____ (D-6)
PERCENT

DON'T KNOW. 998 (D-5)

D-5. Here is a card that shows categories. (HAND CARD 5) Which category, in your estimation, best describes the percent of the exterior wall surface of this building that is covered with glass doors or window glass?

HAND CARD 5

0 percent 1
1-25 percent. 2
26-50 percent 3
51-75 percent 4
76 percent or more. 5
DON'T KNOW. 8

D-6. Here is a card that shows different types of construction materials. (HAND CARD 6) What is the major type of exterior wall construction material used on this building? [CODE ONLY ONE RESPONSE]

HAND CARD 6

Glass exterior coverings that are not window glass (such as glass blocks or spandrels) 01
Concrete panels 02
Brick, stone, stucco, or other masonry over wood frame 03
Wood, plastic or metal siding over wood frame. 04
Metal siding - over masonry wall. 05
Brick, stone, stucco or other masonry wall over masonry wall (solid masonry wall). . . 06
Brick, stone, stucco or other masonry wall over a steel frame 07
Pre-engineered metal or light-weight metal panel 08
Other (SPECIFY) _____. . . 09
DON'T KNOW. 98

D-7. Now I would like to ask you a few questions about the roof on this building. (HAND CARD 7) Here is a card that shows different size categories. Which of these square footage categories, in your estimation, best describes the total exposed surface area of the roof on this building?

HAND CARD 7

5,000 square feet or less 01
5,001 to 10,000 square feet 02
10,001 to 25,000 square feet. 03
25,001 to 50,000 square feet. 04
50,001 to 100,000 square feet 05
100,001 to 200,000 square feet. 06
200,001 to 500,000 square feet. 07
500,001 to 1 million square feet. 08
Over 1 million square feet. 09
DON'T KNOW. 98

D-8. Here is a card with different types of roofing materials. (HAND CARD 8) Which of the following best describes the building's major type of roof surface? [CODE ONLY ONE RESPONSE]

HAND CARD 8

Wood shingles, shakes and other wooden materials 01
Slate or tile 02
Shingles - asphalt, fiberglass, etc. 03
Built-up (tar, felts or fiberglass and a ballast, such as stone) 04
Metal surfacing 05
Single ply synthetic (plastic/rubber) 06
Other (SPECIFY) _____
_____. . . 07
DON'T KNOW. 98

E. HEATING AND COOLING SYSTEMS

E-1. What percentage of the total square footage in this building you mentioned before is heated to at least 50 degrees Fahrenheit? (Be sure to include basements or enclosed garages if they are heated to at least 50 degrees.)

_____ PERCENTAGE

DON'T KNOW. 998

E-2. What percentage of the square footage in this building is cooled?

_____ PERCENTAGE

DON'T KNOW. 998

IF BOTH OF THE PERCENTAGES HEATED AND COOLED ARE ZERO, THEN SKIP TO SECTION F. OTHERWISE CONTINUE.

E-3. Here is a card that shows primary heating and cooling equipment. (HAND CARD 9) During the 1986 calendar year did this building use:

HAND CARD 9

HEATING OR COOLING EQUIPMENT	YES	NO	DON'T KNOW
a) Boilers inside the building?	1	2	8
b) Furnaces that heat air directly, without using steam or hot water coils?	1	2	8
c) Water source heat pump?	1	2	8
d) Air source heat pump?	1	2	8
e) Central cooling (for example, chillers)?	1	2	8
f) Electric baseboards, individual space heaters, free-standing or mounted in walls or floors?	1	2	8
g) Individual air conditioners, mounted through the walls or windows?	1	2	8
h) Packaged rooftop units used for heating?	1	2	8
i) Packaged rooftop units used for cooling?	1	2	8
j) Evaporative cooler (that is, "swamp coolers")?	1	2	8
k) Some other heating or cooling equipment?	1	2	8
(SPECIFY) _____			

E-4. Now think about the system or systems which distribute heating and cooling throughout the building. (HAND CARD 10)

HAND CARD 10

A: How was heating or cooling delivered throughout this building in 1986? Did you use: SYSTEM TYPE	YES	NO	DON'T KNOW	B: FOR EACH DISTRIBUTION SYSTEM MENTIONED IN COLUMN A, ASK: Did the system deliver heating or cooling, or both in 1986? HEATING ONLY	COOLING ONLY	BOTH HEATING AND COOLING	DON'T KNOW
a) Forced air distributed through ducts?	1	2	8	1	2	3	8
b) Fan-coil units? (These are thermostatically controlled units in individual rooms. Hot or cold water or steam must be piped into the unit, and it has a built-in fan.)	1	2	8	1	2	3	8
c) Steam radiators or baseboards?	1	2	8				
d) Hot water baseboards or radiators?	1	2	8				
e) Heating panels in the walls, ceiling or floors?	1	2	8				
f) Some other system? (SPECIFY) _____	1	2	8	1	2	3	8

E-5. Other than maintenance personnel, do most tenants in the building have control over the heating temperatures; that is, are they able to turn the heating on or off, or to set the temperature in their area? How about for cooling?

HEATING	COOLING
YES 1	YES 1
NO. 2	NO. 2
NO HEATING. . . 7	NO COOLING. . . 7
DON'T KNOW. . . 8	DON'T KNOW. . . 8

E-6. As part of the building's standard operating procedure, do you reduce the amount of heating produced during the hours when the building is not in full use? How about for cooling?

HEATING	COOLING
YES 1	YES 1
NO. 2	NO. 2
NO HEATING. . . 7	NO COOLING. . . 7
DON'T KNOW. . . 8	DON'T KNOW. . . 8

E-7. Was any space in the building vacant or unoccupied for at least 3 consecutive months during calendar year 1986?

YES 1 (E-8)
NO. . . . . 2 (F)
DON'T KNOW. . . . . 8 (F)

E-8. Approximately what percentage of the square feet was vacant or unoccupied for at least 3 consecutive months during 1986?

_____
PERCENTAGE VACANT

DON'T KNOW. 998

E-9. During that time, was there a reduction in the amount of heating or cooling supplied to the vacant or unoccupied area compared to what it would have received if it were occupied?

YES 1
NO. 2
DON'T KNOW. 8

F. THE LIGHTING SYSTEM

The next set of questions pertains to the lighting system in this building.

F-1. What percentage of the total square footage of the interior of the building is lit electrically. . .

a) During usual operating hours?

_____ %

BUILDING NOT LIT. 997
DON'T KNOW. 998

b) During off hours?

_____ %

BUILDING NOT LIT. 997
DON'T KNOW. 998

IF BUILDING NEVER LIT (F-1a AND F-1b = "NOT LIT"), SKIP TO SECTION G.

F-2. Here is a card which lists the different types of lighting equipment. (HAND CARD 11)

HAND CARD 11

What percentage of the electrically lighted interior space of this building is lit by:	% FOR EACH LIGHTING TYPE
a. Energy Efficient Incandescent bulbs?	_____%
b. Standard incandescent bulbs?	_____%
c. Energy efficient fluorescent lights?	_____%
d. Standard Fluorescent lights?	_____%
e. High Intensity Discharge lights such as mercury vapor, metal halide and sodium lights?	_____%
f. Some other electric lighting equipment? (SPECIFY) _____	_____%
	TOTAL SHOULD EQUAL 100%

G. ENERGY CONSERVATION PRACTICES

G-1. Was an energy audit ever performed in this building?

YES . . . . . 1 (PLACE CHECK (✓) ABOVE COL. D AND GO TO G-2)
NO. 2 (G-3)
DON'T KNOW. 8 (G-3)

G-2. In what year was it performed?

_____ YEAR
DON'T KNOW. 9-8 (G-3)

IF MORE THAN ONE AUDIT, OBTAIN DATE OF MOST RECENT.

a. IF IN 1986: In what month?

_____ MONTH
DON'T KNOW. 9-8

☐ CHECK (✓) IF ENERGY AUDIT

G-3. This next section deals with energy conservation measures in place in this building as of December 31, 1986. ASK ABOUT EACH FEATURE IN THIS COLUMN; THEN GO BACK AND WORK ACROSS GRID FOR EACH "YES."	COLUMN A			COLUMN B IF "YES" IN COLUMN A, ASK: (Was/Were) the (FEATURE) installed at the time of construction or added afterwards?			COLUMN C IF FEATURE "ADDED" ASK: When was the (FEATURE) added? Was it added in 1986, between 1980 and 1985, or before 1980?				COLUMN D ONLY ASK IF "ADDED" AND ENERGY AUDIT: Was the (FEATURE) added as a result of an energy audit?			COLUMN E IF FEATURE "ADDED" ASK: Was energy cost savings the primary reason for having the (FEATURE)?		
FEATURE	YES	NO	DK	DK	INSTALLED	ADDED	1986	1980-1985	BEFORE 1980	DK	YES	NO	DK	YES	NO	DK
a. Does your HVAC system (heating and/or cooling system) have:																
1. A variable air volume (VAV) system?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
2. Any waste heat recovery equipment?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
3. Any other HVAC conservation measures?..... (SPECIFY) _____	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
b. Does your lighting system have:																
4. High efficiency ballasts?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
5. Lighting control sensors that detect natural light (daylighting controls)?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
6. Other lighting controls such as occupancy sensors, timed switches and/or time clocks?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
7. Any other lighting system conservation features?..... (SPECIFY) _____	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
c. Are any of these features present in the building shell:																
8. Roof or ceiling insulation?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
9. Wall insulation?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
10. Storm windows or double or triple-paned glass?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
11. Tinted or reflective glass or shading films?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
12. Exterior or interior shadings or awnings?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
13. Weatherstripping or caulking?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
14. Any other building shell conservation features?..... (SPECIFY) _____	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
d. Finally, does the building have:																
15. A regularly scheduled preventive maintenance program for the heating and/or cooling system?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
16. A computerized energy management and control system?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
17. A delamping program: removing unnecessary lights and disconnecting the associated ballasts?.....	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8
18. Any other energy conservation features you would like to mention?..... (SPECIFY) _____	1	2	8	8	1	2 →	1	2	3	8	1	2	8	1	2	8

H. ELECTRICITY QUESTIONS

H-1. Do you have the capability of generating your own electric power in this building?

YES 1
NO. 2 (I-1)
DON'T KNOW. 8 (I-1)

H-2. Here is a list of ways in which electricity generators can be used. Please indicate the primary use of the generators in the building. (HAND CARD 12)

HAND CARD 12

a) Emergency back-up generation, for use only when there is an interruption of normal service from your utility 1 (I-1)
b) Generators used only during periods of high electric power demand. 2 (H-3)
c) Generators operating continuously for most of the year 3 (H-3)
d) Other (SPECIFY) _____ 4 (I-1)
e) DON'T KNOW 8 (I-1)

H-3. Is the electric power generating system in this building also a cogeneration system? That is, in addition to producing electric power, does the system also produce heat which is used in this or another building for space heating, water heating, or air cooling, industrial processes, and so on?

YES 1
NO. 2
DON'T KNOW. 8

H-4. During calendar year 1986, how many kilowatt-hours of electricity were generated in this building?

_____
KILOWATT-HOURS

ELECTRICITY NOT GENERATED IN 1986 . . 9-7 (I-1)
DON'T KNOW. 9-8

H-5. During calendar year 1986, was the electric power generated onsite:

a) Totally consumed within the building? 1
b) Partially or totally delivered to the local electric utility? 2
c) Partially or totally delivered to another building or buildings? 3
d) DON'T KNOW 8

INTENTIONALLY LEFT BLANK

I. ENERGY SOURCES, SUPPLIERS AND WAIVERS SECTION

I-1. 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 13)

HAND CARD 13

- Electricity
- Natural Gas
- Fuel Oil, Diesel or Kerosene which is consumed in the building
- LPG or bottled gas
- Purchased Steam
- Steam piped in from a central plant but not purchased
- Purchased Hot Water
- Hot water piped in from a central plant but not purchased
- Purchased Chilled Water
- Chilled water piped in from a central plant but not purchased
- *Wood
- *Coal
- *Active Solar with collector panels
- *Other (RECORD IN COLUMN HEADINGS)

RECORD ENERGY SOURCES IN COLUMN HEADINGS ON TOP OF FACING PAGE, INCLUDING THE ASTERISK (*). IF MORE COLUMNS ARE NEEDED, USE CONTINUATION BOOKLET.

I-2. HAS R MENTIONED FUEL OIL OR DIESEL?

YES 1
NO. 2 (I-4)

I-3. Think about the fuel oil storage tanks for this building. What is the total capacity, in gallons, of all the fuel oil storage tanks?

_____
GALLONS OF TOTAL FUEL OIL STORAGE TANK CAPACITY

DON'T KNOW. 9-8

(10/86)

* MEANS DO NOT ASK QUESTIONS I-5 THROUGH I-14 FOR THIS ENERGY SOURCE.

	ENERGY SOURCES			
	TYPE OF ENERGY	TYPE OF ENERGY	TYPE OF ENERGY	TYPE OF ENERGY
	SUPPLIERS			
NAME:				
ADDRESS:				
ZIP:				

INTENTIONALLY LEFT BLANK

Note: Pages 19 through 26 of this form were cut so that the energy sources on top of page 27 are visible when using these pages.

I-4. (HAND RESPONDENT CARD 13.) Which of the fuels or energy sources listed on this card are used to supply the building's need for: (RECORD RESPONSES BY CHECKING APPROPRIATE COLUMN(S) ON FACING PAGE OR "NOT PERFORMED.")

HAND CARD 13

	NOT PERFORMED IN BUILDING
a. The primary fuel for space heating?	☐
b. The secondary fuel for space heating? . . .	☐
c. Cooling?.	☐
d. The primary fuel for water heating other than for heating the building	☐
e. The secondary fuel for water heating? . . .	☐
f. Commercial cooking?	☐
g. Manufacturing or any other type of industrial activity?.	☐
h. Fuel used to generate electricity (other than for emergency back-up) in this building?	☐

ASK I-5 THROUGH I-14 CONSECUTIVELY FOR EACH ENERGY SOURCE RECORDED IN THE COLUMN HEADINGS ON TOP OF FACING PAGE THAT DOES NOT HAVE AN ASTERISK (*).

The following questions ask about specific companies that supply energy to this building.

I-5. May I have the name and address of the company that has supplied (MENTION ENERGY SOURCE) *during calendar year 1986?* (RECORD COMPLETE SUPPLIER NAME AND ADDRESS UNDER APPROPRIATE ENERGY SOURCE. IF MORE THAN ONE SUPPLIER IS MENTIONED, RECORD ADDITIONAL SUPPLIERS IN CONTINUATION BOOKLET, IF NECESSARY.)

I-6. Has any other company supplied the building's (ENERGY SOURCE) in the past year?

YES . . . . . .
NO. . . . . .
DON'T KNOW. . . . . .

a. . . . ☐	a. . . . ☐	a. . . . ☐	a. . . . ☐
b. . . . ☐	b. . . . ☐	b. . . . ☐	b. . . . ☐
c. . . . ☐	c. . . . ☐	c. . . . ☐	c. . . . ☐
d. . . . ☐	d. . . . ☐	d. . . . ☐	d. . . . ☐
e. . . . ☐	e. . . . ☐	e. . . . ☐	e. . . . ☐
f. . . . ☐	f. . . . ☐	f. . . . ☐	f. . . . ☐
g. . . . ☐	g. . . . ☐	g. . . . ☐	g. . . . ☐
h. . . . ☐	h. . . . ☐	h. . . . ☐	h. . . . ☐
YES . . . 1	YES . . . 1	YES . . . 1	YES . . . 1
NO. . . . 2 (I-8)	NO. . . . 2 (I-8)	NO. . . . 2 (I-8)	NO. . . . 2 (I-8)
DK. . . . 8 (I-8)	DK. . . . 8 (I-8)	DK. . . . 8 (I-8)	DK. . . . 8 (I-8)

I-7. 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 ON FACING SHEET OR IN CONTINUATION BOOKLET)

I-8. Is the building occupied by one, or more than one establishment, organization, company or agency?

NONE, COMPLETELY VACANT. 1 (I-12)
ONE. 2 (I-12)
MORE THAN ONE. 3 (I-9)
DON'T KNOW 8 (I-12)

I-9. Is there a bill from (SUPPLIER) for (ENERGY SOURCE) for the entire building or are any of the tenants or establishments billed separately?

ONE BILL. . . . . .
MORE THAN ONE BILL. . . . . .

I-10. How many separately billed tenants are there?

I-11. We would like to contact each tenant or establishment who receives a bill from (NAME OF SUPPLIER) to obtain information about each one's energy consumption. Please tell me the name of each company, organization or agency that received a bill from (NAME OF SUPPLIER) for the building's use of (NAME OF ENERGY SOURCE) during calender year 1986?

IF LIST IS NOT PROVIDED, RECORD NAME AND ADDRESS OF EACH TENANT WHO RECEIVES A SEPARATE BILL ON A "SUPPLIER CUSTOMER SHEET."

I-12. 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. . . . . .

(10/86)

Form EIA-871A--Building Questionnaire

. . . . . 1 (I-12) 2 (I-10)	. . . . . 1 (I-12) 2 (I-10)	. . . . . 1 (I-12) 2 (I-10)	. . . . . 1 (I-12) 2 (I-10)
NUMBER OF BILLS	NUMBER OF BILLS	NUMBER OF BILLS	NUMBER OF BILLS
LIST PROVIDED. . 1 NOT PROVIDED . . 2 GO TO NEXT COL. OR I-15.	LIST PROVIDED. . 1 NOT PROVIDED . . 2 GO TO NEXT COL. OR I-15.	LIST PROVIDED. . 1 NOT PROVIDED . . 2 GO TO NEXT COL. OR I-15.	LIST PROVIDED. . 1 NOT PROVIDED . . 2 GO TO NEXT COL. OR I-15.

(10/86)

Form EIA-871A--Building Questionnaire

I-13. Does the bill you receive from (NAME OF SUPPLIER) cover just this building or does it cover another building?

JUST THIS BUILDING. . . . . 1 (BOX 4)
ALSO COVERS ANOTHER BUILDING. 2 (I-14)
DON'T KNOW. . . . . 8 (BOX 4)

I-14. What is the approximate square footage of the other buildings that are served by this bill?

BOX 4

CHECK NEXT COLUMN ON FACING SHEET AND CONTINUATION BOOKLET.

- IF NO OTHER ENTRIES, GO TO I-15.

- OTHERWISE, GO TO I-5 (FOR ENERGY SOURCE WITHOUT *) OR I-9 (FOR ADDITIONAL SUPPLIER)

(10/86)

. . . . . 1 (BOX 4) . . . . . 2 (I-14) . . . . . 8 (BOX 4)	. . . . . 1 (BOX 4) . . . . . 2 (I-14) . . . . . 8 (BOX 4)	. . . . . 1 (BOX 4) . . . . . 2 (I-14) . . . . . 8 (BOX 4)	. . . . . 1 (BOX 4) . . . . . 2 (I-14) . . . . . 8 (BOX 4)
SQUARE FOOTAGE DON'T KNOW. . . 9-8	SQUARE FOOTAGE DON'T KNOW. . . 9-8	SQUARE FOOTAGE DON'T KNOW. . . 9-8	SQUARE FOOTAGE DON'T KNOW. . . 9-8

(10/86)

WAIVERS

I-15. As I mentioned, the purpose of this study is to relate building characteristics with energy consumption and expenditures. This information can only be obtained by going directly to each energy supplier of this building. In order for the energy company to release this information to Westat, we need to have an authorization form from you, or some other representative of your company.

Should the authorization form be signed by you or someone else?

RESPONDENT. . . . . 1 (OBTAIN WAIVER)
SOMEONE ELSE (SPECIFY). . . . . 2 (RECORD BELOW)

NAME: _____

TITLE: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

PHONE NUMBER: _____

I-16. CHECK LABEL: HAS THIS BUILDING BEEN SELECTED FOR THE SUPPLEMENT?

YES. . . . . 1 (RECORD TIME BELOW AND GO TO SUPPLEMENT)
NO 2

This completes the interview. Thank you very much for your time and help.

TIME ENDED: _____

(10/86)

* MEANS DO NOT ASK QUESTIONS I-5 THROUGH I-14 FOR THIS ENERGY SOURCE.

	ENERGY SOURCES			
	TYPE OF ENERGY	TYPE OF ENERGY	TYPE OF ENERGY	TYPE OF ENERGY
	SUPPLIERS			
NAME:				
ADDRESS:				
ZIP:				

(10/86)

INTERVIEWER OBSERVATIONS

FILL THIS OUT IF YOU COMPLETE THE BUILDING INTERVIEW.

1. Does the interview's definition of the building agree with the listing sheet (BOX 2 = "CORRECT")?

YES, AGREES WITH LISTING 1 (Q.3)
NO 2

2. 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.

_____

_____

_____

3. The individual who completed all or most of the questionnaire should be recorded on the front cover. Did any other person respond to the questionnaire?

YES. 1 (Q.4)
NO 2 (Q.5)

4. *Please list all other respondents.*

NAME: _____

TITLE: _____

LOCATION: _____ PHONE NO. ( ) _____

NAME: _____

TITLE: _____

LOCATION: _____ PHONE NO. ( ) _____

(10/86)

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

_____

_____

_____

6. ANSWER IF INDUSTRIAL BUILDING IS MENTIONED IN QUESTION 5: Is this building part of an industrial establishment, campus or complex?

YES. 1
NO 2

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

FREE STANDING. 1
ATTACHED 2

8. Please describe any unusual circumstances you may have encountered in obtaining the waiver. *(If you did not obtain the waiver, explain who refused and why.)*

_____

_____

_____

_____

_____

9. IF SHOPPING CENTER/MALL:

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

STRIP SHOPPING CENTER. 1
ENCLOSED MALL. 2

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

LESS THAN 10 1
10-24. 2
25-49. 3
50-74. 4
75-100 5
OVER 100 6

(10/86)

NON-INTERVIEW REPORT

FILL THIS OUT IF YOU DID NOT COMPLETE THE BUILDING INTERVIEW.

1. Why were you unable to complete the interview?

REFUSAL/BREAKOFF 1
INELIGIBLE BUILDING. 2 (Q.4)
RESPONDENT CANNOT BE CONTACTED 3

2. IF NOT RECORDED ON FRONT COVER: What is the name, title, and telephone number of the individual who refused, broke off, or could not be contacted for the interview?

NAME: _____

TITLE: _____

TELEPHONE NO. ( ) _____

3. Why did s/he refuse? (RECORD VERBATIM) OR: Why were there problems contacting the respondent?

_____

SKIP TO Q.5

(10/86)

4. Please explain in detail why the building was ineligible for the interview?

_____

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

_____

6. IF INDUSTRIAL OR AGRICULTURAL MENTIONED IN Q.5: Would you estimate that 50% or more of the space in this building is used for (industrial/agricultural) activities?

YES. 1
NO 2
DON'T KNOW 8

7. What is the length of the building along the street (linear footage)? IF YOU CAN'T ESTIMATE, ENTER NUMBER OF "CAR LENGTHS" ALONG THE STREET.

_____
LENGTH IN FEET

OR

_____
CAR LENGTHS

8. How many floors does the building have, ground level and above?

_____
OF FLOORS

(10/86)

SUPPLIER CUSTOMER SHEET

ENERGY SOURCE: _____

SUPPLIER'S NAME: _____

I-11 LIST OF RECIPIENTS OF SEPARATE BILLS	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 _____	_____ _____
9. Name _____ Address _____	_____ _____
10. Name _____ Address _____	_____ _____

(10/86)

Form Approval:
OMB No: 1905-0145
Expires: 9/30/89
Form EIA-871A

UNITED STATES DEPARTMENT OF ENERGY
NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY

AUTHORIZATION FORM

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 the fuels consumed during the 26 month period of December 1, 1985 to January 31, 1988 by the building/establishment identified below.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever is applicable. A photocopy of this authorization may be accepted with the same authority as the original.

Building name

Address

City State ZIP

Please print name of authorizing person Employed by ( ) Telephone

Signature of authorizing person Address (if different than above)

Title City State ZIP

PLEASE COMPLETE ONE BLOCK FOR EACH COMPANY THAT SUPPLIED FUEL USED BY THE ABOVE NONRESIDENTIAL BUILDING SINCE DECEMBER 1, 1985.

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

CONTINUED ON REVERSE SIDE

(10/86)

Form EIA-871A--Authorization

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY
AUTHORIZATION FORM (Continued)

Signature of Authorizing Person

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

Energy Source
Print full name of company
Address (if known) City and State ZIP
( )
Telephone
Account Number(s)

(10/86)

P.U.S. GOVERNMENT PRINTING OFFICE: 1986-181-140:40142

Form EIA-871A--Authorization

CONSTRUCTION IMPROVEMENTS AND MAINTENANCE AND REPAIRS SUPPLEMENT

CORRECT LABEL AS NECESSARY

ID: _____

BUILDING NAME: _____

ADDRESS: _____
STREET

_____
CITY STATE ZIP

COMMENTS: _____

NAME REFERS TO:

NAME OF BUILDING. . 1

NAME OF MAJOR ESTABLISHMENT. . 2

TIME BEGAN: _____

I have a few final questions. Up to now, we have been asking you about the energy-related features of this building. However, the next couple of questions collect information about expenditures for construction improvements and maintenance and repairs to this building during 1986. This information will be used to measure the effect of these activities on the U.S. economy.

First, let's think about your expenditures for construction improvements to this building.

1. Approximately, what is the total amount of money spent by you and all other (persons/businesses) during calendar year 1986 for construction improvements, including additions, alterations, and major replacements to this building? Construction improvements are defined on this card. [HAND CARD 14]

HAND CARD 14

$ _____ (2)
DOLLARS SPENT

NEEDS A FEW DAYS TO COMPILE DATA 6 (1a)
DON'T KNOW 7-8 (1b)

1a. When can I call you back to get this information? _____ _____ (2)
DATE TIME

INTERVIEWER NAME: _____ ID NO. _____

Form EIA-871G--The Supplement

NAME

TELEPHONE NUMBER

COMPLETE ADDRESS

NO ONE PERSON KNOWS THE TOTAL. . . . . 6 (BOX A)
DON'T KNOW . . . . . 8 (BOX A)

BOX A

CHECK QUESTIONS C-2 (pg.6) AND I-8 (pg.22) AND CIRCLE ONE:

1. ONE ESTABLISHMENT IN BUILDING: OCCUPIED BY OWNER/OWNER'S BUSINESS 1 (2)
2. ONE ESTABLISHMENT IN BUILDING: NOT OCCUPIED BY OWNER'S BUSINESS 2 (1c)
3. MORE THAN ONE ESTABLISHMENT IN BUILDING: OWNER(S) AND TENANT(S) OR ONLY TENANTS 3 (1c)
4. VACANT 4 (1c)

1c. How much money did the owners spend on construction improvements to this building during calendar year 1986?

$ _____ (1e)
DOLLARS SPENT

DON'T KNOW 9-8 (1d)

1d. What is the name and address and telephone number of someone who knows how much the owner spent on construction improvements to this building?

_____ ( )
NAME TELEPHONE NUMBER

_____ (1e)
COMPLETE ADDRESS

Form EIA-871G--The Supplement

1e. IF CURRENTLY VACANT, SKIP TO Q2. OTHERWISE, ASK Q1f.

1f. How much (additional) money did (all) the current tenant(s) spend on construction improvements to this building during calendar year 1986?

$ _____ (2)
DOLLARS SPENT
DON'T KNOW 9-8

IF MORE THAN ONE ESTABLISHMENT, GO TO Q.1g
IF ONE ESTABLISHMENT, SKIP TO Q.1h.

1g. CHECK LABEL: IS MULTITENANT BUILDING SELECTED FOR FOLLOWUP?

YES. 1
NO 2 (2)

1h. What (is/are the name(s), address(es) and telephone number(s) of the current tenant(s) in this building? [IF MORE THAN ONE TENANT, RECORD NAMES, ADDRESSES, AND TELEPHONE NUMBERS AT THE END OF THIS SUPPLEMENT.]

_____ ( ) _____ (2)
NAME ADDRESS TELEPHONE NUMBER

2. Now let's think about expenditures for maintenance and repairs to this building. Approximately what is the total amount of money spent by you and all other (persons/businesses) during calendar year 1986 for maintenance and repairs to this building? (HAND CARD 15) (That is, current costs for the upkeep of the property rather than additional investment in the property)

HAND CARD 15

$ _____ (TERMINATE)
DOLLARS SPENT
NEEDS A FEW DAYS TO COMPILE DATA 6 (2a)
DON'T KNOW 9-8 (2b)

2a. When can I call you back to get this information? _____ _____ (TERMINATE)
DATE TIME

2b. What is the name, address, and telephone number of the person who knows the total amount spent on maintenance and repairs for this building during calendar year 1986?

_____ ( ) _____
NAME TELEPHONE NUMBER
_____ (TERMINATE)
COMPLETE ADDRESS

NO ONE PERSON KNOWS THE TOTAL. . . . . 6 (BOX B)
DON'T KNOW . . . . . 8 (BOX B)

BOX B: EXPENDITURES FOR MAINTENANCE AND REPAIRS

CHECK QUESTIONS C-2 AND I-8 AND CIRCLE ONE:

1. ONE ESTABLISHMENT IN BUILDING: OCCUPIED BY OWNER/OWNER'S BUSINESS . . . 1 (TERMINATE)
2. ONE ESTABLISHMENT IN BUILDING: NOT OCCUPIED BY OWNER'S BUSINESS 2 (2c)
3. MORE THAN ONE ESTABLISHMENT IN BUILDING: OWNER(S) AND TENANT(S) OR ONLY TENANTS 3 (2c)
4. VACANT 4 (2c)

2c. How much money did the owners spend on maintenance and repairs to this building during calendar year 1986?

$ _____ (2e)
DOLLARS SPENT
DON'T KNOW 9-8 (2d)

2d. What is the name and address and telephone number of someone who knows how much the owner spent on maintenance and repairs to this building during calendar year 1986?

_____ ( ) _____
NAME TELEPHONE NUMBER
_____ (2e)
COMPLETE ADDRESS

2e. IF CURRENTLY VACANT, TERMINATE. OTHERWISE, ASK Q.2f.

2f. How much (additional) money did (all) the current tenant(s) spend on maintenance and repairs for this building during calendar year 1986?

$ _____ (TERMINATE)
DOLLARS SPENT
DON'T KNOW 8

IF MORE THAN ONE ESTABLISHMENT, GO TO Q.2g
IF ONE ESTABLISHMENT, SKIP TO Q.2i.

2g. CHECK LABEL: IS MULTITENANT BUILDING SELECTED FOR FOLLOWUP?

YES. 1
NO . . . . . 2 (TERMINATE)

2h. HAS A COMPLETE TENANT LIST BEEN OBTAINED AT Q.1h?

YES. . . . . 1 (TERMINATE)
NO 2

2i. What (is/are) the name(s), address(es) and telephone number(s) of the current tenant(s) in this building? [IF MORE THAN ONE TENANT, RECORD NAMES, ADDRESSES, AND TELEPHONE NUMBERS AT THE END OF THIS SUPPLEMENT.]

_____ ( )
NAME ADDRESS TELEPHONE NUMBER

TERMINATE: This completes the interview. Thank you very much for your time and help.

TIME ENDED: _____

INTERVIEWER OBSERVATION

INDICATE WHO PROVIDED THE INFORMATION ON EXPENDITURES FOR CONSTRUCTION IMPROVEMENTS AND MAINTENANCE AND REPAIRS:

	CONSTRUCTION IMPROVEMENTS	MAINTENANCE AND REPAIRS
OWNER	☐	☐
OWNER'S BUSINESS OR REPRESENTATIVE	☐	☐
TENANT	☐	☐
TENANT REPRESENTATIVE	☐	☐
OTHER (SPECIFY) _____	☐	☐

RESPONDENT NAME: _____ TELEPHONE: ( )

REMEMBER:
IF MULTITENANT LIST REQUIRED, MAKE SURE YOU HAVE ALL TENANTS RECORDED ON FOLLOWING PAGES.

(10/86) 5

Form EIA-871G--The Supplement

NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF TENANTS/OWNERS

CHECK, IF MAJOR TENANT

1. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

2. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

3. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

4. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

5. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

6. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

7. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

8. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

9. NAME: _____ ☐
ADDRESS: _____
TELEPHONE NO. ( )

(10/86) 6

*U.S. GOVERNMENT PRINTING OFFICE:1986-181-120:40169

Form EIA-871G--The Supplement

NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF TENANTS/OWNERS

CHECK, IF MAJOR TENANT

1. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

2. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

3. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

4. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

5. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

6. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

7. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

8. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

9. NAME: _____ |__|

ADDRESS: _____

TELEPHONE NO. ( ) _____

(10/86)

7

Form EIA-871G--The Supplement

CALL RECORD

USE THIS ONLY TO RECORD CONTACT ATTEMPTS MADE AFTER BUILDING INTERVIEW TO OBTAIN SUPPLEMENT INFORMATION

DATE	TIME	INT	TYPE OF CONTACT		RESULT CODE	APPOINTMENT/ CALLBACK TIME	COMMENTS
			IP	TEL			

FINAL RESULT CODE (CIRCLE ONE)

	SUPPLEMENT
COMPLETE	1
REFUSAL/BREAK OFF	2
UNABLE TO CONTACT R	3

INTERIM RESULT CODES (RECORD ABOVE)

NC	NO CONTACT
AP	DEFINITE APPOINTMENT
CB	CALLBACK
RB	REFUSAL OR BREAKOFF
PR	PROBLEM
OT	OTHER

OFFICE USE ONLY

VAL DATE: _____

VAL RESULT: _____

DATE REC'D: _____

DATE SCANNED: _____

DISPOSITION: _____

(10/86)

8

Form EIA-871G--The Supplement

Form Approval
OMB No: 1905-0145
Expires: 9/30/89
Form EIA-871
Type: B-2

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY FOR 1986

AGGREGATE USAGE OF BOTTLED GAS

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

A copy of the authorization form signed by the building owner/manager is stapled inside.

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

Additional instructions for completing the form are on the back cover of this folder.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871B-2--Aggregate Usage of Bottled Gas

Form EIA-871B-2
OMB No: 1905-0145

1. In the table below, please report all bottled gas deliveries to this building during the period from December 1, 1985 through January 31, 1987.

Time Period	Delivery Date	Quantity of Bottled Gas Delivered (in Gallons)	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,
- Fuel adjustment charges,
- System charges (minimum bill or base charge), and
- Demand charges.

*TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment fees, etc.), and
- Any other charges not specifically listed at left.

2. Please check box(es) to indicate type(s) of bottled gas delivered to this building.

☐ Propane
☐ Other (SPECIFY) _____

3a. According to your records, how many customers do you currently supply in this building? a._____

3b. During the period from 12/1/85 through 1/31/87 how many additional customers did you supply who are no longer in the building? b._____

3c. How many of the customers in 3a and 3b are included *in the consumption information reported in Item 1?* PLEASE ANSWER SEPARATELY FOR CURRENT CUSTOMERS (3a) AND FORMER CUSTOMERS (3b). a._____ b._____

4. Does the information in Item 1 above include deliveries to any building(s) other than the building shown on the label on the cover of this folder? (CHECK ONE BOX.)

YES	NO	DON'T KNOW
☐	☐	☐

5. Form completed by: _____ NAME ( ) _____ TELEPHONE _____ DATE

Form EIA-871B-2--Aggregate Usage of Bottled Gas

INSTRUCTIONS

Purpose of the Survey

The Nonresidential Buildings Energy Consumption Survey (NBECS) collects data on energy consumption, expenditures, and usage patterns for the nonresidential buildings sector of the U.S. economy. The information collected on the NBECS will be used to publish aggregate statistics on (1) the consumption and expenditures of energy by different types of buildings and (2) other consumption related issues.

Purpose of this Form

The purpose of this reporting form is to obtain information on aggregate consumption of bottled gas (also called LPG, propane or butane) for the building identified on the label on the front cover of this folder. The aggregate to be reported is the sum of the individual amounts delivered to all separately billed customers in the building during the period from 1 December 1985 through 31 January 1987. The aggregate should include former customers who were in the building during the reporting period, as well as all residential customers.

Definition of "Customer"

The term "customer" refers to a company, office, person, agency, etc., that is sent a bill for deliveries of bottled gas in the building. "Customer" means all separately billed tenants or occupants of the building, regardless of whether the bills are sent to the building address or to some other address. The term also includes any separate bill sent to the building management or owners for the costs of bottled gas used for the building as a whole (hallways, lobbies, areas used for storage or maintenance operations, etc.).

Item 2

Indicate the type of bottled gas delivered. If it is other than propane, please specify the type of bottled gas, e.g., propane/butane mixture, butane, etc.

Item 3

In your answers to Item 3, specify whether the consumption information reported in Item 1 represents less than total consumption in the building for which this form requests information. In Items 3a and 3b, report the total number of separately billed customers who occupied the building between 1 December 1985 and 31 January 1987. In Item 3a, show the customers who are now in the building; in Item 3b, show customers who were in the building at some time after 1 December 1985 but who are no longer in the building. In Item 3c, show the number of customers whose consumption is included in the totals in Item 1. Item 3c will equal the sum of 3a and 3b if consumption for all customers is included in Item 1; 3c will be less than the sum of 3a and 3b if consumption for any customer is excluded from Item 1.

Item 4

In your answer to Item 4, specify whether the consumption information reported in Item 1 represents more than total consumption for the building for which information is requested on this form. Check the YES box if the bills that furnished the information for Item 1 show substantial consumption in buildings other than the selected one and you are unable to report separately for the selected building. Check the NO box if the bills show consumption in the selected building only. (Also check the NO box if the figures include minor out buildings, such as a shed.)

Item 5

Please provide the name and telephone number (including area code) of the person who completed this form. This is the person we will contact if we have any questions about the completed form. Be sure to include the date of your response.

U.S. GOVERNMENT PRINTING OFFICE

TO RETAIN AUTHORIZATION FORM FOR YOUR RECORDS, TEAR ALONG PERFORATION

Form EIA-871B-2--Aggregate Usage of Bottled Gas

Form Approval
OMB No: 1905-0145
Expires: 9/30/89
Form EIA-871
Type: C-2

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY FOR 1986

AGGREGATE USAGE OF NATURAL GAS

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

A copy of the authorization form signed by the building owner/manager is stapled inside.

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

Additional instructions for completing the form are on the back cover of this folder.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871C-2--Aggregate Usage of Natural Gas

Form EIA-871C-2
OMB No: 1905-0145
Expires: 9/30/89

1. In the table below, please report natural gas consumption in this building during the period from December 1, 1985 through January 31, 1987.

Time Period	CONSUMPTION PERIOD: IF CUSTOMERS ARE ON THE SAME BILLING CYCLE: Beginning Date	Ending Date	IF CUSTOMERS ARE ON DIFFERENT BILLING CYCLES, RECORD MONTH	CONSUMPTION DATA: QUANTITY USED Expressed in: (Check One) ☐ Therms ☐ 100 cu. ft. ☐ cu. ft. ☐ 1000 cu. ft. ☐ Other (SPECIFY) _____	QUANTITY USED (Circle One) A-All actual E-All or some estimated	TOTAL DOLLAR AMOUNT*
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 (minimum bill or base charge), and
- Demand charges.

*TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment fees, etc.), and
- Any other charges not specifically listed at left.

IF ANY CUSTOMERS IN THIS BUILDING ARE ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

2a. According to your records, how many customers do you currently supply in this building? a._____

2b. During the period from 12/1/85 through 1/31/87 how many additional customers did you supply who are no longer in the building? b._____

2c. How many of the customers in 2a and 2b are included in the consumption information reported in Item 1? PLEASE REPORT SEPARATELY FOR CURRENT CUSTOMERS (2a) AND FORMER CUSTOMERS (2b). a._____ b._____

3. Does the information in Item 1 above include consumption in any building(s) other than the building shown on the label on the cover of this folder? (CHECK ONE BOX.) YES ☐ NO ☐ DON'T KNOW ☐

4a. Is this building on interruptible service? YES ☐ NO ☐ DON'T KNOW ☐

4b. If yes, what is the fuel used to supply this building's energy needs during the interrupted service period?

☐ Fuel Oil ☐ Other (SPECIFY) _____ ☐ DON'T KNOW
☐ Electricity _____

5. Form completed by: _____ (_____) _____
NAME TELEPHONE DATE

Form EIA-871C-2--Aggregate Usage of Natural Gas

INSTRUCTIONS

Purpose of the Survey

The Nonresidential Buildings Energy Consumption Survey (NBECS) collects data on energy consumption, expenditures, and usage patterns for the nonresidential buildings sector of the U.S. economy. The information collected on the NBECS will be used to publish aggregate statistics on (1) the consumption and expenditures of energy by different types of buildings and (2) other consumption related issues.

Purpose of this Form

The purpose of this reporting form is to obtain information on aggregate consumption of natural gas for the building identified on the label on the front cover of this folder. The aggregate to be reported is the sum of the individual amounts consumed by all separately billed customers in the building during the period from 1 December 1985 through 31 January 1987. The aggregate should include former customers who were in the building during the reporting period, as well as all residential customers.

Definition of "Customer"

The term "customer" refers to a company, office, person, agency, etc., that is sent a bill for usage of natural gas in the building. "Customer" means all separately billed tenants or occupants of the building, regardless of whether the bills are sent to the building address or to some other address. The term also includes any separate bill sent to the building management or owners for the costs of natural gas supplied to the building as a whole (hallways, lobbies, areas used for storage or maintenance operations, etc.).

Item 2

In your answers to Item 2, specify whether the consumption information reported in Item 1 represents less than total consumption in the building for which this form requests information. In Items 2a and 2b, report the total number of separately billed customers who occupied the building between 1 December 1985 and 31 January 1987. In Item 2a, show the customers who are now in the building; in Item 2b, show customers who were in the building at some time after 1 December 1985 but who are no longer in the building. In Item 2c, show the number of customers in each group (a and b) whose consumption is included in the totals in Item 1.

Item 3

In your answer to Item 3, specify whether the consumption information reported in Item 1 represents more than total consumption for the building for which information is requested on this form. Check the YES box if the bills that furnished the information for Item 1 show substantial consumption in buildings other than the selected one and you are unable to report separately for the selected building. Check the NO box if the bills show consumption in the selected building only. (Also check the NO box if the figures include minor out buildings, such as a shed.)

Item 4

Interruptible service is defined as service offered to customers under rate classifications, contracts or rate schedules which anticipate and permit interruption on short notice, generally in peak-load periods, by reason of the claim of firm-service customers and higher priority users.

Item 5

Please provide the name and telephone number (including area code) of the person who completed this form. This is the person we will contact if we have any questions about the completed form. Be sure to include the date of your response.

☆U.S. GOVERNMENT PRINTING OFFICE

TO RETAIN AUTHORIZATION FORM FOR YOUR RECORDS, TEAR ALONG PERFORATION

Form EIA-871C-2--Aggregate Usage of Natural Gas

Form Approval
OMB No: 1905-0145
Expires: 9/30/89
Form EIA-871
Type: D-1

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY FOR 1986

DISTRICT HEATING AND COOLING

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

A copy of the authorization form signed by the building owner/manager is stapled inside.

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

Additional instructions for completing the form are on the back cover of this folder.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871D-1
OMB No: 1905-0145
Expires: 9/30/89

1. In the table below, please report all steam, hot water and/or chilled water delivered to this building during the period from December 1, 1985 through January 31, 1987.

Time Period	CONSUMPTION PERIOD		STEAM		HOT WATER		CHILLED WATER	
	Starting Date	Ending Date	Quantity Expressed in: ☐ Millions of Btu's ☐ Other (Specify) _____	Total Dollar Amount*	Quantity Expressed in: ☐ Millions of Btu's ☐ Other (Specify) _____	Total Dollar Amount*	Quantity Expressed in: ☐ Ton Hours ☐ Other (Specify) _____	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.

2. Does the information in Item 1 above include consumption in any building(s) other than the building shown on the label on the cover of this folder? (CHECK ONE BOX.) YES ☐ NO ☐ DON'T KNOW ☐

3. Is the building identified on the label a heating or cooling plant -- that is, does it contain equipment used to heat or cool other buildings? YES ☐ NO ☐ DON'T KNOW ☐

4. Is the building identified on the label billed for the steam, hot water, or chilled water piped into it? YES ☐ NO ☐ DON'T KNOW ☐

5. Form completed by: _____ NAME ( ) _____ TELEPHONE _____ DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1986-181-180:40164

Form EIA-871D-1--District Heating and Cooling

INSTRUCTIONS

Purpose of the Survey

The Nonresidential Buildings Energy Consumption Survey (NBECS) collects data on energy consumption, expenditures, and usage patterns for the nonresidential buildings sector of the U.S. economy. The information collected on the NBECS will be used to publish aggregate statistics on (1) the consumption and expenditures of energy by different types of buildings and (2) other consumption related issues.

Purpose of this Form

The purpose of this reporting form is to obtain information on aggregate consumption for the building identified on the label on the front cover of this folder. The aggregate to be reported is the sum of the individual amounts consumed by all separately billed customers in the building during the period from 1 December 1985 through 31 January 1987. The aggregate should include former customers who were in the building during the reporting period, as well as all residential customers.

Definition of "Customer"

The term "customer" refers to a company, office, person, agency, etc., that is sent a bill for energy supplied to the building. "Customer" means all separately billed tenants or occupants of the building, regardless of whether the bills are sent to the building address or to some other address. The term also includes any separate bill sent to the building management or owners for the costs of energy supplied to the building as a whole (hallways, lobbies, areas used for storage or maintenance operations, etc.).

Item 2

In your answer to Item 2, specify whether the consumption information reported in Item 1 represents more than total consumption for the building for which information is requested on this form. Check the YES box if the bills that furnished the information for Item 1 show substantial consumption in buildings other than the selected one and you are unable to report separately for the selected building. Check the NO box if the bills show consumption in the selected building only. (Also check the NO box if the figures include minor out buildings, such as a shed.)

Item 3

The purpose of this question is to help explain any extraordinary or unusual consumption. If the building identified on the label contains energy-conversion equipment used to produce energy to heat or cool other buildings, it might help explain any unusually high consumption information reported for this building.

Item 4

The purpose of this question is to help explain unusual expenditures. This question seeks to ascertain whether the building identified on the label is billed for the steam/hot water/chilled water piped into it. For example, sometimes buildings on a campus receive steam from a central plant and are not billed individually. If this is the case, expenditures could be expected to be low compared to consumption.

Item 5

Please provide the name and telephone number (including area code) of the person who completed this form. This is the person we will contact if we have any questions about the completed form. Be sure to include the date of your response.

TO RETAIN AUTHORIZATION FORM FOR YOUR RECORDS, TEAR ALONG PERFORATION

Form EIA-871D-1--District Heating and Cooling

Form Approval
OMB No. 1905-0145
Expires: 9/30/89
Form EIA-871
Type: E-1

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY FOR 1986

USAGE OF ELECTRICITY

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

A copy of the authorization form signed by the building owner/manager is stapled inside.

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

Additional instructions for completing the form begin on the back of this page.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(4/87)

Form EIA-871E-I--Usage of Electricity

INSTRUCTIONS

Purpose of the Survey

The Nonresidential Buildings Energy Consumption Survey (NBECS) collects data on energy consumption, expenditures, and usage patterns for the nonresidential buildings sector of the U.S. economy. The information collected on the NBECS will be used to publish aggregate statistics on (1) the consumption and expenditures of energy by different types of buildings and (2) other consumption related issues.

Purpose of this Form

The purpose of this reporting form is to obtain information on total consumption for the building identified on the label on the front cover of this folder. The aggregate to be reported is the sum of the individual amounts consumed by all separately billed customers in the building during the period from 1 December 1985 through 31 January 1987. The aggregate should include former customers who were in the building during the reporting period, as well as all residential customers.

Electricity consumption for this building (Item 1) may be reported either of two ways:

By total of all end uses for the building -- use Schedule A.
Disaggregated by end use for the building -- use Schedule B.

Choose whichever schedule is easier to complete by using your records.

Note: Items 2 through 5 must be completed; they apply regardless of which schedule you choose.

Definition of "Customer"

The term "customer" refers to a company, office, person, agency, etc., that is sent a bill for electricity supplied to the building. "Customer" means all separately billed tenants or occupants of the building, regardless of whether the bills are sent to the building address or to some other address. The term also includes any separate bill sent to the building management or owners for the costs of electricity supplied to the building as a whole (hallways, lobbies, areas used for storage or maintenance operations, outside lighting, etc.).

SCHEDULE B -- USAGE DISAGGREGATED BY END USE

Schedule B is an ALTERNATIVE SCHEDULE. It is provided for the convenience of energy suppliers whose records are organized by separate end uses, so that these suppliers will not have to aggregate their data for all end uses. These disaggregated data will also provide us with useful information for our models.

Please make sure to report all end uses, so that the sum will equal total consumption for the building.

If your records contain more than two end uses, please provide the information on additional Schedule B End Use forms.

End Use Code

Specify what end uses you are reporting by using the end use codes. Try to use one of the codes provided if it is applicable; otherwise use one of the "other" codes and specify what end uses are included in the data.

INSTRUCTIONS CONTINUED ON BACK OF FOLDER

Form EIA-871E-I--Usage of Electricity

Form EIA-871E-1
OMB No: 1905-0145
Expires: 9/30/89

SCHEDULE A. USAGE ON A TOTAL CONSUMPTION BASIS

1. In the table below, please report electricity consumption in this building during the period from December 1, 1985 through January 31, 1987.

   Note: If you have this information on a disaggregated end use basis, you may provide the disaggregated data on the alternative Schedule B on the following page. Please choose whichever schedule is easier to complete from your records.

   Whichever schedule is chosen, please complete questions 1, 2, 3, 4, and 5.

Time Period	CONSUMPTION PERIOD Beginning Date	CONSUMPTION PERIOD Ending Date	BILLING A-Actual E-Estimated (Circle One)	Number of kWh Used	Metered kW Demand (If not applicable, check box: ☐)	Billed kW Demand (If not applicable, check box: ☐)	TOTAL DOLLAR AMOUNT*
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 (minimum bill or base charge), and
- Demand charges.

*TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment fees, etc.), and
- Any other charges not specifically listed at left.

IF THE CUSTOMER IN THIS BUILDING IS ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

SCHEDULE B. USAGE DISAGGREGATED BY END USE

Form EIA-871E-1
OMB No: 1905-0145
Expires: 9/30/89

This is an ALTERNATIVE SCHEDULE. Complete either Schedule A or B, not both.

Schedule B is intended for those electricity suppliers who maintain their records on an other than total consumption basis per building. For example, some customers have separate meters, one for heating and air conditioning use, and one for lighting and other uses. For buildings where end use is metered, you may provide the information from your records, instead of having to aggregate the information to a total consumption basis.

Use the end use codes to indicate what is included in each set of consumption figures. Please ensure that all end uses are reported, so that the sum will provide a total consumption figure for the building. Use additional Schedule B End Use forms (p. 5) if you have more than two end uses.

1. In the table below, please report electricity consumption in this building during the period from December 1, 1985 through January 31, 1987.

			FIRST END USE			END USE CODE* ☐
Time Period	CONSUMPTION PERIOD Beginning Date	CONSUMPTION PERIOD Ending Date	BILLING A-Actual E-Estimated (Circle One)	Number of kWh Used	Metered kW Demand (If not applicable, check box: ☐)	Billed kW Demand (If not applicable, check box: ☐)	TOTAL DOLLAR AMOUNT**
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				

*END USE CODES: Please use the following codes to identify the end use information you already have in your records:

HAC - heating and air conditioning
LOT - lighting and all other, excluding heating and air conditioning
H - heating only
AC - air conditioning only
LHT - lighting only
WH - water heating only
OT1 - other, specify _____
OT2 - other, specify _____
OT3 - other, specify _____

IF THE CUSTOMER IN THIS BUILDING IS ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

**TOTAL DOLLAR AMOUNT should include:

- State and local taxes,
- Fuel adjustment charges,
- System charges (minimum bill or base charge), and
- Demand charges.

**TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment and fees, etc.),
- Any other charges not specifically listed above.

SCHEDULE B. USAGE DISAGGREGATED BY END USE (CONTINUED)

ADDITIONAL END USE(S)

ADDITIONAL END USE				END USE CODE* [ ]
Time Period	Number of kWh Used	Metered kW Demand (If not applicable, check box: [ ])	Billed kW Demand (If not applicable, check box: [ ])	TOTAL DOLLAR AMOUNT**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

*END USE CODES: Please use the following codes to identify the end use information you already have in your records:

HAC - heating and air conditioning
LOT - lighting and all other, excluding heating and air conditioning
H - heating only
AC - air conditioning only
LHT - lighting only
WH - water heating only
OT1 - other, specify _____
OT2 - other, specify _____
OT3 - other, specify _____

IF THE CUSTOMER IN THIS BUILDING IS ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

**TOTAL DOLLAR AMOUNT should include:

- State and local taxes,
- Fuel adjustment charges,
- System charges (minimum bill or base charge), and
- Demand charges.

**TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment and fees, etc.),
- Any other charges not specifically listed above.

Form EIA-871E-1
OMB No: 1905-0145
Expires: 9/30/89

ALWAYS COMPLETE THIS PAGE

2a. According to your records, how many customers do you currently supply in this building? a._____

2b. During the period from 12/1/85 through 1/31/87 how many additional customers did you supply who are no longer in the building? b._____

2c. How many of the customers in 2a and 2b are included in the consumption information reported in Item 1? PLEASE REPORT SEPARATELY FOR CURRENT CUSTOMERS (2a) AND FORMER CUSTOMERS (2b). a._____ b._____

3. Does the information in Item 1 above include consumption in any building(s) other than the building shown on the label on the cover of this folder? (CHECK ONE BOX.) YES [ ] NO [ ] DON'T KNOW [ ]

4. Listed below are four types of features found in electric rate schedules or tariffs:

a. Seasonal pricing (for a given consumption level, the price depends on the season of the year);

b. Time-of-Day pricing (for a given consumption level, the price depends on the time-of-day);

c. Time-of-Day lock-out or limit (use is prohibited, or restricted to a reduced level, at certain fixed times of the day);

d. Interruptible or Curtailable rate (service is temporarily cut off or demand must be reduced by the customer, on short notice from the utility, while service is maintained for higher priority users).

For each of the rate features listed as "a" through "d" in the table below, check (✓) the one column that best describes the status of that feature for most of the customers in the building as of December 31, 1986. More than one of these rate features may be in effect for this building.

RATE FEATURE	RATE TARIFF OR SCHEDULE: MANDATORY FOR THIS BUILDING	OPTIONAL: AVAILABLE AND IN EFFECT FOR THIS BUILDING	OPTIONAL: AVAILABLE BUT NOT IN EFFECT FOR THIS BUILDING	NOT AVAILABLE FOR THIS BUILDING
a. Seasonal pricing	[ ]	[ ]	[ ]	[ ]
b. Time-of-Day pricing	[ ]	[ ]	[ ]	[ ]
c. Time-of-Day lock-out or limit	[ ]	[ ]	[ ]	[ ]
d. Interruptible or curtailable	[ ]	[ ]	[ ]	[ ]

5. Form completed by:

_____
NAME

(___)_____
TELEPHONE

_____
DATE

TO RETAIN AUTHORIZATION FORM FOR YOUR RECORDS, TEAR ALONG PERFORATION

INSTRUCTIONS - CONTINUED

Item 2

In your answers to Item 2, specify whether the consumption information reported in Item 1 (Schedule A or B) represents less than total consumption in the building for which this form requests information. In Items 2a and 2b, report the total number of separately billed customers who occupied the building between 1 December 1985 and 31 January 1987. In Item 2a, show the customers who are now in the building; in Item 2b, show customers who were in the building at some time after 1 December 1985 but are no longer in the building. In Item 2c, show the number of customers in each group (a and b) whose consumption is included in the totals in Item 1.

Item 3

In your answer to Item 3, specify whether the consumption information reported in Item 1 (Schedule A or B) represents more than total consumption for the building for which information is requested on this form. Check the YES box if the bills that furnished the information for Item 1 show substantial consumption in buildings other than the selected one and you are unable to report separately for the selected building. Check the NO box if the bills show consumption in the selected buliding only. (Also check the NO box if the figures include outside lighting or minor out buildings, such as a shed or a barn.)

Item 5

Please provide the name and telephone number (including area code) of the person who completed this form. This is the person we will contact if we have any questions about the completed form. Be sure to include the date of your response.

Form Approval
OMB No. 1905-0145
Expires: 9/30/89
Form EIA-871
Type: E-2

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY FOR 1986

AGGREGATE USAGE OF ELECTRICITY

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

A copy of the authorization form signed by the building owner/manager is stapled inside.

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

Additional instructions for completing the form begin on the back of this page.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871E-2--Aggregate Usage of Electricity

Form EIA-871E-2
OMB No: 1905-0145
Expires: 9/30/89

SCHEDULE A. USAGE ON A TOTAL CONSUMPTION BASIS

1. In the table below, please report aggregate electricity consumption in this building during the period from December 1, 1985 through January 31, 1987.

Note: If you have this information on a disaggregated end use basis, you may provide the disaggregated data on the alternative Schedule B on the following page. Please choose whichever schedule is easier to complete from your records.

Whichever schedule is chosen, please complete questions 1, 2, 3, 4, and 5.

Time Period	CONSUMPTION PERIOD: IF CUSTOMERS ARE ON THE SAME BILLING CYCLE: Beginning Date	Ending Date	IF CUSTOMERS ARE ON DIFFERENT BILLING CYCLES, RECORD BILLING MONTH	CONSUMPTION DATA: AGGREGATE kWh USED	kWh Aggregate A-Actual E-Some or All Estimated (Circle One)	TOTAL DOLLAR AMOUNT*
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 (minimum bill or base charge), and
- Demand charges.

*TOTAL DOLLAR AMOUNT should exclude.

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment fees, etc.), and
- Any other charges not specifically listed at left.

IF ANY CUSTOMERS IN THIS BUILDING ARE ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

3

Form EIA-871E-2--Aggregate Usage of Electricity

SCHEDULE B. USAGE DISAGGREGATED BY END USE

Form EIA-871E-2
OMB No: 1905-0145
Expires: 9/30/89

This is an ALTERNATIVE SCHEDULE. Complete either Schedule A or B, not both.

Schedule B is intended for those electricity suppliers who maintain their records on an other than total consumption basis per building. For example, some customers have separate meters, one for heating and air conditioning use, and one for lighting and other uses. For buildings where end use is metered, you may provide the information from your records, instead of having to aggregate the information to a total consumption basis.

Use the end use codes to indicate what is included in each set of consumption figures. Please ensure that all end uses are reported, so that the sum will provide a total consumption figure for the building. Use additional Schedule B End Use forms (p. 5) if you have more than two end uses.

1. In the table below, please report aggregate electricity consumption in this building during the period from December 1, 1985 through January 31, 1987.

FIRST END USE — END USE CODE* [ ]

Time Period	CONSUMPTION PERIOD: IF CUSTOMERS ARE ON THE SAME BILLING CYCLE: Beginning Date	Ending Date	IF CUSTOMERS ARE ON DIFFERENT BILLING CYCLES, RECORD BILLING MONTH	CONSUMPTION DATA: AGGREGATE kWh USED	kWh Aggregate A-Actual E-Some or All Estimated (Circle One)	TOTAL DOLLAR AMOUNT**
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	

*END USE CODES: Please use the following codes to identify the end use information you already have in your records:

HAC - heating and air conditioning
LOT - lighting and all other, excluding heating and air conditioning
H - heating only
AC - air conditioning only
LHT - lighting only
WH - water heating only
OT1 - other, specify _____
OT2 - other, specify _____
OT3 - other, specify _____

IF ANY CUSTOMERS IN THIS BUILDING ARE ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

**TOTAL DOLLAR AMOUNT should include:

- State and local taxes,
- Fuel adjustment charges,
- System charges (minimum bill or base charge), and
- Demand charges.

**TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment and fees, etc.),
- Any other charges not specifically listed above.

SCHEDULE B. USAGE DISAGGREGATED BY END USE (CONTINUED)

ADDITIONAL END USE(S)

ADDITIONAL END USE — END USE CODE* [ ]

Time Period	CONSUMPTION DATA: AGGREGATE kWh USED	kWh Aggregate A-Actual E-Some or All Estimated (Circle One)	TOTAL DOLLAR AMOUNT**
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	

*END USE CODES: Please use the following codes to identify the end use information you already have in your records:

HAC - heating and air conditioning
LOT - lighting and all other, excluding heating and air conditioning
H - heating only
AC - air conditioning only
LHT - lighting only
WH - water heating only
OT1 - other, specify _____
OT2 - other, specify _____
OT3 - other, specify _____

IF ANY CUSTOMERS IN THIS BUILDING ARE ON A BUDGETED BILLING CYCLE, DO NOT REPORT FIGURES FROM THE BUDGETED BILL. INSTEAD, PLEASE REPORT THE TOTAL DOLLAR AMOUNT FOR THE COST OF ACTUAL CONSUMPTION DURING EACH CONSUMPTION PERIOD.

**TOTAL DOLLAR AMOUNT should include:

- State and local taxes,
- Fuel adjustment charges,
- System charges (minimum bill or base charge), and
- Demand charges.

**TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges (hookup or disconnect fees, late payment and fees, etc.),
- Any other charges not specifically listed above.

Form Approval
OMB No: 1905-0145
Expires: 9/30/89
Form EIA-871
Type: F-2

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY FOR 1986

AGGREGATE USAGE OF FUEL OIL

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

A copy of the authorization form signed by the building owner/manager is stapled inside.

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

Additional instructions for completing the form are on the back cover of this folder.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871F-2--Aggregate Usage of Fuel Oil

Form EIA-871F-2
OMB No: 1905-0145

1. In the table below, please report aggregate figures for all deliveries of fuel oil to this building during the period from December 1, 1985 through January 31, 1987.

Time Period	Delivery Date	Gallons Delivered	Did this delivery fill the tank(s)? Circle One Answer (DK = Don't Know)	TOTAL DOLLAR AMOUNT*
1			YES NO DK	
2			YES NO DK	
3			YES NO DK	
4			YES NO DK	
5			YES NO DK	
6			YES NO DK	
7			YES NO DK	
8			YES NO DK	
9			YES NO DK	
10			YES NO DK	
11			YES NO DK	
12			YES NO DK	
13			YES NO DK	
14			YES NO DK	

*TOTAL DOLLAR AMOUNT should include State and local taxes, and exclude merchandise, repair or service charges.

2. Types of fuel oil delivered. Please check box(es) to indicate type(s) of the fuel oil supplied to this building:

- ☐ Distillate (#1, #2, and #4 fuel oil; #1 and #2 diesel oil)
- ☐ Residual (#5 and #6 fuel oil)
- ☐ Kerosene
- ☐ Other (please specify): _____

3a. According to your records, how many customers do you currently supply in this building? a._____

3b. During the period from 12/1/85 through 1/31/87 how many additional customers did you supply who are no longer in the building? b._____

3c. How many of the customers in 3a and 3b are included in the consumption information reported in Item 1? PLEASE ANSWER SEPARATELY FOR CURRENT CUSTOMERS (3a) AND FORMER CUSTOMERS (3b). a._____ b._____

4. Does the information in Item 1 above include deliveries to any building(s) other than the building shown on the label on the cover of this folder? (CHECK ONE BOX.) YES ☐ NO ☐ DON'T KNOW ☐

5. Form completed by: _____ NAME (____)_____ TELEPHONE _____ DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1986-181-180/40165

Form EIA-871F-2--Aggregate Usage of Fuel Oil

INSTRUCTIONS

Purpose of the Survey

The Nonresidential Buildings Energy Consumption Survey (NBECS) collects data on energy consumption, expenditures, and usage patterns for the nonresidential buildings sector of the U.S. economy. The information collected on the NBECS will be used to publish aggregate statistics on (1) the consumption and expenditures of energy by different types of buildings and (2) other consumption related issues.

Purpose of this Form

The purpose of this reporting form is to obtain information on aggregate consumption of fuel oil for the building identified on the label on the front cover of this folder. The aggregate to be reported is the sum of the individual deliveries of fuel oil to all separately billed customers in the building during the period from 1 December 1985 through 31 January 1987. The aggregate should include former customers who were in the building during the reporting period, as well as all residential customers.

Definition of "Customer"

The term "customer" refers to a company, office, person, agency, etc., that is sent a bill for deliveries of fuel oil to the building. "Customer" means all separately billed tenants or occupants of the building, regardless of whether the bills are sent to the building address or to some other address. The term also includes any separate bill sent to the building management or owners for the costs of deliveries of fuel oil for the building as a whole (hallways, lobbies, areas used for storage or maintenance operations, etc.).

Item 2

Check the type of fuel oil delivered to most of the customers in the building. The three major categories are: kerosene, distillate fuel oil (includes #1, #2, and #4 fuel oil and #1 and #2 diesel oil), and residual fuel oil (includes #5 and #6 fuel oil). If any other type of fuel oil was delivered, check the "other" category and specify the type.

Item 3

In your answers to Item 3, specify whether the delivery information reported in Item 1 represents less than total delivery in the building for which this form requests information. In Items 3a and 3b, report the total number of separately billed customers who occupied the building between 1 December 1985 and 31 January 1987. In Item 3a, show the customers who are now in the building; in Item 3b, show customers who were in the building at some time after 1 December 1985 but who are no longer in the building. In Item 3c, show the number of customers whose consumption is included in the totals in Item 1. Item 3c will equal the sum of 3a and 3b if consumption for all customers is included in Item 1; 3c will be less than the sum of 3a and 3b if consumption for any customer is excluded from Item 1.

Item 4

In your answer to Item 4, specify whether the delivery information reported in Item 1 represents more than total deliveries in the building for which information is requested on this form. Check the YES box if the bills that furnished the information for Item 1 show substantial consumption in buildings other than the selected one and you are unable to report separately for the selected building. Check the NO box if the bills show consumption in the selected building only. (Also check the NO box if the figures include minor out buildings, such as a shed.)

Item 5

Please provide the name and telephone number (including area code) of the person who completed this form. This is the person we will contact if we have any questions about the completed form. Be sure to include the date of your response.

TO RETAIN AUTHORIZATION FORM FOR YOUR RECORDS, TEAR ALONG PERFORATION

Form EIA-871F-2--Aggregate Usage of Fuel Oil

Form EIA-871C-3
OMB No: 1905-0145
Expires: 9/30/89

WORKSHEET FOR NATURAL GAS*

For the buildings identified below, report aggregate consumption for the period of December 1, 1985 through January 31, 1987.

Name/Address of Building	Number of Customers in Building	CONSUMPTION PERIOD		QUANTITY USED Expressed in: (Check one)	Total Dollar Amount
		Beginning Date	Ending Date	☐ Therms ☐ 100 cu. ft. ☐ cu. ft. ☐ 1000 cu. ft. ☐ Other (SPECIFY) _____	
			TOTAL		

*Retain this page for your organization. Return only the second (colored) page to Westat. See the back of this form for further instructions.

Form EIA-871C-3--Worksheet for Natural Gas

NATURAL GAS WORKSHEET INSTRUCTIONS

Use this worksheet to calculate energy use for a group of buildings for which no authorization forms were obtained. To maintain the confidentiality of the consumption information for the individual buildings, we ask you to report only aggregated information -- aggregate Quantity Used and Total Dollar Amount (total cost for consumption of natural gas) for this group of buildings as a whole.

The worksheet is printed on two-part paper:

- the white original, which is to be retained by your organization, is a worksheet for aggregating the consumption information for the individual buildings;
- the colored copy (the "Summary Sheet"), which is to be returned to Westat, shows only the aggregate consumption and total dollar amount for the group of buildings; the spaces for separate amounts for individual buildings are blacked out on this copy.

The first column of the worksheet asks for the number of customers (separately billed tenants) in the building, according to your records. If you serve more than one customer in any of the buildings listed, please remember to include consumption data for all of the customers in the building when you calculate the aggregate totals.

The number of customers in each building, as shown in our records, is printed in the upper right corner of each label. We have also attached a list of these customers if we have one. If according to your records there are more customers in the building than are shown on the label, please report the higher figure and include consumption by all of these customers in your aggregate totals for the building.

The costs reported in "Total Dollar Amount" should include: State and local taxes, fuel adjustment charges, system charges, and demand charges. Cost figures should exclude: merchandise, repair charges, service charges, and any other charges not specifically listed above.

Form completed by: _____ ( ) _____ _____

NAME TELEPHONE DATE

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

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871C-3--Worksheet for Natural Gas

Form EIA-871E-3
OMB No: 1905-0145
Expires: 9/30/89

WORKSHEET FOR ELECTRICITY*

For the buildings identified below, report aggregate consumption for the period of December 1, 1985 through January 31, 1987.

Name/Address of Building	Number of Customers in Building	CONSUMPTION PERIOD		Kilowatt Hours (kWh) Used	Total Dollar Amount
		Beginning Date	Ending Date		
			TOTAL		

*Retain this page for your organization. Return only the second (colored) page to Westat.
See the back of this form for further instructions.

Form EIA-871E-3--Worksheet for Electricity

ELECTRICITY WORKSHEET INSTRUCTIONS

Use this worksheet to calculate energy use for a group of buildings for which no authorization forms were obtained. To maintain the confidentiality of the consumption information for the individual buildings, we ask you to report only aggregated information – aggregate Kilowatt Hours Used and Total Dollar Amount (total cost for consumption of electricity) for this group of buildings as a whole.

The worksheet is printed on two-part paper:

- the white original, which is to be retained by your organization, is a worksheet for aggregating the consumption information for the individual buildings;
- the colored copy (the "Summary Sheet"), which is to be returned to Westat, shows only the aggregate consumption and total dollar amount for the group of buildings; the spaces for separate amounts for individual buildings are blacked out on this copy.

The first column of the worksheet asks for the number of customers (separately billed tenants) in the building, according to your records. If you serve more than one customer in any of the buildings listed, please remember to include consumption data for all of the customers in the building when you calculate the aggregate totals.

The number of customers in each building, as shown in our records, is printed in the upper right corner of each label. We have also attached a list of these customers if we have one. If according to your records there are more customers in the building than are shown on the label, please report the higher figure and include consumption by all of these customers in your aggregate totals for the building.

The costs reported in "Total Dollar Amount" should include: State and local taxes, fuel adjustment charges, system charges, and demand charges. Cost figures should exclude: merchandise, repair charges, service charges, and any other charges not specifically listed above.

Form completed by: _____ (___)_____ _____
NAME TELEPHONE DATE

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

IF YOU HAVE ANY QUESTIONS, PLEASE CALL 800-443-NBEC TOLL FREE AND ASK FOR THE SUPPLIER SURVEY SPECIALIST.

Participation is mandatory as authorized by the Federal Energy Administration Act of 1974 (PL 93-275, as amended).

Any information collected 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 by Westat, Inc. to anyone (including the Department of Energy) for any other purpose, except as required by law.

(10/86)

Form EIA-871E-3--Worksheet for Electricity

Appendix G

Related Publications from the EIA on Energy Consumption

Libraries, even on university campuses, are classified as assembly buildings.

Appendix G

Related Publications from the EIA on Energy Consumption

These publications are available from the National Energy Information Center or the Superintendent of Documents. See the inside cover of this report on how to obtain copies of these publications. Please note that the prices quoted are subject to change. In addition to the reports listed below, public use data tapes for the residential, residential transportation and commercial sectors are available from the National Technical Information Service (NTIS). To obtain information on how to order tapes, you may call NTIS at 703/487-4807.

Commercial Sector

Characteristics of Buildings

Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings, 1986; September 1988, DOE/EIA-0246(86), GPO Stock No. 061-003-00580-2, $16.00.

Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings, 1983; July 1985, DOE/EIA-0246(83), GPO Stock No. 061-003-00439-3, $7.50.

Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings, 1983; A Supplemental Reference, DOE/EIA-M008, $22.95. Available from the National Technical Information Service (NTIS), Order Number DE-85015581.

Nonresidential Buildings Energy Consumption Survey: Fuel Characteristics and Conservation Practices; June 1981, DOE/EIA-0278, GPO Stock No. 061-003-00200-5, $9.00.

Nonresidential Buildings Energy Consumption Survey: Building Characteristics; March 1981, DOE/EIA-0246, GPO Stock No. 061-003-00171-8, $6.50.

Consumption and Expenditures

Nonresidential Buildings Energy Consumption Survey: Commercial Buildings Consumption and Expenditures, 1983; September 1986, DOE/EIA-0318(83), GPO Stock No. 061-003-00496-2, $13.00.

Nonresidential Buildings Energy Consumption Survey: 1979 Consumption and Expenditures, Part 1: Natural Gas and Electricity; March 1983, DOE/EIA-0318/1, GPO Stock No. 061-003-00298-6, $9.50.

Nonresidential Buildings Energy Consumption Survey: 1979 Consumption and Expenditures, Part 2: Steam, Fuel Oil, LPG, and Total Fuels; December 1983, DOE/EIA-0318(79)/2, GPO Stock No. 061-003-00366-4, $6.00.

Residential Sector

Housing Characteristics

Residential Energy Consumption Survey: Housing Characteristics 1987; Planned for May 1989.

Residential Energy Consumption Survey: Housing Characteristics 1984; September 1986, DOE/EIA-0314(84), GPO Stock No. 061-003-00499-7, $12.00.

Residential Energy Consumption Survey: Housing Characteristics, 1982; August 1984, DOE/EIA-0314(82), GPO Stock No. 061-003-00393-1, $7.00.

Residential Energy Consumption Survey: Housing Characteristics, 1981; August 1983, DOE/EIA-0314(81), GPO Stock No. 061-003-00330-3, $6.50.

Residential Energy Consumption Survey: Housing Characteristics, 1980; June 1982, DOE/EIA-0314, GPO Stock No. 061-003-00256-1, $11.00.

Residential Energy Consumption Survey: Characteristics of the Housing Stock and Households, 1978; February 1980, DOE/EIA-0207/2, GPO Stock No. 061-003-00093-2, $4.25.

Residential Energy Consumption Survey: Conservation; February 1980, DOE/EIA-0207/3, GPO Stock No. 061-003-00087-8, $6.00.

Preliminary Conservation Tables from the National Interim Energy Consumption Survey; August 1979, DOE/EIA-0193/P (no GPO Stock No.).

Characteristics of the Housing Stock and Households: Preliminary Findings from the National Interim Energy Consumption Survey; October 1979, DOE/EIA-0199/P (no GPO Stock No.).

Consumption and Expenditures

Residential Energy Consumption Survey: Consumption and Expenditures, April 1984 through March 1985 Part 1: National Data; March 1987, DOE/EIA-0321(84), GPO Stock No. 061-003-00519-5, $9.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1984 through March 1985 Part 2: Regional Data; May 1987, DOE/EIA-0321/2(84), GPO Stock No. 061-003-00528-4, $17.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1982 Through March 1983, Part 1: National Data; November 1984, DOE/EIA-0321/1(82), GPO Stock No. 061-003-00411-3, $7.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1982 Through March 1983, Part 2: Regional Data; December 1984, DOE/EIA-0321/2(82), GPO Stock No. 061-003-00414-8, $9.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, Part 1: National Data; September 1983, DOE/EIA-0321/1(81), GPO Stock No. 061-003-00340-1, $6.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, Part 2: Regional Data; October 1983, DOE/EIA-0321/2(81), GPO Stock No. 061-003-00357-5, $8.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, Part 1: National Data; September 1982, DOE/EIA-0321/1(80), GPO Stock No. 061-003-00278-1, $7.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, Part 2: Regional Data; June 1983, DOE/EIA-0321/2(80), GPO Stock No. 061-003-00319-2, $7.00.

Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures, Part 1: National Data (Including Conservation); April 1981, DOE/EIA-0262/1, GPO Stock No. 061-003-00191-2, $6.50.

Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures, Part 2: Regional Data; May 1981, DOE/EIA-0262/2, GPO Stock No. 061-003-00189-1, $8.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 Through March 1979; July 1980, DOE/EIA-0207/5, GPO Stock No. 061-003-00131-9, $7.50.

Single-Family Households: Fuel Oil Inventories and Expenditures: National Interim Energy Consumption Survey; December 1979, DOE/EIA-0207/1, GPO Stock No. 061-003-00075-4, $3.50.

Other Publications on the Residential Sector

End-Use Consumption of Residential Energy (Article), pp. vii - xiv, *Monthly Energy Review*, July 1987, DOE/EIA-0035(87/07).

Residential Energy Consumption Survey: Trends in Consumption and Expenditures, 1978-1984; June 1987, DOE/EIA-0482, GPO Stock No. 061-003-00535-7, $12.00.

Residential Conservation Measures; July 1986, SR/EEUD/86/01 (no GPO Stock No.).

An Economic Evaluation of Energy Conservation and Renewable Energy Tax Credits; October 1985, Service Report (no GPO Stock No.).

Residential Energy Consumption and Expenditures by End Use for 1978, 1980, and 1981; December 1984, DOE/EIA-0458, GPO Stock No. 061-003-00415-6, $4.50.

Weatherization Program Evaluation, SR-EEUD-84-1; August 1984 (available from the Office of the Assistant Secretary for Conservation and Renewable Energy, Department of Energy).

Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use; October 1983, DOE/EIA-0431, GPO Stock No. 061-003-00347-8, $5.00.

National Interim Energy Consumption Survey: Exploring the Variability in Energy Consumption; July 1981, DOE/EIA-0272, GPO Stock No. 061-003-00205-6, $5.00.

National Interim Energy Consumption Survey: Exploring the Variability in Energy Consumption--A Supplement; October 1981, DOE/EIA-0272/S, GPO Stock No. 061-003-00217-0, $4.50.

Energy Use by U.S. Households; November 1980, DOE/EIA-0248 (brochure, no GPO Stock No.).

Residential Transportation Sector

Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles 1985; April 1987, DOE/EIA-0464(85), GPO Stock No. 061-003-00521-7, $8.50.

Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles, 1983; January 1985, DOE/EIA/0464(83), GPO Stock No. 061-003-00420-2, $4.50.

Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, Supplement: January 1981 to September 1981; February 1983, DOE/EIA-0328, GPO Stock No. 061-003-00297-8, $4.75.

Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, June 1979 to December 1980; April 1982, DOE/EIA-0319 (no GPO Stock No.).

Manufacturing Sector

Manufacturing Energy Consumption Survey: Fuel Switching Capability, 1985; December 1988, DOE/EIA-0515(85), GPO Stock No. 061-003-00601-9, $3.50.

Manufacturing Energy Consumption Survey: Methological Report, 1985; November 1988, DOE/EIA-0514(85), GPO Stock No. 061-003-00595-1, $6.00.

Manufacturing Energy Consumption Survey: Consumption of Energy, 1985; November 1988, DOE/EIA-0512(85), GPO Stock No. 061-003-00594-2, $6.00.

Report on the 1980 Manufacturing Industries' Energy Consumption Study and Survey of Large Combustors; February 1983, DOE/EIA-0358, GPO Stock No. 061-003-00293-5, $5.00.

Industrial Energy Consumption, "Survey of Large Combustors: Report on Alternate Fuel-Burning Capabilities of Large Boilers in 1979"; February 1982, DOE/EIA-0304, GPO Stock No. 061-003-0233-1, $2.50.

Methodological Report of the 1980 Manufacturing Industries Survey of Large Combustors (EIA-463); March 1982, DOE/EIA-0306 (no GPO Stock No.).

Cross-Sector

Natural Gas: Use and Expenditures; April 1983, DOE/EIA-0382, GPO Stock No. 061-003-00307-9, $5.50.

Public Use Tapes

Commercial Sector

Nonresidential Buildings Energy Consumption Survey: 1979 and 1983 Data; Order No. PB88-245162.

Nonresidential Buildings Energy Consumption Survey: 1986 Data. Planned for release in August 1989.

Residential and Residential Transportation Sectors

Residential Energy Consumption Survey: 1984 and Residential Transportation Energy Consumption Survey, 1985; Order No. PB87-186540/HAA.

Residential Energy Consumption Survey: 1982 and Residential Transportation Energy Consumption Survey, 1983; Order No. PB85-221760/HAA.

Residential Energy Consumption Survey: Housing Characteristics, 1981; Consumption and Expenditures, 1981-1982; Monthly Billing Data; Order No. PB84-120476/HAA.

Residential Energy Consumption Survey: Housing Characteristics, Annualized Consumption and Expenditures, 1980-1981; Order No. PB83-199554/HAA.

Residential Energy Consumption Survey: Household Transportation Panel Monthly Gas Purchases and Vehicle and Household Characteristics, 6/79-9/81; Order No. PB84-162452/HAA.

Residential Energy Consumption Survey: Household Screener Survey, 1970-1980; Order No. PB81-108714/HAA.

Residential Energy Consumption Survey: Household Monthly Energy Consumption and Expenditures, 1978-1979; Order No. PB82-114901/HAA.

National Interim Energy Consumption Survey (Residential), 1978; Order No. PB81-108714/HAA.

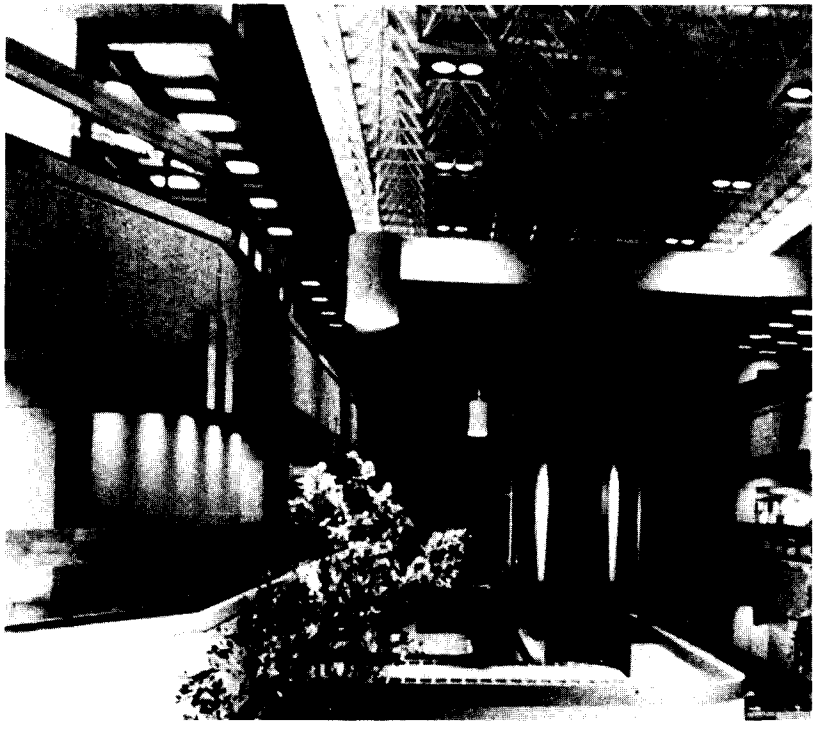
Planned Publications for 1989

Residential Energy Consumption Survey: Household Energy Consumption and Expenditures 1987, Part 1: National Data (Oct. 1989).

Residential Energy Consumption Survey: Household Energy Consumption and Expenditures 1987, Part 2: Regional Data (Nov. 1989).

Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles 1988, (Dec. 1989).

Glossary



Most lodging buildings are open continuously, contributing to higher electricity load factors.

Glossary

Active Solar: As an energy source, energy from the sun collected and stored using mechanical pumps or fans to circulate heat-laden fluids or air between solar collectors and the building. Examples include the use of solar collectors for water or space heating. Data on the passive collection of solar energy, such as by trombe walls, were not collected on the 1986 NBECS. Active solar is considered a minor fuel in this report. (See **Energy Source, Major Fuels, and Minor Fuels.**)

Aggregate Ratio: The ratio of two population aggregates (totals). For example, the aggregate square feet per worker is the ratio of the total square footage in each category to the total number of workers in the category. (See **Mean** and **Median.**)

Agricultural: As used in this survey, activities involving the manufacturing, processing, sale, storage, or housing of agricultural products, including livestock. These buildings were listed during the listing stage. However, buildings that had more than 50 percent of the floorspace devoted to agricultural activity were considered out of scope and were dropped from the sample during the interview phase. Farms and farm buildings (silos, grain elevators, and barns) were out of scope for the NBECS and were not listed during the listing stage. (See **Commercial Building, Out-of-Scope Building, Nonresidential Building, Building, Principal Building Activity,** and Appendix A, "How the Survey was Conducted.")

Air Conditioning: See **Cooling.**

Air-Source Heat Pump: A heat pump that uses ambient air as the source/sink for heat. (See **Heat Pump** and **Water-Source Heat Pump.**)

Ballast: The transformer for fluorescent and High-Intensity Discharge (HID) lamps. The ballast provides the necessary current, voltage, and wave-form conditions to operate the lamp.

Baseboard: A heating system or a heat-distribution system in which either electric resistance coils or finned tubes carrying steam or hot water are mounted behind shallow panels along baseboards. Baseboards rely on passive convection to distribute heated air in the space. Electric baseboards are an example of an "Individual Space Heater." (See **Heating and Cooling Distribution Equipment** and **Individual Space Heater.**)

Boiler: A type of heat production equipment consisting of a vessel or tank where hot water or steam is produced from the combustion of fuels such as natural gas, fuel oil, or coal. Many buildings have their own boilers, while other buildings have steam or hot water piped in from a central plant. For this survey, only boilers inside the building (or serving only that particular building) are counted as boilers. Steam or hot water piped into a building from a central plant is considered a district heating system. (See **Warm-Air Furnace, HVAC, Heat Production Equipment**, and **District Heating System.**)

Btu: British thermal unit. A unit quantity of energy consumed by or delivered to a building. A Btu is defined as the amount of energy required to increase the temperature of 1 pound of water by 1 degree Fahrenheit, at normal atmospheric pressure. The term is used in this report to help with the comparison of consumption among fuels that are measured in different units.

Btu conversion factors for this survey are as follows:

Electricity	3,412	Btu/kilowatthour
Natural Gas	1,029	Btu/cubic foot
Distillate Fuels Oils (Nos. 1, 2, and 4)	138,690	Btu/gallon
Residual Fuels Oils (Nos. 5 and 6)	149,690	Btu/gallon
Kerosene	135,000	Btu/gallon
Propane	91,333	Btu/gallon

(See **Consumption, Cubic Foot, kWh,** and **Pounds of Steam.**)

Building: For this survey, a structure totally enclosed by walls extending from the foundation to the roof and intended for human occupancy. Structures that were included in the survey as a specific exception were parking garages not totally enclosed by walls and a roof, as well as structures erected on pillars to elevate the first fully enclosed level, but leaving the sides at ground level open.

Excluded from the survey as nonbuildings were the following: structures (other than the exceptions just noted) that were not totally enclosed by walls and a roof (such as oil refineries, steel mills, and water towers); street lights, pumps, billboards, bridges, swimming pools, and construction sites; mobile homes and trailers, even if they housed nonresidential activity; and oil storage tanks. Only commercial buildings are included in this report. (See **Commercial Building** and **Nonresidential Building**.)

Building Shell (Envelope): The thermal envelope of the building, that is, the roof, exterior walls, and bottom floors that enclose conditioned space, through which thermal energy may be transferred to or from the exterior.

Building Shell Conservation Feature: A building feature designed to reduce the energy loss or gain through the shell or envelope of the building. The 1986 NBECS collected data on the following specific building shell energy conservation features: roof, ceiling or wall insulation; storm windows or double-or triple-paned glass; tinted or reflective glass or shading films; exterior or interior shadings or awnings; and weather stripping or caulking. (See **Roof or Ceiling Insulation, Wall Insulation, Reflective or Shading Glass or Film, Storm or Multiple Glazing, Building Shell (Envelope), Exterior or Interior Shadings or Awnings,** and **Weather Stripping or Caulking**.)

Built-Up: A roof covering consisting of several successive layers (each of which is called a ply) usually of roofing felt with moppings of hot asphalt between layers and topped by a mineral-surfaced layer or by gravel embedded in a heavy coat of asphalt.

Campus or Complex: See **Multibuilding Facility**.

Caulking: See **Weather Stripping** or **Caulking**.

CDD: See **Cooling Degree-Days (CDD).**

Census Division: A geographic area consisting of several States defined by the U.S. Department of Commerce, Bureau of the Census. (See the map in Appendix E.) The States are grouped into nine divisions and four regions:

Region	Division	States
Northeast	New England	Connecticut, Maine Massachusetts, New Hampshire,Vermont and Rhode Island
	Middle Atlantic	New Jersey, New York, and Pennsylvania
Midwest	East North Central	Illinois, Indiana, Michigan, Ohio, and Wisconsin
	West North Central	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota
South	South Atlantic	Delaware, the District of Columbia, Florida, Georgia, Maryland, North Carolina ,South Carolina, Virginia and West Virginia
	East South Central	Alabama, Kentucky, Mississippi, and Tennessee
	West South Central	Arkansas, Louisiana, Oklahoma, and Texas
West	Mountain	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming
	Pacific	Alaska, California, Hawaii, Oregon, and Washington

Census Region: See **Census Division** and the map in Appendix E.

Central Cooling: A type of cooling production equipment consisting of a central chiller or chillers used to produce cooled air or liquid. (See **Cooling** and **HVAC.**)

Climate Zone: One of five climatically distinct areas, defined by long-term weather conditions affecting the heating and cooling loads in buildings. The zones were developed by the Energy End Use Division (EEUD) from seven distinct climate categories originally identified by the American Institute of Architects (AIA) for the U.S. Department of Energy and the U.S. Department of Housing and Urban Development.

The zones were determined according to the 45-year average (1931-1975) of the annual heating and cooling degree-days (base 65 °F.).

The zones are defined as follows:

AIA Group	EEUD Climate Zone	Average Annual Cooling Degree-Days	AverageAnnual Heating Degree-Days
1	1	Less than 2,000	More than 7,000
2	2	Less than 2,000	5,500 to 7,000
3	3	Less than 2,000	4,000 to 5,499
4	4	Less than 2,000	2,000 to 3,999
5	4	Less than 2,000	Less than 2,000
6	5	2,000 or more	Less than 2,000
7	5	2,000 or more	2,000 to 3,999

An individual building was assigned to a climate zone according to the 45-year average annual degree-days for its NOAA Division. (See **Heating Degree-Days (HDD), Cooling Degree-Days (CDD), and NOAA Division.)**

Coal: In this report, the term includes anthracite, bituminous and subbituminous coal, as well as the derivative of coal known as coke. Coal is considered a minor fuel in this report. (See **Energy Source, Major Fuels**, and **Minor Fuels**.)

Cogeneration: The simultaneous generation of electric power and useful heat by a single process. In essence, cogeneration involves the recovery of waste-heat from electric power generation. Neither generation of electricity without use of the byproduct heat, nor waste heat recovery from processes other than electricity generation is included in the definition of cogeneration. (See **Electricity Generation**, and **Waste-Heat Recovery Equipment.**)

Commercial: Neither residential, nor industrial, nor agricultural. (See **Residential, Manufacturing/Industrial**, and **Agricultural.**

Commercial Building: A building with more than 50 percent of its floorspace used for commercial activities. Commercial buildings include, but are not limited to, stores, offices, schools, churches, gymnasiums, libraries, museums, hospitals, clinics, warehouses, and jails. Government buildings were included except for buildings on military bases or reservations. Farms and buildings located on farms (such as silos, grain elevators and barns) were excluded from the survey. For a more complete list of buildings in the survey, see Appendix C, "Types of Buildings." (See **Building, Commercial, Residential Manufacturing/Industrial, Agricultural, Nonresidential Building,** and **Principal Building Activity.**)

Concrete Panel: A wall construction panel made of concrete, which is either prefabricated in a factory or poured at the site.

Conservation Feature: A feature in the building designed to reduce the usage of energy. In the 1986 NBECS, data are gathered on HVAC, lighting, building shell and other conservation features. (See **Reduced Use Off-Hours: Cooling, Reduced Use Off-Hours: Heating, Building Shell Conservation Feature, Lighting Conservation Feature,** and **HVAC Conservation Feature.)**

Consumption: The amount of energy used by or delivered to a building during a given period of time. For this report, all consumption statistics are presented on an annual basis for the 365-day period of calendar year 1986. Data on energy consumption were not collected by end uses separately. For example, although it might be known that electricity was used in some buildings for heating, the consumption of electricity responded for those buildings would typically include other uses of electricity as well (such as lighting and water heating). (See **Btu, Energy Suppliers, Expenditures** and "Annual Consumption and Expenditures" in Appendix B "Sampling and Nonsampling Errors".)

Consumption Per Square Foot: The aggregate ratio of total consumption to total floorspace (See **Aggregate Ratio, Consumption**, and **Floorspace.**)

Consumption Per Worker: The aggregate ratio of total consumption to the total number of workers. (See **Aggregate Ratio, Consumption**, and **Number of Workers in the Building.**)

Cooking: In this report, the use of energy for commercial or institutional food preparation. The 1986 NBECS asked specifically about "commercial cooking," which was intended to include any kitchen facility that was not part of a residence. This is one of six energy end uses specifically asked for in this survey. (See **Energy End Use** and Appendix B, "Sampling and Nonsampling Errors.")

Cooling: Conditioning of room air by a refrigeration unit (such as an air-conditioner or heat pump) or by circulating chilled water through a central cooling or district cooling system. Use of fans or blowers by themselves without chilled air or water, is not included in this definition of cooling. This is one of six end ses

specifically asked for in this survey. (See **Energy End Use, Central Cooling, Heat Pump,** and **HVAC.**)

Cooling Degree-Days (CDD): A measure of how hot a location was over a period of time, relative to a base temperature. In this report, the base temperature is 65 °F, and the period of time is one year. The cooling degree-days for a single day is the difference between that day's average temperature and the base temperature if the daily average is greater than the base; and zero if the daily average temperature is less than or equal to the base temperature. The cooling degree-days for a longer period of time is the sum of the daily cooling degree-days for the days in that period. (See **Heating Degree-Days (HDD)** and **Climate Zone.**)

Cooling Distribution Equipment: See **Heating and Cooling Distribution Equipment.**

Cooling Production Equipment: The part of a cooling system that chills water or air. Cooling production equipment may operate either as a free-standing unit, or in conjunction with cooling distribution equipment. (See **Cooling,** and **Heating and Cooling Distribution Equipment.**)

Cubic Foot (cf): As an energy measure, the amount of gas contained in a cube with an edge that is 1-foot long. (See **Natural Gas** and **Btu.**)

Daylighting Controls: See **Natural Lighting Control Sensor (Daylighting Controls).**

Degree-Days 1986: The total annual heating and cooling degree-days 65 °F during calendar year 1986. For this report, each building was assigned to a NOAA division, and the division's daily temperature averages were used to compute degree-days for 1986. The daily temperature data were obtained from the National Oceanic and Atmospheric Administration (NOAA). (See **Heating Degree-Days (HDD), Cooling Degree-Days (CDD),** and **NOAA Division.**)

Delamping Program: A lighting conservation feature whereby the lighting level in the building is reduced by taking out unnecessary lamps and, in the case of some fluorescent lights, disconnecting the associated ballast. Some ballasts will continue to draw a small amount of electricity if left connected. (See **Ballast.**)

Demand: The rate of consumption per unit time. The term is most commonly applied to electricity, for which demand is typically measured in watts (W) or kilowatts (kW). (See **Consumption.**)

Demand Metered: Having a meter to measure peak demand during a billing period. The 1986 NBECS collected data on metered demand only for electricity. Demand is not usually metered for other energy sources. (See **Demand, Peak Demand,** and "Peak Electricity Demand" in Appendix B.)

District Chilled Water: Chilled water from an outside source used as an energy source in a building. The water is chilled in a central district system and piped into the building. Chilled water may be purchased from a utility or provided by a physical plant in a separate building that is part of the same facility (for example, a hospital complex or university). For this report, District Chilled Water is considered a major fuel, but is not included in the sum of major fuels. (See **Energy Source, District Cooling System, Major Fuels,** and **Minor Fuels.**)

District Cooling System: A system of providing chilled water for cooling using District Chilled Water. (See **District Chilled Water.**)

District Heat: Steam or hot water from an outside source used as an energy source in a building. The steam or hot water is produced in a central plant and piped into the building. The district heat may be purchased from a utility or provided by a physical plant in a separate building that is part of the same facility (for example, a hospital complex or university.) For this report, District Steam and District Hot Water are considered major fuels and are reported together as district heat in most places. (See **Energy Source, Major Fuels,** and **Minor Fuels.**)

District Hot Water: District heat in the form of hot water. (See **District Heat.**)

District Steam: District heat in the form of steam. (See **District Heat.**)

Ducted Forced Air: A type of Heating and Cooling Distribution Equipment that distributes conditioned air throughout a building through ducts by fans or blowers. (See **HVAC,** and **Heating and Cooling Distribution Equipment.**)

Economizer Cycle: An HVAC conservation feature, a method of operating a ventilation system to reduce the air-conditioning load. Whenever the temperature and humidity of the outdoor air are more favorable (lower heat content) than the temperature and humidity of the return air, more outdoor air is brought into the building. (See **HVAC Conservation Feature.**)

Electric Baseboard: An individual space heater with electric resistance coils mounted behind shallow panels along baseboards. Electric baseboards rely on passive convection to distribute heated air to the space. (See **Individual Space Heater** and **Baseboard.**)

Electricity: As an energy source for this report, electric energy supplied to a building by a central utility via power lines. Electric power generated onsite for exclusive use in the building is specifically excluded from the definition of

electricity as an energy source. For this report, electricity is considered a major fuel. (See **Energy Source, Major Fuels,** and **Minor Fuels.**)

Electricity Generation: The onsite production of electricity using electricity generators on either a regular or emergency basis. This is one of the end uses of energy specifically asked for in this survey. Electricity-generating plants belonging to utility companies, which produce electric power for sale to other buildings, were not included in this survey. (See **Energy End Use** and **Cogeneration.**)

EMCS: See **Energy Management and Control System (EMCS).**

Emergency Backup Generation: The use of electric generators only during interruptions of normal power supply.

Energy Audit: An inspection that determines where and how a building uses energy, and identifies energy-conservation possibilities. (See **Conservation Feature.**)

Energy-Efficient Fluorescent Lamp: A fluorescent lamp that has a higher lumen output per watt of electricity than a conventional fluorescent lamp. (See **Fluorescent Lamp.**)

Energy-Efficient Incandescent Lamp: An incandescent lamp that has a higher lumen output per watt of electricity than a conventional incandescent lamp. (See **Incandescent Lamp.**)

Energy End Use: A use for which energy is consumed in a building. Information on six specific end uses was collected in this survey. (See **Cooking, Cooling, Space Heating, Electricity Generation, Manufacturing/Industrial,** and **Water Heating.**)

Energy Intensity: The ratio of consumption to floorspace. In this report, energy intensity is usually given on an aggregate basis, as the ratio of total consumption for a set of buildings using a particular energy source to the total floorspace in those buildings. The energy intensity can also be computed for individual buildings. (See **Consumption** and **Floorspace.**)

Energy Management and Control System (EMCS): An energy conservation feature that uses mini/microcomputers, instrumentation, control equipment, and software to manage a building's use of energy for heating, ventilation, air conditioning, lighting, and/or business-related processes. These systems can also manage fire control, safety, and security. Not included are time-clock thermostats. (See **Time-Clock Thermostat, Occupant Control of Heating,** and **Occupant Control of Cooling.**)

Energy Source: A type of energy or fuel consumed in the building. For this report, continuous-delivery energy sources are electricity, natural gas, and district heating and cooling, whereas propane and fuel oil are discrete-delivery energy sources. (See **Electricity, Natural Gas, Fuel Oil, District Heat, District Chilled Water, Liquefied Petroleum Gas (LPG), Wood, Coal,** and **Active Solar.**)

Energy Supplier: A company that provides electricity, natural gas, fuel oil, LPG, or other sources of energy to a building. (See **Energy Source.**)

Envelope: See **Building Shell (Envelope).**

Establishment: As defined by the Standard Industrial Classification Manual developed by the Office of Management and Budget, "an economic unit, generally, at a single physical location where business is conducted or where services or industrial operations are performed." However, "establishment" is not synonymous with "building." (See **Multiple-Establishment Building, Single-Establishment Building, Multibuilding Establishment,** and **Building.**)

Expenditures: Funds spent for the energy consumed in or delivered to a building during a given period of time. For this report, all expenditure statistics are presented on an annual basis, for calendar year 1986. 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, and service charges. Data on energy expenditures were not collected by end uses separately. For example, although it might be known that electricity was used in some buildings for heating, the expenditures for electricity reported for those buildings would typically include other uses of electricity as well (such as lighting and water heating). (See **Consumption, Energy Suppliers** and "Annual Consumption and Expenditures" in Appendix B, "Sampling and Nonsampling Errors.".)

Expenditures Per Million Btu: The aggregate ratio of total expenditures to total consumption. (See **Aggregate Ratio, Expenditures and Consumption.**)

Expenditures Per Square Foot: The aggregate ratio of total expenditures to total floorspace. (See **Aggregate Ratio, Expenditures, and Total Floorspace.**)

Exterior or Interior Shadings or Awnings: A building shell conservation feature consisting of any type of exterior shadings (including architectural) or awnings on the outside of the building. Interior shading devices include drapes, venetian blinds, and window shades. (See **Building Shell Conservation Feature.**)

Evaporative Cooler ("Swamp" Cooler): A type of cooling equipment using the evaporation of water to cool air. This type of equipment is commonly found in warm, dry climates. (See **Cooling.**)

Fan-Coil Unit: A type of heating and cooling distribution equipment. Fan- coil units have built-in fans that draw air from the room and then across finned tubes containing hot water, steam, or chilled water. (See **Heating and Cooling Distribution Equipment.**)

Floors: The number of levels in the tallest section of a building, including parking areas, basements, or other floors below ground level.

Floorspace: All the area enclosed by the exterior walls of a building, including indoor parking facilities, basements, hallways, lobbies, stairways, and elevator shafts. For aggregate floorspace statistics, square footage was summed or aggregated over all buildings in a category (such as all office buildings in the United States). (See **Square Footage and Weight.**)

Fuel Oil: A liquid petroleum product less volatile than gasoline, used as an energy source. In this report, fuel oil includes distillates (No. 1, No. 2, No. 4, and kerosene) and residual (No. 5 and No. 6). Fuel oil is classified as a major fuel for this report. (See **Energy Source, Major Fuels,** and **Minor Fuels.**)

Furnace: An enclosed chamber where fuel is burned or electrical resistance is used to generate to heat, which is distributed throughout the building. (See **Boiler, Central Heating System**, and **HVAC.**

Government Owned: Owned by a Federal, State, or local government agency. The building may be occupied by agencies of more than one government and may also be shared with nongovernment establishments.

HDD: See **Heating Degree-Days (HDD).**

Heat Pump: A system that, during the heating season, draws heat into a building from outside and, during the cooling season, ejects heat from the building to the outside. Heat pumps are vapor-compression refrigeration systems whose indoor/outdoor coils are used reversibly as condensers or evaporators, depending on the need for heating or cooling. The source/sink for heat is either ambient air or water. (See **Air-Source Heat Pump, Water-Source Heat Pump, Cooling, Heating, Central Cooling,** and **HVAC.**)

Heating: See **Space Heating.**

Heating and Cooling Distribution Equipment: The part of a heating and/or cooling system that conveys conditioned water and/or air throughout a building by means of pipes, pumps, ducts, or fans. Often the distribution equipment serves both heating and cooling. (See **Ducted Forced Air, Baseboard, Radiator, Heating Panel, Fan-Coil Units,** and **Central Cooling.**)

Heating Degree-Days (HDD): A measure of how cold a location was over a period of time, relative to a base temperature. In this report, the base temperature used is 65 °F, and the period of time is one year. The heating degree-days for a single day is the difference between the base temperature and the day's average temperature if the daily average is less than the base; and zero if the daily average temperature is greater than or equal to the base temperature. The heating degree-days for a longer period of time is the sum of the daily heating degree-days for days in that period. (See **Cooling Degree-Days (CDD), Climate Zone,** and **NOAA Division.**)

Heating Distribution Equipment: (See **Heating and Cooling Distribution Equipment.**)

Heating Panel: A type of heating distribution equipment containing electric coils or steam or hot-water tubes, built beneath the surface of walls, ceilings, or floors. The panel heats by radiation and passive convection. (See **Heating and Cooling Distribution Equipment.**)

Heat Production Equipment: The part of a space heating system that generates heat in the form of warm air, hot water, or steam. Heat production equipment may operate either as an individual space heater, or in conjunction with heating distribution equipment. (See **Space Heating, Individual Space Heaters, and Cooling Distribution Equipment.**)

HID: See **High-Intensity Discharge (HID) Lamp.**

High-Efficiency Ballast: A lighting conservation feature consisting of an energy-efficient version of a conventional electromagnetic ballast. A high- efficiency ballast requires lower power input than a conventional ballast to operate High-Intensity Discharge (HID) and fluorescent lamps. (See **Ballast.**)

High-Intensity Discharge (HID) Lamp: A lamp that produces light by passing electricity through gas, which causes the gas to glow. Examples of HID lamps are mercury vapor lamps, metal halide lamps, and high-pressure sodium lamps. (See **Lamp.**)

Hot-Deck Imputation: An imputation procedure using random resampling from nonmissing cases to fill in values for missing cases. (See **Imputation** and Appendix B, "Sampling and Nonsampling Errors.")

HVAC: An abbreviation for heating, ventilation, and air-conditioning system; the system or systems that condition air in a building. (See **Heating and Cooling Distribution Equipment, Heating Production Equipment,** and **Cooling Production Equipment.**)

HVAC Conservation Feature: A building feature designed to reduce the amount of energy consumed by the heating, cooling, and ventilating equipment. The 1986 Building Characteristics Survey collected data on the presence of the following HVAC conservation features: variable air-volume systems, waste heat-recovery equipment, preventive maintenance program for the heating and cooling equipment, energy management and control systems, and time-clock thermostats. (See **Preventive Maintenance Program for the Heating and/or Cooling Equipment, Waste-Heat Recovery Equipment, Energy Management and Control System (EMCS), Variable Air-Volume (VAV) System, Time-Clock Thermostat,** and **Economizer Cycle.**)

Imputation: A statistical method used to fill in values for missing items, designed to minimize the bias of estimates based on the filled-in data set. (See **Hot-Deck Imputation,** and Appendix B, "Sampling and Nonsampling Errors.")

Individual Air Conditioners in Walls or Windows: Self-contained air- conditioning units installed in either walls or windows (with heat-radiating condensers exposed to the outdoor air). (See **Cooling.**)

Individual Space Heater: A free-standing or self-contained unit that generates and delivers heat to a local zone within the building. The heater may be permanently mounted in a wall or floor, or may be portable. Examples of individual space heaters include electric baseboards, electric radiant or quartz heaters, gas- or kerosene-fired unit heaters, wood stoves, and infrared radiant heaters. (See **Electric Baseboard.**)

Industrial: See **Manufacturing/Industrial.**

In Scope: Meeting the requirements for eligibility in the NBECS, and therefore included in the population covered by the survey. For the 1986 survey, these eligibility requirements were (a) that the structure be a building, according to the NBECS definition; (b) that the building be larger than 1,000 square feet; and (c) that more than 50 percent of the floorspace be used for commercial activities. (See **Building, Commercial, Floorspace**, and Appendix A, "How the Survey Was Conducted.")

Insulation: A building shell conservation feature consisting of material placed between the interior of a building and the outdoor environment to reduce the rate of heat loss to the environment or heat gain from the environment. Examples include glass-wool fill and foam board. (See **Roof or Ceiling Insulation, Wall Insulation,** and **Building Shell Conservation Feature.**)

Kerosene: A petroleum distillate with properties similar to No. 1 fuel oil, used primarily in space heaters, cooking stoves, and water heaters. For this survey, no distinction is made between kerosene and fuel oil. (See **Fuel Oil.**)

kWh (kilowatthour)--A unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kWh is equivalent to 3,412 Btu. (See **Btu, Electricity** and **Consumption.**)

Lamp: A term generally used to describe a manmade source of light. The term is often used when referring to a "bulb" or "tube." The survey collects data only about lamps using electricity. (See **Standard Incandescent Lamp, Standard Fluorescent Lamp,** and **High-Intensity Discharge (HID) Lamp.**)

Large and Specialized Buildings Lists: Lists that were used to select a supplementary sample of buildings for the 1986 NBECS. The sample of buildings drawn from these lists were used to supplement the Multistage Area Probability Sample within each selected PSU. (See **Multistage Area Probability Sample, List Sample,** and Appendix A, "How the Survey was Conducted.")

Licensed Bed Capacity: The number of beds that a hospital, inpatient health service, skilled nursing, or residential care facility is licensed to have. (See **Principal Building Activity** and Appendix C, "Types of Buildings.")

Lighting Conservation Feature: A building feature or practice designed to reduce the amount of energy consumed by the lighting system. The 1986 NBECS collected data on: delamping; high-efficiency ballasts; lighting control sensors that detect natural light (daylighting controls); and other lighting controls such as occupancy sensors, timed switches, and/or time-clocks. (See **High-Efficiency Ballast, Natural Lighting Control Sensor (Daylighting Controls), Other Lighting Controls, Time Clock (Lighting), and Delamping Program.**)

Liquefied Petroleum Gas (LPG): Gas fuel in liquid form supplied to a building as an energy source. The fuel is usually delivered by tank trucks and stored near the building in a tank or cylinder until used. LPG contains mostly propane, but can contain such gases as butane, propylene, butylene, or ethane. For this report, any LPG reported was assumed to be propane and is considered a major fuel. (See **Energy Source, Propane, Major Fuels, Minor Fuels**, and **Natural Gas.**)

List Sample: A sample drawn from the large and specialized building lists used to supplement the area probability sample. (See **Large and Specialized Buildings Lists** and Appendix A, "How the Survey Was Conducted.")

Load Factor: The ratio of average demand to peak demand, usually computed only for electricity demand. In this report, load factors were determined on an annual basis, for calendar year 1986, as

$$\text{Load Factor} = \frac{\text{Annual Consumption (kWh)}/(365 \times 24 \text{ Hours})}{\text{Annual Peak Demand (kW)}}$$

Load factors were computed only for individual buildings, not for aggregates, since aggregate peak demand could not be meaningfully determined. (See **Consumption, Demand, Peak Demand**, and "Electricity Peak Demand" in Appendix B "Sampling and Nonsampling Errors.)

LPG: See **Liquefied Petroleum Gas (LPG).**

Major Fuels: The energy sources or fuels for which consumption and expenditures data were collected on the 1986 NBECS. These fuels or energy sources are: electricity; fuel oil; liquefied petroleum gas; natural gas; district steam; district hot water; and district chilled water. District chilled water is not included in any totals for the sum of major fuels; all other major fuels are included in these totals. (See **Minor Fuels.**)

Manufacturing/Industrial: As used in this survey, activities involving the processing or procurement of goods, merchandise, raw materials, or food. These activities include: food processing; leather/textile mills; light assembly factories, such as those for apparel and electronic instruments; heavy assembly factories, such as those for machinery and other heavy equipment; paper processing; chemical or petroleum processing, metalworks, glassworks, and other similar manufacturing plants; printing and publishing; generation, transmission, or distribution of electricity, natural gas, steam, or other utility or sanitary service; and construction and natural resource procurement. Manufacturing is one of the six end uses of energy specifically requested in this survey. In the 1986 NBECS, manufacturing and industrial buildings were included in the sample during the listing stage. However, buildings that had 50 percent or more of their square footage devoted to manufacturing or industrial activities were dropped from the sample during the interview stage. (See **Energy End Use** and Appendix A, "How the Survey Was Conducted.")

Masonry: A general term covering wall construction using masonry materials such as brick, concrete block, stone, and tile that are set in mortar. This category does not include concrete panels because concrete panels represent a different method of constructing buildings and, therefore, are reported separately. (See **Masonry Over Wood Frame, Masonry Over Steel Frame,** and **Masonry Over Masonry Frame (Solid Masonry Wall.)**

Masonry Over Masonry Frame (Solid Masonry Wall): A method of constructing exterior walls. Both the outside surface materials and the structural walls are made of masonry. (See **Masonry, Masonry Over Steel Frame,** and **Masonry Over Wood Frame.**)

Masonry Over Steel Frame: A method of constructing exterior walls. The outside surface is brick, stone, stucco, or other masonry. The structural frame is made of steel. (See **Masonry, Masonry Over Masonry Frame (Solid Masonry Wall),** and **Masonry Over Wood Frame.**)

Masonry Over Wood Frame: A method of constructing exterior walls. The outside surface material is brick, stone, stucco, or other masonry. The structural frame is wood. (See **Masonry, Masonry Over Masonry Frame (Solid Masonry Wall),** and **Masonry Over Steel Frame.**)

Master-Metering: Measurement of electricity or natural gas consumption in a building using a single meter to measure the total consumption by several tenants or establishments in the building.

Mean: The simple arithmetic average for a population; that is, the sum of all the values in a population divided by the size of the population. For this report, population means are estimated by computing the weighted sum of the sample values, then dividing by the sum of the sample weights. The mean is, thus, an aggregate ratio whose denominator is the total number of buildings. (See **Aggregate Ratio,** and **Weight.**)

Median: The middle value in the population. Half the population has a value above the median and half has a value below. The median is different from the mean in that its estimate is not influenced much by extremes in the sample. An estimate of the mean square feet per building would be affected by the inclusion of some very large buildings, and would not express square footage for a "typical" building. In contrast, the median square feet would not be so affected. (See **Mean.**)

Metal Panel: A wall construction panel made of aluminum or galvanized steel fabricated in factories and fastened to the frame of the building to form outside walls.

Metal Surfacing: Light-gauge metal sheets used for roofing.

Metropolitan: Buildings located within Metropolitan Statistical Areas (MSA's) as defined in the 1980 Census. Except in New England, an MSA 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 MSA if they are essentially metropolitan in

character and are socially and economically integrated with the central city. In New England, MSA's consist of towns and cities rather than counties. (See **Nonmetropolitan.**)

Minor Fuels: The energy sources or fuels for which consumption and expenditures data were not collected on the 1986 NBECS. The decision not to collect data on these energy sources or fuels was based on the difficulty of obtaining reliable data for these sources given survey constraints including time, budget, and respondent burden. For this survey, any energy source not designated as a major fuel is a minor fuel. The minor fuels include active solar, coal, and wood, as well as other energy sources. (See **Major Fuels.**)

MSA: See **Metropolitan.**

Multibuilding Establishment: An establishment that operates in a multibuilding facility. (See **Multibuilding Facility**.)

Multibuilding Facility: A group of two or more buildings on the same site owned or managed by single organization, business, or individual. Examples include college campuses and large hospital complexes. (See **Building** and Appendix A "How the Survey Was Conducted."

Multiple-Establishment Building: A single building that houses more than one establishment. Examples include enclosed shopping malls and office suites. In the 1986 survey, the building was the interviewed sampling unit. If establishments in the building were billed for an energy source using separate meters or accounts, the utility (or energy supplier) was asked to provide data on consumption and expenditures for the entire building, on an "aggregate" reporting form that was provided. (See **Establishment, Single-Establishment Building, Multibuilding Establishment, Building, Master-Metering,** and **Separate Metering**.)

Multistage Area Probability Sample: A sample design executed in stages with geographic "clusters" of sampling units selected at each stage. This procedure reduces survey expense while maintaining national coverage. (See Appendix A, "How the Survey Was Conducted.")

Natural Gas: Hydrocarbon gas (mostly methane) supplied as an energy source to individual buildings by pipelines from a central utility company. Natural gas does not refer to liquefied petroleum gas or to privately owned gas wells operated by a building owner. For this report, natural gas is considered a major fuel. (See **Energy Source, Liquefied Petroleum Gas (LPG), Major Fuels, Minor Fuels,** and **Propane.**)

Natural Lighting Control Sensor (Daylighting Controls): A lighting conservation device that senses the amount of light provided by natural light, and controls electric lighting or shading devices to maintain a specified lighting level. Daylighting controls are also sometimes referred to as "photocells." (See **Lighting Conservation Feature.**)

NOAA Division: One of the 356 weather divisions designated by the National Oceanic and Atmospheric Administration (NOAA), encompassing the United States and the District of Columbia. These divisions usually follow county borders to encompass counties with similar weather conditions. However, the NOAA division does not follow county borders when weather conditions vary considerably within a county, as is likely to be the case when a county borders the ocean or contains high mountains. A State contains an average of seven NOAA divisions; an NOAA division contains an average of nine counties. (See **Climate Zone.**)

Nonmetropolitan: Buildings not located within Metropolitan Statistical Areas as defined in the 1980 Census. (See **Metropolitan.**)

Nonresidential Building: A building used for some purpose other than residential. Nonresidential buildings comprise three groups: commercial, manufacturing/industrial, and agricultural. Commercial buildings are the focus of this report. See **Commercial Building, Manufacturing/Industrial, Building, Residential Building, Principal Building Activity, Out-of-Scope Building**, and Appendix C, "Types of Buildings.")

Number of Rooms - Lodging: The number of guest rooms or quarters in a short-term residential building, such as a motel, tourist home, or hotel; or the number of bedrooms or residential suites in a long-term facility, such as a dormitory, boarding house, orphanage, convent, monastery, fraternity, or sorority. (See **Principal Building Activity** and Appendix C, "Types of Buildings.")

Number of Workers in the Building: The number of people working in a building during all shifts on a typical workday during the year. Included in this definition are self-employed workers and volunteers. Excluded from this definition are customers, patients, and students, unless they are working for establishments in the building. Also excluded are employees that work out of the office, such salesmen that report in, delivery men with routes, and messengers.

Occupancy Sensor: A lighting conservation feature that uses motion or sound to switch lights on or off. Occupancy sensors that detect movements are also known as ultrasonic switching. When movement is detected, the lights are turned on and remain on as long as there is movement in the room. Occupancy sensors that detect sound work like ultrasonic switching; when sound is detected, the lights turn on. (See **Lighting Conservation Feature.**)

Occupant Control of Cooling: Control by individuals other than maintenance personnel of the cooling equipment in a building.

Occupant Control of Heating: Control by individuals other than maintenance personnel of the heating equipment in a building.

Other Lighting Controls: A lighting conservation feature consisting of controls other than natural lighting control sensors. Such other controls include occupancy sensors, timed-switches, and time-clocks. (See **Lighting Conservation Feature, Natural Lighting Control Sensor (Daylighting Controls), Occupancy Sensor, Timed-Switch,** and **Time-Clock (Lighting.)**

Out of Scope: Violating one or more of the requirements for eligibility in the survey, therfore not included in the population covered by the 1986 NBECS. (See **In Scope.**)

Owner Occupied: Having the owner present in the building or the owner's business represented at the site. A building is considered owner occupied if an employee or representative of the owner (such as a building engineer or building manager) maintains office space in the building. Similarly, a chain store is considered owner occupied even though the actual owner may not be in the building but headquartered elsewhere. Other examples of the owner's business occupying a building include State-owned university buildings, elementary and secondary schools owned by a public school district, and a post office where the building is owned by the U.S. Postal Service.

Packaged Air-Conditioning Units: See **Packaged Units.**

Packaged Heating Units: See **Packaged Units.**

Packaged Units: Units built and assembled at a factory and installed as a unit to cool or heat all or portions of a building. Packaged units are in contrast to engineer-specified units built up from individual components for use in a given building. "Packaged Units" is a term that can apply to heating equipment, cooling equipment, or combined heating and cooling equipment. (See **Cooling, HVAC,** and **Space Heating.**)

Peak Demand: The maximum rate of energy consumption per unit time over a period of measurement. In this report, peak demand was determined on an annual basis for calendar year 1986, and peak demand data were presented only for electricity. (See **Demand** and "Peak Electricity Demand" in Appendix B "Sampling and Nonsampling Errors."

Peak Intensity: The ratio of peak demand to floorspace, usually determined only for electricity. In this report, peak intensity was computed only for individual buildings, not for aggregates, since aggregate peak demand could not be meaningfully determined. (See **Demand, Peak Demand, Floorspace,** and "Electricity Peak Demand" in Appendix B "Sampling and Nonsampling Errors")

Peak Load: See **Peak Demand.**

Percent Cooled: The percentage of the building's square footage that is cooled to meet the comfort requirements of the occupants. (See **Square Footage** and **Cooling.**)

Percent Heated: The percentage of the building's square footage designed to be heated to at least 50 °F. (See **Total Square Footage** and **Space Heating.**)

Percent Lit--Off-Hours: The percentage of the building's square footage that is lit electrically during all hours other than the usual operating hours. (See **Percent Lit--Open Hours, Square Footage,** and **Weekly Operating Hours.**)

Percent Lit--Open Hours: The percentage of the building's square footage that is lit electrically during usual operating hours. (See **Percent Lit--Off-Hours, Square Footage** and **Weekly Operating Hours.**)

Percentile: A measure used to describe the distribution of values in a population; p percent of the population values lie below the pth percentile. In particular, 25 percent of the population has a value below the 25th percentile, and 75 percent of the population has a value below the 75th percentile. The 50th percentile is the median. (See **Median.**)

Pounds of Steam (lb): A weight quantity of steam, also used in this report to denote a quantity of energy in the form of steam. The amount of usable energy obtained from a pound of steam depends on its temperature and pressure at the point of consumption, and on the drop in pressure after consumption. For the NBECS, a conversion factor of 1,000 Btu per pound was used. (See **Btu** and **District Steam/District Hot Water.**)

Preventive Maintenance Program for Heating and/or Cooling Equipment: As used in this report, a HVAC conservation feature consisting of a routine program of inspection and routine service for the heating and/or cooling equipment. The inspection is performed on a regular basis, even if there are no apparent problems. (See **HVAC Conservation Feature.**)

Primary Sampling Unit (PSU): The sampling units selected at the first stage in a multistage area probability sample. A PSU typically consists of one to several contiguous counties--for example, a metropolitan area with surrounding suburban counties. (See **Multistage Area Probability Sample, Metropolitan,** and Appendix A, "How the Survey Was Conducted.")

Principal Building Activity: The activity or function occupying the most floorspace in the building. The categories were designed to group buildings that have similar patterns of energy consumption. Examples of various types of principal activity include office, health care, lodging, and mercantile sales/service. (See Appendix C, "Types of Buildings.")

Propane: A gaseous petroleum product that liquefies under pressure; it is a major component in liquefied petroleum gas, or LPG. Any LPG reported was assumed to be propane. Propane is classified as a major fuel for this report. (See **Liquefied Petroleum Gas (LPG), Major Fuels,** and **Minor Fuels.)**

PSU: See **Primary Sampling Unit (PSU).**

Radiator: A heat-distribution unit that transfers heat from steam or hot water to air by a combination of direct radiation, conduction, and convection. Typically, a radiator is a freestanding, cast-iron fixture exposed in the space it heats. (See **Heating and Cooling Distribution Equipment.**)

Reduced Use Off-Hours: Cooling: A conservation feature consisting of manually or automatically reducing the amount of cooling produced during the hours a building is not in full use. (See **Cooling** and **Conservation Feature.**)

Reduced Use Off-Hours: Heating: A conservation feature consisting of manually or automatically reducing the amount of heating produced during the hours a building is not in full use. (See **Space Heating** and **Conservation Feature.**)

Reflective or Shading Glass or Film: A building shell energy conservation feature consisting of tinted or reflective glass or shading films installed on the exterior glazing of a building to reduce the rate of solar penetration into the building. (See **Building Shell Conservation Feature.**)

Regression: A statistical procedure, used in this report to estimate consumption of energy and expenditures for energy when fewer than 31 days of data were available for the year 1986. The procedure takes into account many characteristics of buildings (such as size, age, principal activity, heating fuels). (See **Imputation** and Appendix B, "Sampling and Nonsampling Errors.")

Relative Standard Error: See **RSE (Relative Standard Error).**

Residential Building: A structure used primarily as a dwelling for one or more households. In the 1986 NBECS, residential buildings that contained commercial activities were included in the survey during the listing and interviewing stages. However, buildings that had 50 percent or more of their square footage devoted to residential activities were dropped from the database during the analysis stage. (See **Principal Building Activity, In-Scope Building, Commercial Building,** and Appendix A, "How the Survey Was Conducted.")

Roof or Ceiling Insulation: A building shell conservation feature consisting of insulation placed in the roof (below the waterproofing layer) or in the ceiling of the top floor in the building. (See **Insulation** and **Building Shell Conservation Feature.**)

Roof Square Footage: The area in square feet of the exposed roof area.

RSE (Relative Standard Error): A measure of the reliability or precision of a survey statistic. The Relative Standard Error, or RSE, is defined as the standard error of a survey estimate, expressed as a percent of the estimate. For example, an RSE of 10 percent means that the standard error is one-tenth as large as the survey estimate. (See **Standard Error** and "Generalized Variances" in Appendix B, "Sampling and Nonsampling Errors.

RSE Column Factor: An adjustment factor used to compute RSE's. For a survey estimate in a particular row and a column of a table (that is, a particular "cell"), the approximate RSE is obtained by multiplying the RSE row factor by the RSE column factor for that cell. (See **RSE (Relative Standard Error), RSE Row Factor,** and "Generalized Variances" in Appendix B, "Sampling and Nonsampling Errors.")

RSE Row Factor: A factor used to compute RSE's. The row factor is equal to the geometric mean of the RSE's in a particular row of the main tables. For a survey estimate in a particular row and column of a table (that is, a particular "cell"), the approximate RSE is obtained by multiplying the RSE row factor by the RSE column factor for that cell. (See **RSE (Relative Standard Error), RSE Column Factor,** and "Generalized Variances" in Appendix B, "Sampling and Nonsampling Errors.")

Sampling: The procedure used to select buildings for interview from the population of commercial buildings in the United States. (See **Multistage Area Probability Sampling** and Appendix A, "How the Survey Was Conducted.")

Seating Capacity - Classrooms: The number of students that can be seated in the classrooms and/or lecture halls of an education building at a given time. (See **Principal Building Activity** and Appendix C, "Types of Buildings.")

Seating Capacity - Food Service: The number of patrons that can be seated in a food service building at a given time. (See **Principal Building Activity** and Appendix C, "Types of Buildings.")

Separate Metering: Measurement of electricity or natural gas consumption in a building using a separate meter for each of several tenants or establishments in the building.

Shakes: A roofing material similar to wood shingles. Instead of having a cut and smoothly planed surface, shakes are split into shapes to give a rustic appearance (See **Shingles** and **Wood Shingles or Shakes.**)

Shingles: Flat pieces of weatherproof material laid with others in a series of overlapping rows as covering for roofs and sometimes the sides of buildings. Shingles are manufactured in a variety of materials including fiber glass, wood, plastic, baked clay, tile, asbestos, asphalt, and aluminum. (See **Shakes** and **Wood Shingles or Shakes.**)

SIC: An abbreviation for Standard Industrial Classification codes developed by the U.S. Office of Management and Budget, which categorizes businesses into groups with similar economic activities. (See **Principal Activity in the Building** and Appendix C, "Types of Buildings.")

Siding Over Masonry Frame: A method of constructing exterior walls where the outside surface is wood, plastic, or metal siding, and the structural walls are masonry. (See **Siding Over Wood Frame.**)

Siding Over Wood Frame: A method of constructing exterior walls where the outside surface is wood, plastic, or metal siding, and the structural walls are wood. (See **Siding Over Masonry Frame.**)

Single-Establishment Building: A building that houses only one establishment—for example, a building dedicated to the offices of a single corporation. (See **Establishment, Multibuilding Establishment, Multiple-Establishment Building**, and **Building.**)

Slate or Tile: A type of roofing material. Tile refers to any thin, square, or rectangular piece of baked clay, stone, or concrete used as a roofing material. Slate refers to a particular stone used for roofing.

Space Heating: The use of mechanical equipment (including wood stoves and active solar heating devices) to heat all, or part, of a building to at least 50 °F. This is one of the six end uses of energy specifically asked for in this survey. (See **Energy End Use.**)

Square Footage: Floorspace, in units of square feet. (See **Floorspace.**)

Standard Error: A measure of the precision of an estimate, equal to the square root of the variance. (See **Variance, RSE (Relative Standard Error)** and Appendix B, "Sampling and Nonsampling Errors.")

Standard Fluorescent Lamp: A lamp made of a glass tube coated on the inside with fluorescent material. The lamp produces light by passing electricity through mercury vapor, which causes the fluorescent coating to glow or fluoresce. (See **Lamp.**)

Standard Incandescent Lamp: A lamp that produces light by electrically heating a filament so that it glows.

Steam: See **District Heat.**

Storm or Multiple Glazing: A building shell conservation feature consisting of storm windows, storm doors, or double- or triple-paned glass that are placed on the exterior of the building to reduce the rate of heat loss. (See **Building Shell Conservation Feature.**)

Summer Peaking: Having the annual peak demand falling during the summer. In this report, a building was classified as summer peaking if its annual peak demand was reached during any of the months from May through October. (See **Peak Demand** and "Peak Electricity Demand" in Appendix B "Sampling and Nonsampling Errors.")

Synthetic or Rubber Roofing: A layer of heavy gauge plastic, or rubber used for roofing.

Tank Capacity: The total amount of fuel oil or kerosene that can be stored at one time in all tanks serving a building. Tank capacity does not include capacity for LPG or propane storage. (See **Fuel Oil and Kerosene.**)

Time-Clock (Lighting): A lighting conservation feature consisting of a mechanical or digital device that automatically turns lights off and on at predetermined times (for example, on at dusk and off at dawn). (See **Lighting Conservation Feature.**)

Time-Clock Thermostat: A HVAC conservation feature using a time clock to change the thermostat settings at certain preset times. (See **HVAC** and **HVAC Conservation Feature.**)

Timed-Switch: A device used as a lighting conservation feature that automatically turns lights off after a predetermined time interval. Timed-switches are most frequently found in rooms that are not in continuous use (such as a rest room) and

whose occupants may be unlikely to turn the lights off. (See **Lighting Conservation Feature.**)

Trillion Btu: Equivalent to 1,000,000,000,000 Btu. (See **Btu.**)

Vacant: Designation for a building in which most of the floorspace was not being used at the time of the survey. A vacant building may contain occupants who are using small portions of floorspace.

Variance: A measure of the variability of a set observations that are subject to some chance variation; equal to the expected squared difference between a single observation and the average of all possible observations obtained in the same manner. For statistics presented in this report, the variance indicates the likely difference between the value computed from the 1986 NBECS sample and the average of the values that could have been computed from all possible samples that might have been obtained by the same sample selection process. (See Appendix A, "How the Survey was Conducted" and Appendix B, "Sampling and Nonsampling Errors.")

Variable Air Volume (VAV) System: As used in this report, conservation feature on HVAC distribution equipment that varies the volume of conditioned air delivered to different zones in the building according to the heating and cooling needs of the zone. Control of the air flow is achieved with a thermostat in each zone that controls variable air volume dampers. (See **HVAC, Heating and Cooling Distribution Equipment** and **HVAC Conservation Feature.**)

VAV: See **Variable Air Volume (VAV) System.**

Waiver: An authorization form, to be signed by the respondent from a building, authorizing energy supplier companies that serve the building to release information on the amounts and costs of energy consumed in the building during a specified period. (See **Energy Supplier** and Appendix A, "How the Survey Was Conducted.")

Wall Insulation: A building shell conservation feature consisting of insulation placed between the exterior and interior walls of a building. (See **Insulation** and **Building Shell Conservation Feature.**)

Wall Unit: Self-contained unit for air conditioning, installed in a wall, with heat-radiating condensers exposed on the outdoor surface of the wall. (See **Air Conditioning, Central Air-Conditioning System**, and **Window Unit.**)

Warm-Air Furnace: A type of heat production equipment consisting of a fuel-burning or electric resistance furnace that warms air directly. Warm-air furnaces typically rely on air ducts to carry the warm air throughout the building. (See **Heat Production Equipment, HVAC**, and **Boiler.**)

Waste-Heat Recovery Equipment: Any type of HVAC energy-conservation equipment that collects byproduct heat that would otherwise be ejected into the environment for use in space or water heating. (See **HVAC Conservation Feature.**)

Water Heating: The use of energy to heat water for purposes other than space heating. This is one of the six end uses of energy specifically asked for in this survey. (See **Energy End Use.**)

Water-Source Heat Pump: A heat pump that uses water as the source/sink for heat. (See **Heat Pump** and **Air-Source Heat Pump.**)

Weather Stripping or Caulking: A building shell conservation feature that includes any material placed between the door or window and the door frame or window frame to reduce the rate of loss of heat or cold caused by air infiltration. (See **Building Shell Conservation Feature.**)

Weekly Operating Hours: The number of hours per week that a building is used, excluding hours when the building is occupied only by maintenance, security, or other support personnel. For buildings with a schedule that varied during the year, "weekly operating hours" refers to the total weekly hours for the schedule most often followed.

Weight: The number of buildings in the United States that a particular sample building represents. To estimate the total value of an attribute (such as square footage) in the U.S. commercial building population as a whole, each sample building's value is multiplied by the building's weight. Summing the weighted sample values provides an estimate of the nation-wide total. (See **Multistage Area Probability Sample, Total Square Footage,** and Appendix B, "Sampling and Nonsampling Errors.")

Window Glass: Percent of Exterior Walls: The proportion of the exterior wall surface area that is composed of glass that can be seen through to the outside (that is, the external window area). Wall areas that are glass covered or constructed of glass material, but that cannot be seen through, are excluded from this percentage.

Window Unit: Self-contained air-conditioners that are installed in a window. (See **Air Conditioning, Central Air-Conditioning System**, and **Wall Unit.**)

Winter Peaking: Having the annual winter peak demand falling during the wnter. In this report, a building was classified winter peaking if its annual peak demand was reached during any of the months from November through April. (See **Peak**

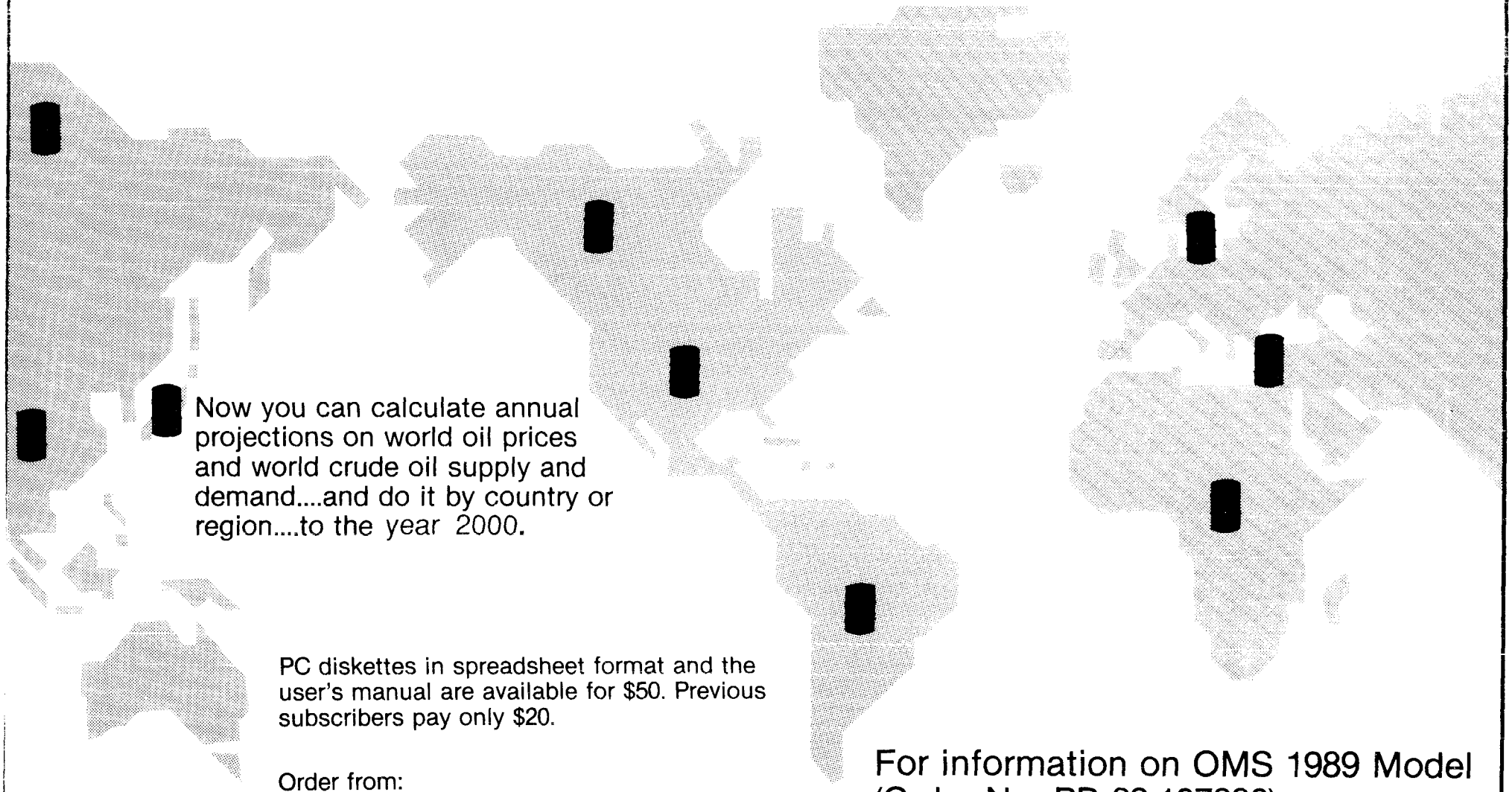
Demand and "Peak Electricity Demand" in Appendix B, "Sampling and Nonsampling Errors.")

Wood: Wood logs, chips, or wood products that are used as an energy source. For this survey, wood is considered a minor fuel. (See **Energy Source** and **Minor Fuels**.)

Wood Shingles or Shakes: Wood shingles, wood shakes, or other wooden materials used as roofing materials. (See **Shingles** and **Shakes**.)

Year Constructed: The year in which the major part or the largest portion of a building was constructed.

The Energy Information Administration Oil Market Simulation Model 1989



Now you can calculate annual projections on world oil prices and world crude oil supply and demand....and do it by country or region....to the year 2000.

PC diskettes in spreadsheet format and the user's manual are available for $50. Previous subscribers pay only $20.

Order from:
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161

For information on OMS 1989 Model (Order No. PB 89-167886), call (703) 487-4650.

Energy Information Administration
U.S. Department of Energy
Forrestal Building, EI-231
Washington, DC 20585

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

Return Postage Guaranteed

FOURTH-CLASS MAIL
POSTAGE & FEES PAID
U.S. DEPT. OF ENERGY
PERMIT NO. G-20