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Commercial Buildings Energy Consumption and Expenditures 1992

April 1995

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Public Use Data Diskettes containing CBECS data are available through the Office of Scientific and Technical Information and the National Technical Information Service. (See Appendix I, "Related EIA Publications on Energy Consumption," for ordering information.) Selected tables are also available on the Electronic Publishing System (EPUB). For questions about the contents of EPUB reports and data, call (202) 586-8800.

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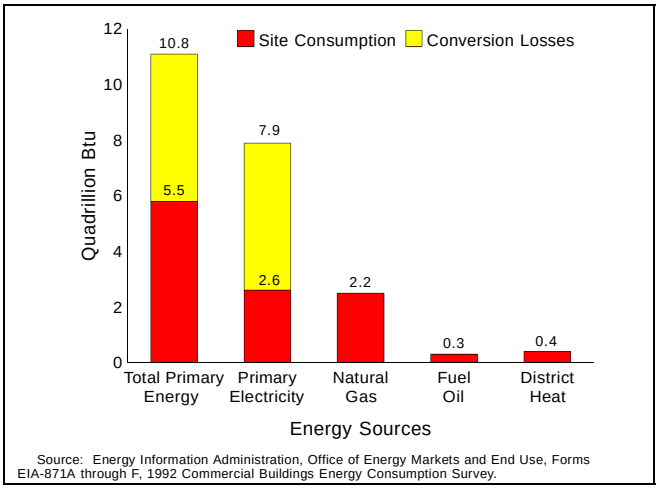
Executive Summary

Commercial Buildings Energy Consumption and Expenditures 1992 presents statistics about the amount of energy consumed in commercial buildings and the corresponding expenditures for that energy. These data are based on the 1992 Commercial Buildings Energy Consumption Survey (CBECS), a national energy survey of buildings in the commercial sector, conducted by the Energy Information Administration (EIA) of the U.S. Department of Energy.

- **Energy Consumption:** In 1992, the 4.8 million commercial buildings in the United States consumed 5.5 quadrillion Btu of electricity, natural gas, fuel oil, and district heat. Of those 5.5 quadrillion Btu, consumption of site electricity accounted for 2.6 quadrillion Btu, or 48.0 percent, and consumption of natural gas accounted for 2.2 quadrillion Btu, or 39.6 percent. Fuel oil consumption made up 0.3 quadrillion Btu, or 4.0 percent of the total, while consumption of district heat made up 0.4 quadrillion Btu, or 7.9 percent of energy consumption in that sector. When the energy losses that occur at the electricity generating plants are included, the overall energy consumed by commercial buildings increases to about 10.8 quadrillion Btu (Figure ES1).

- **Energy Expenditures:** Expenditures for the 5.5 quadrillion Btu of energy consumed in the commercial buildings sector totalled $71.8 billion. By energy source, $57.6 billion was spent for site electricity, $9.9 billion was spent for natural gas, $1.4 billion was spent for fuel oil, and $2.9 billion was spent for district heat.

Figure ES1. Energy Consumption in Commercial Buildings by Energy Source, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

- **Location:** By Census region, the South accounted for about 33 percent of the total 5.5 quadrillion Btu of energy consumption by commercial buildings. Of that total, buildings in the Midwest consumed 29 percent, while buildings in the Northeast and West consumed 20 percent and 18 percent, respectively.

- **Energy Intensities:** Energy consumption per square foot of building floorspace, or energy intensity, provides a common basis to compare data on energy consumption for different building categories and energy sources. For example, among the major energy sources, fuel oil consumption produced the lowest energy intensity at 21 thousand Btu per square foot. Consumption of natural gas and electricity produced energy intensities of 48 thousand Btu per square foot and 39 thousand Btu per square foot, respectively. Consumption of district heat produced the highest energy intensity at 83 thousand Btu per square foot.

- **Energy Intensities by Location:** Electricity intensities were higher in the West and South Census regions (12.6 kilowatthours per square foot) than in the Midwest and Northeast regions (10.1 kilowatthours per square foot), primarily due to greater use of air conditioning in those regions. The natural gas intensity was higher in the Midwest (52.7 cubic feet per square foot) than in the Northeast, primarily due to its use in the Midwest for space heating. The Northeast consumed 71 percent of the fuel oil used in the commercial buildings sector, mostly for main space heating.

- **Principal Building Activity:** Office buildings consumed more total energy (1,247 trillion Btu), more electricity (206 billion kilowatthours), and more natural gas (377 billion cubic feet) than was consumed by commercial buildings used for any other principal activity, primarily because they accounted for more commercial floorspace than did buildings of most other activities. However, buildings in which the principal activity was either food sales or food service were, by far, the most electricity-intensive buildings (43.6 kilowatthours per square foot and 27 kilowatthours per square foot, respectively) partly due to use of more refrigeration equipment. Food service buildings also showed the highest natural gas intensity (133 cubic feet per square foot) probably because of their smaller size and longer weekly operating hours.

- **Other Energy Sources:** CBECS data on the consumption of other energy sources by commercial buildings revealed that buildings using wood tended to use the major energy sources less intensively (34.6 thousand Btu per square foot compared with the national average of 81 thousand Btu per square foot), while buildings using solar energy or passive solar features used the major energy sources more intensively (94.4 thousand Btu per square foot).

- **Natural Gas Transported for the Account of Others:** Natural gas transported for the account of others is natural gas that customers buy directly from a gas producer or broker and which the local distributing company delivers to the building. Natural gas bought under this purchasing arrangement is a small but growing portion of all natural gas consumed in the commercial buildings sector. In 1992, natural gas transported for the account of others made up approximately 13 percent of natural gas consumption in the commercial buildings sector; in 1989, it accounted for 12 percent of natural gas consumption.

1. Introduction

Commercial Buildings Energy Consumption and Expenditures 1992 is the second report based on data from the 1992 Commercial Buildings Energy Consumption Survey (CBECS). The first publication, *Commercial Buildings Characteristics 1992*, provided information on the number and size of commercial buildings for the energy-related characteristics of those buildings. This second report provides information on the energy consumption and expenditures of those buildings.

The CBECS, administered by the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE), is the only source of national-level data on commercial building characteristics and related energy consumption.

Background

EIA Surveys

By Congressional mandate, EIA collects, analyzes, and disseminates impartial, comprehensive data about the production and consumption of energy.[1] To comply with this mandate, EIA conducts two types of surveys: (1) supply surveys and (2) consumption surveys:

- Supply surveys gather information from energy suppliers and marketers on the quantities and prices of specific energy sources produced or supplied to the market. The results of these surveys are published in fuel-specific EIA publications and in the *Monthly Energy Review*.

- Consumption surveys gather information directly from energy end users on the types of energy they consume, along with information on the energy-related characteristics of commercial buildings, households, vehicles, and manufacturing establishments.[2] The results of these surveys are published in energy-consumption reports, such as this report, and in special analytical reports.

These surveys enable EIA to provide meaningful, objective, and accurate energy information for a wide audience that includes Congress, Federal and State agencies, industry, and the general public.

CBECS Methodology

EIA conducts the CBECS, a national sample energy survey of commercial buildings and their energy suppliers, every 3 years. Previous surveys were conducted for 1979, 1983, and 1986 under the title, "Nonresidential Buildings Energy Consumption Survey (NBECS)." In 1989, the survey name was changed to "Commercial Buildings Energy Consumption Survey (CBECS)." For consistency, all the surveys will be referred to as "CBECS" in this report.

The CBECS is conducted in two parts:

- In the first part, interviews are conducted with the building managers, owners, or tenants to collect information about the commercial building, such as the principal building activity, structural characteristics, building use, energy sources, energy-using equipment, and energy-efficiency measures.

- In the second part, after permission is obtained from the building respondents, questionnaires are mailed to the energy suppliers of these buildings to collect billing data on energy consumption and expenditures.

[1]EIA's responsibilities are specified in the Federal Energy Administration Act of 1974 (P.L. 93-275), as amended.

[2]See Appendix I, "Related EIA Publications on Energy Consumption," for a listing of publications from CBECS and from other EIA consumption surveys.

Energy Consumption Intensities

To analyze how intensively energy is used in buildings, it is useful to normalize consumption by the amount of floorspace in buildings. Two measures of floorspace are used. One includes the total floorspace in all buildings, while a second includes only the floorspace in buildings that actually use a specific energy source. The second measure of floorspace is conditional on the actual use of an energy source. Each measure of floorspace leads to a different measure of energy intensity and both are relevant, depending on the focus of the analysis.

The measure of intensity that includes total floorspace is the Gross Energy Intensity, or Total Energy Intensity.

Gross Energy Intensity = Consumption/Total Square Feet

where

Consumption = total consumption of the sum of the major energy sources or a specific energy source in all buildings within a specific category.

Total Square Feet = total floorspace included in all the buildings within that category.

In this report, this measure of intensity is limited to the intensities for the sum of the major fuels.

The measure of intensity that includes only buildings that use a specific energy source is Conditional Energy Intensity or Energy Source-Specific Energy Intensity.

Conditional Energy Intensity = Consumption/Energy Source-Specific Square Feet

where

Consumption = total consumption of a specific energy source in all buildings within a specific category.

Energy Source-Specific Square Feet = floorspace included in buildings within that category, which actually use that particular energy source.

This measure of intensity is used when referring to a specific fuel intensity such as natural gas. For example, the natural gas intensity in office buildings actually using natural gas is 57.2 thousand Btu per square foot.

For consistency with the 1989 CBECS, the intensities in Section 3, "Detailed Tables," are referred to as Gross Energy Intensities and Conditional Energy Intensities.

CBECS Data Used in This Report

The statistics published in this report are from a randomly selected sample consisting of approximately 6,600 commercial buildings. This sample, based on a multistage area probability design, supplemented by a list sample of "large buildings," "recently constructed buildings," and "special buildings," represents the 4.8 million commercial buildings in the United States as of the spring of 1992.

EIA incorporated a longitudinal component into the 1992 CBECS by revisiting many of the same buildings that were sampled for the 1986 CBECS. The longitudinal data, which are not included in this report, provide an opportunity to study change in energy consumption between 1986 and 1992 at the building level. An analysis of these longitudinal data will be undertaken at a later date.

The four major energy sources for which billing data were collected in 1992 were electricity, natural gas, fuel oil (including kerosene), and district sources (steam, hot water, or chilled water from a central plant or utility). The use of other energy sources in the building, such as propane, wood, coal, and solar energy, was also determined during the building interview. However, with the exception of wood, no consumption statistics were gathered on these energy sources.

The consumption and expenditures estimates for the major energy sources for calendar year 1992 are presented in the form of net aggregate totals as well as consumption per building and dollars per million Btu. All tables include estimates for the amount of energy consumed at the site (site energy consumption) and Tables 3.2 and 3.14 also include estimates of consumption after accounting for conversion and transmission losses that occur in the electricity generation process (primary energy consumption).

This report also includes estimates of energy intensities. Energy intensities provide a method for controlling or adjusting the amount of energy consumed for the effects of various building characteristics, such as size, number of workers, and number of operating hours. The adjustment facilitates comparisons of energy consumption across time, energy sources, and building types.

Estimates of energy consumption and expenditures, for the Nation as a whole and for individual Census regions, are provided for the following building characteristics:

- Building size (square feet of floorspace)
- Building age (year constructed)
- Building structure (such as number of floors, type of wall and roof materials, and building shell conservation features)
- Building use (principal building activity, normal and additional operating hours, number of workers, and type of ownership or occupancy)
- Geographic location (four Census regions, and the nine Census divisions) and climate zone (measured in terms of the 45-year averages of heating and cooling degree-days)
- Energy sources used in the building (electricity, natural gas, fuel oil, district heat, and chilled water, as well as propane, wood, coal, and solar, with billing data obtained from the energy suppliers on the first five sources)
- Energy end uses (space heating, water heating, air conditioning, cooking, and manufacturing)[3]

[3]This report does not provide estimates for how much energy is used for a specific end use, but rather how much energy is used in buildings that use energy for a specific end use. Estimates of how much energy each end use consumes, based on 1989 CBECS data, are reported in *Energy End-Use Intensities in Commercial Buildings*, DOE/EIA-0555(94)2 (Washington, DC, 1994). A report on the 1992 data is also planned.

- Equipment (types of equipment used for space heating and cooling, water heating, lighting, and refrigeration, as well as distribution systems for the heating and cooling equipment; the percent of floorspace that is heated, cooled, and lit by various types of equipment; and the number of personal computers located in the building)

- Energy conservation and energy management practices, such as having a "dedicated" energy manager; reducing energy use during off-hours; having a computerized energy management control system (EMCS); maintaining heating, ventilation, and air conditioning (HVAC) systems regularly; and participating in demand-side management (DSM) programs.

All the numbers presented in this report are estimates rather than exact measures for the population. As described in Appendix B, "Nonsampling and Sampling Errors," the accuracy of each estimate is indicated by the relative standard error (RSE). No estimates were published that were based on data from fewer than 20 sample buildings or that had an RSE greater than 50 percent. All the estimates in the detailed tables include corresponding RSE's that can be calculated using RSE row and column factors. Overall, the RSE's for the 1992 CBECS are comparable to those for the corresponding aggregates from the 1989 survey, indicating a continuing high accuracy of the survey estimates. Unless otherwise noted, all differences between the statistics in Section 2, "At a Glance," are statistically significant. (See Section 3, "Detailed Tables," for further discussion of statistical significance.)

Because CBECS is a sample survey, every estimate of energy consumption has a standard error associated with it. Consequently, the apparent difference between any two numbers may not be statistically significant and, therefore, not a true difference. The apparent changes in electricity and natural gas consumption between 1989 and 1992 illustrate this principle. In the 1989 CBECS, electricity consumption was 2.8 quadrillion Btu, while in the 1992 CBECS, electricity consumption was 2.6 quadrillion Btu—a 7-percent decrease. In the 1989 CBECS, natural gas consumption was 2.1 quadrillion Btu, while in 1992, it was 2.2 quadrillion Btu—a 5-percent increase. However, given the magnitude of sampling error, the differences in both examples are not statistically significant. (See Section 3, "Detailed Tables," and Appendix B, "Nonsampling and Sampling Errors," for further discussion about calculating the standard error.)

The data for this report are based on the Building Characteristics Survey (Form EIA-871A) and the Energy Suppliers Survey (Forms EIA-871C through F). All data in this report are aggregated; any information on individual building names and addresses is confidential.

EIA gratefully acknowledges the cooperation of respondents and their energy suppliers for providing the information used to produce the estimates in this report.

Organization of This Report

This introductory section is followed by two sections: Section 2, "At a Glance," highlights information of special interest, summarizes a detailed breakdown of the data that are provided in Section 3, "Detailed Tables," and provides analysis that can be reproduced using CBECS Public Use Data files.[4] (For information about ordering these data files, see Appendix I, "Related EIA Publications on Energy Consumption.")

- Appendix A, "How the Survey Was Conducted," describes the sample design and data collection procedures.

- Appendix B, "Nonsampling and Sampling Errors," discusses adjustments to the collected data and factors affecting data quality.

- Appendix C, "CBECS Coverage Related to EIA Supply Surveys," discusses differences between the coverage of this survey and the EIA supply data sources.

- Appendix D, "Comparisons of CBECS, 1983 to 1992," compares the type of data that have been collected in each CBECS cycle, beginning with the 1983 survey.

[4]Exact replication of some figures may not be possible due to additional masking of some variables performed on the Public Use Data files for confidentiality.

- Appendix E, "Types of Buildings," describes the principal building activity categories.

- Appendix F, "U.S. Climate Zones and Census Regions and Divisions Maps," contains maps showing the Census regions and divisions and the climate zones by which the data in this report are organized.

- Appendix G, "Survey Forms," reproduces Forms EIA-871A and C through F, used to collect the data on which all estimates in this report are based. (The 1992 CBECS had no Form EIA-871B.)

- Appendix H, "Metric Conversion Factors," presents metric conversion factors.

- Appendix I, "Related EIA Publications on Energy Consumption," provides a list of related energy consumption publications for readers interested in earlier CBECS publications or consumption reports for the other sectors.

These appendices are followed by a glossary of statistical and engineering terms used in this report.

Evaluating the Energy Value of Electricity Consumption

Electricity consumption can be expressed in terms of either

- physical units, most commonly kilowatthours, or
- a common thermal unit, most commonly British thermal units (Btu).

The physical unit provides a clear understanding of the amount of a particular energy source being used, while the thermal unit is a measure of convenience used to aggregate or compare various energy sources measured in different physical units. Converting kilowatthours of electricity to Btu is not a trivial issue, because the amount of input energy needed to create a kilowatthour of electricity is far greater than the amount of useful energy in the kilowatthour at its point-of-use (in the CBECS, the building). Therefore, meaningful conversions of electricity use from kilowatthour to Btu can be given in terms of:

- Site (point-of-use) electricity at the universal value of 3,412 Btu per kilowatthour. This measurement is most useful to engineers, energy managers, building owners and others trying to improve energy efficiency.
- Primary (embodied) electricity, at a value that reflects the content of the energy inputs used to produce the electricity. This rate is most useful to policymakers and analysts who are considering global resources and environmental issues. (It is about 3 times the amount of site electricity use, as discussed below.)

For convenience and consistency, the factor used in this report to convert electricity use to primary energy is 10,302 Btu per kilowatthour. This factor represents the approximate average energy input to the generation process for fossil-fuel utility plants in the United States in 1992 (Energy Information Administration, *Monthly Energy Review* [August 1994]). Note: Specific conversion values for the range of electricity estimates in this report are unknown. Applying the single value to the range of electricity estimates in this report provides only a rough approximation of primary electricity because:

- for some types of utility energy inputs, hydroelectric, wood/waste, wind, and solar (thermal or photovoltaic), there is no generally accepted conversion rate
- the fossil-fueled, nuclear and geothermal generation processes have known, but different, conversion rates, so the overall conversion rate for these energy sources is a function of their mix.

Estimates of primary electricity using this conversion factor should thus be treated with caution. They should be considered rough alternative measures to site energy as indicators of the importance of electricity in the commercial buildings sector.

At a Glance

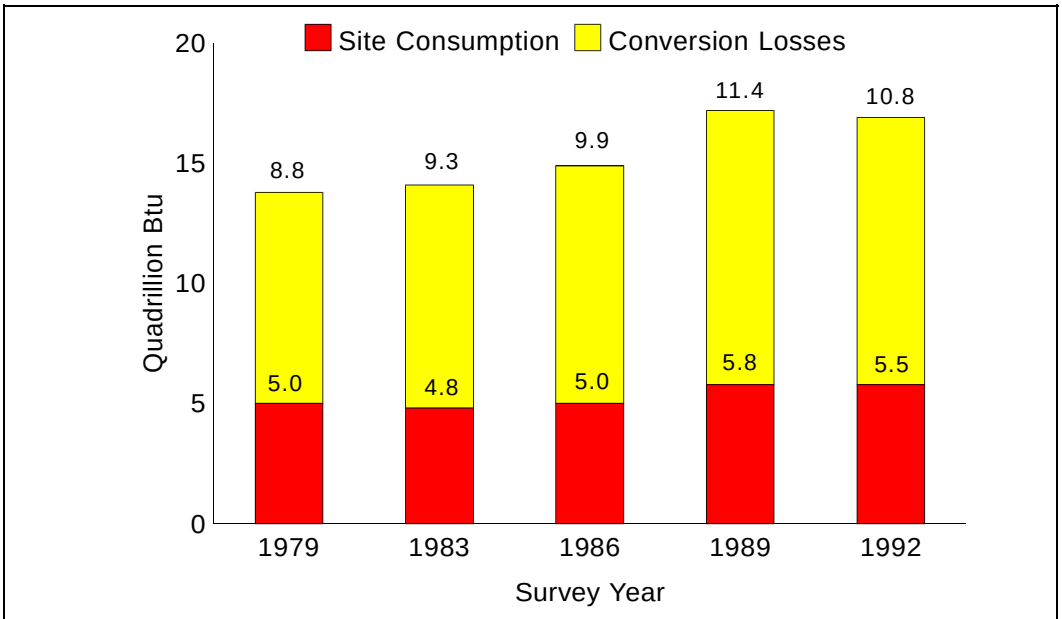
2. Energy Consumption and Expenditures in Commercial Buildings, 1992

This section aims to provide a snapshot of what occurred in 1992 in a very complex part of the energy picture—the commercial buildings sector. An overview of consumption and expenditures for the sum of the four major energy sources in the commercial buildings sector is followed by discussions of the impacts of building characteristics and energy efficiency features and energy management programs on total energy consumption. The section also discusses the impacts of building characteristics on electricity and natural gas consumption, as well as topics related to those energy sources: electric utility-sponsored Demand-Side Management (DSM) programs and natural gas transported for the account of others. An overview of fuel oil and district heat consumption and a comparison between energy consumption in government-owned and nongovernment-owned buildings conclude this section.

Total Energy Consumption and Expenditures

Total site energy consumption and expenditures in the U.S. commercial sector remained relatively stable between 1989 and 1992, following an annual increase of about 1 percent per year between 1979 and 1989 (Figure 2.1). In 1992, the Nation's 4.8 million commercial buildings (67.9 billion square feet and 71.2 million workers) consumed 5.5 quadrillion Btu of electricity, natural gas, fuel oil, and district heat (steam or hot water from a central plant or utility), with corresponding expenditures of $71.8 billion. These consumption figures represent the amount of energy delivered to the building and exclude losses associated with the electricity-generation and distribution process. Including these losses, the total amount of energy used in the commercial sector in 1992 was 10.8 quadrillion Btu.

Figure 2.1. Total Energy Consumption by Survey Year, 1979-1992

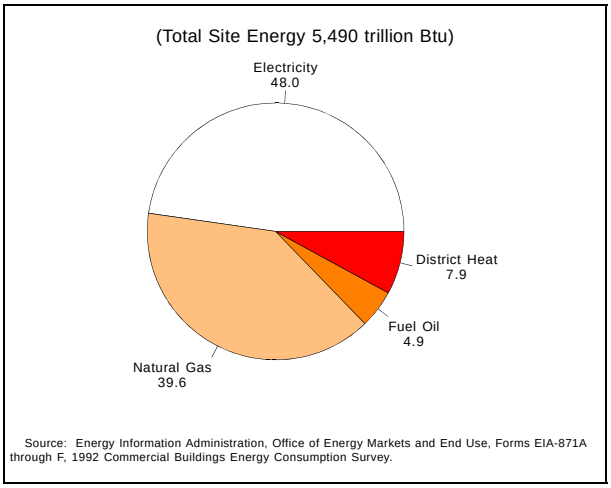


Note: Conversion losses were calculated using approximate fossil-fuel heat rates for electricity for each survey year using the Btu per kilowatthour reported in the EIA Monthly Energy Review, August 1994, Table A8.

Source: Energy Information Administration, Office of Energy Markets and End Use, Nonresidential Buildings Energy Consumption Surveys 1979, 1983, and 1986 and Commercial Buildings Energy Consumption Surveys 1989 and 1992.

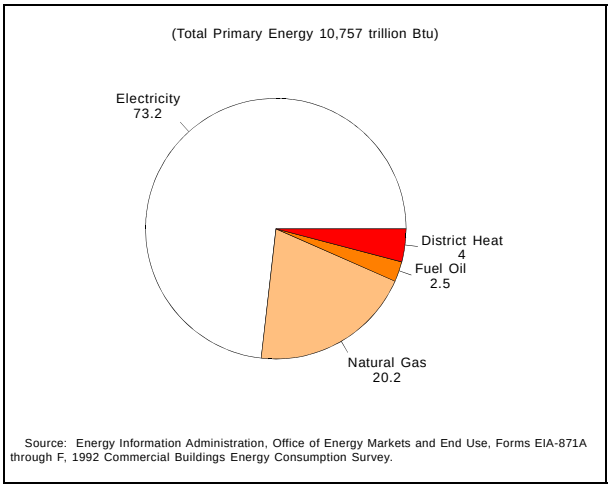
At the site, buildings used somewhat more electricity than natural gas—2.6 quadrillion Btu and 2.2 quadrillion Btu, respectively. Site electricity accounted for 48.0 percent of the total site energy consumption, and natural gas accounted for 39.6 percent of that total. Taking into account the conversion losses of about 5.3 quadrillion Btu estimated to have occurred in the electricity-generation process, electricity consumption totaled 7.9 quadrillion Btu, 73.2 percent of the total primary energy consumption, and slightly over three times the consumption of natural gas. The remaining 0.7 quadrillion Btu was divided between fuel oil, which accounted for 0.3 quadrillion Btu, or 4.9 percent of the site energy consumption, and district heat, which accounted for 0.4 quadrillion Btu, or 7.9 percent of the site consumption (Figures 2.2 and 2.3). In 1989, site electricity consumption made up 47.9 percent of the total 5.8 quadrillion Btu consumed in commercial buildings. Natural gas consumption accounted for 35.8 percent of that total, while fuel oil represented 6.2 percent and district heat represented 10.1 percent of that total.

Figure 2.2. Percent of Site Energy Consumption by Energy Source, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

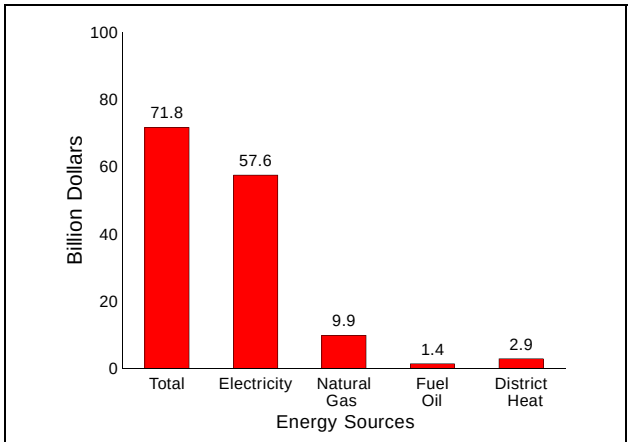
Figure 2.3. Percent of Primary Energy Consumption by Energy Source, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Total expenditures for the four major energy sources amounted to $71.8 billion: $57.6 billion for electricity, $9.9 billion for natural gas, $1.4 billion for fuel oil, and $2.9 billion for district heat (Figure 2.4). The average energy expenditure for commercial floorspace was $1.06 per square foot. Energy expenditures are collected from the energy suppliers and, therefore, reflect the cost of energy at the site (the building). Between 1989 and 1992, there was no statistically significant difference in energy expenditures.

Figure 2.4. Total Energy Expenditures, 1992

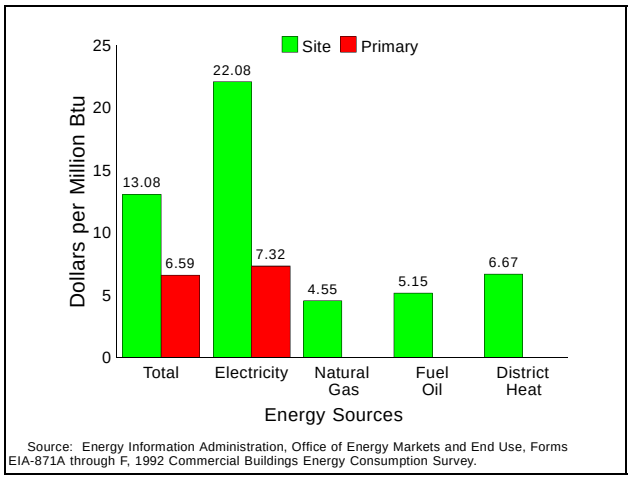


Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

From the consumer's viewpoint, site electricity is the most expensive source of energy on a dollar-per-Btu basis. However, a major portion of this cost is associated with energy losses during the generation and distribution of electricity. This difference can be seen by calculating the approximate cost of this electricity per million Btu of input energy. For example, in 1992, total electricity expenditures were $57.6 billion. Site electricity consumption was 2.6 quadrillion Btu and primary electricity consumption was 7.9 quadrillion Btu. Expenditures for electricity at the site were about $22 per million Btu, while expenditures for primary energy were approximately $7 per million Btu, a figure comparable to expenditures for the other energy sources (Figure 2.5).

Energy Intensities

Figure 2.5. Energy Expenditures per Million Btu, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

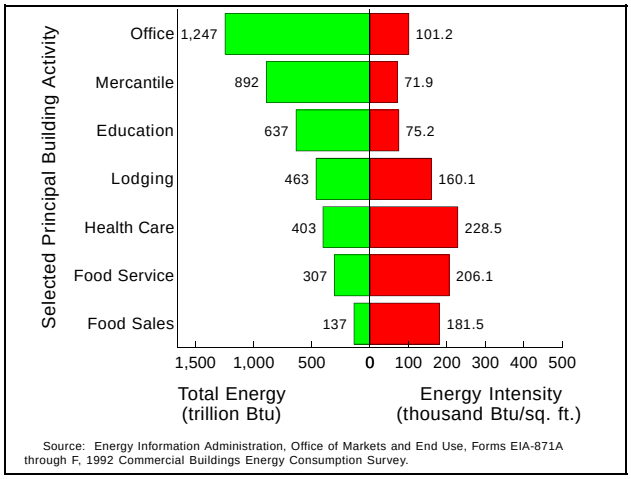
Energy intensities, or the amount of energy consumed per square foot of building floorspace, are useful measures for comparing the energy consumption of the various sizes and categories of buildings. (See the Introduction and Glossary for a definition of Energy Intensities.) In 1992, the gross or total energy intensity of commercial buildings was approximately 81 thousand Btu per square foot, with natural gas and site electricity showing moderate conditional intensities—48 thousand Btu per square foot and 39 thousand Btu per square foot, respectively.

Fuel oil had a relatively low intensity (21 thousand Btu per square foot), while the district heat intensity was high (83 thousand Btu per square foot). Beginning with the 1986 CBECS, intensities for fuel oil have declined somewhat, while other energy intensities have remained almost constant.

The relative difference in energy intensities remained the same even after controlling for heating degree-days: the natural gas intensity was 10.4 Btu per square foot-heating degree-day; the electricity intensity was 8.9 Btu per square foot-heating degree-day; the fuel oil intensity was 4.0 Btu per square foot-heating degree-day; and the district heat intensity was 15.8 Btu per square foot-heating degree-day.

Impacts of Building Characteristics on Total Fuel Consumption

Figure 2.6. Total Energy Consumption and Energy Intensities for Selected Principal Building Activities, 1992



Source: Energy Information Administration, Office of Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

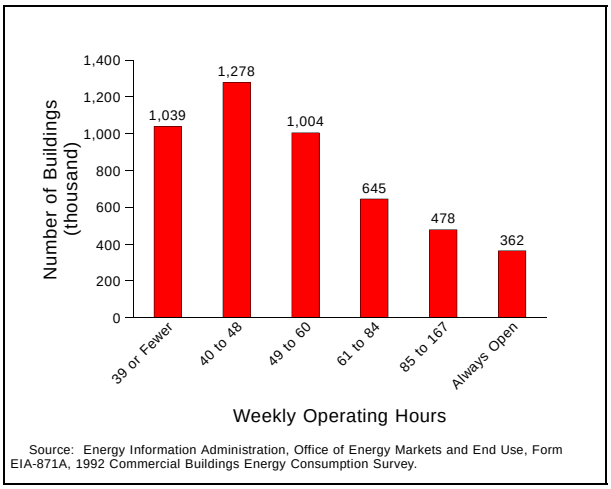
The total energy consumption of commercial buildings was affected by their size, principal building activity, operating hours, location, and year of construction.

- **Size**: The size of a building was the most important determinant of total energy consumption; the larger a building, the higher its total energy consumption. Because size is such a dominant factor in total energy consumption, energy intensities, or consumption per square foot, are used as a common measure to discuss energy use. Energy intensities for consumption of the sum of the four major energy sources did not show a pattern across the various building size categories.

- **Principal Building Activity**: The type of activity that occurs in a building affects how intensively a building uses energy. While office buildings, mercantile and service buildings, and education buildings consumed an overall greater amount of energy among building activities, buildings with these activities tended to use energy less intensively. Food sales, food service, health care, and lodging buildings used energy intensively (Figure 2.6). The energy expenditures per square foot for buildings with those activities were also relatively higher, ranging between $1.89 per square foot for lodging buildings to $3.16 per square foot for food sales buildings.

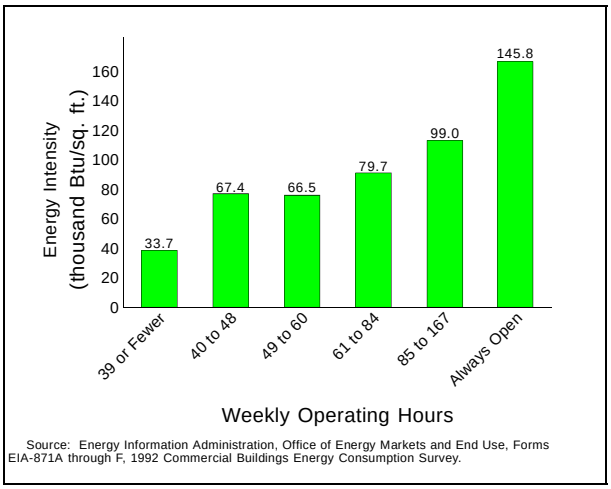
- **Weekly Operating Hours:** Commercial buildings are often characterized as operating on a 40-hour per week schedule. However, that is a misperception, as CBECS data indicate a wider range of operating hours. Only 27 percent of commercial buildings were open from 40 to 48 hours per week (Figure 2.7). Operating hours had a significant impact on total energy intensity in the building. The longer a building was open, the more intensively it used energy (Figure 2.8). This pattern also remained true for electricity and natural gas consumption.

Figure 2.7. Number of Buildings by Weekly Operating Hours Category, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Form EIA-871A, 1992 Commercial Buildings Energy Consumption Survey.

Figure 2.8. Energy Intensity by Weekly Operating Hours Category, 1992

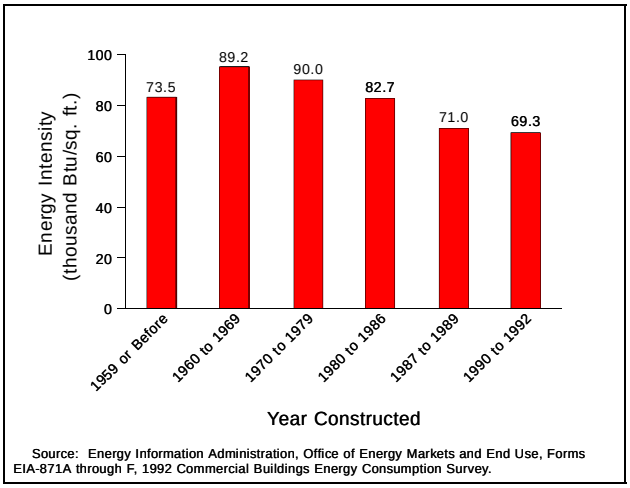


Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

- **Location:** Buildings in the South accounted for about 33 percent of the total 5.5 quadrillion Btu of the site energy consumed in the commercial sector. Buildings in the Midwest consumed 29 percent of that total, while buildings in the Northeast consumed 20 percent and buildings in the West consumed 18 percent of the total. Buildings in the Midwest consumed more energy per square foot (91.3 thousand Btu) than was consumed by buildings in the other regions of the United States (77.3 thousand Btu per square foot).

- **Year of Construction**: Although it may appear there is a trend towards lower intensities in newer buildings (Figure 2.9), the conversion losses associated with electricity generation must be taken into account. The 1992 CBECS found that, although the site energy consumption of buildings constructed after 1986 was less than that of older buildings, the energy consumption of the two groups of buildings was about the same after accounting for conversion losses during the electricity generation process, due, in large part, to the increased use of electricity for a variety of energy services in newer buildings. Buildings constructed after 1986 consumed about 70 thousand Btu per square foot of energy, while buildings constructed in or before 1986 consumed about 82 thousand Btu per square foot of energy. In addition to newer buildings using more electricity for refrigeration, air conditioning, and office equipment, the number of new buildings using electricity for main space heating was 6 percent more than older buildings. Since approximately 3 Btu of fossil fuels are required to produce each Btu of electricity, the primary energy consumption of the older and newer buildings was about the same—164 thousand Btu per square foot for buildings constructed after 1986 and 158 thousand Btu per square foot for buildings constructed in or before 1986.

Figure 2.9. Energy Intensity by Year Constructed, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Impact of Energy Efficiency Features and Energy Management Programs

In response to customer requests that EIA provide more information on energy efficiency and energy management, the 1992 CBECS included a number of new questions about energy efficiency features, energy management practices, and the reduction of equipment use during off-hours. The survey found that buildings that had undertaken energy conservation and management measures were, on average, larger, consumed more total energy, and had longer operating hours than buildings without those measures (Table 2.1). Those facts may have indeed provided the initial incentive to equip the buildings with conservation features, since buildings consuming more total energy would likely experience a shorter payback period on conservation investments.

Table 2.1 Summary Statistics of Buildings with and Without Conservation Features and Energy Management Practices, 1992

	Average Floorspace (square feet)		Average Sum of Major Fuel Consumption (million Btu)		Average Weekly Operating Hours	
	With	Without	With	Without	With	Without
Conservation Features						
Any	14,783	7,735	1,241	178	59	47
Building Shell	14,695	9,989	1,251	355	59	51
HVAC[a]	19,310	7,991	1,804	360	65	51
Lighting	25,004	10,592	2,377	742	68	55
Energy Management Practices						
EMCS[b]	60,725	11,720	6,663	858	68	58
Energy Audit	28,343	12,394	2,834	936	69	57
Energy Manager	46,846	13,785	6,013	1,092	69	58

[a]Heating, Ventilation, and Air Conditioning.
[b]Energy Management and Control System.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

The data collected in the CBECS provide information on energy consumption in commercial buildings during 1992. Therefore, in its examination of the effects of conservation features, CBECS is limited to comparing the energy consumption of buildings with those features to buildings without those features. As presently collected, the CBECS data cannot be used to study the effectiveness of conservation measures. To study the effectiveness of those conservation features, it would be necessary to measure the energy consumption of a building before and after implementation. Conceivably, buildings with effective conservation features would have lower energy intensities than buildings without those features. However, because buildings with conservation and management features were, on average, larger, consumed more total energy, and had longer operating hours than buildings without conservation and management features, it is reasonable to suggest that those buildings consumed energy differently, and had different energy intensities, apart from the effectiveness of those features. CBECS data comparing the energy consumption of buildings with conservation features and buildings without those features provide a profile of those buildings but do not measure the effectiveness of energy efficiency or energy management programs.

It is not surprising, therefore, that the 1992 survey results revealed the energy intensities for buildings with energy efficiency or management features to be the same or even greater than the energy intensities of buildings without those features. Even when examined within different categories—size, region, ownership, year of construction, weekly operating hours, principal building activity, and level of energy consumption—the energy intensities of buildings with energy efficiency or management features were, with few exceptions, either the same or higher than buildings without these features.

Electricity Consumption

In 1992, commercial buildings consumed 2.6 quadrillion Btu of site electricity (765 billion kilowatthours), with expenditures for this electricity totaling $57.6 billion.[5]

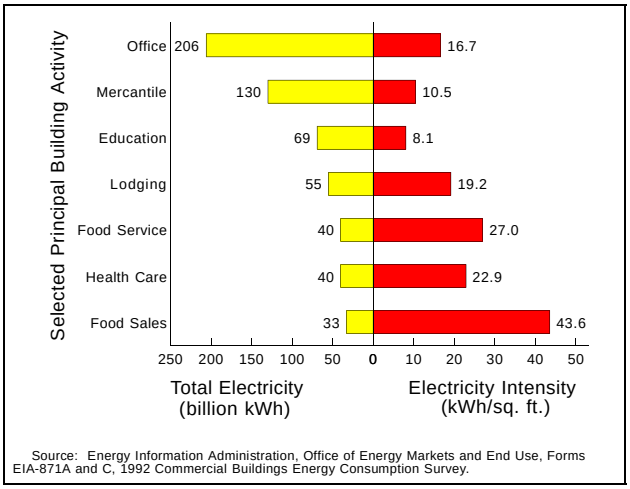
[5]In this discussion, estimates of electricity consumption are for site consumption.

Impacts of Building Characteristics on Electricity Consumption

The electricity consumption of commercial buildings was also affected by their principal activity, location, and year of construction. Size was not a major factor in determining how intensively the building used electricity.

- **Principal Building Activity:** Office buildings had the highest total electricity consumption, even though mercantile and service buildings accounted for slightly more of the total commercial floorspace. Food sales, food service, and health care buildings were the most electricity intensive CBECS buildings (Figure 2.10). The high intensities can be partly explained by the equipment associated with these building activities. All of these buildings were likely to use air conditioning; food sales and food service buildings were likely to use refrigeration. Although food sales and food service buildings made up only about 8 percent of commercial buildings, they held 44 percent of the total walk-in refrigerator or freezer units and 48 percent of the linear square feet of refrigeration or freezer cases or cabinets.

Figure 2.10. Electricity Consumption and Intensity for Selected Principal Buildings Activities, 1992

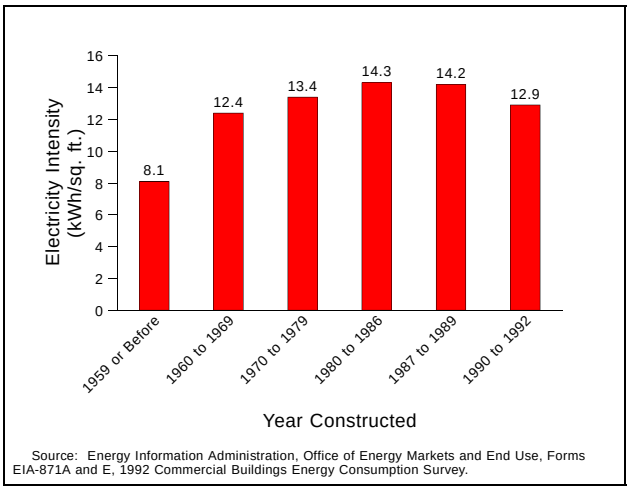


Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and C, 1992 Commercial Buildings Energy Consumption Survey.

- **Location:** Buildings in the West and the South regions had a higher electricity intensity than buildings in the Midwest and the Northeast regions (12.6 kilowatthours per square foot and 10.1 kilowatthours per square foot, respectively), primarily due to greater use of air conditioning in the West and South. An analysis of end-use consumption based on the 1989 CBECS data showed that cooling accounted for 10 percent of electricity consumption in the West and 14 percent of electricity consumption in the South. In comparison, cooling made up 6 percent of electricity consumption in the Northeast and 8 percent in the Midwest.[6]

- **Year of Construction:** The newer the building, the more intensively it used electricity, due largely to the increased use of electrical equipment such as refrigeration and air conditioning in newer buildings (Figure 2.11). Although the 1990 to 1992 category seems to indicate that the trend might be reversing, the difference is not statistically significant. Later surveys will show if this is actually a trend. The end-use analysis of the 1989 CBECS data also showed that use of office equipment made up a higher percentage of electricity consumption in newer buildings than in older buildings.[7]

Figure 2.11. Electricity Intensity by Year Constructed, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and E, 1992 Commercial Buildings Energy Consumption Survey.

[6]Energy Information Administration, *Energy End-Use Intensities in Commercial Buildings*, DOE/EIA-0555(94)/2(Washington, DC, September 1994).

[7]op cit.

Estimates of DSM Program Participation

In 1992, questions about DSM participation were asked during both components of the CBECS. (See Appendix A, "How the Survey Was Conducted," for details about the Buildings Characteristics Survey and the Energy Suppliers Survey.) Both the building respondents and their electricity and natural gas suppliers were asked questions about their DSM program participation for the previous 3 years. The range of response choices to those questions in the building questionnaire included DSM programs that were sponsored by either an electricity or natural gas utility, by an in-house program, or by a third party such as an energy service company or contractor. DSM participation, as reported by the building respondent, meant that the building participated in at least one of these programs, but not necessarily all of the programs that were available to it. The only DSM question that the electricity and natural gas suppliers were asked was whether the building participated in a DSM program that they sponsored.

Nationwide, over 3.5 million buildings (76 percent of the CBECS buildings that used electricity) were served by an electric utility that offered a DSM program. Since the remaining 24 percent of commercial buildings that used electricity did not have the opportunity to participate in DSM, they were not included in this analysis.

The 1992 CBECS found that building respondents reported a much lower DSM participation rate than did energy suppliers. Of the buildings that were offered a DSM program, building respondents indicated that less than 6 percent of the buildings (representing 12 percent of the floorspace) participated in an electric utility sponsored program. On the other hand, of the buildings that were offered a DSM program, electricity suppliers indicated that almost 46 percent of the buildings (representing 50 percent of the floorspace) participated in a DSM program (Table 2.2). (See Appendix B, "Nonsampling and Sampling Errors," for a more detailed discussion of these discrepancies.) The remainder of this discussion is based on the responses from the electricity suppliers, because the data were based on actual records as opposed to respondent recall.

> With the exception of Table 3.49, the data on DSM participation presented in the Detailed Tables in Section 3 and in the companion volume to this report, *Commercial Buildings Characteristics 1992*, are based solely on information gathered from the building respondent and include programs sponsored by a utility, in-house or a third party, such as an energy service company (ESCO).
>
> The data presented in Table 3.49 are limited to electric utility DSM programs as reported by the building respondent and the electricity suppliers to those buildings.

DSM-participating buildings were, on average, larger (15,856 square feet per building for participants versus 13,923 square feet per building for nonparticipants). However, no statistically significant difference was found between electricity intensities for DSM-participating and non-DSM-participating buildings (11.6 kilowatthours per square foot and 11.5 kilowatthours per square foot, respectively). This should not be construed as an indication that participation in a DSM program has no effect, or even leads to higher use. It is impossible to state with certainty the reason for the absence of any real differences.

The Northeast showed a greater percentage of commercial floorspace in buildings participating in DSM programs sponsored by electric utilities than did buildings in the other Census regions and in the United States as a whole (Table 2.2).

Table 2.2. Participation in Electric Utility-Sponsored DSM Programs by Census Region as Reported by Building Respondent and Electric Utility Respondent, 1992

Building Characteristics	Participation in Electric Utility-Sponsored DSM Programs					
	According to Building Respondent			According to Utility Respondent		
	Number of Buildings Using Electricity (thousand)	Floorspace of Buildings Using Electricity (million square feet)	Electricity Consumption (billion kWh)	Number of Buildings Using Electricity (thousand)	Floorspace of Buildings Using Electricity (million square feet)	Electricity Consumption (billion kWh)
All Buildings[a]	**3,501**	**53,428**	**614**	**3,501**	**53,428**	**614**
Northeast	704	12,108	109	704	12,108	109
Midwest	948	14,753	165	948	14,753	165
South	1,082	14,936	183	1,082	14,936	183
West	767	11,631	157	767	11,631	157
DSM Participants	**205**	**6,572**	**93**	**1,596**	**26,898**	**311**
Northeast	77	2,721	34	426	7,771	71
Midwest	57	1,765	20	378	6,311	67
South	23	789	19	477	6,633	85
West	47	1,297	19	315	6,182	88
DSM Nonparticipants	**3,296**	**46,856**	**521**	**1,905**	**26,530**	**302**
Northeast	627	9,388	75	278	4,337	38
Midwest	890	12,988	145	569	8,441	98
South	1,059	14,147	164	605	8,303	98
West	720	10,334	138	452	5,449	69

[a]All buildings which were offered a DSM program by their electric utility.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and E, 1992 Commercial Buildings Energy Consumption Survey.

Natural Gas Consumption

In 1992, commercial buildings consumed 2.2 quadrillion Btu of natural gas (2,113 billion cubic feet), with expenditures totaling $9.9 billion. The amount of natural gas per square foot consumed by a building varied according to the characteristics of the building. Natural gas transported for the account of others made up a small, but growing, part of the total natural gas consumption.

Impacts of Building Characteristics on Natural Gas Consumption

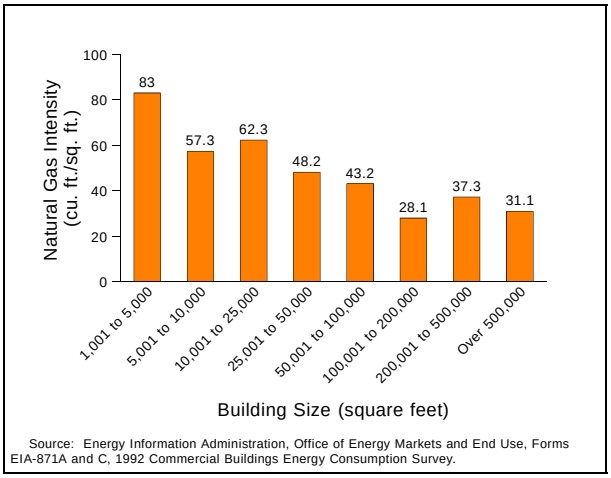
Similar to total energy and electricity consumption, the natural gas consumption of commercial buildings was affected by their size, principal activity, location, and year of construction.

- **Size:** Unlike the sum of major fuel consumption, the larger the building, the less intensively it used natural gas (Figure 2.12). This pattern was probably due to the use of natural gas mostly for space heating. Since the ratio of exterior surface to total floorspace was smaller in larger buildings, building interiors required less space heating to maintain a comfortable temperature.[8]

- **Principal Building Activity:** Food service buildings had higher natural gas intensities than other building activities (Figure 2.13). This high intensity may have been due to the fact that these buildings were generally smaller (87 percent of all food service buildings were 10,000 square feet or less), and tended to have longer weekly operating hours (57 percent of all food service buildings were open 85 hours per week or more). Furthermore, food service buildings using natural gas usually used it for cooking. Among food service buildings using natural gas, 86 percent used it for cooking, compared with only 11 percent of non-food service buildings using natural gas.

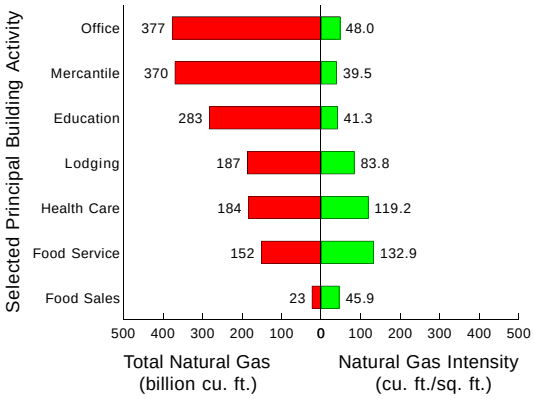
[8]Energy Information Administration, *Energy End-Use Intensities in Commercial Buildings*, DOE/EIA-0555(94)/2 (Washington, DC, September 1994).

Figure 2.12. Natural Gas Intensity by Building Size, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and C, 1992 Commercial Buildings Energy Consumption Survey.

Figure 2.13. Total Natural Gas Consumption and Natural Gas Intensities for Selected Principal Building Activities, 1992

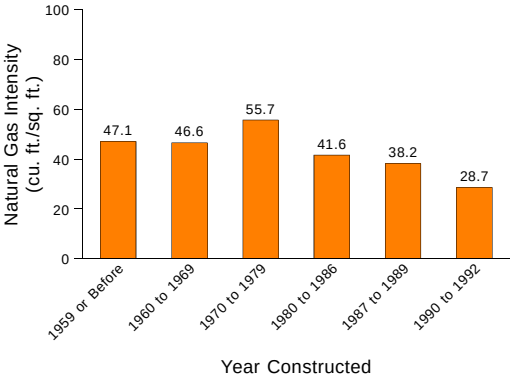


Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and C, 1992 Commercial Buildings Energy Consumption Survey.

- **Location:** Natural gas intensities were highest in the Midwest, at 52.7 cubic feet per square foot, and in the South at 50.7 cubic feet per square foot. In the Northeast and West natural gas intensities were 40.2 cubic feet per square foot and 39.3 cubic feet per square foot, respectively. Natural gas was the dominant space heating energy source in the Midwest. In the Northeast, both natural gas and fuel oil were commonly used as space heating energy sources, with natural gas being used for cooking in buildings heated by fuel oil.

- **Year of Construction:** The newer the building, the less intensively it used natural gas, possibly due to higher efficiency heating equipment or improvements in building shell construction (Figure 2.14).

Figure 2.14. Natural Gas Intensity by Year Constructed, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and C, 1992 Commercial Buildings Energy Consumption Survey.

Natural Gas Transported for the Account of Others

The 1992 survey was the second CBECS to collect data on natural gas transported for the account of others (also called spot market gas), which is natural gas bought by customers directly from a gas producer or intermediary, such as a broker, rather than from a local distribution company (LDC). The LDC then delivers the gas to the building via its pipelines. Buildings that consume large amounts of natural gas often find natural gas bought from the source or through a broker to be less expensive.

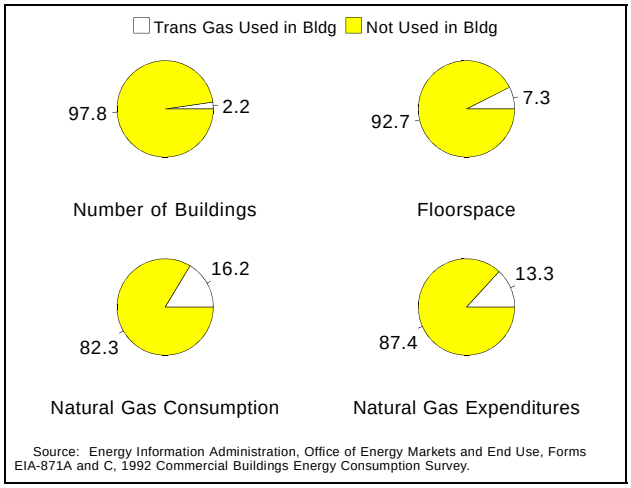
Of all commercial buildings using natural gas, only about 2 percent used natural gas transported for the account of others. However, buildings in which natural gas transported for the account of others was consumed (along with natural gas purchased from an LDC) comprised 7.3 percent of the floorspace and 16.2 percent of the total natural gas consumption. Those figures confirm that large buildings were the primary consumers of natural gas transported for the account of others in 1992. Buildings using natural gas transported for the account of others were responsible for only 13.3 percent of the 1992 natural gas expenditures, which may indicate that purchasing natural gas directly from a gas producer or intermediary was less expensive for those buildings (Figure 2.15). Comparable data from the 1989 CBECS indicated that less than 1 percent of all buildings using natural gas used natural gas transported for the account of others. Those buildings made up about 5.5 percent of all floorspace and 13.5 percent of all natural gas consumption.

In 1992, buildings that used natural gas transported for the account of others used 343 cubic feet of natural gas (16.2 percent of all natural gas consumption). Only 279 cubic feet of that natural gas was actually transported for the account of others (13 percent of all natural gas consumption). Therefore, in buildings that used natural gas transported for the account of others, 81 percent of the natural gas was transported and the remaining portion was purchased from the LDC.

The 1989 and 1992 CBECS revealed the following changes in the consumption of natural gas transported for the account of others:

- In 1989, natural gas transported for the account of others represented 12 percent of all natural gas consumption in commercial buildings. In 1992, natural gas transported for the account of others represented 13 percent[9] of all natural gas consumption in commercial buildings.

Figure 2.15. Summary Statistics of Natural Gas Transported for the Account of Other Among Buildings Supplied with Natural Gas, 1992 (Percent)



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and C, 1992 Commercial Buildings Energy Consumption Survey.

- In 1989, 24,000 commercial buildings, representing 2.3 billion square feet of floorspace, used natural gas transported for the account of others. By 1992, this number had risen nearly one and one-half times, to 58,000 buildings, representing 3.3 billion square feet of floorspace.

- The total consumption of natural gas transported for the account of others was 242 billion cubic feet in 1989 and 279 billion cubic feet in 1992; this increase was not statistically significant.

Fuel Oil and District Heat Consumption

The CBECS collects billing data from the energy suppliers on two other major energy sources—fuel oil and district heat. Among the CBECS findings on fuel oil:

- Approximately 12 percent of commercial buildings, representing almost 20 percent of commercial floorspace, used fuel oil. In 1992, those buildings consumed 0.3 quadrillion Btu of fuel oil, or 5 percent of the total site energy consumption in the U.S. commercial building sector.

- In 1992, 71 percent of the fuel oil consumption in the commercial buildings sector occurred in the Northeast Census region. About 10 percent of fuel oil consumption occurred in the Midwest and 18 percent occurred in the South. Almost all of the fuel oil consumption in the South was concentrated in the South Atlantic Census division. However, fuel oil consumption in the West was negligible (Figure 2.16).

- Fuel oil was used mainly for space heating. While fuel oil was used as a main heating source in the Northeast, it was more commonly used as a secondary heating source in the other three Census regions. About 96 percent of the fuel oil consumption occurred in commercial buildings that used fuel oil for main or secondary heating.

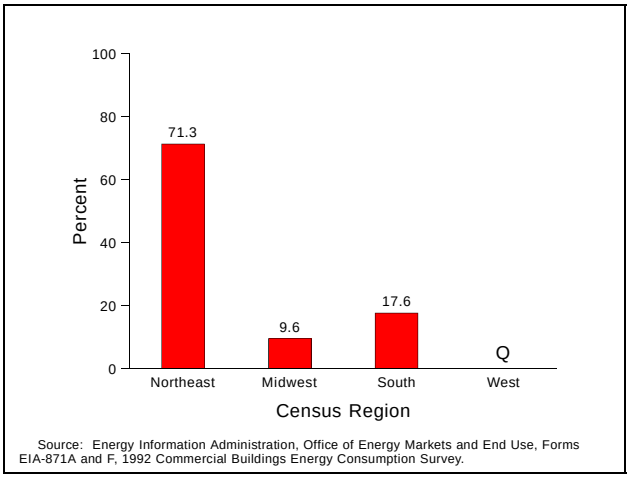
[9]In 1992, 17 percent of commercial natural gas deliveries were estimated to be for the account of others (Energy Information Administration, *Natural Gas Annual 1992*, DOE/EIA-0131(93)).

Among the CBECS findings on district heat:

- In 1992, district heat was used as an energy source in about 2 percent of commercial buildings. However, those buildings constituted about 8 percent of commercial building floorspace. In 1992, those buildings consumed about 0.4 quadrillion Btu, or 8 percent of the total site energy consumption.

- The overall consumption of district heat was relatively low in commercial buildings, when compared with the consumption of the other major energy sources. The conditional intensity for district heat was about 83 thousand Btu per square foot. In contrast, the conditional intensity for electricity was 39 thousand Btu per square foot. Natural gas had a conditional intensity of 48 thousand Btu, while the conditional intensity for fuel oil was 21 thousand Btu.

Figure 2.16. Percent of Fuel Oil Consumption by Census Region, 1992



Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A and F, 1992 Commercial Buildings Energy Consumption Survey.

Wood and Solar Energy Consumption

Information on the use of wood and solar energy was also obtained from building owners, managers, or tenants. The 1992 CBECS was the first survey in which building respondents who reported using wood as an energy source were asked how much wood was burned in their buildings and whether that wood was purchased or obtained free of charge. Building respondents were also asked about the use of various types of solar energy, including photovoltaic cells, solar thermal panels, or passive solar features. Among the CBECS findings on wood:

- Wood was used in about 2 percent (100,000 buildings) of the surveyed buildings; in 66 percent of those buildings, wood was used for main space heating.

- Almost 66 percent of the 100,000 buildings that used wood (2 percent of all respondents) indicated that they had used between one and nine cords of wood per building.

- About 32 percent of the respondents using wood indicated that they had purchased the wood; the other respondents were provided wood free of charge from another source.

- Buildings using wood consumed considerably less electricity, natural gas, fuel oil or district heat per square foot. Buildings using wood consumed 34.6 thousand Btu per square foot of the major energy sources compared with the national average of 80.9 thousand Btu per square foot for commercial buildings.

- Buildings using wood were predominantly mercantile and service buildings or nonrefrigerated warehouses. They also tended to be older and smaller, with few workers, and located in the Midwest and South regions.

Among the CBECS findings on solar energy:

- Less than 1 percent of the CBECS respondents used solar energy as a source of energy in 1992.

- The most common type of solar energy reported was passive solar features.

- Buildings using solar energy or having some passive solar features consumed the major energy sources slightly more intensively (94.4 thousand Btu per square foot) than all commercial buildings (80.9 thousand Btu per square foot).

- Buildings that used solar energy (either active or passive) were generally smaller and were predominantly either mercantile and service buildings or office buildings. They were located in all four Census regions of the United States.

Energy Consumption in Government Buildings

In 1992, government-owned buildings represented approximately 22 percent of the commercial floorspace and approximately 25 percent of major fuel consumption. Of all major fuel consumption in government-owned buildings, 9 percent occurred in buildings owned by the Federal government, 30 percent occurred in State-owned buildings, and 61 percent occurred in buildings owned by local governments. These data reflect the fact that the majority of government buildings in the CBECS were not Federal, but rather State or locally owned.

The 1992 CBECS found that for most energy-related characteristics the energy consumption between nongovernment-owned buildings and Federal, State, or local government-owned buildings differed little. This finding was rather surprising, in light of data from the *Commercial Buildings Characteristics 1992* report, which showed that government-owned buildings were more likely than nongovernment-owned buildings to practice energy management by installing EMCS's, participating in DSM programs, having energy audits performed, and employing building energy managers. However, there was a statistically significant difference in the gross energy intensities between government-owned buildings with energy managers and nongovernment-owned buildings with energy managers, 99 thousand Btu per square foot and 143 thousand Btu per square foot, respectively.

Federal Government: The passage of the Energy Policy Act of 1992 (EPACT) has led to increased interest in the amount of energy used in buildings owned by the Federal government. EPACT requires Federal buildings to reduce their energy consumption per square foot by 20 percent by the year 2000. The legislation also requires Federal buildings to install energy conservation features by 2005 that will pay for themselves in 10 years or less.

Although CBECS data can be somewhat useful in measuring the overall energy consumption in government-owned buildings, the relatively small sample size of the CBECS prevents the reporting of separate statistics for Federal buildings. Consequently, EIA, in conjunction with the DOE Office of Federal Energy Management Programs, recently conducted a survey of Federal buildings in three Federal regions: Philadelphia (Region 3), Dallas (Region 6), and San Francisco (Region 9). Data from this survey will be available in 1995.

3. Detailed Tables

The following 49 tables present detailed energy consumption and expenditure data for buildings in the commercial sector. This section provides assistance in reading the tables by explaining some of the headings for the data categories. It will also explain the use of row and column factors to compute both the confidence levels of the estimates given in the tables and the statistical significance of differences between the data in two or more categories. The section concludes with a "Quick-Reference Guide" to the statistics in the different tables.

Categories of Data in the Tables

After Table 3.1, which is a summary table, the tables are grouped into the major fuel tables (Tables 3.2 through 3.13) and the specific fuel tables (Tables 3.14 through 3.29 for electricity, Tables 3.30 through 3.40 for natural gas, Tables 3.41 through 3.45 for fuel oil, and Tables 3.46 through 3.47 for district heat). Table 3.48 presents energy management and DSM data as reported by the building respondent. Table 3.49 presents data on participation in electric utility-sponsored DSM programs as reported by both the building respondent and the electricity supplier.

Data in the tables are presented in column categories (at the top of each table) and row categories (in the far left column of each table).

Column Categories

The column categories most commonly classify data by consumption and expenditures, though several other classifications are also given. The following terms, listed in alphabetical order, attempt to explain some of the column categories that may require clarification.

Conditional Energy Intensity—The amount of electricity, natural gas, fuel oil, or district heat used per square foot in buildings using the specified energy source. For example, in Table 3.16, data in the row labeled "Electricity" under "Energy Sources" and in the column labeled "Northeast" under "Electricity Energy Intensity" would read: "Buildings in the Northeast that used electricity as an energy source used 9.3 kilowatthours of electricity per square foot."

Demand-Metered Buildings—Buildings that have meters to measure peak demand (in addition to total consumption) during a billing period. Peak demand is usually metered only for electricity.

Distribution of Building-Level Intensities—The amount of energy used per square foot, divided into three percentiles: 25th, median, and 75th. In Table 3.15, for example, the row labeled "Education" under "Principal Building Activity" in the columns under "Distribution of Building-Level Intensities" would read: "In 1992, 25 percent of U.S. education buildings used 4.0 kilowatthours per square foot or less, while 75 percent of the buildings used more than 4.0 kilowatthours of electricity per square foot."

Electricity—Site electricity. (See "site electricity" and "primary electricity" in this listing.)

Energy Intensity—Usually defined as "gross energy intensity" or "conditional energy intensity" in title of table. If table title does not specify, "energy intensity" is to be defined as "conditional energy intensity."

Floorspace—The enclosed area in a building; the sum of the floorspace in all buildings in a category.

Gross Energy Intensity—The ratio of the total amount of energy consumed by a group of buildings to the total floorspace of those buildings, including buildings and floorspace where the energy source is not used. For example, in Table 3.7, data in the row category "Education" under "Principal Building Activity" and in the column category of "Northeast" would read: "Education buildings in the Northeast consumed 87.1 thousand Btu per square foot."

Major Fuel—Major energy sources: electricity, natural gas, fuel oil, and district heat (district steam and district hot water). Although electricity is technically not a fuel, "Major Fuel," rather than "Major Energy Source," was retained as the title of this category to facilitate comparison of 1992 and 1989 CBECS data.

Primary Electricity—Site electricity plus the conversion losses in the electric generation process at the utility plant. Most of the tables present statistics for site consumption alone, but Tables 3.2 and 3.14 also provide consumption statistics for primary electricity.

Site Electricity—The amount of electricity delivered to the commercial building. This amount excludes conversion losses in the electric generation process at the utility plant. (See "primary electricity" in this listing.) Most of the tables in this section provide statistics for site electricity alone (not on primary electricity). When the term "electricity" is used, the reference is to site electricity.

Total of Major Fuels—The sum of site electricity, natural gas, fuel oil, and district heat. Statistics in this column exclude data from the column "Primary Electricity."

Row Categories

The row categories classify data by specific features, such as energy source or end use. Data in the row categories relate to the buildings having such a feature, not to the feature. For example, in Table 3.4, the data in the "Major Fuels" column and the row category "Buildings with A/C" is to be read as "Buildings with air conditioning consumed 5,345 trillion Btu of the major fuels." The table contains no data on the energy consumption for air conditioning specifically. Although the row categories and subcategories are similar in all the tables, the specific-fuel tables provide more categories of data than are presented in the major fuel tables. For example, the electricity tables provide data on buildings containing refrigeration and lighting equipment and computers.

The Glossary provides detailed definitions of the terms used in the tables. Below are explanations of some of the row categories, in a consumption or expenditures column, that may require clarification, listed in the order in which they occur in the tables.

All Buildings—Consumption or expenditures for roofed and walled structures whose principal activities are nonresidential, nonagricultural, and nonindustrial and which are larger than one thousand square feet (roughly twice the size of a two-car garage).

Principal Building Activity—Consumption or expenditures for buildings grouped by the activity that occupies the most floorspace in the buildings. Some building types are combined in the tables. For example, inpatient and outpatient health care facilities were combined as "health care buildings," and refrigerated and nonrefrigerated warehouses were combined as "warehouses," and skilled nursing buildings were included in "lodging." The category "assembly" in the 1989 CBECS was broken into "public assembly" and "religious worship" for the 1992 CBECS. See Appendix E, "Types of Buildings," for a full description of the principal building activity categories.

Climate Zone—Consumption or expenditures for commercial buildings located in one of the five U.S. climate zones, based on the average number of cooling degree-days (CDD) and heating degree-days (HDD) in a 45-year period (1931-1975). See Appendix F, "U.S. Climate Zone and Census Regions and Divisions Maps," for a map showing the five U.S. climate zones.

Census Region and Division—Consumption or expenditures for commercial buildings located in one of the nine divisions within four regions as defined by the U.S. Bureau of Census. See Appendix F, "U.S. Climate Zones and Census Regions and Divisions Maps," for a map showing the four Census regions and nine Census divisions.

Energy Sources—Consumption or expenditures for buildings using a specific type of energy (electricity, natural gas, fuel oil, district heat [district steam and district hot water], district chilled water, propane, and any other type of energy [wood, coal, active solar, and photovoltaic cells]). The tables contain consumption data based on billing information obtained from energy suppliers, for the first four sources only. Estimates of the amount of wood burned in buildings were obtained during the personal interviews with building respondents. No consumption data were collected for propane, coal, solar energy, or other renewable sources because such a collection effort would not be feasible.

Energy End Uses—Consumption or expenditures in buildings that had specific end uses (heating, air conditioning, water heating, cooking, and manufacturing), not the amount of energy consumption or expenditures for a particular end use.

Energy-Related Space Functions—Consumption or expenditures in buildings that had space for commercial food preparation or computer use, space using special ventilation, or space where activities requiring large amounts of hot water took place. The tables contain no data on the amount of energy consumption or expenditures for these specific activities.

Space-Heating Energy Sources—Consumption or expenditures in buildings **using** at least one of the major fuels, propane, wood, or any other energy source for space heating. (In some tables, this category is subdivided into "Main and Secondary Energy Sources.") The tables contain no data on the amount of energy consumption or expenditures for space heating specifically.

Main Space-Heating Energy Source—Consumption or expenditures in buildings **using** a specific energy source to heat most of the square footage in the building most of the time. The tables contain no data on the amount of energy consumption or expenditures for space heating specifically.

Replacement Energy Source for Main Heating—Consumption or expenditures in buildings **using** a replacement energy source (a heating source to which a building could switch within 1 week without major modifications to the main heating equipment, without substantially reducing the area heated, and without substantially reducing the temperature maintained in the heated area). The tables contain no data on the amount of energy consumption or expenditures for replacement heating specifically.

Cooling Energy Source—Consumption or expenditures in buildings **using** electricity, natural gas, or district chilled water for cooling. The tables contain no data on the amount of energy consumption or expenditures for cooling specifically.

Water-Heating Energy Source—Consumption or expenditures in buildings **using** one of the major fuels or propane for water heating. The tables contain no data on the amount of energy consumption or expenditures for water heating specifically.

Cooking Energy Source—Consumption or expenditures in buildings **using** electricity, natural gas, or propane for cooking. The tables contain no data on the amount of energy consumption or expenditures for cooking specifically.

Manufacturing Energy Sources—Consumption or expenditures in buildings **using** electricity, natural gas, or other energy source for manufacturing. The tables contain no data on the amount of energy consumption or expenditures for manufacturing specifically.

Heating Equipment—Consumption or expenditures in buildings that had at least one type of heating equipment. The tables contain no data on the amount of energy consumption or expenditures for the specific types of heating equipment.

Heating Distribution Equipment—Consumption or expenditures in buildings that had at least one type of heating-distribution equipment. The tables contain no data on the amount of energy consumption or expenditures for the specific types of heating-distribution equipment.

Cooling Equipment—Consumption or expenditures in buildings that had at least one type of cooling equipment. The tables contain no data on the amount of energy consumption or expenditures for the specific types of cooling equipment.

Cooling Distribution Equipment—Consumption or expenditures in buildings that had at least one type of cooling-distribution equipment. The tables contain no data on the amount of energy consumption or expenditures for the specific types of cooling-distribution equipment.

Water-Heating Equipment—Consumption or expenditures in buildings that had a centralized system, a distributed system, or both. The tables contain no data on the amount of energy consumption or expenditures for the specific types of water-heating equipment.

Energy Conservation Features—Consumption or expenditures in buildings that had any feature designed to reduce the amount of energy consumed by the building because of its:

- Shell, such as insulation, storm windows, or tinted glass
- Heating, ventilation, and air conditioning (HVAC) equipment, such as a variable air-volume system, economizer cycle, or regular maintenance
- Lighting, such as manual dimmer switches, specular reflectors, or occupancy sensors.

More detailed data are also given for buildings having at least one of the specific energy-conservation features.

Energy Management Practices—Consumption or expenditures in buildings with at least one energy-management practice, including having an energy management and control system, participating in a demand-side management program, having had an energy audit, or employing a building energy manager.

Statistical Significance of Data

Row and Column Factors

The tables in this report present estimates 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 estimate, the tables provide row factors in the far-right column and column factors on the top line of each table, except for Tables 3.15, 3.29, and 3.31, which contain median statistics.

The use of RSE row and column factors is illustrated in Figure 3.1, an excerpt from Table 3.2 of this report. This table shows that mercantile and service buildings consumed 381 trillion Btu of natural gas in 1992. Multiplying 10.66 (the row factor) by 1.3 (the column factor) yields an approximate RSE of 13.85 percent.

Standard Errors

To determine the standard error for an estimate in these tables, multiply the approximate RSE by the estimate. For example, to determine the standard error of the 381 trillion Btu of natural gas consumed by mercantile and service buildings in 1992, multiply 381 trillion Btu by .1385 (the approximate RSE). The result, 53 trillion Btu, is the approximate standard error for the estimate.

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 more details about the derivation of the RSE row and column factors, see Appendix B, "Nonsampling and Sampling Errors."

Figure 3.1. Use of RSE Row and Column Factors

Table 3.2. Total Energy Consumption by Major Fuel, 1992

Building Characteristics	All Buildings		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity		Natural Gas	Fuel Oil	District Heat	
				Primary	Site				
RSE Column Factor	0.6	0.6	.08	.08	.08	1.3	2.0	2.2	
All Buildings	4,806	67,876	5,803	7,876	2,609	2,487	272	435	6.55
Building Floorspace (Square Feet)									
1,001 to 5,000	2,681	7,327	715	1,009	334	333	40	Q	8.63
5,001 to 10,000	975	7,199	682	759	251	378	46	Q	8.40
10,001 to 25,000	647	10,375	1,038	1,011	335	611	27	65	12.20
25,001 to 50,000	280	10,069	794	1,049	347	324	55	Q	12.96
50,001 to 100,000	116	8,062	642	930	308	255	30	50	13.04
100,001 to 200,000	71	9,678	640	1,047	347	206	28	59	14.67
200,001 to 500,000	26	7,889	711	1,089	361	215	26	109	16.70
Over 500,000	9	7,278	581	980	325	165	Q	70	22.85
Principal Building Activity									
Education	301	8,470	637	708	235	291	62	49	11.09
Food Sales	130	757	137	340	113	24	Q	NC	21.94
Food Service	260	1,491	447	415	138	296	Q	Q	13.35
Health Care	63	1,763	403	416	138	189	21	55	17.94
Lodging	154	2,891	463	571	189	193	16	65	21.26
Mercantile and Service	1,272	12,402	892	1,342	444	381	55	Q	10.66
Office	749	12,319	1,272	2,124	704	413	47	109	12.15
Parking Garage	24	1,652	52	Q	Q	9	Q	Q	39.14
Public Assembly	278	4,556	310	522	173	100	15	23	17.44
Public Order and Safety	60	820	91	84	28	37	Q	Q	33.92
Religious Worship	366	3,747	109	95	32	65	12	Q	12.90
Warehouse and Storage	761	11,484	590	765	253	259	24	Q	18.00
Other	69	1,130	270	235	78	Q	Q	Q	29.47
Vacant	319	4,396	131	141	47	61	Q	Q	19.86

Confidence Levels

The 95-percent confidence range can be determined using the approximate standard error of the estimate. To calculate the 95-percent confidence range for a given figure:

1. Multiply the standard error by 1.96.

2. Subtract the result of Step 1 from the given estimate to determine the bottom of the range.

3. Add the result of Step 1 to the given estimate to determine the top of the range.

We are 95 percent confident that this range covers the true value.

Using the same example from Figure 3.1, after calculating the standard error for the estimated 381 trillion Btu of natural gas consumed in mercantile and service buildings to be 53 trillion Btu, to determine the confidence interval:

1. Multiply 53 trillion Btu by 1.96, which yields 104 trillion Btu.

2. To determine the bottom of the range, subtract 104 trillion Btu from 381 trillion Btu, which yields 277 trillion Btu.

3. To determine the top of the range, add 104 trillion Btu to 381 trillion Btu, which yields 485 trillion Btu.

It can then be said with 95-percent confidence that the natural gas consumption in mercantile and service buildings in 1992 was between 287 trillion Btu and 485 trillion Btu.

Statistical Significance Between Two Statistics

The difference between any two estimates given in the Detailed Tables may or may not be statistically significant. The standard error of the difference between two independent variables is computed as:

$$S_{x_1-x_2} = \sqrt{[S_{x_1}]^2 + [S_{x_2}]^2}$$

where S_{X_1} is the standard error of the first estimate and S_{X_2} is the standard error of the second estimate. The result of this computation is to be multiplied by 1.96, and if this result is less than the difference between the two estimates, the difference is statistically significant.

For example, in 1992, mercantile and service buildings consumed an estimated 381 trillion Btu of natural gas, while health care buildings consumed an estimated 189 trillion Btu, for an estimated difference of 192 trillion Btu. The standard error for the 381 trillion Btu estimate (S_{X_1}) is 52.80, and the standard error for the 189 trillion Btu estimate (S_{X_2}) is 44.08:

$$S_{x_1-x_2} = \sqrt{52.80^2 + 44.08^2}$$

$$S_{x_1-x_2} = 68.78.$$

Multiplying 68.78 by 1.96 yields 134.8. Since 134.8 is less than 192, it can be said that the difference between consumption in mercantile and service and health care buildings is statistically significant.

Quick-Reference Guide

The Quick-Reference Guide lists general topics covered by the detailed tables and the table numbers for the different types of tables. To help the reader quickly locate a particular table, the general topic class is printed along the outside edge of each table page.

Table Numbers by Data Item and Fuel Type

Data Item	Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat
Summary Table	3.1	3.1	3.1	3.1	3.1
Total Consumption	3.2	3.14	3.30	3.41	3.46
Total Expenditures	3.3	3.14	3.30	3.41	3.46
Consumption per Building, Square Foot, Energy Unit	3.4	3.15	3.31	3.42	3.47
Expenditures per Building, Square Foot, Energy Unit	3.5	3.15	3.31	3.42	3.47
Expenditure Intensities by Main Heating Fuel	3.6	--	--	--	--
Consumption and Intensity by:					
Census Region	3.7	3.16	3.32	3.43	--
Building Size	3.9	3.18	3.34	--	--
Selected Building Activities	3.10, 3.11	3.19, 3.20	3.35, 3.36	--	--
Year Constructed	3.12, 3.13	3.21, 3.22	3.37, 3.38	--	--
Conservation Features	--	3.48	3.48	--	--
Demand Side Management	--	3.48, 3.49	3.48	--	--
Building Level Intensities (percentile)	--	3.15	3.31	--	--
Expenditures per Energy Unit and Intensity by Census Region	3.8	3.17	3.33	3.44	--
Consumption and Intensity by End Use:					
Cooling	--	3.23	--	--	--
Heating	--	3.24	3.39	3.45	--
Consumption and Expenditures for Natural Gas Transported for the Account of Others	--	--	3.40	--	--
Electricity Peak Demand by:					
Demand Metering and Season of Peak Demand	--	3.25, 3.26	--	--	--
Peak Demand Category	--	3.27, 3.28	--	--	--
Peak Demand Intensity and Load Factoring (percentile)	--	3.29	--	--	--

Table 3.1. Summary of All Buildings, All Buildings Using Any Major Fuel, and Number of Buildings by Major Fuel Used, 1992

Building Characteristics	All Buildings			All Buildings Using Any Major Fuels		Number of Buildings Using Each Major Fuel (thousand) (more than one may apply)				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total Workers (thousand)	Number of Buildings (thousand)	Floorspace (million square feet)	Electricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.7	0.8	1.0	0.7	0.7	0.7	0.9	1.9	2.9	
All Buildings	4,806	67,876	71,236	4,615	66,538	4,611	2,657	560	95	5.53
Building Floorspace (square feet)										
1,001 to 5,000	2,681	7,327	9,701	2,539	6,995	2,535	1,325	289	Q	7.20
5,001 to 10,000	975	7,199	7,644	954	7,057	954	573	125	Q	5.88
10,001 to 25,000	647	10,375	10,357	628	10,097	628	417	62	28	7.43
25,001 to 50,000	280	10,069	8,674	275	9,856	275	182	38	16	9.56
50,001 to 100,000	116	8,062	7,830	114	7,926	114	83	21	9	10.17
100,001 to 200,000	71	9,678	8,282	70	9,658	70	52	11	6	11.02
200,001 to 500,000	26	7,889	7,545	25	7,678	25	18	10	5	12.51
Over 500,000	9	7,278	11,203	9	7,271	9	6	4	1	23.38
Principal Building Activity										
Education	301	8,470	6,872	301	8,470	301	197	28	21	10.15
Food Sales	130	757	842	130	757	130	70	Q	Q	19.52
Food Service	260	1,491	2,244	260	1,491	260	196	Q	Q	10.98
Health Care	63	1,763	3,385	63	1,763	63	45	7	Q	17.12
Lodging	154	2,891	2,022	154	2,891	154	98	18	9	15.51
Mercantile and Service	1,272	12,402	15,979	1,270	12,399	1,267	762	200	Q	9.13
Office	749	12,319	27,161	749	12,319	749	474	87	24	8.19
Parking Garage	24	1,652	215	24	1,652	24	11	Q	Q	35.73
Public Assembly	278	4,556	2,752	278	4,556	278	169	29	10	13.35
Public Order and Safety	60	820	801	60	820	60	37	Q	Q	26.00
Religious Worship	366	3,747	2,298	366	3,747	366	209	60	Q	14.61
Warehouse and Storage	761	11,484	4,451	685	11,179	685	264	63	Q	10.74
Other	69	1,130	1,232	65	1,124	65	29	Q	Q	20.89
Vacant	319	4,396	981	210	3,371	210	95	Q	Q	16.80
Year Constructed										
1899 or Before	169	1,721	1,531	169	1,721	169	110	31	Q	16.07
1900 to 1919	255	3,608	3,004	244	3,401	244	178	52	Q	15.39
1920 to 1945	724	8,712	6,597	681	8,385	681	436	106	13	10.63
1946 to 1959	880	10,421	9,114	839	10,135	839	516	107	22	9.62
1960 to 1969	783	12,612	17,873	757	12,473	757	463	89	22	10.25
1970 to 1979	982	14,014	14,400	945	13,781	945	513	91	9	8.66
1980 to 1989	884	14,287	15,987	855	14,153	853	387	74	11	9.19
1990 to 1992	128	2,502	2,731	127	2,489	124	53	8	Q	18.03
Census Region and Division										
Northeast	771	13,400	18,570	755	13,235	755	370	284	23	11.43
New England	186	3,265	3,821	186	3,265	186	63	104	Q	27.22
Middle Atlantic	585	10,135	14,749	569	9,971	569	307	180	17	17.28
Midwest	1,202	17,280	14,872	1,141	16,909	1,139	843	80	24	9.11
East North Central	749	10,712	9,482	725	10,581	723	557	60	10	12.03
West North Central	453	6,568	5,390	416	6,328	416	287	20	13	20.63
South	1,963	24,577	23,220	1,874	23,979	1,872	882	182	27	9.33
South Atlantic	755	10,586	10,932	736	10,431	736	185	130	Q	13.15
East South Central	454	5,375	5,117	428	5,237	428	223	35	Q	19.19
West South Central	754	8,616	7,171	710	8,311	708	474	17	Q	19.67
West	870	12,619	14,574	845	12,415	845	562	14	21	11.50
Mountain	297	3,645	4,292	283	3,562	283	198	Q	Q	23.67
Pacific	574	8,974	10,282	562	8,853	562	364	11	12	12.03

See footnotes at end of table.

Table 3.1. Summary of All Buildings, All Buildings Using Any Major Fuel, and Number of Buildings by Major Fuel Used, 1992 (Continued)

Building Characteristics	All Buildings			All Buildings Using Any Major Fuels		Number of Buildings Using Each Major Fuel (thousand) (more than one may apply)				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total Workers (thousand)	Number of Buildings (thousand)	Floorspace (million square feet)	Elec-tricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.7	0.8	1.0	0.7	0.7	0.7	0.9	1.9	2.9	
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	399	5,623	4,818	382	5,476	382	229	80	10	18.72
5,500-7,000 HDD	1,134	18,024	17,497	1,089	17,719	1,089	763	185	29	11.66
4,000-5,499 HDD	1,077	16,162	20,520	1,041	15,971	1,039	480	211	27	17.80
Fewer than 4,000 HDD	1,101	15,251	16,627	1,056	14,871	1,054	647	52	13	18.02
More than 2,000 CDD and --										
Fewer than 4,000 HDD	1,095	12,816	11,774	1,048	12,501	1,048	539	31	16	16.34
Energy Sources (more than one may apply)										
Electricity	4,611	66,525	71,186	4,611	66,525	4,611	2,655	557	95	5.21
Natural Gas	2,657	44,994	51,206	2,657	44,994	2,655	2,657	130	36	6.74
Fuel Oil	560	13,215	18,066	560	13,215	557	130	560	11	11.87
District Heat	95	5,245	7,142	95	5,245	95	36	11	95	18.47
District Chilled Water	28	1,914	2,709	28	1,914	28	16	2	23	20.78
Propane	337	3,393	2,884	337	3,393	335	19	61	Q	17.99
Any Other	163	1,551	1,320	161	1,547	159	43	Q	Q	18.68
Energy End Uses (more than one may apply)										
Heated Buildings	4,178	61,996	69,607	4,176	61,978	4,172	2,619	555	94	5.59
Buildings with A/C	3,502	57,041	66,909	3,502	57,041	3,502	2,254	378	81	5.88
Buildings with Water Heating	3,502	58,479	67,233	3,502	58,479	3,502	2,324	434	81	5.70
Buildings with Cooking	734	23,065	30,935	734	23,065	734	531	101	19	8.40
Buildings with Manufacturing	121	3,174	2,538	121	3,174	118	81	20	Q	17.90
Workers (main shift)										
Less than 5	2,718	17,944	4,736	2,530	16,629	2,526	1,258	305	22	8.47
5 to 9	895	7,524	5,758	895	7,524	895	559	94	14	7.66
10 to 19	561	8,077	7,148	560	8,054	560	383	67	22	9.48
20 to 49	405	10,556	11,777	405	10,556	405	300	43	17	7.95
50 to 99	130	7,763	8,375	130	7,763	130	87	21	10	10.79
100 or More	96	16,011	33,442	96	16,011	96	70	29	10	8.99
Weekly Operating Hours										
39 or Fewer	1,039	8,246	3,997	886	7,065	886	404	119	Q	10.65
40 to 48	1,278	14,998	17,500	1,270	14,952	1,268	755	147	34	7.77
49 to 60	1,004	14,046	15,478	994	14,026	992	597	131	16	7.47
61 to 84	645	12,062	12,667	641	12,028	641	403	76	9	8.07
85 to 167	478	8,467	12,470	475	8,455	475	299	41	7	12.79
Open Continuously	362	10,057	9,124	349	10,011	349	199	44	19	10.59
Ownership and Occupancy										
Nongovernment Owned	4,206	52,752	52,310	4,037	51,590	4,033	2,300	484	44	5.40
Owner Occupied	3,192	38,403	39,329	3,129	38,169	3,126	1,806	415	34	5.34
Single Establishment	2,864	29,992	27,824	2,802	29,764	2,799	1,597	367	31	6.31
Multiple Establishment	328	8,411	11,504	327	8,405	327	209	48	4	12.03
Nonowner Occupied	817	12,273	12,810	796	12,156	796	458	63	Q	9.12
Single Establishment	495	5,565	5,064	485	5,520	485	261	40	Q	13.21
Multiple Establishment	322	6,708	7,746	311	6,636	311	197	23	Q	11.28
Vacant	197	2,077	171	112	1,265	112	35	Q	Q	22.68
Government Owned	599	15,124	18,926	578	14,948	578	357	75	51	10.39

See footnotes at end of table.

Table 3.1. Summary of All Buildings, All Buildings Using Any Major Fuel, and Number of Buildings by Major Fuel Used, 1992 (Continued)

Building Characteristics	All Buildings			All Buildings Using Any Major Fuels		Number of Buildings Using Each Major Fuel (thousand) (more than one may apply)				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total Workers (thousand)	Number of Buildings (thousand)	Floorspace (million square feet)	Elec-tricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.7	0.8	1.0	0.7	0.7	0.7	0.9	1.9	2.9	
Predominant Exterior Wall Material										
Masonry	3,115	48,585	45,457	3,033	47,814	3,033	1,945	374	76	5.37
Siding or Shingles	764	3,873	4,305	718	3,654	715	318	114	Q	9.96
Metal Panels	745	7,392	4,788	691	7,131	690	292	48	Q	11.34
Concrete Panels	87	4,961	10,320	85	4,906	85	50	5	7	17.16
Window Glass	46	2,028	4,302	43	2,008	43	27	9	Q	22.41
Other	47	1,037	2,064	46	1,024	46	26	10	Q	28.42
Predominant Roof Material										
Built-Up	1,642	30,257	31,481	1,593	29,757	1,593	1,039	171	40	6.62
Shingles (Not Wood)	1,381	10,570	9,630	1,350	10,328	1,347	752	190	10	8.36
Metal Surfacing	1,037	9,019	6,541	947	8,639	946	402	85	Q	10.08
Synthetic or Rubber	386	11,702	18,127	378	11,595	378	267	73	14	10.21
Other	359	6,328	5,456	347	6,219	347	196	40	19	13.08
Floors										
One	3,007	25,424	21,565	2,848	24,572	2,844	1,490	251	33	7.71
Two	1,154	18,025	19,949	1,132	17,879	1,132	725	153	18	8.26
Three	446	9,877	9,592	438	9,710	438	303	102	14	8.97
Four to Nine	186	10,377	11,258	185	10,256	185	130	47	26	12.33
Ten or More	13	4,173	8,872	13	4,122	13	9	6	3	18.17
Percent Window Glass										
25 or Less	4,193	51,356	42,768	4,009	50,094	4,005	2,241	473	75	5.66
26 to 50	490	11,815	19,249	485	11,743	485	341	64	16	9.30
51 to 75	94	3,206	5,995	92	3,202	92	62	16	Q	15.73
76 to 100	29	1,499	3,225	29	1,499	29	14	6	Q	25.83
Building Shape										
Square	280	3,654	3,673	269	3,545	269	147	28	4	11.56
Rectangle	3,659	39,233	38,955	3,489	38,140	3,485	1,956	422	66	5.53
Right Angle	333	6,071	5,723	328	6,028	328	208	48	7	9.96
Other	533	18,919	22,884	529	18,824	529	346	62	17	10.17
Energy-Related Space Functions (more than one may apply)										
Commercial Food Preparation	735	22,166	30,938	735	22,166	735	533	101	19	8.23
Computer Room	223	14,199	22,847	223	14,199	223	149	51	11	9.99
Rooms with Special Ventilation	236	8,042	9,190	236	8,036	236	162	43	17	10.20
Activities with Large Amounts of Hot Water	203	6,862	7,084	203	6,862	203	154	23	6	10.60
Space-Heating Energy Sources (more than one may apply)										
Electricity	1,513	25,636	31,533	1,513	25,636	1,513	553	134	17	8.76
Natural Gas	2,397	38,467	42,837	2,397	38,467	2,395	2,397	98	6	7.83
Fuel Oil	478	7,323	8,224	478	7,323	478	91	478	Q	12.68
District Heat	91	5,130	6,998	91	5,130	91	33	11	91	14.11
Propane	255	1,568	1,282	255	1,568	253	Q	25	Q	19.96
Wood	102	504	461	100	500	98	21	Q	Q	23.21
Any Other	39	661	368	39	661	39	Q	Q	Q	46.10
Cooling Energy Sources (more than one may apply)										
Electricity	3,404	54,628	63,747	3,404	54,628	3,404	2,166	375	65	6.07
Natural Gas	106	1,906	2,430	106	1,906	106	106	3	Q	15.05
District Chilled Water	28	1,914	2,709	28	1,914	28	16	2	23	20.78

See footnotes at end of table.

Table 3.1. Summary of All Buildings, All Buildings Using Any Major Fuel, and Number of Buildings by Major Fuel Used, 1992 (Continued)

Building Characteristics	All Buildings			All Buildings Using Any Major Fuels		Number of Buildings Using Each Major Fuel (thousand) (more than one may apply)				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total Workers (thousand)	Number of Buildings (thousand)	Floorspace (million square feet)	Elec-tricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.7	0.8	1.0	0.7	0.7	0.7	0.9	1.9	2.9	
Water-Heating Energy Sources (more than one may apply)										
Electricity	1,696	25,482	27,488	1,696	25,482	1,696	723	233	30	7.05
Natural Gas	1,643	29,950	34,849	1,643	29,950	1,643	1,643	78	18	8.79
Fuel Oil	125	2,469	3,032	125	2,469	125	21	125	Q	20.55
District Heat	36	3,292	4,895	36	3,292	36	11	5	36	18.13
Propane	80	659	555	80	659	80	Q	Q	Q	30.87
Cooking Energy Sources (more than one may apply)										
Electricity	356	12,183	18,405	356	12,183	356	204	61	10	11.52
Natural Gas	430	15,204	21,586	430	15,204	430	430	35	12	10.43
Propane	70	1,039	1,072	70	1,039	70	Q	28	Q	24.43
Manufacturing Energy Sources (more than one may apply)										
Electricity	95	2,579	2,101	95	2,579	95	64	13	Q	17.95
Natural Gas	22	799	627	22	799	22	22	Q	Q	31.42
Other	15	343	227	15	343	13	Q	Q	Q	39.84
Percent of Floorspace Heated										
Not Heated	628	5,880	1,629	439	4,560	439	38	Q	Q	18.31
1 to 50	713	11,525	10,002	711	11,507	711	377	92	Q	12.67
51 to 99	618	10,211	11,922	618	10,211	615	425	85	9	9.08
100	2,846	40,260	47,682	2,846	40,260	2,846	1,816	377	81	5.46
Percent of Floorspace Cooled										
Not Cooled	1,304	10,835	4,327	1,113	9,497	1,110	402	182	13	9.33
1 to 50	1,176	21,715	13,207	1,176	21,715	1,176	733	191	24	7.27
51 to 99	658	13,872	23,943	658	13,872	658	457	79	18	9.77
100	1,668	21,454	29,759	1,668	21,454	1,668	1,063	108	39	7.14
Heating Equipment (more than one may apply)										
Heat Pumps	449	8,269	9,484	449	8,269	449	135	26	8	12.06
Furnaces	1,692	16,909	19,794	1,692	16,909	1,692	1,257	266	Q	8.46
Individual Space Heaters	1,464	22,380	24,549	1,462	22,376	1,459	881	189	15	8.80
District Heat	93	5,225	7,043	93	5,225	93	35	11	93	13.72
Boilers	624	20,664	22,422	624	20,664	624	443	220	Q	7.27
Packaged Heating Units	870	16,000	22,847	870	16,000	870	604	29	Q	10.30
Other	42	903	1,143	42	903	42	23	Q	Q	27.35
Heating Distribution Equipment (more than one may apply)										
Radiators or Baseboards	473	13,263	13,548	473	13,263	473	303	173	47	8.42
Ducts for Heating	2,955	45,422	55,081	2,955	45,422	2,954	1,953	347	51	5.84
VAV System Used	210	11,528	19,351	210	11,528	210	169	32	13	11.94
Individual Space Heaters	1,464	22,380	24,549	1,462	22,376	1,459	881	189	15	8.80
Fan Coil Units or Other	276	8,457	8,928	276	8,457	276	181	61	21	10.16
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	816	9,021	9,734	816	9,021	816	606	81	Q	9.88
Heat Pumps	454	8,406	9,559	454	8,406	454	138	30	8	11.58
Individual A/C	1,023	17,979	17,997	1,023	17,979	1,023	637	195	25	10.57
District Chilled Water	28	2,066	2,709	28	2,066	28	16	2	24	20.89
Central Chillers	142	12,991	18,483	142	12,991	142	109	35	14	10.57
Packaged A/C Units	1,459	27,830	32,786	1,459	27,830	1,459	1,048	116	24	6.90
Swamp Coolers	179	2,085	3,033	179	2,085	179	134	Q	Q	27.58
Other	8	268	254	Q	268	Q	Q	Q	Q	50.78

See footnotes at end of table.

Table 3.1. Summary of All Buildings, All Buildings Using Any Major Fuel, and Number of Buildings by Major Fuel Used, 1992 (Continued)

Building Characteristics	All Buildings			All Buildings Using Any Major Fuels		Number of Buildings Using Each Major Fuel (thousand) (more than one may apply)				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total Workers (thousand)	Number of Buildings (thousand)	Floorspace (million square feet)	Elec-tricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.7	0.8	1.0	0.7	0.7	0.7	0.9	1.9	2.9	
Cooling Distribution Equipment (more than one may apply)										
Ducts for Cooling	2,733	47,755	55,881	2,733	47,755	2,733	1,801	231	64	5.44
VAV System Used	221	12,430	17,840	221	12,430	221	172	35	18	10.19
Individual A/C	1,023	17,979	17,997	1,023	17,979	1,023	637	195	25	10.57
Fan Coil Units or Other	166	6,611	8,194	166	6,611	166	117	21	12	14.71
Water-Heating Equipment (more than one may apply)										
Centralized System	1,994	31,599	35,671	1,994	31,599	1,994	1,323	300	57	7.61
Distributed System	1,557	29,502	34,002	1,557	29,502	1,557	1,039	142	26	9.12
Energy Conservation Features (more than one may apply)										
Any Conservation Features	4,357	64,403	70,198	4,259	63,704	4,257	2,534	541	94	5.58
Building Shell	4,223	62,056	69,106	4,126	61,357	4,124	2,458	525	90	5.63
HVAC	2,604	50,281	61,007	2,604	50,281	2,604	1,657	397	86	5.96
Lighting	1,178	29,453	39,524	1,178	29,453	1,178	779	190	50	7.06
Other	264	5,952	5,992	263	5,927	263	175	56	10	11.38
Energy Management Practices (more than one may apply)										
Energy Management and Control System	236	14,320	20,784	236	14,320	236	179	37	26	9.68
Demand-Side Management[1] Participation	315	11,310	19,265	315	11,310	315	197	65	30	10.67
Energy Audit	521	14,779	18,789	520	14,734	520	337	85	27	8.64
Building Energy Manager	49	2,311	3,547	49	2,311	49	31	6	5	21.00

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • Total workers are the number of workers during the main shift. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.2. Total Energy Consumption by Major Fuel, 1992

Building Characteristics	All Buildings		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity		Natural Gas	Fuel Oil	District Heat	
				Primary	Site				
RSE Column Factor:	0.6	0.6	0.8	0.8	0.8	1.1	2.1	2.3	
All Buildings	4,806	67,876	5,490	7,876	2,609	2,174	272	435	6.08
Building Floorspace (square feet)									
1,001 to 5,000	2,681	7,327	703	1,009	334	321	40	Q	8.67
5,001 to 10,000	975	7,199	555	759	251	251	46	Q	8.49
10,001 to 25,000	647	10,375	865	1,011	335	438	27	65	11.39
25,001 to 50,000	280	10,069	794	1,049	347	324	55	Q	12.91
50,001 to 100,000	116	8,062	642	930	308	255	30	50	12.84
100,001 to 200,000	71	9,678	640	1,047	347	206	28	59	14.26
200,001 to 500,000	26	7,889	711	1,089	361	215	26	109	16.50
Over 500,000	9	7,278	581	980	325	165	Q	70	22.10
Principal Building Activity									
Education	301	8,470	637	708	235	291	62	49	11.03
Food Sales	130	757	137	340	113	24	Q	Q	21.80
Food Service	260	1,491	307	415	138	157	Q	Q	13.45
Health Care	63	1,763	403	416	138	189	21	55	17.82
Lodging	154	2,891	463	571	189	193	16	65	20.58
Mercantile and Service	1,272	12,402	892	1,342	444	381	55	Q	10.65
Office	749	12,319	1,247	2,124	704	388	47	109	11.78
Parking Garage	24	1,652	52	Q	Q	9	Q	Q	39.80
Public Assembly	278	4,556	310	522	173	100	15	23	17.15
Public Order and Safety	60	820	91	84	28	37	Q	Q	33.66
Religious Worship	366	3,747	109	95	32	65	12	Q	12.84
Warehouse and Storage	761	11,484	527	765	253	196	24	Q	15.02
Other	69	1,130	184	235	78	84	Q	Q	27.32
Vacant	319	4,396	131	141	47	61	Q	Q	20.94
Year Constructed									
1899 or Before	169	1,721	118	116	38	62	10	Q	20.29
1900 to 1919	255	3,608	213	202	67	102	24	Q	17.40
1920 to 1945	724	8,712	666	655	217	310	58	82	14.74
1946 to 1959	880	10,421	800	1,002	332	355	60	54	13.22
1960 to 1969	783	12,612	1,125	1,593	528	426	50	121	12.31
1970 to 1979	982	14,014	1,261	1,898	629	528	49	55	10.20
1980 to 1989	884	14,287	1,133	2,080	689	345	17	Q	11.39
1990 to 1992	128	2,502	173	330	109	48	Q	Q	18.98
Census Region and Division									
Northeast	771	13,400	1,090	1,264	419	354	194	123	9.27
New England	186	3,265	299	308	102	75	90	32	23.53
Middle Atlantic	585	10,135	791	956	317	280	103	91	12.93
Midwest	1,202	17,280	1,578	1,876	622	747	26	183	11.06
East North Central	749	10,712	1,009	1,134	376	516	14	103	13.19
West North Central	453	6,568	568	742	246	231	Q	79	20.61
South	1,963	24,577	1,825	3,025	1,002	697	48	78	11.86
South Atlantic	755	10,586	775	1,388	460	240	40	35	16.99
East South Central	454	5,375	409	709	235	159	Q	Q	19.30
West South Central	754	8,616	641	927	307	299	Q	Q	22.16
West	870	12,619	998	1,710	566	376	Q	51	12.13
Mountain	297	3,645	347	559	185	137	Q	Q	20.43
Pacific	574	8,974	651	1,151	381	239	Q	27	14.95
Climate Zone: 45-Year Average									
Fewer than 2,000 CDD and --									
More than 7,000 HDD	399	5,623	477	585	194	189	46	49	18.81
5,500-7,000 HDD	1,134	18,024	1,641	1,873	621	746	96	179	11.32
4,000-5,499 HDD	1,077	16,162	1,275	1,800	596	447	111	121	14.26
Fewer than 4,000 HDD	1,101	15,251	1,178	1,994	661	469	Q	37	18.64
More than 2,000 CDD and --									
Fewer than 4,000 HDD	1,095	12,816	919	1,623	537	324	Q	49	17.75

See footnotes at end of table.

Table 3.2. Total Energy Consumption by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity		Natural Gas	Fuel Oil	District Heat	
				Primary	Site				
RSE Column Factor:	0.6	0.6	0.8	0.8	0.8	1.1	2.1	2.3	
Energy Sources (more than one may apply)									
Electricity	4,611	66,525	5,490	7,876	2,609	2,174	272	435	6.22
Natural Gas	2,657	44,994	4,264	5,341	1,769	2,174	108	212	7.58
Fuel Oil	560	13,215	1,440	1,981	656	410	272	102	12.54
District Heat	95	5,245	839	842	279	116	Q	435	20.68
District Chilled Water	28	1,914	292	357	118	45	Q	122	23.17
Propane	337	3,393	220	398	132	41	37	Q	20.18
Any Other	163	1,551	67	112	37	18	Q	Q	23.49
Energy End Uses (more than one may apply)									
Heated Buildings	4,178	61,996	5,364	7,544	2,499	2,159	272	435	6.10
Buildings with A/C	3,502	57,041	5,033	7,384	2,446	1,987	218	382	6.43
Buildings with Water Heating	3,502	58,479	5,259	7,453	2,469	2,118	252	421	6.27
Buildings with Cooking	734	23,065	2,382	3,510	1,163	942	109	169	8.31
Buildings with Manufacturing	121	3,174	356	356	118	157	30	Q	19.95
Workers (main shift)									
Less than 5	2,718	17,944	799	1,164	385	331	56	26	10.84
5 to 9	895	7,524	622	707	234	299	35	Q	10.64
10 to 19	561	8,077	635	887	294	278	23	41	13.58
20 to 49	405	10,556	1,016	1,275	422	474	53	67	12.58
50 to 99	130	7,763	688	999	331	280	32	45	14.46
100 or More	96	16,011	1,731	2,844	942	513	74	202	10.55
Weekly Operating Hours									
39 or Fewer	1,039	8,246	278	244	81	151	36	Q	12.26
40 to 48	1,278	14,998	1,011	1,457	483	388	68	72	10.96
49 to 60	1,004	14,046	934	1,293	428	406	39	Q	9.74
61 to 84	645	12,062	962	1,454	482	396	41	43	11.15
85 to 167	478	8,467	839	1,356	449	312	38	40	13.00
Open Continuously	362	10,057	1,467	2,072	686	520	50	210	13.02
Ownership and Occupancy									
Nongovernment Owned	4,206	52,752	4,143	6,204	2,055	1,674	172	242	7.04
Owner Occupied	3,192	38,403	3,313	4,814	1,595	1,344	152	222	7.18
Single Establishment	2,864	29,992	2,751	3,847	1,274	1,167	116	193	8.49
Multiple Establishment	328	8,411	562	967	320	177	36	29	14.82
Nonowner Occupied	817	12,273	795	1,345	445	310	19	20	12.90
Single Establishment	495	5,565	408	673	223	170	6	Q	19.77
Multiple Establishment	322	6,708	387	671	222	140	13	Q	15.33
Vacant	197	2,077	36	45	15	20	Q	Q	32.58
Government Owned	599	15,124	1,347	1,672	554	500	100	193	10.09
Predominant Exterior Wall Material									
Masonry	3,115	48,585	4,016	5,520	1,828	1,654	225	309	6.27
Siding or Shingles	764	3,873	262	390	129	103	22	Q	10.66
Metal Panels	745	7,392	505	707	234	240	15	Q	18.66
Concrete Panels	87	4,961	408	669	222	127	Q	57	18.07
Window Glass	46	2,028	195	424	140	30	6	Q	26.63
Other	47	1,037	105	165	55	20	Q	Q	32.96
Predominant Roof Material									
Built-Up	1,642	30,257	2,593	3,900	1,292	997	105	200	8.29
Shingles (Not Wood)	1,381	10,570	734	951	315	329	50	40	11.76
Metal Surfacing	1,037	9,019	550	727	241	254	20	Q	13.77
Synthetic or Rubber	386	11,702	1,165	1,620	537	445	75	109	11.05
Other	359	6,328	448	677	224	150	23	50	16.07

See footnotes at end of table.

Table 3.2. Total Energy Consumption by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity		Natural Gas	Fuel Oil	District Heat	
				Primary	Site				
RSE Column Factor:	0.6	0.6	0.8	0.8	0.8	1.1	2.1	2.3	
Floors									
One	3,007	25,424	1,751	2,621	868	753	69	Q	8.96
Two	1,154	18,025	1,302	1,947	645	541	60	Q	7.81
Three	446	9,877	887	1,125	373	379	69	67	12.35
Four to Nine	186	10,377	1,112	1,470	487	399	54	171	14.05
Ten or More	13	4,173	439	713	236	102	Q	80	19.28
Percent Window Glass									
25 or Less	4,193	51,356	3,904	5,500	1,822	1,621	189	272	7.05
26 to 50	490	11,815	1,114	1,544	511	435	62	106	8.81
51 to 75	94	3,206	312	505	167	94	14	Q	17.04
76 to 100	29	1,499	161	326	108	25	Q	Q	33.80
Building Shape									
Square	280	3,654	280	430	143	94	14	29	14.09
Rectangle	3,659	39,233	3,087	4,430	1,467	1,225	152	243	7.53
Right Angle	333	6,071	399	556	184	165	27	22	12.91
Other	533	18,919	1,724	2,459	815	690	79	140	10.09
Energy-Related Space Functions (more than one may apply)									
Commercial Food Preparation	735	22,166	2,339	3,381	1,120	942	109	169	8.11
Computer Room	223	14,199	1,539	2,489	824	486	68	161	12.19
Rooms with Special Ventilation	236	8,042	1,034	1,360	451	407	49	128	12.39
Activities with Large Amounts of Hot Water	203	6,862	964	1,108	367	472	47	78	13.28
Space-Heating Energy Sources (more than one may apply)									
Electricity	1,513	25,636	1,935	3,631	1,203	582	50	101	9.62
Natural Gas	2,397	38,467	3,453	4,310	1,428	1,938	45	42	8.74
Fuel Oil	478	7,323	793	815	270	220	262	Q	13.09
District Heat	91	5,130	794	820	272	110	Q	404	15.45
Propane	255	1,568	59	147	49	Q	8	Q	23.99
Wood	102	504	16	26	9	5	Q	Q	29.52
Any Other	39	661	17	30	10	Q	Q	Q	47.78
Cooling Energy Sources (more than one may apply)									
Electricity	3,404	54,628	4,722	7,022	2,326	1,887	215	294	6.74
Natural Gas	106	1,906	289	289	96	186	Q	Q	23.87
District Chilled Water	28	1,914	292	357	118	45	Q	122	23.17
Water-Heating Energy Sources (more than one may apply)									
Electricity	1,696	25,482	1,799	3,317	1,099	533	85	82	10.14
Natural Gas	1,643	29,950	3,007	3,711	1,229	1,644	50	84	8.83
Fuel Oil	125	2,469	252	223	74	33	138	Q	20.97
District Heat	36	3,292	543	577	191	49	3	299	19.33
Propane	80	659	31	70	23	Q	Q	Q	36.22
Cooking Energy Sources (more than one may apply)									
Electricity	356	12,183	1,200	2,005	664	384	57	96	9.83
Natural Gas	430	15,204	1,697	2,217	734	816	46	100	9.65
Propane	70	1,039	75	135	45	Q	24	Q	26.43
Manufacturing Energy Sources (more than one may apply)									
Electricity	95	2,579	290	307	102	121	21	Q	21.66
Natural Gas	22	799	127	83	27	78	Q	Q	39.07
Other	15	343	46	42	14	Q	Q	Q	46.14

See footnotes at end of table.

Table 3.2. Total Energy Consumption by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity		Natural Gas	Fuel Oil	District Heat	
				Primary	Site				
RSE Column Factor:	0.6	0.6	0.8	0.8	0.8	1.1	2.1	2.3	
Percent of Floorspace Heated									
Not Heated	628	5,880	126	331	110	Q	Q	Q	27.84
1 to 50	713	11,525	467	769	255	175	27	Q	15.57
51 to 99	618	10,211	885	1,306	433	362	43	46	12.14
100	2,846	40,260	4,013	5,469	1,812	1,622	202	378	7.17
Percent of Floorspace Cooled									
Not Cooled	1,304	10,835	457	492	163	187	54	53	13.46
1 to 50	1,176	21,715	1,348	1,439	477	611	139	122	8.92
51 to 99	658	13,872	1,432	2,259	748	532	47	104	10.21
100	1,668	21,454	2,253	3,685	1,221	844	33	156	8.96
Heating Equipment (more than one may apply)									
Heat Pumps	449	8,269	704	1,312	435	213	19	37	13.98
Furnaces	1,692	16,909	1,320	1,597	529	724	59	Q	9.49
Individual Space Heaters	1,464	22,380	1,723	2,550	845	708	74	97	9.43
District Heat	93	5,225	829	843	279	135	Q	407	16.00
Boilers	624	20,664	1,978	2,504	829	936	204	Q	8.36
Packaged Heating Units	870	16,000	1,357	2,203	730	583	18	26	10.74
Other	42	903	171	249	83	Q	Q	Q	31.72
Heating Distribution Equipment (more than one may apply)									
Radiators or Baseboards	473	13,263	1,379	1,316	436	574	158	211	9.43
Ducts for Heating	2,955	45,422	4,073	6,015	1,992	1,685	142	254	6.76
VAV System Used	210	11,528	1,278	2,059	682	429	32	135	12.98
Individual Space Heaters	1,464	22,380	1,723	2,550	845	708	74	97	9.43
Fan Coil Units or Other	276	8,457	1,033	1,174	389	457	58	130	12.33
Cooling Equipment (more than one may apply)									
Residential-Type Central A/C	816	9,021	898	977	324	493	41	Q	13.12
Heat Pumps	454	8,406	753	1,316	436	234	23	Q	13.29
Individual A/C	1,023	17,979	1,454	1,744	578	607	133	136	9.95
District Chilled Water	28	2,066	309	357	118	61	Q	123	23.23
Central Chillers	142	12,991	1,482	2,310	765	538	56	122	12.59
Packaged A/C Units	1,459	27,830	2,514	3,850	1,275	999	97	142	8.75
Swamp Coolers	179	2,085	228	326	108	107	Q	Q	28.58
Other	8	268	17	37	12	Q	Q	Q	62.13
Cooling Distribution Equipment (more than one may apply)									
Ducts for Cooling	2,733	47,755	4,337	6,595	2,185	1,694	145	313	6.90
VAV System Used	221	12,430	1,391	2,332	772	433	38	148	12.36
Individual A/C	1,023	17,979	1,454	1,744	578	607	133	136	9.95
Fan Coil Units or Other	166	6,611	817	1,028	341	355	36	86	17.39
Water-Heating Equipment (more than one may apply)									
Centralized System	1,994	31,599	3,185	4,185	1,386	1,309	185	305	7.98
Distributed System	1,557	29,502	2,306	3,674	1,217	890	72	127	10.16
Energy Conservation Features (more than one may apply)									
Any Conservation Features	4,357	64,403	5,410	7,777	2,576	2,129	271	434	6.14
Building Shell	4,223	62,056	5,284	7,574	2,509	2,091	260	424	6.19
HVAC	2,604	50,281	4,699	6,762	2,240	1,804	240	415	6.53
Lighting	1,178	29,453	2,799	4,302	1,425	1,005	121	249	8.25
Other	264	5,952	552	744	247	208	48	49	11.77

See footnotes at end of table.

Table 3.2. Total Energy Consumption by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Consumption (trillion Btu)						RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity		Natural Gas	Fuel Oil	District Heat	
				Primary	Site				
RSE Column Factor:	0.6	0.6	0.8	0.8	0.8	1.1	2.1	2.3	
Energy Management Practices (more than one may apply)									
Energy Management and Control System	236	14,320	1,571	2,478	821	497	58	195	12.16
Demand-Side Management[1] Participation	315	11,310	1,327	1,708	566	528	70	163	11.47
Energy Audit	521	14,779	1,479	2,133	706	550	77	146	10.07
Building Energy Manager	49	2,311	297	392	130	116	Q	46	23.78

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity, which is not included in the "Total of Major Fuels" category, is site electricity plus the conversion losses in the electric generation process at the utility plant. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.3. Total Energy Expenditures by Major Fuel, 1992

Building Characteristics	All Buildings		Total Energy Expenditures (million dollars)					RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Elec-tricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.6	0.7	0.7	0.7	1.0	2.0	2.2	
All Buildings	4,806	67,876	71,821	57,619	9,901	1,400	2,901	6.10
Building Floorspace (square feet)								
1,001 to 5,000	2,681	7,327	10,559	8,536	1,716	252	Q	8.10
5,001 to 10,000	975	7,199	7,995	6,336	1,342	264	Q	8.38
10,001 to 25,000	647	10,375	10,126	7,758	1,882	150	336	10.72
25,001 to 50,000	280	10,069	9,864	7,619	1,559	271	Q	12.85
50,001 to 100,000	116	8,062	8,483	6,806	1,184	140	353	13.63
100,001 to 200,000	71	9,678	8,413	6,935	893	134	451	13.69
200,001 to 500,000	26	7,889	8,457	6,847	742	113	755	17.27
Over 500,000	9	7,278	7,924	6,783	582	76	483	22.90
Principal Building Activity								
Education	301	8,470	7,389	5,526	1,271	277	315	11.61
Food Sales	130	757	2,389	2,250	134	Q	Q	23.36
Food Service	260	1,491	4,280	3,359	818	Q	Q	13.08
Health Care	63	1,763	3,733	2,640	662	86	346	17.63
Lodging	154	2,891	5,459	4,030	929	79	421	20.55
Mercantile and Service	1,272	12,402	12,907	10,583	1,899	318	Q	10.27
Office	749	12,319	18,102	15,511	1,618	245	728	11.20
Parking Garage	24	1,652	811	743	43	Q	Q	44.73
Public Assembly	278	4,556	4,163	3,430	490	80	164	17.45
Public Order and Safety	60	820	998	619	173	Q	Q	30.11
Religious Worship	366	3,747	1,299	890	332	72	Q	13.67
Warehouse and Storage	761	11,484	6,750	5,386	939	139	Q	14.17
Other	69	1,130	1,954	1,479	302	Q	Q	26.09
Vacant	319	4,396	1,585	1,172	290	Q	Q	20.02
Year Constructed								
1899 or Before	169	1,721	1,447	1,029	281	60	Q	20.41
1900 to 1919	255	3,608	2,516	1,711	516	126	Q	17.55
1920 to 1945	724	8,712	7,534	5,263	1,442	283	546	13.72
1946 to 1959	880	10,421	9,797	7,477	1,665	310	346	12.36
1960 to 1969	783	12,612	14,532	11,617	1,903	262	750	11.93
1970 to 1979	982	14,014	16,459	13,659	2,187	251	363	10.35
1980 to 1989	884	14,287	16,834	14,510	1,668	90	566	12.10
1990 to 1992	128	2,502	2,702	2,354	239	Q	Q	20.34
Census Region and Division								
Northeast	771	13,400	16,226	12,250	2,014	989	973	9.66
New England	186	3,265	4,063	2,935	476	433	219	22.91
Middle Atlantic	585	10,135	12,163	9,315	1,538	556	754	13.25
Midwest	1,202	17,280	16,957	12,745	3,011	132	1,069	11.41
East North Central	749	10,712	11,040	8,308	2,076	76	580	13.28
West North Central	453	6,568	5,916	4,437	935	Q	Q	21.57
South	1,963	24,577	22,843	19,097	2,998	257	492	11.49
South Atlantic	755	10,586	10,893	9,252	1,147	213	282	16.25
East South Central	454	5,375	4,728	3,851	787	Q	Q	20.55
West South Central	754	8,616	7,222	5,994	1,064	Q	Q	22.02
West	870	12,619	15,795	13,527	1,878	Q	368	13.50
Mountain	297	3,645	4,372	3,616	559	Q	Q	24.17
Pacific	574	8,974	11,424	9,911	1,319	Q	181	15.57
Climate Zone: 45-Year Average								
Fewer than 2,000 CDD and --								
More than 7,000 HDD	399	5,623	4,806	3,553	790	233	229	19.12
5,500-7,000 HDD	1,134	18,024	19,519	14,625	3,264	479	1,150	11.54
4,000-5,499 HDD	1,077	16,162	16,998	13,278	2,158	579	984	14.23
Fewer than 4,000 HDD	1,101	15,251	17,400	14,688	2,386	Q	270	18.09
More than 2,000 CDD and --								
Fewer than 4,000 HDD	1,095	12,816	13,098	11,474	1,304	53	267	18.22

See footnotes at end of table.

Table 3.3. Total Energy Expenditures by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Expenditures (million dollars)					RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.6	0.7	0.7	0.7	1.0	2.0	2.2	
Energy Sources (more than one may apply)								
Electricity	4,611	66,525	71,817	57,619	9,900	1,398	2,901	6.22
Natural Gas	2,657	44,994	51,785	39,769	9,901	507	1,608	7.77
Fuel Oil	560	13,215	17,748	14,003	1,623	1,400	723	12.07
District Heat	95	5,245	9,106	5,746	429	Q	2,901	21.33
District Chilled Water	28	1,914	3,167	2,170	178	Q	789	25.45
Propane	337	3,393	3,561	3,085	201	187	Q	20.30
Any Other	163	1,551	992	831	100	Q	Q	23.86
Energy End Uses (more than one may apply)								
Heated Buildings	4,178	61,996	69,379	55,265	9,815	1,397	2,901	6.11
Buildings with A/C	3,502	57,041	66,430	53,825	8,969	1,103	2,533	6.44
Buildings with Water Heating	3,502	58,479	67,927	54,252	9,582	1,274	2,819	6.31
Buildings with Cooking	734	23,065	30,816	24,939	4,103	514	1,260	8.22
Buildings with Manufacturing	121	3,174	3,736	2,650	678	136	Q	18.77
Workers (main shift)								
Less than 5	2,718	17,944	11,530	9,236	1,778	335	Q	10.41
5 to 9	895	7,524	7,425	5,753	1,244	199	Q	8.30
10 to 19	561	8,077	8,608	6,736	1,413	131	327	12.78
20 to 49	405	10,556	12,382	9,374	2,302	263	443	12.65
50 to 99	130	7,763	8,554	6,953	1,206	158	237	14.47
100 or More	96	16,011	23,323	19,566	1,958	315	1,484	10.58
Weekly Operating Hours								
39 or Fewer	1,039	8,246	3,233	2,223	731	202	Q	11.94
40 to 48	1,278	14,998	13,455	10,823	1,869	352	412	9.91
49 to 60	1,004	14,046	12,678	10,197	1,888	218	376	9.74
61 to 84	645	12,062	13,532	11,389	1,666	218	260	10.17
85 to 167	478	8,467	12,026	10,031	1,521	198	277	14.13
Open Continuously	362	10,057	16,896	12,957	2,226	213	1,500	13.70
Ownership and Occupancy								
Nongovernment Owned	4,206	52,752	56,302	46,002	7,808	936	1,556	6.91
Owner Occupied	3,192	38,403	43,713	35,438	6,091	824	1,360	7.05
Single Establishment	2,864	29,992	34,881	27,862	5,236	657	1,126	8.45
Multiple Establishment	328	8,411	8,832	7,576	855	167	234	14.79
Nonowner Occupied	817	12,273	12,089	10,173	1,618	105	193	12.92
Single Establishment	495	5,565	5,623	4,627	895	36	Q	18.85
Multiple Establishment	322	6,708	6,465	5,546	723	70	Q	15.63
Vacant	197	2,077	500	392	99	Q	Q	31.76
Government Owned	599	15,124	15,519	11,617	2,094	465	1,345	9.81
Predominant Exterior Wall Material								
Masonry	3,115	48,585	51,397	40,496	7,734	1,128	2,038	6.39
Siding or Shingles	764	3,873	4,006	3,260	561	131	Q	11.40
Metal Panels	745	7,392	5,861	4,786	851	85	Q	15.75
Concrete Panels	87	4,961	5,841	4,868	528	Q	436	18.18
Window Glass	46	2,028	3,347	3,066	133	33	115	25.62
Other	47	1,037	1,370	1,143	93	Q	Q	30.23
Predominant Roof Material								
Built-Up	1,642	30,257	34,687	28,113	4,610	542	1,422	8.19
Shingles (Not Wood)	1,381	10,570	9,813	7,649	1,682	282	199	11.02
Metal Surfacing	1,037	9,019	6,427	5,194	948	112	Q	11.68
Synthetic or Rubber	386	11,702	14,644	11,633	1,908	364	739	11.40
Other	359	6,328	6,251	5,030	753	100	367	15.26

See footnotes at end of table.

Table 3.3. Total Energy Expenditures by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Expenditures (million dollars)					RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.6	0.7	0.7	0.7	1.0	2.0	2.2	
Floors								
One	3,007	25,424	24,083	19,785	3,501	394	Q	8.42
Two	1,154	18,025	18,040	14,763	2,686	319	Q	7.82
Three	446	9,877	10,674	8,234	1,662	351	426	11.84
Four to Nine	186	10,377	12,623	9,537	1,676	246	1,164	14.39
Ten or More	13	4,173	6,402	5,299	375	Q	637	18.83
Percent Window Glass								
25 or Less	4,193	51,356	49,909	39,804	7,277	1,015	1,813	7.10
26 to 50	490	11,815	14,726	11,654	2,077	283	712	9.13
51 to 75	94	3,206	4,580	3,829	441	67	243	16.97
76 to 100	29	1,499	2,606	2,332	106	Q	Q	34.51
Building Shape								
Square	280	3,654	3,842	3,165	441	75	160	13.72
Rectangle	3,659	39,233	41,205	33,121	5,688	816	1,579	7.34
Right Angle	333	6,071	5,483	4,377	823	140	144	12.70
Other	533	18,919	21,292	16,955	2,949	369	1,018	10.41
Energy-Related Space Functions (more than one may apply)								
Commercial Food Preparation	735	22,166	30,221	24,343	4,104	514	1,260	8.00
Computer Room	223	14,199	20,434	17,102	2,043	302	987	11.92
Rooms with Special Ventilation	236	8,042	11,678	9,076	1,562	210	830	12.74
Activities with Large Amounts of Hot Water	203	6,862	10,083	7,390	1,966	221	507	13.00
Space-Heating Energy Sources (more than one may apply)								
Electricity	1,513	25,636	29,489	25,856	2,720	254	659	9.40
Natural Gas	2,397	38,467	41,084	31,839	8,756	228	261	8.85
Fuel Oil	478	7,323	8,663	6,218	844	1,336	Q	12.85
District Heat	91	5,130	8,820	5,615	405	Q	2,776	16.55
Propane	255	1,568	1,300	1,249	Q	40	Q	23.72
Wood	102	504	263	214	30	Q	Q	28.60
Any Other	39	661	232	195	Q	Q	Q	50.01
Cooling Energy Sources (more than one may apply)								
Electricity	3,404	54,628	63,077	51,474	8,582	1,087	1,934	6.66
Natural Gas	106	1,906	3,002	2,173	782	Q	Q	23.86
District Chilled Water	28	1,914	3,167	2,170	178	Q	789	25.45
Water-Heating Energy Sources (more than one may apply)								
Electricity	1,696	25,482	26,508	23,303	2,324	441	441	9.48
Natural Gas	1,643	29,950	35,962	27,430	7,620	232	679	9.26
Fuel Oil	125	2,469	2,905	2,004	163	683	Q	21.05
District Heat	36	3,292	5,995	3,912	158	11	1,913	19.58
Propane	80	659	717	674	Q	Q	Q	36.23
Cooking Energy Sources (more than one may apply)								
Electricity	356	12,183	16,429	13,854	1,626	271	678	10.77
Natural Gas	430	15,204	20,650	16,095	3,562	217	776	9.25
Propane	70	1,039	1,332	1,171	Q	119	Q	27.01
Manufacturing Energy Sources (more than one may apply)								
Electricity	95	2,579	3,080	2,251	495	96	Q	20.09
Natural Gas	22	799	960	553	316	Q	Q	35.38
Other	15	343	477	286	Q	Q	Q	44.81

See footnotes at end of table.

Table 3.3. Total Energy Expenditures by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Expenditures (million dollars)					RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Electricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.6	0.7	0.7	0.7	1.0	2.0	2.2	
Percent of Floorspace Heated								
Not Heated	628	5,880	2,442	2,353	Q	Q	Q	22.86
1 to 50	713	11,525	7,115	6,038	871	142	Q	14.16
51 to 99	618	10,211	12,165	10,034	1,578	214	339	11.50
100	2,846	40,260	50,099	39,192	7,367	1,041	2,498	6.98
Percent of Floorspace Cooled								
Not Cooled	1,304	10,835	5,391	3,794	932	297	368	12.02
1 to 50	1,176	21,715	15,648	11,296	2,879	696	777	8.63
51 to 99	658	13,872	19,454	16,302	2,216	228	708	10.24
100	1,668	21,454	31,328	26,227	3,874	178	1,048	8.94
Heating Equipment (more than one may apply)								
Heat Pumps	449	8,269	10,355	8,938	1,006	92	318	14.54
Furnaces	1,692	16,909	15,953	12,330	3,209	351	Q	8.74
Individual Space Heaters	1,464	22,380	22,391	18,096	3,293	391	610	9.56
District Heat	93	5,225	9,008	5,725	474	Q	2,785	16.55
Boilers	624	20,664	22,741	17,612	4,030	1,018	Q	8.41
Packaged Heating Units	870	16,000	20,026	16,901	2,815	86	224	11.77
Other	42	903	2,049	1,601	Q	Q	Q	29.95
Heating Distribution Equipment (more than one may apply)								
Radiators or Baseboards	473	13,263	14,793	10,088	2,434	767	1,503	9.04
Ducts for Heating	2,955	45,422	53,420	43,424	7,555	742	1,700	6.92
VAV System Used	210	11,528	16,354	13,610	1,706	144	894	13.21
Individual Space Heaters	1,464	22,380	22,391	18,096	3,293	391	610	9.56
Fan Coil Units or Other	276	8,457	11,132	7,931	1,925	296	980	12.66
Cooling Equipment (more than one may apply)								
Residential-Type Central A/C	816	9,021	9,791	7,324	1,972	201	Q	12.04
Heat Pumps	454	8,406	10,729	9,139	1,093	109	388	13.93
Individual A/C	1,023	17,979	17,702	13,205	2,830	652	1,015	9.48
District Chilled Water	28	2,066	3,220	2,173	229	Q	789	25.60
Central Chillers	142	12,991	18,581	15,291	2,141	246	902	12.81
Packaged A/C Units	1,459	27,830	34,931	28,748	4,769	449	965	8.66
Swamp Coolers	179	2,085	2,843	2,292	449	Q	Q	27.85
Other	8	268	249	220	Q	Q	Q	58.31
Cooling Distribution Equipment (more than one may apply)								
Ducts for Cooling	2,733	47,755	57,807	47,542	7,526	705	2,034	6.89
VAV System Used	221	12,430	18,366	15,519	1,718	154	974	12.12
Individual A/C	1,023	17,979	17,702	13,205	2,830	652	1,015	9.48
Fan Coil Units or Other	166	6,611	8,837	6,696	1,410	175	555	17.91
Water-Heating Equipment (more than one may apply)								
Centralized System	1,994	31,599	39,145	30,437	5,716	941	2,051	8.27
Distributed System	1,557	29,502	31,733	26,294	4,225	360	854	9.73
Energy Conservation Features (more than one may apply)								
Any Conservation Features	4,357	64,403	70,720	56,750	9,688	1,391	2,892	6.20
Building Shell	4,223	62,056	68,828	55,190	9,488	1,332	2,819	6.28
HVAC	2,604	50,281	60,920	48,918	8,002	1,213	2,787	6.67
Lighting	1,178	29,453	37,614	30,760	4,537	610	1,707	8.43
Other	264	5,952	6,921	5,436	903	222	359	12.31

See footnotes at end of table.

Table 3.3. Total Energy Expenditures by Major Fuel, 1992 (Continued)

Building Characteristics	All Buildings		Total Energy Expenditures (million dollars)					RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Total of Major Fuels	Elec-tricity	Natural Gas	Fuel Oil	District Heat	
RSE Column Factor:	0.6	0.7	0.7	0.7	1.0	2.0	2.2	
Energy Management Practices (more than one may apply)								
Energy Management and Control System	236	14,320	19,830	16,531	1,832	262	1,205	12.10
Demand-Side Management[1] Participation	315	11,310	15,493	12,252	1,931	325	987	10.73
Energy Audit	521	14,779	19,319	15,598	2,359	381	981	10.07
Building Energy Manager	49	2,311	3,156	2,457	452	Q	226	23.58

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.4. Consumption for Sum of Major Fuels, 1992

Building Characteristics	All Buildings			Sum of Major Fuel Consumption				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	per Building (million Btu)	per Square Foot (thousand Btu)	per Worker (million Btu)	
RSE Column Factor:	0.8	0.9	0.8	1.1	1.2	1.0	1.3	
All Buildings	4,806	67,876	14.1	5,490	1,142	80.9	77.1	4.42
Building Floorspace (square feet)								
1,001 to 5,000	2,681	7,327	2.7	703	262	95.9	72.4	4.86
5,001 to 10,000	975	7,199	7.4	555	570	77.1	72.6	4.12
10,001 to 25,000	647	10,375	16.0	865	1,336	83.4	83.5	6.12
25,001 to 50,000	280	10,069	35.9	794	2,830	78.8	91.5	7.57
50,001 to 100,000	116	8,062	69.8	642	5,558	79.7	82.0	5.81
100,001 to 200,000	71	9,678	137.0	640	9,065	66.2	77.3	7.23
200,001 to 500,000	26	7,889	302.8	711	27,275	90.1	94.2	8.31
Over 500,000	9	7,278	770.5	581	61,471	79.8	Q	18.08
Principal Building Activity								
Education	301	8,470	28.2	637	2,118	75.2	92.7	7.22
Food Sales	130	757	5.8	137	1,053	181.5	163.1	13.34
Food Service	260	1,491	5.7	307	1,183	206.1	136.9	9.35
Health Care	63	1,763	27.9	403	6,365	228.5	119.0	13.82
Lodging	154	2,891	18.8	463	3,007	160.1	228.8	14.19
Mercantile and Service	1,272	12,402	9.7	892	701	71.9	55.8	9.29
Office	749	12,319	16.4	1,247	1,665	101.2	45.9	8.11
Parking Garage	24	1,652	69.9	52	2,186	31.3	239.7	32.81
Public Assembly	278	4,556	16.4	310	1,115	68.0	112.6	16.25
Public Order and Safety	60	820	13.7	91	1,512	110.6	113.1	22.38
Religious Worship	366	3,747	10.2	109	297	29.0	47.4	10.82
Warehouse and Storage	761	11,484	15.1	527	692	45.9	118.4	10.80
Other	69	1,130	16.4	184	2,676	163.2	149.7	20.30
Vacant	319	4,396	13.8	131	412	29.9	134.0	16.57
Year Constructed								
1899 or Before	169	1,721	10.2	118	699	68.6	77.2	12.17
1900 to 1919	255	3,608	14.1	213	836	59.1	71.0	12.74
1920 to 1945	724	8,712	12.0	666	920	76.5	101.0	10.39
1946 to 1959	880	10,421	11.8	800	910	76.8	87.8	9.45
1960 to 1969	783	12,612	16.1	1,125	1,436	89.2	62.9	8.99
1970 to 1979	982	14,014	14.3	1,261	1,284	90.0	87.6	7.05
1980 to 1989	884	14,287	16.2	1,133	1,282	79.3	70.9	8.98
1990 to 1992	128	2,502	19.6	173	1,355	69.3	63.5	12.65
Census Region and Division								
Northeast	771	13,400	17.4	1,090	1,414	81.3	58.7	9.45
New England	186	3,265	17.6	299	1,605	91.5	78.1	17.38
Middle Atlantic	585	10,135	17.3	791	1,353	78.0	53.6	13.54
Midwest	1,202	17,280	14.4	1,578	1,313	91.3	106.1	6.33
East North Central	749	10,712	14.3	1,009	1,347	94.2	106.5	7.44
West North Central	453	6,568	14.5	568	1,255	86.5	105.5	13.85
South	1,963	24,577	12.5	1,825	930	74.3	78.6	8.11
South Atlantic	755	10,586	14.0	775	1,026	73.2	70.9	12.21
East South Central	454	5,375	11.8	409	900	76.0	79.9	11.94
West South Central	754	8,616	11.4	641	851	74.4	89.4	17.88
West	870	12,619	14.5	998	1,147	79.1	68.5	9.66
Mountain	297	3,645	12.3	347	1,171	95.3	80.9	18.60
Pacific	574	8,974	15.6	651	1,134	72.5	63.3	10.95
Climate Zone: 45-Year Average								
Fewer than 2,000 CDD and --								
More than 7,000 HDD	399	5,623	14.1	477	1,196	84.8	99.0	11.77
5,500-7,000 HDD	1,134	18,024	15.9	1,641	1,448	91.1	93.8	8.01
4,000-5,499 HDD	1,077	16,162	15.0	1,275	1,184	78.9	62.1	13.79
Fewer than 4,000 HDD	1,101	15,251	13.8	1,178	1,070	77.2	70.8	11.66
More than 2,000 CDD and --								
Fewer than 4,000 HDD	1,095	12,816	11.7	919	840	71.7	78.1	12.69

See footnotes at end of table.

Table 3.4. Consumption for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Consumption				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	per Building (million Btu)	per Square Foot (thousand Btu)	per Worker (million Btu)	
RSE Column Factor:	0.8	0.9	0.8	1.1	1.2	1.0	1.3	
Energy Sources (more than one may apply)								
Electricity	4,611	66,525	14.4	5,490	1,190	82.5	77.1	4.00
Natural Gas	2,657	44,994	16.9	4,264	1,605	94.8	83.3	4.87
Fuel Oil	560	13,215	23.6	1,440	2,574	109.0	79.7	9.22
District Heat	95	5,245	55.4	839	8,872	160.0	117.5	14.15
District Chilled Water	28	1,914	68.0	292	10,369	152.6	107.8	17.94
Propane	337	3,393	10.1	220	653	64.9	76.3	13.85
Any Other	163	1,551	9.5	67	411	43.3	50.9	15.58
Energy End Uses (more than one may apply)								
Heated Buildings	4,178	61,996	14.8	5,364	1,284	86.5	77.1	4.50
Buildings with A/C	3,502	57,041	16.3	5,033	1,437	88.2	75.2	4.60
Buildings with Water Heating	3,502	58,479	16.7	5,259	1,502	89.9	78.2	4.71
Buildings with Cooking	734	23,065	31.4	2,382	3,245	103.3	77.0	7.43
Buildings with Manufacturing	121	3,174	26.3	356	2,951	112.1	140.1	16.21
Workers (main shift)								
Less than 5	2,718	17,944	6.6	799	294	44.5	168.7	7.95
5 to 9	895	7,524	8.4	622	695	82.7	108.1	8.91
10 to 19	561	8,077	14.4	635	1,130	78.6	88.8	8.70
20 to 49	405	10,556	26.1	1,016	2,510	96.2	86.2	7.88
50 to 99	130	7,763	59.7	688	5,288	88.6	82.1	9.46
100 or More	96	16,011	167.1	1,731	18,066	108.1	51.8	7.78
Weekly Operating Hours								
39 or Fewer	1,039	8,246	7.9	278	267	33.7	69.6	8.58
40 to 48	1,278	14,998	11.7	1,011	791	67.4	57.8	6.46
49 to 60	1,004	14,046	14.0	934	931	66.5	60.4	7.13
61 to 84	645	12,062	18.7	962	1,492	79.7	75.9	7.45
85 to 167	478	8,467	17.7	839	1,754	99.0	Q	9.01
Open Continuously	362	10,057	27.8	1,467	4,053	145.8	160.7	11.58
Ownership and Occupancy								
Nongovernment Owned	4,206	52,752	12.5	4,143	985	78.5	79.2	4.63
Owner Occupied	3,192	38,403	12.0	3,313	1,038	86.3	84.2	4.45
Single Establishment	2,864	29,992	10.5	2,751	960	91.7	98.9	5.19
Multiple Establishment	328	8,411	25.6	562	1,713	66.8	48.9	8.43
Nonowner Occupied	817	12,273	15.0	795	973	64.7	62.0	10.39
Single Establishment	495	5,565	11.2	408	824	73.2	80.5	18.55
Multiple Establishment	322	6,708	20.8	387	1,201	57.7	50.0	9.85
Vacant	197	2,077	10.5	36	183	17.3	210.8	22.16
Government Owned	599	15,124	25.2	1,347	2,247	89.1	71.2	8.72
Predominant Exterior Wall Material								
Masonry	3,115	48,585	15.6	4,016	1,289	82.7	88.4	4.60
Siding or Shingles	764	3,873	5.1	262	343	67.6	60.9	7.46
Metal Panels	745	7,392	9.9	505	678	68.3	105.5	12.69
Concrete Panels	87	4,961	56.7	408	4,658	82.2	Q	14.08
Window Glass	46	2,028	43.6	195	4,191	96.1	45.3	19.34
Other	47	1,037	22.1	105	2,227	101.0	50.7	28.47
Predominant Roof Material								
Built-Up	1,642	30,257	18.4	2,593	1,579	85.7	82.4	6.16
Shingles (Not Wood)	1,381	10,570	7.7	734	531	69.4	76.2	7.04
Metal Surfacing	1,037	9,019	8.7	550	530	61.0	84.1	10.88
Synthetic or Rubber	386	11,702	30.3	1,165	3,021	99.6	64.3	9.48
Other	359	6,328	17.6	448	1,248	70.8	82.1	11.16

See footnotes at end of table.

Table 3.4. Consumption for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Consumption				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	per Building (million Btu)	per Square Foot (thousand Btu)	per Worker (million Btu)	
RSE Column Factor:	0.8	0.9	0.8	1.1	1.2	1.0	1.3	
Floors								
One	3,007	25,424	8.5	1,751	582	68.9	81.2	6.59
Two	1,154	18,025	15.6	1,302	1,128	72.2	65.3	7.24
Three	446	9,877	22.2	887	1,989	89.8	92.4	7.42
Four to Nine	186	10,377	55.7	1,112	5,971	107.1	98.8	10.26
Ten or More	13	4,173	319.7	439	33,641	105.2	49.5	13.40
Percent Window Glass								
25 or Less	4,193	51,356	12.2	3,904	931	76.0	91.3	4.82
26 to 50	490	11,815	24.1	1,114	2,272	94.3	57.9	7.78
51 to 75	94	3,206	34.2	312	3,323	97.3	52.0	11.85
76 to 100	29	1,499	52.6	161	5,633	107.1	49.8	21.83
Building Shape								
Square	280	3,654	13.0	280	999	76.7	76.3	10.20
Rectangle	3,659	39,233	10.7	3,087	844	78.7	79.2	4.93
Right Angle	333	6,071	18.2	399	1,199	65.7	69.7	7.82
Other	533	18,919	35.5	1,724	3,234	91.1	75.3	9.06
Energy-Related Space Functions (more than one may apply)								
Commercial Food Preparation	735	22,166	30.2	2,339	3,182	105.5	75.6	6.74
Computer Room	223	14,199	63.7	1,539	6,907	108.4	67.4	8.30
Rooms with Special Ventilation	236	8,042	34.0	1,034	4,378	128.6	112.6	7.75
Activities with Large Amounts of Hot Water	203	6,862	33.7	964	4,738	140.4	136.0	9.37
Space-Heating Energy Sources (more than one may apply)								
Electricity	1,513	25,636	16.9	1,935	1,279	75.5	61.4	8.11
Natural Gas	2,397	38,467	16.1	3,453	1,441	89.8	80.6	5.34
Fuel Oil	478	7,323	15.3	793	1,658	108.3	96.4	10.27
District Heat	91	5,130	56.2	794	8,692	154.7	113.4	11.82
Propane	255	1,568	6.2	59	231	37.5	45.9	13.59
Wood	102	504	5.0	16	157	31.7	34.6	19.10
Any Other	39	661	16.9	17	432	25.6	45.9	29.66
Cooling Energy Sources (more than one may apply)								
Electricity	3,404	54,628	16.0	4,722	1,387	86.4	74.1	4.64
Natural Gas	106	1,906	17.9	289	2,712	151.4	118.8	19.18
District Chilled Water	28	1,914	68.0	292	10,369	152.6	107.8	17.94
Water-Heating Energy Sources (more than one may apply)								
Electricity	1,696	25,482	15.0	1,799	1,061	70.6	65.5	6.56
Natural Gas	1,643	29,950	18.2	3,007	1,830	100.4	86.3	6.06
Fuel Oil	125	2,469	19.7	252	2,010	102.0	83.1	17.29
District Heat	36	3,292	90.8	543	14,961	164.8	110.9	14.69
Propane	80	659	8.2	31	389	47.1	55.9	25.14
Cooking Energy Sources (more than one may apply)								
Electricity	356	12,183	34.2	1,200	3,370	98.5	65.2	10.84
Natural Gas	430	15,204	35.3	1,697	3,942	111.6	78.6	8.13
Propane	70	1,039	14.9	75	1,072	72.1	69.9	18.52
Manufacturing Energy Sources (more than one may apply)								
Electricity	95	2,579	27.3	290	3,070	112.5	138.1	17.73
Natural Gas	22	799	36.7	127	5,826	158.7	202.2	30.44
Other	15	343	22.6	46	3,018	133.4	201.9	34.28

See footnotes at end of table.

Table 3.4. Consumption for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Consumption				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	per Building (million Btu)	per Square Foot (thousand Btu)	per Worker (million Btu)	
RSE Column Factor:	0.8	0.9	0.8	1.1	1.2	1.0	1.3	
Percent of Floorspace Heated								
Not Heated	628	5,880	9.4	126	200	21.4	77.2	19.90
1 to 50	713	11,525	16.2	467	655	40.5	Q	10.32
51 to 99	618	10,211	16.5	885	1,431	86.7	74.2	7.86
100	2,846	40,260	14.1	4,013	1,410	99.7	84.2	4.79
Percent of Floorspace Cooled								
Not Cooled	1,304	10,835	8.3	457	351	42.2	105.7	8.87
1 to 50	1,176	21,715	18.5	1,348	1,147	62.1	102.1	5.87
51 to 99	658	13,872	21.1	1,432	2,176	103.2	59.8	8.01
100	1,668	21,454	12.9	2,253	1,351	105.0	75.7	6.84
Heating Equipment (more than one may apply)								
Heat Pumps	449	8,269	18.4	704	1,568	85.1	74.2	9.77
Furnaces	1,692	16,909	10.0	1,320	780	78.0	66.7	8.25
Individual Space Heaters	1,464	22,380	15.3	1,723	1,177	77.0	70.2	7.33
District Heat	93	5,225	55.9	829	8,874	158.7	117.7	11.75
Boilers	624	20,664	33.1	1,978	3,172	95.7	88.2	6.59
Packaged Heating Units	870	16,000	18.4	1,357	1,560	84.8	59.4	9.27
Other	42	903	21.2	171	4,031	189.8	149.9	29.96
Heating Distribution Equipment (more than one may apply)								
Radiators or Baseboards	473	13,263	28.0	1,379	2,914	103.9	101.7	6.73
Ducts for Heating	2,955	45,422	15.4	4,073	1,379	89.7	73.9	4.96
VAV System Used	210	11,528	54.8	1,278	6,076	110.9	66.0	12.00
Individual Space Heaters	1,464	22,380	15.3	1,723	1,177	77.0	70.2	7.33
Fan Coil Units or Other	276	8,457	30.7	1,033	3,749	122.2	115.7	9.59
Cooling Equipment (more than one may apply)								
Residential-Type Central A/C	816	9,021	11.0	898	1,099	99.5	92.2	9.63
Heat Pumps	454	8,406	18.5	753	1,659	89.5	78.7	9.75
Individual A/C	1,023	17,979	17.6	1,454	1,421	80.8	80.8	9.11
District Chilled Water	28	2,066	72.6	309	10,863	149.6	114.1	18.35
Central Chillers	142	12,991	91.5	1,482	10,437	114.1	80.2	9.92
Packaged A/C Units	1,459	27,830	19.1	2,514	1,723	90.3	76.7	5.74
Swamp Coolers	179	2,085	11.7	228	1,273	109.2	75.1	20.32
Other	8	268	35.0	17	Q	63.2	66.6	39.35
Cooling Distribution Equipment (more than one may apply)								
Ducts for Cooling	2,733	47,755	17.5	4,337	1,587	90.8	77.6	4.67
VAV System Used	221	12,430	56.2	1,391	6,289	111.9	78.0	8.91
Individual A/C	1,023	17,979	17.6	1,454	1,421	80.8	80.8	9.11
Fan Coil Units or Other	166	6,611	39.8	817	4,920	123.6	99.7	13.22
Water-Heating Equipment (more than one may apply)								
Centralized System	1,994	31,599	15.8	3,185	1,597	100.8	89.3	6.20
Distributed System	1,557	29,502	18.9	2,306	1,481	78.2	67.8	7.46
Energy Conservation Features (more than one may apply)								
Any Conservation Features	4,357	64,403	14.8	5,410	1,242	84.0	77.1	4.47
Building Shell	4,223	62,056	14.7	5,284	1,251	85.1	76.5	4.53
HVAC	2,604	50,281	19.3	4,699	1,804	93.4	77.0	4.72
Lighting	1,178	29,453	25.0	2,799	2,377	95.0	70.8	6.55
Other	264	5,952	22.6	552	2,095	92.8	92.2	7.59

See footnotes at end of table.

Table 3.4. Consumption for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Consumption				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	per Building (million Btu)	per Square Foot (thousand Btu)	per Worker (million Btu)	
RSE Column Factor:	0.8	0.9	0.8	1.1	1.2	1.0	1.3	
Energy Management Practices (more than one may apply)								
Energy Management and Control System	236	14,320	60.7	1,571	6,663	109.7	75.6	8.73
Demand-Side Management[1] Participation	315	11,310	35.9	1,327	4,216	117.3	68.9	9.76
Energy Audit	521	14,779	28.3	1,479	2,837	100.1	78.7	7.01
Building Energy Manager	49	2,311	46.8	297	6,013	128.4	83.6	17.51

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.5. Expenditures for Sum of Major Fuels, 1992

Building Characteristics	All Buildings			Sum of Major Fuel Expenditures				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (million dollars)	per Building (thousand dollars)	per Square Foot (dollars)	per Million Btu (dollars)	
RSE Column Factor:	1.0	1.1	0.9	1.2	1.2	1.0	0.7	
All Buildings	4,806	67,876	14.1	71,821	14.9	1.06	13.08	3.81
Building Floorspace (square feet)								
1,001 to 5,000	2,681	7,327	2.7	10,559	3.9	1.44	15.03	4.39
5,001 to 10,000	975	7,199	7.4	7,995	8.2	1.11	14.40	4.05
10,001 to 25,000	647	10,375	16.0	10,126	15.6	0.98	11.71	4.60
25,001 to 50,000	280	10,069	35.9	9,864	35.2	0.98	12.43	6.02
50,001 to 100,000	116	8,062	69.8	8,483	73.4	1.05	13.21	6.18
100,001 to 200,000	71	9,678	137.0	8,413	119.1	0.87	13.14	6.27
200,001 to 500,000	26	7,889	302.8	8,457	324.6	1.07	11.90	8.11
Over 500,000	9	7,278	770.5	7,924	838.9	1.09	13.65	15.97
Principal Building Activity								
Education	301	8,470	28.2	7,389	24.6	0.87	11.60	6.68
Food Sales	130	757	5.8	2,389	18.3	3.16	17.39	10.73
Food Service	260	1,491	5.7	4,280	16.5	2.87	13.93	8.42
Health Care	63	1,763	27.9	3,733	59.0	2.12	9.27	13.01
Lodging	154	2,891	18.8	5,459	35.5	1.89	11.80	13.77
Mercantile and Service	1,272	12,402	9.7	12,907	10.1	1.04	14.47	6.40
Office	749	12,319	16.4	18,102	24.2	1.47	14.51	7.11
Parking Garage	24	1,652	69.9	811	34.3	0.49	15.71	27.52
Public Assembly	278	4,556	16.4	4,163	15.0	0.91	13.43	12.85
Public Order and Safety	60	820	13.7	998	16.6	1.22	11.00	19.12
Religious Worship	366	3,747	10.2	1,299	3.6	0.35	11.94	9.16
Warehouse and Storage	761	11,484	15.1	6,750	8.9	0.59	12.81	8.79
Other	69	1,130	16.4	1,954	28.4	1.73	10.60	17.11
Vacant	319	4,396	13.8	1,585	5.0	0.36	12.06	12.75
Year Constructed								
1899 or Before	169	1,721	10.2	1,447	8.6	0.84	12.25	13.29
1900 to 1919	255	3,608	14.1	2,516	9.9	0.70	11.80	10.05
1920 to 1945	724	8,712	12.0	7,534	10.4	0.86	11.31	9.03
1946 to 1959	880	10,421	11.8	9,797	11.1	0.94	12.24	7.59
1960 to 1969	783	12,612	16.1	14,532	18.5	1.15	12.92	7.17
1970 to 1979	982	14,014	14.3	16,459	16.8	1.17	13.05	6.72
1980 to 1989	884	14,287	16.2	16,834	19.0	1.18	14.86	7.78
1990 to 1992	128	2,502	19.6	2,702	21.1	1.08	15.59	11.66
Census Region and Division								
Northeast	771	13,400	17.4	16,226	21.1	1.21	14.89	6.69
New England	186	3,265	17.6	4,063	21.8	1.24	13.60	14.18
Middle Atlantic	585	10,135	17.3	12,163	20.8	1.20	15.38	9.63
Midwest	1,202	17,280	14.4	16,957	14.1	0.98	10.75	6.88
East North Central	749	10,712	14.3	11,040	14.7	1.03	10.94	8.57
West North Central	453	6,568	14.5	5,916	13.1	0.90	10.41	13.01
South	1,963	24,577	12.5	22,843	11.6	0.93	12.52	6.87
South Atlantic	755	10,586	14.0	10,893	14.4	1.03	14.06	9.67
East South Central	454	5,375	11.8	4,728	10.4	0.88	11.57	10.55
West South Central	754	8,616	11.4	7,222	9.6	0.84	11.26	15.49
West	870	12,619	14.5	15,795	18.2	1.25	15.83	8.24
Mountain	297	3,645	12.3	4,372	14.7	1.20	12.59	17.07
Pacific	574	8,974	15.6	11,424	19.9	1.27	17.56	9.06
Climate Zone: 45-Year Average								
Fewer than 2,000 CDD and --								
More than 7,000 HDD	399	5,623	14.1	4,806	12.0	0.85	10.07	10.52
5,500-7,000 HDD	1,134	18,024	15.9	19,519	17.2	1.08	11.89	8.01
4,000-5,499 HDD	1,077	16,162	15.0	16,998	15.8	1.05	13.34	9.73
Fewer than 4,000 HDD	1,101	15,251	13.8	17,400	15.8	1.14	14.77	10.27
More than 2,000 CDD and --								
Fewer than 4,000 HDD	1,095	12,816	11.7	13,098	12.0	1.02	14.25	11.59

See footnotes at end of table.

Table 3.5. Expenditures for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Expenditures				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (million dollars)	per Building (thousand dollars)	per Square Foot (dollars)	per Million Btu (dollars)	
RSE Column Factor:	1.0	1.1	0.9	1.2	1.2	1.0	0.7	
Energy Sources (more than one may apply)								
Electricity	4,611	66,525	14.4	71,817	15.6	1.08	13.08	3.56
Natural Gas	2,657	44,994	16.9	51,785	19.5	1.15	12.15	4.58
Fuel Oil	560	13,215	23.6	17,748	31.7	1.34	12.32	8.35
District Heat	95	5,245	55.4	9,106	96.3	1.74	10.85	14.69
District Chilled Water	28	1,914	68.0	3,167	112.5	1.65	10.85	15.91
Propane	337	3,393	10.1	3,561	10.6	1.05	16.18	11.38
Any Other	163	1,551	9.5	992	6.1	0.64	14.78	13.92
Energy End Uses (more than one may apply)								
Heated Buildings	4,178	61,996	14.8	69,379	16.6	1.12	12.93	3.88
Buildings with A/C	3,502	57,041	16.3	66,430	19.0	1.16	13.20	3.98
Buildings with Water Heating	3,502	58,479	16.7	67,927	19.4	1.16	12.92	4.04
Buildings with Cooking	734	23,065	31.4	30,816	42.0	1.34	12.94	5.80
Buildings with Manufacturing	121	3,174	26.3	3,736	31.0	1.18	10.51	13.38
Workers (main shift)								
Less than 5	2,718	17,944	6.6	11,530	4.2	0.64	14.43	7.23
5 to 9	895	7,524	8.4	7,425	8.3	0.99	11.93	6.00
10 to 19	561	8,077	14.4	8,608	15.3	1.07	13.56	6.91
20 to 49	405	10,556	26.1	12,382	30.6	1.17	12.19	6.24
50 to 99	130	7,763	59.7	8,554	65.8	1.10	12.44	8.27
100 or More	96	16,011	167.1	23,323	243.4	1.46	13.47	6.24
Weekly Operating Hours								
39 or Fewer	1,039	8,246	7.9	3,233	3.1	0.39	11.63	6.76
40 to 48	1,278	14,998	11.7	13,455	10.5	0.90	13.31	5.59
49 to 60	1,004	14,046	14.0	12,678	12.6	0.90	13.57	5.54
61 to 84	645	12,062	18.7	13,532	21.0	1.12	14.07	7.16
85 to 167	478	8,467	17.7	12,026	25.1	1.42	14.34	7.87
Open Continuously	362	10,057	27.8	16,896	46.7	1.68	11.52	10.27
Ownership and Occupancy								
Nongovernment Owned	4,206	52,752	12.5	56,302	13.4	1.07	13.59	4.17
Owner Occupied	3,192	38,403	12.0	43,713	13.7	1.14	13.20	4.16
Single Establishment	2,864	29,992	10.5	34,881	12.2	1.16	12.68	4.83
Multiple Establishment	328	8,411	25.6	8,832	26.9	1.05	15.71	7.82
Nonowner Occupied	817	12,273	15.0	12,089	14.8	0.99	15.21	8.52
Single Establishment	495	5,565	11.2	5,623	11.4	1.01	13.80	14.90
Multiple Establishment	322	6,708	20.8	6,465	20.1	0.96	16.70	8.10
Vacant	197	2,077	10.5	500	2.5	0.24	13.89	19.24
Government Owned	599	15,124	25.2	15,519	25.9	1.03	11.52	6.40
Predominant Exterior Wall Material								
Masonry	3,115	48,585	15.6	51,397	16.5	1.06	12.80	4.18
Siding or Shingles	764	3,873	5.1	4,006	5.2	1.03	15.29	7.38
Metal Panels	745	7,392	9.9	5,861	7.9	0.79	11.61	10.52
Concrete Panels	87	4,961	56.7	5,841	66.8	1.18	14.33	11.88
Window Glass	46	2,028	43.6	3,347	72.0	1.65	17.17	15.65
Other	47	1,037	22.1	1,370	29.1	1.32	13.09	21.77
Predominant Roof Material								
Built-Up	1,642	30,257	18.4	34,687	21.1	1.15	13.38	5.18
Shingles (Not Wood)	1,381	10,570	7.7	9,813	7.1	0.93	13.37	6.78
Metal Surfacing	1,037	9,019	8.7	6,427	6.2	0.71	11.69	8.37
Synthetic or Rubber	386	11,702	30.3	14,644	38.0	1.25	12.57	6.82
Other	359	6,328	17.6	6,251	17.4	0.99	13.96	10.26

See footnotes at end of table.

Table 3.5. Expenditures for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Expenditures				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (million dollars)	per Building (thousand dollars)	per Square Foot (dollars)	per Million Btu (dollars)	
RSE Column Factor:	1.0	1.1	0.9	1.2	1.2	1.0	0.7	
Floors								
One	3,007	25,424	8.5	24,083	8.0	0.95	13.75	5.60
Two	1,154	18,025	15.6	18,040	15.6	1.00	13.86	4.94
Three	446	9,877	22.2	10,674	23.9	1.08	12.04	7.18
Four to Nine	186	10,377	55.7	12,623	67.8	1.22	11.35	9.01
Ten or More	13	4,173	319.7	6,402	490.5	1.53	14.58	12.04
Percent Window Glass								
25 or Less	4,193	51,356	12.2	49,909	11.9	0.97	12.78	4.36
26 to 50	490	11,815	24.1	14,726	30.0	1.25	13.22	5.81
51 to 75	94	3,206	34.2	4,580	48.8	1.43	14.68	10.47
76 to 100	29	1,499	52.6	2,606	91.4	1.74	16.23	17.32
Building Shape								
Square	280	3,654	13.0	3,842	13.7	1.05	13.71	9.16
Rectangle	3,659	39,233	10.7	41,205	11.3	1.05	13.35	4.25
Right Angle	333	6,071	18.2	5,483	16.5	0.90	13.74	6.90
Other	533	18,919	35.5	21,292	39.9	1.13	12.35	7.13
Energy-Related Space Functions (more than one may apply)								
Commercial Food Preparation	735	22,166	30.2	30,221	41.1	1.36	12.92	5.29
Computer Room	223	14,199	63.7	20,434	91.7	1.44	13.27	7.04
Rooms with Special Ventilation	236	8,042	34.0	11,678	49.4	1.45	11.29	8.01
Activities with Large Amounts of Hot Water	203	6,862	33.7	10,083	49.6	1.47	10.46	8.11
Space-Heating Energy Sources (more than one may apply)								
Electricity	1,513	25,636	16.9	29,489	19.5	1.15	15.24	6.09
Natural Gas	2,397	38,467	16.1	41,084	17.1	1.07	11.90	4.39
Fuel Oil	478	7,323	15.3	8,663	18.1	1.18	10.93	8.67
District Heat	91	5,130	56.2	8,820	96.6	1.72	11.11	11.61
Propane	255	1,568	6.2	1,300	5.1	0.83	22.09	12.40
Wood	102	504	5.0	263	2.6	0.52	16.43	14.71
Any Other	39	661	16.9	232	5.9	0.35	13.70	28.74
Cooling Energy Sources (more than one may apply)								
Electricity	3,404	54,628	16.0	63,077	18.5	1.15	13.36	3.99
Natural Gas	106	1,906	17.9	3,002	28.2	1.57	10.40	15.20
District Chilled Water	28	1,914	68.0	3,167	112.5	1.65	10.85	15.91
Water-Heating Energy Sources (more than one may apply)								
Electricity	1,696	25,482	15.0	26,508	15.6	1.04	14.73	5.90
Natural Gas	1,643	29,950	18.2	35,962	21.9	1.20	11.96	4.87
Fuel Oil	125	2,469	19.7	2,905	23.2	1.18	11.53	13.56
District Heat	36	3,292	90.8	5,995	165.3	1.82	11.05	14.47
Propane	80	659	8.2	717	9.0	1.09	23.09	21.18
Cooking Energy Sources (more than one may apply)								
Electricity	356	12,183	34.2	16,429	46.1	1.35	13.69	8.19
Natural Gas	430	15,204	35.3	20,650	48.0	1.36	12.17	6.06
Propane	70	1,039	14.9	1,332	19.1	1.28	17.77	16.57
Manufacturing Energy Sources (more than one may apply)								
Electricity	95	2,579	27.3	3,080	32.6	1.19	10.61	14.56
Natural Gas	22	799	36.7	960	44.1	1.20	7.57	24.10
Other	15	343	22.6	477	31.4	1.39	10.42	27.33

See footnotes at end of table.

Table 3.5. Expenditures for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Expenditures				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (million dollars)	per Building (thousand dollars)	per Square Foot (dollars)	per Million Btu (dollars)	
RSE Column Factor:	1.0	1.1	0.9	1.2	1.2	1.0	0.7	
Percent of Floorspace Heated								
Not Heated	628	5,880	9.4	2,442	3.9	0.42	19.42	14.71
1 to 50	713	11,525	16.2	7,115	10.0	0.62	15.24	8.20
51 to 99	618	10,211	16.5	12,165	19.7	1.19	13.75	7.08
100	2,846	40,260	14.1	50,099	17.6	1.24	12.49	4.22
Percent of Floorspace Cooled								
Not Cooled	1,304	10,835	8.3	5,391	4.1	0.50	11.78	7.67
1 to 50	1,176	21,715	18.5	15,648	13.3	0.72	11.61	5.04
51 to 99	658	13,872	21.1	19,454	29.6	1.40	13.59	6.74
100	1,668	21,454	12.9	31,328	18.8	1.46	13.91	5.93
Heating Equipment (more than one may apply)								
Heat Pumps	449	8,269	18.4	10,355	23.1	1.25	14.71	8.76
Furnaces	1,692	16,909	10.0	15,953	9.4	0.94	12.09	5.34
Individual Space Heaters	1,464	22,380	15.3	22,391	15.3	1.00	12.99	5.50
District Heat	93	5,225	55.9	9,008	96.4	1.72	10.86	11.40
Boilers	624	20,664	33.1	22,741	36.5	1.10	11.49	5.98
Packaged Heating Units	870	16,000	18.4	20,026	23.0	1.25	14.76	6.77
Other	42	903	21.2	2,049	48.2	2.27	11.96	23.31
Heating Distribution Equipment (more than one may apply)								
Radiators or Baseboards	473	13,263	28.0	14,793	31.3	1.12	10.73	6.08
Ducts for Heating	2,955	45,422	15.4	53,420	18.1	1.18	13.12	4.23
VAV System Used	210	11,528	54.8	16,354	77.7	1.42	12.80	9.32
Individual Space Heaters	1,464	22,380	15.3	22,391	15.3	1.00	12.99	5.50
Fan Coil Units or Other	276	8,457	30.7	11,132	40.4	1.32	10.77	7.72
Cooling Equipment (more than one may apply)								
Residential-Type Central A/C	816	9,021	11.0	9,791	12.0	1.09	10.91	7.72
Heat Pumps	454	8,406	18.5	10,729	23.7	1.28	14.26	8.46
Individual A/C	1,023	17,979	17.6	17,702	17.3	0.98	12.18	6.16
District Chilled Water	28	2,066	72.6	3,220	113.1	1.56	10.42	16.28
Central Chillers	142	12,991	91.5	18,581	130.9	1.43	12.54	8.68
Packaged A/C Units	1,459	27,830	19.1	34,931	23.9	1.26	13.90	4.93
Swamp Coolers	179	2,085	11.7	2,843	15.9	1.36	12.49	15.22
Other	8	268	35.0	249	Q	0.93	14.74	34.14
Cooling Distribution Equipment (more than one may apply)								
Ducts for Cooling	2,733	47,755	17.5	57,807	21.2	1.21	13.33	4.36
VAV System Used	221	12,430	56.2	18,366	83.0	1.48	13.20	8.49
Individual A/C	1,023	17,979	17.6	17,702	17.3	0.98	12.18	6.16
Fan Coil Units or Other	166	6,611	39.8	8,837	53.2	1.34	10.82	11.36
Water-Heating Equipment (more than one may apply)								
Centralized System	1,994	31,599	15.8	39,145	19.6	1.24	12.29	5.85
Distributed System	1,557	29,502	18.9	31,733	20.4	1.08	13.76	5.63
Energy Conservation Features (more than one may apply)								
Any Conservation Features	4,357	64,403	14.8	70,720	16.2	1.10	13.07	3.86
Building Shell	4,223	62,056	14.7	68,828	16.3	1.11	13.03	3.91
HVAC	2,604	50,281	19.3	60,920	23.4	1.21	12.97	4.14
Lighting	1,178	29,453	25.0	37,614	31.9	1.28	13.44	5.37
Other	264	5,952	22.6	6,921	26.3	1.16	12.53	7.56

See footnotes at end of table.

Table 3.5. Expenditures for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	All Buildings			Sum of Major Fuel Expenditures				RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (million dollars)	per Building (thousand dollars)	per Square Foot (dollars)	per Million Btu (dollars)	
RSE Column Factor:	1.0	1.1	0.9	1.2	1.2	1.0	0.7	
Energy Management Practices (more than one may apply)								
Energy Management and Control System	236	14,320	60.7	19,830	84.1	1.38	12.62	8.50
Demand-Side Management[1] Participation	315	11,310	35.9	15,493	49.2	1.37	11.68	7.39
Energy Audit	521	14,779	28.3	19,319	37.0	1.31	13.06	6.45
Building Energy Manager	49	2,311	46.8	3,156	64.0	1.37	10.64	15.52

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.6. Gross Expenditures Intensities for Sum of Major Fuels by Main Heating Fuel, 1992

(Dollars per Square Foot)

Building Characteristics	All Buildings	Buildings with Heat					Buildings Without Heat	RSE Row Factor
		All Heated Buildings	Main Heat					
			Electricity	Natural Gas	Fuel Oil	District Heat		
RSE Column Factor:	0.6	0.6	1.1	0.7	1.2	1.4	2.3	
All Buildings	1.06	1.12	1.16	1.06	1.01	1.76	0.42	7.50
Building Floorspace (square feet)								
1,001 to 5,000	1.44	1.62	2.03	1.62	1.11	Q	0.46	9.13
5,001 to 10,000	1.11	1.18	1.37	1.14	1.11	1.46	Q	12.74
10,001 to 25,000	0.98	1.06	1.02	1.08	0.88	1.59	0.18	11.07
25,001 to 50,000	0.98	1.06	1.20	0.95	0.84	2.11	Q	16.68
50,001 to 100,000	1.05	1.07	1.10	1.07	0.73	1.52	Q	13.19
100,001 to 200,000	0.87	0.92	1.09	0.80	1.08	1.53	Q	16.35
200,001 to 500,000	1.07	1.10	0.75	1.03	1.10	1.67	Q	20.21
Over 500,000	1.09	1.11	Q	1.03	Q	2.14	Q	23.86
Principal Building Activity								
Education	0.87	0.88	0.90	0.86	0.80	1.19	Q	9.37
Food Sales	3.16	3.17	3.21	3.11	Q	Q	Q	18.34
Food Service	2.87	2.92	3.76	2.93	Q	Q	Q	19.06
Health Care	2.12	2.13	1.48	2.12	Q	2.49	Q	17.05
Lodging	1.89	1.85	1.92	1.93	Q	1.85	Q	24.68
Mercantile and Service	1.04	1.05	1.15	1.05	0.96	Q	Q	10.54
Office	1.47	1.47	1.40	1.38	1.24	2.09	Q	11.89
Parking Garage	0.49	Q	Q	Q	Q	Q	0.29	36.06
Public Assembly	0.91	0.92	Q	1.00	Q	1.36	Q	29.41
Public Order and Safety	1.22	1.22	Q	0.98	Q	Q	Q	31.33
Religious Worship	0.35	0.35	0.43	0.34	0.33	Q	Q	14.94
Warehouse and Storage	0.59	0.66	0.64	0.63	1.09	Q	0.36	15.72
Other	1.73	1.82	Q	1.80	Q	1.95	Q	23.79
Vacant	0.36	0.50	0.44	0.54	Q	Q	Q	30.63
Year Constructed								
1899 or Before	0.84	0.86	Q	0.80	0.78	Q	Q	23.47
1900 to 1919	0.70	0.74	1.22	0.57	1.03	1.27	Q	23.99
1920 to 1945	0.86	0.96	0.84	0.95	0.88	1.45	0.11	16.43
1946 to 1959	0.94	1.00	1.02	0.90	1.17	1.79	0.44	15.48
1960 to 1969	1.15	1.20	1.11	1.15	1.03	1.89	0.63	12.60
1970 to 1979	1.17	1.25	1.31	1.25	0.97	1.62	0.37	11.42
1980 to 1989	1.18	1.22	1.17	1.21	1.03	2.34	0.61	17.91
1990 to 1992	1.08	1.15	1.06	1.19	Q	1.60	0.31	17.92
Census Region and Division								
Northeast	1.21	1.25	1.29	1.20	1.08	1.87	0.32	12.99
New England	1.24	1.26	1.30	1.65	1.01	1.34	Q	13.84
Middle Atlantic	1.20	1.24	1.29	1.13	1.13	2.08	0.34	16.87
Midwest	0.98	1.02	0.97	0.97	0.66	1.70	Q	13.69
East North Central	1.03	1.08	1.05	1.01	0.46	1.89	0.19	13.37
West North Central	0.90	0.93	0.84	0.88	Q	1.44	Q	19.52
South	0.93	1.01	1.05	0.98	0.90	1.63	0.32	12.06
South Atlantic	1.03	1.10	1.09	1.15	0.96	1.90	0.43	13.91
East South Central	0.88	0.97	1.16	0.88	Q	1.52	0.41	11.69
West South Central	0.84	0.93	Q	0.90	Q	1.33	0.12	22.65
West	1.25	1.32	1.50	1.23	Q	1.82	0.71	16.37
Mountain	1.20	1.26	1.37	1.04	Q	Q	Q	27.94
Pacific	1.27	1.35	1.57	1.31	Q	1.49	0.78	14.36
Climate Zone: 45-Year Average								
Fewer than 2,000 CDD and --								
More than 7,000 HDD	0.85	0.88	1.17	0.82	0.84	1.05	Q	13.88
5,500-7,000 HDD	1.08	1.13	1.13	1.05	1.05	1.73	0.20	11.90
4,000-5,499 HDD	1.05	1.10	1.16	1.01	1.05	2.03	0.41	11.89
Fewer than 4,000 HDD	1.14	1.23	1.35	1.19	Q	1.67	0.45	12.85
More than 2,000 CDD and --								
Fewer than 4,000 HDD	1.02	1.11	1.04	1.11	Q	1.96	0.45	21.59

See footnotes at end of table.

Table 3.6. Gross Expenditures Intensities for Sum of Major Fuels by Main Heating Fuel, 1992 (Continued)

(Dollars per Square Foot)

Building Characteristics	All Buildings	Buildings with Heat					Buildings Without Heat	RSE Row Factor
		All Heated Buildings	Main Heat					
			Electricity	Natural Gas	Fuel Oil	District Heat		
RSE Column Factor:	0.6	0.6	1.1	0.7	1.2	1.4	2.3	
Energy Sources (more than one may apply)								
Electricity	1.08	1.12	1.16	1.06	1.01	1.76	0.54	6.17
Natural Gas	1.15	1.15	1.42	1.06	1.22	1.94	Q	8.76
Fuel Oil	1.34	1.35	1.41	1.54	1.01	1.98	Q	9.87
District Heat	1.74	1.74	Q	Q	Q	1.76	Q	12.09
District Chilled Water	1.65	1.64	1.58	Q	Q	1.74	Q	22.02
Propane	1.05	1.05	1.28	1.31	1.02	Q	Q	15.75
Any Other	0.64	0.63	Q	0.95	Q	Q	Q	28.97
Energy End Uses (more than one may apply)								
Heated Buildings	1.12	1.12	1.16	1.06	1.01	1.76	Q	7.28
Buildings with A/C	1.16	1.17	1.20	1.10	1.07	1.83	1.02	7.95
Buildings with Water Heating	1.16	1.16	1.20	1.09	1.06	1.78	1.38	8.57
Buildings with Cooking	1.34	1.34	1.35	1.29	1.17	1.88	Q	10.80
Buildings with Manufacturing	1.18	1.17	1.32	1.11	1.70	1.14	Q	24.03
Workers (main shift)								
Less than 5	0.64	0.78	0.88	0.72	0.66	2.48	0.21	16.37
5 to 9	0.99	1.03	1.03	1.01	1.08	1.37	Q	10.84
10 to 19	1.07	1.08	1.14	1.05	1.11	1.32	Q	14.20
20 to 49	1.17	1.16	1.44	1.05	1.19	1.67	Q	13.60
50 to 99	1.10	1.08	1.33	1.02	0.94	1.31	Q	14.49
100 or More	1.46	1.46	1.32	1.40	1.25	1.95	Q	12.15
Weekly Operating Hours								
39 or Fewer	0.39	0.50	0.51	0.50	0.51	Q	0.12	12.38
40 to 48	0.90	0.94	0.99	0.87	0.86	1.69	0.48	9.35
49 to 60	0.90	0.94	1.03	0.83	1.09	1.68	0.34	11.41
61 to 84	1.12	1.15	1.04	1.15	1.22	1.83	0.55	12.36
85 to 167	1.42	1.42	1.72	1.36	Q	1.69	Q	15.66
Open Continuously	1.68	1.75	Q	1.94	1.66	1.93	Q	20.68
Ownership and Occupancy								
Nongovernment Owned	1.07	1.14	1.20	1.09	1.00	1.89	0.43	8.97
Owner Occupied	1.14	1.19	1.34	1.11	1.06	1.87	0.54	8.27
Single Establishment	1.16	1.22	1.42	1.15	1.01	1.92	0.53	9.42
Multiple Establishment	1.05	1.07	1.11	0.96	1.29	1.71	Q	13.89
Nonowner Occupied	0.99	1.03	0.94	1.06	0.88	2.05	0.45	18.50
Single Establishment	1.01	1.06	Q	1.22	0.92	Q	0.48	27.17
Multiple Establishment	0.96	1.00	0.96	0.95	Q	2.33	0.41	16.12
Vacant	0.24	0.43	Q	0.47	Q	Q	0.12	42.39
Government Owned	1.03	1.06	0.90	0.99	1.03	1.60	0.34	11.43
Predominant Exterior Wall Material								
Masonry	1.06	1.11	1.15	1.06	1.02	1.66	0.36	9.61
Siding or Shingles	1.03	1.12	1.32	1.08	1.06	Q	0.56	17.02
Metal Panels	0.79	0.90	0.88	0.88	0.81	Q	0.43	14.72
Concrete Panels	1.18	1.24	1.18	1.14	Q	1.74	0.25	23.08
Window Glass	1.65	1.73	1.50	1.59	Q	2.51	Q	21.34
Other	1.32	1.32	1.49	1.22	Q	Q	Q	36.21
Predominant Roof Material								
Built-Up	1.15	1.18	1.18	1.13	1.09	1.84	0.60	10.88
Shingles (Not Wood)	0.93	0.98	1.20	0.87	0.87	1.93	0.29	13.65
Metal Surfacing	0.71	0.83	0.88	0.82	0.77	1.48	0.26	14.08
Synthetic or Rubber	1.25	1.27	1.35	1.23	1.23	1.58	Q	12.38
Other	0.99	1.09	1.15	0.92	0.64	1.77	0.47	21.19

See footnotes at end of table.

Table 3.6. Gross Expenditures Intensities for Sum of Major Fuels by Main Heating Fuel, 1992 (Continued)

(Dollars per Square Foot)

Building Characteristics	All Buildings	Buildings with Heat					Buildings Without Heat	RSE Row Factor
		All Heated Buildings	Main Heat					
			Electricity	Natural Gas	Fuel Oil	District Heat		
RSE Column Factor:	0.6	0.6	1.1	0.7	1.2	1.4	2.3	
Floors								
One	0.95	1.04	1.07	1.03	1.07	1.59	0.33	13.21
Two	1.00	1.03	1.22	1.00	0.83	1.36	0.45	11.49
Three	1.08	1.11	1.57	0.99	1.00	1.61	Q	12.05
Four to Nine	1.22	1.28	1.04	1.30	0.95	1.60	0.57	14.95
Ten or More	1.53	1.58	1.13	1.46	Q	2.35	Q	13.09
Percent Window Glass								
25 or Less	0.97	1.04	1.06	1.00	1.02	1.63	0.39	9.27
26 to 50	1.25	1.26	1.38	1.21	0.91	1.77	Q	12.47
51 to 75	1.43	1.43	1.69	1.21	1.16	1.88	Q	14.42
76 to 100	1.74	1.75	1.32	1.77	Q	2.66	Q	20.07
Building Shape								
Square	1.05	1.20	1.76	1.02	Q	1.69	0.30	18.26
Rectangle	1.05	1.14	1.18	1.07	1.09	1.76	0.36	8.32
Right Angle	0.90	0.93	1.04	0.83	1.18	1.53	Q	16.52
Other	1.13	1.13	1.05	1.13	0.83	1.82	Q	13.05
Energy-Related Space Functions (more than one may apply)								
Commercial Food Preparation	1.36	1.37	1.48	1.29	1.17	1.88	Q	7.96
Computer Room	1.44	1.44	1.45	1.41	1.13	1.93	Q	10.98
Rooms with Special Ventilation	1.45	1.45	1.63	1.31	1.03	1.95	Q	10.82
Activities with Large Amounts of Hot Water	1.47	1.47	1.49	1.41	1.31	1.83	Q	13.40
Space-Heating Energy Sources (more than one may apply)								
Electricity	1.15	1.15	1.16	1.12	0.99	2.13	Q	11.63
Natural Gas	1.07	1.07	1.12	1.06	1.05	1.98	Q	8.55
Fuel Oil	1.18	1.18	Q	1.54	1.01	Q	Q	10.85
District Heat	1.72	1.72	Q	Q	Q	1.76	Q	14.11
Propane	0.83	0.83	Q	Q	Q	Q	Q	21.43
Wood	0.52	0.52	Q	Q	Q	Q	Q	21.65
Any Other	0.35	0.35	Q	Q	Q	Q	Q	44.18
Cooling Energy Sources (more than one may apply)								
Electricity	1.15	1.16	1.19	1.11	1.08	1.79	1.00	8.11
Natural Gas	1.57	1.57	Q	1.51	Q	Q	Q	35.56
District Chilled Water	1.65	1.64	1.58	Q	Q	1.74	Q	22.02
Water-Heating Energy Sources (more than one may apply)								
Electricity	1.04	1.04	1.09	0.99	1.00	1.20	Q	10.29
Natural Gas	1.20	1.19	1.61	1.13	1.03	2.05	Q	10.29
Fuel Oil	1.18	1.18	Q	Q	1.07	Q	Q	19.67
District Heat	1.82	1.82	Q	Q	Q	1.83	Q	16.29
Propane	1.09	1.10	Q	Q	Q	Q	Q	32.95
Cooking Energy Sources (more than one may apply)								
Electricity	1.35	1.34	1.30	1.33	1.19	1.85	Q	17.87
Natural Gas	1.36	1.37	1.45	1.30	1.18	2.03	Q	10.33
Propane	1.28	1.29	1.45	Q	1.18	Q	Q	22.85

See footnotes at end of table.

Table 3.6. Gross Expenditures Intensities for Sum of Major Fuels by Main Heating Fuel, 1992 (Continued)

(Dollars per Square Foot)

Building Characteristics	All Buildings	Buildings with Heat					Buildings Without Heat	RSE Row Factor
		All Heated Buildings	Main Heat					
			Electricity	Natural Gas	Fuel Oil	District Heat		
RSE Column Factor:	0.6	0.6	1.1	0.7	1.2	1.4	2.3	
Manufacturing Energy Sources (more than one may apply)								
Electricity	1.19	1.19	1.37	1.13	Q	Q	Q	26.44
Natural Gas	1.20	1.19	Q	1.21	Q	Q	Q	36.57
Other	1.39	1.42	Q	Q	Q	Q	Q	49.28
Percent of Floorspace Heated								
Not Heated	0.42	Q	Q	Q	Q	Q	0.42	18.38
1 to 50	0.62	0.62	0.62	0.62	0.68	Q	Q	14.43
51 to 99	1.19	1.19	1.39	1.08	1.07	1.73	Q	14.95
100	1.24	1.24	1.34	1.17	1.05	1.84	Q	7.80
Percent of Floorspace Cooled								
Not Cooled	0.50	0.66	0.56	0.63	0.75	1.19	0.30	14.32
1 to 50	0.72	0.72	0.61	0.69	0.90	1.40	0.64	10.51
51 to 99	1.40	1.40	1.44	1.31	1.36	1.87	Q	13.98
100	1.46	1.46	1.42	1.41	1.21	2.11	Q	11.05
Heating Equipment (more than one may apply)								
Heat Pumps	1.25	1.25	1.27	1.22	1.11	2.29	Q	13.34
Furnaces	0.94	0.94	1.13	0.91	0.95	Q	Q	8.55
Individual Space Heaters	1.00	1.00	1.08	0.95	0.99	1.82	Q	9.52
District Heat	1.72	1.72	Q	Q	Q	1.76	Q	13.53
Boilers	1.10	1.10	Q	1.15	1.08	Q	Q	9.90
Packaged Heating Units	1.25	1.25	1.32	1.21	Q	2.10	Q	12.63
Other	2.27	2.27	1.81	2.63	Q	Q	Q	35.23
Heating Distribution Equipment (more than one may apply)								
Radiators or Baseboards	1.12	1.12	1.20	1.00	1.03	1.71	Q	11.32
Ducts for Heating	1.18	1.18	1.18	1.12	1.03	1.93	Q	8.24
VAV System Used	1.42	1.42	1.19	1.38	1.28	2.03	Q	18.99
Individual Space Heaters	1.00	1.00	1.08	0.95	0.99	1.82	Q	9.52
Fan Coil Units or Other	1.32	1.32	1.44	1.18	1.32	1.78	Q	13.77
Cooling Equipment (more than one may apply)								
Residential-Type Central A/C	1.09	1.08	1.15	1.02	1.09	1.66	Q	13.18
Heat Pumps	1.28	1.28	1.30	1.24	1.04	2.41	Q	13.28
Individual A/C	0.98	0.99	1.03	0.89	1.04	1.65	0.76	13.80
District Chilled Water	1.56	1.55	1.58	Q	Q	1.74	Q	23.18
Central Chillers	1.43	1.45	1.06	1.48	1.59	2.00	Q	15.57
Packaged A/C Units	1.26	1.25	1.36	1.20	1.16	1.80	1.28	9.27
Swamp Coolers	1.36	1.38	1.20	1.46	Q	Q	Q	20.63
Other	0.93	0.93	Q	Q	Q	Q	Q	79.61
Cooling Distribution Equipment (more than one may apply)								
Ducts for Cooling	1.21	1.21	1.24	1.14	1.13	1.89	1.20	8.82
VAV System Used	1.48	1.48	1.35	1.43	1.27	1.95	Q	15.13
Individual A/C	0.98	0.99	1.03	0.89	1.04	1.65	0.76	13.80
Fan Coil Units or Other	1.34	1.36	1.01	1.38	1.38	1.78	Q	15.60
Water-Heating Equipment (more than one may apply)								
Centralized System	1.24	1.24	1.25	1.16	1.11	1.87	Q	10.38
Distributed System	1.08	1.07	1.12	1.02	0.99	1.58	1.99	11.90

See footnotes at end of table.

Table 3.6. Gross Expenditures Intensities for Sum of Major Fuels by Main Heating Fuel, 1992 (Continued)

(Dollars per Square Foot)

Building Characteristics	All Buildings	Buildings with Heat					Buildings Without Heat	RSE Row Factor
		All Heated Buildings	Main Heat					
			Electricity	Natural Gas	Fuel Oil	District Heat		
RSE Column Factor:	0.6	0.6	1.1	0.7	1.2	1.4	2.3	
Energy Conservation Features (more than one may apply)								
Any Conservation Features	1.10	1.13	1.18	1.07	1.01	1.77	0.61	7.38
Building Shell	1.11	1.13	1.19	1.07	1.01	1.79	0.63	7.61
HVAC	1.21	1.21	1.25	1.15	1.05	1.78	1.13	8.23
Lighting	1.28	1.29	1.27	1.21	1.10	2.00	0.89	12.13
Other	1.16	1.19	1.24	1.12	1.21	1.55	Q	12.87
Energy Management Practices (more than one may apply)								
Energy Management and Control System	1.38	1.38	1.19	1.36	1.44	1.77	Q	14.89
Demand-Side Management[1] Participation	1.37	1.37	1.41	1.30	1.19	1.75	Q	10.02
Energy Audit	1.31	1.33	1.35	1.25	1.15	1.89	Q	11.57
Building Energy Manager	1.37	1.37	1.46	1.50	Q	1.37	Q	22.80

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.7. Consumption and Gross Energy Intensity by Census Region for Sum of Major Fuels, 1992

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.0	1.0	1.2	1.3	1.0	0.9	0.9	0.9	0.9	0.7	1.2	1.1	
All Buildings	1,090	1,578	1,825	998	13,400	17,280	24,577	12,619	81.3	91.3	74.3	79.1	7.50
Building Floorspace (square feet)													
1,001 to 5,000	104	180	287	132	1,074	1,889	3,155	1,208	97.0	95.2	90.8	109.1	11.87
5,001 to 10,000	101	148	164	142	1,337	1,763	2,723	1,376	75.5	83.7	60.4	103.4	11.59
10,001 to 25,000	126	238	328	174	1,663	2,689	3,782	2,241	75.8	88.3	86.6	77.4	13.91
25,001 to 50,000	161	188	298	146	1,976	2,353	3,696	2,043	81.7	79.8	80.7	71.5	17.88
50,001 to 100,000	161	175	179	127	1,752	2,097	2,842	1,371	92.2	83.4	63.0	92.6	15.09
100,001 to 200,000	104	203	191	143	1,598	2,048	3,720	2,311	64.9	99.1	51.4	61.7	16.53
200,001 to 500,000	153	288	168	102	1,696	2,839	1,968	1,386	90.4	101.3	85.1	73.7	19.61
Over 500,000	178	160	210	32	2,303	1,601	2,691	683	77.5	99.6	Q	47.5	30.19
Principal Building Activity													
Education	171	195	156	114	1,968	2,386	2,620	1,496	87.1	81.6	59.7	76.4	12.89
Food Sales	Q	35	42	43	Q	182	245	209	Q	193.8	173.1	204.4	22.82
Food Service	58	93	86	70	445	432	407	208	129.7	215.7	211.8	338.7	20.10
Health Care	86	141	136	40	386	487	597	292	223.8	289.8	226.8	136.1	21.91
Lodging	102	88	148	125	616	577	1,043	654	165.8	152.2	142.0	190.5	25.26
Mercantile and Service	178	254	304	157	2,798	3,156	4,233	2,214	63.5	80.6	71.7	70.7	16.03
Office	224	299	482	243	2,525	2,804	4,152	2,838	88.8	106.5	116.0	85.5	13.52
Parking Garage	Q	Q	7	Q	Q	Q	Q	272	Q	Q	Q	31.9	39.09
Public Assembly	58	74	119	59	777	861	2,269	649	74.5	85.6	Q	91.0	22.03
Public Order and Safety	31	Q	23	Q	269	Q	238	Q	116.7	Q	98.2	Q	28.96
Religious Worship	16	39	34	19	452	1,137	1,366	792	35.1	34.5	25.1	24.5	19.80
Warehouse and Storage	89	214	175	49	1,763	3,108	4,964	1,649	50.3	69.0	35.2	29.6	21.86
Other	24	43	Q	30	199	301	383	248	121.9	142.6	227.8	121.3	32.20
Vacant	Q	42	24	37	708	1,043	1,604	1,041	38.7	40.6	15.2	35.8	28.25
Year Constructed													
1899 or Before	49	41	Q	Q	676	720	167	Q	71.9	56.6	Q	Q	23.41
1900 to 1919	79	75	26	33	1,052	1,246	788	522	75.3	60.5	33.1	62.6	27.38
1920 to 1945	172	240	187	67	2,655	2,296	2,646	1,115	64.8	104.5	70.8	59.9	19.18
1946 to 1959	148	215	291	146	2,070	2,629	3,898	1,825	71.6	81.9	74.6	80.0	16.54
1960 to 1969	243	305	381	196	2,485	2,652	4,914	2,562	97.9	115.0	77.5	76.3	16.14
1970 to 1979	198	348	450	264	2,123	4,086	4,940	2,865	93.5	85.2	91.2	92.2	13.97
1980 to 1989	172	304	418	239	2,053	2,982	6,317	2,934	83.8	101.9	66.2	81.5	17.38
1990 to 1992	28	49	55	41	286	670	906	639	96.7	73.7	61.0	64.0	22.39
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	350	Q	59	Q	4,081	Q	Q	80.8	85.8	Q	84.3	18.30
5,500-7,000 HDD	562	919	Q	160	6,924	9,401	Q	1,699	81.2	97.8	Q	94.3	13.13
4,000-5,499 HDD	460	308	396	110	5,634	3,799	4,981	1,748	81.6	81.2	79.6	63.1	14.00
Fewer than 4,000 HDD	Q	Q	654	524	Q	Q	8,226	7,026	Q	Q	79.5	74.6	15.48
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	775	144	Q	Q	11,371	1,446	Q	Q	68.2	Q	18.57
Energy Sources (more than one may apply)													
Electricity	1,090	1,577	1,825	998	13,235	16,902	23,972	12,415	82.3	93.3	76.1	80.4	7.12
Natural Gas	756	1,346	1,317	845	8,559	13,775	13,361	9,299	88.4	97.7	98.5	90.9	9.26
Fuel Oil	532	344	423	142	5,535	2,543	3,579	1,557	96.0	135.4	118.1	91.1	13.99
District Heat	218	336	162	124	1,559	1,884	890	912	139.7	178.1	182.4	135.8	21.74
District Chilled Water	39	97	98	58	302	532	659	421	128.5	182.0	149.0	138.3	31.29
Propane	84	33	82	20	1,041	579	1,514	260	81.0	57.2	54.3	78.9	23.92
Any Other	22	12	13	20	444	254	446	407	50.2	48.2	28.8	Q	31.54
Energy End Uses (more than one may apply)													
Heated Buildings	1,084	1,557	1,773	950	12,858	16,303	21,659	11,176	84.3	95.5	81.8	85.0	7.69
Buildings with A/C	973	1,424	1,743	893	11,158	14,383	21,205	10,296	87.2	99.0	82.2	86.7	8.03
Buildings with Water Heating	1,062	1,539	1,700	958	12,410	15,460	19,592	11,017	85.6	99.5	86.8	87.0	7.84
Buildings with Cooking	589	684	707	403	5,740	5,800	7,768	3,757	102.5	117.9	91.0	107.2	11.53
Buildings with Manufacturing	84	93	138	41	756	895	1,039	484	111.4	103.4	133.2	83.8	30.05

See footnotes at end of table.

Table 3.7. Consumption and Gross Energy Intensity by Census Region for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.0	1.0	1.2	1.3	1.0	0.9	0.9	0.9	0.9	0.7	1.2	1.1	
Workers (main shift)													
Less than 5	127	231	283	159	2,708	4,747	7,676	2,813	46.8	48.6	36.8	56.5	13.48
5 to 9	98	191	245	87	1,328	1,867	3,013	1,316	74.0	102.4	81.4	66.4	15.54
10 to 19	118	147	229	140	1,367	1,871	3,266	1,573	86.6	78.8	70.1	89.0	18.15
20 to 49	187	254	377	198	2,014	2,521	3,818	2,204	92.7	100.9	98.8	89.6	14.42
50 to 99	150	199	203	135	1,899	2,002	2,286	1,577	78.8	99.5	89.0	85.7	17.21
100 or More	410	555	487	279	4,085	4,272	4,519	3,135	100.4	129.9	107.9	89.0	13.70
Weekly Operating Hours													
39 or Fewer	64	97	83	34	1,400	2,454	3,278	1,114	45.7	39.4	25.3	31.0	16.03
40 to 48	166	277	407	161	2,272	3,446	6,543	2,738	72.9	80.5	62.2	58.8	12.34
49 to 60	167	250	320	197	2,622	3,474	5,002	2,948	63.7	71.9	64.1	66.9	14.10
61 to 84	190	314	284	175	2,578	3,212	3,795	2,477	73.5	97.6	74.8	70.6	15.58
85 to 167	221	226	207	185	2,486	2,217	1,938	1,826	88.8	101.9	106.9	101.2	15.21
Open Continuously	283	415	524	245	2,042	2,477	4,021	1,517	138.4	167.4	130.3	161.8	18.62
Ownership and Occupancy													
Nongovernment Owned	771	1,169	1,420	784	9,978	13,127	19,480	10,167	77.2	89.1	72.9	77.1	8.09
Owner Occupied	636	989	1,089	598	7,311	10,421	13,503	7,168	87.0	94.9	80.7	83.5	8.08
Single Establishment	507	804	959	481	5,261	7,996	11,466	5,269	96.4	100.5	83.6	91.3	10.01
Multiple Establishment	129	185	131	117	2,050	2,424	2,038	1,899	62.8	76.5	64.1	61.8	16.97
Nonowner Occupied	132	173	318	171	2,350	2,211	5,177	2,534	56.3	78.3	61.4	67.5	20.72
Single Establishment	58	75	203	71	1,025	886	2,586	1,068	56.4	84.8	Q	66.7	29.91
Multiple Establishment	75	98	115	100	1,326	1,325	2,591	1,466	56.2	73.9	44.2	68.2	19.57
Vacant	Q	7	Q	Q	316	495	800	465	Q	13.7	Q	Q	32.80
Government Owned	319	409	405	214	3,422	4,153	5,097	2,452	93.2	98.4	79.5	87.3	14.48
Predominant Exterior Wall Material													
Masonry	836	1,167	1,321	693	9,981	12,914	17,174	8,517	83.7	90.3	76.9	81.3	8.73
Siding or Shingles	60	73	61	68	1,008	1,017	1,052	796	59.7	71.9	58.1	84.8	16.17
Metal Panels	54	125	269	57	930	1,774	3,900	789	58.5	70.3	68.9	72.3	19.64
Concrete Panels	93	91	93	131	1,003	741	1,461	1,755	Q	122.4	63.7	74.4	23.38
Window Glass	35	Q	59	27	372	524	709	423	93.6	141.3	83.5	63.4	28.80
Other	11	Q	Q	Q	106	310	281	Q	106.8	155.7	Q	Q	34.85
Predominant Roof Material													
Built-Up	417	630	971	575	4,889	6,375	11,653	7,341	85.3	98.9	83.3	78.4	11.05
Shingles (Not Wood)	154	235	221	123	2,434	3,213	3,168	1,755	63.4	73.2	69.8	70.3	14.16
Metal Surfacing	37	154	292	66	853	2,064	5,098	1,004	43.5	74.8	57.3	66.0	17.78
Synthetic or Rubber	379	468	214	105	3,757	4,318	2,615	1,012	100.9	108.4	81.8	103.3	13.14
Other	102	90	127	128	1,466	1,311	2,045	1,507	69.6	68.6	62.3	85.2	21.80
Percent Window Glass													
25 or Less	667	1,129	1,450	658	8,988	13,026	20,229	9,113	74.3	86.6	71.7	72.2	8.92
26 to 50	320	285	245	265	3,478	2,852	2,872	2,613	91.9	100.0	85.2	101.3	13.59
51 to 75	76	92	89	55	701	932	943	630	108.1	98.5	94.4	87.7	21.26
76 to 100	27	Q	42	20	232	470	534	263	115.1	153.6	77.9	76.3	25.61
Building Shape													
Square	53	95	76	56	638	870	1,172	974	83.8	109.3	64.4	57.6	20.80
Rectangle	482	873	1,121	611	6,638	10,207	14,942	7,446	72.7	85.5	75.0	82.1	9.57
Right Angle	105	117	99	78	1,533	1,452	1,987	1,099	68.3	80.7	49.9	70.9	15.79
Other	449	492	530	253	4,591	4,751	6,476	3,100	97.8	103.6	81.8	81.5	13.61
Space-Heating Energy Sources (more than one may apply)													
Electricity	346	404	771	415	4,505	4,673	11,185	5,273	76.7	86.4	68.9	78.8	12.60
Natural Gas	561	1,153	1,103	636	6,871	12,289	11,563	7,744	81.6	93.8	95.4	82.2	9.78
Fuel Oil	402	173	198	Q	4,228	1,225	1,618	Q	95.2	141.4	122.2	Q	18.19
District Heat	217	307	151	119	1,555	1,858	849	869	139.6	165.1	178.0	136.8	19.67
Propane	23	12	21	Q	329	355	791	Q	69.6	33.7	27.1	Q	26.61
Wood	Q	3	4	Q	Q	140	168	Q	Q	21.5	23.6	Q	35.12
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.7. Consumption and Gross Energy Intensity by Census Region for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.0	1.0	1.2	1.3	1.0	0.9	0.9	0.9	0.9	0.7	1.2	1.1	
Cooling Energy Sources (more than one may apply)													
Electricity	931	1,302	1,671	818	10,729	13,544	20,609	9,747	86.8	96.2	81.1	83.9	8.08
Natural Gas	37	92	Q	60	320	512	420	654	115.7	180.4	Q	92.1	30.70
District Chilled Water	39	97	98	58	302	532	659	421	128.5	182.0	149.0	138.3	31.29
Water-Heating Energy Sources (more than one may apply)													
Electricity	281	414	809	296	4,366	5,643	11,302	4,171	64.3	73.3	71.6	70.9	12.43
Natural Gas	515	976	853	664	5,607	9,150	8,476	6,717	91.8	106.6	100.6	98.8	10.38
Fuel Oil	202	Q	Q	Q	2,157	Q	169	Q	93.4	Q	126.9	Q	22.95
District Heat	148	234	96	65	990	1,271	449	582	149.2	184.1	213.6	111.7	23.90
Propane	Q	Q	8	Q	225	Q	198	Q	Q	Q	42.3	Q	38.45
Cooking Energy Sources (more than one may apply)													
Electricity	295	347	360	198	2,963	2,832	4,287	2,101	99.6	122.6	84.0	94.1	15.60
Natural Gas	408	525	447	316	3,891	4,388	4,296	2,628	104.9	119.7	104.1	120.2	13.47
Propane	38	Q	28	Q	510	Q	377	Q	73.6	Q	75.3	Q	27.40
Percent of Floorspace Heated													
Not Heated	5	Q	Q	48	542	978	2,918	1,443	9.7	Q	17.9	33.0	29.95
1 to 50	116	88	161	102	2,583	2,177	4,480	2,285	44.9	40.3	36.0	44.6	21.87
51 to 99	198	177	274	235	2,114	2,249	3,107	2,740	93.8	78.7	88.2	85.9	15.85
100	770	1,292	1,337	613	8,161	11,876	14,073	6,151	94.4	108.8	95.0	99.7	7.96
Percent of Floorspace Cooled													
Not Cooled	117	154	82	105	2,242	2,898	3,372	2,323	52.1	53.1	24.3	45.2	17.80
1 to 50	413	468	322	145	5,640	6,318	6,482	3,275	73.2	74.1	49.7	44.2	11.90
51 to 99	307	493	388	244	3,049	3,825	4,097	2,902	100.6	128.9	94.7	84.1	13.26
100	253	463	1,033	504	2,469	4,240	10,627	4,118	102.5	109.1	97.2	122.4	12.21
Heating Equipment (more than one may apply)													
Heat Pumps	128	110	317	150	1,328	1,324	3,632	1,985	96.1	83.0	87.2	75.4	17.95
Furnaces	235	461	452	172	3,268	5,579	4,971	3,092	72.0	82.5	90.9	55.7	12.78
Individual Space Heaters	394	509	577	244	4,907	6,187	7,642	3,643	80.3	82.2	75.4	67.0	12.01
District Heat	217	312	180	120	1,553	1,869	927	875	139.8	166.8	194.3	137.1	20.11
Boilers	523	655	534	267	6,192	6,478	5,404	2,590	84.4	101.2	98.7	103.0	11.85
Packaged Heating Units	253	325	471	308	2,890	3,033	6,440	3,637	87.5	107.1	73.2	84.6	14.09
Other	24	36	Q	Q	180	205	309	Q	132.3	174.2	Q	Q	32.10
Heating Distribution Equipment (more than one may apply)													
Radiators or Baseboards	533	564	170	112	5,615	5,134	1,518	995	95.0	109.8	111.8	112.4	13.98
Ducts for Heating	668	1,175	1,463	767	7,503	11,681	17,131	9,107	89.0	100.6	85.4	84.2	8.91
VAV System Used	266	426	361	226	2,353	3,368	3,283	2,523	112.9	126.3	110.0	89.4	17.99
Individual Space Heaters	394	509	577	244	4,907	6,187	7,642	3,643	80.3	82.2	75.4	67.0	12.01
Fan Coil Units or Other	247	341	301	145	2,033	2,857	2,112	1,455	121.6	119.2	142.4	99.6	16.08
Cooling Equipment (more than one may apply)													
Residential-Type Central A/C	164	242	402	90	1,508	2,968	3,455	1,091	108.9	81.6	116.2	82.4	15.67
Heat Pumps	120	147	324	161	1,286	1,416	3,745	1,959	93.6	103.7	86.6	82.2	17.94
Individual A/C	501	441	401	111	5,806	4,723	5,683	1,767	86.3	93.5	70.5	62.6	15.32
District Chilled Water	39	114	98	58	302	684	659	421	128.6	166.5	148.9	138.3	32.36
Central Chillers	282	426	528	245	2,519	3,163	4,854	2,456	112.1	134.7	108.7	100.0	16.28
Packaged A/C Units	542	688	811	472	5,879	6,564	10,058	5,329	92.2	104.8	80.6	88.7	10.10
Swamp Coolers	Q	Q	Q	131	Q	Q	335	1,546	Q	Q	Q	84.7	21.88
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.7. Consumption and Gross Energy Intensity by Census Region for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.0	1.0	1.2	1.3	1.0	0.9	0.9	0.9	0.9	0.7	1.2	1.1	
Cooling Distribution Equipment (more than one may apply)													
Ducts for Cooling	738	1,209	1,566	824	8,174	11,757	18,825	8,999	90.3	102.8	83.2	91.6	8.50
VAV System Used	279	458	395	259	2,294	3,798	3,697	2,640	121.5	120.6	106.9	98.3	15.83
Individual A/C	501	441	401	111	5,806	4,723	5,683	1,767	86.3	93.5	70.5	62.6	15.32
Fan Coil Units or Other	171	253	266	126	1,516	1,649	1,828	1,618	112.7	153.7	145.7	78.1	20.28
Water-Heating Equipment (more than one may apply)													
Centralized System	719	961	969	536	7,854	9,002	9,298	5,445	91.5	106.8	104.2	98.4	10.83
Distributed System	365	642	843	455	4,792	7,009	11,836	5,866	76.2	91.7	71.2	77.6	12.37
Energy Conservation Features (more than one may apply)													
Any Conservation Features	1,084	1,538	1,796	993	12,891	16,619	22,659	12,234	84.1	92.5	79.3	81.1	7.54
Building Shell	1,065	1,509	1,745	965	12,612	16,031	21,758	11,655	84.5	94.1	80.2	82.8	7.57
HVAC	990	1,329	1,510	870	10,840	13,100	16,864	9,477	91.3	101.4	89.5	91.8	7.81
Lighting	631	782	805	581	6,727	7,790	8,307	6,628	93.8	100.4	96.9	87.7	10.50
Other	176	166	128	82	1,626	1,575	1,757	993	108.1	105.6	72.9	82.6	16.09
Energy Management Practices (more than one may apply)													
Energy Management and Control System	269	548	464	291	2,474	4,359	4,506	2,981	108.6	125.6	102.9	97.7	14.50
Demand-Side Management[1] Participation	377	373	389	188	3,436	3,279	2,600	1,994	109.8	113.7	149.5	94.1	14.93
Energy Audit	398	441	384	256	4,136	3,944	3,810	2,890	96.3	111.9	100.7	88.6	12.24
Building Energy Manager	55	70	126	45	340	647	966	359	163.1	108.4	130.9	124.6	27.73

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.8. Expenditures by Census Region for Sum of Major Fuels, 1992

Building Characteristics	Sum of Major Fuel Expenditures (million dollars)				Sum of Major Fuel Expenditures (dollars) per Million Btu				Sum of Major Fuel Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	1.3	1.2	1.5	0.6	0.6	0.9	0.6	1.1	1.0	1.2	1.3	
All Buildings	16,226	16,957	22,843	15,795	14.89	10.75	12.52	15.83	1.21	0.98	0.93	1.25	6.34
Building Floorspace (square feet)													
1,001 to 5,000	1,903	2,126	4,216	2,314	18.27	11.82	14.71	17.55	1.77	1.13	1.34	1.92	9.45
5,001 to 10,000	1,629	1,618	2,394	2,354	16.14	10.96	14.56	16.54	1.22	0.92	0.88	1.71	10.65
10,001 to 25,000	1,925	2,404	3,372	2,425	15.26	10.12	10.29	13.98	1.16	0.89	0.89	1.08	11.92
25,001 to 50,000	1,971	1,871	3,764	2,258	12.21	9.96	12.61	15.46	1.00	0.79	1.02	1.11	14.43
50,001 to 100,000	2,344	1,883	2,296	1,960	14.52	10.77	12.82	15.44	1.34	0.90	0.81	1.43	13.79
100,001 to 200,000	1,314	2,292	2,518	2,289	12.66	11.30	13.18	16.04	0.82	1.12	0.68	0.99	13.91
200,001 to 500,000	2,152	2,893	1,863	1,548	14.04	10.06	11.12	15.16	1.27	1.02	0.95	1.12	18.18
Over 500,000	2,988	1,870	2,420	646	16.75	11.72	11.51	19.92	1.30	1.17	Q	0.95	21.43
Principal Building Activity													
Education	1,860	1,933	1,910	1,687	10.86	9.93	12.20	14.76	0.95	0.81	0.73	1.13	9.93
Food Sales	Q	549	720	753	Q	15.54	16.96	17.63	Q	3.01	2.94	3.60	14.14
Food Service	992	1,058	1,220	1,011	17.18	11.37	14.15	14.37	2.23	2.45	3.00	4.87	16.26
Health Care	943	1,017	1,195	579	10.91	7.20	8.82	14.55	2.44	2.09	2.00	1.98	18.83
Lodging	1,030	758	1,837	1,835	10.08	8.63	12.39	14.73	1.67	1.31	1.76	2.81	20.64
Mercantile and Service	3,098	3,224	4,130	2,454	17.44	12.68	13.60	15.67	1.11	1.02	0.98	1.11	11.93
Office	4,222	3,917	5,670	4,293	18.84	13.12	11.77	17.69	1.67	1.40	1.37	1.51	11.30
Parking Garage	Q	Q	Q	Q	Q	13.47	18.45	14.72	Q	Q	Q	Q	17.11
Public Assembly	842	794	1,743	785	14.53	10.77	14.62	13.29	1.08	0.92	Q	1.21	13.50
Public Order and Safety	424	Q	275	Q	13.51	Q	11.75	Q	1.58	Q	1.15	Q	19.00
Religious Worship	167	331	539	262	10.56	8.42	15.71	13.52	0.37	0.29	0.40	0.33	14.02
Warehouse and Storage	1,431	1,934	2,409	976	16.13	9.02	13.77	20.00	0.81	0.62	0.49	0.59	14.87
Other	366	502	737	Q	15.10	11.70	8.45	11.62	1.84	1.67	1.93	1.41	26.67
Vacant	309	318	326	633	11.28	7.50	13.38	16.96	0.44	0.30	0.20	0.61	23.33
Year Constructed													
1899 or Before	773	393	Q	Q	15.92	9.64	Q	Q	1.14	0.55	Q	Q	22.55
1900 to 1919	1,160	742	332	282	14.64	9.85	12.73	8.64	1.10	0.60	0.42	0.54	19.08
1920 to 1945	2,224	2,264	2,093	953	12.92	9.43	11.17	14.27	0.84	0.99	0.79	0.86	16.41
1946 to 1959	2,144	2,070	3,351	2,232	14.46	9.61	11.53	15.29	1.04	0.79	0.86	1.22	13.81
1960 to 1969	3,650	3,274	4,483	3,126	15.01	10.73	11.77	15.99	1.47	1.23	0.91	1.22	12.70
1970 to 1979	2,993	3,945	5,426	4,095	15.08	11.34	12.05	15.51	1.41	0.97	1.10	1.43	10.92
1980 to 1989	2,796	3,571	6,233	4,233	16.25	11.75	14.91	17.70	1.36	1.20	0.99	1.44	13.51
1990 to 1992	486	697	796	723	17.55	14.14	14.39	17.66	1.70	1.04	0.88	1.13	18.14
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	3,321	Q	527	14.09	9.49	Q	8.91	1.14	0.81	Q	0.75	14.47
5,500-7,000 HDD	7,687	10,121	Q	1,711	13.68	11.01	Q	10.69	1.11	1.08	Q	1.01	10.48
4,000-5,499 HDD	7,581	3,515	4,610	1,292	16.50	11.40	11.63	11.72	1.35	0.93	0.93	0.74	10.56
Fewer than 4,000 HDD	Q	Q	7,905	9,495	Q	Q	12.09	18.11	Q	Q	0.96	1.35	10.34
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	10,328	2,770	Q	Q	13.33	19.20	Q	Q	0.91	1.92	15.40
Energy Sources (more than one may apply)													
Electricity	16,226	16,954	22,842	15,795	14.89	10.75	12.52	15.83	1.23	1.00	0.95	1.27	5.88
Natural Gas	10,916	14,053	14,147	12,670	14.43	10.44	10.74	14.99	1.28	1.02	1.06	1.36	7.24
Fuel Oil	7,366	3,240	4,936	2,206	13.86	9.41	11.68	15.55	1.33	1.27	1.38	1.42	11.21
District Heat	2,949	3,100	1,522	1,535	13.54	9.24	9.38	12.40	1.89	1.65	1.71	1.68	18.06
District Chilled Water	501	884	956	Q	12.89	9.13	9.74	14.19	1.66	1.66	1.45	1.96	21.62
Propane	1,320	409	1,429	403	15.65	12.37	17.38	19.69	1.27	0.71	0.94	1.55	18.77
Any Other	310	157	211	314	13.94	12.80	16.42	15.87	0.70	0.62	0.47	Q	20.67

See footnotes at end of table.

Table 3.8. Expenditures by Census Region for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Expenditures (million dollars)				Sum of Major Fuel Expenditures (dollars) per Million Btu				Sum of Major Fuel Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	1.3	1.2	1.5	0.6	0.6	0.9	0.6	1.1	1.0	1.2	1.3	
Energy End Uses (more than one may apply)													
Heated Buildings	16,050	16,642	21,911	14,776	14.80	10.69	12.36	15.55	1.25	1.02	1.01	1.32	6.49
Buildings with A/C	14,826	15,520	21,715	14,369	15.24	10.90	12.46	16.09	1.33	1.08	1.02	1.40	6.68
Buildings with Water Heating	15,722	16,502	20,745	14,957	14.80	10.73	12.20	15.61	1.27	1.07	1.06	1.36	6.61
Buildings with Cooking	8,667	7,377	8,883	5,889	14.73	10.79	12.56	14.62	1.51	1.27	1.14	1.57	9.49
Buildings with Manufacturing	1,215	728	1,255	538	14.44	7.86	9.07	13.27	1.61	0.81	1.21	1.11	20.93
Workers (main shift)													
Less than 5	2,056	2,426	4,333	2,715	16.24	10.51	15.33	17.10	0.76	0.51	0.56	0.97	9.73
5 to 9	1,429	1,892	2,654	1,450	14.54	9.90	10.82	16.58	1.08	1.01	0.88	1.10	11.61
10 to 19	1,817	1,683	3,135	1,973	15.34	11.41	13.70	14.10	1.33	0.90	0.96	1.25	12.64
20 to 49	2,390	2,445	4,519	3,028	12.80	9.61	11.98	15.33	1.19	0.97	1.18	1.37	11.76
50 to 99	2,084	2,411	2,092	1,967	13.92	12.10	10.28	14.55	1.10	1.20	0.92	1.25	14.11
100 or More	6,450	6,101	6,110	4,662	15.73	11.00	12.53	16.71	1.58	1.43	1.35	1.49	10.93
Weekly Operating Hours													
39 or Fewer	805	776	1,164	488	12.58	8.03	14.05	14.16	0.57	0.32	0.36	0.44	12.18
40 to 48	2,564	2,995	5,242	2,654	15.47	10.80	12.89	16.48	1.13	0.87	0.80	0.97	10.09
49 to 60	3,062	2,690	3,865	3,062	18.34	10.77	12.06	15.52	1.17	0.77	0.77	1.04	11.12
61 to 84	2,909	4,102	3,628	2,893	15.35	13.08	12.78	16.55	1.13	1.28	0.96	1.17	13.08
85 to 167	3,629	2,568	2,976	2,854	16.43	11.37	14.37	15.44	1.46	1.16	1.54	1.56	11.66
Open Continuously	3,258	3,826	5,968	3,844	11.53	9.23	11.39	15.66	1.60	1.54	1.48	2.53	14.48
Ownership and Occupancy													
Nongovernment Owned	12,071	13,191	18,195	12,845	15.66	11.28	12.82	16.39	1.21	1.00	0.93	1.26	7.08
Owner Occupied	9,490	10,957	13,557	9,709	14.93	11.08	12.45	16.22	1.30	1.05	1.00	1.35	7.46
Single Establishment	7,279	8,506	11,582	7,514	14.36	10.58	12.08	15.62	1.38	1.06	1.01	1.43	8.83
Multiple Establishment	2,211	2,450	1,975	2,196	17.17	13.21	15.13	18.71	1.08	1.01	0.97	1.16	12.94
Nonowner Occupied	2,533	2,163	4,493	2,900	19.14	12.49	14.13	16.95	1.08	0.98	0.87	1.14	14.84
Single Establishment	979	778	2,570	1,296	16.94	10.36	12.64	18.20	0.96	0.88	Q	1.21	18.89
Multiple Establishment	1,554	1,384	1,923	1,604	20.86	14.13	16.77	16.05	1.17	1.04	0.74	1.09	16.45
Vacant	Q	72	145	Q	Q	10.51	Q	Q	Q	0.14	0.18	Q	34.60
Government Owned	4,155	3,766	4,648	2,950	13.03	9.22	11.46	13.78	1.21	0.91	0.91	1.20	10.91
Predominant Exterior Wall Material													
Masonry	11,789	12,294	16,661	10,652	14.11	10.54	12.61	15.38	1.18	0.95	0.97	1.25	7.23
Siding or Shingles	1,040	790	925	1,250	17.29	10.80	15.12	18.52	1.03	0.78	0.88	1.57	14.55
Metal Panels	918	1,411	2,654	879	16.85	11.31	9.88	15.41	0.99	0.80	0.68	1.11	15.81
Concrete Panels	1,630	900	1,325	1,986	17.48	9.92	14.23	15.21	Q	1.21	0.91	1.13	16.42
Window Glass	655	Q	966	591	18.82	15.32	16.32	22.03	1.76	2.16	1.36	1.40	19.01
Other	193	427	Q	Q	17.10	8.83	Q	Q	1.83	1.38	Q	Q	20.87
Predominant Roof Material													
Built-Up	6,283	6,818	12,196	9,389	15.07	10.82	12.56	16.32	1.29	1.07	1.05	1.28	8.56
Shingles (Not Wood)	2,366	2,704	2,914	1,828	15.33	11.50	13.19	14.81	0.97	0.84	0.92	1.04	13.11
Metal Surfacing	699	1,614	3,116	999	18.82	10.45	10.67	15.09	0.82	0.78	0.61	1.00	13.68
Synthetic or Rubber	5,597	4,740	2,814	1,493	14.77	10.13	13.16	14.27	1.49	1.10	1.08	1.47	10.44
Other	1,280	1,081	1,803	2,087	12.54	12.02	14.16	16.25	0.87	0.82	0.88	1.38	16.64
Percent Window Glass													
25 or Less	9,804	11,915	17,629	10,561	14.69	10.56	12.16	16.05	1.09	0.91	0.87	1.16	7.26
26 to 50	4,655	2,854	3,410	3,807	14.56	10.01	13.95	14.39	1.34	1.00	1.19	1.46	10.79
51 to 75	1,380	1,061	1,104	1,035	18.20	11.56	12.40	18.72	1.97	1.14	1.17	1.64	14.49
76 to 100	388	Q	700	392	14.51	15.61	16.82	19.51	1.67	2.40	1.31	1.49	17.08

See footnotes at end of table.

Table 3.8. Expenditures by Census Region for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Expenditures (million dollars)				Sum of Major Fuel Expenditures (dollars) per Million Btu				Sum of Major Fuel Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	1.3	1.2	1.5	0.6	0.6	0.9	0.6	1.1	1.0	1.2	1.3	
Building Shape													
Square	876	878	1,025	1,063	16.39	9.23	13.57	18.95	1.37	1.01	0.87	1.09	15.58
Rectangle	7,539	9,757	14,169	9,740	15.63	11.18	12.64	15.94	1.14	0.96	0.95	1.31	7.94
Right Angle	1,711	1,260	1,334	1,178	16.35	10.74	13.44	15.13	1.12	0.87	0.67	1.07	12.30
Other	6,100	5,062	6,316	3,813	13.58	10.28	11.93	15.09	1.33	1.07	0.98	1.23	11.57
Space-Heating Energy Sources (more than one may apply)													
Electricity	5,970	4,704	11,714	7,101	17.27	11.65	15.20	17.09	1.33	1.01	1.05	1.35	9.74
Natural Gas	8,173	12,072	11,530	9,310	14.57	10.47	10.45	14.63	1.19	0.98	1.00	1.20	7.70
Fuel Oil	5,036	1,300	2,090	Q	12.51	7.51	10.57	Q	1.19	1.06	1.29	Q	13.71
District Heat	2,943	2,955	1,427	1,496	13.56	9.64	9.45	12.59	1.89	1.59	1.68	1.72	16.53
Propane	528	203	478	Q	23.06	16.92	22.33	Q	1.61	0.57	0.60	Q	19.55
Wood	Q	47	71	Q	Q	15.49	17.96	Q	Q	0.33	0.42	Q	25.78
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Sources (more than one may apply)													
Electricity	14,131	14,480	21,043	13,424	15.18	11.12	12.59	16.42	1.32	1.07	1.02	1.38	6.83
Natural Gas	611	690	Q	938	16.52	7.47	7.70	15.59	1.91	1.35	Q	1.44	23.26
District Chilled Water	501	884	956	Q	12.89	9.13	9.74	14.19	1.66	1.66	1.45	1.96	21.62
Water-Heating Energy Sources (more than one may apply)													
Electricity	5,129	5,219	11,131	5,028	18.28	12.62	13.76	17.00	1.17	0.93	0.98	1.21	9.94
Natural Gas	6,933	9,773	9,453	9,802	13.47	10.02	11.08	14.77	1.24	1.07	1.12	1.46	8.24
Fuel Oil	2,446	Q	183	Q	12.14	Q	8.54	Q	1.13	Q	1.08	Q	16.37
District Heat	2,085	2,302	812	795	14.12	9.83	8.48	12.23	2.11	1.81	1.81	1.37	20.27
Propane	Q	Q	226	Q	Q	Q	26.99	Q	Q	Q	1.14	Q	19.54
Cooking Energy Sources (more than one may apply)													
Electricity	4,680	3,962	4,772	3,015	15.86	11.41	13.25	15.25	1.58	1.40	1.11	1.43	12.99
Natural Gas	5,812	5,422	5,048	4,368	14.24	10.32	11.29	13.82	1.49	1.24	1.18	1.66	10.83
Propane	598	Q	570	Q	15.94	Q	20.08	Q	1.17	Q	1.51	Q	19.54
Percent of Floorspace Heated													
Not Heated	176	Q	Q	1,020	33.47	15.20	17.85	21.42	0.32	Q	0.32	0.71	27.34
1 to 50	2,003	1,131	2,156	1,824	17.28	12.91	13.36	17.90	0.78	0.52	0.48	0.80	15.62
51 to 99	3,189	2,080	3,180	3,716	16.08	11.75	11.60	15.79	1.51	0.92	1.02	1.36	12.82
100	10,859	13,430	16,574	9,235	14.10	10.39	12.40	15.06	1.33	1.13	1.18	1.50	7.25
Percent of Floorspace Cooled													
Not Cooled	1,400	1,437	1,128	1,426	11.99	9.33	13.79	13.58	0.62	0.50	0.33	0.61	13.95
1 to 50	5,207	4,358	3,943	2,141	12.61	9.30	12.25	14.77	0.92	0.69	0.61	0.65	9.83
51 to 99	5,197	5,619	4,669	3,969	16.95	11.40	12.03	16.26	1.70	1.47	1.14	1.37	11.19
100	4,421	5,543	13,103	8,260	17.47	11.98	12.68	16.39	1.79	1.31	1.23	2.01	9.74
Heating Equipment (more than one may apply)													
Heat Pumps	1,877	1,227	4,484	2,766	14.71	11.16	14.17	18.48	1.41	0.93	1.23	1.39	13.88
Furnaces	3,870	4,982	4,498	2,603	16.45	10.82	9.96	15.13	1.18	0.89	0.90	0.84	10.28
Individual Space Heaters	5,931	5,546	7,250	3,664	15.05	10.91	12.58	15.01	1.21	0.90	0.95	1.01	10.20
District Heat	2,943	3,010	1,554	1,500	13.55	9.65	8.63	12.50	1.90	1.61	1.68	1.71	16.76
Boilers	6,759	6,366	5,828	3,788	12.93	9.72	10.92	14.20	1.09	0.98	1.08	1.46	9.25
Packaged Heating Units	4,287	3,873	6,755	5,109	16.95	11.92	14.33	16.61	1.48	1.28	1.05	1.40	10.46
Other	389	505	Q	Q	16.30	14.17	Q	Q	2.16	2.47	Q	Q	22.80

See footnotes at end of table.

Table 3.8. Expenditures by Census Region for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Expenditures (million dollars)				Sum of Major Fuel Expenditures (dollars) per Million Btu				Sum of Major Fuel Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	1.3	1.2	1.5	0.6	0.6	0.9	0.6	1.1	1.0	1.2	1.3	
Heating Distribution Equipment (more than one may apply)													
Radiators or Baseboards	6,881	4,891	1,597	1,423	12.90	8.68	9.41	12.73	1.23	0.95	1.05	1.43	12.58
Ducts for Heating	10,464	12,971	17,851	12,134	15.67	11.04	12.20	15.82	1.39	1.11	1.04	1.33	7.47
VAV System Used	3,884	4,644	4,198	3,628	14.62	10.91	11.63	16.08	1.65	1.38	1.28	1.44	14.37
Individual Space Heaters	5,931	5,546	7,250	3,664	15.05	10.91	12.58	15.01	1.21	0.90	0.95	1.01	10.20
Fan Coil Units or Other	3,042	3,161	2,919	2,010	12.31	9.28	9.70	13.87	1.50	1.11	1.38	1.38	13.05
Cooling Equipment (more than one may apply)													
Residential-Type Central A/C	2,134	2,510	3,835	1,313	13.00	10.36	9.55	14.61	1.42	0.85	1.11	1.20	13.23
Heat Pumps	1,866	1,401	4,537	2,926	15.50	9.54	13.99	18.17	1.45	0.99	1.21	1.49	13.22
Individual A/C	6,960	4,041	5,000	1,702	13.90	9.15	12.48	15.38	1.20	0.86	0.88	0.96	11.28
District Chilled Water	501	936	956	Q	12.89	8.22	9.74	14.19	1.66	1.37	1.45	1.96	22.59
Central Chillers	4,047	4,654	6,101	3,778	14.33	10.93	11.56	15.39	1.61	1.47	1.26	1.54	12.78
Packaged A/C Units	8,375	7,873	10,748	7,935	15.44	11.45	13.25	16.80	1.42	1.20	1.07	1.49	7.90
Swamp Coolers	Q	Q	491	1,945	Q	Q	7.55	14.86	Q	Q	1.46	1.26	21.09
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Distribution Equipment (more than one may apply)													
Ducts for Cooling	11,565	13,504	19,492	13,246	15.67	11.17	12.45	16.07	1.41	1.15	1.04	1.47	7.15
VAV System Used	4,076	5,277	4,721	4,293	14.62	11.52	11.95	16.54	1.78	1.39	1.28	1.63	12.85
Individual A/C	6,960	4,041	5,000	1,702	13.90	9.15	12.48	15.38	1.20	0.86	0.88	0.96	11.28
Fan Coil Units or Other	2,090	2,129	2,633	1,984	12.24	8.40	9.88	15.70	1.38	1.29	1.44	1.23	14.87
Water-Heating Equipment (more than one may apply)													
Centralized System	10,464	9,765	10,947	7,969	14.55	10.16	11.29	14.88	1.33	1.08	1.18	1.46	8.45
Distributed System	5,635	7,302	11,346	7,450	15.43	11.37	13.46	16.36	1.18	1.04	0.96	1.27	9.75
Energy Conservation Features (more than one may apply)													
Any Conservation Features	16,079	16,639	22,345	15,657	14.83	10.82	12.44	15.77	1.25	1.00	0.99	1.28	6.39
Building Shell	15,737	16,249	21,654	15,187	14.77	10.77	12.41	15.74	1.25	1.01	1.00	1.30	6.45
HVAC	14,491	14,419	18,343	13,668	14.64	10.85	12.15	15.70	1.34	1.10	1.09	1.44	6.86
Lighting	9,366	8,840	10,106	9,303	14.84	11.30	12.56	16.01	1.39	1.13	1.22	1.40	8.99
Other	2,248	1,941	1,704	1,028	12.78	11.67	13.31	12.53	1.38	1.23	0.97	1.03	13.69
Energy Management Practices (more than one may apply)													
Energy Management and Control System	3,884	6,077	5,347	4,521	14.46	11.10	11.53	15.53	1.57	1.39	1.19	1.52	12.10
Demand-Side Management[1] Participation	5,238	3,624	3,796	2,836	13.88	9.72	9.76	15.12	1.52	1.11	1.46	1.42	11.60
Energy Audit	5,833	4,694	4,636	4,156	14.65	10.64	12.08	16.24	1.41	1.19	1.22	1.44	10.97
Building Energy Manager	622	602	1,221	712	11.23	8.58	9.66	15.92	1.83	0.93	1.26	1.98	21.63

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.9. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1992

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			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:	1.0	1.2	1.3	0.7	0.7	1.2	0.8	1.0	1.2	
All Buildings	1,258	2,301	1,932	14,526	28,507	24,844	86.6	80.7	77.7	5.79
Principal Building Activity										
Education	44	355	238	599	4,594	3,277	73.8	77.2	72.6	11.33
Food Sales	69	69	Q	369	388	Q	185.8	177.4	Q	20.36
Food Service	234	72	Q	828	609	Q	282.2	118.0	Q	16.84
Health Care	16	48	339	171	306	1,285	92.4	158.4	263.4	19.71
Lodging	84	257	122	454	1,543	894	185.7	166.3	136.3	21.46
Mercantile and Service	342	361	189	4,191	4,641	3,570	81.5	77.8	53.0	12.03
Office	225	556	466	2,266	4,835	5,218	99.4	115.1	89.2	12.07
Parking Garage	Q	Q	Q	Q	Q	1,461	Q	Q	Q	23.59
Public Assembly	56	131	123	932	1,815	Q	60.4	72.1	Q	15.33
Public Order and Safety	21	38	Q	199	344	Q	105.6	109.8	Q	26.11
Religious Worship	42	62	Q	1,126	1,951	Q	37.2	31.7	Q	11.81
Warehouse and Storage	82	218	227	2,195	4,947	4,343	37.4	44.1	52.3	14.53
Other	16	87	Q	202	500	428	78.6	175.0	Q	30.62
Vacant	21	43	Q	932	1,907	1,557	22.4	22.4	43.6	22.99
Year Constructed										
1899 or Before	50	51	Q	648	923	Q	77.8	55.2	Q	18.79
1900 to 1919	74	82	Q	859	1,343	1,406	86.1	61.0	Q	18.08
1920 to 1945	193	230	243	2,256	3,701	2,756	85.6	62.2	88.1	13.85
1946 to 1959	217	407	177	2,607	4,804	3,010	83.1	84.7	58.7	13.13
1960 to 1969	190	458	478	2,152	5,374	5,086	88.1	85.1	93.9	11.95
1970 to 1979	279	525	457	3,040	5,894	5,079	91.8	89.1	89.9	10.52
1980 to 1989	235	479	419	2,590	5,564	6,133	90.9	86.0	68.3	14.01
1990 to 1992	20	69	84	373	905	1,225	52.8	76.8	68.7	18.20
Census Region and Division										
Northeast	205	449	435	2,411	5,392	5,597	85.0	83.3	77.8	9.68
New England	64	144	91	627	1,479	1,159	102.0	97.3	78.4	21.66
Middle Atlantic	141	305	345	1,784	3,913	4,438	79.1	78.0	77.6	13.11
Midwest	328	600	650	3,652	7,140	6,488	89.7	84.1	100.2	8.45
East North Central	215	408	386	2,303	4,629	3,781	93.6	88.0	102.2	10.41
West North Central	112	193	264	1,350	2,512	2,707	83.0	76.7	97.4	17.82
South	451	805	569	5,878	10,320	8,379	76.7	78.0	67.9	12.34
South Atlantic	149	349	278	2,151	4,533	3,902	69.1	76.9	71.1	15.47
East South Central	120	182	107	1,362	2,631	1,382	88.1	69.1	77.3	17.12
West South Central	182	275	184	2,365	3,156	3,095	77.1	87.0	Q	25.32
West	274	447	277	2,584	5,655	4,380	106.1	79.0	63.3	12.21
Mountain	110	169	69	849	1,872	925	129.6	90.2	74.2	22.26
Pacific	164	278	209	1,736	3,783	3,455	94.6	73.4	60.4	14.65
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	114	210	153	1,286	2,586	1,751	88.7	81.4	87.1	16.42
5,500-7,000 HDD	327	705	610	3,478	7,825	6,720	93.9	90.1	90.8	10.48
4,000-5,499 HDD	236	493	545	3,124	5,923	7,115	75.7	83.3	76.6	13.95
Fewer than 4,000 HDD	293	512	373	3,253	6,456	5,542	90.0	79.2	67.4	15.20
More than 2,000 CDD and --										
Fewer than 4,000 HDD	288	381	251	3,384	5,716	3,717	85.0	66.6	67.5	20.76
Energy Sources (more than one may apply)										
Electricity	1,257	2,301	1,932	14,039	27,879	24,607	89.5	82.5	78.5	5.61
Natural Gas	952	1,814	1,498	8,014	19,091	17,889	118.8	95.0	83.7	6.80
Fuel Oil	147	421	873	1,755	3,884	7,576	83.8	108.3	115.2	11.14
District Heat	Q	307	510	Q	1,633	3,484	Q	188.2	146.5	16.25
District Chilled Water	Q	91	191	Q	536	1,351	Q	168.9	141.5	22.42
Propane	48	82	90	1,039	1,369	985	46.6	59.6	91.6	19.14
Any Other	20	30	Q	560	514	Q	36.0	57.5	Q	21.99

See footnotes at end of table.

Table 3.9. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			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:	1.0	1.2	1.3	0.7	0.7	1.2	0.8	1.0	1.2	
Energy End Uses (more than one may apply)										
Heated Buildings	1,220	2,269	1,876	12,743	26,178	23,076	95.8	86.7	81.3	5.89
Buildings with A/C	1,080	2,118	1,835	10,595	23,983	22,463	101.9	88.3	81.7	6.01
Buildings with Water Heating	1,139	2,234	1,886	10,762	24,849	22,868	105.8	89.9	82.5	5.98
Buildings with Cooking	348	768	1,266	1,901	7,589	13,575	183.0	101.2	93.3	8.59
Buildings with Manufacturing	30	202	124	342	1,495	1,336	86.6	134.8	93.1	24.43
Workers (main shift)										
Less than 5	521	191	87	8,424	6,070	3,451	61.8	31.5	Q	12.22
5 to 9	343	254	Q	3,166	3,744	Q	108.3	67.8	Q	15.29
10 to 19	233	341	Q	1,984	4,504	Q	117.7	75.6	Q	10.96
20 to 49	151	771	93	877	7,556	2,124	172.7	102.1	43.8	13.39
50 to 99	Q	425	253	76	4,047	3,641	Q	104.9	69.6	14.97
100 or More	Q	319	1,412	Q	2,585	13,425	Q	123.4	105.2	8.96
Weekly Operating Hours										
39 or Fewer	103	135	Q	3,138	3,909	1,200	33.0	34.4	Q	12.25
40 to 48	319	455	236	4,090	7,245	3,663	78.1	62.9	64.4	10.76
49 to 60	201	455	278	3,040	6,524	4,482	66.1	69.8	62.1	10.57
61 to 84	232	400	330	2,024	4,621	5,417	114.6	86.6	60.9	11.40
85 to 167	245	336	258	1,265	3,306	3,897	193.7	101.7	66.1	12.51
Open Continuously	157	519	790	970	2,902	6,185	162.0	178.9	127.7	15.10
Ownership and Occupancy										
Nongovernment Owned	1,116	1,770	1,258	12,989	22,577	17,186	85.9	78.4	73.2	6.50
Owner Occupied	939	1,379	995	9,980	16,423	11,999	94.0	84.0	82.9	6.60
Single Establishment	855	1,212	684	8,794	13,878	7,319	97.2	87.3	93.5	7.69
Multiple Establishment	84	167	311	1,186	2,545	4,680	70.9	65.8	66.4	13.53
Nonowner Occupied	166	373	256	2,423	5,178	4,672	68.7	72.0	54.7	14.42
Single Establishment	113	179	115	1,516	1,839	2,210	74.8	97.3	Q	20.90
Multiple Establishment	53	194	140	907	3,339	2,463	58.5	58.0	57.0	14.01
Vacant	Q	18	Q	586	977	Q	Q	18.4	Q	27.89
Government Owned	142	531	674	1,537	5,929	7,658	92.5	89.6	88.0	9.79
Predominant Exterior Wall Material										
Masonry	904	1,789	1,323	9,402	21,964	17,220	96.2	81.4	76.8	6.51
Siding or Shingles	159	90	Q	2,266	1,361	Q	70.1	66.5	Q	12.73
Metal Panels	160	210	135	2,412	2,891	2,089	66.2	72.7	64.5	21.69
Concrete Panels	15	120	272	145	1,637	3,179	104.3	73.4	85.7	20.27
Window Glass	12	57	126	120	520	1,388	96.3	110.1	90.8	25.56
Other	Q	Q	63	180	Q	722	Q	Q	86.7	26.81
Predominant Roof Material										
Built-Up	462	1,091	1,040	4,922	12,638	12,698	93.9	86.3	81.9	8.42
Shingles (Not Wood)	377	279	Q	4,254	4,723	1,593	88.7	59.2	48.4	12.50
Metal Surfacing	196	278	76	3,345	4,071	1,602	58.5	68.2	47.7	18.96
Synthetic or Rubber	104	471	591	983	4,722	5,997	106.0	99.7	98.5	10.86
Other	118	182	147	1,022	2,352	2,954	115.8	77.5	49.8	16.06
Floors										
One	767	759	225	9,165	11,033	5,226	83.7	68.8	43.1	11.80
Two	320	671	311	3,629	8,767	5,628	88.0	76.5	55.3	8.87
Three	128	446	313	1,310	5,152	3,416	98.0	86.6	91.5	11.62
Four to Nine	43	407	662	421	3,420	6,536	101.6	119.0	101.3	16.65
Ten or More	Q	Q	421	Q	Q	4,038	Q	Q	104.2	11.22
Percent Window Glass										
25 or Less	1,050	1,633	1,221	12,872	21,648	16,837	81.6	75.4	72.5	6.97
26 to 50	172	488	454	1,394	5,109	5,312	123.5	95.5	85.5	10.42
51 to 75	33	133	146	207	1,261	1,738	159.5	105.1	84.2	17.00
76 to 100	Q	47	111	Q	488	958	Q	97.3	115.5	22.05

See footnotes at end of table.

Table 3.9. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			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:	1.0	1.2	1.3	0.7	0.7	1.2	0.8	1.0	1.2	
Building Shape										
Square	87	92	101	916	1,252	1,485	95.1	73.9	67.7	16.28
Rectangle	966	1,374	747	11,316	16,888	11,029	85.3	81.4	67.7	7.21
Right Angle	83	209	107	1,019	3,236	1,816	80.9	64.7	59.1	12.91
Other	123	625	976	1,275	7,131	10,513	96.1	87.6	92.9	12.53
Energy-Related Space Functions (more than one may apply)										
Commercial Food Preparation	347	768	1,224	1,905	7,586	12,676	182.4	101.2	96.6	8.00
Computer Room	33	543	963	349	4,418	9,433	95.1	122.9	102.1	13.11
Rooms with Special Ventilation	80	299	655	635	2,688	4,718	125.3	111.4	138.9	12.26
Activities with Large Amounts of Hot Water	79	431	454	418	2,613	3,831	189.1	164.7	118.5	14.55
Space-Heating Energy Sources (more than one may apply)										
Electricity	421	752	762	4,589	10,072	10,975	91.8	74.7	69.4	9.97
Natural Gas	793	1,525	1,136	7,288	16,786	14,393	108.8	90.8	78.9	7.11
Fuel Oil	135	256	402	1,620	2,764	2,939	83.1	92.7	136.8	13.69
District Heat	Q	279	498	116	1,576	3,438	142.2	177.2	144.8	19.00
Propane	26	30	Q	766	723	Q	34.5	42.1	Q	21.81
Wood	9	Q	Q	355	Q	Q	25.7	Q	Q	22.47
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Sources (more than one may apply)										
Electricity	1,041	2,012	1,669	10,305	23,145	21,177	101.0	86.9	78.8	6.18
Natural Gas	37	141	111	340	789	777	108.3	178.2	143.1	26.57
District Chilled Water	Q	91	191	Q	536	1,351	Q	168.9	141.5	22.42
Water-Heating Energy Sources (more than one may apply)										
Electricity	440	780	579	5,353	10,522	9,607	82.2	74.2	60.3	9.42
Natural Gas	665	1,344	998	4,838	13,500	11,613	137.5	99.5	85.9	7.60
Fuel Oil	37	112	103	476	986	1,007	78.1	113.3	102.3	21.97
District Heat	Q	166	374	Q	831	2,439	Q	199.6	153.2	18.07
Propane	15	Q	Q	254	287	Q	58.9	Q	Q	32.85
Cooking Energy Sources (more than one may apply)										
Electricity	155	358	687	982	3,468	7,733	157.5	103.3	88.8	11.59
Natural Gas	248	550	898	1,016	5,031	9,157	244.3	109.4	98.1	9.61
Propane	18	31	Q	201	500	Q	89.3	61.9	Q	27.19
Percent of Floorspace Heated										
Not Heated	38	32	Q	1,783	2,329	1,769	21.1	13.9	31.6	29.98
1 to 50	122	154	191	2,288	4,520	4,718	53.2	34.0	40.6	15.20
51 to 99	185	384	316	1,959	4,249	4,003	94.4	90.4	78.9	12.30
100	914	1,731	1,368	8,497	17,409	14,355	107.5	99.4	95.3	6.86
Percent of Floorspace Cooled										
Not Cooled	178	183	97	3,930	4,524	2,381	45.3	40.4	40.7	15.06
1 to 50	284	634	430	3,622	9,796	8,297	78.5	64.7	51.8	9.25
51 to 99	215	535	682	1,966	5,190	6,717	109.5	103.0	101.5	10.53
100	580	950	723	5,007	8,997	7,450	115.8	105.6	97.0	10.26

See footnotes at end of table.

Table 3.9. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			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:	1.0	1.2	1.3	0.7	0.7	1.2	0.8	1.0	1.2	
Heating Equipment (more than one may apply)										
Heat Pumps	152	240	312	1,442	3,210	3,618	105.4	74.8	86.2	13.88
Furnaces	504	618	197	5,595	7,041	4,273	90.1	87.8	46.1	12.16
Individual Space Heaters	316	751	656	4,444	8,927	9,008	71.2	84.1	72.8	8.72
District Heat	Q	280	527	129	1,583	3,513	Q	177.2	150.0	16.16
Boilers	196	819	963	1,611	8,598	10,454	121.8	95.2	92.2	8.91
Packaged Heating Units	324	599	434	2,531	7,344	6,125	127.8	81.6	70.9	10.37
Other	16	116	Q	85	414	404	190.1	Q	Q	32.55
Heating Distribution Equipment (more than one may apply)										
Radiators or Baseboards	134	571	674	1,274	6,130	5,859	104.9	93.1	115.0	9.08
Ducts for Heating	935	1,697	1,441	9,140	18,834	17,448	102.3	90.1	82.6	6.44
VAV System Used	75	343	860	442	3,110	7,975	169.1	110.4	107.8	14.58
Individual Space Heaters	316	751	656	4,444	8,927	9,008	71.2	84.1	72.8	8.72
Fan Coil Units or Other	84	407	543	648	3,295	4,513	129.7	123.4	120.2	13.14
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	228	451	218	2,581	4,054	2,385	88.4	111.3	91.5	14.99
Heat Pumps	153	277	323	1,450	3,365	3,591	105.8	82.2	89.8	14.82
Individual A/C	244	593	617	2,986	7,364	7,629	81.6	80.5	80.8	9.54
District Chilled Water	Q	91	208	Q	536	1,503	Q	168.9	138.6	23.12
Central Chillers	34	412	1,036	203	3,095	9,692	167.3	133.1	106.9	16.27
Packaged A/C Units	512	1,100	901	4,300	12,604	10,925	119.1	87.3	82.5	7.64
Swamp Coolers	74	94	60	566	789	730	129.9	119.7	81.8	27.74
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Distribution Equipment (more than one may apply)										
Ducts for Cooling	884	1,832	1,621	8,267	20,248	19,240	106.9	90.5	84.3	6.44
VAV System Used	72	380	939	449	3,416	8,565	161.1	111.2	109.6	13.59
Individual A/C	244	593	617	2,986	7,364	7,629	81.6	80.5	80.8	9.54
Fan Coil Units or Other	41	281	495	408	1,956	4,247	100.8	143.7	116.6	19.36
Water-Heating Equipment (more than one may apply)										
Centralized System	673	1,344	1,168	6,255	13,447	11,897	107.6	100.0	98.2	9.02
Distributed System	482	965	858	4,651	12,194	12,656	103.7	79.2	67.8	8.95
Energy Conservation Features (more than one may apply)										
Any Conservation Features	1,221	2,276	1,913	13,141	27,259	24,003	92.9	83.5	79.7	5.83
Building Shell	1,189	2,210	1,885	12,780	26,357	22,919	93.0	83.8	82.3	5.88
HVAC	819	2,063	1,816	7,591	21,558	21,132	107.8	95.7	86.0	6.15
Lighting	397	1,068	1,334	3,368	11,256	14,830	118.0	94.9	90.0	8.29
Other	68	218	266	758	2,634	2,559	90.3	82.8	103.8	13.23

See footnotes at end of table.

Table 3.9. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			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:	1.0	1.2	1.3	0.7	0.7	1.2	0.8	1.0	1.2	
Energy Management Practices (more than one may apply)										
Energy Management and Control System	62	497	1,013	445	4,105	9,770	138.2	121.0	103.7	13.97
Demand-Side Management[1] Participation	105	460	762	806	3,761	6,743	130.2	122.4	112.9	12.50
Energy Audit	173	540	766	1,408	5,631	7,740	123.1	95.9	98.9	9.53
Building Energy Manager	14	80	202	135	706	1,470	106.3	113.8	137.4	23.15

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity, which is not included in the "Total of Major Fuels" category, is site electricity plus the conversion losses in the electric generation process at the utility plant. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.10. Consumption and Gross Energy Intensity for Sum of Major Fuels for Mercantile and Office Buildings, 1992

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.1	1.3	1.3	1.1	0.7	1.4	0.7	0.9	0.9	1.2	1.1	0.7	
All Buildings	632	261	648	600	7,563	4,838	5,745	6,573	83.5	53.9	112.7	91.2	11.36
Building Floorspace (square feet)													
1,001 to 5,000	193	Q	123	Q	2,203	Q	1,018	Q	87.6	Q	121.1	Q	12.97
5,001 to 10,000	149	Q	102	Q	1,987	Q	1,248	Q	74.8	Q	81.6	Q	12.61
10,001 to 25,000	219	Q	220	Q	2,003	Q	1,656	Q	109.1	Q	132.9	Q	21.20
25,001 to 50,000	71	Q	202	Q	1,369	Q	1,823	Q	52.1	Q	110.9	Q	22.89
50,001 to 100,000	Q	71	Q	134	Q	1,268	Q	1,355	Q	56.2	Q	98.8	17.10
100,001 to 200,000	Q	72	Q	145	Q	1,364	Q	1,973	Q	52.7	Q	73.4	21.57
200,001 to 500,000	Q	30	Q	166	Q	646	Q	1,708	Q	46.7	Q	97.2	19.92
Over 500,000	Q	87	Q	155	Q	1,560	Q	1,537	Q	55.9	Q	100.8	25.57
Year Constructed													
1899 or Before	8	Q	37	Q	177	Q	331	Q	42.9	Q	111.1	Q	31.34
1900 to 1919	23	Q	32	Q	355	Q	366	Q	63.8	Q	86.5	Q	26.02
1920 to 1945	82	Q	66	53	1,194	Q	699	690	68.7	Q	94.7	76.3	20.68
1946 to 1959	119	11	Q	58	1,543	Q	833	567	76.8	Q	166.8	102.0	28.97
1960 to 1969	133	87	83	140	1,167	1,513	812	1,376	113.6	Q	102.8	101.8	23.40
1970 to 1979	157	62	143	115	1,518	1,090	1,069	1,214	103.1	56.5	133.5	95.1	20.77
1980 to 1989	98	72	136	152	1,450	1,194	1,452	1,866	67.9	60.2	93.4	81.3	16.85
1990 to 1992	13	16	12	40	159	385	184	407	83.0	42.8	65.2	97.4	31.38
Census Region and Division													
Northeast	105	73	83	141	1,562	1,236	1,123	1,401	67.0	Q	74.1	100.6	18.35
New England	27	Q	32	30	314	Q	350	341	84.6	Q	91.1	89.3	25.42
Middle Atlantic	78	65	51	110	1,248	Q	773	1,060	62.5	Q	66.4	104.2	21.51
Midwest	186	68	132	167	2,023	1,134	1,300	1,504	91.9	60.3	101.3	111.0	16.61
East North Central	124	45	84	133	1,257	603	837	1,187	98.7	74.2	100.0	112.4	19.05
West North Central	62	Q	48	33	765	Q	462	317	80.8	Q	103.7	105.5	28.11
South	223	81	318	164	2,742	1,491	2,010	2,142	81.4	54.0	158.4	76.3	18.45
South Atlantic	60	35	Q	78	951	681	899	1,141	63.5	51.5	Q	68.6	22.67
East South Central	77	Q	62	Q	825	Q	497	445	93.6	Q	125.2	90.6	27.02
West South Central	Q	28	Q	45	965	507	614	557	88.5	54.3	228.4	80.7	28.89
West	118	39	114	128	1,237	977	1,313	1,525	95.3	39.6	87.2	84.1	20.79
Mountain	35	Q	38	37	463	Q	345	413	75.7	Q	110.8	Q	31.75
Pacific	Q	30	76	91	774	778	968	1,112	107.1	38.8	78.7	81.9	23.10
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	65	Q	52	27	769	Q	464	247	85.0	Q	113.1	107.7	28.19
5,500-7,000 HDD	174	69	135	213	2,176	1,315	1,470	1,936	80.1	52.1	91.8	110.1	15.82
4,000-5,499 HDD	152	83	147	184	1,823	1,343	1,150	2,260	83.5	Q	127.7	81.5	23.01
Fewer than 4,000 HDD	163	53	137	117	1,407	894	1,505	1,363	116.0	59.0	91.0	85.6	21.15
More than 2,000 CDD and --													
Fewer than 4,000 HDD	77	33	176	59	1,389	855	1,156	766	55.2	38.6	152.4	76.9	22.22
Energy Sources (more than one may apply)													
Electricity	631	261	648	600	7,549	4,838	5,745	6,573	83.6	53.9	112.7	91.2	10.58
Natural Gas	490	242	470	376	5,007	4,349	3,514	4,332	97.9	55.7	133.7	86.7	13.18
Fuel Oil	106	Q	62	294	1,152	Q	681	2,922	92.3	Q	91.1	100.6	18.38
District Heat	Q	Q	58	189	Q	Q	252	1,460	Q	Q	231.2	129.6	29.82
District Chilled Water	Q	Q	19	53	Q	Q	126	533	Q	Q	147.2	98.8	37.97
Propane	21	Q	Q	Q	533	Q	Q	Q	38.9	Q	Q	Q	21.00
Any Other	11	Q	Q	Q	327	Q	Q	Q	34.8	Q	Q	Q	24.09

See footnotes at end of table.

Table 3.10. Consumption and Gross Energy Intensity for Sum of Major Fuels for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.1	1.3	1.3	1.1	0.7	1.4	0.7	0.9	0.9	1.2	1.1	0.7	
Energy End Uses (more than one may apply)													
Heated Buildings	615	251	644	598	7,250	4,585	5,693	6,562	84.8	54.8	113.2	91.2	11.45
Buildings with A/C	525	260	633	599	6,122	4,752	5,627	6,570	85.8	54.6	112.6	91.2	11.72
Buildings with Water Heating	573	258	633	598	6,006	4,802	5,530	6,500	95.5	53.7	114.5	92.0	11.73
Buildings with Cooking	92	195	30	332	485	3,321	301	3,374	190.6	58.8	98.9	98.4	20.39
Buildings with Manufacturing	32	Q	Q	Q	360	Q	Q	Q	89.5	Q	Q	Q	29.02
Workers (main shift)													
Less than 5	171	Q	42	Q	2,938	Q	647	Q	58.3	Q	64.5	Q	11.73
5 to 9	118	Q	151	Q	1,728	Q	930	Q	68.6	Q	162.8	Q	18.33
10 to 19	129	Q	90	Q	1,412	Q	900	Q	91.2	Q	100.4	Q	17.57
20 to 49	140	28	222	Q	1,158	592	1,777	Q	120.9	48.0	125.2	Q	21.61
50 to 99	65	51	77	25	266	980	971	355	246.0	52.2	79.2	69.3	26.89
100 or More	Q	169	65	560	Q	2,867	521	5,617	Q	59.0	124.2	99.7	15.17
Weekly Operating Hours													
39 or Fewer	11	Q	10	Q	252	Q	150	Q	43.7	Q	63.4	Q	20.95
40 to 48	99	Q	306	145	1,564	Q	3,134	1,501	63.4	Q	97.6	96.4	14.50
49 to 60	203	16	135	188	2,946	353	1,570	2,467	69.1	44.6	86.1	76.3	18.17
61 to 84	167	119	Q	146	1,932	2,736	464	1,584	86.5	43.5	Q	91.9	16.66
85 to 167	114	103	21	43	714	1,324	204	548	159.7	Q	103.0	Q	25.76
Open Continuously	37	15	Q	76	156	Q	224	402	236.5	Q	Q	187.6	31.79
Ownership and Occupancy													
Nongovernment Owned	579	209	594	492	7,120	4,199	5,214	5,451	81.4	49.8	113.8	90.2	11.73
Owner Occupied	423	124	452	383	5,217	2,579	3,831	4,017	81.0	48.3	118.0	95.4	13.28
Single Establishment	368	64	375	177	4,501	1,191	2,615	1,532	81.8	53.9	143.4	115.4	17.77
Multiple Establishment	54	60	77	206	716	1,388	1,216	2,485	75.6	43.4	63.3	83.1	18.69
Nonowner Occupied	157	85	142	108	1,903	1,619	1,383	1,434	82.4	52.2	102.5	75.6	19.15
Single Establishment	67	Q	Q	26	894	Q	428	294	74.7	Q	Q	88.4	25.92
Multiple Establishment	90	79	53	83	1,009	1,483	954	1,140	89.2	53.2	55.0	72.4	19.82
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	52	Q	54	108	443	Q	532	1,122	117.9	Q	101.4	96.2	22.46
Predominant Exterior Wall Material													
Masonry	442	197	451	308	5,022	4,013	4,394	3,324	88.0	49.1	102.7	92.7	12.81
Siding or Shingles	45	Q	57	Q	669	Q	636	Q	67.9	Q	89.4	Q	18.72
Metal Panels	123	Q	Q	28	1,549	Q	297	Q	79.7	Q	Q	Q	23.48
Concrete Panels	11	58	12	89	Q	Q	Q	1,064	Q	Q	Q	83.5	26.66
Window Glass	Q	Q	20	126	Q	Q	Q	1,184	Q	Q	Q	106.2	27.22
Other	Q	Q	Q	40	Q	Q	Q	430	Q	Q	Q	93.6	22.99
Predominant Roof Material													
Built-Up	326	133	293	285	3,052	2,846	2,577	2,948	106.7	46.9	113.6	96.6	14.94
Shingles (Not Wood)	93	Q	140	Q	1,333	Q	1,370	Q	69.6	Q	102.5	Q	16.95
Metal Surfacing	129	Q	Q	19	2,008	Q	436	498	64.2	Q	Q	Q	24.73
Synthetic or Rubber	63	97	81	206	748	1,378	830	2,166	84.2	Q	97.3	95.1	17.68
Other	21	Q	49	40	422	Q	533	441	49.8	Q	92.1	90.0	25.87
Floors													
One	411	88	253	Q	4,503	1,752	2,060	Q	91.3	50.2	122.8	Q	14.54
Two	154	128	143	44	1,940	2,127	1,667	718	79.1	60.2	85.5	60.6	18.75
Three	56	20	119	70	951	503	1,213	549	59.0	40.2	98.0	127.1	22.92
Four to Nine	Q	Q	133	228	Q	Q	801	2,332	Q	Q	165.6	97.7	23.69
Ten or More	Q	Q	Q	233	Q	Q	Q	2,623	Q	Q	Q	89.0	18.71
Percent Window Glass													
25 or Less	523	177	479	194	6,576	3,456	4,125	2,339	79.5	51.3	116.1	83.1	13.65
26 to 50	98	76	105	165	847	1,251	1,121	1,828	115.6	Q	93.6	90.5	20.96
51 to 75	Q	Q	52	132	Q	Q	327	1,467	Q	Q	160.2	90.2	22.82
76 to 100	Q	Q	Q	108	Q	Q	Q	940	Q	Q	Q	114.4	29.60

See footnotes at end of table.

Table 3.10. Consumption and Gross Energy Intensity for Sum of Major Fuels for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.1	1.3	1.3	1.1	0.7	1.4	0.7	0.9	0.9	1.2	1.1	0.7	
Building Shape													
Square	31	Q	31	64	347	Q	362	646	89.8	Q	85.1	99.5	25.95
Rectangle	504	128	462	285	5,809	2,115	4,060	3,172	86.7	60.6	113.7	90.0	14.28
Right Angle	49	32	51	37	828	723	566	575	59.6	44.9	90.7	Q	22.25
Other	47	95	104	213	579	1,837	757	2,180	81.4	51.9	136.8	97.7	20.13
Energy-Related Space Functions (more than one may apply)													
Commercial Food Preparation	92	195	30	332	485	3,321	301	3,374	190.6	58.8	98.9	98.4	20.39
Computer Room	40	43	169	446	376	716	1,035	4,534	105.8	60.1	163.5	98.4	22.07
Rooms with Special Ventilation	47	18	46	123	492	286	388	1,108	95.6	62.7	118.7	110.9	25.31
Activities with Large Amounts of Hot Water	134	36	Q	45	483	633	Q	597	276.8	56.2	Q	75.8	33.74
Space-Heating Energy Sources (more than one may apply)													
Electricity	212	156	207	257	2,275	2,847	2,574	2,871	93.3	54.7	80.3	89.4	15.29
Natural Gas	427	198	442	278	4,721	3,554	3,236	3,292	90.5	55.8	136.5	84.5	14.46
Fuel Oil	98	Q	44	70	1,065	Q	547	798	91.6	Q	80.9	88.0	23.83
District Heat	Q	Q	53	188	Q	Q	240	1,453	Q	Q	220.6	129.4	28.89
Propane	17	Q	Q	Q	455	Q	Q	Q	37.0	Q	Q	Q	21.73
Wood	6	Q	Q	Q	196	Q	Q	Q	28.5	Q	Q	Q	30.07
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Sources (more than one may apply)													
Electricity	513	255	604	559	5,962	4,706	5,345	6,231	86.0	54.2	112.9	89.7	12.16
Natural Gas	19	Q	Q	Q	228	Q	204	Q	83.4	Q	Q	Q	32.14
District Chilled Water	Q	Q	19	53	Q	Q	126	533	Q	Q	147.2	98.8	37.97
Water-Heating Energy Sources (more than one may apply)													
Electricity	259	132	305	249	2,953	2,550	2,898	2,892	87.7	51.7	105.3	86.1	14.26
Natural Gas	325	152	287	221	2,914	2,689	2,339	2,485	111.4	56.4	122.5	88.8	17.73
Fuel Oil	31	Q	17	Q	285	Q	235	Q	109.4	Q	74.0	Q	29.11
District Heat	Q	Q	Q	143	Q	Q	108	1,138	Q	Q	323.1	125.5	34.66
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooking Energy Sources (more than one may apply)													
Electricity	42	137	Q	221	277	2,118	Q	2,141	151.1	64.8	Q	103.1	20.89
Natural Gas	Q	152	Q	168	256	2,540	Q	1,702	Q	59.9	Q	98.6	19.09
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	313	Q	Q	Q	Q	Q	Q	Q	42.12
1 to 50	65	Q	20	11	1,449	Q	336	Q	44.6	Q	60.0	Q	24.47
51 to 99	129	39	134	146	1,524	787	1,186	1,844	84.3	49.5	112.9	79.2	23.47
100	422	159	490	441	4,278	2,908	4,171	4,266	98.6	54.7	117.6	103.3	12.30
Percent of Floorspace Cooled													
Not Cooled	107	Q	Q	Q	1,441	Q	Q	Q	73.9	Q	Q	Q	20.52
1 to 50	251	Q	52	21	3,257	Q	778	461	77.2	Q	67.1	44.6	18.89
51 to 99	86	139	192	275	1,191	2,141	1,600	3,062	72.4	64.8	119.8	89.7	19.44
100	187	95	390	304	1,674	1,780	3,250	3,048	111.9	53.4	119.9	99.6	15.52
Energy Conservation Features (more than one may apply)													
Any Conservation Features	606	261	642	600	7,199	4,838	5,665	6,573	84.2	53.9	113.3	91.2	11.47
Building Shell	585	255	637	599	6,956	4,710	5,614	6,572	84.1	54.1	113.4	91.1	11.61
HVAC	419	242	549	593	4,582	4,323	4,576	6,428	91.4	56.0	120.1	92.2	12.63
Lighting	197	178	269	487	2,284	3,055	2,117	4,925	86.3	58.4	126.8	98.9	15.05
Other	31	32	37	50	417	586	390	513	75.1	54.4	93.8	97.4	22.13

See footnotes at end of table.

Table 3.10. Consumption and Gross Energy Intensity for Sum of Major Fuels for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)				Total Floorspace of Buildings (million square feet)				Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.1	1.3	1.3	1.1	0.7	1.4	0.7	0.9	0.9	1.2	1.1	0.7	
Energy Management Practices (more than one may apply)													
Energy Management and Control System	40	78	134	387	228	1,468	733	3,890	176.0	53.0	183.5	99.6	20.98
Demand-Side Management[1] Participation	46	89	136	185	397	1,331	699	2,008	116.9	Q	194.5	92.4	20.17
Energy Audit	91	55	107	257	843	1,035	1,173	2,619	107.6	53.2	90.9	98.2	17.19
Building Energy Manager	Q	Q	Q	45	Q	Q	Q	427	Q	Q	Q	104.4	26.63

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Small buildings are 50,000 square feet or less. Large buildings are greater than 50,000 square feet. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.11. Consumption and Gross Energy Intensity for Sum of Major Fuels for Education, Health Care, and Food Sales and Service Buildings, 1992

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.0	1.6	1.1	0.9	1.3	1.0	0.6	0.9	0.9	
All Buildings	637	403	445	8,470	1,763	2,248	75.2	228.5	197.8	8.79
Building Floorspace (square feet)										
1,001 to 5,000	25	9	199	292	108	771	86.2	85.9	257.6	16.63
5,001 to 10,000	19	Q	104	307	Q	426	62.0	Q	243.3	17.66
10,001 to 25,000	74	Q	73	997	Q	512	74.3	Q	143.2	19.54
25,001 to 50,000	106	Q	51	1,551	Q	407	68.1	Q	124.6	25.41
50,001 to 100,000	175	Q	Q	2,045	Q	Q	85.6	Q	Q	12.00
100,001 to 200,000	120	82	Q	1,641	401	Q	73.0	204.9	Q	19.43
200,001 to 500,000	117	148	Q	1,621	504	Q	71.9	294.8	Q	22.74
Over 500,000	Q	108	Q	Q	381	Q	Q	283.4	Q	12.97
Year Constructed										
1899 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1900 to 1919	28	Q	Q	441	Q	Q	63.1	Q	Q	37.64
1920 to 1945	82	66	69	1,077	227	351	76.0	289.4	197.6	22.64
1946 to 1959	130	40	59	1,903	152	384	68.5	265.1	153.8	19.97
1960 to 1969	180	110	66	2,405	492	346	74.7	224.0	189.9	18.90
1970 to 1979	152	124	116	1,728	544	520	87.9	228.6	223.4	16.41
1980 to 1989	49	53	99	653	287	376	74.3	185.8	262.0	16.53
1990 to 1992	Q	Q	Q	253	Q	Q	57.1	Q	Q	42.65
Census Region and Division										
Northeast	171	86	75	1,968	386	565	87.1	223.8	131.9	15.35
New England	54	Q	Q	604	Q	Q	89.7	Q	Q	19.56
Middle Atlantic	117	60	55	1,364	241	408	85.9	250.8	135.5	19.33
Midwest	195	141	128	2,386	487	614	81.6	289.8	209.2	16.28
East North Central	127	89	78	1,534	265	399	82.9	335.8	194.9	16.53
West North Central	67	52	51	852	222	215	79.2	234.9	235.7	32.68
South	156	136	129	2,620	597	652	59.7	226.8	197.2	15.73
South Atlantic	72	Q	60	1,168	307	290	61.8	238.0	208.1	22.17
East South Central	35	Q	Q	548	Q	Q	63.9	Q	Q	23.75
West South Central	49	Q	50	904	Q	284	54.5	Q	175.2	25.47
West	114	40	113	1,496	292	416	76.4	136.1	271.4	19.41
Mountain	44	Q	Q	410	Q	Q	107.5	Q	Q	33.04
Pacific	70	35	70	1,086	261	250	64.7	135.7	279.2	24.31
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	56	Q	38	592	Q	166	95.2	Q	226.8	31.94
5,500-7,000 HDD	237	151	134	2,614	531	697	90.7	285.3	191.4	13.56
4,000-5,499 HDD	143	68	93	2,079	267	547	68.7	252.6	170.9	17.90
Fewer than 4,000 HDD	127	118	110	1,849	614	422	68.9	192.0	260.7	22.18
More than 2,000 CDD and --										
Fewer than 4,000 HDD	73	38	70	1,336	198	415	54.8	193.1	168.5	21.51
Energy Sources (more than one may apply)										
Electricity	637	403	445	8,470	1,763	2,248	75.2	228.5	197.8	8.26
Natural Gas	534	367	371	6,856	1,544	1,655	77.9	237.6	224.1	10.11
Fuel Oil	158	299	25	1,837	1,093	172	85.9	273.6	147.8	19.96
District Heat	79	116	Q	688	403	Q	115.5	287.2	Q	19.85
District Chilled Water	29	63	Q	253	227	Q	116.6	279.5	Q	26.14
Propane	34	Q	26	470	Q	230	71.5	Q	114.4	29.57
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.11. Consumption and Gross Energy Intensity for Sum of Major Fuels for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.0	1.6	1.1	0.9	1.3	1.0	0.6	0.9	0.9	
Energy End Uses (more than one may apply)										
Heated Buildings	635	403	437	8,379	1,746	2,158	75.8	230.6	202.2	8.95
Buildings with A/C	562	399	436	7,389	1,747	2,174	76.0	228.2	200.6	8.99
Buildings with Water Heating	615	402	443	8,036	1,760	2,228	76.5	228.2	198.8	8.82
Buildings with Cooking	420	338	383	5,676	1,289	1,799	74.0	262.1	212.6	10.34
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)										
Less than 5	22	Q	92	481	Q	648	46.6	Q	141.3	18.05
5 to 9	27	Q	108	448	Q	560	61.2	Q	192.4	22.46
10 to 19	54	Q	122	738	Q	485	73.5	Q	252.0	18.74
20 to 49	182	Q	86	2,533	162	390	72.0	153.4	219.9	21.83
50 to 99	192	Q	Q	2,213	Q	Q	86.5	Q	Q	11.53
100 or More	159	348	Q	2,057	1,334	Q	77.2	260.6	Q	15.99
Weekly Operating Hours										
39 or Fewer	86	Q	Q	1,221	Q	Q	70.3	Q	Q	21.58
40 to 48	178	11	11	2,761	151	81	64.6	71.1	133.9	21.52
49 to 60	82	14	20	1,447	151	102	56.4	92.1	197.4	23.40
61 to 84	154	Q	101	1,607	Q	483	95.8	Q	209.0	15.77
85 to 167	123	Q	237	1,333	Q	1,235	92.2	Q	191.8	17.67
Open Continuously	Q	345	72	Q	1,284	291	Q	268.3	247.4	14.90
Ownership and Occupancy										
Nongovernment Owned	89	269	426	1,508	1,242	2,091	59.1	216.3	203.6	11.05
Owner Occupied	82	259	344	1,402	1,139	1,660	58.7	227.5	207.0	12.03
Single Establishment	77	231	328	1,341	1,010	1,561	57.5	229.0	210.1	12.67
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Nonowner Occupied	Q	Q	82	Q	Q	431	Q	Q	190.5	20.87
Single Establishment	Q	Q	68	Q	Q	340	Q	Q	199.4	23.01
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	548	134	Q	6,961	521	157	78.7	257.7	Q	15.42
Predominant Exterior Wall Material										
Masonry	558	369	359	7,714	1,587	1,763	72.3	232.5	203.8	8.91
Siding or Shingles	6	Q	60	120	Q	336	51.0	Q	177.4	21.84
Metal Panels	11	Q	Q	145	Q	Q	75.2	Q	Q	41.67
Concrete Panels	53	Q	Q	379	Q	Q	139.5	Q	Q	37.89
Window Glass	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	309	235	193	4,272	1,062	965	72.3	221.4	199.9	12.36
Shingles (Not Wood)	47	Q	102	746	123	597	63.0	174.1	170.9	21.65
Metal Surfacing	32	Q	44	403	Q	190	79.1	Q	230.1	25.49
Synthetic or Rubber	202	133	46	2,322	507	271	87.0	261.8	170.9	19.57
Other	47	Q	60	728	Q	225	64.9	Q	265.1	24.99
Floors										
One	172	24	258	2,823	190	1,263	61.1	128.1	204.7	13.18
Two	180	Q	114	2,217	152	513	81.1	172.9	221.9	17.84
Three	185	20	53	2,200	140	313	83.9	145.8	170.9	19.73
Four to Nine	94	239	Q	1,171	925	Q	79.8	258.4	Q	19.38
Ten or More	Q	93	Q	Q	356	Q	Q	260.7	Q	19.11

See footnotes at end of table.

Table 3.11. Consumption and Gross Energy Intensity for Sum of Major Fuels for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.0	1.6	1.1	0.9	1.3	1.0	0.6	0.9	0.9	
Percent Window Glass										
25 or Less	396	301	352	5,654	1,255	1,818	70.0	240.1	193.4	10.63
26 to 50	193	88	80	2,228	451	376	86.7	196.1	212.0	17.49
51 to 75	37	Q	Q	450	Q	Q	82.2	Q	Q	22.24
76 to 100	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Building Shape										
Square	23	Q	36	251	Q	141	89.8	Q	254.0	30.36
Rectangle	187	110	367	2,770	656	1,796	67.6	167.3	204.6	12.28
Right Angle	54	Q	Q	729	Q	Q	73.4	Q	Q	23.02
Other	374	255	29	4,719	953	146	79.2	267.6	200.3	17.08
Energy-Related Space Functions (more than one may apply)										
Commercial Food Preparation	420	338	383	5,676	1,294	1,803	74.0	261.5	212.2	10.35
Computer Room	177	241	Q	2,202	953	Q	80.5	252.9	Q	13.86
Rooms with Special Ventilation	169	285	50	2,176	1,006	230	77.8	283.6	216.8	15.61
Activities with Large Amounts of Hot Water	110	141	43	1,380	540	214	79.7	261.5	202.1	20.98
Space-Heating Energy Sources (more than one may apply)										
Electricity	147	146	137	2,159	667	692	68.1	218.7	198.5	15.08
Natural Gas	456	302	285	5,957	1,223	1,300	76.5	247.1	219.2	11.08
Fuel Oil	139	168	21	1,548	584	159	89.6	287.0	129.2	21.01
District Heat	74	116	Q	641	403	Q	116.0	287.2	Q	17.63
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Sources (more than one may apply)										
Electricity	508	369	417	6,912	1,605	2,090	73.5	230.1	199.5	8.99
Natural Gas	Q	Q	Q	487	Q	Q	114.7	Q	Q	42.00
District Chilled Water	29	63	Q	253	227	Q	116.6	279.5	Q	26.14
Water-Heating Energy Sources (more than one may apply)										
Electricity	128	22	121	2,002	227	773	63.9	98.6	156.3	19.52
Natural Gas	425	268	306	5,514	1,150	1,280	77.1	233.4	239.1	11.23
Fuel Oil	67	Q	Q	798	Q	Q	83.7	Q	Q	22.16
District Heat	49	94	Q	390	314	Q	125.3	299.7	Q	20.88
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooking Energy Sources (more than one may apply)										
Electricity	185	165	173	2,579	631	855	71.6	262.1	202.0	12.76
Natural Gas	318	265	309	4,179	1,000	1,269	76.0	264.7	243.8	12.78
Propane	Q	Q	16	267	Q	154	70.6	Q	101.7	34.28
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	35	Q	Q	231	Q	Q	152.6	30.89
51 to 99	73	51	101	1,105	253	527	65.8	201.6	191.9	22.33
100	559	345	300	7,143	1,471	1,401	78.2	234.7	214.3	9.89
Percent of Floorspace Cooled										
Not Cooled	75	Q	9	1,080	Q	75	69.4	Q	116.3	25.09
1 to 50	215	Q	69	3,008	Q	474	71.5	Q	145.5	15.90
51 to 99	116	150	142	1,538	576	684	75.5	259.9	208.0	15.32
100	231	231	225	2,844	1,081	1,016	81.1	213.6	221.4	14.18

See footnotes at end of table.

Table 3.11. Consumption and Gross Energy Intensity for Sum of Major Fuels for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.0	1.6	1.1	0.9	1.3	1.0	0.6	0.9	0.9	
Energy Conservation Features (more than one may apply)										
Any Conservation Features	636	388	439	8,457	1,735	2,160	75.2	223.5	203.5	8.70
Building Shell	630	388	430	8,379	1,735	2,107	75.2	223.5	203.9	8.79
HVAC	602	381	344	7,719	1,664	1,583	78.0	228.7	217.2	9.36
Lighting	279	318	188	3,297	1,304	743	84.7	243.7	252.3	12.25
Other	66	85	42	922	368	225	71.1	229.9	186.7	20.81
Energy Management Practices (more than one may apply)										
Energy Management and Control System	259	243	63	3,068	943	281	84.3	258.2	223.1	16.54
Demand-Side Management[1] Participation	230	225	51	2,560	911	269	89.7	246.7	189.1	17.08
Energy Audit	222	199	86	2,810	804	350	79.1	247.4	245.7	16.07
Building Energy Manager	40	Q	Q	482	Q	Q	82.9	Q	Q	31.07

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.12. Consumption and Gross Energy Intensity for Sum of Major Fuels in Older Buildings by Year Constructed, 1992

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.2	1.1	0.8	1.0	0.9	0.9	1.0	1.0	
All Buildings	1,798	1,125	1,261	24,462	12,612	14,014	73.5	89.2	90.0	7.45
Building Floorspace (square feet)										
1,001 to 5,000	264	113	166	3,089	1,167	1,536	85.6	96.6	107.9	8.69
5,001 to 10,000	270	77	113	3,281	986	1,505	82.2	77.9	75.4	12.70
10,001 to 25,000	303	197	208	4,082	1,892	1,902	74.3	103.9	109.3	15.16
25,001 to 50,000	298	117	167	4,012	1,856	2,216	74.2	62.8	75.2	16.66
50,001 to 100,000	169	144	150	2,676	1,625	1,776	63.2	88.8	84.7	14.68
100,001 to 200,000	216	149	115	3,360	2,306	1,673	64.3	64.4	68.6	17.22
200,001 to 500,000	131	176	225	2,260	1,444	1,988	58.1	122.2	113.0	21.10
Over 500,000	147	153	117	1,702	1,335	1,418	86.1	Q	82.7	29.12
Principal Building Activity										
Education	242	180	152	3,431	2,405	1,728	70.6	74.7	87.9	12.28
Food Sales	35	Q	33	246	Q	155	140.5	Q	213.3	28.15
Food Service	126	38	83	734	187	365	171.8	203.1	227.7	21.66
Health Care	109	110	124	397	492	544	273.3	224.0	228.6	22.50
Lodging	152	69	76	934	482	579	162.2	144.2	131.1	20.36
Mercantile and Service	254	220	218	3,925	2,680	2,607	64.8	82.0	83.7	15.39
Office	426	224	258	3,941	2,187	2,283	108.2	102.2	113.1	17.38
Parking Garage	Q	Q	Q	Q	Q	674	Q	Q	Q	46.65
Public Assembly	69	44	103	1,148	552	1,096	60.5	80.2	94.0	18.11
Public Order and Safety	21	Q	14	248	Q	168	86.0	Q	85.3	32.51
Religious Worship	64	17	16	2,143	628	505	29.9	27.6	31.6	18.08
Warehouse and Storage	140	119	99	4,051	1,815	2,397	34.4	65.4	41.1	18.86
Other	86	33	Q	497	184	210	173.7	180.0	145.0	34.26
Vacant	69	Q	28	2,545	431	702	27.2	17.6	39.6	28.73
Census Region and Division										
Northeast	448	243	198	6,453	2,485	2,123	69.5	97.9	93.5	15.10
New England	120	44	78	1,433	436	634	83.8	100.0	123.4	22.11
Middle Atlantic	328	200	120	5,020	2,048	1,490	65.4	97.4	80.7	20.11
Midwest	572	305	348	6,890	2,652	4,086	82.9	115.0	85.2	11.76
East North Central	396	203	203	4,690	1,861	2,350	84.5	109.2	86.3	12.83
West North Central	175	102	145	2,201	790	1,736	79.7	128.8	83.6	22.59
South	520	381	450	7,500	4,914	4,940	69.3	77.5	91.2	14.86
South Atlantic	238	204	178	2,576	2,667	2,267	92.4	76.4	78.4	21.20
East South Central	112	62	106	1,740	907	1,195	64.4	68.4	88.6	19.25
West South Central	170	115	167	3,185	1,340	1,478	53.4	86.0	112.9	27.22
West	258	196	264	3,619	2,562	2,865	71.4	76.3	92.2	14.57
Mountain	108	56	72	1,106	670	699	97.6	83.3	103.0	22.23
Pacific	150	140	192	2,513	1,892	2,166	59.8	73.9	88.7	18.65
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	154	107	137	2,228	842	1,531	69.1	126.5	89.2	19.19
5,500-7,000 HDD	644	307	339	7,981	2,815	3,619	80.7	109.0	93.5	12.76
4,000-5,499 HDD	525	278	220	6,680	3,363	2,825	78.6	82.6	77.9	15.44
Fewer than 4,000 HDD	230	306	336	4,236	2,990	3,656	54.3	102.3	91.9	19.22
More than 2,000 CDD and --										
Fewer than 4,000 HDD	245	128	229	3,337	2,602	2,382	73.4	49.1	96.3	21.47
Energy Sources (more than one may apply)										
Electricity	1,798	1,125	1,261	23,642	12,473	13,779	76.1	90.2	91.5	7.22
Natural Gas	1,444	877	1,007	17,059	8,871	9,217	84.7	98.8	109.2	9.19
Fuel Oil	461	288	340	4,503	2,363	2,735	102.3	121.7	124.3	15.44
District Heat	295	232	131	1,967	1,419	976	150.0	163.2	134.6	21.07
District Chilled Water	77	75	62	652	375	480	117.5	200.5	128.3	27.43
Propane	71	36	63	943	642	786	75.0	56.2	79.7	26.17
Any Other	23	11	14	733	Q	268	31.5	Q	53.5	25.08

See footnotes at end of table.

Table 3.12. Consumption and Gross Energy Intensity for Sum of Major Fuels in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.2	1.1	0.8	1.0	0.9	0.9	1.0	1.0	
Energy End Uses (more than one may apply)										
Heated Buildings	1,762	1,084	1,240	22,055	11,548	12,814	79.9	93.9	96.7	7.46
Buildings with A/C	1,552	1,015	1,210	18,912	10,601	12,286	82.0	95.7	98.5	7.87
Buildings with Water Heating	1,699	1,091	1,214	20,372	11,006	12,369	83.4	99.2	98.1	7.66
Buildings with Cooking	657	539	611	6,903	4,920	5,071	95.2	109.5	120.4	11.04
Buildings with Manufacturing	144	53	78	1,478	394	652	97.4	134.9	120.0	24.03
Workers (main shift)										
Less than 5	305	126	162	7,661	2,807	3,165	39.9	44.8	51.1	10.41
5 to 9	233	83	173	3,343	1,227	1,577	69.7	67.3	109.7	15.42
10 to 19	232	102	165	3,323	1,211	1,812	69.9	84.6	91.3	17.00
20 to 49	420	204	183	3,815	2,180	2,088	110.1	93.7	87.5	14.91
50 to 99	223	184	129	2,890	1,685	1,424	77.1	109.2	90.4	18.87
100 or More	385	426	449	3,430	3,502	3,949	112.2	121.6	113.8	15.44
Weekly Operating Hours										
39 or Fewer	140	48	58	4,446	1,320	1,455	31.5	36.4	40.1	16.42
40 to 48	409	181	186	6,289	2,617	2,614	65.0	69.1	71.0	11.20
49 to 60	351	169	193	5,819	2,371	2,476	60.2	71.4	78.1	15.79
61 to 84	245	208	278	2,967	2,692	2,778	82.7	77.2	99.9	16.34
85 to 167	235	205	227	2,572	1,910	2,248	91.2	107.5	100.8	16.50
Open Continuously	418	314	320	2,369	1,701	2,444	176.6	184.4	130.8	17.10
Ownership and Occupancy										
Nongovernment Owned	1,353	730	940	19,001	8,571	10,776	71.2	85.1	87.2	8.69
Owner Occupied	1,092	618	747	14,222	6,737	8,024	76.8	91.8	93.0	8.72
Single Establishment	885	554	631	11,250	5,843	6,323	78.7	94.8	99.8	9.73
Multiple Establishment	207	64	116	2,971	894	1,701	69.6	71.9	67.9	17.71
Nonowner Occupied	244	106	188	3,698	1,491	2,435	66.0	71.3	77.1	18.39
Single Establishment	161	49	74	1,919	563	1,023	83.7	87.5	72.0	22.52
Multiple Establishment	83	57	114	1,779	928	1,411	46.9	61.5	80.8	20.47
Vacant	17	Q	Q	1,082	344	317	15.7	Q	Q	31.47
Government Owned	445	395	321	5,461	4,041	3,237	81.5	97.8	99.1	13.96
Predominant Exterior Wall Material										
Masonry	1,565	787	858	20,950	8,536	9,277	74.7	92.3	92.4	8.56
Siding or Shingles	97	32	55	1,597	560	717	60.5	56.7	76.0	15.95
Metal Panels	99	73	153	1,385	1,395	1,881	71.2	52.2	81.2	28.34
Concrete Panels	15	155	122	288	1,502	1,510	52.2	103.2	81.1	27.28
Window Glass	20	Q	52	194	463	408	103.5	141.2	126.4	28.55
Other	Q	Q	22	Q	Q	220	Q	Q	100.5	26.11
Predominant Roof Material										
Built-Up	913	637	567	11,707	6,568	5,907	78.0	96.9	96.0	10.49
Shingles (Not Wood)	309	137	135	5,059	1,570	2,142	61.2	87.0	63.3	13.11
Metal Surfacing	87	65	184	1,784	1,520	2,224	48.8	42.5	82.6	25.02
Synthetic or Rubber	312	232	296	3,646	2,139	2,545	85.6	108.4	116.4	15.84
Other	177	55	79	2,265	816	1,196	78.1	67.5	65.9	19.13
Floors										
One	392	394	456	6,789	5,146	5,763	57.8	76.5	79.2	11.29
Two	394	277	310	6,339	3,872	3,661	62.2	71.4	84.7	11.56
Three	385	149	200	5,262	1,365	1,963	73.1	109.1	101.9	15.36
Four to Nine	522	173	200	5,093	1,310	1,812	102.5	131.7	110.4	19.43
Ten or More	105	133	94	979	918	815	107.1	145.0	115.9	25.43
Percent Window Glass										
25 or Less	1,366	740	909	18,874	9,341	11,287	72.4	79.2	80.6	8.48
26 to 50	326	261	264	4,404	2,390	1,817	74.1	109.3	145.4	15.01
51 to 75	86	67	65	1,006	468	661	85.4	143.0	99.1	21.13
76 to 100	Q	Q	22	178	Q	249	112.9	137.3	88.0	28.67

See footnotes at end of table.

Table 3.12. Consumption and Gross Energy Intensity for Sum of Major Fuels in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.2	1.1	0.8	1.0	0.9	0.9	1.0	1.0	
Building Shape										
Square	75	54	87	1,207	736	837	62.3	73.0	104.0	22.63
Rectangle	1,056	616	736	14,523	7,086	8,367	72.7	86.9	87.9	9.83
Right Angle	154	75	77	2,465	1,132	1,191	62.6	66.7	64.7	18.71
Other	512	380	361	6,266	3,658	3,619	81.7	103.8	99.8	13.03
Space-Heating Energy Sources (more than one may apply)										
Electricity	427	305	523	6,578	3,880	6,191	65.0	78.5	84.4	11.69
Natural Gas	1,197	736	826	14,964	7,858	7,649	80.0	93.7	108.0	9.41
Fuel Oil	333	185	184	3,549	1,505	1,484	93.8	123.2	123.8	17.37
District Heat	286	219	131	1,927	1,363	972	148.3	161.0	134.4	19.49
Propane	16	13	15	431	273	351	36.7	48.0	41.4	28.32
Wood	8	Q	Q	276	Q	Q	29.2	Q	Q	26.82
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Sources (more than one may apply)										
Electricity	1,483	961	1,089	18,222	10,231	11,375	81.4	93.9	95.7	8.08
Natural Gas	146	48	54	593	428	423	246.8	111.1	127.9	30.18
District Chilled Water	77	75	62	652	375	480	117.5	200.5	128.3	27.43
Water-Heating Energy Sources (more than one may apply)										
Electricity	431	259	507	7,259	3,423	5,946	59.4	75.7	85.3	11.42
Natural Gas	1,064	658	659	11,756	6,536	5,733	90.5	100.7	115.0	10.38
Fuel Oil	120	48	53	1,281	416	458	93.4	116.1	114.9	29.42
District Heat	177	190	92	1,154	1,139	664	153.2	166.9	137.9	21.75
Propane	Q	Q	Q	249	Q	Q	55.2	Q	Q	45.28
Cooking Energy Sources (more than one may apply)										
Electricity	279	295	269	2,726	2,734	2,427	102.4	107.7	111.0	13.96
Natural Gas	489	387	454	5,097	3,455	3,502	95.9	112.0	129.6	14.04
Propane	17	18	24	242	298	253	71.2	60.6	95.5	33.63
Percent of Floorspace Heated										
Not Heated	Q	41	21	2,408	1,064	1,200	Q	38.4	17.9	30.92
1 to 50	187	99	95	4,797	2,060	2,059	39.0	48.2	46.1	22.30
51 to 99	249	158	277	3,692	2,061	2,039	67.4	76.6	135.7	14.77
100	1,326	827	868	13,565	7,427	8,716	97.8	111.3	99.6	8.28
Percent of Floorspace Cooled										
Not Cooled	246	110	51	5,550	2,011	1,728	44.4	54.9	29.4	15.47
1 to 50	606	249	241	9,565	3,604	3,881	63.4	69.0	62.1	11.33
51 to 99	382	331	377	4,035	3,167	3,035	94.7	104.4	124.3	14.30
100	563	435	592	5,312	3,830	5,370	106.0	113.7	110.2	11.82
Heating Equipment (more than one may apply)										
Heat Pumps	167	90	166	1,934	1,055	1,783	86.5	85.6	93.1	18.26
Furnaces	494	278	273	7,344	3,367	2,982	67.2	82.7	91.7	15.34
Individual Space Heaters	494	337	434	7,334	3,862	5,434	67.3	87.4	79.9	11.94
District Heat	320	219	131	2,015	1,363	972	158.9	161.0	134.4	21.38
Boilers	763	460	422	8,964	4,027	3,734	85.1	114.3	113.0	10.78
Packaged Heating Units	330	257	371	3,664	3,226	3,911	89.9	79.7	94.8	14.90
Other	Q	Q	45	285	Q	231	Q	Q	196.4	31.45
Heating Distribution Equipment (more than one may apply)										
Radiators or Baseboards	702	276	223	7,635	2,296	1,994	92.0	120.1	111.7	13.18
Ducts for Heating	1,165	884	974	14,078	8,893	9,566	82.7	99.4	101.8	8.75
VAV System Used	235	306	285	2,047	2,273	2,108	114.8	134.7	135.4	18.38
Individual Space Heaters	494	337	434	7,334	3,862	5,434	67.3	87.4	79.9	11.94
Fan Coil Units or Other	416	195	237	3,438	1,779	1,654	121.0	109.7	143.5	15.65

See footnotes at end of table.

Table 3.12. Consumption and Gross Energy Intensity for Sum of Major Fuels in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.2	1.1	0.8	1.0	0.9	0.9	1.0	1.0	
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	371	170	205	4,144	1,528	1,800	89.6	111.1	113.8	19.27
Heat Pumps	166	115	173	1,946	1,170	1,807	85.4	98.0	95.7	17.76
Individual A/C	646	342	222	8,783	3,603	2,586	73.5	94.8	85.9	12.86
District Chilled Water	77	75	79	652	376	632	117.5	200.4	124.5	29.40
Central Chillers	407	386	385	2,854	3,032	3,306	142.6	127.4	116.5	15.31
Packaged A/C Units	741	497	654	8,357	5,411	6,494	88.7	91.8	100.8	10.49
Swamp Coolers	71	Q	35	544	510	386	130.3	Q	90.6	30.44
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Distribution Equipment (more than one may apply)										
Ducts for Cooling	1,232	844	1,087	14,554	8,567	10,517	84.7	98.5	103.4	8.36
VAV System Used	253	278	341	2,168	1,853	2,715	116.8	149.9	125.6	15.61
Individual A/C	646	342	222	8,783	3,603	2,586	73.5	94.8	85.9	12.86
Fan Coil Units or Other	258	209	244	1,728	1,607	2,211	149.5	129.9	110.2	20.94
Water-Heating Equipment (more than one may apply)										
Centralized System	1,128	634	764	12,074	5,523	6,893	93.4	114.8	110.8	9.59
Distributed System	625	482	522	8,885	5,627	6,046	70.4	85.7	86.4	11.44
Energy Conservation Features (more than one may apply)										
Any Conservation Features	1,740	1,119	1,253	22,581	12,053	13,464	77.1	92.8	93.0	7.45
Building Shell	1,695	1,092	1,216	21,904	11,695	12,754	77.4	93.4	95.3	7.53
HVAC	1,442	985	1,094	15,930	9,812	10,636	90.5	100.3	102.9	8.13
Lighting	796	580	667	8,355	5,219	6,680	95.3	111.2	99.9	11.12
Other	156	127	141	1,816	1,247	1,430	85.8	101.6	98.6	17.83
Energy Management Practices (more than one may apply)										
Energy Management and Control System	330	324	451	2,892	2,538	3,313	114.1	127.7	136.0	14.81
Demand-Side Management[1] Participation	385	337	369	3,212	2,793	2,741	120.0	120.8	134.7	16.57
Energy Audit	493	353	365	5,283	3,060	3,331	93.3	115.2	109.6	13.63
Building Energy Manager	105	52	99	771	376	790	136.0	139.4	125.3	27.50

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.13. Consumption and Gross Energy Intensity for Sum of Major Fuels in Newer Buildings by Year Constructed, 1992

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.1	1.0	0.8	1.1	1.0	
All Buildings	839	294	173	10,149	4,138	2,502	82.7	71.0	69.3	13.57
Building Floorspace (square feet)										
1,001 to 5,000	118	30	12	1,064	275	197	111.0	109.5	58.6	20.39
5,001 to 10,000	56	31	8	896	355	176	62.8	86.9	46.4	22.52
10,001 to 25,000	95	42	20	1,613	576	309	58.7	72.8	64.9	19.78
25,001 to 50,000	149	40	24	1,176	482	327	126.6	83.4	73.2	25.86
50,001 to 100,000	114	39	25	1,330	387	268	86.0	99.6	94.9	24.89
100,001 to 200,000	116	25	20	1,626	444	269	71.5	57.0	72.6	25.48
200,001 to 500,000	108	26	44	1,207	320	670	89.5	80.1	66.1	27.13
Over 500,000	83	61	20	1,237	Q	285	66.8	Q	71.1	22.59
Principal Building Activity										
Education	34	14	Q	480	173	253	71.8	81.2	57.1	24.05
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Food Service	34	Q	Q	103	Q	Q	330.0	Q	Q	31.17
Health Care	50	Q	Q	240	Q	Q	209.1	Q	Q	28.28
Lodging	104	Q	12	550	Q	97	188.3	Q	122.8	33.70
Mercantile and Service	137	33	30	2,109	535	545	65.0	62.1	54.6	20.34
Office	219	68	52	2,419	899	590	90.7	75.6	87.4	18.24
Parking Garage	Q	Q	Q	Q	Q	124	Q	Q	24.5	32.28
Public Assembly	25	Q	19	461	Q	197	55.3	Q	97.0	28.67
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Religious Worship	9	Q	Q	358	Q	Q	24.3	Q	Q	25.00
Warehouse and Storage	136	22	12	2,233	610	377	61.0	36.3	30.8	24.25
Other	19	Q	Q	126	Q	Q	153.9	Q	Q	38.15
Vacant	Q	Q	Q	571	Q	77	Q	Q	Q	45.42
Census Region and Division										
Northeast	132	40	28	1,547	506	286	85.2	79.7	96.7	25.35
New England	28	Q	Q	497	Q	Q	56.0	Q	Q	44.77
Middle Atlantic	104	20	19	1,049	334	194	99.0	59.6	99.6	29.04
Midwest	251	53	49	2,482	500	670	101.1	105.9	73.7	20.59
East North Central	136	32	39	1,171	271	369	115.9	119.6	105.2	28.22
West North Central	115	21	11	1,311	229	301	87.8	89.6	35.0	25.60
South	273	145	55	3,950	2,367	906	69.1	Q	61.0	17.80
South Atlantic	89	42	24	1,806	783	487	49.2	54.0	49.6	22.70
East South Central	80	30	19	915	350	268	87.3	85.4	70.9	19.96
West South Central	104	73	12	1,229	Q	151	84.9	Q	80.3	28.83
West	184	55	41	2,170	765	639	84.7	72.5	64.0	20.69
Mountain	87	15	Q	793	229	148	109.3	66.2	66.7	37.19
Pacific	97	40	31	1,376	536	491	70.5	75.2	63.2	25.47
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	59	Q	Q	757	Q	Q	78.1	Q	Q	36.53
5,500-7,000 HDD	235	58	59	2,328	598	681	101.0	97.8	86.1	21.92
4,000-5,499 HDD	165	46	40	1,998	727	569	82.5	63.7	70.9	19.92
Fewer than 4,000 HDD	176	81	48	2,509	1,125	736	70.2	72.4	65.6	18.60
More than 2,000 CDD and --										
Fewer than 4,000 HDD	204	91	21	2,557	Q	415	79.9	Q	51.6	25.55
Energy Sources (more than one may apply)										
Electricity	839	294	173	10,042	4,106	2,482	83.6	71.5	69.7	10.91
Natural Gas	608	192	136	6,265	1,957	1,625	97.1	98.3	83.6	13.15
Fuel Oil	202	70	81	2,122	748	743	95.1	93.2	108.7	19.83
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
District Chilled Water	52	Q	19	184	Q	164	281.6	Q	113.8	35.03
Propane	35	8	Q	609	201	212	57.6	40.2	35.3	34.54
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.13. Consumption and Gross Energy Intensity for Sum of Major Fuels in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.1	1.0	0.8	1.1	1.0	
Energy End Uses (more than one may apply)										
Heated Buildings	819	289	170	9,398	3,878	2,303	87.2	74.6	73.9	13.90
Buildings with A/C	811	277	168	9,225	3,760	2,258	87.9	73.8	74.6	14.12
Buildings with Water Heating	807	286	161	8,869	3,696	2,167	91.0	77.4	74.3	14.50
Buildings with Cooking	334	163	78	3,197	2,117	859	104.4	Q	91.1	19.00
Buildings with Manufacturing	66	Q	Q	504	Q	Q	Q	Q	Q	38.41
Workers (main shift)										
Less than 5	108	78	19	2,177	Q	516	49.6	Q	37.7	22.82
5 to 9	107	19	7	882	343	152	121.6	56.5	46.7	24.77
10 to 19	81	37	17	1,142	389	201	70.7	94.9	83.2	24.57
20 to 49	136	52	22	1,560	514	399	86.8	100.4	54.7	23.02
50 to 99	96	32	24	1,117	347	301	86.3	92.3	78.8	25.09
100 or More	311	75	84	3,271	926	933	95.2	81.2	90.5	16.97
Weekly Operating Hours										
39 or Fewer	17	Q	8	686	163	176	25.4	Q	46.6	27.97
40 to 48	159	35	41	2,278	646	554	69.6	54.8	74.6	21.75
49 to 60	149	36	37	2,104	616	661	70.6	58.5	55.4	18.59
61 to 84	164	45	22	2,500	709	415	65.4	63.4	53.9	20.43
85 to 167	91	54	28	920	544	273	98.4	99.2	101.6	21.32
Open Continuously	261	117	37	1,661	Q	423	156.9	Q	87.6	25.34
Ownership and Occupancy										
Nongovernment Owned	744	255	122	9,056	3,550	1,798	82.1	71.9	67.7	15.72
Owner Occupied	607	151	98	6,328	1,785	1,307	95.8	84.6	75.1	13.68
Single Establishment	481	128	72	4,179	1,420	976	115.0	90.2	73.2	14.73
Multiple Establishment	126	23	Q	2,149	366	330	58.6	62.6	80.7	24.51
Nonowner Occupied	130	103	23	2,442	Q	472	53.4	Q	49.6	20.51
Single Establishment	41	71	12	663	Q	197	62.0	Q	61.6	27.94
Multiple Establishment	89	32	11	1,779	537	275	50.2	59.6	41.1	22.64
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	96	39	52	1,093	588	704	87.5	65.8	73.3	22.01
Predominant Exterior Wall Material										
Masonry	494	207	105	5,635	2,662	1,526	87.7	Q	68.7	15.98
Siding or Shingles	53	17	Q	716	178	105	74.3	96.2	Q	24.86
Metal Panels	150	17	13	1,929	559	244	77.9	31.2	53.4	24.76
Concrete Panels	46	33	37	745	452	464	61.2	73.0	78.7	23.57
Window Glass	42	12	4	685	202	76	61.6	57.3	53.6	22.15
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	301	119	57	3,563	Q	699	84.5	Q	81.3	17.92
Shingles (Not Wood)	118	23	12	1,310	283	206	90.2	80.3	55.8	24.19
Metal Surfacing	148	45	22	2,206	821	464	66.9	54.9	46.7	19.31
Synthetic or Rubber	179	76	70	1,688	817	868	106.2	92.8	81.0	17.47
Other	93	31	13	1,382	404	265	67.5	76.1	48.8	31.37
Floors										
One	313	150	46	4,359	2,373	994	71.8	Q	45.8	17.43
Two	226	49	46	2,789	710	654	81.1	69.2	70.0	19.40
Three	107	25	21	822	243	223	130.5	105.0	92.0	30.44
Four to Nine	116	54	47	1,085	620	457	107.2	86.8	102.9	26.14
Ten or More	77	15	14	1,094	192	174	70.1	79.9	83.3	25.56
Percent Window Glass										
25 or Less	591	183	115	6,989	3,164	1,701	84.6	Q	67.3	15.06
26 to 50	155	76	31	2,119	597	488	73.2	127.5	63.8	19.03
51 to 75	59	21	15	625	231	215	93.7	88.8	67.4	24.52
76 to 100	34	Q	Q	417	Q	Q	82.6	Q	Q	25.16

See footnotes at end of table.

Table 3.13. Consumption and Gross Energy Intensity for Sum of Major Fuels in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.1	1.0	0.8	1.1	1.0	
Building Shape										
Square	46	13	5	533	195	Q	87.0	67.5	Q	29.91
Rectangle	444	144	90	5,943	1,989	1,324	74.7	72.6	68.3	13.11
Right Angle	60	16	16	816	248	220	73.7	65.1	73.0	24.30
Other	289	120	62	2,857	Q	812	101.0	Q	76.5	21.79
Space-Heating Energy Sources (more than one may apply)										
Electricity	467	142	72	5,657	2,301	1,030	82.6	Q	69.5	17.22
Natural Gas	446	141	107	5,117	1,555	1,325	87.2	90.6	80.6	14.37
Fuel Oil	58	Q	16	496	Q	124	116.5	Q	129.1	31.34
District Heat	109	22	27	524	149	195	Q	145.8	136.3	29.78
Propane	11	Q	Q	316	Q	Q	35.6	Q	Q	35.12
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Sources (more than one may apply)										
Electricity	766	270	154	9,002	3,690	2,108	85.0	73.2	73.1	14.20
Natural Gas	33	Q	Q	Q	Q	Q	Q	Q	Q	40.22
District Chilled Water	52	Q	19	184	Q	164	281.6	Q	113.8	35.03
Water-Heating Energy Sources (more than one may apply)										
Electricity	390	156	56	5,278	2,596	980	73.8	Q	57.0	18.63
Natural Gas	396	131	98	3,634	1,175	1,117	109.0	111.5	87.9	14.70
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
District Heat	67	Q	11	215	Q	67	308.8	Q	158.4	35.94
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooking Energy Sources (more than one may apply)										
Electricity	196	105	56	2,091	Q	590	93.7	Q	95.8	21.23
Natural Gas	231	92	44	1,950	748	452	118.5	122.3	98.3	18.95
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Percent of Floorspace Heated										
Not Heated	20	4	Q	751	260	199	27.0	17.0	Q	34.46
1 to 50	54	23	9	1,690	640	279	32.1	35.2	32.3	25.81
51 to 99	132	42	27	1,636	438	345	80.9	96.5	77.2	22.37
100	633	225	135	6,073	2,799	1,679	104.2	Q	80.1	14.02
Percent of Floorspace Cooled										
Not Cooled	29	16	5	925	377	244	31.1	43.1	20.2	29.81
1 to 50	195	29	28	3,242	891	534	60.1	32.8	53.2	22.02
51 to 99	208	84	49	2,339	706	590	89.0	119.1	83.2	19.86
100	407	164	91	3,643	2,164	1,134	111.8	Q	80.1	16.82
Heating Equipment (more than one may apply)										
Heat Pumps	211	42	27	2,290	672	534	92.1	62.4	50.8	21.70
Furnaces	202	50	22	2,308	586	323	87.7	84.9	67.8	21.45
Individual Space Heaters	331	65	63	4,022	961	768	82.3	67.2	81.6	15.81
District Heat	109	22	28	524	149	202	Q	145.8	137.6	29.40
Boilers	188	90	56	1,972	Q	544	95.5	Q	102.5	21.08
Packaged Heating Units	235	110	54	3,154	1,152	893	74.7	95.4	60.6	15.60
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Heating Distribution Equipment (more than one may apply)										
Radiators or Baseboards	119	27	32	839	246	252	141.5	108.1	128.1	22.90
Ducts for Heating	649	256	145	7,458	3,423	2,004	87.1	74.8	72.6	14.97
VAV System Used	238	132	82	2,388	Q	856	99.5	Q	95.9	19.11
Individual Space Heaters	331	65	63	4,022	961	768	82.3	67.2	81.6	15.81
Fan Coil Units or Other	127	30	27	1,042	291	252	122.3	103.4	107.9	34.96

See footnotes at end of table.

Table 3.13. Consumption and Gross Energy Intensity for Sum of Major Fuels in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.1	1.0	0.8	1.1	1.0	
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	110	27	15	992	365	190	110.6	74.3	78.3	29.17
Heat Pumps	227	44	28	2,224	697	562	102.1	63.0	49.3	21.59
Individual A/C	159	73	12	1,630	Q	108	97.3	Q	114.1	29.36
District Chilled Water	52	Q	19	184	Q	164	281.6	Q	113.8	35.03
Central Chillers	164	85	54	1,839	Q	571	89.4	Q	94.7	20.41
Packaged A/C Units	377	148	97	4,788	1,550	1,230	78.8	95.3	78.9	13.70
Swamp Coolers	39	Q	Q	428	Q	Q	92.3	Q	Q	39.19
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Distribution Equipment (more than one may apply)										
Ducts for Cooling	739	273	162	8,288	3,651	2,177	89.2	74.8	74.3	14.40
VAV System Used	283	140	97	2,739	1,981	973	103.2	Q	99.2	18.63
Individual A/C	159	73	12	1,630	Q	108	97.3	Q	114.1	29.36
Fan Coil Units or Other	82	Q	11	730	Q	115	111.8	Q	91.8	36.57
Water-Heating Equipment (more than one may apply)										
Centralized System	389	177	93	3,795	2,220	1,095	102.6	Q	85.3	17.37
Distributed System	446	160	70	5,341	2,492	1,110	83.5	Q	63.1	18.23
Energy Conservation Features (more than one may apply)										
Any Conservation Features	833	293	172	9,842	4,044	2,419	84.6	72.5	71.2	13.73
Building Shell	821	290	170	9,463	3,902	2,338	86.8	74.2	72.5	14.12
HVAC	742	275	162	8,199	3,602	2,103	90.5	76.3	76.8	14.57
Lighting	464	163	130	5,052	2,519	1,627	91.8	Q	79.6	15.41
Other	76	29	24	860	325	275	87.9	89.6	87.8	21.80
Energy Management Practices (more than one may apply)										
Energy Management and Control System	221	140	106	2,324	2,018	1,236	95.2	Q	85.4	18.48
Demand-Side Management[1] Participation	159	44	32	1,539	521	504	103.0	84.7	63.9	20.91
Energy Audit	188	58	22	2,144	631	330	87.5	92.0	68.0	21.05
Building Energy Manager	24	8	Q	181	137	56	130.1	58.9	155.5	34.24

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.14. Total Electricity Consumption and Expenditures, 1992

Building Characteristics	All Buildings Using Electricity			Electricity Consumption			Electricity Expenditures	RSE Row Factor
				Primary	Site			
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (trillion Btu)	Total (billion kWh)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.1	1.1	1.1	1.1	
All Buildings	4,611	66,525	14.4	7,876	2,609	765	57,619	4.04
Building Floorspace (square feet)								
1,001 to 5,000	2,535	6,984	2.8	1,009	334	98	8,536	4.71
5,001 to 10,000	954	7,056	7.4	759	251	74	6,336	5.07
10,001 to 25,000	628	10,097	16.1	1,011	335	98	7,758	5.03
25,001 to 50,000	275	9,856	35.9	1,049	347	102	7,619	6.61
50,001 to 100,000	114	7,926	69.7	930	308	90	6,806	7.67
100,001 to 200,000	70	9,658	137.1	1,047	347	102	6,935	8.15
200,001 to 500,000	25	7,677	304.5	1,089	361	106	6,847	9.65
Over 500,000	9	7,271	770.7	980	325	95	6,783	13.75
Principal Building Activity								
Education	301	8,470	28.2	708	235	69	5,526	8.71
Food Sales	130	757	5.8	340	113	33	2,250	14.30
Food Service	260	1,491	5.7	415	138	40	3,359	9.37
Health Care	63	1,763	27.9	416	138	40	2,640	11.81
Lodging	154	2,891	18.8	571	189	55	4,030	16.26
Mercantile and Service	1,267	12,388	9.8	1,342	444	130	10,583	6.36
Office	749	12,318	16.4	2,124	704	206	15,511	7.84
Parking Garage	24	1,652	69.9	Q	Q	Q	743	33.35
Public Assembly	278	4,554	16.4	522	173	51	3,430	9.89
Public Order and Safety	60	820	13.7	84	28	8	619	25.10
Religious Worship	366	3,747	10.2	95	32	9	890	10.49
Warehouse and Storage	685	11,179	16.3	765	253	74	5,386	11.51
Other	65	1,124	17.3	235	78	23	1,479	18.37
Vacant	210	3,371	16.1	141	47	14	1,172	15.72
Year Constructed								
1899 or Before	169	1,721	10.2	116	38	11	1,029	16.90
1900 to 1919	244	3,401	14.0	202	67	20	1,711	15.29
1920 to 1945	681	8,385	12.3	655	217	64	5,263	10.58
1946 to 1959	839	10,135	12.1	1,002	332	97	7,477	9.17
1960 to 1969	757	12,473	16.5	1,593	528	155	11,617	7.76
1970 to 1979	945	13,779	14.6	1,898	629	184	13,659	6.84
1980 to 1989	853	14,148	16.6	2,080	689	202	14,510	7.08
1990 to 1992	124	2,482	20.0	330	109	32	2,354	14.25
Census Region and Division								
Northeast	755	13,235	17.5	1,264	419	123	12,250	7.13
New England	186	3,265	17.6	308	102	30	2,935	20.44
Middle Atlantic	569	9,971	17.5	956	317	93	9,315	10.68
Midwest	1,139	16,902	14.8	1,876	622	182	12,745	7.80
East North Central	723	10,574	14.6	1,134	376	110	8,308	10.59
West North Central	416	6,328	15.2	742	246	72	4,437	14.74
South	1,872	23,972	12.8	3,025	1,002	294	19,097	6.98
South Atlantic	736	10,431	14.2	1,388	460	135	9,252	9.18
East South Central	428	5,237	12.2	709	235	69	3,851	15.38
West South Central	708	8,305	11.7	927	307	90	5,994	12.08
West	845	12,415	14.7	1,710	566	166	13,527	8.10
Mountain	283	3,562	12.6	559	185	54	3,616	14.58
Pacific	562	8,853	15.7	1,151	381	112	9,911	9.68
Climate Zone: 45-Year Average								
Fewer than 2,000 CDD and --								
More than 7,000 HDD	382	5,475	14.3	585	194	57	3,553	14.02
5,500-7,000 HDD	1,089	17,719	16.3	1,873	621	182	14,625	9.28
4,000-5,499 HDD	1,039	15,965	15.4	1,800	596	175	13,278	10.50
Fewer than 4,000 HDD	1,054	14,865	14.1	1,994	661	194	14,688	12.03
More than 2,000 CDD and --								
Fewer than 4,000 HDD	1,048	12,501	11.9	1,623	537	158	11,474	10.86

See footnotes at end of table.

Table 3.14. Total Electricity Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Electricity			Electricity Consumption			Electricity Expenditures	RSE Row Factor
				Primary	Site			
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (trillion Btu)	Total (billion kWh)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.1	1.1	1.1	1.1	
Energy Sources (more than one may apply)								
Electricity	4,611	66,525	14.4	7,876	2,609	765	57,619	4.04
Natural Gas	2,655	44,987	16.9	5,341	1,769	519	39,769	5.22
Fuel Oil	557	13,208	23.7	1,981	656	192	14,003	10.36
District Heat	95	5,245	55.4	842	279	82	5,746	21.19
District Chilled Water	28	1,914	68.0	357	118	35	2,170	19.64
Propane	335	3,386	10.1	398	132	39	3,085	13.50
Any Other	159	1,541	9.7	112	37	11	831	17.89
Energy End Uses (more than one may apply)								
Heated Buildings	4,172	61,964	14.9	7,544	2,499	732	55,265	4.07
Buildings with A/C	3,502	57,041	16.3	7,384	2,446	717	53,825	4.25
Buildings with Water Heating	3,502	58,477	16.7	7,453	2,469	723	54,252	4.21
Buildings with Cooking	734	23,065	31.4	3,510	1,163	341	24,939	5.87
Buildings with Manufacturing	118	3,167	26.8	356	118	35	2,650	13.77
Workers (main shift)								
Less than 5	2,526	16,616	6.6	1,164	385	113	9,236	6.84
5 to 9	895	7,524	8.4	707	234	69	5,753	5.59
10 to 19	560	8,054	14.4	887	294	86	6,736	9.40
20 to 49	405	10,556	26.1	1,275	422	124	9,374	7.59
50 to 99	130	7,763	59.7	999	331	97	6,953	9.72
100 or More	96	16,010	167.1	2,844	942	276	19,566	7.59
Weekly Operating Hours								
39 or Fewer	886	7,065	8.0	244	81	24	2,223	8.90
40 to 48	1,268	14,945	11.8	1,457	483	141	10,823	7.68
49 to 60	992	14,020	14.1	1,293	428	125	10,197	6.19
61 to 84	641	12,028	18.8	1,454	482	141	11,389	8.16
85 to 167	475	8,455	17.8	1,356	449	132	10,031	8.30
Open Continuously	349	10,011	28.7	2,072	686	201	12,957	8.50
Ownership and Occupancy								
Nongovernment Owned	4,033	51,579	12.8	6,204	2,055	602	46,002	4.40
Owner Occupied	3,126	38,157	12.2	4,814	1,595	467	35,438	4.59
Single Establishment	2,799	29,752	10.6	3,847	1,274	373	27,862	5.40
Multiple Establishment	327	8,405	25.7	967	320	94	7,576	10.64
Nonowner Occupied	796	12,156	15.3	1,345	445	131	10,173	7.44
Single Establishment	485	5,520	11.4	673	223	65	4,627	12.18
Multiple Establishment	311	6,636	21.3	671	222	65	5,546	9.35
Vacant	112	1,265	11.3	45	15	4	392	26.99
Government Owned	578	14,946	25.9	1,672	554	162	11,617	7.28
Predominant Exterior Wall Material								
Masonry	3,033	47,814	15.8	5,520	1,828	536	40,496	4.17
Siding or Shingles	715	3,647	5.1	390	129	38	3,260	7.24
Metal Panels	690	7,125	10.3	707	234	69	4,786	12.73
Concrete Panels	85	4,906	57.7	669	222	65	4,868	11.55
Window Glass	43	2,008	46.8	424	140	41	3,066	21.78
Other	46	1,024	22.5	165	55	16	1,143	23.98
Predominant Roof Material								
Built-Up	1,593	29,757	18.7	3,900	1,292	379	28,113	5.42
Shingles (Not Wood)	1,347	10,321	7.7	951	315	92	7,649	8.66
Metal Surfacing	946	8,633	9.1	727	241	71	5,194	8.43
Synthetic or Rubber	378	11,595	30.7	1,620	537	157	11,633	7.38
Other	347	6,219	17.9	677	224	66	5,030	11.54

See footnotes at end of table.

Table 3.14. Total Electricity Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Electricity			Electricity Consumption			Electricity Expenditures	RSE Row Factor
				Primary	Site			
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (trillion Btu)	Total (billion kWh)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.1	1.1	1.1	1.1	
Space-Heating Energy Source								
Electricity	1,513	25,636	16.9	3,631	1,203	352	25,856	6.02
Electricity Main	1,107	15,502	14.0	2,414	800	234	16,781	6.66
Electricity Secondary	406	10,134	24.9	1,216	403	118	9,075	10.00
Other Excluding Electricity	2,659	36,328	13.7	3,914	1,296	380	29,409	4.96
Building Not Heated	439	4,560	10.4	331	110	32	2,353	21.74
Main Space-Heating Energy Source								
Electricity	1,107	15,502	14.0	2,414	800	234	16,781	6.66
Natural Gas	2,268	35,122	15.5	3,868	1,281	375	28,866	5.81
Fuel Oil	394	4,404	11.2	327	108	32	3,122	13.06
District Heat	89	4,749	53.5	780	258	76	5,321	14.17
Propane	217	1,101	5.1	90	30	9	777	17.64
Wood	64	246	3.8	10	3	1	98	20.85
Any Other	24	546	Q	22	7	2	124	40.17
Replacement Energy Source for Main Heating								
Electricity Only	350	2,559	7.3	229	76	22	1,825	11.27
Natural Gas Only	213	2,260	10.6	246	81	24	1,853	12.64
Fuel Oil Only	161	5,451	33.9	784	260	76	5,062	12.83
Propane Only	210	2,168	10.3	218	72	21	1,587	13.77
Any Other Single Energy Source	57	477	8.4	38	13	4	Q	32.69
More than One Energy Source	93	895	9.6	97	32	9	685	19.35
No Replacement Energy Source	3,088	48,155	15.6	5,934	1,965	576	43,853	4.48
Building Not Heated	439	4,560	10.4	331	110	32	2,353	21.74
Cooling Energy Source								
Electricity	3,404	54,628	16.0	7,022	2,326	682	51,474	4.33
Other Excluding Electricity	97	2,413	24.8	362	120	35	2,351	16.98
A/C Not Performed	1,110	9,484	8.5	492	163	48	3,794	11.91
Water-Heating Energy Source								
Electricity	1,696	25,482	15.0	3,317	1,099	322	23,303	5.72
Other Excluding Electricity	1,805	32,995	18.3	4,136	1,370	401	30,949	5.41
Water Heating Not Performed	1,110	8,047	7.3	423	140	41	3,367	13.37
Cooking Energy Source								
Electricity	356	12,183	34.2	2,005	664	195	13,854	6.73
Other Excluding Electricity	378	10,882	28.8	1,504	498	146	11,086	8.34
Cooking Not Performed	3,877	43,460	11.2	4,366	1,446	424	32,679	4.78
Manufacturing Energy Source								
Electricity	95	2,579	27.3	307	102	30	2,251	14.79
Other Excluding Electricity	24	588	24.7	50	17	5	399	23.78
Manufacturing Not Performed	4,493	63,358	14.1	7,519	2,491	730	54,969	4.14
Percent of Floorspace Heated								
Not Heated	439	4,560	10.4	331	110	32	2,353	21.74
1 to 50	711	11,507	16.2	769	255	75	6,038	9.70
51 to 99	615	10,199	16.6	1,306	433	127	10,034	7.39
100	2,846	40,258	14.1	5,469	1,812	531	39,192	4.71
Percent of Floorspace Cooled								
Not Cooled	1,110	9,484	8.5	492	163	48	3,794	11.91
1 to 50	1,176	21,715	18.5	1,439	477	140	11,296	5.54
51 to 99	658	13,872	21.1	2,259	748	219	16,302	6.80
100	1,668	21,454	12.9	3,685	1,221	358	26,227	5.82

See footnotes at end of table.

Table 3.14. Total Electricity Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Electricity			Electricity Consumption			Electricity Expenditures	RSE Row Factor
				Primary	Site			
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (trillion Btu)	Total (billion kWh)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.1	1.1	1.1	1.1	
Percent Lit when Open								
Not Lit	220	1,935	8.8	51	17	5	429	22.31
1 to 50	880	9,975	11.3	500	166	49	3,976	11.33
51 to 99	813	14,222	17.5	1,650	547	160	12,433	5.53
100	2,699	40,393	15.0	5,674	1,880	551	40,781	4.91
Percent Lit when Closed								
Not Lit	2,792	33,135	11.9	3,807	1,261	370	26,703	5.17
1 to 50	1,689	31,482	18.6	3,792	1,256	368	28,938	5.18
51 to 99	43	1,021	24.0	169	56	16	1,231	20.94
100	87	887	10.2	107	36	10	747	20.98
Heating Equipment (more than one may apply)								
Heat Pumps	449	8,269	18.4	1,312	435	127	8,938	9.04
Furnaces	1,692	16,908	10.0	1,597	529	155	12,330	5.68
Individual Space Heaters	1,459	22,364	15.3	2,550	845	248	18,096	5.73
District Heat	93	5,225	55.9	843	279	82	5,725	14.05
Boilers	624	20,664	33.1	2,504	829	243	17,612	6.31
Packaged Heating Units	870	15,999	18.4	2,203	730	214	16,901	7.35
Other	42	903	21.2	249	83	24	1,601	20.16
Cooling Equipment (more than one may apply)								
Residential-Type Central A/C	816	9,021	11.0	977	324	95	7,324	8.11
Heat Pumps	454	8,406	18.5	1,316	436	128	9,139	8.74
Individual A/C	1,023	17,979	17.6	1,744	578	169	13,205	7.25
District Chilled Water	28	2,066	72.6	357	118	35	2,173	19.90
Central Chillers	142	12,991	91.5	2,310	765	224	15,291	8.48
Packaged A/C Units	1,459	27,830	19.1	3,850	1,275	374	28,748	5.68
Swamp Coolers	179	2,085	11.7	326	108	32	2,292	17.76
Other	Q	268	35.0	37	12	4	220	40.18
Lighting Equipment (more than one may apply)								
Incandescent	2,509	39,221	15.6	4,944	1,638	480	36,084	4.64
Standard Fluorescent	4,064	62,067	15.3	7,541	2,498	732	55,275	4.01
Compact Fluorescent	206	8,335	40.4	1,385	459	134	9,997	8.99
High-Intensity Discharge	354	17,569	49.7	2,231	739	217	15,356	7.02
Other	78	1,612	20.6	199	66	19	1,508	22.24
Water-Heating Equipment (more than one may apply)								
Centralized System	1,994	31,599	15.8	4,185	1,386	406	30,437	5.42
Distributed System	1,557	29,500	18.9	3,674	1,217	357	26,294	6.63
Commercial Refrigeration Equipment (more than one may apply)								
Any Equipment	970	25,406	26.2	4,067	1,347	395	28,798	5.29
Walk-in Units	591	18,680	31.6	3,310	1,096	321	22,858	6.15
Cases and Cabinets	783	20,987	26.8	3,462	1,147	336	24,416	5.57
None	3,641	41,119	11.3	3,808	1,261	370	28,821	5.26
Personal Computers and/or Computer Terminals								
1 to 4	1,269	13,355	10.5	1,274	422	124	10,068	5.86
5 to 9	336	5,970	17.7	698	231	68	5,315	8.54
10 to 19	216	6,236	28.9	753	250	73	5,405	10.22
20 to 49	164	7,439	45.4	877	291	85	6,343	9.76
50 or More	111	14,691	132.3	2,707	897	263	18,514	7.92

See footnotes at end of table.

Table 3.14. Total Electricity Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Electricity			Electricity Consumption			Electricity Expenditures	RSE Row Factor
				Primary	Site			
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (trillion Btu)	Total (billion kWh)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.1	1.1	1.1	1.1	
Annual Consumption (kilowatthours)								
10,000 or Less	1,089	4,749	4.4	55	18	5	622	7.45
10,001 to 50,000	1,772	11,699	6.6	457	151	44	4,420	5.03
50,001 to 100,000	672	7,084	10.5	500	166	49	4,461	6.08
100,001 to 500,000	828	16,041	19.4	1,794	594	174	14,271	4.20
500,001 to 1,000,000	115	6,358	55.2	807	267	78	5,825	8.92
1,000,001 to 5,000,000	117	12,616	107.8	2,339	775	227	15,882	6.92
Over 5,000,000	17	7,978	459.6	1,924	637	187	12,138	11.19
Peak Electricity Demand (kilowatts)								
10 or Less	434	2,330	5.4	57	19	6	548	12.86
11 to 25	635	4,410	6.9	233	77	23	2,219	7.96
26 to 50	500	4,994	10.0	466	154	45	3,932	6.92
51 to 100	389	6,929	17.8	758	251	74	6,143	7.50
101 to 250	246	8,410	34.2	1,063	352	103	7,924	7.97
251 to 1,000	141	12,155	86.3	2,042	676	198	14,031	9.87
Over 1,000	30	8,184	269.8	1,860	616	181	11,712	13.92
Season of Peak Electricity Demand								
Summer	1,342	29,289	21.8	4,266	1,413	414	30,559	7.38
Winter	854	15,679	18.4	1,922	637	187	13,752	8.60
Summer and Winter	179	2,444	13.6	290	96	28	2,198	14.57
Building Generates Electricity								
Yes	153	10,373	67.7	1,914	634	186	12,741	8.74
No	4,458	56,152	12.6	5,962	1,975	579	44,878	4.23

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity, which is not included in the "Total of Major Fuels" category, is site electricity plus the conversion losses in the electric generation process at the utility plant. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.15. Electricity Consumption and Expenditure Intensities, 1992

Building Characteristics	Electricity Consumption						Electricity Expenditures			RSE Row Factor
	per Building (thousand kWh)	per Square Foot (kWh)	per Worker (thousand kWh)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per kWh (dollars)	
RSE Column Factor:	1.4	1.0	1.1	25th Percentile	Median	75th Percentile	1.3	1.0	0.5	
All Buildings	166	11.5	10.7	2.6	6.0	14.2	12.5	0.87	0.075	3.28
Building Floorspace (square feet)										
1,001 to 5,000	39	14.0	10.1	2.8	6.6	16.8	3.4	1.22	0.087	4.45
5,001 to 10,000	77	10.4	9.6	2.2	5.1	11.1	6.6	0.90	0.086	6.49
10,001 to 25,000	156	9.7	9.5	2.2	5.3	11.2	12.3	0.77	0.079	4.65
25,001 to 50,000	371	10.3	11.7	2.4	5.1	12.5	27.7	0.77	0.075	6.86
50,001 to 100,000	795	11.4	11.5	3.4	7.2	16.3	59.9	0.86	0.075	5.73
100,001 to 200,000	1,443	10.5	12.3	2.0	7.1	16.3	98.4	0.72	0.068	8.63
200,001 to 500,000	4,195	13.8	14.0	4.1	8.9	18.1	271.6	0.89	0.065	7.61
Over 500,000	10,087	13.1	8.5	4.8	13.1	17.2	718.9	0.93	0.071	10.83
Principal Building Activity										
Education	229	8.1	10.0	4.0	7.0	11.4	18.4	0.65	0.080	5.95
Food Sales	253	43.6	39.2	20.0	42.3	66.4	17.3	2.97	0.068	8.80
Food Service	155	27.0	18.0	15.6	28.9	50.2	12.9	2.25	0.083	7.48
Health Care	638	22.9	11.9	6.8	10.8	17.6	41.7	1.50	0.065	8.00
Lodging	360	19.2	27.4	5.7	12.2	21.5	26.2	1.39	0.073	12.12
Mercantile and Service	103	10.5	8.2	3.1	6.7	13.4	8.4	0.85	0.081	5.54
Office	275	16.7	7.6	4.4	9.6	17.6	20.7	1.26	0.075	5.68
Parking Garage	480	6.9	52.6	2.6	6.2	10.9	31.4	0.45	0.066	29.47
Public Assembly	182	11.1	18.4	1.7	4.3	10.1	12.3	0.75	0.068	8.09
Public Order and Safety	136	10.0	10.2	2.9	8.2	11.8	10.3	0.75	0.076	19.72
Religious Worship	25	2.5	4.0	1.1	2.4	3.7	2.4	0.24	0.096	8.70
Warehouse and Storage	108	6.6	16.8	1.3	3.1	6.1	7.9	0.48	0.073	10.67
Other	352	20.3	18.5	1.7	5.5	26.5	22.8	1.32	0.065	14.34
Vacant	65	4.1	14.3	0.4	1.6	4.4	5.6	0.35	0.086	15.20
Year Constructed										
1899 or Before	67	6.5	7.3	1.1	2.9	6.7	6.1	0.60	0.091	17.06
1900 to 1919	81	5.8	6.5	1.7	4.1	7.8	7.0	0.50	0.087	12.49
1920 to 1945	93	7.6	9.6	1.9	4.4	9.7	7.7	0.63	0.083	8.29
1946 to 1959	116	9.6	10.7	2.2	5.4	13.2	8.9	0.74	0.077	7.57
1960 to 1969	204	12.4	8.7	2.7	7.0	14.6	15.3	0.93	0.075	7.11
1970 to 1979	195	13.4	12.8	3.3	7.3	17.3	14.5	0.99	0.074	5.56
1980 to 1989	237	14.3	12.6	3.5	8.4	18.7	17.0	1.03	0.072	5.00
1990 to 1992	257	12.9	11.8	2.6	5.9	13.2	18.9	0.95	0.074	10.05
Census Region and Division										
Northeast	163	9.3	6.6	2.5	5.0	10.8	16.2	0.93	0.100	6.11
New England	161	9.2	7.8	2.9	6.2	11.8	15.8	0.90	0.098	7.88
Middle Atlantic	163	9.3	6.3	2.3	4.7	10.1	16.4	0.93	0.100	7.94
Midwest	160	10.8	12.3	2.1	5.0	11.8	11.2	0.75	0.070	6.29
East North Central	152	10.4	11.6	2.1	4.9	11.8	11.5	0.79	0.075	8.44
West North Central	173	11.4	13.4	2.5	5.1	11.1	10.7	0.70	0.062	8.96
South	157	12.2	12.6	2.6	6.4	15.2	10.2	0.80	0.065	5.54
South Atlantic	183	12.9	12.3	2.6	6.5	15.0	12.6	0.89	0.069	7.52
East South Central	161	13.1	13.5	2.8	7.0	18.8	9.0	0.74	0.056	10.98
West South Central	127	10.8	12.6	2.6	6.2	13.4	8.5	0.72	0.067	8.20
West	196	13.4	11.4	3.3	8.0	17.8	16.0	1.09	0.081	6.62
Mountain	192	15.2	12.6	3.7	7.4	20.3	12.8	1.02	0.067	14.85
Pacific	199	12.6	10.9	3.1	8.4	17.1	17.6	1.12	0.089	7.28
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	149	10.4	11.8	2.4	5.1	10.6	9.3	0.65	0.063	9.43
5,500-7,000 HDD	167	10.3	10.4	2.3	5.0	11.8	13.4	0.83	0.080	6.98
4,000-5,499 HDD	168	10.9	8.5	2.4	5.6	13.5	12.8	0.83	0.076	7.26
Fewer than 4,000 HDD	184	13.0	11.6	2.7	6.9	17.0	13.9	0.99	0.076	6.83
More than 2,000 CDD and --										
Fewer than 4,000 HDD	150	12.6	13.4	3.1	7.3	15.7	11.0	0.92	0.073	8.42

See footnotes at end of table.

Table 3.15. Electricity Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Electricity Consumption						Electricity Expenditures			RSE Row Factor
	per Building (thousand kWh)	per Square Foot (kWh)	per Worker (thousand kWh)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per kWh (dollars)	
				25th Percentile	Median	75th Percentile				
RSE Column Factor:	1.4	1.0	1.1				1.3	1.0	0.5	
Energy Sources (more than one may apply)										
Electricity	166	11.5	10.7	2.6	6.0	14.2	12.5	0.87	0.075	3.28
Natural Gas	195	11.5	10.1	2.9	6.7	15.0	15.0	0.88	0.077	3.69
Fuel Oil	345	14.6	10.6	2.4	4.7	9.4	25.1	1.06	0.073	7.93
District Heat	864	15.6	11.4	4.2	9.0	17.0	60.7	1.10	0.070	12.62
District Chilled Water	1,230	18.1	12.8	4.9	9.9	19.9	77.1	1.13	0.063	12.60
Propane	115	11.4	13.4	2.6	4.9	11.9	9.2	0.91	0.080	9.83
Any Other	69	7.1	8.3	1.8	3.2	5.9	5.2	0.54	0.076	14.41
Energy End Uses (more than one may apply)										
Heated Buildings	176	11.8	10.5	2.9	6.6	15.0	13.2	0.89	0.075	3.23
Buildings with A/C	205	12.6	10.7	3.5	7.7	17.4	15.4	0.94	0.075	3.24
Buildings with Water Heating	207	12.4	10.8	3.3	7.4	17.2	15.5	0.93	0.075	3.30
Buildings with Cooking	464	14.8	11.0	4.6	12.6	35.8	34.0	1.08	0.073	4.44
Buildings with Manufacturing	292	10.9	13.7	3.1	7.3	14.2	22.4	0.84	0.077	12.41
Workers (main shift)										
Less than 5	45	6.8	24.0	1.8	4.1	10.0	3.7	0.56	0.082	6.10
5 to 9	77	9.1	11.9	3.7	7.6	18.5	6.4	0.76	0.084	4.63
10 to 19	154	10.7	12.1	4.1	8.3	17.4	12.0	0.84	0.078	7.67
20 to 49	306	11.7	10.5	5.0	10.3	18.8	23.2	0.89	0.076	5.08
50 to 99	746	12.5	11.6	4.8	9.5	18.0	53.5	0.90	0.072	7.50
100 or More	2,882	17.2	8.3	8.3	15.8	24.7	204.2	1.22	0.071	5.11
Weekly Operating Hours										
39 or Fewer	27	3.3	6.0	0.8	2.1	4.3	2.5	0.31	0.094	6.85
40 to 48	112	9.5	8.1	2.9	6.1	11.4	8.5	0.72	0.077	5.95
49 to 60	127	9.0	8.1	2.8	5.5	11.2	10.3	0.73	0.081	5.15
61 to 84	220	11.7	11.1	4.9	9.9	19.7	17.8	0.95	0.081	6.70
85 to 167	277	15.6	10.6	6.8	18.3	43.3	21.1	1.19	0.076	6.75
Open Continuously	576	20.1	22.1	4.9	13.4	35.2	37.1	1.29	0.064	6.15
Ownership and Occupancy										
Nongovernment Owned	149	11.7	11.5	2.5	5.8	14.3	11.4	0.89	0.076	3.79
Owner Occupied	150	12.2	11.9	2.6	6.0	15.2	11.3	0.93	0.076	4.20
Single Establishment	133	12.6	13.4	2.5	6.0	15.4	10.0	0.94	0.075	4.75
Multiple Establishment	287	11.2	8.2	2.7	5.9	14.0	23.2	0.90	0.081	7.13
Nonowner Occupied	164	10.7	10.2	2.7	6.1	12.5	12.8	0.84	0.078	5.74
Single Establishment	135	11.8	13.0	2.8	6.3	13.4	9.5	0.84	0.071	9.38
Multiple Establishment	209	9.8	8.4	2.6	5.6	11.0	17.8	0.84	0.085	7.69
Vacant	39	3.4	Q	0.3	1.3	2.8	3.5	0.31	0.090	24.26
Government Owned	281	10.9	8.6	3.7	7.1	12.8	20.1	0.78	0.072	5.82
Predominant Exterior Wall Material										
Masonry	177	11.2	11.8	2.9	6.6	15.4	13.4	0.85	0.076	3.58
Siding or Shingles	53	10.4	8.8	1.9	5.1	13.5	4.6	0.89	0.086	7.13
Metal Panels	99	9.6	14.4	2.0	4.1	8.9	6.9	0.67	0.070	10.81
Concrete Panels	763	13.2	6.3	3.8	8.6	16.3	57.2	0.99	0.075	8.59
Window Glass	961	20.5	9.6	7.0	13.5	35.4	71.5	1.53	0.074	12.91
Other	353	15.7	7.8	1.7	5.0	6.0	25.1	1.12	0.071	15.47
Predominant Roof Material										
Built-Up	238	12.7	12.0	3.3	7.4	17.0	17.6	0.94	0.074	4.28
Shingles (Not Wood)	69	8.9	9.6	2.2	5.0	13.0	5.7	0.74	0.083	7.52
Metal Surfacing	75	8.2	10.9	2.0	4.4	9.9	5.5	0.60	0.074	7.45
Synthetic or Rubber	416	13.6	8.7	3.2	7.4	17.6	30.8	1.00	0.074	5.19
Other	189	10.6	12.0	3.0	7.2	15.7	14.5	0.81	0.077	10.41

See footnotes at end of table.

Table 3.15. Electricity Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Electricity Consumption						Electricity Expenditures			RSE Row Factor
	per Building (thousand kWh)	per Square Foot (kWh)	per Worker (thousand kWh)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per kWh (dollars)	
RSE Column Factor:	1.4	1.0	1.1	25th Percentile	Median	75th Percentile	1.3	1.0	0.5	
Space-Heating Energy Source										
Electricity	233	13.7	11.2	3.6	8.8	20.2	17.1	1.01	0.073	4.75
Electricity Main	212	15.1	13.5	4.8	10.5	22.4	15.2	1.08	0.072	5.21
Electricity Secondary	291	11.7	8.4	2.6	5.6	11.3	22.3	0.90	0.077	7.27
Other Excluding Electricity	143	10.5	10.0	2.6	5.5	12.6	11.1	0.81	0.077	3.68
Building Not Heated	73	7.1	20.3	0.6	1.9	4.9	5.4	0.52	0.073	22.05
Main Space-Heating Energy Source										
Electricity	212	15.1	13.5	4.8	10.5	22.4	15.2	1.08	0.072	5.21
Natural Gas	166	10.7	9.6	2.8	6.2	14.1	12.7	0.82	0.077	3.94
Fuel Oil	81	7.2	6.4	2.1	3.9	7.2	7.9	0.71	0.098	6.95
District Heat	853	15.9	11.4	4.0	9.0	16.5	59.9	1.12	0.070	10.83
Propane	40	7.9	10.9	1.9	3.9	10.2	3.6	0.71	0.089	13.71
Wood	15	4.0	Q	1.5	3.2	4.8	1.5	0.40	0.098	14.58
Any Other	Q	3.8	7.9	1.9	2.4	5.1	Q	0.23	0.059	30.75
Replacement Energy Source for Main Heating										
Electricity Only	63	8.7	9.6	2.5	6.0	13.2	5.2	0.71	0.082	6.71
Natural Gas Only	112	10.5	10.8	3.0	6.5	19.3	8.7	0.82	0.078	11.06
Fuel Oil Only	473	14.0	15.0	2.5	4.7	12.0	31.5	0.93	0.067	7.98
Propane Only	101	9.8	9.7	2.5	5.3	10.8	7.6	0.73	0.075	12.07
Any Other Single Energy Source	65	7.7	5.7	2.0	3.5	5.1	Q	0.84	0.108	27.60
More than One Energy Source	101	10.5	10.7	2.6	5.9	21.7	7.4	0.77	0.073	16.41
No Replacement Energy Source	187	12.0	10.2	3.1	7.0	15.8	14.2	0.91	0.076	3.56
Building Not Heated	73	7.1	20.3	0.6	1.9	4.9	5.4	0.52	0.073	22.05
Cooling Energy Source										
Electricity	200	12.5	10.7	3.5	7.7	17.4	15.1	0.94	0.076	3.24
Other Excluding Electricity	361	14.6	11.1	4.2	8.2	17.9	24.2	0.97	0.067	14.52
A/C Not Performed	43	5.0	11.2	0.9	2.5	5.4	3.4	0.40	0.079	13.59
Water-Heating Energy Source										
Electricity	190	12.6	11.7	3.3	7.9	17.6	13.7	0.91	0.072	4.46
Other Excluding Electricity	222	12.2	10.1	3.4	7.0	16.8	17.1	0.94	0.077	4.01
Water Heating Not Performed	37	5.1	10.4	1.0	2.9	6.6	3.0	0.42	0.082	13.42
Cooking Energy Source										
Electricity	547	16.0	10.6	4.9	12.2	41.4	38.9	1.14	0.071	5.65
Other Excluding Electricity	386	13.4	11.7	4.3	13.0	31.6	29.3	1.02	0.076	6.01
Cooking Not Performed	109	9.8	10.5	2.3	5.4	11.9	8.4	0.75	0.077	4.07
Manufacturing Energy Source										
Electricity	315	11.5	14.2	3.1	7.3	12.8	23.8	0.87	0.076	13.52
Other Excluding Electricity	203	8.2	11.3	3.1	8.1	26.5	16.7	0.68	0.082	17.55
Manufacturing Not Performed	162	11.5	10.6	2.6	6.0	14.2	12.2	0.87	0.075	3.47
Percent of Floorspace Heated										
Not Heated	73	7.1	20.3	0.6	1.9	4.9	5.4	0.52	0.073	22.05
1 to 50	105	6.5	7.5	1.7	3.6	7.7	8.5	0.52	0.081	8.22
51 to 99	206	12.4	10.6	3.1	7.5	16.1	16.3	0.98	0.079	5.67
100	187	13.2	11.1	3.3	7.5	17.2	13.8	0.97	0.074	3.56
Percent of Floorspace Cooled										
Not Cooled	43	5.0	11.2	0.9	2.5	5.4	3.4	0.40	0.079	13.59
1 to 50	119	6.4	10.6	2.6	4.8	9.3	9.6	0.52	0.081	4.56
51 to 99	333	15.8	9.2	4.7	9.6	20.6	24.8	1.18	0.074	5.22
100	214	16.7	12.0	4.3	10.0	21.4	15.7	1.22	0.073	4.34
Percent Lit when Open										
Not Lit	22	2.6	46.5	0.2	0.9	2.7	1.9	0.22	0.087	23.98
1 to 50	55	4.9	11.5	1.5	3.1	7.0	4.5	0.40	0.082	11.81
51 to 99	197	11.3	10.7	3.2	7.1	14.9	15.3	0.87	0.078	4.80
100	204	13.6	10.6	3.5	7.7	17.7	15.1	1.01	0.074	3.62

See footnotes at end of table.

Table 3.15. Electricity Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Electricity Consumption						Electricity Expenditures			RSE Row Factor
	per Building (thousand kWh)	per Square Foot (kWh)	per Worker (thousand kWh)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per kWh (dollars)	
				25th Percentile	Median	75th Percentile				
RSE Column Factor:	1.4	1.0	1.1				1.3	1.0	0.5	
Percent Lit when Closed										
Not Lit	132	11.2	13.4	2.0	4.7	11.1	9.6	0.81	0.072	4.35
1 to 50	218	11.7	8.9	4.0	8.4	18.6	17.1	0.92	0.079	3.88
51 to 99	386	16.1	13.7	7.1	14.7	41.5	28.9	1.21	0.075	15.50
100	120	11.8	12.5	1.8	7.8	17.6	8.6	0.84	0.072	13.84
Heating Equipment (more than one may apply)										
Heat Pumps	284	15.4	13.4	4.7	9.8	21.2	19.9	1.08	0.070	7.34
Furnaces	92	9.2	7.8	2.8	5.9	13.2	7.3	0.73	0.080	4.45
Individual Space Heaters	170	11.1	10.1	2.4	5.2	11.8	12.4	0.81	0.073	4.84
District Heat	876	15.7	11.6	4.2	9.0	17.0	61.3	1.10	0.070	9.55
Boilers	390	11.8	10.8	2.7	5.1	10.9	28.2	0.85	0.072	4.95
Packaged Heating Units	246	13.4	9.4	5.0	9.9	21.8	19.4	1.06	0.079	5.26
Other	569	26.8	21.2	6.9	32.1	54.1	37.7	1.77	0.066	14.47
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	116	10.5	9.7	3.4	6.5	13.4	9.0	0.81	0.077	6.35
Heat Pumps	282	15.2	13.4	4.7	9.9	21.5	20.1	1.09	0.072	6.94
Individual A/C	165	9.4	9.4	2.6	5.3	11.9	12.9	0.73	0.078	5.22
District Chilled Water	1,219	16.8	12.8	4.9	9.9	19.3	76.3	1.05	0.063	13.75
Central Chillers	1,580	17.3	12.1	6.0	12.2	20.0	107.7	1.18	0.068	6.06
Packaged A/C Units	256	13.4	11.4	4.3	9.6	21.2	19.7	1.03	0.077	3.74
Swamp Coolers	177	15.2	10.4	4.2	7.8	21.7	12.8	1.10	0.072	10.82
Other	473	13.5	14.2	5.1	5.6	16.9	28.8	0.82	0.061	25.27
Lighting Equipment (more than one may apply)										
Incandescent	191	12.2	10.3	2.5	6.0	14.8	14.4	0.92	0.075	3.93
Standard Fluorescent	180	11.8	10.5	3.0	6.7	15.1	13.6	0.89	0.076	3.17
Compact Fluorescent	651	16.1	8.1	3.9	8.6	19.8	48.4	1.20	0.074	7.27
High-Intensity Discharge	613	12.3	10.8	3.5	7.2	15.7	43.4	0.87	0.071	6.25
Other	247	12.0	9.9	5.1	9.6	18.2	19.3	0.94	0.078	18.21
Water-Heating Equipment (more than one may apply)										
Centralized System	204	12.9	11.4	3.4	7.4	16.9	15.3	0.96	0.075	4.21
Distributed System	229	12.1	10.5	3.2	7.6	17.6	16.9	0.89	0.074	4.46
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	407	15.5	12.1	6.0	16.8	39.0	29.7	1.13	0.073	4.06
Walk-in Units	544	17.2	12.6	9.2	22.6	52.4	38.7	1.22	0.071	4.45
Cases and Cabinets	429	16.0	11.9	6.2	18.8	45.0	31.2	1.16	0.073	4.32
None	102	9.0	9.6	2.1	4.9	10.5	7.9	0.70	0.078	4.57
Personal Computers and/or Computer Terminals										
1 to 4	97	9.3	11.8	3.4	7.3	15.5	7.9	0.75	0.081	5.28
5 to 9	201	11.3	11.1	5.2	8.8	16.9	15.8	0.89	0.078	7.26
10 to 19	339	11.7	11.6	4.6	9.0	17.2	25.0	0.87	0.074	7.73
20 to 49	519	11.4	10.6	5.3	10.6	19.2	38.7	0.85	0.074	6.27
50 or More	2,366	17.9	8.7	7.4	14.5	23.3	166.7	1.26	0.070	5.60

See footnotes at end of table.

Table 3.15. Electricity Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Electricity Consumption						Electricity Expenditures			RSE Row Factor
	per Building (thousand kWh)	per Square Foot (kWh)	per Worker (thousand kWh)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per kWh (dollars)	
RSE Column Factor:	1.4	1.0	1.1	25th Percentile	Median	75th Percentile	1.3	1.0	0.5	
Annual Consumption (kilowatthours)										
10,000 or Less	5	1.1	2.1	0.6	1.5	2.9	0.6	0.13	0.116	3.94
10,001 to 50,000	25	3.8	4.9	3.1	5.7	9.9	2.5	0.38	0.100	2.83
50,001 to 100,000	72	6.8	7.7	6.3	10.8	20.7	6.6	0.63	0.092	2.94
100,001 to 500,000	210	10.9	10.7	8.3	17.6	44.9	17.2	0.89	0.082	2.61
500,001 to 1,000,000	680	12.3	12.8	10.6	18.0	31.1	50.6	0.92	0.074	3.58
1,000,001 to 5,000,000	1,940	18.0	14.9	15.0	23.2	50.9	135.7	1.26	0.070	4.60
Over 5,000,000	10,762	23.4	12.1	13.8	24.7	40.0	699.4	1.52	0.065	6.46
Peak Electricity Demand (kilowatts)										
10 or Less	13	2.4	4.0	1.4	2.9	5.9	1.3	0.24	0.099	7.35
11 to 25	36	5.1	6.0	3.8	7.0	13.4	3.5	0.50	0.098	5.39
26 to 50	91	9.1	8.7	5.4	11.0	29.8	7.9	0.79	0.087	5.65
51 to 100	189	10.6	10.4	6.1	12.8	30.7	15.8	0.89	0.083	3.78
101 to 250	420	12.3	12.3	8.1	16.8	30.5	32.3	0.94	0.077	4.51
251 to 1,000	1,406	16.3	14.7	10.7	18.6	42.0	99.6	1.15	0.071	6.61
Over 1,000	5,952	22.1	16.4	13.8	23.0	40.0	386.2	1.43	0.065	8.73
Season of Peak Electricity Demand										
Summer	309	14.1	12.4	4.6	9.6	20.4	22.8	1.04	0.074	4.44
Winter	219	11.9	13.2	3.3	7.5	17.6	16.1	0.88	0.074	6.38
Summer and Winter	157	11.5	9.7	2.8	5.9	13.4	12.3	0.90	0.078	14.43
Building Generates Electricity										
Yes	1,213	17.9	12.1	5.1	11.8	24.1	83.1	1.23	0.069	6.35
No	130	10.3	10.4	2.5	5.9	13.8	10.1	0.80	0.078	3.71

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.16. Electricity Consumption and Conditional Energy Intensity by Census Region, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.1	1.2	1.1	1.3	1.1	1.0	0.9	1.1	0.9	0.8	0.8	0.9	
All Buildings	123	182	294	166	13,235	16,902	23,972	12,415	9.3	10.8	12.2	13.4	6.81
Building Floorspace (square feet)													
1,001 to 5,000	13	20	45	21	1,037	1,779	3,007	1,161	12.3	11.1	14.9	17.9	11.10
5,001 to 10,000	9	15	28	22	1,337	1,742	2,618	1,359	6.8	8.4	10.6	16.3	12.28
10,001 to 25,000	13	24	38	23	1,652	2,571	3,659	2,216	7.9	9.2	10.4	10.6	11.70
25,001 to 50,000	14	17	45	25	1,912	2,330	3,627	1,988	7.3	7.5	12.5	12.7	14.14
50,001 to 100,000	18	20	30	22	1,731	2,074	2,760	1,361	10.6	9.6	10.9	16.0	15.18
100,001 to 200,000	10	28	39	25	1,598	2,047	3,702	2,311	6.3	13.5	10.6	10.7	17.78
200,001 to 500,000	19	37	30	20	1,665	2,759	1,916	1,337	11.2	13.6	15.4	15.0	18.42
Over 500,000	27	22	39	8	2,303	1,601	2,685	683	11.6	13.5	14.4	11.6	25.30
Principal Building Activity													
Education	12	19	22	16	1,968	2,386	2,620	1,496	6.2	7.8	8.2	10.9	12.23
Food Sales	Q	8	11	10	Q	182	245	209	Q	43.9	42.8	49.8	21.80
Food Service	7	10	14	9	445	432	407	208	14.9	23.6	34.7	45.3	17.88
Health Care	7	11	17	6	386	487	597	292	19.0	22.0	27.7	19.7	18.22
Lodging	6	8	23	18	616	577	1,043	654	10.0	13.4	22.2	28.0	21.87
Mercantile and Service	23	33	51	24	2,798	3,150	4,228	2,212	8.1	10.3	12.1	10.8	11.96
Office	37	45	75	49	2,525	2,804	4,152	2,838	14.5	16.0	18.2	17.4	12.48
Parking Garage	Q	Q	2	2	Q	Q	455	272	Q	Q	Q	6.5	40.15
Public Assembly	6	8	28	8	777	861	2,267	649	8.3	9.6	12.2	12.7	17.93
Public Order and Safety	Q	Q	3	Q	269	Q	238	Q	9.2	Q	13.8	Q	31.74
Religious Worship	1	2	5	2	452	1,137	1,366	792	1.5	1.8	3.4	2.5	21.47
Warehouse and Storage	11	22	31	10	1,736	2,985	4,880	1,579	6.5	7.4	6.4	6.3	23.37
Other	3	7	9	4	199	301	381	244	14.3	23.6	23.8	15.6	34.18
Vacant	2	2	3	6	571	794	1,092	913	3.4	2.7	3.1	6.8	27.98
Year Constructed													
1899 or Before	5	4	Q	Q	676	720	Q	Q	7.0	5.0	Q	Q	27.27
1900 to 1919	7	7	3	3	1,032	1,144	748	477	7.0	5.7	4.3	5.5	28.69
1920 to 1945	13	18	23	9	2,575	2,195	2,513	1,102	5.1	8.3	9.1	8.5	19.36
1946 to 1959	17	20	38	23	2,039	2,591	3,745	1,760	8.3	7.5	10.0	13.2	16.40
1960 to 1969	28	39	55	32	2,476	2,632	4,820	2,545	11.4	14.9	11.4	12.8	14.17
1970 to 1979	24	45	74	41	2,120	3,985	4,824	2,850	11.6	11.3	15.3	14.4	11.76
1980 to 1989	24	42	89	47	2,032	2,971	6,253	2,892	11.7	14.2	14.3	16.2	13.00
1990 to 1992	4	8	11	9	286	663	903	630	14.5	12.1	12.4	13.7	21.99
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	42	Q	7	Q	3,939	Q	Q	9.3	10.8	Q	9.5	15.79
5,500-7,000 HDD	57	102	Q	23	6,802	9,235	Q	1,682	8.3	11.0	Q	13.9	12.85
4,000-5,499 HDD	58	38	59	19	5,592	3,728	4,897	1,748	10.4	10.1	12.1	11.1	12.86
Fewer than 4,000 HDD	Q	Q	106	88	Q	Q	7,989	6,875	Q	Q	13.3	12.7	13.90
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	128	29	Q	Q	11,086	1,415	Q	Q	11.6	20.6	17.72
Energy Sources (more than one may apply)													
Electricity	123	182	294	166	13,235	16,902	23,972	12,415	9.3	10.8	12.2	13.4	6.81
Natural Gas	78	143	169	129	8,559	13,775	13,355	9,299	9.2	10.4	12.6	13.8	8.41
Fuel Oil	55	38	70	28	5,535	2,536	3,579	1,557	10.0	15.0	19.6	18.3	15.72
District Heat	19	31	17	15	1,559	1,884	890	912	12.1	16.5	18.8	16.5	22.82
District Chilled Water	4	12	12	7	302	532	659	421	12.9	21.9	17.8	17.5	28.53
Propane	12	5	18	4	1,041	572	1,514	260	11.2	8.4	11.8	16.5	23.42
Any Other	3	2	3	4	444	248	442	407	5.8	7.4	6.7	Q	34.72
Energy End Uses (more than one may apply)													
Heated Buildings	121	176	280	155	12,858	16,296	21,634	11,176	9.4	10.8	12.9	13.9	6.84
Buildings with A/C	115	170	278	154	11,158	14,382	21,205	10,296	10.3	11.8	13.1	15.0	6.99
Buildings with Water Heating	119	178	268	158	12,410	15,459	19,591	11,017	9.6	11.5	13.7	14.4	6.88
Buildings with Cooking	70	82	125	64	5,740	5,800	7,768	3,757	12.2	14.2	16.1	16.9	9.69
Buildings with Manufacturing	8	8	13	6	756	889	1,039	484	10.4	8.5	13.0	11.9	25.75

See footnotes at end of table.

Table 3.16. Electricity Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.1	1.2	1.1	1.3	1.1	1.0	0.9	1.1	0.9	0.8	0.8	0.9	
Workers (main shift)													
Less than 5	13	21	53	25	2,543	4,392	7,072	2,609	5.2	4.8	7.5	9.7	12.43
5 to 9	9	17	28	14	1,328	1,867	3,013	1,316	6.6	9.3	9.4	10.9	11.72
10 to 19	11	17	40	18	1,367	1,848	3,266	1,573	8.3	9.3	12.2	11.2	14.96
20 to 49	16	23	53	32	2,014	2,521	3,818	2,204	7.7	9.1	13.9	14.6	12.85
50 to 99	15	31	27	23	1,899	2,002	2,286	1,577	8.1	15.7	11.8	14.7	17.19
100 or More	58	72	92	53	4,085	4,272	4,519	3,135	14.3	16.9	20.4	17.0	12.39
Weekly Operating Hours													
39 or Fewer	5	5	10	4	1,255	2,128	2,736	945	3.7	2.3	3.7	4.2	15.60
40 to 48	19	30	66	27	2,263	3,441	6,529	2,712	8.4	8.6	10.1	9.9	13.84
49 to 60	24	27	46	30	2,618	3,459	4,998	2,944	9.0	7.7	9.1	10.0	11.72
61 to 84	21	42	48	30	2,578	3,190	3,784	2,477	8.0	13.3	12.6	12.3	14.90
85 to 167	29	31	41	30	2,486	2,217	1,928	1,824	11.8	14.1	21.1	16.6	14.04
Open Continuously	25	47	84	45	2,035	2,466	3,997	1,513	12.5	19.1	21.0	29.7	14.36
Ownership and Occupancy													
Nongovernment Owned	91	143	233	135	9,813	12,797	18,980	9,987	9.3	11.2	12.3	13.5	7.53
Owner Occupied	73	119	172	103	7,291	10,321	13,428	7,117	9.9	11.6	12.8	14.5	7.99
Single Establishment	56	93	144	80	5,240	7,903	11,391	5,218	10.7	11.7	12.7	15.4	10.05
Multiple Establishment	16	27	28	23	2,050	2,418	2,038	1,899	8.0	11.1	13.6	12.2	16.51
Nonowner Occupied	19	23	60	29	2,343	2,169	5,135	2,508	7.9	10.6	11.7	11.5	15.39
Single Establishment	8	8	36	14	1,025	859	2,575	1,062	7.7	9.1	13.9	13.1	22.86
Multiple Establishment	11	15	24	15	1,319	1,310	2,561	1,447	8.1	11.6	9.5	10.4	17.66
Vacant	Q	1	1	Q	Q	307	417	Q	Q	1.7	2.9	Q	34.59
Government Owned	31	39	60	31	3,422	4,105	4,992	2,427	9.2	9.6	12.1	12.9	12.31
Predominant Exterior Wall Material													
Masonry	86	129	209	112	9,942	12,708	16,757	8,407	8.6	10.2	12.5	13.3	7.53
Siding or Shingles	7	7	10	13	931	945	999	772	7.7	7.8	10.1	17.3	15.59
Metal Panels	8	15	35	10	882	1,684	3,809	750	9.0	9.2	9.3	12.9	20.59
Concrete Panels	14	12	19	20	1,003	734	1,434	1,735	13.9	16.1	13.1	11.7	21.28
Window Glass	Q	Q	15	6	372	Q	692	423	17.6	25.5	21.8	14.8	24.44
Other	1	5	Q	Q	106	310	Q	Q	13.4	16.3	Q	Q	27.75
Predominant Roof Material													
Built-Up	46	73	160	99	4,837	6,272	11,378	7,269	9.4	11.7	14.1	13.7	9.86
Shingles (Not Wood)	16	27	32	18	2,366	3,154	3,086	1,716	6.6	8.6	10.4	10.3	15.27
Metal Surfacing	5	17	37	11	817	1,959	4,921	935	5.8	8.8	7.5	12.2	15.97
Synthetic or Rubber	47	52	41	18	3,749	4,235	2,611	1,000	12.6	12.2	15.6	17.7	10.97
Other	9	13	23	20	1,466	1,282	1,977	1,494	6.5	10.1	11.8	13.4	20.84
Space-Heating Energy Source													
Electricity	56	54	164	78	4,505	4,673	11,185	5,273	12.4	11.6	14.7	14.8	10.38
Electricity Main	25	26	131	52	1,768	2,169	8,529	3,036	14.0	12.1	15.4	17.2	13.37
Electricity Secondary	31	28	33	26	2,737	2,504	2,657	2,237	11.4	11.2	12.5	11.5	16.40
Other Excluding Electricity	65	122	115	77	8,353	11,623	10,449	5,903	7.8	10.5	11.0	13.1	8.35
Building Not Heated	2	Q	Q	11	377	606	2,338	1,239	4.1	Q	6.0	8.7	28.95

See footnotes at end of table.

Table 3.16. Electricity Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.1	1.2	1.1	1.3	1.1	1.0	0.9	1.1	0.9	0.8	0.8	0.9	
Main Space-Heating Energy Source													
Electricity	25	26	131	52	1,768	2,169	8,529	3,036	14.0	12.1	15.4	17.2	13.37
Natural Gas	53	114	121	87	6,049	11,458	10,631	6,984	8.8	10.0	11.4	12.5	9.74
Fuel Oil	23	Q	6	Q	3,202	426	728	Q	7.1	Q	8.4	Q	15.83
District Heat	17	30	15	14	1,466	1,682	810	791	11.9	17.6	18.0	17.9	19.29
Propane	2	Q	3	Q	158	287	571	Q	14.4	8.3	5.9	Q	32.15
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating													
Electricity Only	2	7	9	4	273	805	1,030	451	5.7	8.6	9.1	9.7	21.88
Natural Gas Only	5	5	8	5	665	547	593	454	8.2	9.9	13.3	Q	26.08
Fuel Oil Only	16	26	26	8	1,541	2,122	1,382	406	10.2	12.5	18.9	19.0	23.05
Propane Only	4	6	5	6	353	772	541	501	10.2	8.0	9.0	12.9	24.50
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	2	2	Q	Q	243	214	Q	Q	8.4	9.1	Q	37.04
No Replacement Energy Source	90	129	228	129	9,581	11,676	17,760	9,137	9.4	11.0	12.9	14.1	7.84
Building Not Heated	2	Q	Q	11	377	606	2,338	1,239	4.1	Q	6.0	8.7	28.95
Cooling Energy Source													
Electricity	110	157	269	145	10,729	13,544	20,609	9,747	10.3	11.6	13.1	14.9	7.07
Other Excluding Electricity	5	13	9	9	429	839	597	549	11.5	15.5	14.2	15.9	27.34
A/C Not Performed	8	12	16	12	2,078	2,520	2,767	2,119	3.7	4.9	5.7	5.7	20.53
Water-Heating Energy Source													
Electricity	45	62	156	58	4,366	5,643	11,302	4,171	10.4	10.9	13.8	14.0	10.90
Other Excluding Electricity	74	116	111	100	8,044	9,817	8,288	6,846	9.2	11.9	13.4	14.6	8.86
Water Heating Not Performed	3	4	26	8	825	1,443	4,382	1,398	4.2	2.7	6.0	5.4	18.98
Cooking Energy Source													
Electricity	42	47	70	35	2,963	2,832	4,287	2,101	14.2	16.6	16.4	16.6	12.61
Other Excluding Electricity	28	35	54	29	2,777	2,968	3,481	1,656	10.0	11.8	15.6	17.4	13.43
Cooking Not Performed	53	100	169	102	7,496	11,102	16,204	8,658	7.0	9.0	10.4	11.8	8.94
Percent of Floorspace Heated													
Not Heated	2	Q	Q	11	377	606	2,338	1,239	4.1	Q	6.0	8.7	28.95
1 to 50	16	14	25	19	2,583	2,177	4,461	2,285	6.3	6.4	5.7	8.3	20.38
51 to 99	26	22	41	37	2,114	2,243	3,102	2,740	12.3	10.0	13.3	13.5	14.34
100	79	140	213	99	8,161	11,876	14,071	6,151	9.7	11.8	15.1	16.2	7.31
Percent of Floorspace Cooled													
Not Cooled	8	12	16	12	2,078	2,520	2,767	2,119	3.7	4.9	5.7	5.7	20.53
1 to 50	34	42	42	22	5,640	6,318	6,482	3,275	6.0	6.6	6.5	6.7	10.87
51 to 99	44	65	65	45	3,049	3,825	4,097	2,902	14.5	17.0	15.8	15.6	10.27
100	37	63	171	87	2,469	4,240	10,627	4,118	14.9	14.9	16.1	21.1	9.77
Percent Lit when Open													
Not Lit	Q	1	2	Q	Q	653	594	397	Q	1.3	3.4	4.1	36.28
1 to 50	7	11	21	10	1,763	2,771	3,754	1,688	3.8	4.0	5.7	5.6	15.49
51 to 99	28	43	57	32	3,098	3,914	4,611	2,599	9.0	11.0	12.4	12.3	11.59
100	88	127	213	123	8,085	9,564	15,013	7,731	10.8	13.3	14.2	15.9	8.01

See footnotes at end of table.

Table 3.16. Electricity Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.1	1.2	1.1	1.3	1.1	1.0	0.9	1.1	0.9	0.8	0.8	0.9	
Percent Lit when Closed													
Not Lit	47	85	148	90	5,713	7,906	12,610	6,905	8.2	10.7	11.7	13.0	9.21
1 to 50	72	94	133	69	7,264	8,577	10,536	5,104	9.9	10.9	12.7	13.6	8.85
51 to 99	Q	2	5	6	Q	205	328	306	Q	11.3	16.4	20.3	28.73
100	Q	1	7	Q	Q	214	498	Q	Q	6.3	14.1	Q	29.61
Heating Equipment (more than one may apply)													
Heat Pumps	18	15	63	31	1,328	1,324	3,632	1,985	13.8	11.3	17.3	15.7	15.53
Furnaces	28	51	47	28	3,268	5,579	4,969	3,092	8.7	9.2	9.5	9.1	11.58
Individual Space Heaters	52	61	93	42	4,907	6,181	7,633	3,643	10.6	9.9	12.1	11.6	11.12
District Heat	19	31	17	15	1,553	1,869	927	875	12.2	16.5	18.7	16.9	18.67
Boilers	50	69	81	42	6,192	6,477	5,404	2,590	8.1	10.7	15.0	16.4	9.87
Packaged Heating Units	35	46	84	49	2,890	3,033	6,440	3,637	12.0	15.1	13.1	13.6	12.71
Other	3	Q	Q	Q	180	Q	Q	Q	19.0	Q	Q	Q	31.82
Cooling Equipment (more than one may apply)													
Residential-Type Central A/C	14	25	42	14	1,508	2,968	3,455	1,091	9.4	8.3	12.1	12.9	13.59
Heat Pumps	16	16	63	33	1,286	1,416	3,745	1,959	12.6	11.3	16.7	16.8	15.73
Individual A/C	49	39	64	18	5,806	4,723	5,683	1,767	8.4	8.3	11.2	10.2	13.51
District Chilled Water	4	12	12	7	302	684	659	421	12.9	17.1	17.8	17.5	30.50
Central Chillers	35	54	91	45	2,519	3,163	4,854	2,456	13.9	17.1	18.7	18.2	12.02
Packaged A/C Units	66	90	135	83	5,879	6,563	10,058	5,329	11.2	13.7	13.5	15.5	9.11
Swamp Coolers	Q	Q	4	22	Q	Q	335	1,546	Q	Q	12.6	14.1	24.48
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)													
Incandescent	86	116	169	108	8,905	10,724	12,240	7,351	9.7	10.8	13.8	14.7	7.72
Standard Fluorescent	120	174	278	161	12,733	15,945	21,651	11,737	9.4	10.9	12.8	13.7	6.80
Compact Fluorescent	42	28	33	31	2,990	1,846	1,607	1,891	13.9	15.2	20.8	16.6	14.40
High-Intensity Discharge	47	69	66	35	4,623	5,840	4,686	2,419	10.1	11.8	14.1	14.3	12.30
Other	Q	Q	Q	5	Q	Q	553	437	Q	Q	15.6	10.5	35.26
Commercial Refrigeration Equipment (more than one may apply)													
Any Equipment	79	97	142	77	6,350	6,570	8,294	4,192	12.5	14.7	17.1	18.4	8.74
Walk-in Units	63	80	117	62	4,873	4,779	6,056	2,971	12.9	16.8	19.3	20.7	9.69
Cases and Cabinets	67	84	116	69	5,216	5,429	6,716	3,626	12.8	15.4	17.3	19.1	9.67
None	43	85	152	89	6,885	10,332	15,679	8,223	6.3	8.3	9.7	10.8	9.97
Personal Computers and/or Computer Terminals													
1 to 4	18	34	47	25	2,463	3,795	4,591	2,506	7.3	8.9	10.2	10.0	11.27
5 to 9	10	19	23	15	1,133	1,336	2,141	1,360	9.2	14.2	10.8	11.3	16.78
10 to 19	11	13	28	21	1,450	1,373	1,898	1,515	7.6	9.6	15.0	13.6	18.05
20 to 49	15	22	28	20	1,776	2,070	2,202	1,391	8.3	10.8	12.9	14.1	16.59
50 or More	52	67	89	55	3,540	3,854	4,321	2,977	14.6	17.3	20.7	18.4	12.19
Annual Consumption (kilowatthours)													
10,000 or Less	1	1	2	1	835	1,314	1,937	663	1.2	1.1	1.1	1.1	12.98
10,001 to 50,000	8	10	18	8	2,078	2,871	4,878	1,873	3.8	3.6	3.7	4.3	10.16
50,001 to 100,000	7	12	20	10	1,126	1,805	2,799	1,354	6.3	6.5	7.2	7.1	12.80
100,001 to 500,000	27	38	69	41	3,368	3,997	5,340	3,335	8.0	9.5	12.9	12.2	8.39
500,001 to 1,000,000	10	18	32	18	1,105	1,648	2,188	1,416	8.7	11.2	14.6	12.9	13.45
1,000,001 to 5,000,000	31	52	83	60	2,822	3,425	3,753	2,616	11.0	15.3	22.2	23.1	12.92
Over 5,000,000	39	50	69	28	1,902	1,842	3,077	1,157	20.7	27.1	22.5	24.4	16.38

See footnotes at end of table.

Table 3.16. Electricity Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.1	1.2	1.1	1.3	1.1	1.0	0.9	1.1	0.9	0.8	0.8	0.9	
Peak Electricity Demand (kilowatts)													
10 or Less	1	1	2	1	461	494	1,146	229	2.9	2.7	2.0	2.8	22.88
11 to 25	6	4	10	3	1,220	999	1,756	435	4.9	4.4	5.4	6.3	17.66
26 to 50	10	7	20	8	1,165	976	2,010	843	8.5	7.4	9.9	9.8	17.39
51 to 100	10	14	33	16	1,491	1,393	2,670	1,374	7.0	10.0	12.4	11.7	14.03
101 to 250	15	23	42	23	1,594	1,988	3,175	1,653	9.4	11.4	13.3	14.0	13.77
251 to 1,000	29	39	76	55	2,475	2,798	4,194	2,688	11.6	13.9	18.2	20.3	16.40
Over 1,000	23	53	73	31	1,203	2,241	3,445	1,296	19.3	23.7	21.3	23.6	16.94
Season of Peak Electricity Demand													
Summer	62	101	157	95	5,224	7,057	11,089	5,919	11.8	14.3	14.1	16.1	11.14
Winter	30	37	88	32	3,769	3,399	6,411	2,100	7.9	10.8	13.7	15.4	14.64
Summer and Winter	3	4	12	9	616	433	896	499	4.8	9.4	13.8	17.5	24.23
Building Generates Electricity													
Yes	39	42	67	38	2,792	2,543	2,981	2,057	14.0	16.4	22.6	18.4	13.15
No	84	141	226	128	10,444	14,359	20,991	10,358	8.0	9.8	10.8	12.4	7.75

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.17. Electricity Expenditures by Census Region, 1992

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures (dollars) per kWh				Electricity Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.6	1.7	1.5	1.9	0.6	0.6	0.4	0.5	1.3	1.2	1.1	1.4	
All Buildings	12,250	12,745	19,097	13,527	0.10	0.07	0.07	0.08	0.93	0.75	0.80	1.09	5.00
Building Floorspace (square feet)													
1,001 to 5,000	1,491	1,578	3,510	1,958	0.12	0.08	0.08	0.09	1.44	0.89	1.17	1.69	7.78
5,001 to 10,000	1,164	1,154	2,020	1,998	0.13	0.08	0.07	0.09	0.87	0.66	0.77	1.47	8.89
10,001 to 25,000	1,416	1,702	2,675	1,964	0.11	0.07	0.07	0.08	0.86	0.66	0.73	0.89	8.18
25,001 to 50,000	1,372	1,320	2,995	1,933	0.10	0.08	0.07	0.08	0.72	0.57	0.83	0.97	10.04
50,001 to 100,000	1,755	1,405	1,946	1,699	0.10	0.07	0.06	0.08	1.01	0.68	0.71	1.25	10.33
100,001 to 200,000	945	1,797	2,245	1,948	0.09	0.07	0.06	0.08	0.59	0.88	0.61	0.84	12.02
200,001 to 500,000	1,612	2,209	1,616	1,409	0.09	0.06	0.05	0.07	0.97	0.80	0.84	1.05	14.33
Over 500,000	2,495	1,579	2,090	618	0.09	0.07	0.05	0.08	1.08	0.99	0.78	0.91	14.68
Principal Building Activity													
Education	1,185	1,447	1,501	1,393	0.10	0.08	0.07	0.09	0.60	0.61	0.57	0.93	8.76
Food Sales	Q	510	682	713	Q	0.06	0.06	0.07	Q	2.80	2.78	3.42	14.13
Food Service	760	775	1,031	794	0.11	0.08	0.07	0.08	1.71	1.80	2.53	3.82	12.36
Health Care	623	649	887	480	0.08	0.06	0.05	0.08	1.61	1.33	1.49	1.64	12.36
Lodging	604	461	1,456	1,510	0.10	0.06	0.06	0.08	0.98	0.80	1.40	2.31	15.21
Mercantile and Service	2,472	2,535	3,502	2,074	0.11	0.08	0.07	0.09	0.88	0.80	0.83	0.94	8.84
Office	3,522	3,277	4,823	3,888	0.10	0.07	0.06	0.08	1.40	1.17	1.16	1.37	8.13
Parking Garage	Q	Q	131	116	Q	Q	0.06	0.07	Q	Q	Q	0.43	24.00
Public Assembly	621	570	1,615	624	0.10	0.07	0.06	0.08	0.80	0.66	0.71	0.96	11.54
Public Order and Safety	253	Q	199	Q	0.10	Q	0.06	Q	0.94	Q	0.84	Q	22.36
Religious Worship	83	178	429	199	0.12	0.09	0.09	0.10	0.18	0.16	0.31	0.25	13.07
Warehouse and Storage	1,135	1,306	2,049	896	0.10	0.06	0.07	0.09	0.65	0.44	0.42	0.57	14.40
Other	274	413	536	256	0.10	0.06	0.06	0.07	1.38	1.37	1.41	1.05	19.29
Vacant	214	159	254	545	0.11	0.07	0.07	0.09	0.37	0.20	0.23	0.60	18.77
Year Constructed													
1899 or Before	545	279	Q	Q	0.11	0.08	Q	Q	0.81	0.39	Q	Q	19.72
1900 to 1919	822	478	240	172	0.11	0.07	0.07	0.07	0.80	0.42	0.32	0.36	19.86
1920 to 1945	1,459	1,451	1,583	770	0.11	0.08	0.07	0.08	0.57	0.66	0.63	0.70	12.01
1946 to 1959	1,617	1,386	2,571	1,903	0.10	0.07	0.07	0.08	0.79	0.53	0.69	1.08	11.74
1960 to 1969	2,813	2,576	3,581	2,647	0.10	0.07	0.07	0.08	1.14	0.98	0.74	1.04	9.95
1970 to 1979	2,315	3,157	4,717	3,470	0.09	0.07	0.06	0.08	1.09	0.79	0.98	1.22	8.79
1980 to 1989	2,273	2,825	5,629	3,784	0.10	0.07	0.06	0.08	1.12	0.95	0.90	1.31	8.90
1990 to 1992	408	592	695	659	0.10	0.07	0.06	0.08	1.42	0.89	0.77	1.05	15.75
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	2,421	Q	379	0.10	0.06	Q	0.06	0.89	0.61	Q	0.55	11.40
5,500-7,000 HDD	5,579	7,693	Q	1,353	0.10	0.08	Q	0.06	0.82	0.83	Q	0.80	8.48
4,000-5,499 HDD	5,919	2,630	3,648	1,082	0.10	0.07	0.06	0.06	1.06	0.71	0.74	0.62	8.11
Fewer than 4,000 HDD	Q	Q	6,481	8,207	Q	Q	0.06	0.09	Q	Q	0.81	1.19	8.73
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	8,968	2,507	Q	Q	0.07	0.09	Q	Q	0.81	1.77	11.16
Energy Sources (more than one may apply)													
Electricity	12,250	12,745	19,097	13,527	0.10	0.07	0.07	0.08	0.93	0.75	0.80	1.09	5.00
Natural Gas	8,031	10,307	10,867	10,563	0.10	0.07	0.06	0.08	0.94	0.75	0.81	1.14	5.92
Fuel Oil	5,465	2,426	4,109	2,002	0.10	0.06	0.06	0.07	0.99	0.96	1.15	1.29	9.90
District Heat	1,856	1,883	940	1,067	0.10	0.06	0.06	0.07	1.19	1.00	1.06	1.17	16.75
District Chilled Water	313	593	650	Q	0.08	0.05	0.06	0.08	1.04	1.11	0.99	1.46	14.49
Propane	1,089	310	1,314	372	0.09	0.06	0.07	0.09	1.05	0.54	0.87	1.43	14.91
Any Other	242	126	194	270	0.09	0.07	0.07	0.08	0.55	0.51	0.44	Q	21.90

See footnotes at end of table.

Table 3.17. Electricity Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures (dollars) per kWh				Electricity Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.6	1.7	1.5	1.9	0.6	0.6	0.4	0.5	1.3	1.2	1.1	1.4	
Energy End Uses (more than one may apply)													
Heated Buildings	12,075	12,435	18,188	12,568	0.10	0.07	0.07	0.08	0.94	0.76	0.84	1.12	5.02
Buildings with A/C	11,416	11,864	18,136	12,409	0.10	0.07	0.07	0.08	1.02	0.82	0.86	1.21	5.12
Buildings with Water Heating	11,844	12,403	17,222	12,783	0.10	0.07	0.06	0.08	0.95	0.80	0.88	1.16	5.06
Buildings with Cooking	6,669	5,741	7,590	4,939	0.10	0.07	0.06	0.08	1.16	0.99	0.98	1.31	7.33
Buildings with Manufacturing	893	447	879	431	0.11	0.06	0.07	0.07	1.18	0.50	0.85	0.89	15.78
Workers (main shift)													
Less than 5	1,508	1,688	3,737	2,303	0.11	0.08	0.07	0.09	0.59	0.38	0.53	0.88	8.02
5 to 9	1,027	1,326	2,159	1,241	0.12	0.08	0.08	0.09	0.77	0.71	0.72	0.94	7.78
10 to 19	1,288	1,240	2,644	1,564	0.11	0.07	0.07	0.09	0.94	0.67	0.81	0.99	9.94
20 to 49	1,660	1,612	3,518	2,583	0.11	0.07	0.07	0.08	0.82	0.64	0.92	1.17	8.84
50 to 99	1,551	2,033	1,677	1,692	0.10	0.06	0.06	0.07	0.82	1.02	0.73	1.07	11.42
100 or More	5,216	4,846	5,361	4,144	0.09	0.07	0.06	0.08	1.28	1.13	1.19	1.32	8.34
Weekly Operating Hours													
39 or Fewer	534	425	884	380	0.11	0.09	0.09	0.10	0.43	0.20	0.32	0.40	10.96
40 to 48	1,949	2,220	4,374	2,279	0.10	0.07	0.07	0.08	0.86	0.64	0.67	0.84	9.05
49 to 60	2,459	2,012	3,167	2,558	0.10	0.08	0.07	0.09	0.94	0.58	0.63	0.87	8.87
61 to 84	2,176	3,415	3,276	2,522	0.11	0.08	0.07	0.08	0.84	1.07	0.87	1.02	9.76
85 to 167	2,958	2,039	2,613	2,420	0.10	0.07	0.06	0.08	1.19	0.92	1.36	1.33	9.66
Open Continuously	2,173	2,633	4,783	3,367	0.09	0.06	0.06	0.07	1.07	1.07	1.20	2.23	9.80
Ownership and Occupancy													
Nongovernment Owned	9,290	10,162	15,423	11,127	0.10	0.07	0.07	0.08	0.95	0.79	0.81	1.11	5.63
Owner Occupied	7,198	8,389	11,442	8,409	0.10	0.07	0.07	0.08	0.99	0.81	0.85	1.18	6.34
Single Establishment	5,430	6,378	9,641	6,412	0.10	0.07	0.07	0.08	1.04	0.81	0.85	1.23	7.57
Multiple Establishment	1,767	2,011	1,802	1,996	0.11	0.08	0.07	0.09	0.86	0.83	0.88	1.05	10.46
Nonowner Occupied	2,053	1,724	3,879	2,516	0.11	0.08	0.06	0.09	0.88	0.79	0.76	1.00	10.29
Single Establishment	778	550	2,133	1,166	0.10	0.07	0.06	0.08	0.76	0.64	0.83	1.10	13.94
Multiple Establishment	1,275	1,174	1,746	1,350	0.12	0.08	0.07	0.09	0.97	0.90	0.68	0.93	12.52
Vacant	Q	48	101	Q	Q	0.09	0.08	Q	Q	0.16	0.24	Q	21.99
Government Owned	2,960	2,583	3,674	2,400	0.09	0.07	0.06	0.08	0.86	0.63	0.74	0.99	8.71
Predominant Exterior Wall Material													
Masonry	8,650	9,089	13,718	9,039	0.10	0.07	0.07	0.08	0.87	0.72	0.82	1.08	5.61
Siding or Shingles	806	549	778	1,127	0.11	0.07	0.08	0.08	0.87	0.58	0.78	1.46	10.79
Metal Panels	735	1,061	2,230	760	0.09	0.07	0.06	0.08	0.83	0.63	0.59	1.01	13.44
Concrete Panels	1,354	721	1,150	1,643	0.10	0.06	0.06	0.08	1.35	0.98	0.80	0.95	15.31
Window Glass	572	Q	928	562	0.09	0.08	0.06	0.09	1.54	1.93	1.34	1.33	15.06
Other	134	320	Q	Q	0.09	0.06	Q	Q	1.27	1.03	Q	Q	15.40
Predominant Roof Material													
Built-Up	4,643	5,134	10,213	8,123	0.10	0.07	0.06	0.08	0.96	0.82	0.90	1.12	6.71
Shingles (Not Wood)	1,740	2,073	2,342	1,494	0.11	0.08	0.07	0.08	0.74	0.66	0.76	0.87	10.09
Metal Surfacing	557	1,204	2,581	851	0.12	0.07	0.07	0.07	0.68	0.61	0.52	0.91	11.37
Synthetic or Rubber	4,455	3,462	2,410	1,307	0.09	0.07	0.06	0.07	1.19	0.82	0.92	1.31	8.18
Other	854	872	1,551	1,752	0.09	0.07	0.07	0.09	0.58	0.68	0.78	1.17	13.25
Space-Heating Energy Source													
Electricity	5,122	3,791	10,596	6,347	0.09	0.07	0.06	0.08	1.14	0.81	0.95	1.20	7.44
Electricity Main	2,164	1,863	8,496	4,259	0.09	0.07	0.06	0.08	1.22	0.86	1.00	1.40	10.40
Electricity Secondary	2,958	1,927	2,101	2,088	0.09	0.07	0.06	0.08	1.08	0.77	0.79	0.93	10.80
Other Excluding Electricity	6,953	8,644	7,591	6,221	0.11	0.07	0.07	0.08	0.83	0.74	0.73	1.05	5.99
Building Not Heated	176	Q	909	959	0.11	Q	0.06	0.09	0.47	Q	0.39	0.77	20.27

See footnotes at end of table.

Table 3.17. Electricity Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures (dollars)								RSE Row Factor
					per kWh				per Square Foot				
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.6	1.7	1.5	1.9	0.6	0.6	0.4	0.5	1.3	1.2	1.1	1.4	
Main Space-Heating Energy Source													
Electricity	2,164	1,863	8,496	4,259	0.09	0.07	0.06	0.08	1.22	0.86	1.00	1.40	10.40
Natural Gas	5,419	8,363	7,919	7,164	0.10	0.07	0.07	0.08	0.90	0.73	0.74	1.03	6.48
Fuel Oil	2,463	Q	462	Q	0.11	0.07	0.08	Q	0.77	0.40	0.64	Q	13.57
District Heat	1,707	1,796	821	997	0.10	0.06	0.06	0.07	1.16	1.07	1.01	1.26	14.22
Propane	235	165	293	Q	0.10	0.07	0.09	Q	1.49	0.58	0.51	Q	21.98
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating													
Electricity Only	175	574	691	385	0.11	0.08	0.07	0.09	0.64	0.71	0.67	0.85	13.12
Natural Gas Only	507	341	602	404	0.09	0.06	0.08	0.08	0.76	0.62	1.01	Q	17.53
Fuel Oil Only	1,494	1,515	1,534	519	0.10	0.06	0.06	0.07	0.97	0.71	1.11	1.28	14.54
Propane Only	339	422	312	514	0.09	0.07	0.06	0.08	0.96	0.55	0.58	1.03	16.70
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	125	146	Q	Q	0.06	0.07	Q	Q	0.51	0.68	Q	24.18
No Replacement Energy Source	9,097	9,391	14,841	10,525	0.10	0.07	0.06	0.08	0.95	0.80	0.84	1.15	5.86
Building Not Heated	176	Q	909	959	0.11	Q	0.06	0.09	0.47	Q	0.39	0.77	20.27
Cooling Energy Source													
Electricity	10,932	11,154	17,653	11,734	0.10	0.07	0.07	0.08	1.02	0.82	0.86	1.20	5.20
Other Excluding Electricity	484	710	483	675	0.10	0.05	0.06	0.08	1.13	0.85	0.81	1.23	17.05
A/C Not Performed	834	881	961	1,118	0.11	0.07	0.06	0.09	0.40	0.35	0.35	0.53	14.06
Water-Heating Energy Source													
Electricity	4,389	4,316	10,040	4,558	0.10	0.07	0.06	0.08	1.01	0.76	0.89	1.09	7.80
Other Excluding Electricity	7,455	8,088	7,182	8,224	0.10	0.07	0.06	0.08	0.93	0.82	0.87	1.20	6.24
Water Heating Not Performed	407	341	1,875	744	0.12	0.09	0.07	0.10	0.49	0.24	0.43	0.53	12.84
Cooking Energy Source													
Electricity	3,812	3,206	4,218	2,616	0.09	0.07	0.06	0.07	1.29	1.13	0.98	1.25	9.59
Other Excluding Electricity	2,856	2,535	3,372	2,322	0.10	0.07	0.06	0.08	1.03	0.85	0.97	1.40	10.10
Cooking Not Performed	5,581	7,003	11,507	8,588	0.11	0.07	0.07	0.08	0.74	0.63	0.71	0.99	5.90
Percent of Floorspace Heated													
Not Heated	176	Q	909	959	0.11	Q	0.06	0.09	0.47	Q	0.39	0.77	20.27
1 to 50	1,679	924	1,817	1,618	0.10	0.07	0.07	0.09	0.65	0.42	0.41	0.71	13.11
51 to 99	2,545	1,602	2,764	3,124	0.10	0.07	0.07	0.08	1.20	0.71	0.89	1.14	9.70
100	7,851	9,909	13,606	7,826	0.10	0.07	0.06	0.08	0.96	0.83	0.97	1.27	5.83
Percent of Floorspace Cooled													
Not Cooled	834	881	961	1,118	0.11	0.07	0.06	0.09	0.40	0.35	0.35	0.53	14.06
1 to 50	3,530	2,896	3,084	1,786	0.10	0.07	0.07	0.08	0.63	0.46	0.48	0.55	7.86
51 to 99	4,275	4,473	4,072	3,482	0.10	0.07	0.06	0.08	1.40	1.17	0.99	1.20	7.25
100	3,610	4,495	10,980	7,141	0.10	0.07	0.06	0.08	1.46	1.06	1.03	1.73	6.96
Percent Lit when Open													
Not Lit	Q	72	155	Q	Q	0.08	0.08	0.09	Q	0.11	0.26	0.38	20.65
1 to 50	782	848	1,473	873	0.12	0.08	0.07	0.09	0.44	0.31	0.39	0.52	10.40
51 to 99	3,007	3,183	3,546	2,698	0.11	0.07	0.06	0.08	0.97	0.81	0.77	1.04	7.92
100	8,411	8,642	13,923	9,804	0.10	0.07	0.07	0.08	1.04	0.90	0.93	1.27	5.87
Percent Lit when Closed													
Not Lit	4,567	5,421	9,415	7,300	0.10	0.06	0.06	0.08	0.80	0.69	0.75	1.06	6.67
1 to 50	7,270	7,077	8,892	5,699	0.10	0.08	0.07	0.08	1.00	0.83	0.84	1.12	6.27
51 to 99	Q	153	314	468	Q	0.07	0.06	0.08	Q	0.75	0.96	1.53	17.65
100	Q	93	475	Q	Q	0.07	0.07	Q	Q	0.44	0.96	Q	20.90

See footnotes at end of table.

Table 3.17. Electricity Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures (dollars) per kWh				Electricity Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.6	1.7	1.5	1.9	0.6	0.6	0.4	0.5	1.3	1.2	1.1	1.4	
Heating Equipment (more than one may apply)													
Heat Pumps	1,497	966	3,944	2,532	0.08	0.06	0.06	0.08	1.13	0.73	1.09	1.28	11.31
Furnaces	3,088	3,652	3,364	2,227	0.11	0.07	0.07	0.08	0.94	0.65	0.68	0.72	7.61
Individual Space Heaters	4,725	4,256	5,940	3,176	0.09	0.07	0.06	0.08	0.96	0.69	0.78	0.87	7.69
District Heat	1,855	1,864	957	1,048	0.10	0.06	0.06	0.07	1.19	1.00	1.03	1.20	13.23
Boilers	4,862	4,790	4,723	3,238	0.10	0.07	0.06	0.08	0.79	0.74	0.87	1.25	7.36
Packaged Heating Units	3,526	3,180	5,844	4,351	0.10	0.07	0.07	0.09	1.22	1.05	0.91	1.20	8.48
Other	312	Q	Q	Q	0.09	Q	Q	Q	1.73	Q	Q	Q	19.15
Cooling Equipment (more than one may apply)													
Residential-Type Central A/C	1,534	1,804	2,875	1,110	0.11	0.07	0.07	0.08	1.02	0.61	0.83	1.02	9.61
Heat Pumps	1,496	1,037	3,949	2,658	0.09	0.07	0.06	0.08	1.16	0.73	1.05	1.36	10.18
Individual A/C	5,078	2,658	4,042	1,427	0.10	0.07	0.06	0.08	0.87	0.56	0.71	0.81	9.06
District Chilled Water	313	596	650	Q	0.08	0.05	0.06	0.08	1.04	0.87	0.99	1.46	15.85
Central Chillers	3,112	3,781	5,116	3,282	0.09	0.07	0.06	0.07	1.24	1.20	1.05	1.34	8.89
Packaged A/C Units	6,518	6,262	9,035	6,933	0.10	0.07	0.07	0.08	1.11	0.95	0.90	1.30	6.22
Swamp Coolers	Q	Q	306	1,637	Q	Q	0.07	0.08	Q	Q	0.91	1.06	12.15
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)													
Incandescent	8,493	8,015	10,847	8,730	0.10	0.07	0.06	0.08	0.95	0.75	0.89	1.19	5.76
Standard Fluorescent	11,953	12,253	18,077	12,991	0.10	0.07	0.07	0.08	0.94	0.77	0.83	1.11	4.99
Compact Fluorescent	3,661	1,755	2,087	2,493	0.09	0.06	0.06	0.08	1.22	0.95	1.30	1.32	9.92
High-Intensity Discharge	4,306	4,405	4,007	2,638	0.09	0.06	0.06	0.08	0.93	0.75	0.86	1.09	8.97
Other	Q	Q	Q	383	Q	Q	0.07	0.08	Q	Q	1.06	0.88	21.61
Commercial Refrigeration Equipment (more than one may apply)													
Any Equipment	7,475	6,637	8,707	5,980	0.09	0.07	0.06	0.08	1.18	1.01	1.05	1.43	6.43
Walk-in Units	5,830	5,406	7,016	4,606	0.09	0.07	0.06	0.07	1.20	1.13	1.16	1.55	6.94
Cases and Cabinets	6,314	5,694	7,068	5,340	0.09	0.07	0.06	0.08	1.21	1.05	1.05	1.47	7.18
None	4,775	6,108	10,390	7,547	0.11	0.07	0.07	0.08	0.69	0.59	0.66	0.92	6.75
Personal Computers and/or Computer Terminals													
1 to 4	2,114	2,326	3,479	2,150	0.12	0.07	0.07	0.09	0.86	0.61	0.76	0.86	8.71
5 to 9	1,077	1,340	1,567	1,331	0.10	0.07	0.07	0.09	0.95	1.00	0.73	0.98	11.98
10 to 19	1,036	890	1,829	1,650	0.09	0.07	0.06	0.08	0.71	0.65	0.96	1.09	11.51
20 to 49	1,482	1,468	1,842	1,552	0.10	0.07	0.06	0.08	0.83	0.71	0.84	1.12	10.23
50 or More	4,677	4,541	5,154	4,142	0.09	0.07	0.06	0.08	1.32	1.18	1.19	1.39	8.31
Annual Consumption (kilowatthours)													
10,000 or Less	134	160	244	84	0.14	0.11	0.11	0.12	0.16	0.12	0.13	0.13	8.53
10,001 to 50,000	1,021	939	1,618	842	0.13	0.09	0.09	0.10	0.49	0.33	0.33	0.45	6.32
50,001 to 100,000	848	976	1,689	947	0.12	0.08	0.08	0.10	0.75	0.54	0.60	0.70	8.38
100,001 to 500,000	3,017	2,815	4,879	3,559	0.11	0.07	0.07	0.09	0.90	0.70	0.91	1.07	5.86
500,001 to 1,000,000	918	1,333	2,079	1,495	0.10	0.07	0.06	0.08	0.83	0.81	0.95	1.06	9.81
1,000,001 to 5,000,000	2,879	3,528	4,916	4,559	0.09	0.07	0.06	0.08	1.02	1.03	1.31	1.74	8.60
Over 5,000,000	3,433	2,993	3,671	2,042	0.09	0.06	0.05	0.07	1.80	1.63	1.19	1.76	10.95

See footnotes at end of table.

Table 3.17. Electricity Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Electricity Expenditures (million dollars)				Electricity Expenditures (dollars)								RSE Row Factor
					per kWh				per Square Foot				
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.6	1.7	1.5	1.9	0.6	0.6	0.4	0.5	1.3	1.2	1.1	1.4	
Peak Electricity Demand (kilowatts)													
10 or Less	151	122	208	67	0.11	0.09	0.09	0.11	0.33	0.25	0.18	0.29	14.20
11 to 25	733	398	817	270	0.12	0.09	0.09	0.10	0.60	0.40	0.47	0.62	10.71
26 to 50	1,124	547	1,493	767	0.11	0.08	0.08	0.09	0.97	0.56	0.74	0.91	11.86
51 to 100	1,208	1,068	2,310	1,558	0.12	0.08	0.07	0.10	0.81	0.77	0.86	1.13	9.15
101 to 250	1,508	1,577	2,917	1,921	0.10	0.07	0.07	0.08	0.95	0.79	0.92	1.16	9.18
251 to 1,000	2,642	2,522	4,597	4,270	0.09	0.07	0.06	0.08	1.07	0.90	1.10	1.59	10.96
Over 1,000	1,961	3,372	3,994	2,385	0.08	0.06	0.05	0.08	1.63	1.50	1.16	1.84	11.41
Season of Peak Electricity Demand													
Summer	6,161	6,890	9,624	7,884	0.10	0.07	0.06	0.08	1.18	0.98	0.87	1.33	7.76
Winter	2,844	2,444	5,864	2,600	0.10	0.07	0.07	0.08	0.75	0.72	0.91	1.24	10.89
Summer and Winter	323	274	848	753	0.11	0.07	0.07	0.09	0.52	0.63	0.95	1.51	17.34
Building Generates Electricity													
Yes	3,464	2,719	3,824	2,734	0.09	0.07	0.06	0.07	1.24	1.07	1.28	1.33	8.94
No	8,786	10,026	15,273	10,793	0.10	0.07	0.07	0.08	0.84	0.70	0.73	1.04	5.63

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.18. Electricity Consumption and Conditional Energy Intensity by Building Size, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			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:	1.0	1.1	1.5	0.8	0.8	1.4	0.8	0.8	1.1	
All Buildings	172	290	303	14,039	27,879	24,607	12.2	10.4	12.3	5.38
Principal Building Activity										
Education	6	34	29	599	4,594	3,277	10.4	7.4	8.7	11.05
Food Sales	17	16	Q	369	388	Q	44.7	42.5	Q	18.44
Food Service	32	8	Q	828	609	Q	39.1	13.0	Q	16.40
Health Care	2	6	32	171	306	1,285	13.2	19.9	24.9	17.77
Lodging	13	29	14	454	1,543	894	27.6	18.6	15.8	21.74
Mercantile and Service	47	44	40	4,177	4,641	3,570	11.2	9.4	11.2	10.48
Office	26	83	97	2,266	4,835	5,218	11.6	17.2	18.5	9.57
Parking Garage	Q	Q	Q	Q	Q	1,461	Q	Q	6.9	26.97
Public Assembly	7	17	28	931	1,815	1,809	7.0	9.2	15.2	16.75
Public Order and Safety	2	4	Q	199	344	Q	8.6	10.4	Q	27.06
Religious Worship	4	5	Q	1,126	1,951	Q	3.4	2.5	Q	12.78
Warehouse and Storage	11	28	36	2,005	4,831	4,343	5.4	5.7	8.3	13.78
Other	3	12	8	196	500	428	14.2	24.9	17.8	29.78
Vacant	3	4	7	656	1,395	1,320	4.0	3.1	5.0	25.66
Year Constructed										
1899 or Before	4	5	Q	648	923	Q	6.6	5.7	Q	27.40
1900 to 1919	6	8	6	843	1,272	1,286	7.5	6.1	4.3	20.75
1920 to 1945	21	20	23	2,151	3,519	2,715	9.5	5.6	8.5	14.84
1946 to 1959	27	42	28	2,492	4,681	2,961	11.0	8.9	9.5	13.20
1960 to 1969	26	56	73	2,081	5,307	5,085	12.4	10.5	14.4	10.86
1970 to 1979	44	70	71	2,963	5,760	5,057	14.8	12.1	14.0	9.61
1980 to 1989	40	78	84	2,496	5,524	6,129	15.9	14.1	13.7	9.83
1990 to 1992	4	12	16	365	893	1,224	10.6	13.7	13.0	18.60
Census Region and Division										
Northeast	22	45	56	2,374	5,295	5,566	9.2	8.6	10.0	10.39
New England	7	13	10	627	1,479	1,159	10.8	8.9	8.6	20.18
Middle Atlantic	15	32	46	1,747	3,816	4,407	8.7	8.4	10.3	14.14
Midwest	34	61	87	3,521	6,975	6,407	9.8	8.8	13.5	8.48
East North Central	21	41	48	2,243	4,556	3,775	9.4	9.0	12.7	11.00
West North Central	13	20	39	1,278	2,419	2,631	10.4	8.3	14.7	17.78
South	72	113	108	5,625	10,045	8,303	12.9	11.3	13.0	10.11
South Atlantic	30	54	51	2,104	4,425	3,902	14.1	12.3	13.0	13.22
East South Central	18	28	22	1,299	2,570	1,368	14.0	11.1	16.2	21.12
West South Central	25	30	35	2,223	3,050	3,032	11.0	10.0	11.6	17.47
West	43	70	53	2,520	5,564	4,331	17.0	12.7	12.2	10.63
Mountain	17	25	13	817	1,820	925	20.6	13.6	13.6	19.69
Pacific	26	46	40	1,703	3,744	3,407	15.3	12.2	11.8	12.37
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	13	22	22	1,248	2,552	1,675	10.2	8.6	13.2	18.71
5,500-7,000 HDD	31	72	78	3,377	7,628	6,715	9.3	9.5	11.6	11.03
4,000-5,499 HDD	36	56	83	3,049	5,832	7,084	11.7	9.6	11.8	12.44
Fewer than 4,000 HDD	44	80	70	3,116	6,328	5,420	14.1	12.6	12.9	13.09
More than 2,000 CDD and --										
Fewer than 4,000 HDD	48	60	49	3,249	5,539	3,713	14.8	10.8	13.3	14.38
Energy Sources (more than one may apply)										
Electricity	172	290	303	14,039	27,879	24,607	12.2	10.4	12.3	5.38
Natural Gas	105	203	211	8,007	19,091	17,889	13.1	10.6	11.8	6.61
Fuel Oil	14	47	132	1,749	3,884	7,575	7.7	12.2	17.4	13.08
District Heat	Q	24	56	Q	1,633	3,484	Q	14.4	16.1	15.59
District Chilled Water	Q	9	24	Q	536	1,351	Q	17.4	17.8	20.63
Propane	12	14	13	1,033	1,369	985	11.2	10.0	13.5	19.96
Any Other	3	4	Q	550	514	Q	4.8	8.7	Q	22.09

See footnotes at end of table.

Table 3.18. Electricity Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			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:	1.0	1.1	1.5	0.8	0.8	1.4	0.8	0.8	1.1	
Energy End Uses (more than one may apply)										
Heated Buildings	164	282	286	12,726	26,163	23,075	12.9	10.8	12.4	5.39
Buildings with A/C	155	276	286	10,595	23,983	22,463	14.6	11.5	12.7	5.55
Buildings with Water Heating	154	279	290	10,760	24,849	22,867	14.3	11.2	12.7	5.51
Buildings with Cooking	52	91	198	1,901	7,589	13,575	27.6	11.9	14.6	7.70
Buildings with Manufacturing	3	19	12	336	1,495	1,336	10.3	12.9	8.9	21.52
Workers (main shift)										
Less than 5	74	21	18	7,937	5,465	3,214	9.3	3.9	5.6	13.40
5 to 9	44	23	2	3,166	3,744	614	13.8	6.0	3.6	12.65
10 to 19	32	41	Q	1,984	4,481	1,589	16.2	9.1	8.3	13.15
20 to 49	21	91	12	877	7,556	2,124	23.6	12.1	5.4	12.64
50 to 99	Q	57	39	Q	4,047	3,641	Q	14.1	10.6	11.95
100 or More	Q	57	219	Q	2,585	13,425	Q	22.2	16.3	8.45
Weekly Operating Hours										
39 or Fewer	10	10	3	2,769	3,333	963	3.8	3.0	3.3	15.73
40 to 48	36	64	42	4,064	7,219	3,663	8.8	8.8	11.5	10.40
49 to 60	25	56	45	3,014	6,524	4,482	8.4	8.5	10.0	9.32
61 to 84	33	49	59	2,005	4,605	5,417	16.5	10.6	11.0	10.73
85 to 167	41	47	44	1,252	3,306	3,897	32.5	14.3	11.2	11.75
Open Continuously	27	65	109	935	2,891	6,185	28.4	22.5	17.7	11.50
Ownership and Occupancy										
Nongovernment Owned	154	235	213	12,547	22,083	16,949	12.2	10.6	12.6	5.99
Owner Occupied	128	182	157	9,834	16,324	11,999	13.1	11.1	13.1	6.54
Single Establishment	118	157	99	8,654	13,779	7,319	13.6	11.4	13.5	7.59
Multiple Establishment	11	24	59	1,180	2,545	4,680	9.1	9.6	12.5	13.77
Nonowner Occupied	24	52	54	2,355	5,129	4,672	10.2	10.2	11.6	11.55
Single Establishment	17	22	26	1,494	1,816	2,210	11.1	12.2	12.0	18.84
Multiple Establishment	7	30	28	861	3,313	2,463	8.6	9.0	11.3	12.01
Vacant	Q	1	Q	358	630	Q	Q	2.3	Q	32.96
Government Owned	18	55	89	1,492	5,796	7,658	12.0	9.5	11.6	9.46
Predominant Exterior Wall Material										
Masonry	124	222	190	9,165	21,648	17,000	13.5	10.3	11.2	5.92
Siding or Shingles	23	13	Q	2,175	1,226	Q	10.4	10.6	Q	14.14
Metal Panels	20	25	23	2,272	2,764	2,089	9.0	9.1	11.0	16.54
Concrete Panels	2	17	46	143	1,603	3,161	16.4	10.5	14.5	16.75
Window Glass	Q	11	28	Q	503	1,388	Q	22.7	20.2	22.54
Other	Q	Q	13	Q	Q	722	Q	Q	18.2	16.14
Predominant Roof Material										
Built-Up	70	142	167	4,756	12,449	12,552	14.7	11.4	13.3	7.58
Shingles (Not Wood)	45	34	Q	4,192	4,540	1,589	10.8	7.5	8.2	12.79
Metal Surfacing	28	31	11	3,113	3,929	1,591	9.1	8.0	6.9	15.37
Synthetic or Rubber	12	61	84	969	4,704	5,922	12.4	12.9	14.3	10.15
Other	16	22	28	1,009	2,257	2,954	16.2	9.7	9.3	15.19
Space-Heating Energy Source										
Electricity	77	130	146	4,589	10,072	10,975	16.8	12.9	13.3	8.04
Electricity Main	66	91	77	3,404	6,445	5,654	19.5	14.1	13.6	9.80
Electricity Secondary	11	38	69	1,186	3,627	5,321	9.2	10.6	12.9	12.09
Other Excluding Electricity	87	152	141	8,137	16,091	12,100	10.7	9.5	11.6	6.67
Building Not Heated	7	9	Q	1,313	1,716	1,532	5.5	5.0	10.7	24.39

See footnotes at end of table.

Table 3.18. Electricity Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			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:	1.0	1.1	1.5	0.8	0.8	1.4	0.8	0.8	1.1	
Main Space-Heating Energy Source										
Electricity	66	91	77	3,404	6,445	5,654	19.5	14.1	13.6	9.80
Natural Gas	78	155	142	6,879	15,687	12,557	11.4	9.9	11.3	7.26
Fuel Oil	10	11	11	1,406	1,868	1,130	6.9	5.7	10.0	15.06
District Heat	1	21	54	116	1,477	3,157	9.0	14.3	17.0	18.72
Propane	6	2	Q	659	384	Q	9.1	6.4	Q	29.65
Wood	1	Q	Q	194	Q	Q	4.3	Q	Q	21.54
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating										
Electricity Only	13	8	Q	1,196	1,021	Q	10.7	7.6	Q	16.20
Natural Gas Only	10	8	6	680	849	731	15.2	9.1	Q	20.95
Fuel Oil Only	5	15	56	433	1,570	3,448	11.2	9.8	16.2	18.15
Propane Only	6	11	Q	709	896	Q	8.3	12.0	Q	18.40
Any Other Single Energy Source	1	Q	Q	165	Q	Q	6.7	Q	Q	32.00
More than One Energy Source	3	4	Q	266	432	Q	10.2	9.1	Q	31.00
No Replacement Energy Source	127	235	214	9,278	21,258	17,619	13.6	11.1	12.1	6.06
Building Not Heated	7	9	Q	1,313	1,716	1,532	5.5	5.0	10.7	24.39
Cooling Energy Source										
Electricity	150	265	267	10,305	23,145	21,177	14.6	11.4	12.6	5.69
Other Excluding Electricity	5	11	19	290	837	1,286	15.7	13.4	15.0	23.05
A/C Not Performed	17	14	Q	3,444	3,896	2,144	5.0	3.7	7.6	15.00
Water-Heating Energy Source										
Electricity	76	123	122	5,353	10,522	9,607	14.3	11.7	12.7	8.10
Other Excluding Electricity	78	155	168	5,408	14,327	13,260	14.4	10.9	12.7	6.93
Water Heating Not Performed	18	11	Q	3,279	3,029	1,739	5.3	3.7	7.0	13.98
Cooking Energy Source										
Electricity	28	51	116	982	3,468	7,733	28.3	14.7	15.0	10.53
Other Excluding Electricity	25	39	82	919	4,121	5,842	26.8	9.6	14.0	10.25
Cooking Not Performed	119	200	105	12,138	20,290	11,032	9.8	9.8	9.5	6.94
Percent of Floorspace Heated										
Not Heated	7	9	Q	1,313	1,716	1,532	5.5	5.0	10.7	24.39
1 to 50	17	25	33	2,283	4,505	4,718	7.3	5.5	7.0	14.76
51 to 99	27	47	53	1,947	4,249	4,003	13.7	11.1	13.3	10.46
100	121	210	200	8,495	17,409	14,354	14.2	12.1	13.9	6.06
Percent of Floorspace Cooled										
Not Cooled	17	14	Q	3,444	3,896	2,144	5.0	3.7	7.6	15.00
1 to 50	32	60	48	3,622	9,796	8,297	8.9	6.1	5.8	8.27
51 to 99	32	73	114	1,966	5,190	6,717	16.4	14.0	17.0	8.94
100	90	143	124	5,007	8,997	7,450	18.0	15.9	16.7	7.83
Percent Lit when Open										
Not Lit	1	2	Q	702	854	Q	2.0	2.6	Q	29.52
1 to 50	18	17	Q	2,717	4,753	2,505	6.5	3.6	5.5	13.91
51 to 99	33	64	63	2,479	5,996	5,747	13.2	10.7	11.0	9.00
100	120	207	224	8,141	16,275	15,977	14.7	12.7	14.0	6.54
Percent Lit when Closed										
Not Lit	91	131	148	8,622	13,302	11,210	10.6	9.8	13.2	7.31
1 to 50	73	151	145	4,996	13,958	12,528	14.5	10.8	11.5	7.25
51 to 99	4	5	8	153	254	615	25.1	18.3	13.0	26.57
100	4	4	Q	269	365	Q	15.1	11.1	Q	30.20

See footnotes at end of table.

Table 3.18. Electricity Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			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:	1.0	1.1	1.5	0.8	0.8	1.4	0.8	0.8	1.1	
Heating Equipment (more than one may apply)										
Heat Pumps	28	46	54	1,442	3,210	3,618	19.2	14.3	14.8	12.98
Furnaces	58	66	30	5,594	7,041	4,273	10.5	9.4	7.1	9.61
Individual Space Heaters	40	101	107	4,428	8,927	9,008	9.0	11.3	11.8	8.40
District Heat	2	23	57	129	1,583	3,513	15.6	14.7	16.1	20.63
Boilers	18	81	144	1,611	8,598	10,454	11.3	9.4	13.8	8.90
Packaged Heating Units	50	91	74	2,531	7,344	6,124	19.6	12.3	12.0	9.57
Other	3	14	8	85	414	404	34.5	33.3	18.6	26.39
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	27	41	26	2,581	4,054	2,385	10.5	10.2	11.1	11.58
Heat Pumps	28	47	53	1,450	3,365	3,591	19.0	14.0	14.7	12.78
Individual A/C	29	63	77	2,986	7,364	7,629	9.7	8.5	10.1	9.69
District Chilled Water	Q	9	24	Q	536	1,503	Q	17.4	16.0	22.24
Central Chillers	4	53	167	203	3,095	9,692	21.7	17.1	17.2	12.15
Packaged A/C Units	77	158	139	4,300	12,604	10,925	17.8	12.5	12.7	7.36
Swamp Coolers	9	11	12	566	789	730	16.5	13.5	16.1	22.88
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)										
Incandescent	101	171	208	7,598	16,199	15,424	13.3	10.5	13.5	6.50
Standard Fluorescent	161	283	288	12,342	26,347	23,378	13.0	10.7	12.3	5.29
Compact Fluorescent	9	41	85	575	2,617	5,143	15.7	15.6	16.4	14.07
High-Intensity Discharge	12	62	143	776	5,659	11,134	14.9	11.0	12.8	10.77
Other	4	5	10	214	675	723	17.2	7.8	14.3	25.90
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	74	115	206	2,566	8,612	14,228	28.8	13.4	14.5	6.97
Walk-in Units	58	81	182	1,560	5,154	11,966	37.5	15.7	15.2	7.88
Cases and Cabinets	66	92	178	2,047	6,688	12,252	32.3	13.8	14.5	7.54
None	98	175	97	11,473	19,267	10,379	8.5	9.1	9.3	7.33
Personal Computers and/or Computer Terminals										
1 to 4	59	53	11	4,223	7,030	2,101	14.0	7.6	5.4	12.35
5 to 9	16	40	12	1,152	3,184	1,633	13.5	12.5	7.6	12.98
10 to 19	8	46	18	487	3,676	2,073	16.9	12.6	8.9	15.58
20 to 49	4	51	30	149	4,162	3,129	25.8	12.3	9.7	14.56
50 or More	Q	62	201	Q	3,250	11,422	Q	19.0	17.6	8.73
Annual Consumption (kilowatthours)										
10,000 or Less	5	(*)	Q	3,279	1,168	Q	1.5	0.3	Q	8.13
10,001 to 50,000	38	6	Q	6,278	4,506	Q	6.1	1.3	Q	6.74
50,001 to 100,000	35	13	Q	2,411	3,837	Q	14.4	3.5	Q	6.75
100,001 to 500,000	77	93	5	1,934	11,513	2,594	39.7	8.0	1.9	7.01
500,001 to 1,000,000	Q	59	11	Q	3,573	2,707	Q	16.5	4.2	8.43
1,000,001 to 5,000,000	Q	113	105	Q	3,204	9,354	Q	35.3	11.2	8.06
Over 5,000,000	Q	Q	181	Q	Q	7,899	Q	Q	22.9	7.23

See footnotes at end of table.

Table 3.18. Electricity Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			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:	1.0	1.1	1.5	0.8	0.8	1.4	0.8	0.8	1.1	
Peak Electricity Demand (kilowatts)										
10 or Less	5	1	Q	1,378	827	Q	3.4	0.8	Q	19.08
11 to 25	19	3	Q	2,213	1,710	Q	8.6	1.9	Q	11.04
26 to 50	34	11	Q	1,727	2,876	Q	19.5	3.9	Q	9.56
51 to 100	32	35	7	979	4,984	965	33.1	6.9	6.8	13.26
101 to 250	18	78	8	305	5,931	2,173	57.8	13.1	3.6	12.84
251 to 1,000	Q	110	78	Q	4,019	8,026	Q	27.4	9.7	10.38
Over 1,000	Q	16	163	Q	410	7,759	Q	38.0	21.1	16.88
Season of Peak Electricity Demand										
Summer	72	162	180	3,763	12,234	13,291	19.1	13.3	13.5	8.87
Winter	40	79	68	2,382	7,339	5,958	16.9	10.7	11.4	11.24
Summer and Winter	7	12	9	582	1,184	677	12.3	10.5	12.7	24.67
Building Generates Electricity										
Yes	4	54	128	293	2,434	7,646	14.5	22.2	16.7	13.93
No	167	236	175	13,746	25,445	16,961	12.2	9.3	10.3	6.00

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.19. Electricity Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	0.9	1.4	1.2	1.3	0.8	1.6	0.9	1.1	0.7	1.2	0.8	0.7	
All Buildings	76	54	85	122	7,549	4,838	5,745	6,573	10.1	11.2	14.7	18.5	9.01
Building Floorspace (square feet)													
1,001 to 5,000	28	Q	14	Q	2,189	Q	1,018	Q	12.7	Q	13.3	Q	9.46
5,001 to 10,000	19	Q	13	Q	1,987	Q	1,248	Q	9.4	Q	10.1	Q	14.39
10,001 to 25,000	20	Q	26	Q	2,003	Q	1,656	Q	10.0	Q	15.9	Q	14.57
25,001 to 50,000	10	Q	32	Q	1,369	Q	1,823	Q	7.1	Q	17.6	Q	18.08
50,001 to 100,000	Q	14	Q	25	Q	1,268	Q	1,355	Q	11.0	Q	18.4	15.48
100,001 to 200,000	Q	15	Q	29	Q	1,364	Q	1,973	Q	10.7	Q	14.9	20.28
200,001 to 500,000	Q	7	Q	34	Q	646	Q	1,707	Q	10.5	Q	20.1	19.16
Over 500,000	Q	19	Q	33	Q	1,560	Q	1,537	Q	11.9	Q	21.4	17.54
Year Constructed													
1899 or Before	1	Q	Q	Q	177	Q	331	Q	4.7	Q	Q	Q	41.42
1900 to 1919	2	Q	3	Q	355	Q	366	Q	4.6	Q	9.4	Q	30.99
1920 to 1945	8	Q	6	8	1,194	Q	699	690	6.8	Q	9.0	11.2	22.19
1946 to 1959	12	Q	15	12	1,543	Q	833	567	8.0	Q	17.7	21.5	22.08
1960 to 1969	15	18	12	25	1,165	1,513	812	1,376	12.5	11.8	14.7	18.5	20.39
1970 to 1979	19	13	18	26	1,518	1,090	1,069	1,214	12.2	11.7	17.3	21.6	15.81
1980 to 1989	18	16	24	37	1,445	1,194	1,452	1,866	12.6	13.6	16.2	19.8	15.95
1990 to 1992	2	4	3	8	153	385	184	406	13.0	10.5	14.4	20.1	28.95
Census Region and Division													
Northeast	10	13	11	25	1,562	1,236	1,123	1,401	6.1	10.6	9.9	18.2	17.77
New England	2	Q	3	6	314	Q	350	341	6.9	Q	7.4	16.3	24.43
Middle Atlantic	7	12	9	20	1,248	947	773	1,060	5.9	12.2	11.1	18.8	22.13
Midwest	19	13	15	30	2,016	1,134	1,300	1,504	9.6	11.7	11.4	19.9	17.17
East North Central	13	8	10	23	1,251	603	837	1,187	10.1	13.8	11.8	19.2	20.93
West North Central	7	Q	5	7	765	Q	462	317	8.7	Q	10.8	22.5	29.40
South	32	19	37	39	2,737	1,491	2,010	2,142	11.8	12.7	18.3	18.0	14.40
South Atlantic	11	9	18	18	951	681	899	1,141	11.1	13.0	19.8	15.8	19.59
East South Central	11	Q	11	Q	825	Q	497	Q	13.5	Q	21.8	Q	26.67
West South Central	11	7	8	11	960	507	614	557	10.9	13.4	13.2	20.0	21.48
West	15	9	22	28	1,235	977	1,313	1,525	12.3	9.0	16.7	18.1	18.62
Mountain	5	Q	6	7	463	Q	345	413	10.8	Q	16.4	17.3	30.59
Pacific	10	7	16	20	772	778	968	1,112	13.2	8.9	16.8	18.4	22.12
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	6	Q	5	4	769	Q	464	247	7.5	Q	10.4	17.8	27.04
5,500-7,000 HDD	18	13	16	38	2,176	1,315	1,470	1,936	8.2	10.2	10.9	19.8	16.88
4,000-5,499 HDD	18	16	19	36	1,816	1,343	1,150	2,260	10.2	12.0	16.5	15.7	20.43
Fewer than 4,000 HDD	19	12	27	28	1,399	894	1,505	1,363	13.8	13.9	18.0	20.7	16.39
More than 2,000 CDD and --													
Fewer than 4,000 HDD	15	8	18	15	1,389	855	1,156	766	10.6	9.6	15.3	19.7	18.91
Energy Sources (more than one may apply)													
Electricity	76	54	85	122	7,549	4,838	5,745	6,573	10.1	11.2	14.7	18.5	9.01
Natural Gas	48	50	48	72	5,002	4,349	3,514	4,332	9.7	11.5	13.8	16.5	11.74
Fuel Oil	8	Q	9	61	1,146	Q	681	2,921	6.8	Q	12.6	21.0	22.12
District Heat	Q	Q	4	32	Q	Q	252	1,460	Q	Q	17.7	21.7	33.93
District Chilled Water	Q	Q	Q	9	Q	Q	Q	533	Q	Q	Q	16.7	28.60
Propane	5	Q	Q	Q	526	Q	Q	Q	9.3	Q	Q	Q	24.86
Any Other	1	Q	Q	Q	320	Q	Q	Q	3.9	Q	Q	Q	24.64

See footnotes at end of table.

Table 3.19. Electricity Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	0.9	1.4	1.2	1.3	0.8	1.6	0.9	1.1	0.7	1.2	0.8	0.7	
Energy End Uses (more than one may apply)													
Heated Buildings	74	52	84	121	7,238	4,585	5,693	6,562	10.2	11.3	14.7	18.5	9.02
Buildings with A/C	68	54	84	121	6,122	4,752	5,627	6,570	11.2	11.3	14.9	18.5	9.20
Buildings with Water Heating	69	54	82	121	6,006	4,802	5,530	6,500	11.5	11.2	14.7	18.7	9.36
Buildings with Cooking	13	42	4	68	485	3,321	301	3,374	27.0	12.7	14.5	20.0	16.67
Buildings with Manufacturing	3	Q	Q	Q	354	Q	Q	Q	8.9	Q	Q	Q	26.54
Workers (main shift)													
Less than 5	23	Q	5	Q	2,924	Q	647	Q	7.8	Q	7.2	Q	14.44
5 to 9	17	Q	9	Q	1,728	Q	930	Q	9.7	Q	10.1	Q	15.70
10 to 19	14	Q	13	Q	1,412	Q	900	Q	10.2	Q	14.5	Q	17.16
20 to 49	16	6	30	Q	1,158	592	1,777	Q	13.5	10.8	17.1	Q	18.93
50 to 99	5	10	13	5	266	980	971	355	19.0	10.3	13.4	12.9	24.37
100 or More	Q	36	14	115	Q	2,867	521	5,617	Q	12.5	27.2	20.5	13.30
Weekly Operating Hours													
39 or Fewer	1	Q	2	Q	250	Q	150	Q	4.7	Q	10.1	Q	28.79
40 to 48	11	Q	39	30	1,558	Q	3,134	1,501	7.3	Q	12.3	19.8	13.65
49 to 60	19	Q	25	38	2,939	Q	1,570	2,467	6.4	Q	15.9	15.6	14.36
61 to 84	22	25	7	32	1,932	2,736	464	1,584	11.6	9.1	14.1	19.9	16.48
85 to 167	17	23	4	8	714	1,324	204	548	23.3	17.1	19.5	14.0	22.91
Open Continuously	6	Q	9	13	156	Q	224	402	36.9	Q	40.0	33.2	31.02
Ownership and Occupancy													
Nongovernment Owned	70	44	77	105	7,107	4,199	5,214	5,451	9.9	10.5	14.8	19.2	9.71
Owner Occupied	52	26	58	83	5,206	2,579	3,831	4,017	10.0	10.1	15.0	20.5	11.02
Single Establishment	46	13	46	39	4,489	1,191	2,615	1,532	10.2	10.6	17.5	25.2	15.15
Multiple Establishment	6	13	12	44	716	1,388	1,216	2,485	8.7	9.6	9.7	17.7	17.43
Nonowner Occupied	18	18	19	22	1,901	1,619	1,383	1,434	9.6	11.2	14.1	15.4	15.34
Single Establishment	8	Q	10	6	892	Q	428	294	9.5	Q	22.4	20.1	23.99
Multiple Establishment	10	17	10	16	1,009	1,483	954	1,140	9.7	11.2	10.3	14.1	18.44
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	6	Q	8	17	443	Q	532	1,122	13.6	Q	14.3	15.1	22.30
Predominant Exterior Wall Material													
Masonry	51	41	63	56	5,022	4,013	4,394	3,323	10.1	10.3	14.4	16.9	10.62
Siding or Shingles	6	Q	8	Q	662	Q	636	Q	9.1	Q	12.5	Q	17.17
Metal Panels	16	Q	5	Q	1,541	Q	297	Q	10.3	Q	18.3	Q	27.26
Concrete Panels	Q	12	Q	20	Q	731	Q	1,064	Q	15.9	Q	18.4	15.97
Window Glass	Q	Q	Q	28	Q	Q	Q	1,184	Q	Q	Q	23.5	21.33
Other	Q	Q	Q	9	Q	Q	Q	430	Q	Q	Q	21.6	22.95
Predominant Roof Material													
Built-Up	36	28	41	57	3,052	2,846	2,577	2,948	11.7	9.9	15.8	19.4	11.96
Shingles (Not Wood)	13	Q	14	Q	1,327	Q	1,370	Q	9.5	Q	10.5	Q	14.91
Metal Surfacing	18	Q	7	Q	2,000	Q	436	Q	8.9	Q	15.0	Q	23.37
Synthetic or Rubber	7	19	16	41	748	1,378	830	2,165	9.0	14.1	18.8	18.8	15.89
Other	3	Q	7	10	422	Q	533	441	7.5	Q	13.7	21.8	29.38
Space-Heating Energy Source													
Electricity	33	33	44	62	2,275	2,847	2,574	2,871	14.7	11.6	16.9	21.5	12.47
Electricity Main	24	16	34	41	1,290	1,568	1,949	1,797	18.6	10.4	17.4	22.9	15.46
Electricity Secondary	9	17	10	20	985	1,279	625	1,073	9.5	13.0	15.5	19.0	21.27
Other Excluding Electricity	40	19	40	60	4,963	1,738	3,119	3,691	8.1	10.8	12.9	16.1	11.68
Building Not Heated	Q	Q	Q	Q	311	Q	Q	Q	Q	Q	Q	Q	34.63

See footnotes at end of table.

Table 3.19. Electricity Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	0.9	1.4	1.2	1.3	0.8	1.6	0.9	1.1	0.7	1.2	0.8	0.7	
Main Space-Heating Energy Source													
Electricity	24	16	34	41	1,290	1,568	1,949	1,797	18.6	10.4	17.4	22.9	15.46
Natural Gas	38	34	42	45	4,512	2,747	3,013	2,911	8.5	12.4	13.9	15.3	12.60
Fuel Oil	5	Q	4	Q	823	Q	481	Q	5.9	Q	7.6	Q	18.07
District Heat	Q	Q	3	29	Q	Q	216	1,324	Q	Q	14.4	22.1	24.62
Propane	3	Q	Q	Q	338	Q	Q	Q	9.8	Q	Q	Q	34.02
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating													
Electricity Only	6	Q	3	Q	704	Q	336	Q	8.6	Q	10.4	Q	21.09
Natural Gas Only	5	Q	3	Q	438	Q	232	Q	11.3	Q	11.4	Q	25.97
Fuel Oil Only	4	Q	2	7	440	Q	163	518	8.8	Q	12.2	Q	36.54
Propane Only	3	Q	4	Q	285	Q	315	Q	9.5	Q	13.9	Q	33.72
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	2	Q	Q	Q	158	Q	Q	Q	11.6	Q	Q	Q	32.17
No Replacement Energy Source	54	48	69	107	5,146	4,011	4,492	5,402	10.5	11.9	15.3	19.8	9.80
Building Not Heated	Q	Q	Q	Q	311	Q	Q	Q	Q	Q	Q	Q	34.63
Cooling Energy Source													
Electricity	67	53	79	116	5,962	4,706	5,345	6,231	11.3	11.3	14.9	18.5	9.44
Other Excluding Electricity	Q	Q	5	6	Q	Q	282	339	Q	Q	16.1	17.6	26.42
A/C Not Performed	8	Q	Q	Q	1,427	Q	Q	Q	5.4	Q	Q	Q	22.33
Water-Heating Energy Source													
Electricity	39	29	50	60	2,953	2,550	2,898	2,892	13.3	11.4	17.1	20.8	12.10
Other Excluding Electricity	30	25	32	61	3,053	2,253	2,632	3,608	9.7	10.9	12.2	16.9	14.09
Water Heating Not Performed	7	Q	3	Q	1,543	Q	215	Q	4.8	Q	14.3	Q	17.83
Cooking Energy Source													
Electricity	9	30	Q	47	277	2,118	Q	2,141	33.0	14.1	Q	22.0	18.40
Other Excluding Electricity	4	12	Q	20	209	1,203	Q	1,232	19.2	10.4	Q	16.6	18.54
Cooking Not Performed	63	12	80	54	7,064	1,518	5,445	3,199	8.9	7.8	14.7	16.9	11.81
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	311	Q	Q	Q	Q	Q	Q	Q	34.63
1 to 50	10	Q	Q	3	1,449	Q	336	Q	6.9	Q	Q	Q	23.94
51 to 99	16	9	15	29	1,512	787	1,186	1,844	10.3	11.7	12.6	15.6	18.19
100	48	33	65	90	4,278	2,908	4,171	4,266	11.2	11.2	15.5	21.0	10.18
Percent of Floorspace Cooled													
Not Cooled	8	Q	Q	Q	1,427	Q	Q	Q	5.4	Q	Q	Q	22.33
1 to 50	27	Q	5	4	3,257	Q	778	461	8.4	Q	5.9	8.0	18.27
51 to 99	15	30	22	53	1,191	2,141	1,600	3,062	12.6	14.2	14.1	17.2	16.44
100	26	21	57	65	1,674	1,780	3,250	3,047	15.6	11.5	17.5	21.3	12.66
Percent Lit when Open													
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	4	Q	2	1	1,184	Q	409	Q	3.7	Q	5.4	Q	19.94
51 to 99	17	9	23	28	1,597	1,162	1,788	1,642	10.6	7.7	12.7	17.1	14.18
100	55	45	60	92	4,743	3,592	3,549	4,567	11.6	12.4	16.8	20.2	10.16
Percent Lit when Closed													
Not Lit	31	10	32	24	3,059	982	2,490	1,406	10.1	9.8	13.0	17.3	17.22
1 to 50	42	43	49	94	4,327	3,713	3,116	4,955	9.8	11.5	15.8	18.9	10.49
51 to 99	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
100	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.19. Electricity Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	0.9	1.4	1.2	1.3	0.8	1.6	0.9	1.1	0.7	1.2	0.8	0.7	
Lighting Equipment (more than one may apply)													
Incandescent	33	32	48	80	3,481	3,035	3,230	4,716	9.6	10.6	14.8	16.9	11.68
Standard Fluorescent	71	53	84	121	7,244	4,809	5,663	6,504	9.8	11.1	14.8	18.5	8.93
Compact Fluorescent	3	13	11	42	336	1,096	506	2,213	9.4	11.6	21.5	19.2	19.80
High-Intensity Discharge	11	28	7	36	916	2,158	446	1,913	12.4	13.1	16.2	18.9	17.82
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Commercial Refrigeration Equipment (more than one may apply)													
Any Equipment	28	41	6	66	1,400	3,321	360	3,278	19.8	12.4	16.7	20.2	14.64
Walk-in Units	18	36	Q	48	776	2,934	Q	2,363	23.1	12.4	Q	20.4	14.94
Cases and Cabinets	24	40	3	54	1,038	3,247	246	2,737	22.6	12.2	11.6	19.8	14.98
None	48	13	79	55	6,149	1,517	5,386	3,295	7.9	8.5	14.6	16.8	12.37
Personal Computers and/or Computer Terminals													
1 to 4	31	Q	10	Q	3,121	Q	1,254	Q	10.0	Q	7.7	Q	13.17
5 to 9	12	11	11	Q	854	959	954	Q	14.3	11.3	11.5	Q	17.00
10 to 19	4	11	20	Q	373	1,095	1,106	Q	11.0	9.7	18.0	Q	22.00
20 to 49	Q	11	19	9	Q	830	1,079	605	Q	13.1	17.5	15.2	18.00
50 or More	Q	19	22	110	Q	1,457	829	5,357	Q	13.3	26.5	20.5	14.79
Annual Consumption (kilowatthours)													
10,000 or Less	1	Q	1	Q	876	Q	349	Q	1.6	Q	1.7	Q	14.65
10,001 to 50,000	15	Q	8	Q	2,920	Q	1,499	Q	5.1	Q	5.6	Q	9.52
50,001 to 100,000	13	Q	8	Q	1,430	Q	672	Q	9.0	Q	11.3	Q	12.28
100,001 to 500,000	33	2	30	Q	1,947	877	2,214	Q	16.8	2.4	13.6	Q	12.88
500,001 to 1,000,000	8	Q	14	5	253	Q	621	483	33.3	Q	22.7	10.1	21.69
1,000,001 to 5,000,000	Q	24	23	46	Q	1,830	386	2,578	Q	13.2	60.5	17.7	12.50
Over 5,000,000	Q	22	Q	69	Q	1,127	Q	2,677	Q	19.3	Q	25.9	14.89
Peak Electricity Demand (kilowatts)													
10 or Less	2	Q	1	Q	470	Q	202	Q	3.7	Q	3.3	Q	22.46
11 to 25	7	Q	4	Q	1,114	Q	651	Q	6.3	Q	6.3	Q	15.88
26 to 50	11	Q	6	Q	973	Q	480	Q	11.7	Q	13.0	Q	17.14
51 to 100	15	Q	11	Q	969	Q	918	Q	15.6	Q	12.5	Q	16.78
101 to 250	13	Q	23	Q	515	Q	1,120	Q	25.0	Q	20.2	Q	19.09
251 to 1,000	Q	20	17	37	Q	1,394	330	2,085	Q	14.4	52.5	18.0	17.53
Over 1,000	Q	13	Q	68	Q	856	Q	2,770	Q	15.0	Q	24.5	21.07
Season of Peak Electricity Demand													
Summer	31	27	47	79	2,212	2,393	2,566	4,237	14.1	11.3	18.3	18.7	14.91
Winter	19	Q	21	23	1,608	Q	1,085	1,217	11.9	Q	19.1	19.2	16.13
Summer and Winter	4	Q	2	Q	365	Q	183	Q	10.7	Q	9.4	Q	30.39

See footnotes at end of table.

Table 3.19. Electricity Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)				Total Floorspace of Buildings Using Electricity (million square feet)				Electricity Energy Intensity (kWh/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	0.9	1.4	1.2	1.3	0.8	1.6	0.9	1.1	0.7	1.2	0.8	0.7	
Building Generates Electricity													
Yes	Q	14	10	61	Q	1,207	301	2,722	Q	11.9	31.7	22.5	19.88
No	74	40	75	60	7,407	3,632	5,445	3,851	10.0	10.9	13.8	15.6	10.10

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Small buildings are 50,000 square feet or less. Large buildings are greater than 50,000 square feet. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.20. Electricity Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.1	1.0	1.3	1.1	0.6	0.8	0.8	
All Buildings	69	40	73	8,470	1,763	2,248	8.1	22.9	32.6	7.92
Building Floorspace (square feet)										
1,001 to 5,000	3	1	34	292	108	771	11.8	13.2	43.9	16.09
5,001 to 10,000	3	Q	15	307	Q	426	9.1	Q	35.3	17.86
10,001 to 25,000	7	Q	12	997	Q	512	6.6	Q	23.6	17.05
25,001 to 50,000	10	Q	9	1,551	Q	407	6.5	Q	21.5	21.10
50,001 to 100,000	17	Q	Q	2,045	Q	Q	8.4	Q	Q	13.62
100,001 to 200,000	15	8	Q	1,641	401	Q	9.0	20.2	Q	17.75
200,001 to 500,000	14	14	Q	1,621	504	Q	8.4	28.5	Q	18.72
Over 500,000	Q	10	Q	Q	381	Q	Q	25.1	Q	12.77
Year Constructed										
1899 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1900 to 1919	2	Q	Q	441	Q	Q	4.2	Q	Q	29.22
1920 to 1945	6	4	10	1,077	227	351	5.5	19.8	27.3	22.28
1946 to 1959	11	5	8	1,903	152	384	5.6	32.5	22.1	18.19
1960 to 1969	22	12	10	2,405	492	346	9.1	23.4	29.7	16.68
1970 to 1979	20	13	22	1,728	544	520	11.5	23.4	42.0	13.62
1980 to 1989	6	6	18	653	287	376	9.9	19.7	49.1	17.33
1990 to 1992	2	Q	Q	253	Q	Q	8.7	Q	Q	30.13
Census Region and Division										
Northeast	12	7	11	1,968	386	565	6.2	19.0	18.9	13.98
New England	4	Q	Q	604	Q	Q	6.4	Q	Q	18.77
Middle Atlantic	8	5	7	1,364	241	408	6.1	21.3	17.2	16.19
Midwest	19	11	18	2,386	487	614	7.8	22.0	29.6	15.28
East North Central	11	6	11	1,534	265	399	6.8	23.0	28.7	14.63
West North Central	8	5	7	852	222	215	9.6	20.9	31.3	28.81
South	22	17	25	2,620	597	652	8.2	27.7	37.8	13.47
South Atlantic	10	8	13	1,168	307	290	8.8	25.2	44.6	21.31
East South Central	5	Q	Q	548	Q	Q	8.7	Q	Q	19.79
West South Central	6	Q	9	904	Q	284	7.2	Q	30.0	20.35
West	16	6	20	1,496	292	416	10.9	19.7	47.6	17.96
Mountain	4	Q	Q	410	Q	Q	10.4	Q	Q	20.64
Pacific	12	5	10	1,086	261	250	11.1	19.4	41.6	23.36
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	6	Q	7	592	Q	166	9.5	Q	43.1	26.60
5,500-7,000 HDD	18	11	19	2,614	531	697	6.8	20.9	27.4	13.20
4,000-5,499 HDD	15	6	16	2,079	267	547	7.4	24.2	28.8	18.10
Fewer than 4,000 HDD	19	15	16	1,849	614	422	10.3	24.8	38.1	19.00
More than 2,000 CDD and --										
Fewer than 4,000 HDD	11	5	15	1,336	198	415	8.1	26.3	36.6	17.88
Energy Sources (more than one may apply)										
Electricity	69	40	73	8,470	1,763	2,248	8.1	22.9	32.6	7.92
Natural Gas	55	36	53	6,856	1,544	1,655	8.1	23.4	32.1	10.25
Fuel Oil	14	28	4	1,837	1,093	172	7.6	25.7	25.0	18.43
District Heat	6	9	Q	688	403	Q	8.1	23.4	Q	21.47
District Chilled Water	2	5	Q	253	227	Q	9.2	23.4	Q	23.11
Propane	4	Q	7	470	Q	230	7.7	Q	29.6	24.55
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.20. Electricity Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.1	1.0	1.3	1.1	0.6	0.8	0.8	
Energy End Uses (more than one may apply)										
Heated Buildings	68	40	72	8,379	1,746	2,158	8.2	23.1	33.2	8.04
Buildings with A/C	64	40	72	7,389	1,747	2,174	8.6	23.0	33.1	8.02
Buildings with Water Heating	66	40	73	8,036	1,760	2,228	8.2	22.7	32.7	8.02
Buildings with Cooking	45	33	58	5,676	1,289	1,799	8.0	25.4	32.5	9.30
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)										
Less than 5	3	Q	19	481	Q	648	6.0	Q	29.3	18.26
5 to 9	3	Q	16	448	Q	560	7.6	Q	27.7	19.80
10 to 19	5	Q	18	738	Q	485	7.4	Q	37.5	16.00
20 to 49	17	Q	13	2,533	162	390	6.8	19.7	32.2	20.21
50 to 99	21	Q	Q	2,213	Q	Q	9.5	Q	Q	13.85
100 or More	19	33	Q	2,057	1,334	Q	9.1	24.5	Q	12.64
Weekly Operating Hours										
39 or Fewer	6	Q	Q	1,221	Q	Q	5.0	Q	Q	18.72
40 to 48	19	2	1	2,761	151	81	6.7	10.3	12.9	21.69
49 to 60	9	2	3	1,447	151	102	6.1	13.5	25.6	20.92
61 to 84	17	Q	15	1,607	Q	483	10.4	Q	31.1	13.22
85 to 167	15	Q	38	1,333	Q	1,235	11.2	Q	30.7	15.94
Open Continuously	Q	34	16	Q	1,284	291	Q	26.4	54.9	12.95
Ownership and Occupancy										
Nongovernment Owned	10	28	72	1,508	1,242	2,091	6.5	22.2	34.3	11.10
Owner Occupied	9	27	59	1,402	1,139	1,660	6.5	23.3	35.3	12.15
Single Establishment	9	24	56	1,341	1,010	1,561	6.6	23.7	36.1	12.69
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Nonowner Occupied	Q	Q	13	Q	Q	431	Q	Q	30.4	21.74
Single Establishment	Q	Q	10	Q	Q	340	Q	Q	29.8	25.53
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	59	13	2	6,961	521	157	8.5	24.6	10.6	16.59
Predominant Exterior Wall Material										
Masonry	61	36	59	7,714	1,587	1,763	7.9	22.9	33.7	8.34
Siding or Shingles	1	Q	9	120	Q	336	8.5	Q	27.8	20.33
Metal Panels	1	Q	Q	145	Q	Q	8.0	Q	Q	35.72
Concrete Panels	5	Q	Q	379	Q	Q	13.0	Q	Q	31.66
Window Glass	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	35	23	35	4,272	1,062	965	8.2	22.1	36.5	10.69
Shingles (Not Wood)	5	Q	15	746	123	597	6.5	21.9	26.0	21.52
Metal Surfacing	3	Q	7	403	Q	190	7.8	Q	38.7	25.58
Synthetic or Rubber	20	13	6	2,322	507	271	8.6	24.7	23.5	18.95
Other	6	Q	9	728	Q	225	8.1	Q	39.4	20.24
Space-Heating Energy Source										
Electricity	25	15	29	2,159	667	692	11.4	22.9	42.5	13.71
Electricity Main	12	3	26	998	198	589	11.6	16.5	44.2	20.38
Electricity Secondary	13	12	Q	1,161	469	Q	11.3	25.6	Q	18.56
Other Excluding Electricity	44	25	42	6,220	1,079	1,467	7.0	23.2	28.8	9.42
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.20. Electricity Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.1	1.0	1.3	1.1	0.6	0.8	0.8	
Main Space-Heating Energy Source										
Electricity	12	3	26	998	198	589	11.6	16.5	44.2	20.38
Natural Gas	46	25	39	5,642	1,017	1,248	8.1	24.5	31.6	11.28
Fuel Oil	5	Q	3	996	Q	147	5.5	Q	19.1	21.25
District Heat	5	9	Q	637	385	Q	8.2	23.3	Q	17.56
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating										
Electricity Only	1	Q	5	224	Q	197	3.5	Q	Q	29.42
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Fuel Oil Only	11	18	Q	1,320	697	Q	8.5	26.4	Q	19.24
Propane Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	53	18	56	6,492	859	1,597	8.2	20.7	34.9	9.79
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source										
Electricity	59	38	71	6,912	1,605	2,090	8.5	23.5	33.8	8.36
Other Excluding Electricity	5	2	Q	478	142	Q	9.9	17.2	Q	25.13
A/C Not Performed	5	Q	1	1,080	Q	75	4.8	Q	19.9	25.53
Water-Heating Energy Source										
Electricity	18	3	27	2,002	227	773	8.8	11.9	35.6	18.60
Other Excluding Electricity	48	37	45	6,034	1,533	1,456	8.0	24.4	31.2	9.07
Water Heating Not Performed	3	Q	Q	434	Q	Q	6.6	Q	Q	24.54
Cooking Energy Source										
Electricity	20	16	32	2,579	631	855	7.9	25.8	37.2	12.68
Other Excluding Electricity	25	17	27	3,097	658	944	8.1	25.1	28.2	13.49
Cooking Not Performed	23	8	15	2,794	473	449	8.4	16.0	33.3	15.88
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	5	Q	Q	231	Q	Q	21.6	28.89
51 to 99	8	6	17	1,105	253	527	7.6	23.3	31.7	19.89
100	59	33	50	7,143	1,471	1,401	8.3	22.7	35.6	8.59
Percent of Floorspace Cooled										
Not Cooled	5	Q	1	1,080	Q	75	4.8	Q	19.9	25.53
1 to 50	17	Q	10	3,008	Q	474	5.5	Q	20.1	14.15
51 to 99	14	13	23	1,538	576	684	9.3	23.0	32.9	13.91
100	33	26	40	2,844	1,081	1,016	11.5	23.9	39.2	11.51
Percent Lit when Open										
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	5	Q	Q	329	Q	Q	14.1	20.90
51 to 99	17	6	13	2,044	351	446	8.3	16.4	29.7	17.69
100	51	34	55	6,284	1,368	1,473	8.1	25.0	37.6	8.82
Percent Lit when Closed										
Not Lit	28	35	31	3,097	1,401	873	9.0	25.2	35.6	11.17
1 to 50	39	5	37	5,233	362	1,249	7.5	14.1	30.0	12.56
51 to 99	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
100	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.20. Electricity Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.1	1.0	1.3	1.1	0.6	0.8	0.8	
Lighting Equipment (more than one may apply)										
Incandescent	42	35	50	5,368	1,446	1,615	7.8	24.3	31.2	9.73
Standard Fluorescent	68	40	71	8,379	1,754	2,187	8.2	22.9	32.5	7.96
Compact Fluorescent	7	15	Q	846	647	Q	8.6	23.8	Q	16.00
High-Intensity Discharge	28	13	8	3,186	551	197	8.9	23.4	42.9	16.25
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	46	33	73	5,636	1,333	2,199	8.2	24.8	33.0	8.75
Walk-in Units	36	31	67	4,169	1,191	1,979	8.7	26.1	34.0	9.52
Cases and Cabinets	36	28	70	4,414	1,179	2,078	8.3	24.1	33.5	9.17
None	23	7	Q	2,833	430	Q	8.0	17.1	Q	16.55
Personal Computers and/or Computer Terminals										
1 to 4	5	Q	22	687	93	549	7.8	30.6	39.6	19.12
5 to 9	4	1	10	496	107	213	7.4	12.1	45.5	25.37
10 to 19	7	3	Q	1,166	192	Q	5.9	17.8	Q	22.71
20 to 49	16	Q	Q	2,323	Q	Q	7.0	Q	Q	11.90
50 or More	33	29	Q	3,326	1,140	Q	9.9	25.1	Q	11.88
Annual Consumption (kilowatthours)										
10,000 or Less	(*)	Q	(*)	59	Q	15	2.8	2.9	3.0	28.66
10,001 to 50,000	3	Q	2	550	Q	244	5.1	Q	9.1	15.70
50,001 to 100,000	4	Q	8	887	Q	419	4.9	Q	18.3	17.26
100,001 to 500,000	17	2	40	2,918	230	1,158	5.9	10.1	34.9	12.78
500,001 to 1,000,000	13	Q	Q	1,551	Q	Q	8.7	Q	Q	15.01
1,000,001 to 5,000,000	22	12	Q	2,041	496	Q	10.8	23.9	Q	15.60
Over 5,000,000	Q	24	Q	Q	794	Q	Q	29.7	Q	8.96
Peak Electricity Demand (kilowatts)										
10 or Less	(*)	Q	Q	79	Q	Q	2.6	Q	Q	38.59
11 to 25	1	Q	3	175	Q	197	5.6	Q	16.1	21.67
26 to 50	2	Q	12	489	Q	466	4.6	Q	25.9	20.36
51 to 100	5	Q	18	1,020	Q	447	5.1	Q	40.5	17.93
101 to 250	12	Q	14	1,723	Q	387	7.2	Q	36.0	17.57
251 to 1,000	24	9	Q	2,519	374	Q	9.7	24.3	Q	15.42
Over 1,000	11	22	Q	632	743	Q	17.3	29.7	Q	17.03
Season of Peak Electricity Demand										
Summer	31	28	43	3,752	1,175	1,261	8.3	24.2	34.3	10.98
Winter	22	Q	16	2,579	Q	409	8.6	Q	38.5	14.11
Summer and Winter	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.20. Electricity Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	**1.1**	**1.5**	**1.1**	**1.0**	**1.3**	**1.1**	**0.6**	**0.8**	**0.8**	
Building Generates Electricity										
Yes	12	29	Q	1,309	1,155	Q	9.0	25.3	Q	13.36
No	57	11	66	7,161	607	2,111	8.0	18.3	31.3	10.30

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.21. Electricity Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.3	1.1	0.9	1.1	1.0	0.9	1.0	0.8	
All Buildings	192	155	184	23,642	12,473	13,779	8.1	12.4	13.4	6.82
Building Floorspace (square feet)										
1,001 to 5,000	29	16	27	2,937	1,117	1,479	9.9	14.1	18.4	9.15
5,001 to 10,000	29	10	17	3,198	964	1,484	9.2	10.3	11.3	13.48
10,001 to 25,000	30	21	19	3,932	1,883	1,814	7.6	11.2	10.5	11.22
25,001 to 50,000	29	15	27	3,881	1,829	2,173	7.3	8.4	12.7	15.90
50,001 to 100,000	16	19	23	2,582	1,595	1,774	6.3	12.1	13.1	15.10
100,001 to 200,000	25	23	19	3,360	2,305	1,654	7.5	9.8	11.5	19.21
200,001 to 500,000	19	24	34	2,057	1,444	1,984	9.0	16.4	17.3	20.19
Over 500,000	15	27	17	1,696	1,335	1,418	8.7	20.2	12.3	26.11
Principal Building Activity										
Education	18	22	20	3,431	2,405	1,728	5.4	9.1	11.5	10.80
Food Sales	7	Q	8	246	Q	155	29.5	Q	54.5	22.64
Food Service	15	4	13	734	187	365	20.3	20.5	36.7	18.82
Health Care	10	12	13	397	492	544	24.2	23.4	23.4	17.84
Lodging	15	7	10	934	482	579	15.6	15.1	16.4	23.17
Mercantile and Service	26	32	31	3,925	2,678	2,607	6.6	12.1	12.0	11.70
Office	53	37	45	3,941	2,187	2,283	13.4	17.1	19.6	13.61
Parking Garage	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Public Assembly	7	6	16	1,148	552	1,095	6.4	10.6	14.5	17.41
Public Order and Safety	Q	Q	2	Q	Q	168	Q	Q	9.6	30.38
Religious Worship	4	2	1	2,143	628	505	2.1	2.8	2.9	19.95
Warehouse and Storage	19	18	14	3,928	1,800	2,308	4.9	9.9	6.0	19.58
Other	9	4	Q	497	181	Q	17.6	20.5	Q	31.78
Vacant	6	1	1	1,849	313	558	3.4	1.7	2.6	30.03
Census Region and Division										
Northeast	42	28	24	6,321	2,476	2,120	6.7	11.4	11.6	13.50
New England	9	4	9	1,433	436	634	6.3	10.1	13.8	20.60
Middle Atlantic	33	24	16	4,888	2,039	1,486	6.8	11.7	10.6	18.33
Midwest	48	39	45	6,651	2,632	3,985	7.2	14.9	11.3	12.27
East North Central	31	24	26	4,635	1,846	2,288	6.8	13.1	11.3	14.05
West North Central	16	15	19	2,016	785	1,697	8.1	19.1	11.3	22.86
South	65	55	74	7,173	4,820	4,824	9.0	11.4	15.3	11.20
South Atlantic	31	30	36	2,519	2,644	2,208	12.2	11.4	16.4	16.49
East South Central	14	10	20	1,630	903	1,187	8.9	11.5	16.6	23.70
West South Central	20	14	18	3,024	1,273	1,429	6.5	11.2	12.5	15.56
West	37	32	41	3,497	2,545	2,850	10.6	12.8	14.4	14.27
Mountain	12	9	11	1,056	664	690	11.7	13.5	15.7	23.17
Pacific	25	24	30	2,440	1,881	2,160	10.1	12.5	14.0	17.22
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	13	15	18	2,131	842	1,491	6.3	17.8	12.1	19.27
5,500-7,000 HDD	52	36	43	7,783	2,797	3,557	6.7	12.7	12.1	14.01
4,000-5,499 HDD	61	37	32	6,547	3,348	2,813	9.3	11.1	11.2	13.03
Fewer than 4,000 HDD	33	44	59	3,963	2,961	3,624	8.4	14.9	16.2	15.24
More than 2,000 CDD and --										
Fewer than 4,000 HDD	32	23	33	3,219	2,524	2,295	10.0	9.0	14.4	16.16
Energy Sources (more than one may apply)										
Electricity	192	155	184	23,642	12,473	13,779	8.1	12.4	13.4	6.82
Natural Gas	136	113	127	17,059	8,871	9,215	8.0	12.8	13.7	8.08
Fuel Oil	46	36	48	4,503	2,363	2,735	10.2	15.2	17.6	15.50
District Heat	25	27	13	1,967	1,419	976	12.7	19.0	13.8	25.93
District Chilled Water	8	8	9	652	375	480	12.5	22.1	17.7	26.72
Propane	12	5	12	943	642	786	12.3	7.8	14.8	22.85
Any Other	3	Q	2	729	Q	268	4.4	Q	7.5	24.08

See footnotes at end of table.

Table 3.21. Electricity Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.3	1.1	0.9	1.1	1.0	0.9	1.0	0.8	
Energy End Uses (more than one may apply)										
Heated Buildings	182	146	179	22,036	11,548	12,813	8.3	12.6	14.0	6.64
Buildings with A/C	171	142	178	18,912	10,601	12,286	9.1	13.4	14.5	6.90
Buildings with Water Heating	176	148	176	20,372	11,006	12,368	8.7	13.5	14.3	6.87
Buildings with Cooking	69	72	93	6,903	4,920	5,071	10.1	14.6	18.4	9.18
Buildings with Manufacturing	12	6	7	1,478	394	652	7.9	16.1	10.9	22.25
Workers (main shift)										
Less than 5	30	17	23	6,841	2,668	2,954	4.4	6.2	7.8	11.65
5 to 9	24	10	19	3,343	1,227	1,577	7.3	8.4	12.0	13.12
10 to 19	26	13	23	3,323	1,211	1,789	7.9	10.7	13.1	15.42
20 to 49	43	26	24	3,815	2,180	2,088	11.2	11.8	11.3	12.69
50 to 99	22	25	21	2,890	1,685	1,424	7.6	14.9	14.8	19.52
100 or More	46	64	74	3,430	3,502	3,949	13.4	18.3	18.8	13.09
Weekly Operating Hours										
39 or Fewer	10	3	4	3,673	1,198	1,273	2.8	2.9	3.3	15.57
40 to 48	45	24	32	6,255	2,617	2,609	7.2	9.1	12.3	13.25
49 to 60	38	21	25	5,816	2,363	2,466	6.5	8.9	10.2	12.85
61 to 84	27	32	36	2,956	2,687	2,762	9.0	11.9	13.2	14.66
85 to 167	30	31	39	2,572	1,910	2,238	11.6	16.4	17.5	13.52
Open Continuously	42	43	48	2,369	1,697	2,431	17.8	25.4	19.5	14.85
Ownership and Occupancy										
Nongovernment Owned	152	103	142	18,314	8,441	10,557	8.3	12.2	13.4	8.27
Owner Occupied	124	86	113	14,110	6,718	7,958	8.8	12.8	14.1	8.92
Single Establishment	102	75	91	11,138	5,824	6,260	9.1	12.9	14.5	10.06
Multiple Establishment	22	11	22	2,971	894	1,698	7.4	12.4	12.8	15.76
Nonowner Occupied	26	17	28	3,684	1,485	2,380	7.2	11.4	11.9	14.79
Single Establishment	16	7	12	1,906	557	999	8.2	13.4	12.5	20.01
Multiple Establishment	11	9	16	1,779	928	1,381	6.1	10.2	11.5	18.28
Vacant	Q	Q	Q	520	Q	Q	Q	Q	Q	28.65
Government Owned	40	51	43	5,329	4,032	3,222	7.5	12.7	13.3	11.67
Predominant Exterior Wall Material										
Masonry	163	102	125	20,376	8,486	9,161	8.0	12.1	13.6	7.32
Siding or Shingles	11	5	9	1,490	525	662	7.4	9.9	13.8	16.72
Metal Panels	Q	10	17	1,277	1,349	1,834	9.7	7.1	9.1	20.47
Concrete Panels	Q	24	18	Q	1,495	1,497	Q	16.1	11.9	19.64
Window Glass	Q	Q	12	Q	463	405	Q	25.3	28.9	28.46
Other	Q	Q	4	Q	Q	220	Q	Q	19.3	32.28
Predominant Roof Material										
Built-Up	103	89	90	11,350	6,520	5,822	9.0	13.7	15.4	8.95
Shingles (Not Wood)	28	21	22	4,911	1,557	2,064	5.8	13.7	10.5	15.05
Metal Surfacing	8	8	20	1,640	1,459	2,156	5.1	5.4	9.1	19.25
Synthetic or Rubber	36	30	38	3,552	2,139	2,542	10.0	14.0	15.0	13.38
Other	17	6	15	2,189	798	1,196	7.7	8.0	12.7	18.68
Space-Heating Energy Source										
Electricity	65	52	95	6,578	3,880	6,191	9.9	13.4	15.4	10.01
Electricity Main	32	25	64	2,779	1,893	3,800	11.7	13.4	16.8	11.76
Electricity Secondary	33	27	31	3,799	1,987	2,391	8.6	13.4	13.1	15.82
Other Excluding Electricity	117	94	84	15,458	7,668	6,622	7.5	12.2	12.6	8.36
Building Not Heated	Q	Q	5	1,606	925	967	6.1	Q	5.5	31.28

See footnotes at end of table.

Table 3.21. Electricity Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.3	1.1	0.9	1.1	1.0	0.9	1.0	0.8	
Main Space-Heating Energy Source										
Electricity	32	25	64	2,779	1,893	3,800	11.7	13.4	16.8	11.76
Natural Gas	101	88	94	13,989	7,223	7,024	7.2	12.2	13.3	8.73
Fuel Oil	18	5	5	2,551	739	700	7.1	7.1	7.3	17.32
District Heat	23	25	12	1,839	1,339	759	12.7	18.7	16.2	20.56
Propane	3	Q	2	370	Q	273	8.2	Q	9.2	35.31
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating										
Electricity Only	7	4	5	1,009	422	506	7.3	8.6	10.3	18.70
Natural Gas Only	8	5	5	909	528	482	9.1	Q	10.1	25.72
Fuel Oil Only	21	19	23	2,065	1,339	1,354	10.0	14.1	16.7	22.39
Propane Only	5	3	7	631	399	554	8.0	8.4	12.9	24.59
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	2	Q	Q	394	Q	Q	5.9	Q	Q	21.08
No Replacement Energy Source	136	112	137	16,785	8,647	9,652	8.1	12.9	14.2	7.63
Building Not Heated	Q	Q	5	1,606	925	967	6.1	Q	5.5	31.28
Cooling Energy Source										
Electricity	164	135	166	18,222	10,231	11,375	9.0	13.2	14.6	6.99
Other Excluding Electricity	8	7	12	690	370	911	11.1	18.6	12.9	27.53
A/C Not Performed	20	13	7	4,730	1,872	1,494	4.3	7.0	4.4	20.51
Water-Heating Energy Source										
Electricity	60	44	90	7,259	3,423	5,946	8.3	12.7	15.1	10.73
Other Excluding Electricity	116	105	87	13,112	7,584	6,422	8.9	13.8	13.5	8.40
Water Heating Not Performed	15	7	8	3,271	1,466	1,411	4.7	4.5	5.6	20.03
Cooking Energy Source										
Electricity	31	42	48	2,726	2,734	2,427	11.4	15.4	19.6	12.66
Other Excluding Electricity	38	30	46	4,177	2,186	2,643	9.2	13.6	17.2	13.88
Cooking Not Performed	122	83	91	16,740	7,553	8,709	7.3	11.0	10.5	9.13
Percent of Floorspace Heated										
Not Heated	Q	Q	5	1,606	925	967	6.1	Q	5.5	31.28
1 to 50	21	17	17	4,779	2,060	2,059	4.4	8.5	8.4	19.57
51 to 99	29	25	33	3,692	2,061	2,039	7.9	12.3	16.3	12.38
100	131	103	129	13,565	7,427	8,715	9.7	13.8	14.7	7.62
Percent of Floorspace Cooled										
Not Cooled	20	13	7	4,730	1,872	1,494	4.3	7.0	4.4	20.51
1 to 50	49	25	30	9,565	3,604	3,881	5.2	7.1	7.8	10.49
51 to 99	47	55	54	4,035	3,167	3,035	11.7	17.5	17.7	11.13
100	75	61	94	5,312	3,830	5,370	14.1	15.8	17.5	9.39
Percent Lit when Open										
Not Lit	2	Q	(*)	789	Q	Q	2.0	Q	0.9	31.12
1 to 50	24	6	6	5,274	1,523	1,414	4.6	3.7	4.4	16.57
51 to 99	41	25	39	5,026	2,264	2,980	8.1	11.1	13.2	10.54
100	125	124	138	12,554	8,369	8,988	10.0	14.8	15.4	8.35
Percent Lit when Closed										
Not Lit	96	71	83	11,585	5,863	6,562	8.3	12.1	12.7	9.17
1 to 50	88	77	97	11,493	6,118	6,851	7.7	12.6	14.1	8.89
51 to 99	5	Q	Q	284	Q	Q	16.6	Q	Q	30.01
100	2	Q	Q	279	Q	Q	8.8	Q	Q	30.13

See footnotes at end of table.

Table 3.21. Electricity Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.3	1.1	0.9	1.1	1.0	0.9	1.0	0.8	
Heating Equipment (more than one may apply)										
Heat Pumps	29	16	30	1,934	1,055	1,783	14.7	14.7	16.7	17.31
Furnaces	49	36	32	7,344	3,367	2,980	6.6	10.6	10.8	12.07
Individual Space Heaters	52	47	69	7,329	3,862	5,434	7.1	12.1	12.8	10.96
District Heat	26	26	13	2,015	1,363	972	13.0	19.1	13.9	21.41
Boilers	73	53	58	8,964	4,027	3,734	8.1	13.1	15.6	9.60
Packaged Heating Units	39	43	58	3,664	3,226	3,911	10.7	13.4	14.8	12.36
Other	Q	Q	8	Q	Q	231	Q	Q	33.6	22.04
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	36	18	24	4,144	1,528	1,800	8.7	11.8	13.3	14.39
Heat Pumps	27	17	31	1,946	1,170	1,807	13.7	14.8	17.2	16.53
Individual A/C	57	45	30	8,783	3,603	2,586	6.5	12.5	11.5	11.47
District Chilled Water	8	8	9	652	376	632	12.5	22.1	13.5	28.76
Central Chillers	47	56	60	2,854	3,032	3,306	16.4	18.4	18.0	13.45
Packaged A/C Units	86	72	100	8,357	5,411	6,494	10.3	13.3	15.4	9.24
Swamp Coolers	8	7	5	544	510	386	14.6	14.5	12.2	25.92
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)										
Incandescent	137	96	118	16,118	7,220	7,853	8.5	13.4	15.0	8.11
Standard Fluorescent	179	147	179	21,605	11,720	13,069	8.3	12.5	13.7	6.66
Compact Fluorescent	23	28	37	1,961	1,764	1,958	11.8	15.9	18.8	16.39
High-Intensity Discharge	40	49	55	4,554	3,382	3,734	8.8	14.4	14.7	14.50
Other	Q	Q	Q	537	Q	Q	12.8	Q	Q	46.56
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	84	85	103	7,689	5,346	5,627	10.9	15.9	18.3	8.92
Walk-in Units	65	70	88	4,761	4,015	4,707	13.5	17.4	18.8	9.82
Cases and Cabinets	72	72	87	6,431	4,280	4,507	11.2	16.7	19.4	9.64
None	108	70	81	15,953	7,127	8,153	6.8	9.8	10.0	9.73
Personal Computers and/or Computer Terminals										
1 to 4	34	23	32	5,282	1,975	3,168	6.4	11.7	10.3	11.97
5 to 9	14	12	16	1,712	1,001	1,444	8.3	12.1	11.3	15.90
10 to 19	17	16	15	1,933	1,390	1,182	8.7	11.6	12.6	16.38
20 to 49	19	18	21	2,554	1,552	1,419	7.5	11.8	14.5	17.18
50 or More	56	64	69	3,793	3,456	3,405	14.7	18.4	20.1	12.94
Annual Consumption (kilowatthours)										
10,000 or Less	3	1	1	2,775	713	611	0.9	1.2	1.5	12.38
10,001 to 50,000	20	7	8	5,497	2,041	2,044	3.7	3.4	4.1	9.48
50,001 to 100,000	17	8	12	2,880	1,091	1,458	5.8	7.6	8.2	10.99
100,001 to 500,000	53	31	43	6,310	2,993	3,413	8.5	10.4	12.5	10.20
500,001 to 1,000,000	19	16	21	1,577	1,443	1,593	12.1	11.1	13.1	14.83
1,000,001 to 5,000,000	54	42	48	3,568	2,416	2,369	15.1	17.5	20.1	13.18
Over 5,000,000	26	49	52	1,034	1,775	2,291	24.8	27.7	22.7	19.15
Peak Electricity Demand (kilowatts)										
10 or Less	2	1	1	1,028	486	507	2.3	2.6	2.7	22.16
11 to 25	9	3	4	1,978	840	808	4.6	4.1	5.5	16.95
26 to 50	15	8	11	2,126	755	957	7.2	11.1	11.1	15.01
51 to 100	22	10	24	2,723	1,219	1,614	8.1	7.9	15.1	14.78
101 to 250	27	22	25	2,610	1,836	1,811	10.5	11.9	13.6	14.55
251 to 1,000	44	36	44	3,605	2,345	2,187	12.2	15.3	20.3	15.58
Over 1,000	29	44	44	1,160	1,494	2,407	25.0	29.4	18.2	20.71

See footnotes at end of table.

Table 3.21. Electricity Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.1	1.3	1.1	0.9	1.1	1.0	0.9	1.0	0.8	
Season of Peak Electricity Demand										
Summer	101	80	103	8,715	5,354	6,925	11.6	14.9	14.8	11.17
Winter	36	37	47	5,392	3,095	2,986	6.8	11.9	15.6	13.81
Summer and Winter	11	7	4	1,122	526	379	10.2	14.1	11.3	25.05
Building Generates Electricity										
Yes	35	32	51	1,950	1,881	2,849	17.8	17.0	18.0	14.81
No	157	123	133	21,692	10,592	10,931	7.2	11.6	12.2	7.52

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.22. Electricity Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	0.9	1.3	1.4	0.8	1.1	1.3	0.6	0.8	1.0	
All Buildings	144	58	32	10,042	4,106	2,482	14.3	14.2	12.9	9.79
Building Floorspace (square feet)										
1,001 to 5,000	18	5	2	1,002	260	189	18.1	20.4	13.0	18.59
5,001 to 10,000	11	5	1	891	342	176	12.4	15.4	8.1	23.86
10,001 to 25,000	17	8	3	1,595	576	298	10.8	14.4	9.2	19.04
25,001 to 50,000	20	6	5	1,164	482	327	17.2	11.8	14.6	21.91
50,001 to 100,000	20	7	5	1,320	387	268	14.9	18.4	17.6	20.49
100,001 to 200,000	26	5	4	1,626	444	269	15.8	12.2	13.3	25.73
200,001 to 500,000	16	5	9	1,207	315	670	13.2	15.0	12.7	25.39
Over 500,000	16	16	4	1,237	1,299	285	12.9	12.6	13.3	24.24
Principal Building Activity										
Education	5	2	2	480	173	253	9.7	10.4	8.7	23.23
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Food Service	5	Q	Q	103	Q	Q	46.2	Q	Q	35.54
Health Care	5	Q	Q	240	Q	Q	22.5	Q	Q	28.38
Lodging	14	Q	2	550	Q	97	25.8	Q	15.9	28.55
Mercantile and Service	28	7	6	2,104	535	538	13.1	12.9	11.2	21.07
Office	46	14	11	2,419	899	590	19.1	15.9	18.3	15.69
Parking Garage	Q	Q	Q	Q	Q	124	Q	Q	5.7	29.16
Public Assembly	5	Q	3	461	Q	197	10.8	Q	17.1	27.39
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Religious Worship	1	Q	Q	358	Q	Q	3.4	Q	Q	31.02
Warehouse and Storage	16	4	3	2,183	587	374	7.5	7.0	7.0	20.46
Other	4	Q	Q	124	Q	Q	30.4	Q	Q	43.10
Vacant	Q	Q	Q	520	Q	68	8.5	Q	6.5	44.33
Census Region and Division										
Northeast	19	5	4	1,534	499	286	12.5	9.2	14.5	21.49
New England	5	Q	Q	497	Q	Q	9.7	Q	Q	43.89
Middle Atlantic	14	3	3	1,036	327	194	13.9	8.9	15.3	25.37
Midwest	34	9	8	2,473	498	663	13.6	17.1	12.1	20.40
East North Central	17	6	Q	1,171	271	362	14.4	20.9	17.2	26.71
West North Central	17	3	2	1,302	227	301	12.8	12.7	6.1	25.15
South	55	34	11	3,886	2,367	903	14.1	14.5	12.4	14.59
South Atlantic	21	11	5	1,791	783	487	11.8	14.3	11.0	22.26
East South Central	16	5	3	903	350	264	18.0	14.1	11.8	22.29
West South Central	18	18	3	1,192	1,234	151	14.8	14.6	17.8	22.90
West	36	11	9	2,151	742	630	16.7	14.6	13.7	17.11
Mountain	16	4	2	774	229	148	20.8	16.3	15.5	30.11
Pacific	20	7	6	1,376	513	482	14.4	13.9	13.1	21.23
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	8	Q	Q	749	Q	Q	10.4	Q	Q	25.75
5,500-7,000 HDD	33	8	10	2,310	591	681	14.3	13.5	15.4	20.29
4,000-5,499 HDD	28	10	7	1,971	727	559	14.2	13.5	12.8	18.77
Fewer than 4,000 HDD	35	15	9	2,483	1,106	727	13.9	13.2	11.9	17.47
More than 2,000 CDD and --										
Fewer than 4,000 HDD	40	24	5	2,529	1,518	415	16.0	15.7	12.1	21.79
Energy Sources (more than one may apply)										
Electricity	144	58	32	10,042	4,106	2,482	14.3	14.2	12.9	9.79
Natural Gas	87	32	23	6,260	1,957	1,624	14.0	16.4	14.3	12.76
Fuel Oil	37	11	14	2,122	748	737	17.5	14.5	19.1	20.98
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
District Chilled Water	Q	Q	3	184	Q	164	34.0	Q	15.7	31.33
Propane	8	1	1	609	201	205	12.5	7.4	6.2	32.45
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.22. Electricity Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	0.9	1.3	1.4	0.8	1.1	1.3	0.6	0.8	1.0	
Energy End Uses (more than one may apply)										
Heated Buildings	138	57	31	9,393	3,878	2,297	14.7	14.7	13.6	9.94
Buildings with A/C	140	55	31	9,225	3,760	2,258	15.1	14.7	13.9	10.09
Buildings with Water Heating	136	57	30	8,869	3,696	2,167	15.4	15.4	13.6	10.24
Buildings with Cooking	59	34	14	3,197	2,117	859	18.3	16.1	15.8	16.28
Buildings with Manufacturing	7	Q	Q	504	Q	Q	14.2	Q	Q	38.07
Workers (main shift)										
Less than 5	20	19	4	2,071	1,586	497	9.7	11.8	8.0	23.23
5 to 9	10	4	1	882	343	152	11.5	10.8	8.3	21.60
10 to 19	15	6	2	1,142	389	201	13.3	15.4	10.5	25.31
20 to 49	18	9	4	1,560	514	399	11.6	18.1	11.3	20.28
50 to 99	20	6	4	1,117	347	301	17.5	15.9	12.5	24.38
100 or More	61	15	16	3,271	926	933	18.5	16.1	17.6	15.80
Weekly Operating Hours										
39 or Fewer	4	1	2	613	141	167	5.9	4.7	9.2	31.11
40 to 48	27	7	8	2,264	646	554	11.8	10.1	14.0	20.54
49 to 60	26	8	8	2,104	616	654	12.3	12.5	11.8	15.61
61 to 84	33	8	5	2,498	709	415	13.1	11.8	12.2	21.59
85 to 167	17	9	5	920	542	273	18.6	17.3	18.4	20.58
Open Continuously	38	26	5	1,643	1,451	420	23.0	17.6	11.7	22.86
Ownership and Occupancy										
Nongovernment Owned	130	52	24	8,962	3,518	1,788	14.5	14.8	13.2	10.92
Owner Occupied	100	27	18	6,290	1,781	1,300	16.0	15.2	13.5	12.38
Single Establishment	71	23	12	4,143	1,417	970	17.2	16.1	12.3	12.30
Multiple Establishment	29	4	Q	2,147	364	330	13.6	11.7	16.9	23.19
Nonowner Occupied	28	25	6	2,423	1,716	468	11.6	14.3	12.8	19.51
Single Establishment	9	18	3	663	1,200	197	13.6	14.8	15.7	25.46
Multiple Establishment	19	7	3	1,760	517	271	10.9	13.3	10.8	24.13
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	14	6	8	1,081	588	695	12.5	10.5	12.2	21.47
Predominant Exterior Wall Material										
Masonry	83	42	20	5,608	2,658	1,525	14.9	15.9	13.0	12.65
Siding or Shingles	9	2	1	707	178	85	13.3	11.6	13.7	24.20
Metal Panels	24	3	3	1,871	550	244	13.1	5.3	10.8	23.63
Concrete Panels	8	7	6	732	445	464	11.2	15.0	13.7	19.76
Window Glass	11	3	1	685	202	76	16.2	14.5	11.6	20.36
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	58	29	10	3,556	1,809	699	16.4	15.9	14.4	17.79
Shingles (Not Wood)	15	3	2	1,310	278	200	11.7	12.2	12.0	20.57
Metal Surfacing	23	8	4	2,121	798	460	10.7	9.4	9.4	18.41
Synthetic or Rubber	28	14	12	1,688	817	858	16.3	16.8	14.3	15.01
Other	20	5	3	1,367	404	265	14.4	12.1	11.1	28.81
Space-Heating Energy Source										
Electricity	90	35	16	5,657	2,301	1,030	15.9	15.0	15.3	13.96
Electricity Main	70	31	11	4,254	1,976	800	16.4	15.9	14.3	16.29
Electricity Secondary	20	3	4	1,403	324	230	14.2	10.0	18.8	21.90
Other Excluding Electricity	48	23	15	3,736	1,577	1,267	12.9	14.3	12.2	14.34
Building Not Heated	6	1	Q	649	228	186	9.1	4.5	4.8	34.34

See footnotes at end of table.

Table 3.22. Electricity Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	0.9	1.3	1.4	0.8	1.1	1.3	0.6	0.8	1.0	
Main Space-Heating Energy Source										
Electricity	70	31	11	4,254	1,976	800	16.4	15.9	14.3	16.29
Natural Gas	53	22	17	4,175	1,485	1,225	12.8	15.1	13.7	14.02
Fuel Oil	2	Q	Q	211	Q	Q	8.7	Q	Q	35.25
District Heat	11	Q	2	516	Q	157	21.1	Q	14.6	27.43
Propane	2	Q	Q	177	Q	Q	8.8	Q	Q	44.59
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating										
Electricity Only	3	2	Q	366	201	Q	9.5	9.6	Q	31.70
Natural Gas Only	3	Q	Q	203	Q	Q	14.0	Q	Q	41.48
Fuel Oil Only	11	Q	3	509	Q	107	20.7	Q	23.9	22.51
Propane Only	3	Q	Q	334	Q	Q	9.5	Q	Q	50.96
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	115	50	26	7,791	3,265	2,014	14.8	15.2	13.1	11.05
Building Not Heated	6	1	Q	649	228	186	9.1	4.5	4.8	34.34
Cooling Energy Source										
Electricity	133	54	29	9,002	3,690	2,108	14.8	14.7	14.0	10.24
Other Excluding Electricity	Q	Q	2	222	Q	149	27.5	Q	12.3	33.01
A/C Not Performed	4	Q	1	818	345	225	5.1	Q	3.1	25.31
Water-Heating Energy Source										
Electricity	80	37	12	5,278	2,596	980	15.2	14.3	11.8	13.33
Other Excluding Electricity	56	20	18	3,591	1,100	1,187	15.6	17.9	15.2	13.94
Water Heating Not Performed	7	1	2	1,174	410	316	6.4	3.4	7.8	24.06
Cooking Energy Source										
Electricity	40	24	10	2,091	1,615	590	19.2	15.1	16.3	21.92
Other Excluding Electricity	19	10	4	1,105	502	269	16.8	19.6	14.8	19.07
Cooking Not Performed	85	24	18	6,846	1,989	1,623	12.4	12.1	11.4	11.08
Percent of Floorspace Heated										
Not Heated	6	1	Q	649	228	186	9.1	4.5	4.8	34.34
1 to 50	12	5	2	1,690	640	279	7.1	7.5	7.4	26.14
51 to 99	27	6	5	1,631	438	338	16.7	14.8	15.8	20.15
100	99	46	24	6,073	2,799	1,679	16.2	16.4	14.1	10.97
Percent of Floorspace Cooled										
Not Cooled	4	Q	1	818	345	225	5.1	Q	3.1	25.31
1 to 50	25	4	5	3,242	891	534	7.8	5.0	9.5	19.31
51 to 99	41	13	9	2,339	706	590	17.5	18.4	15.4	17.54
100	73	38	17	3,643	2,164	1,134	20.1	17.5	15.2	12.98
Percent Lit when Open										
Not Lit	Q	Q	Q	321	Q	Q	5.2	Q	Q	45.43
1 to 50	8	Q	2	1,253	231	280	6.3	Q	5.7	25.06
51 to 99	28	20	6	1,950	1,590	413	14.3	12.9	15.7	19.97
100	106	34	23	6,519	2,226	1,737	16.3	15.4	13.4	10.68
Percent Lit when Closed										
Not Lit	72	36	12	5,395	2,594	1,135	13.4	13.8	10.2	13.44
1 to 50	66	21	20	4,313	1,434	1,273	15.2	14.4	15.4	13.00
51 to 99	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
100	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.22. Electricity Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	0.9	1.3	1.4	0.8	1.1	1.3	0.6	0.8	1.0	
Heating Equipment (more than one may apply)										
Heat Pumps	39	9	6	2,290	672	534	17.0	13.0	10.8	21.95
Furnaces	27	9	4	2,308	586	323	11.6	14.6	11.0	18.97
Individual Space Heaters	55	13	12	4,017	961	761	13.6	13.7	15.5	14.51
District Heat	11	2	3	524	149	202	20.9	14.0	15.4	24.06
Boilers	30	20	10	1,972	1,424	543	15.1	13.9	18.2	20.16
Packaged Heating Units	42	20	11	3,154	1,152	892	13.4	17.2	12.5	14.74
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	11	4	2	992	365	190	10.7	11.6	11.5	21.57
Heat Pumps	38	9	6	2,224	697	562	17.0	13.1	10.5	21.69
Individual A/C	19	17	2	1,630	1,269	108	11.5	13.3	20.1	25.15
District Chilled Water	Q	Q	3	184	Q	164	34.0	Q	15.7	31.33
Central Chillers	33	20	10	1,839	1,390	571	17.7	14.4	16.8	17.51
Packaged A/C Units	71	27	18	4,788	1,550	1,230	14.8	17.2	14.7	13.28
Swamp Coolers	9	Q	Q	428	Q	Q	20.9	Q	Q	37.28
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)										
Incandescent	82	29	17	5,131	1,592	1,305	16.0	18.2	13.4	12.70
Standard Fluorescent	140	58	30	9,470	3,959	2,244	14.7	14.6	13.2	10.06
Compact Fluorescent	26	8	13	1,425	509	719	18.2	14.9	17.8	19.93
High-Intensity Discharge	43	14	15	3,503	1,180	1,217	12.4	12.3	12.5	15.21
Other	5	Q	1	469	Q	110	11.0	Q	12.4	29.62
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	67	40	17	3,551	2,186	1,006	18.8	18.1	16.5	13.67
Walk-in Units	51	35	13	2,555	1,886	755	19.9	18.3	17.3	16.49
Cases and Cabinets	54	36	15	2,870	2,019	879	18.9	18.0	16.7	15.01
None	77	19	15	6,491	1,919	1,476	11.8	9.7	10.5	13.02
Personal Computers and/or Computer Terminals										
1 to 4	22	8	4	1,941	569	419	11.3	14.1	10.7	19.30
5 to 9	17	5	3	1,171	381	261	14.5	12.7	12.7	25.70
10 to 19	16	6	4	1,150	340	242	13.7	16.6	Q	30.92
20 to 49	16	7	4	1,138	430	345	14.1	16.3	11.6	21.20
50 or More	49	12	14	2,510	769	758	19.5	15.9	18.1	16.60
Annual Consumption (kilowatthours)										
10,000 or Less	1	(*)	(*)	444	96	110	1.6	1.6	1.0	22.09
10,001 to 50,000	6	2	1	1,466	442	208	4.2	4.3	4.3	15.34
50,001 to 100,000	7	3	1	954	484	217	7.4	6.0	6.9	22.93
100,001 to 500,000	30	12	5	2,035	780	510	14.8	15.4	9.6	16.56
500,001 to 1,000,000	15	3	4	1,036	307	402	14.7	9.1	10.5	24.09
1,000,001 to 5,000,000	53	20	10	2,887	806	570	18.4	24.4	18.3	16.74
Over 5,000,000	31	19	10	1,221	1,191	465	25.6	15.8	21.4	18.33
Peak Electricity Demand (kilowatts)										
10 or Less	(*)	Q	Q	171	Q	Q	2.2	Q	Q	48.49
11 to 25	4	Q	Q	609	Q	Q	6.8	Q	Q	25.58
26 to 50	8	3	Q	712	314	Q	10.7	8.1	Q	22.80
51 to 100	11	5	1	854	267	252	13.4	18.8	5.0	25.64
101 to 250	18	6	6	1,250	518	384	14.0	12.2	14.5	24.17
251 to 1,000	49	16	9	2,620	802	596	18.5	20.6	14.9	22.73
Over 1,000	34	19	10	1,398	1,233	492	24.5	15.6	21.2	19.68

See footnotes at end of table.

Table 3.22. Electricity Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	0.9	1.3	1.4	0.8	1.1	1.3	0.6	0.8	1.0	
Season of Peak Electricity Demand										
Summer	78	34	18	4,599	2,292	1,404	17.0	14.9	12.9	15.01
Winter	42	15	9	2,712	956	538	15.7	15.7	16.8	18.55
Summer and Winter	3	Q	Q	305	Q	Q	10.0	Q	Q	40.20
Building Generates Electricity										
Yes	42	13	13	2,249	731	713	18.6	17.5	18.6	17.03
No	102	45	19	7,793	3,375	1,769	13.1	13.5	10.6	10.91

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.23. Electricity Consumption and Conditional Energy Intensity for Buildings Cooled with Electricity, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
		Buildings Cooled with Electricity			Buildings Cooled with Electricity			Buildings Cooled with Electricity		
	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	
RSE Column Factor:	1.0	1.3	1.2	0.9	1.3	1.0	0.7	1.0	0.8	
All Buildings	682	340	342	54,628	23,798	30,830	12.5	14.3	11.1	4.59
Building Floorspace (square feet)										
1,001 to 5,000	85	43	42	4,853	1,881	2,972	17.5	22.9	14.1	7.18
5,001 to 10,000	65	30	35	5,452	2,137	3,315	11.9	14.3	10.5	8.73
10,001 to 25,000	90	42	47	8,132	3,414	4,718	11.0	12.4	10.0	7.94
25,001 to 50,000	91	48	44	8,043	3,429	4,614	11.4	13.9	9.5	10.58
50,001 to 100,000	84	35	49	6,970	2,621	4,350	12.0	13.3	11.2	10.15
100,001 to 200,000	88	43	44	7,898	3,019	4,880	11.1	14.4	9.1	12.09
200,001 to 500,000	90	41	49	6,535	2,912	3,623	13.7	14.1	13.4	12.94
Over 500,000	90	57	32	6,744	4,386	2,358	13.3	13.0	13.7	20.01
Principal Building Activity										
Education	59	22	36	6,912	1,954	4,958	8.5	11.5	7.3	9.08
Food Sales	32	14	18	725	277	448	44.3	50.0	40.7	16.43
Food Service	38	15	23	1,365	395	970	28.2	38.2	24.1	13.18
Health Care	38	15	23	1,605	625	981	23.5	23.3	23.6	11.67
Lodging	47	31	15	2,310	1,431	879	20.2	22.0	17.4	17.11
Mercantile and Service	120	65	55	10,669	4,869	5,800	11.3	13.3	9.5	8.39
Office	195	103	92	11,576	5,320	6,256	16.8	19.4	14.7	8.39
Parking Garage	6	4	Q	800	514	Q	7.5	Q	Q	39.18
Public Assembly	47	28	19	3,966	2,167	1,799	11.8	12.8	10.6	13.40
Public Order and Safety	8	Q	6	726	Q	550	10.6	Q	10.3	28.15
Religious Worship	8	4	5	3,090	1,178	1,912	2.7	3.2	2.4	14.40
Warehouse and Storage	54	27	27	7,783	3,905	3,878	6.9	6.8	6.9	12.79
Other	20	7	12	915	254	661	21.3	28.7	18.5	19.49
Vacant	11	4	7	2,187	733	1,454	4.9	5.4	4.7	24.15
Year Constructed										
1899 or Before	10	4	7	1,289	348	941	8.0	10.1	7.2	24.71
1900 to 1919	17	6	11	2,691	756	1,936	6.2	7.5	5.7	20.22
1920 to 1945	57	22	35	6,308	2,003	4,305	9.0	10.9	8.0	15.06
1946 to 1959	80	31	49	7,934	2,626	5,308	10.1	11.8	9.3	10.29
1960 to 1969	135	50	84	10,231	3,619	6,612	13.2	13.9	12.8	9.55
1970 to 1979	166	91	75	11,375	5,726	5,648	14.6	15.8	13.3	8.17
1980 to 1989	188	122	65	12,692	7,773	4,919	14.8	15.8	13.3	8.17
1990 to 1992	29	15	15	2,108	947	1,161	14.0	15.6	12.7	16.56
Census Region and Division										
Northeast	110	52	58	10,729	3,874	6,855	10.3	13.5	8.4	9.96
New England	26	12	14	2,572	909	1,663	10.0	13.3	8.2	18.71
Middle Atlantic	84	40	44	8,157	2,965	5,192	10.4	13.6	8.5	13.39
Midwest	157	53	104	13,544	4,274	9,270	11.6	12.3	11.2	9.46
East North Central	98	34	64	8,461	2,729	5,732	11.6	12.5	11.1	13.45
West North Central	59	18	41	5,083	1,545	3,538	11.6	11.9	11.5	13.91
South	269	161	108	20,609	10,857	9,751	13.1	14.8	11.1	7.27
South Atlantic	126	79	47	9,162	5,498	3,664	13.8	14.4	12.9	10.57
East South Central	60	36	24	4,318	2,003	2,315	13.9	17.9	10.4	13.03
West South Central	83	46	37	7,128	3,356	3,773	11.6	13.7	9.8	11.49
West	145	74	71	9,747	4,793	4,954	14.9	15.5	14.4	8.40
Mountain	47	21	26	2,905	1,256	1,649	16.2	16.9	15.7	17.27
Pacific	98	53	45	6,842	3,537	3,305	14.3	14.9	13.7	10.45

See footnotes at end of table.

Table 3.23. Electricity Consumption and Conditional Energy Intensity for Buildings Cooled with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
		Buildings Cooled with Electricity			Buildings Cooled with Electricity			Buildings Cooled with Electricity		
	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	
RSE Column Factor:	1.0	1.3	1.2	0.9	1.3	1.0	0.7	1.0	0.8	
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	44	13	30	3,969	1,067	2,902	11.0	12.6	10.4	16.15
5,500-7,000 HDD	162	60	102	14,369	4,918	9,451	11.3	12.2	10.8	10.99
4,000-5,499 HDD	152	78	74	12,854	5,458	7,396	11.8	14.3	10.0	9.07
Fewer than 4,000 HDD	178	91	86	12,441	5,590	6,852	14.3	16.4	12.6	11.62
More than 2,000 CDD and --										
Fewer than 4,000 HDD	146	97	49	10,994	6,764	4,230	13.3	14.3	11.6	11.25
Energy Sources (more than one may apply)										
Electricity	682	340	342	54,628	23,798	30,830	12.5	14.3	11.1	4.59
Natural Gas	478	183	294	39,546	13,081	26,466	12.1	14.0	11.1	5.60
Fuel Oil	179	84	95	11,474	4,558	6,916	15.6	18.4	13.7	9.96
District Heat	55	17	38	3,405	875	2,529	16.3	19.9	15.0	22.22
District Chilled Water	13	7	6	842	343	499	15.6	21.4	11.7	23.09
Propane	35	23	12	2,789	1,463	1,326	12.6	15.8	9.0	16.63
Any Other	9	5	4	1,107	642	466	8.2	7.8	8.9	28.54
Energy End Uses (more than one may apply)										
Heated Buildings	670	340	330	53,663	23,798	29,865	12.5	14.3	11.1	4.60
Buildings with A/C	682	340	342	54,628	23,798	30,830	12.5	14.3	11.1	4.59
Buildings with Water Heating	661	330	331	51,534	22,533	29,001	12.8	14.6	11.4	4.70
Buildings with Cooking	321	173	148	20,974	9,818	11,155	15.3	17.6	13.3	6.42
Buildings with Manufacturing	31	12	19	2,808	1,094	1,714	11.2	11.4	11.1	18.55
Workers (main shift)										
Less than 5	90	54	36	10,315	4,538	5,777	8.7	11.8	6.2	9.04
5 to 9	61	27	34	6,065	2,665	3,400	10.1	10.2	10.1	7.90
10 to 19	73	34	39	6,760	2,800	3,961	10.8	12.3	9.8	10.00
20 to 49	115	54	61	9,758	3,735	6,024	11.8	14.4	10.1	8.80
50 to 99	83	41	41	6,855	2,896	3,959	12.0	14.2	10.5	12.17
100 or More	260	130	130	14,874	7,164	7,710	17.5	18.1	16.8	8.85
Weekly Operating Hours										
39 or Fewer	19	7	12	4,401	1,238	3,163	4.4	5.9	3.8	12.13
40 to 48	121	63	59	12,148	5,124	7,024	10.0	12.2	8.4	8.46
49 to 60	113	55	59	11,675	4,779	6,896	9.7	11.4	8.5	8.56
61 to 84	132	54	78	10,906	4,872	6,034	12.1	11.1	12.9	10.34
85 to 167	119	62	57	7,292	3,347	3,944	16.4	18.5	14.5	9.33
Open Continuously	177	100	77	8,207	4,438	3,770	21.6	22.5	20.5	9.54
Ownership and Occupancy										
Nongovernment Owned	545	286	259	42,528	19,833	22,695	12.8	14.4	11.4	5.22
Owner Occupied	419	212	207	31,133	13,611	17,522	13.5	15.6	11.8	5.71
Single Establishment	329	162	167	23,385	9,806	13,579	14.1	16.5	12.3	6.49
Multiple Establishment	90	50	40	7,749	3,806	3,943	11.6	13.1	10.2	12.13
Nonowner Occupied	123	73	49	10,720	5,991	4,729	11.4	12.2	10.4	9.58
Single Establishment	61	37	24	4,658	2,884	1,773	13.1	12.8	13.6	17.79
Multiple Establishment	62	36	25	6,063	3,107	2,956	10.2	11.7	8.5	11.26
Vacant	Q	Q	Q	674	Q	Q	4.4	Q	Q	43.25
Government Owned	137	54	83	12,100	3,965	8,135	11.3	13.6	10.2	8.83

See footnotes at end of table.

Table 3.23. Electricity Consumption and Conditional Energy Intensity for Buildings Cooled with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
		Buildings Cooled with Electricity			Buildings Cooled with Electricity			Buildings Cooled with Electricity		
	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	
RSE Column Factor:	1.0	1.3	1.2	0.9	1.3	1.0	0.7	1.0	0.8	
Predominant Exterior Wall Material										
Masonry	484	234	250	40,311	16,780	23,530	12.0	14.0	10.6	4.95
Siding or Shingles	33	16	16	2,552	1,145	1,407	12.8	14.1	11.7	10.41
Metal Panels	51	31	20	4,727	2,449	2,279	10.8	12.7	8.8	14.08
Concrete Panels	59	32	27	4,237	2,122	2,114	14.0	15.1	12.8	14.07
Window Glass	39	21	18	1,893	974	919	20.8	21.5	20.0	21.37
Other	16	6	10	908	328	580	17.1	17.0	17.2	24.58
Predominant Roof Material										
Built-Up	340	171	169	25,503	11,644	13,858	13.3	14.7	12.2	6.13
Shingles (Not Wood)	83	36	47	8,420	2,925	5,494	9.9	12.2	8.6	11.31
Metal Surfacing	58	29	29	5,886	2,756	3,130	9.9	10.7	9.2	11.86
Synthetic or Rubber	147	74	73	10,130	4,215	5,915	14.5	17.5	12.4	7.18
Other	53	31	23	4,690	2,257	2,433	11.4	13.6	9.3	15.86
Space-Heating Energy Source										
Electricity	340	340	Q	23,798	23,798	Q	14.3	14.3	Q	5.68
Electricity Main	227	227	Q	14,385	14,385	Q	15.8	15.8	Q	6.24
Electricity Secondary	114	114	Q	9,413	9,413	Q	12.1	12.1	Q	9.57
Other Excluding Electricity	330	Q	330	29,865	Q	29,865	11.1	Q	11.1	5.00
Building Not Heated	11	Q	11	965	Q	965	11.7	Q	11.7	29.37
Main Space-Heating Energy Source										
Electricity	227	227	Q	14,385	14,385	Q	15.8	15.8	Q	6.24
Natural Gas	353	88	265	31,146	7,221	23,924	11.3	12.2	11.1	6.82
Fuel Oil	27	6	21	3,454	727	2,728	7.9	8.5	7.8	13.43
District Heat	51	16	36	3,184	796	2,387	16.1	19.7	14.9	16.86
Propane	7	2	6	786	249	537	9.2	6.6	10.4	22.98
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating										
Electricity Only	20	5	15	2,249	471	1,779	8.9	9.9	8.6	14.31
Natural Gas Only	21	14	7	1,953	1,308	646	11.0	10.8	11.2	19.62
Fuel Oil Only	72	24	48	4,866	1,368	3,498	14.8	17.6	13.7	14.37
Propane Only	19	6	13	1,799	520	1,279	10.8	12.3	10.2	18.66
Any Other Single Energy Source	3	Q	Q	350	Q	286	9.3	Q	9.2	29.25
More than One Energy Source	8	Q	6	667	Q	549	12.4	Q	10.9	25.10
No Replacement Energy Source	526	288	238	41,778	19,949	21,830	12.6	14.4	10.9	5.21
Building Not Heated	11	Q	11	965	Q	965	11.7	Q	11.7	29.37
Water-Heating Energy Source										
Electricity	303	209	94	23,274	14,620	8,654	13.0	14.3	10.9	6.96
Other Excluding Electricity	357	121	237	28,260	7,913	20,347	12.6	15.2	11.6	6.00
Water Heating Not Performed	21	10	11	3,094	1,265	1,829	6.8	8.1	6.0	11.74
Cooking Energy Source										
Electricity	188	117	71	11,353	6,542	4,811	16.5	17.9	14.7	7.88
Other Excluding Electricity	133	55	78	9,621	3,276	6,344	13.9	16.9	12.3	9.20
Cooking Not Performed	361	168	193	33,654	13,979	19,675	10.7	12.0	9.8	5.66

See footnotes at end of table.

Table 3.23. Electricity Consumption and Conditional Energy Intensity for Buildings Cooled with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
		Buildings Cooled with Electricity			Buildings Cooled with Electricity			Buildings Cooled with Electricity		
	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	
RSE Column Factor:	1.0	1.3	1.2	0.9	1.3	1.0	0.7	1.0	0.8	
Percent of Floorspace Heated										
Not Heated	11	Q	11	965	Q	965	11.7	Q	11.7	29.37
1 to 50	66	43	24	9,697	5,408	4,290	6.8	7.9	5.5	13.12
51 to 99	119	69	50	9,165	4,411	4,753	12.9	15.6	10.5	9.07
100	486	229	257	34,800	13,978	20,822	14.0	16.4	12.3	5.19
Percent of Floorspace Cooled										
Not Cooled	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	134	53	81	21,068	8,224	12,843	6.4	6.4	6.3	6.82
51 to 99	213	105	108	13,370	5,804	7,566	15.9	18.1	14.3	7.09
100	334	182	152	20,191	9,769	10,421	16.6	18.7	14.6	6.24
Percent Lit when Open										
Not Lit	Q	Q	Q	609	Q	Q	4.6	Q	Q	43.77
1 to 50	35	14	21	7,053	2,230	4,823	4.9	6.4	4.3	11.89
51 to 99	150	85	65	12,684	6,805	5,879	11.8	12.4	11.1	7.42
100	494	240	254	34,283	14,594	19,689	14.4	16.5	12.9	5.34
Percent Lit when Closed										
Not Lit	311	162	149	24,694	10,968	13,725	12.6	14.8	10.8	6.14
1 to 50	345	167	177	28,308	12,141	16,167	12.2	13.8	11.0	6.01
51 to 99	16	6	10	980	439	541	16.6	14.6	18.3	21.25
100	10	4	6	646	250	397	14.9	16.3	13.9	24.21
Heating Equipment (more than one may apply)										
Heat Pumps	126	126	Q	8,143	8,135	Q	15.5	15.5	Q	8.12
Furnaces	143	58	85	14,814	5,542	9,271	9.7	10.5	9.2	8.14
Individual Space Heaters	228	151	78	19,131	11,458	7,673	11.9	13.1	10.1	7.08
District Heat	56	17	38	3,406	861	2,545	16.3	20.2	15.0	16.28
Boilers	232	90	143	18,680	6,314	12,366	12.4	14.2	11.5	6.88
Packaged Heating Units	208	118	91	15,480	8,268	7,212	13.5	14.2	12.6	8.06
Other	23	12	11	771	454	317	30.4	26.9	35.4	21.29
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	92	40	52	8,761	3,142	5,619	10.5	12.7	9.2	9.46
Heat Pumps	128	121	6	8,388	7,854	534	15.2	15.4	12.2	11.10
Individual A/C	167	91	75	17,734	7,932	9,802	9.4	11.5	7.7	8.71
District Chilled Water	13	7	6	842	343	500	15.6	21.4	11.7	23.09
Central Chillers	217	97	120	12,500	5,338	7,162	17.4	18.3	16.7	8.51
Packaged A/C Units	365	174	192	26,928	10,837	16,090	13.6	16.0	11.9	6.03
Swamp Coolers	32	14	17	2,063	892	1,170	15.3	16.1	14.7	20.22
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)										
Incandescent	427	218	208	32,539	14,346	18,193	13.1	15.2	11.5	5.25
Standard Fluorescent	668	334	334	53,195	23,320	29,876	12.6	14.3	11.2	4.61
Compact Fluorescent	128	78	49	7,545	4,000	3,545	16.9	19.6	13.9	10.39
High-Intensity Discharge	193	100	93	15,194	7,339	7,855	12.7	13.6	11.9	8.16
Other	17	10	7	1,419	790	628	12.0	12.9	10.8	24.74

See footnotes at end of table.

Table 3.23. Electricity Consumption and Conditional Energy Intensity for Buildings Cooled with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
		Buildings Cooled with Electricity			Buildings Cooled with Electricity			Buildings Cooled with Electricity		
	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	All Buildings Cooled with Electricity	Heated with Electricity	Not Heated with Electricity	
RSE Column Factor:	1.0	1.3	1.2	0.9	1.3	1.0	0.7	1.0	0.8	
Annual Consumption (kilowatthours)										
10,000 or Less	3	1	2	1,888	546	1,342	1.5	1.7	1.4	9.61
10,001 to 50,000	34	13	21	8,608	2,968	5,639	4.0	4.4	3.8	7.02
50,001 to 100,000	42	18	25	6,098	2,580	3,518	7.0	6.8	7.1	8.51
100,001 to 500,000	160	77	83	13,961	5,709	8,253	11.5	13.5	10.1	5.51
500,001 to 1,000,000	71	36	35	5,511	2,278	3,233	12.9	15.6	10.9	9.83
1,000,001 to 5,000,000	204	96	109	11,284	5,261	6,023	18.1	18.2	18.1	8.47
Over 5,000,000	166	100	66	7,277	4,455	2,821	22.9	22.5	23.4	11.94
Peak Electricity Demand (kilowatts)										
10 or Less	4	1	2	1,071	333	738	3.3	3.9	3.1	15.09
11 to 25	18	7	11	3,425	1,143	2,282	5.3	5.8	5.0	12.90
26 to 50	41	19	22	4,291	1,727	2,563	9.6	11.1	8.6	10.12
51 to 100	68	30	38	5,981	2,501	3,480	11.5	12.0	11.0	8.73
101 to 250	93	46	47	7,197	2,907	4,290	12.9	15.7	11.0	9.03
251 to 1,000	178	85	94	10,936	4,974	5,962	16.3	17.0	15.7	10.40
Over 1,000	160	90	70	7,412	4,272	3,141	21.5	21.0	22.2	12.83
Season of Peak Electricity Demand										
Summer	377	164	213	25,933	10,167	15,766	14.5	16.2	13.5	7.14
Winter	161	105	56	12,437	6,997	5,439	12.9	15.0	10.3	9.67
Summer and Winter	24	8	16	1,943	692	1,251	12.4	11.6	12.9	20.31
Building Generates Electricity										
Yes	176	93	83	9,374	4,768	4,605	18.8	19.6	18.0	9.22
No	506	247	259	45,254	19,029	26,225	11.2	13.0	9.9	4.96

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.24. Electricity Consumption and Conditional Energy Intensity for Buildings Heated with Electricity, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	0.9	1.1	1.5	0.9	1.0	1.3	0.7	0.8	1.0	
All Buildings	352	234	118	25,636	15,502	10,134	13.7	15.1	11.7	6.69
Building Floorspace (square feet)										
1,001 to 5,000	45	40	6	2,162	1,684	478	20.9	23.5	11.7	10.56
5,001 to 10,000	32	27	5	2,427	1,719	708	13.2	15.6	7.6	13.38
10,001 to 25,000	44	31	13	3,648	2,411	1,237	12.0	12.9	10.2	11.53
25,001 to 50,000	49	36	13	3,599	2,245	1,354	13.7	16.0	9.8	14.01
50,001 to 100,000	37	24	13	2,825	1,788	1,036	13.0	13.5	12.2	14.70
100,001 to 200,000	45	29	16	3,260	1,803	1,458	13.7	16.1	10.8	18.57
200,001 to 500,000	42	18	24	3,198	1,428	1,770	13.3	12.9	13.6	17.91
Over 500,000	58	30	29	4,517	2,424	2,093	12.9	12.2	13.8	22.35
Principal Building Activity										
Education	25	12	13	2,159	998	1,161	11.4	11.6	11.3	17.61
Food Sales	14	14	Q	285	282	Q	49.4	49.7	Q	21.57
Food Service	15	12	Q	407	307	Q	37.7	39.1	Q	21.19
Health Care	15	3	12	667	198	469	22.9	16.5	25.6	18.95
Lodging	32	25	Q	1,516	1,125	392	21.3	22.0	19.1	22.64
Mercantile and Service	66	40	26	5,122	2,858	2,264	12.9	14.1	11.5	13.39
Office	105	75	30	5,445	3,746	1,698	19.3	20.0	17.7	11.01
Parking Garage	4	4	Q	730	706	Q	Q	Q	Q	42.91
Public Assembly	28	22	6	2,267	1,637	630	12.5	13.7	9.2	18.68
Public Order and Safety	2	Q	Q	184	Q	Q	11.2	Q	Q	27.71
Religious Worship	4	3	1	1,361	602	759	3.0	4.3	2.0	16.70
Warehouse and Storage	29	16	12	4,304	2,121	2,182	6.7	7.7	5.7	16.99
Other	7	Q	Q	267	Q	Q	28.0	Q	Q	27.90
Vacant	5	3	Q	924	683	Q	5.2	5.1	Q	24.67
Year Constructed										
1899 or Before	4	Q	1	419	Q	173	8.7	Q	6.7	24.77
1900 to 1919	6	Q	3	846	Q	595	6.9	Q	4.8	26.44
1920 to 1945	23	7	15	2,197	790	1,407	10.3	9.5	10.7	25.74
1946 to 1959	33	20	14	3,116	1,493	1,624	10.6	13.1	8.4	16.53
1960 to 1969	52	25	27	3,880	1,893	1,987	13.4	13.4	13.4	13.42
1970 to 1979	95	64	31	6,191	3,800	2,391	15.4	16.8	13.1	10.98
1980 to 1989	124	101	23	7,958	6,230	1,728	15.6	16.2	13.4	11.12
1990 to 1992	16	11	4	1,030	800	230	15.3	14.3	18.8	19.43
Census Region and Division										
Northeast	56	25	31	4,505	1,768	2,737	12.4	14.0	11.4	19.83
New England	14	8	6	1,071	568	503	13.0	13.5	12.4	26.07
Middle Atlantic	42	17	25	3,434	1,200	2,234	12.2	14.2	11.2	25.92
Midwest	54	26	28	4,673	2,169	2,504	11.6	12.1	11.2	12.94
East North Central	36	16	19	3,031	1,369	1,662	11.7	11.9	11.6	18.96
West North Central	19	10	9	1,642	800	841	11.3	12.4	10.3	18.46
South	164	131	33	11,185	8,529	2,657	14.7	15.4	12.5	10.12
South Atlantic	81	63	18	5,657	4,256	1,402	14.2	14.8	12.6	14.58
East South Central	36	28	9	2,084	1,488	597	17.5	18.8	14.2	15.28
West South Central	47	40	7	3,444	2,786	658	13.7	14.4	10.7	14.00
West	78	52	26	5,273	3,036	2,237	14.8	17.2	11.5	11.54
Mountain	22	18	5	1,401	996	405	16.0	18.0	11.2	24.48
Pacific	56	34	21	3,872	2,040	1,832	14.4	16.9	11.6	12.54

See footnotes at end of table.

Table 3.24. Electricity Consumption and Conditional Energy Intensity for Buildings Heated with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	0.9	1.1	1.5	0.9	1.0	1.3	0.7	0.8	1.0	
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	14	10	5	1,268	641	627	11.4	15.1	7.5	21.06
5,500-7,000 HDD	64	30	34	5,460	2,305	3,154	11.7	12.9	10.8	16.93
4,000-5,499 HDD	81	49	32	6,098	2,955	3,143	13.3	16.5	10.2	13.84
Fewer than 4,000 HDD	95	62	34	5,940	3,656	2,284	16.1	16.9	14.7	12.99
More than 2,000 CDD and --										
Fewer than 4,000 HDD	98	84	14	6,871	5,945	926	14.2	14.2	14.7	15.18
Energy Sources (more than one may apply)										
Electricity	352	234	118	25,636	15,502	10,134	13.7	15.1	11.7	6.69
Natural Gas	189	87	103	13,901	5,245	8,655	13.6	16.5	11.9	9.03
Fuel Oil	88	48	40	4,872	2,482	2,390	18.0	19.2	16.7	15.10
District Heat	20	Q	18	985	Q	908	20.0	Q	19.7	18.51
District Chilled Water	10	3	7	476	136	340	21.3	21.3	21.3	25.46
Propane	24	13	11	1,550	791	759	15.4	15.9	14.9	23.33
Any Other	5	Q	3	753	Q	571	7.1	Q	4.6	32.86
Energy End Uses (more than one may apply)										
Heated Buildings	352	234	118	25,636	15,502	10,134	13.7	15.1	11.7	6.69
Buildings with A/C	345	229	116	24,123	14,511	9,612	14.3	15.8	12.1	6.82
Buildings with Water Heating	341	225	116	23,996	14,200	9,796	14.2	15.9	11.8	6.93
Buildings with Cooking	176	107	69	10,147	5,738	4,409	17.4	18.6	15.7	10.01
Buildings with Manufacturing	13	7	6	1,178	425	753	11.1	15.6	8.5	27.29
Workers (main shift)										
Less than 5	57	52	5	5,498	4,410	1,088	10.4	11.8	5.0	11.93
5 to 9	29	22	7	2,930	1,869	1,061	9.9	11.7	6.7	11.32
10 to 19	35	26	9	2,907	1,920	987	12.1	13.8	8.7	13.91
20 to 49	55	39	16	3,833	2,151	1,683	14.4	18.3	9.5	11.19
50 to 99	42	26	15	3,017	1,569	1,447	13.8	16.9	10.5	20.02
100 or More	134	68	66	7,452	3,584	3,868	18.0	19.1	17.0	13.11
Weekly Operating Hours										
39 or Fewer	8	6	2	1,641	1,006	635	4.9	5.9	3.3	14.61
40 to 48	65	44	20	5,464	3,426	2,038	11.8	12.9	10.0	13.07
49 to 60	58	39	18	5,180	3,002	2,178	11.1	13.0	8.4	11.72
61 to 84	57	39	18	5,114	3,065	2,049	11.1	12.7	8.7	13.67
85 to 167	63	37	26	3,476	1,649	1,827	18.3	22.4	14.5	14.11
Open Continuously	102	69	33	4,761	3,354	1,408	21.4	20.6	23.4	11.43
Ownership and Occupancy										
Nongovernment Owned	295	208	87	21,311	13,424	7,887	13.8	15.5	11.0	7.39
Owner Occupied	218	150	68	14,691	8,825	5,867	14.9	17.1	11.5	7.97
Single Establishment	167	121	47	10,723	6,596	4,127	15.6	18.3	11.3	8.68
Multiple Establishment	51	30	21	3,968	2,228	1,740	12.8	13.4	12.0	15.88
Nonowner Occupied	75	56	19	6,252	4,317	1,935	12.0	13.0	9.8	14.59
Single Establishment	38	31	7	3,076	2,213	863	12.4	14.2	Q	22.34
Multiple Establishment	37	25	12	3,176	2,104	1,072	11.6	11.8	11.2	17.04
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	58	26	31	4,325	2,078	2,247	13.3	12.6	13.9	14.17

See footnotes at end of table.

Table 3.24. Electricity Consumption and Conditional Energy Intensity for Buildings Heated with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	0.9	1.1	1.5	0.9	1.0	1.3	0.7	0.8	1.0	
Predominant Exterior Wall Material										
Masonry	243	163	79	18,048	10,902	7,147	13.4	15.0	11.1	7.19
Siding or Shingles	17	12	5	1,366	822	544	12.4	15.1	8.4	13.61
Metal Panels	33	22	11	2,703	1,657	1,045	12.3	13.2	10.8	19.60
Concrete Panels	33	19	14	2,212	1,219	993	15.0	15.3	14.6	19.76
Window Glass	21	13	Q	979	636	343	21.5	21.1	22.1	24.44
Other	6	5	Q	328	266	Q	17.0	17.9	Q	36.57
Predominant Roof Material										
Built-Up	175	117	58	12,420	7,599	4,821	14.1	15.4	12.1	9.52
Shingles (Not Wood)	38	29	8	3,227	2,100	1,127	11.7	14.0	7.3	11.69
Metal Surfacing	32	26	6	3,116	2,169	947	10.1	11.8	6.4	15.77
Synthetic or Rubber	76	36	40	4,365	1,837	2,528	17.4	19.7	15.7	10.77
Other	32	26	6	2,508	1,797	711	12.8	14.6	8.3	21.23
Space-Heating Energy Source										
Electricity	352	234	118	25,636	15,502	10,134	13.7	15.1	11.7	6.69
Electricity Main	234	234	Q	15,502	15,502	Q	15.1	15.1	Q	6.79
Electricity Secondary	118	Q	118	10,134	Q	10,134	11.7	Q	11.7	8.90
Other Excluding Electricity	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source										
Electricity	234	234	Q	15,502	15,502	Q	15.1	15.1	Q	6.79
Natural Gas	90	Q	90	7,660	Q	7,660	11.7	Q	11.7	11.73
Fuel Oil	7	Q	7	839	Q	839	8.3	Q	8.3	14.89
District Heat	18	Q	18	895	Q	895	19.8	Q	19.8	14.64
Propane	2	Q	2	279	Q	279	6.2	Q	6.2	24.17
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating										
Electricity Only	5	Q	5	505	Q	505	9.5	Q	9.5	19.06
Natural Gas Only	16	13	2	1,410	952	458	11.2	14.0	Q	20.73
Fuel Oil Only	25	3	22	1,425	193	1,232	17.3	15.3	17.7	24.53
Propane Only	7	4	3	596	259	337	11.2	16.0	7.5	25.41
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	297	213	84	21,471	14,021	7,450	13.9	15.2	11.3	7.31
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source										
Electricity	340	227	114	23,798	14,385	9,413	14.3	15.8	12.1	6.93
Other Excluding Electricity	5	2	Q	325	126	Q	15.5	17.4	Q	31.65
A/C Not Performed	7	6	2	1,513	991	522	4.8	5.6	3.2	20.19
Water-Heating Energy Source										
Electricity	216	172	44	15,574	11,365	4,209	13.9	15.1	10.4	9.33
Other Excluding Electricity	125	53	72	8,423	2,835	5,587	14.8	18.7	12.9	10.12
Water Heating Not Performed	11	9	2	1,640	1,302	338	7.0	7.1	6.3	16.20
Cooking Energy Source										
Electricity	118	78	40	6,707	4,114	2,594	17.7	19.0	15.5	12.50
Other Excluding Electricity	58	29	29	3,440	1,625	1,815	16.8	17.7	16.0	13.63
Cooking Not Performed	176	127	49	15,489	9,764	5,725	11.4	13.0	8.5	7.95

See footnotes at end of table.

Table 3.24. Electricity Consumption and Conditional Energy Intensity for Buildings Heated with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	0.9	1.1	1.5	0.9	1.0	1.3	0.7	0.8	1.0	
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	45	31	13	6,084	4,116	1,968	7.3	7.6	6.8	15.78
51 to 99	70	42	28	4,569	2,406	2,163	15.4	17.6	12.9	12.81
100	238	161	77	14,983	8,980	6,003	15.9	17.9	12.8	7.74
Percent of Floorspace Cooled										
Not Cooled	7	6	2	1,513	991	522	4.8	5.6	3.2	20.19
1 to 50	54	29	25	8,320	4,066	4,255	6.4	7.1	5.8	11.12
51 to 99	106	58	49	5,903	2,961	2,942	18.0	19.6	16.5	8.86
100	185	142	43	9,899	7,484	2,415	18.7	18.9	18.0	10.03
Percent Lit when Open										
Not Lit	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	15	12	3	2,577	1,556	1,021	5.9	7.8	3.0	15.86
51 to 99	88	59	29	7,106	4,441	2,665	12.4	13.3	10.7	10.67
100	248	162	86	15,627	9,271	6,356	15.9	17.5	13.6	8.12
Percent Lit when Closed										
Not Lit	170	117	53	12,197	7,958	4,239	13.9	14.7	12.6	8.92
1 to 50	172	109	62	12,726	7,061	5,665	13.5	15.5	11.0	9.50
51 to 99	6	5	Q	441	317	Q	14.6	15.9	Q	24.90
100	4	Q	Q	272	Q	Q	15.8	Q	Q	32.68
Heating Equipment (more than one may apply)										
Heat Pumps	127	82	45	8,243	4,723	3,520	15.4	17.3	12.9	10.33
Furnaces	61	32	30	6,018	2,201	3,817	10.2	14.5	7.8	11.59
Individual Space Heaters	160	93	67	12,980	6,528	6,452	12.3	14.2	10.4	8.53
District Heat	20	Q	18	970	Q	901	20.2	Q	19.8	14.46
Boilers	91	35	56	6,583	2,371	4,211	13.9	14.7	13.4	13.26
Packaged Heating Units	119	74	46	8,375	4,591	3,784	14.2	16.0	12.1	11.68
Other	12	10	Q	491	363	Q	25.2	28.6	Q	23.71
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	41	19	22	3,203	1,270	1,933	12.9	15.3	11.3	15.32
Heat Pumps	121	77	44	7,854	4,498	3,356	15.4	17.2	13.0	10.71
Individual A/C	93	51	42	8,061	3,619	4,442	11.5	14.1	9.5	11.26
District Chilled Water	10	3	7	476	136	340	21.3	21.3	21.3	25.46
Central Chillers	98	54	45	5,382	3,188	2,194	18.2	16.8	20.3	12.48
Packaged A/C Units	177	106	71	11,068	6,154	4,914	16.0	17.2	14.4	9.09
Swamp Coolers	14	10	Q	892	649	Q	16.1	15.0	Q	34.29
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Lighting Equipment (more than one may apply)										
Incandescent	226	137	88	15,426	8,391	7,035	14.6	16.4	12.5	8.20
Standard Fluorescent	345	228	117	24,794	14,788	10,006	13.9	15.4	11.7	6.76
Compact Fluorescent	81	40	41	4,216	2,116	2,100	19.1	18.8	19.4	14.16
High-Intensity Discharge	103	55	48	7,708	4,027	3,680	13.3	13.5	13.1	12.40
Other	11	5	Q	863	393	470	12.9	12.7	Q	30.62

See footnotes at end of table.

Table 3.24. Electricity Consumption and Conditional Energy Intensity for Buildings Heated with Electricity, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)			Total Floorspace of Buildings Using Electricity (million square feet)			Electricity Energy Intensity (kWh/sq. ft.)			RSE Row Factor
	All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		All Buildings Heated with Electricity	Buildings Heated with Electricity		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	0.9	1.1	1.5	0.9	1.0	1.3	0.7	0.8	1.0	
Annual Consumption (kilowatthours)										
10,000 or Less	1	1	(*)	809	540	269	1.5	1.5	1.5	13.21
10,001 to 50,000	15	10	4	3,440	2,101	1,339	4.2	5.0	3.1	9.13
50,001 to 100,000	19	14	5	2,750	1,892	858	6.8	7.6	5.3	11.77
100,001 to 500,000	80	63	17	6,028	3,885	2,144	13.3	16.2	8.1	8.04
500,001 to 1,000,000	37	25	12	2,528	1,481	1,047	14.5	16.8	11.2	15.07
1,000,001 to 5,000,000	99	69	30	5,545	3,216	2,329	17.9	21.6	12.8	14.18
Over 5,000,000	102	52	50	4,536	2,387	2,149	22.5	21.7	23.3	14.61
Peak Electricity Demand (kilowatts)										
10 or Less	2	1	Q	420	295	Q	3.6	3.4	Q	20.17
11 to 25	7	5	2	1,294	782	512	5.7	6.4	4.7	18.85
26 to 50	19	15	5	1,776	984	792	10.9	14.9	6.0	14.79
51 to 100	31	25	7	2,658	1,789	868	11.8	13.8	7.5	14.38
101 to 250	48	34	15	3,269	1,936	1,333	14.8	17.4	10.9	14.50
251 to 1,000	87	63	24	5,142	2,910	2,233	16.9	21.6	10.8	15.92
Over 1,000	92	54	38	4,366	2,850	1,515	21.0	18.9	24.9	16.01
Season of Peak Electricity Demand										
Summer	168	107	61	10,446	6,232	4,214	16.1	17.2	14.4	10.64
Winter	110	84	26	7,743	5,026	2,718	14.2	16.8	9.5	11.35
Summer and Winter	9	4	Q	735	288	Q	11.6	14.5	Q	31.55
Building Generates Electricity										
Yes	97	57	40	5,070	2,907	2,163	19.1	19.7	18.4	13.47
No	255	177	78	20,566	12,595	7,972	12.4	14.1	9.8	6.82

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.25. Season of Peak Electricity Demand, Number of Buildings and Floorspace, 1992

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	0.8	0.6	0.8	1.1	1.8	1.0	0.7	0.9	1.1	1.8	
All Buildings	2,236	2,375	1,342	854	179	19,113	47,412	29,289	15,679	2,444	7.25
Building Floorspace (square feet)											
1,001 to 5,000	1,460	1,075	584	393	98	3,976	3,008	1,647	1,082	278	9.85
5,001 to 10,000	454	500	282	178	40	3,336	3,720	2,116	1,300	304	10.26
10,001 to 25,000	218	411	238	152	21	3,418	6,679	3,899	2,465	314	11.01
25,001 to 50,000	65	210	124	77	Q	2,360	7,496	4,445	2,726	Q	13.79
50,001 to 100,000	20	94	56	29	8	1,343	6,583	3,890	2,148	545	16.08
100,001 to 200,000	13	58	38	17	Q	1,711	7,948	5,196	2,374	Q	17.08
200,001 to 500,000	5	21	14	6	Q	1,520	6,157	4,305	1,707	Q	21.04
Over 500,000	2	8	5	2	Q	1,449	5,822	3,790	1,877	Q	31.58
Principal Building Activity											
Education	88	213	126	78	Q	1,833	6,637	3,752	2,579	Q	15.43
Food Sales	41	90	59	Q	Q	217	540	420	Q	Q	27.77
Food Service	65	195	133	56	Q	271	1,220	841	300	Q	16.21
Health Care	27	36	22	Q	Q	277	1,486	1,175	Q	Q	23.18
Lodging	50	104	58	41	Q	477	2,413	1,359	900	Q	22.64
Mercantile and Service	693	573	286	227	60	4,872	7,516	4,605	2,363	548	10.82
Office	341	408	259	119	30	2,845	9,473	6,803	2,302	368	12.39
Parking Garage	11	13	9	Q	Q	156	1,496	986	Q	Q	49.11
Public Assembly	123	154	93	44	Q	1,036	3,518	2,294	994	Q	17.10
Public Order and Safety	20	40	24	Q	Q	286	534	410	Q	Q	37.69
Religious Worship	263	103	67	32	Q	1,919	1,828	1,283	478	Q	21.65
Warehouse and Storage	360	325	153	143	30	3,160	8,019	4,073	3,450	496	16.69
Other	27	38	22	Q	Q	332	793	429	Q	Q	33.51
Vacant	126	84	30	46	Q	1,432	1,938	859	976	Q	25.74
Year Constructed											
1899 or Before	114	55	34	17	Q	815	906	555	281	Q	25.23
1900 to 1919	122	122	67	39	Q	1,288	2,113	1,099	843	Q	25.38
1920 to 1945	389	292	167	84	41	3,392	4,993	2,689	1,845	459	16.63
1946 to 1959	416	423	250	149	25	2,918	7,217	4,372	2,422	422	14.25
1960 to 1969	358	399	227	138	34	3,497	8,975	5,354	3,095	526	12.96
1970 to 1979	408	537	294	212	31	3,489	10,290	6,925	2,986	379	12.18
1980 to 1989	373	480	261	193	26	3,218	10,929	6,891	3,668	371	13.60
1990 to 1992	57	67	43	22	Q	495	1,987	1,404	538	Q	25.06
Census Region and Division											
Northeast	287	469	284	155	30	3,626	9,609	5,224	3,769	616	12.65
New England	72	114	71	31	Q	974	2,291	1,080	943	Q	30.26
Middle Atlantic	215	354	213	123	18	2,653	7,318	4,144	2,826	348	18.21
Midwest	692	447	259	151	36	6,013	10,889	7,057	3,399	433	12.46
East North Central	414	309	173	114	22	3,428	7,147	4,409	2,464	274	16.69
West North Central	278	138	86	38	Q	2,585	3,743	2,648	936	Q	20.79
South	818	1,054	549	430	75	5,577	18,395	11,089	6,411	896	12.50
South Atlantic	294	442	218	193	32	1,785	8,646	4,898	3,332	416	16.17
East South Central	244	184	114	56	Q	1,665	3,572	2,400	1,076	Q	28.09
West South Central	280	428	218	181	29	2,127	6,177	3,790	2,004	384	23.39
West	440	405	250	118	37	3,897	8,518	5,919	2,100	499	16.20
Mountain	141	141	73	56	Q	1,334	2,228	1,298	834	Q	30.01
Pacific	298	264	177	62	26	2,563	6,290	4,621	1,266	403	16.87

See footnotes at end of table.

Table 3.25. Season of Peak Electricity Demand, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	0.8	0.6	0.8	1.1	1.8	1.0	0.7	0.9	1.1	1.8	
Climate Zone: 45-Year Average											
Fewer than 2,000 CDD and --											
More than 7,000 HDD	240	142	81	45	Q	2,017	3,458	2,265	1,017	Q	26.72
5,500-7,000 HDD	478	611	358	207	46	4,319	13,401	7,760	4,930	711	14.63
4,000-5,499 HDD	604	435	237	177	21	6,371	9,594	6,009	3,189	396	19.94
Fewer than 4,000 HDD	545	510	337	133	40	3,931	10,934	7,679	2,709	546	20.87
More than 2,000 CDD and --											
Fewer than 4,000 HDD	370	678	329	292	57	2,476	10,025	5,576	3,835	615	19.77
Energy Sources (more than one may apply)											
Electricity	2,236	2,375	1,342	854	179	19,113	47,412	29,289	15,679	2,444	7.25
Natural Gas	1,220	1,436	917	399	120	12,788	32,198	20,764	9,619	1,816	9.21
Fuel Oil	271	286	149	114	23	2,852	10,356	6,647	3,210	499	16.25
District Heat	22	72	47	24	Q	1,092	4,152	2,812	1,177	Q	34.07
District Chilled Water	Q	22	14	8	Q	Q	1,702	1,028	599	Q	27.65
Propane	184	151	89	46	Q	1,058	2,328	1,509	718	Q	22.50
Any Other	103	56	20	30	Q	688	852	329	433	Q	29.13
Energy End Uses (more than one may apply)											
Heated Buildings	1,968	2,204	1,271	771	161	17,469	44,495	27,688	14,556	2,252	7.17
Buildings with A/C	1,531	1,971	1,187	645	139	14,924	42,117	27,057	13,037	2,023	7.64
Buildings with Water Heating	1,573	1,929	1,141	656	131	15,733	42,745	26,830	13,792	2,123	7.49
Buildings with Cooking	225	509	334	145	29	5,204	17,861	12,399	4,895	567	11.26
Buildings with Manufacturing	41	77	37	35	Q	466	2,701	1,296	1,256	Q	24.01
Workers (main shift)											
Less than 5	1,487	1,039	520	416	102	7,723	8,893	5,034	3,283	575	10.37
5 to 9	398	497	289	184	Q	2,720	4,805	2,685	1,916	Q	11.66
10 to 19	203	357	218	113	26	2,361	5,693	3,328	1,978	387	14.82
20 to 49	107	298	191	86	21	2,058	8,499	5,251	2,667	581	12.96
50 to 99	29	101	66	33	Q	1,543	6,220	3,714	2,391	Q	16.63
100 or More	12	84	58	22	Q	2,708	13,302	9,276	3,443	Q	16.18
Weekly Operating Hours											
39 or Fewer	585	301	147	121	34	3,545	3,520	1,838	1,387	294	15.46
40 to 48	594	674	359	256	59	4,443	10,503	6,460	3,494	549	11.52
49 to 60	518	473	265	178	30	4,578	9,442	5,453	3,555	433	11.09
61 to 84	261	380	237	121	22	2,916	9,112	5,765	3,004	343	13.62
85 to 167	161	315	188	106	Q	2,260	6,195	3,902	1,822	Q	14.76
Open Continuously	118	231	147	72	Q	1,371	8,640	5,870	2,416	Q	15.54
Ownership and Occupancy											
Nongovernment Owned	2,059	1,975	1,099	717	158	15,607	35,972	22,475	11,663	1,833	7.65
Owner Occupied	1,587	1,539	876	543	119	11,483	26,674	16,812	8,545	1,318	7.92
Single Establishment	1,415	1,383	781	493	109	9,321	20,431	12,728	6,618	1,085	8.85
Multiple Establishment	172	155	95	50	Q	2,161	6,243	4,083	1,927	Q	17.58
Nonowner Occupied	403	393	210	148	35	3,600	8,556	5,367	2,739	450	14.25
Single Establishment	235	249	135	92	Q	1,385	4,135	2,774	1,203	Q	17.10
Multiple Establishment	168	144	75	56	Q	2,215	4,421	2,593	1,536	Q	19.41
Vacant	69	43	Q	Q	Q	524	741	Q	Q	Q	32.25
Government Owned	177	401	243	136	21	3,506	11,440	6,813	4,015	611	13.37

See footnotes at end of table.

Table 3.25. Season of Peak Electricity Demand, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	0.8	0.6	0.8	1.1	1.8	1.0	0.7	0.9	1.1	1.8	
Space-Heating Energy Source											
Electricity	634	879	424	406	48	6,712	18,925	10,446	7,743	735	10.59
Electricity Main	465	642	290	323	29	3,956	11,546	6,232	5,026	288	12.34
Electricity Secondary	169	237	134	83	Q	2,756	7,378	4,214	2,718	Q	15.55
Other Excluding Electricity	1,334	1,325	847	366	113	10,757	25,571	17,241	6,812	1,517	8.57
Building Not Heated	268	171	71	82	Q	1,644	2,916	1,601	1,123	Q	26.80
Main Space-Heating Energy Source											
Electricity	465	642	290	323	29	3,956	11,546	6,232	5,026	288	12.34
Natural Gas	1,079	1,188	776	309	103	10,172	24,950	16,581	6,813	1,556	9.91
Fuel Oil	211	182	95	74	Q	1,388	3,016	1,825	1,061	Q	20.28
District Heat	21	67	42	23	Q	914	3,836	2,534	1,138	Q	24.30
Propane	132	85	53	Q	Q	507	594	397	Q	Q	29.44
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating											
Electricity Only	185	165	85	63	Q	938	1,621	926	457	Q	18.07
Natural Gas Only	105	109	46	53	Q	859	1,401	730	584	Q	24.17
Fuel Oil Only	69	91	54	30	Q	1,505	3,946	2,679	1,081	Q	22.10
Propane Only	105	105	66	33	Q	554	1,614	1,138	425	Q	21.40
Any Other Single Energy Source	40	Q	Q	Q	Q	133	Q	Q	Q	Q	22.05
More than One Energy Source	46	47	30	Q	Q	299	596	437	Q	Q	33.79
No Replacement Energy Source	1,418	1,671	977	577	117	13,181	34,973	21,492	11,876	1,606	7.95
Building Not Heated	268	171	71	82	Q	1,644	2,916	1,601	1,123	Q	26.80
Cooling Energy Source											
Electricity	1,491	1,914	1,151	628	134	14,315	40,313	25,933	12,437	1,943	7.67
Other Excluding Electricity	40	57	36	17	Q	609	1,804	1,124	600	Q	26.57
A/C Not Performed	706	404	156	209	40	4,189	5,295	2,232	2,642	421	15.84
Water-Heating Energy Source											
Electricity	781	915	481	389	45	6,910	18,572	10,533	7,231	807	10.15
Other Excluding Electricity	792	1,013	660	267	86	8,823	24,173	16,297	6,560	1,316	9.40
Water Heating Not Performed	663	447	201	197	48	3,381	4,667	2,458	1,887	321	16.64
Cooking Energy Source											
Electricity	106	250	153	86	Q	2,403	9,780	6,893	2,713	Q	14.20
Other Excluding Electricity	120	258	181	59	18	2,801	8,081	5,506	2,182	393	15.27
Cooking Not Performed	2,011	1,866	1,008	708	150	13,909	29,550	16,889	10,784	1,877	8.34
Percent of Floorspace Heated											
Not Heated	268	171	71	82	Q	1,644	2,916	1,601	1,123	Q	26.80
1 to 50	381	330	168	126	36	4,019	7,488	4,064	3,017	406	14.71
51 to 99	292	323	174	137	Q	2,788	7,411	4,253	2,647	Q	13.57
100	1,296	1,550	929	508	113	10,663	29,596	19,370	8,892	1,333	7.92
Percent of Floorspace Cooled											
Not Cooled	706	404	156	209	40	4,189	5,295	2,232	2,642	421	15.84
1 to 50	544	632	337	232	62	6,515	15,200	8,070	6,162	968	9.67
51 to 99	283	375	247	112	16	3,679	10,193	7,269	2,496	428	13.99
100	703	964	603	301	61	4,730	16,724	11,718	4,379	627	10.13

See footnotes at end of table.

Table 3.25. Season of Peak Electricity Demand, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	0.8	0.6	0.8	1.1	1.8	1.0	0.7	0.9	1.1	1.8	
Percent Lit when Open											
Not Lit	160	60	Q	Q	Q	1,158	776	Q	Q	Q	29.58
1 to 50	504	376	179	154	43	4,074	5,901	3,403	2,168	330	13.89
51 to 99	369	443	260	149	34	3,581	10,641	6,828	3,258	555	11.94
100	1,203	1,496	886	514	97	10,299	30,093	18,717	9,914	1,463	8.36
Percent Lit when Closed											
Not Lit	1,471	1,322	735	485	103	9,989	23,145	14,526	7,443	1,177	8.68
1 to 50	699	990	579	337	74	8,548	22,934	14,039	7,647	1,248	9.30
51 to 99	Q	23	13	Q	Q	Q	790	529	Q	Q	36.78
100	47	40	16	Q	Q	345	543	195	Q	Q	36.64
Lighting Equipment (more than one may apply)											
Incandescent	1,244	1,265	741	432	92	11,713	27,508	17,292	8,672	1,544	8.35
Standard Fluorescent	1,871	2,193	1,249	772	171	17,187	44,880	27,779	14,765	2,336	7.14
Compact Fluorescent	75	132	99	26	Q	2,162	6,173	4,496	1,473	Q	16.75
High-Intensity Discharge	110	244	138	87	19	3,201	14,369	8,391	5,207	771	13.28
Other	40	39	22	12	Q	552	1,060	733	308	Q	31.36
Commercial Refrigeration Equipment (more than one may apply)											
Any Equipment	336	634	403	197	35	5,977	19,429	12,966	5,704	759	10.68
Walk-in Units	160	431	288	121	22	3,830	14,850	10,090	4,221	539	12.33
Cases and Cabinets	270	513	322	164	27	5,165	15,822	10,656	4,540	626	11.12
None	1,900	1,741	940	657	144	13,136	27,982	16,323	9,975	1,685	8.59
Personal Computers and/or Computer Terminals											
1 to 4	645	625	363	212	49	4,916	8,439	5,087	2,761	591	9.89
5 to 9	112	224	136	72	Q	1,532	4,438	2,825	1,368	Q	14.76
10 to 19	63	153	92	55	Q	1,501	4,735	2,817	1,624	Q	16.97
20 to 49	34	130	81	41	Q	1,034	6,405	3,945	2,177	Q	17.44
50 or More	15	96	64	28	4	2,579	12,112	8,059	3,651	402	17.01
Annual Consumption (kilowatthours)											
10,000 or Less	824	265	99	122	44	3,593	1,156	475	498	183	17.30
10,001 to 50,000	938	834	450	319	66	5,489	6,210	3,254	2,500	456	10.85
50,001 to 100,000	268	404	255	121	28	2,686	4,398	2,606	1,523	269	13.63
100,001 to 500,000	182	646	394	221	30	3,724	12,316	7,436	4,222	657	10.68
500,001 to 1,000,000	12	103	61	37	Q	799	5,559	3,239	2,111	Q	19.06
1,000,001 to 5,000,000	9	108	73	30	Q	1,342	11,274	7,460	3,304	Q	16.01
Over 5,000,000	3	15	11	4	Q	1,480	6,498	4,817	1,520	Q	23.49
Peak Electricity Demand (kilowatts)											
10 or Less	Q	434	195	164	75	Q	2,330	994	981	355	17.38
11 to 25	Q	635	343	251	41	Q	4,410	2,374	1,753	283	12.61
26 to 50	Q	500	324	151	25	Q	4,994	3,101	1,516	377	12.44
51 to 100	Q	389	233	140	16	Q	6,929	4,208	2,406	314	12.40
101 to 250	Q	246	140	94	Q	Q	8,410	4,716	3,350	Q	12.31
251 to 1,000	Q	141	89	42	Q	Q	12,155	7,851	3,697	Q	13.56
Over 1,000	Q	30	18	11	Q	Q	8,184	6,045	1,974	Q	23.08

See footnotes at end of table.

Table 3.25. Season of Peak Electricity Demand, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	0.8	0.6	0.8	1.1	1.8	1.0	0.7	0.9	1.1	1.8	
Building Generates Electricity											
Yes	44	109	72	30	Q	1,755	8,618	6,069	2,167	Q	16.12
No	2,192	2,266	1,271	824	172	17,358	38,794	23,220	13,512	2,062	7.55

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.26. Electricity Consumption and Conditional Energy Intensity by Season of Peak Demand, 1992

Building Characteristics	Total Electricity Consumption (billion kWh)					Electricity Energy Intensity (kWh/sq. ft.)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	1.1	0.8	1.0	1.2	2.2	0.8	0.6	0.7	0.9	1.7	
All Buildings	136	629	414	187	28	7.10	13.27	14.14	11.90	11.52	7.65
Building Floorspace (square feet)											
1,001 to 5,000	34	64	38	23	3	8.55	21.28	23.11	20.88	12.03	10.34
5,001 to 10,000	18	55	34	18	4	5.53	14.84	15.94	13.60	12.47	14.34
10,001 to 25,000	17	81	50	27	4	5.09	12.10	12.84	10.79	13.02	11.16
25,001 to 50,000	12	90	57	32	Q	5.07	11.99	12.71	11.72	Q	17.84
50,001 to 100,000	8	83	56	20	7	5.67	12.56	14.33	9.32	12.73	16.26
100,001 to 200,000	13	89	58	26	Q	7.35	11.21	11.20	10.95	Q	18.40
200,001 to 500,000	19	87	60	25	Q	12.23	14.16	13.92	14.52	Q	23.33
Over 500,000	15	80	62	17	Q	10.40	13.76	16.33	9.05	Q	24.79
Principal Building Activity											
Education	12	56	31	22	Q	6.79	8.48	8.30	8.61	Q	13.08
Food Sales	6	27	22	Q	Q	25.93	50.68	51.93	Q	Q	19.39
Food Service	7	34	21	10	Q	24.73	27.56	25.49	34.86	Q	19.59
Health Care	5	35	28	Q	Q	19.03	23.63	24.18	Q	Q	16.68
Lodging	6	50	28	19	Q	11.98	20.59	20.92	21.30	Q	25.98
Mercantile and Service	38	92	58	27	7	7.77	12.30	12.63	11.48	12.97	11.73
Office	29	178	126	44	7	10.06	18.74	18.55	19.12	19.95	12.94
Parking Garage	1	Q	Q	Q	Q	6.05	6.95	8.47	Q	Q	49.19
Public Assembly	7	44	28	14	Q	6.34	12.54	12.31	14.37	Q	20.89
Public Order and Safety	Q	5	4	Q	Q	9.57	10.19	9.80	Q	Q	40.40
Religious Worship	5	5	3	1	Q	2.36	2.59	2.38	3.11	Q	20.91
Warehouse and Storage	12	62	37	23	2	3.93	7.71	9.02	6.65	4.35	21.03
Other	Q	19	11	Q	Q	Q	23.65	26.27	Q	Q	24.44
Vacant	2	12	7	4	Q	1.47	5.96	7.96	4.25	Q	29.44
Year Constructed											
1899 or Before	3	9	5	4	Q	3.34	9.41	8.53	12.91	Q	32.84
1900 to 1919	4	15	11	4	Q	3.25	7.32	9.81	4.84	Q	26.85
1920 to 1945	19	45	30	11	4	5.55	8.96	11.09	5.90	8.76	18.58
1946 to 1959	17	80	56	18	7	5.78	11.14	12.77	7.38	15.78	18.24
1960 to 1969	30	124	80	37	7	8.68	13.85	14.92	11.94	14.13	16.40
1970 to 1979	31	153	103	47	4	8.83	14.92	14.80	15.63	11.32	12.15
1980 to 1989	27	174	113	57	4	8.53	15.96	16.33	15.67	12.09	12.99
1990 to 1992	4	28	18	9	Q	8.87	13.90	12.89	16.78	Q	22.96
Census Region and Division											
Northeast	28	94	62	30	3	7.82	9.82	11.78	7.92	4.85	11.79
New England	6	24	13	9	Q	6.34	10.37	12.40	9.25	Q	21.43
Middle Atlantic	22	71	48	21	1	8.36	9.65	11.62	7.48	3.89	14.42
Midwest	40	142	101	37	4	6.73	13.01	14.29	10.81	9.36	15.52
East North Central	22	88	64	22	2	6.36	12.36	14.59	9.04	6.26	16.75
West North Central	19	53	37	14	Q	7.22	14.26	13.79	15.49	Q	24.21
South	37	257	157	88	12	6.62	13.96	14.13	13.68	13.80	12.27
South Atlantic	16	119	65	47	7	8.88	13.75	13.25	14.08	17.03	16.83
East South Central	12	57	40	17	Q	6.92	16.04	16.54	15.81	Q	25.98
West South Central	10	81	52	24	5	4.48	13.03	13.72	11.88	12.21	16.77
West	30	136	95	32	9	7.68	15.98	16.06	15.37	17.53	15.64
Mountain	13	41	26	13	Q	9.64	18.59	20.29	15.47	Q	27.17
Pacific	17	95	69	19	7	6.65	15.05	14.87	15.31	16.31	17.30

See footnotes at end of table.

Table 3.26. Electricity Consumption and Conditional Energy Intensity by Season of Peak Demand, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)					Electricity Energy Intensity (kWh/sq. ft.)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	1.1	0.8	1.0	1.2	2.2	0.8	0.6	0.7	0.9	1.7	
Climate Zone: 45-Year Average											
Fewer than 2,000 CDD and --											
More than 7,000 HDD	9	47	29	16	Q	4.62	13.73	12.67	15.67	Q	22.63
5,500-7,000 HDD	30	152	106	41	5	6.94	11.33	13.60	8.39	7.04	13.98
4,000-5,499 HDD	54	121	85	32	3	8.43	12.62	14.22	10.10	8.51	14.01
Fewer than 4,000 HDD	24	169	111	48	11	6.18	15.49	14.43	17.71	19.29	16.05
More than 2,000 CDD and --											
Fewer than 4,000 HDD	18	139	84	49	6	7.41	13.88	15.00	12.81	10.38	16.18
Energy Sources (more than one may apply)											
Electricity	136	629	414	187	28	7.10	13.27	14.14	11.90	11.52	7.64
Natural Gas	97	421	293	107	21	7.59	13.09	14.11	11.17	11.62	8.86
Fuel Oil	24	168	116	44	8	8.43	16.24	17.48	13.75	15.88	15.02
District Heat	14	68	52	15	Q	12.48	16.40	18.37	12.33	Q	29.44
District Chilled Water	Q	32	19	11	Q	Q	18.63	18.89	18.00	Q	25.83
Propane	6	33	21	9	Q	5.74	13.97	14.14	13.15	Q	20.52
Any Other	2	8	5	3	Q	3.57	9.91	16.59	6.24	Q	29.12
Energy End Uses (more than one may apply)											
Heated Buildings	132	600	396	178	27	7.56	13.49	14.28	12.20	12.09	7.54
Buildings with A/C	125	592	394	171	26	8.37	14.05	14.58	13.13	12.97	7.77
Buildings with Water Heating	126	597	394	177	26	8.02	13.97	14.68	12.84	12.46	7.85
Buildings with Cooking	56	284	203	74	7	10.84	15.92	16.37	15.12	12.93	10.53
Buildings with Manufacturing	3	31	18	12	Q	6.83	11.63	13.77	9.24	Q	22.53
Workers (main shift)											
Less than 5	32	81	49	29	3	4.16	9.09	9.73	8.68	5.87	14.04
5 to 9	20	49	29	18	Q	7.29	10.15	10.67	9.49	Q	13.45
10 to 19	15	71	44	23	4	6.30	12.50	13.27	11.81	9.42	15.46
20 to 49	17	107	68	31	8	8.11	12.60	12.91	11.77	13.57	13.34
50 to 99	11	86	53	31	Q	7.15	13.82	14.23	12.99	Q	21.48
100 or More	41	235	172	54	9	15.16	17.67	18.51	15.71	15.87	13.69
Weekly Operating Hours											
39 or Fewer	7	17	8	7	1	2.01	4.70	4.59	4.82	4.79	13.70
40 to 48	29	112	76	32	5	6.54	10.70	11.76	9.09	8.48	12.96
49 to 60	24	102	63	35	4	5.21	10.76	11.53	9.87	8.44	11.11
61 to 84	24	117	81	31	5	8.15	12.88	14.10	10.34	14.55	14.96
85 to 167	30	102	66	30	6	13.11	16.47	16.99	16.47	12.22	14.68
Open Continuously	22	179	119	52	Q	16.18	20.71	20.32	21.52	Q	15.30
Ownership and Occupancy											
Nongovernment Owned	103	499	337	142	21	6.62	13.87	14.97	12.17	11.21	8.07
Owner Occupied	76	392	261	115	15	6.58	14.69	15.54	13.48	11.72	8.74
Single Establishment	61	313	202	99	12	6.49	15.32	15.89	14.90	11.20	9.60
Multiple Establishment	15	79	59	17	Q	6.94	12.63	14.44	8.62	Q	17.15
Nonowner Occupied	27	104	73	26	5	7.46	12.12	13.68	9.32	10.53	13.76
Single Establishment	11	55	43	9	Q	7.69	13.23	15.67	7.64	Q	19.44
Multiple Establishment	16	49	30	16	Q	7.31	11.08	11.55	10.63	Q	18.34
Vacant	1	3	Q	Q	Q	1.71	4.67	Q	Q	Q	51.14
Government Owned	32	130	78	45	8	9.24	11.36	11.39	11.13	12.43	13.37

See footnotes at end of table.

Table 3.26. Electricity Consumption and Conditional Energy Intensity by Season of Peak Demand, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)					Electricity Energy Intensity (kWh/sq. ft.)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	1.1	0.8	1.0	1.2	2.2	0.8	0.6	0.7	0.9	1.7	
Space-Heating Energy Source											
Electricity	66	286	168	110	9	9.85	15.13	16.07	14.20	11.61	10.70
Electricity Main	39	196	107	84	4	9.75	16.96	17.23	16.76	14.54	12.29
Electricity Secondary	28	91	61	26	4	9.98	12.27	14.36	9.46	9.72	16.61
Other Excluding Electricity	66	314	228	68	19	6.13	12.28	13.20	9.93	12.33	9.24
Building Not Heated	4	29	Q	Q	Q	2.18	9.80	11.64	Q	Q	33.73
Main Space-Heating Energy Source											
Electricity	39	196	107	84	4	9.75	16.96	17.23	16.76	14.54	12.29
Natural Gas	70	305	218	68	18	6.92	12.23	13.17	10.03	11.83	9.40
Fuel Oil	6	26	18	7	Q	4.29	8.53	9.66	6.33	Q	17.71
District Heat	13	62	46	14	Q	14.75	16.22	18.28	12.26	Q	25.02
Propane	3	6	3	Q	Q	5.54	9.95	8.61	Q	Q	31.83
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating											
Electricity Only	7	16	9	5	Q	7.11	9.59	10.17	10.30	Q	21.23
Natural Gas Only	7	17	10	6	Q	8.23	11.97	13.89	10.68	Q	28.57
Fuel Oil Only	11	65	44	18	Q	7.21	16.53	16.34	16.19	Q	22.86
Propane Only	3	18	13	4	Q	5.85	11.12	11.73	9.76	Q	25.87
Any Other Single Energy Source	(*)	Q	Q	Q	Q	3.28	Q	Q	Q	Q	31.66
More than One Energy Source	2	7	6	Q	Q	6.44	12.51	13.90	Q	Q	31.65
No Replacement Energy Source	102	474	310	144	20	7.73	13.56	14.43	12.11	12.60	7.73
Building Not Heated	4	29	Q	Q	Q	2.18	9.80	11.64	Q	Q	33.73
Cooling Energy Source											
Electricity	120	562	377	161	24	8.35	13.94	14.54	12.93	12.44	7.81
Other Excluding Electricity	5	30	17	10	Q	8.64	16.55	15.45	17.35	Q	32.85
A/C Not Performed	11	37	20	15	2	2.58	6.98	8.82	5.82	4.52	23.35
Water-Heating Energy Source											
Electricity	53	269	154	104	11	7.72	14.47	14.62	14.32	13.80	11.16
Other Excluding Electricity	73	329	240	74	15	8.25	13.60	14.72	11.21	11.63	9.60
Water Heating Not Performed	9	32	20	10	2	2.81	6.76	8.27	5.05	5.30	21.47
Cooking Energy Source											
Electricity	31	164	120	41	Q	12.84	16.75	17.45	15.09	Q	11.24
Other Excluding Electricity	26	120	83	33	5	9.13	14.91	15.02	15.17	11.99	14.67
Cooking Not Performed	79	345	211	113	21	5.70	11.66	12.51	10.44	11.09	9.11
Percent of Floorspace Heated											
Not Heated	4	29	Q	Q	Q	2.18	9.80	11.64	Q	Q	33.73
1 to 50	22	53	32	18	2	5.49	7.03	7.90	6.05	5.51	16.98
51 to 99	23	103	61	37	Q	8.42	13.94	14.24	13.86	Q	13.31
100	87	444	303	123	19	8.11	15.02	15.63	13.79	14.18	8.57
Percent of Floorspace Cooled											
Not Cooled	11	37	20	15	2	2.58	6.98	8.82	5.82	4.52	23.35
1 to 50	33	107	60	39	7	5.03	7.04	7.49	6.40	7.33	11.25
51 to 99	44	175	122	47	6	12.04	17.17	16.81	18.85	13.56	13.19
100	48	310	212	85	13	10.10	18.53	18.08	19.36	21.29	10.29

See footnotes at end of table.

Table 3.26. Electricity Consumption and Conditional Energy Intensity by Season of Peak Demand, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)					Electricity Energy Intensity (kWh/sq. ft.)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	1.1	0.8	1.0	1.2	2.2	0.8	0.6	0.7	0.9	1.7	
Percent Lit when Open											
Not Lit	1	3	Q	1	Q	1.29	4.45	Q	2.48	Q	37.46
1 to 50	12	37	24	11	1	2.93	6.20	7.06	5.15	4.30	19.39
51 to 99	29	131	90	37	5	8.12	12.32	13.19	11.22	8.12	12.27
100	93	458	298	138	22	9.04	15.21	15.91	13.93	14.91	8.94
Percent Lit when Closed											
Not Lit	59	310	201	94	16	5.92	13.41	13.86	12.57	13.21	10.12
1 to 50	71	297	200	84	12	8.36	12.94	14.26	10.99	9.95	8.95
51 to 99	Q	13	9	Q	Q	Q	16.57	17.50	Q	Q	40.10
100	2	9	3	Q	Q	5.01	16.04	16.85	Q	Q	37.89
Lighting Equipment (more than one may apply)											
Incandescent	91	389	251	119	19	7.77	14.14	14.53	13.74	12.04	9.29
Standard Fluorescent	131	601	395	178	28	7.62	13.39	14.23	12.04	11.98	7.51
Compact Fluorescent	24	110	86	21	Q	11.27	17.83	19.19	14.13	Q	15.08
High-Intensity Discharge	34	183	113	61	9	10.52	12.73	13.44	11.81	11.24	13.18
Other	3	16	13	3	Q	6.05	15.04	17.35	9.35	Q	36.10
Commercial Refrigeration Equipment (more than one may apply)											
Any Equipment	69	326	226	89	10	11.60	16.75	17.43	15.67	13.38	9.62
Walk-in Units	54	267	187	72	8	14.19	17.98	18.56	17.00	14.66	10.82
Cases and Cabinets	62	275	192	74	9	11.92	17.35	17.98	16.31	14.16	10.61
None	66	303	188	97	18	5.05	10.84	11.53	9.75	10.68	9.76
Personal Computers and/or Computer Terminals											
1 to 4	30	94	54	35	6	6.00	11.16	10.60	12.52	9.60	12.19
5 to 9	9	59	39	16	Q	6.03	13.18	13.96	11.89	Q	16.26
10 to 19	13	60	36	22	Q	8.83	12.64	12.77	13.36	Q	17.40
20 to 49	10	75	53	18	Q	9.98	11.68	13.36	8.28	Q	14.60
50 or More	40	223	155	60	8	15.39	18.42	19.28	16.36	19.92	13.82
Annual Consumption (kilowatthours)											
10,000 or Less	4	2	1	1	(*)	1.07	1.30	1.19	1.32	1.55	17.51
10,001 to 50,000	22	22	12	9	2	4.02	3.60	3.72	3.45	3.50	10.19
50,001 to 100,000	19	29	19	9	2	7.15	6.66	7.11	5.75	7.47	12.72
100,001 to 500,000	33	141	86	49	7	8.88	11.45	11.52	11.53	10.15	9.20
500,001 to 1,000,000	9	70	41	25	Q	10.96	12.51	12.78	11.91	Q	15.21
1,000,001 to 5,000,000	19	208	146	53	Q	14.31	18.44	19.56	15.96	Q	13.72
Over 5,000,000	29	157	110	42	Q	19.92	24.21	22.82	27.64	Q	17.57
Peak Electricity Demand (kilowatts)											
10 or Less	Q	6	3	2	1	Q	2.38	2.71	2.06	2.30	17.24
11 to 25	Q	23	12	8	2	Q	5.12	5.21	4.84	6.09	13.02
26 to 50	Q	45	30	13	3	Q	9.06	9.64	8.35	7.14	14.25
51 to 100	Q	74	42	28	3	Q	10.62	10.02	11.81	9.55	10.97
101 to 250	Q	103	61	37	Q	Q	12.28	13.01	11.10	Q	10.65
251 to 1,000	Q	198	139	50	10	Q	16.31	17.64	13.46	16.34	13.45
Over 1,000	Q	181	127	48	Q	Q	22.06	21.03	24.35	Q	15.23

See footnotes at end of table.

Table 3.26. Electricity Consumption and Conditional Energy Intensity by Season of Peak Demand, 1992 (Continued)

Building Characteristics	Total Electricity Consumption (billion kWh)					Electricity Energy Intensity (kWh/sq. ft.)					RSE Row Factor
			Season of Peak Electricity Demand					Season of Peak Electricity Demand			
	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	Buildings Not Demand-Metered	Demand-Metered Buildings	Summer	Winter	Summer and Winter	
RSE Column Factor:	1.1	0.8	1.0	1.2	2.2	0.8	0.6	0.7	0.9	1.7	
Building Generates Electricity											
Yes	22	164	122	36	Q	12.27	19.06	20.10	16.54	Q	13.93
No	114	465	292	151	22	6.57	11.98	12.58	11.16	10.53	8.21

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.27. Peak Electricity Demand Category, Number of Buildings, 1992

(Thousand)

Building Characteristics	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:	0.6	1.2	0.9	0.9	1.0	1.0	1.1	1.7	
All Buildings	2,375	434	635	500	389	246	141	30	8.56
Building Floorspace (square feet)									
1,001 to 5,000	1,075	325	400	223	88	Q	Q	Q	11.80
5,001 to 10,000	500	74	150	141	95	28	Q	Q	13.96
10,001 to 25,000	411	24	63	100	134	75	Q	Q	14.40
25,001 to 50,000	210	Q	18	27	54	66	30	Q	18.43
50,001 to 100,000	94	Q	Q	Q	11	33	38	Q	18.25
100,001 to 200,000	58	Q	Q	Q	Q	10	31	5	16.78
200,001 to 500,000	21	Q	Q	Q	Q	Q	10	7	15.93
Over 500,000	8	Q	Q	Q	Q	Q	1	6	26.04
Principal Building Activity									
Education	213	17	41	38	49	38	26	3	18.14
Food Sales	90	Q	Q	33	Q	Q	Q	Q	29.65
Food Service	195	Q	Q	63	53	Q	Q	Q	17.01
Health Care	36	Q	Q	Q	Q	Q	4	2	23.06
Lodging	104	Q	Q	12	22	17	17	Q	26.39
Mercantile and Service	573	127	196	114	82	35	17	Q	15.07
Office	408	56	122	72	65	51	31	12	16.96
Parking Garage	13	Q	Q	Q	Q	Q	Q	Q	65.64
Public Assembly	154	Q	36	37	27	19	8	Q	25.59
Public Order and Safety	40	Q	Q	Q	Q	Q	Q	Q	46.39
Religious Worship	103	Q	Q	37	20	Q	Q	Q	22.28
Warehouse and Storage	325	111	83	55	33	28	13	2	22.04
Other	38	Q	Q	Q	Q	Q	Q	Q	40.39
Vacant	84	Q	Q	Q	Q	Q	Q	Q	27.27
Year Constructed									
1899 or Before	55	Q	Q	Q	Q	Q	Q	Q	32.26
1900 to 1919	122	32	44	Q	16	Q	Q	Q	27.73
1920 to 1945	292	84	79	59	40	20	8	2	20.70
1946 to 1959	423	78	126	93	67	35	22	2	17.55
1960 to 1969	399	80	93	91	56	48	24	7	16.30
1970 to 1979	537	95	127	108	105	61	31	10	15.22
1980 to 1989	480	46	129	111	84	57	44	8	16.51
1990 to 1992	67	Q	Q	Q	10	12	7	1	26.10
Census Region and Division									
Northeast	469	90	166	97	58	36	19	3	13.39
New England	114	Q	Q	26	17	13	6	Q	38.48
Middle Atlantic	354	73	131	71	42	22	13	2	16.61
Midwest	447	95	113	80	72	52	28	7	17.29
East North Central	309	75	83	50	50	31	16	4	20.91
West North Central	138	Q	31	30	22	20	12	3	28.33
South	1,054	210	271	237	163	106	53	14	14.58
South Atlantic	442	78	109	93	80	45	28	Q	17.97
East South Central	184	Q	Q	43	31	26	14	Q	33.33
West South Central	428	91	135	101	52	36	12	Q	24.47
West	405	39	85	86	96	52	41	6	20.17
Mountain	141	Q	42	34	22	20	13	Q	38.03
Pacific	264	30	43	52	74	33	27	5	21.69
Climate Zone: 45-Year Average									
Fewer than 2,000 CDD and --									
More than 7,000 HDD	142	Q	32	Q	25	22	14	Q	38.48
5,500-7,000 HDD	611	115	203	115	83	58	31	5	15.83
4,000-5,499 HDD	435	73	116	106	69	42	24	5	21.95
Fewer than 4,000 HDD	510	77	108	104	105	64	44	7	20.60
More than 2,000 CDD and --									
Fewer than 4,000 HDD	678	149	175	150	107	59	28	Q	20.62

See footnotes at end of table.

Table 3.27. Peak Electricity Demand Category, Number of Buildings, 1992 (Continued)

(Thousand)

Building Characteristics	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:	0.6	1.2	0.9	0.9	1.0	1.0	1.1	1.7	
Energy Sources (more than one may apply)									
Electricity	2,375	434	635	500	389	246	141	30	8.66
Natural Gas	1,436	218	371	315	256	158	100	17	10.64
Fuel Oil	286	55	85	57	33	21	26	10	20.79
District Heat	71	Q	Q	Q	14	13	11	4	31.15
District Chilled Water	22	Q	Q	Q	Q	Q	5	2	32.10
Propane	151	Q	41	34	27	Q	7	Q	27.24
Any Other	56	Q	Q	Q	Q	Q	Q	Q	35.75
Energy End Uses (more than one may apply)									
Heated Buildings	2,204	347	594	479	382	236	136	28	8.63
Buildings with A/C	1,971	248	509	460	362	231	133	29	8.96
Buildings with Water Heating	1,929	234	489	450	368	226	134	29	8.94
Buildings with Cooking	509	26	81	122	123	80	60	17	14.25
Buildings with Manufacturing	77	Q	Q	Q	21	10	9	2	25.84
Workers (main shift)									
Less than 5	1,039	346	365	179	87	39	17	Q	14.75
5 to 9	497	68	174	131	88	30	Q	Q	14.28
10 to 19	357	Q	71	122	95	38	15	Q	17.92
20 to 49	298	Q	22	63	90	84	31	Q	16.44
50 to 99	101	Q	Q	Q	25	41	26	Q	15.59
100 or More	84	Q	Q	Q	Q	14	46	16	13.99
Weekly Operating Hours									
39 or Fewer	301	100	78	65	38	17	Q	Q	18.45
40 to 48	674	151	210	120	97	65	28	4	15.81
49 to 60	473	80	149	98	69	46	27	4	15.17
61 to 84	380	39	97	85	77	45	30	7	16.41
85 to 167	315	Q	68	78	72	44	23	3	17.93
Open Continuously	231	37	34	55	36	29	29	11	19.88
Ownership and Occupancy									
Nongovernment Owned	1,975	369	554	418	317	190	103	24	9.29
Owner Occupied	1,539	253	431	346	256	151	83	18	10.05
Single Establishment	1,383	242	376	330	223	130	68	14	10.91
Multiple Establishment	155	Q	55	16	33	21	14	5	23.62
Nonowner Occupied	393	92	113	71	58	35	19	Q	16.24
Single Establishment	249	68	79	50	27	16	6	Q	21.63
Multiple Establishment	144	Q	34	Q	30	19	13	Q	26.19
Vacant	43	Q	Q	Q	Q	Q	Q	Q	35.84
Government Owned	401	65	82	82	72	55	38	7	14.96
Space-Heating Energy Source									
Electricity	879	104	196	206	176	117	64	16	12.83
Electricity Main	642	83	132	148	137	81	49	12	16.04
Electricity Secondary	237	Q	64	58	39	36	15	4	19.13
Other Excluding Electricity	1,325	244	399	273	206	119	72	13	10.50
Building Not Heated	171	87	41	20	Q	Q	Q	Q	25.05
Main Space-Heating Energy Source									
Electricity	642	83	132	148	137	81	49	12	16.04
Natural Gas	1,188	189	334	264	194	124	71	12	11.59
Fuel Oil	182	34	73	34	24	12	4	Q	27.14
District Heat	67	Q	Q	Q	14	13	10	4	26.31
Propane	85	Q	Q	Q	Q	Q	Q	Q	39.33
Wood	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.27. Peak Electricity Demand Category, Number of Buildings, 1992 (Continued)

(Thousand)

Building Characteristics	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:	0.6	1.2	0.9	0.9	1.0	1.0	1.1	1.7	
Replacement Energy Source for Main Heating									
Electricity Only	165	Q	78	31	23	Q	Q	Q	22.60
Natural Gas Only	109	Q	29	Q	17	Q	Q	Q	28.80
Fuel Oil Only	91	Q	21	18	12	10	9	3	26.96
Propane Only	105	Q	33	26	Q	Q	Q	Q	28.72
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	99.99
More than One Energy Source	47	Q	Q	Q	Q	Q	Q	Q	44.80
No Replacement Energy Source	1,671	245	407	369	310	204	112	23	9.80
Building Not Heated	171	87	41	20	Q	Q	Q	Q	25.05
Cooling Energy Source									
Electricity	1,914	246	488	448	356	220	129	27	9.01
Other Excluding Electricity	57	Q	22	Q	Q	10	4	Q	31.00
A/C Not Performed	404	186	126	40	27	15	8	Q	21.52
Water-Heating Energy Source									
Electricity	915	106	217	246	171	106	55	15	11.68
Other Excluding Electricity	1,013	127	272	204	197	120	80	14	11.24
Water Heating Not Performed	447	201	147	50	21	20	Q	Q	20.05
Cooking Energy Source									
Electricity	250	Q	39	62	48	42	35	11	17.83
Other Excluding Electricity	258	Q	43	60	74	38	26	6	17.65
Cooking Not Performed	1,866	408	554	378	266	166	81	14	10.35
Percent of Floorspace Heated									
Not Heated	171	87	41	20	Q	Q	Q	Q	25.05
1 to 50	330	93	100	57	48	18	12	Q	19.59
51 to 99	323	28	85	66	81	36	22	5	19.10
100	1,550	227	410	356	252	182	102	21	9.75
Percent of Floorspace Cooled									
Not Cooled	404	186	126	40	27	15	8	Q	21.52
1 to 50	632	115	186	141	104	60	24	3	13.93
51 to 99	375	26	95	84	75	49	36	9	16.44
100	964	107	228	235	183	122	73	16	12.60
Percent Lit when Open									
Not Lit	60	40	Q	Q	Q	Q	Q	Q	29.09
1 to 50	376	120	123	61	40	18	13	Q	19.30
51 to 99	443	62	121	78	93	56	28	6	14.41
100	1,496	213	380	358	255	169	99	23	9.82
Percent Lit when Closed									
Not Lit	1,322	312	369	264	177	119	65	16	10.73
1 to 50	990	115	250	224	196	120	72	14	11.15
51 to 99	23	Q	Q	Q	Q	Q	Q	Q	52.83
100	40	Q	Q	Q	Q	Q	Q	Q	40.05
Lighting Equipment (more than one may apply)									
Incandescent	1,265	196	326	258	236	139	90	19	10.19
Standard Fluorescent	2,193	355	589	474	371	240	134	29	8.64
Compact Fluorescent	132	Q	33	19	22	18	24	6	20.50
High-Intensity Discharge	244	26	34	38	48	46	38	12	17.11
Other	39	Q	Q	Q	Q	Q	Q	Q	43.11

See footnotes at end of table.

Table 3.27. Peak Electricity Demand Category, Number of Buildings, 1992 (Continued)

(Thousand)

Building Characteristics	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:	0.6	1.2	0.9	0.9	1.0	1.0	1.1	1.7	
Commercial Refrigeration Equipment (more than one may apply)									
Any Equipment	634	33	106	171	142	93	71	17	12.37
Walk-in Units	431	Q	49	120	108	68	53	14	13.27
Cases and Cabinets	513	24	85	135	119	79	57	14	13.65
None	1,741	401	529	328	247	152	70	13	11.00
Personal Computers and/or Computer Terminals									
1 to 4	625	68	170	162	144	54	24	Q	14.09
5 to 9	224	21	60	55	45	26	17	Q	17.78
10 to 19	153	Q	Q	44	35	36	12	Q	18.60
20 to 49	130	Q	Q	19	38	43	25	4	20.06
50 or More	96	Q	Q	Q	10	20	44	16	16.99
Annual Consumption (kilowatthours)									
10,000 or Less	265	222	43	Q	Q	Q	Q	Q	18.28
10,001 to 50,000	834	210	470	117	25	Q	Q	Q	13.05
50,001 to 100,000	404	Q	114	209	70	Q	Q	Q	13.62
100,001 to 500,000	646	Q	Q	174	292	152	17	Q	11.59
500,001 to 1,000,000	103	Q	Q	Q	Q	73	25	Q	16.60
1,000,001 to 5,000,000	108	Q	Q	Q	Q	Q	93	10	12.66
Over 5,000,000	15	Q	Q	Q	Q	Q	Q	14	14.86
Season of Peak Electricity Demand									
Summer	1,342	195	343	324	233	140	89	18	10.34
Winter	854	164	251	151	140	94	42	11	14.64
Summer and Winter	179	75	41	25	16	Q	Q	Q	22.93
Building Generates Electricity									
Yes	109	Q	Q	Q	12	17	32	10	17.16
No	2,266	425	630	476	377	229	109	20	9.19

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.28. Peak Electricity Demand Category, Floorspace, 1992

(Million Square Feet)

Building Characteristics	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:	0.5	1.5	1.1	1.0	1.0	0.9	1.0	1.2	
All Buildings	47,412	2,330	4,410	4,994	6,929	8,410	12,155	8,184	8.99
Building Floorspace (square feet)									
1,001 to 5,000	3,008	840	1,120	658	267	Q	Q	Q	11.05
5,001 to 10,000	3,720	537	1,093	1,069	713	207	Q	Q	13.37
10,001 to 25,000	6,679	359	940	1,594	2,181	1,348	Q	Q	13.66
25,001 to 50,000	7,496	Q	612	891	2,007	2,321	1,127	Q	17.76
50,001 to 100,000	6,583	Q	Q	Q	797	2,262	2,680	Q	19.18
100,001 to 200,000	7,948	Q	Q	Q	Q	1,404	4,221	815	19.34
200,001 to 500,000	6,157	Q	Q	Q	Q	Q	2,677	2,351	18.82
Over 500,000	5,822	Q	Q	Q	Q	Q	1,128	4,593	28.05
Principal Building Activity									
Education	6,637	79	175	489	1,020	1,723	2,519	632	20.77
Food Sales	540	Q	Q	115	Q	Q	Q	Q	30.55
Food Service	1,220	Q	Q	352	357	Q	Q	Q	24.55
Health Care	1,486	Q	Q	Q	Q	Q	374	743	19.72
Lodging	2,413	Q	Q	191	390	538	866	Q	29.41
Mercantile and Service	7,516	472	1,114	1,049	1,389	1,097	1,533	862	18.27
Office	9,473	202	1,023	521	1,008	1,400	2,415	2,904	17.96
Parking Garage	1,496	Q	Q	Q	Q	Q	Q	Q	67.24
Public Assembly	3,518	Q	220	329	618	406	597	Q	27.65
Public Order and Safety	534	Q	Q	Q	Q	Q	Q	Q	55.32
Religious Worship	1,828	Q	Q	639	522	Q	Q	Q	33.63
Warehouse and Storage	8,019	795	791	818	985	1,666	2,384	580	23.48
Other	793	Q	Q	Q	Q	Q	Q	Q	35.77
Vacant	1,938	Q	Q	Q	Q	Q	Q	Q	32.04
Year Constructed									
1899 or Before	906	Q	Q	Q	Q	Q	Q	Q	33.10
1900 to 1919	2,113	194	417	Q	398	Q	Q	Q	26.30
1920 to 1945	4,993	394	587	753	871	666	1,259	462	24.23
1946 to 1959	7,217	378	687	976	1,326	1,628	1,787	435	19.78
1960 to 1969	8,975	486	840	755	1,219	1,836	2,345	1,494	19.53
1970 to 1979	10,290	507	808	957	1,614	1,811	2,187	2,407	16.20
1980 to 1989	10,929	261	699	1,026	1,121	1,768	3,422	2,631	16.75
1990 to 1992	1,987	Q	Q	Q	252	384	596	492	26.82
Census Region and Division									
Northeast	9,609	461	1,220	1,165	1,491	1,594	2,475	1,203	14.62
New England	2,291	Q	Q	296	397	396	635	Q	36.91
Middle Atlantic	7,318	374	926	868	1,094	1,198	1,840	1,018	18.17
Midwest	10,889	494	999	976	1,393	1,988	2,798	2,241	18.25
East North Central	7,147	411	765	577	864	1,428	1,688	1,414	22.53
West North Central	3,743	Q	234	400	529	560	1,110	827	26.65
South	18,395	1,146	1,756	2,010	2,670	3,175	4,194	3,445	16.05
South Atlantic	8,646	442	887	910	1,613	1,377	1,957	1,460	21.72
East South Central	3,572	Q	Q	393	395	659	1,181	Q	36.63
West South Central	6,177	350	679	707	663	1,139	1,056	1,584	25.61
West	8,518	229	435	843	1,374	1,653	2,688	1,296	18.88
Mountain	2,228	Q	231	243	325	447	680	Q	30.02
Pacific	6,290	180	204	600	1,050	1,206	2,008	1,043	21.71
Climate Zone: 45-Year Average									
Fewer than 2,000 CDD and --									
More than 7,000 HDD	3,458	Q	280	Q	554	482	1,020	Q	29.89
5,500-7,000 HDD	13,401	540	1,623	1,473	1,864	2,549	3,496	1,855	16.75
4,000-5,499 HDD	9,594	457	902	1,046	1,140	1,716	2,783	1,550	21.92
Fewer than 4,000 HDD	10,934	376	599	1,044	1,914	1,959	3,231	1,811	22.17
More than 2,000 CDD and --									
Fewer than 4,000 HDD	10,025	823	1,006	1,163	1,456	1,704	1,624	2,249	21.65

See footnotes at end of table.

Table 3.28. Peak Electricity Demand Category, Floorspace, 1992 (Continued)

(Million Square Feet)

Building Characteristics	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:	0.5	1.5	1.1	1.0	1.0	0.9	1.0	1.2	
Energy Sources (more than one may apply)									
Electricity	47,412	2,330	4,410	4,994	6,929	8,410	12,155	8,184	9.18
Natural Gas	32,198	1,034	2,814	3,558	4,877	5,806	8,969	5,141	11.71
Fuel Oil	10,356	314	558	618	869	970	3,142	3,885	21.30
District Heat	4,152	Q	Q	Q	379	566	1,415	1,450	33.66
District Chilled Water	1,702	Q	Q	Q	Q	Q	570	724	29.87
Propane	2,328	Q	208	343	298	Q	657	Q	30.56
Any Other	852	Q	Q	Q	Q	Q	Q	Q	38.40
Energy End Uses (more than one may apply)									
Heated Buildings	44,495	1,581	4,106	4,801	6,678	8,006	11,631	7,694	8.96
Buildings with A/C	42,117	1,111	3,587	4,424	6,094	7,525	11,338	8,038	9.22
Buildings with Water Heating	42,745	1,144	3,553	4,417	6,437	7,868	11,545	7,780	9.40
Buildings with Cooking	17,861	Q	502	1,241	1,956	2,538	5,822	5,686	13.67
Buildings with Manufacturing	2,701	Q	Q	Q	521	535	922	389	31.27
Workers (main shift)									
Less than 5	8,893	1,593	2,251	1,240	1,121	927	622	Q	16.19
5 to 9	4,805	Q	1,036	1,076	1,096	759	Q	Q	14.56
10 to 19	5,693	Q	640	1,399	1,508	772	Q	Q	17.14
20 to 49	8,499	Q	268	1,092	2,076	3,006	1,724	Q	17.85
50 to 99	6,220	Q	Q	Q	760	2,040	2,541	Q	16.27
100 or More	13,302	Q	Q	Q	Q	907	6,098	5,688	14.66
Weekly Operating Hours									
39 or Fewer	3,520	588	504	503	914	570	Q	Q	18.62
40 to 48	10,503	842	1,394	1,124	1,792	2,068	2,494	788	16.87
49 to 60	9,442	323	1,289	1,314	1,344	1,562	2,408	1,201	15.54
61 to 84	9,112	192	557	743	1,261	1,556	2,995	1,807	18.20
85 to 167	6,195	Q	413	719	845	1,324	1,855	930	21.23
Open Continuously	8,640	276	253	590	772	1,328	2,104	3,317	22.28
Ownership and Occupancy									
Nongovernment Owned	35,972	2,079	3,798	4,089	5,285	6,256	8,232	6,232	10.02
Owner Occupied	26,674	1,433	2,969	3,325	3,994	4,634	5,854	4,465	11.30
Single Establishment	20,431	1,347	2,521	3,001	3,307	3,857	4,018	2,381	12.90
Multiple Establishment	6,243	Q	448	325	687	778	1,836	2,084	24.55
Nonowner Occupied	8,556	460	766	705	1,210	1,495	2,280	1,639	18.51
Single Establishment	4,135	296	381	451	375	520	910	1,201	24.68
Multiple Establishment	4,421	Q	385	Q	835	975	1,370	438	25.72
Vacant	741	Q	Q	Q	Q	Q	Q	Q	48.25
Government Owned	11,440	251	612	905	1,643	2,153	3,924	1,952	16.59
Space-Heating Energy Source									
Electricity	18,925	420	1,294	1,776	2,658	3,269	5,142	4,366	12.66
Electricity Main	11,546	295	782	984	1,789	1,936	2,910	2,850	14.83
Electricity Secondary	7,378	Q	512	792	868	1,333	2,233	1,515	22.74
Other Excluding Electricity	25,571	1,161	2,812	3,024	4,021	4,737	6,488	3,328	11.38
Building Not Heated	2,916	749	305	193	Q	Q	Q	Q	32.82
Main Space-Heating Energy Source									
Electricity	11,546	295	782	984	1,789	1,936	2,910	2,850	14.83
Natural Gas	24,950	858	2,529	3,083	3,855	4,889	6,718	3,018	12.66
Fuel Oil	3,016	233	462	341	515	549	610	Q	28.50
District Heat	3,836	Q	Q	Q	372	530	1,246	1,361	25.82
Propane	594	Q	Q	Q	Q	Q	Q	Q	45.31
Wood	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.28. Peak Electricity Demand Category, Floorspace, 1992 (Continued)

(Million Square Feet)

Building Characteristics	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:	0.5	1.5	1.1	1.0	1.0	0.9	1.0	1.2	
Replacement Energy Source for Main Heating									
Electricity Only	1,621	Q	380	372	319	Q	Q	Q	24.69
Natural Gas Only	1,401	Q	269	Q	247	Q	Q	Q	31.49
Fuel Oil Only	3,946	Q	Q	187	460	335	1,180	1,268	24.93
Propane Only	1,614	Q	184	346	Q	Q	Q	Q	27.24
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	596	Q	Q	Q	Q	Q	Q	Q	44.80
No Replacement Energy Source	34,973	1,158	2,684	3,501	5,336	6,976	9,322	5,996	10.28
Building Not Heated	2,916	749	305	193	Q	Q	Q	Q	32.82
Cooling Energy Source									
Electricity	40,313	1,071	3,425	4,291	5,981	7,197	10,936	7,412	9.09
Other Excluding Electricity	1,804	Q	161	Q	Q	328	402	626	35.63
A/C Not Performed	5,295	1,219	823	570	834	885	Q	Q	22.54
Water-Heating Energy Source									
Electricity	18,572	484	1,505	2,185	2,758	3,245	4,549	3,846	12.27
Other Excluding Electricity	24,173	661	2,048	2,232	3,679	4,623	6,996	3,934	12.58
Water Heating Not Performed	4,667	1,186	857	577	492	541	Q	Q	23.80
Cooking Energy Source									
Electricity	9,780	Q	190	472	643	1,418	3,540	3,458	17.50
Other Excluding Electricity	8,081	Q	312	769	1,312	1,120	2,282	2,228	19.99
Cooking Not Performed	29,550	2,213	3,908	3,753	4,973	5,871	6,334	2,498	11.30
Percent of Floorspace Heated									
Not Heated	2,916	749	305	193	Q	Q	Q	Q	32.82
1 to 50	7,488	514	1,268	976	1,255	1,004	1,621	850	21.81
51 to 99	7,411	153	506	756	1,090	1,246	2,216	1,444	21.27
100	29,596	914	2,332	3,068	4,334	5,755	7,794	5,399	10.57
Percent of Floorspace Cooled									
Not Cooled	5,295	1,219	823	570	834	885	Q	Q	22.54
1 to 50	15,200	590	1,725	2,202	2,425	3,059	3,843	1,356	14.17
51 to 99	10,193	158	670	701	1,225	1,693	3,096	2,650	17.98
100	16,724	363	1,191	1,520	2,445	2,773	4,399	4,033	13.75
Percent Lit when Open									
Not Lit	776	239	Q	Q	Q	Q	Q	Q	29.15
1 to 50	5,901	728	1,324	931	794	787	1,257	Q	22.51
51 to 99	10,641	311	816	1,036	1,474	2,008	2,463	2,534	15.45
100	30,093	1,053	2,158	2,971	4,606	5,499	8,365	5,442	10.55
Percent Lit when Closed									
Not Lit	23,145	1,759	2,638	2,535	3,400	3,818	4,980	4,017	12.11
1 to 50	22,934	553	1,699	2,358	3,378	4,289	6,794	3,862	12.41
51 to 99	790	Q	Q	Q	Q	Q	Q	Q	44.79
100	543	Q	Q	Q	Q	Q	Q	Q	53.13
Lighting Equipment (more than one may apply)									
Incandescent	27,508	924	2,667	2,688	4,428	4,347	7,274	5,181	10.36
Standard Fluorescent	44,880	1,654	4,157	4,782	6,638	8,238	11,467	7,944	8.91
Compact Fluorescent	6,173	Q	383	281	563	841	1,948	2,075	21.19
High-Intensity Discharge	14,369	Q	342	575	1,384	2,462	5,341	3,834	17.17
Other	1,060	Q	Q	Q	Q	Q	Q	Q	44.08

See footnotes at end of table.

Table 3.28. Peak Electricity Demand Category, Floorspace, 1992 (Continued)

(Million Square Feet)

Building Characteristics	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:	0.5	1.5	1.1	1.0	1.0	0.9	1.0	1.2	
Commercial Refrigeration Equipment (more than one may apply)									
Any Equipment	19,429	183	652	1,260	2,115	2,943	6,522	5,754	13.03
Walk-in Units	14,850	Q	330	820	1,318	2,081	5,044	5,127	14.65
Cases and Cabinets	15,822	137	433	966	1,598	2,438	5,434	4,816	13.90
None	27,982	2,147	3,758	3,734	4,813	5,467	5,634	2,430	12.02
Personal Computers and/or Computer Terminals									
1 to 4	8,439	319	1,188	1,833	2,323	1,495	1,138	Q	15.40
5 to 9	4,438	114	411	601	748	1,140	1,329	Q	19.91
10 to 19	4,735	Q	Q	624	862	1,388	1,001	Q	23.84
20 to 49	6,405	Q	Q	244	991	1,828	2,711	549	23.63
50 or More	12,112	Q	Q	Q	497	1,112	4,988	5,255	17.03
Annual Consumption (kilowatthours)									
10,000 or Less	1,156	903	249	Q	Q	Q	Q	Q	21.77
10,001 to 50,000	6,210	1,399	3,242	1,050	345	Q	Q	Q	18.97
50,001 to 100,000	4,398	Q	802	2,334	996	Q	Q	Q	15.94
100,001 to 500,000	12,316	Q	Q	1,605	5,435	4,703	448	Q	12.10
500,001 to 1,000,000	5,559	Q	Q	Q	Q	3,300	1,998	Q	19.26
1,000,001 to 5,000,000	11,274	Q	Q	Q	Q	Q	9,385	1,705	15.71
Over 5,000,000	6,498	Q	Q	Q	Q	Q	Q	6,249	15.90
Season of Peak Electricity Demand									
Summer	29,289	994	2,374	3,101	4,208	4,716	7,851	6,045	11.84
Winter	15,679	981	1,753	1,516	2,406	3,350	3,697	1,974	14.63
Summer and Winter	2,444	355	283	377	314	Q	607	Q	24.10
Building Generates Electricity									
Yes	8,618	Q	Q	Q	363	745	3,396	3,742	15.26
No	38,794	2,278	4,381	4,703	6,566	7,665	8,759	4,442	9.97

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.29. Distribution of Peak Watts per Square Foot and Load Factors, 1992

Building Characteristics	All Demand-Metered Buildings			Peak Watts per Square Foot			Load Factor			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Electricity Consumed (billion kWh)	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	
RSE Column Factor:	0.9	1.0	1.1	NF	NF	NF	NF	NF	NF	
All Buildings	2,375	47,412	629	2.32	4.67	8.68	0.243	0.159	0.336	5.39
Building Floorspace (square feet)										
1,001 to 5,000	1,075	3,008	64	3.60	6.50	13.00	0.220	0.132	0.320	7.64
5,001 to 10,000	500	3,720	55	2.16	4.13	7.50	0.237	0.160	0.317	8.06
10,001 to 25,000	411	6,679	81	1.80	3.53	5.76	0.258	0.170	0.336	8.33
25,001 to 50,000	210	7,496	90	1.38	2.68	5.61	0.273	0.208	0.372	9.70
50,001 to 100,000	94	6,583	83	1.76	3.33	5.48	0.333	0.226	0.417	11.94
100,001 to 200,000	58	7,948	89	1.12	2.89	4.80	0.363	0.275	0.472	12.49
200,001 to 500,000	21	6,157	87	1.22	2.55	4.80	0.430	0.345	0.546	14.81
Over 500,000	8	5,822	80	1.97	3.88	4.92	0.449	0.318	0.522	20.89
Principal Building Activity										
Education	213	6,637	56	2.39	4.52	7.97	0.177	0.134	0.242	9.45
Food Sales	90	540	27	7.93	12.25	17.78	0.514	0.412	0.587	18.10
Food Service	195	1,220	34	6.00	11.43	18.75	0.319	0.259	0.371	10.55
Health Care	36	1,486	35	3.13	4.47	8.13	0.274	0.166	0.364	14.47
Lodging	104	2,413	50	2.62	4.90	8.50	0.333	0.268	0.436	17.81
Mercantile and Service	573	7,516	92	2.31	4.25	7.90	0.253	0.189	0.337	8.45
Office	408	9,473	178	3.24	5.19	8.00	0.258	0.202	0.332	9.45
Parking Garage	13	1,496	Q	1.77	5.50	8.89	0.256	0.102	0.394	40.18
Public Assembly	154	3,518	44	2.38	4.47	7.43	0.163	0.094	0.254	12.22
Public Order and Safety	40	534	5	2.15	3.21	8.10	0.299	0.205	0.346	29.55
Religious Worship	103	1,828	5	2.39	4.32	8.00	0.084	0.056	0.123	15.57
Warehouse and Storage	325	8,019	62	1.21	2.57	5.00	0.215	0.139	0.309	15.10
Other	38	793	19	2.07	6.33	11.88	0.369	0.121	0.560	20.02
Vacant	84	1,938	12	1.00	1.88	4.88	0.167	0.081	0.263	18.53
Year Constructed										
1899 or Before	55	906	9	1.00	2.89	7.71	0.259	0.167	0.332	19.93
1900 to 1919	122	2,113	15	1.43	3.33	6.00	0.233	0.167	0.315	18.08
1920 to 1945	292	4,993	45	1.64	3.25	6.21	0.218	0.154	0.293	14.12
1946 to 1959	423	7,217	80	2.33	4.67	8.00	0.228	0.147	0.321	11.30
1960 to 1969	399	8,975	124	2.38	4.52	7.90	0.254	0.165	0.337	9.48
1970 to 1979	537	10,290	153	2.50	5.13	10.63	0.256	0.149	0.347	8.02
1980 to 1989	480	10,929	174	3.25	5.61	10.67	0.263	0.190	0.376	8.90
1990 to 1992	67	1,987	28	2.23	4.64	7.00	0.210	0.137	0.334	16.40
Census Region and Division										
Northeast	469	9,609	94	1.90	3.51	6.50	0.253	0.184	0.329	8.24
New England	114	2,291	24	2.08	3.39	7.19	0.269	0.173	0.363	26.07
Middle Atlantic	354	7,318	71	1.82	3.51	6.33	0.247	0.185	0.324	12.33
Midwest	447	10,889	142	1.98	4.00	7.20	0.260	0.177	0.356	10.81
East North Central	309	7,147	88	1.91	3.90	6.70	0.247	0.163	0.348	15.53
West North Central	138	3,743	53	2.02	4.09	8.63	0.289	0.216	0.372	14.29
South	1,054	18,395	257	2.71	5.00	9.39	0.225	0.137	0.331	9.37
South Atlantic	442	8,646	119	2.44	5.19	10.25	0.220	0.131	0.332	11.76
East South Central	184	3,572	57	2.33	4.90	10.30	0.260	0.192	0.376	27.19
West South Central	428	6,177	81	3.04	5.06	8.40	0.213	0.132	0.312	15.70
West	405	8,518	136	3.20	5.60	11.45	0.254	0.163	0.351	13.08
Mountain	141	2,228	41	3.71	5.83	10.67	0.247	0.149	0.340	21.83
Pacific	264	6,290	95	2.87	5.40	11.61	0.266	0.167	0.351	13.82
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	142	3,458	47	2.00	3.85	8.30	0.276	0.172	0.374	21.19
5,500-7,000 HDD	611	13,401	152	2.00	3.92	6.92	0.253	0.177	0.333	11.22
4,000-5,499 HDD	435	9,594	121	2.29	5.00	9.65	0.254	0.167	0.344	16.00
Fewer than 4,000 HDD	510	10,934	169	2.73	5.31	10.30	0.255	0.162	0.350	15.65
More than 2,000 CDD and --										
Fewer than 4,000 HDD	678	10,025	139	2.71	5.00	9.17	0.215	0.137	0.316	13.63

See footnotes at end of table.

Table 3.29. Distribution of Peak Watts per Square Foot and Load Factors, 1992 (Continued)

Building Characteristics	All Demand-Metered Buildings			Peak Watts per Square Foot			Load Factor			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Electricity Consumed (billion kWh)	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	
RSE Column Factor:	0.9	1.0	1.1	NF	NF	NF	NF	NF	NF	
Energy Sources (more than one may apply)										
Electricity	2,375	47,412	629	2.32	4.67	8.68	0.243	0.159	0.336	5.39
Natural Gas	1,436	32,198	421	2.33	4.59	8.46	0.256	0.176	0.343	6.47
Fuel Oil	286	10,356	168	1.99	3.25	6.21	0.265	0.177	0.362	12.16
District Heat	72	4,152	68	2.21	3.57	5.92	0.314	0.183	0.482	25.84
District Chilled Water	22	1,702	32	2.71	4.01	8.07	0.369	0.177	0.504	20.62
Propane	151	2,328	33	2.50	5.45	9.14	0.233	0.161	0.318	17.63
Any Other	56	852	8	1.60	3.57	7.46	0.207	0.091	0.293	22.79
Energy End Uses (more than one may apply)										
Heated Buildings	2,204	44,495	600	2.50	4.80	9.02	0.248	0.163	0.338	5.28
Buildings with A/C	1,971	42,117	592	2.75	5.13	9.50	0.255	0.169	0.344	5.39
Buildings with Water Heating	1,929	42,745	597	2.62	5.00	9.34	0.260	0.177	0.351	5.42
Buildings with Cooking	509	17,861	284	3.25	6.22	14.93	0.312	0.199	0.417	6.90
Buildings with Manufacturing	77	2,701	31	2.18	4.31	7.71	0.247	0.167	0.331	14.96
Workers (main shift)										
Less than 5	1,039	8,893	81	2.00	4.62	8.57	0.198	0.113	0.296	9.41
5 to 9	497	4,805	49	2.50	5.16	10.45	0.236	0.179	0.318	7.82
10 to 19	357	5,693	71	2.67	4.94	8.38	0.265	0.193	0.339	12.17
20 to 49	298	8,499	107	2.39	4.48	7.53	0.289	0.226	0.383	9.56
50 to 99	101	6,220	86	2.32	4.33	6.50	0.330	0.253	0.429	11.08
100 or More	84	13,302	235	2.79	4.80	7.07	0.402	0.334	0.525	10.05
Weekly Operating Hours										
39 or Fewer	301	3,520	17	1.75	3.56	7.25	0.107	0.070	0.206	10.98
40 to 48	674	10,503	112	2.17	4.17	7.27	0.215	0.150	0.274	9.61
49 to 60	473	9,442	102	2.21	4.38	7.03	0.234	0.167	0.302	7.02
61 to 84	380	9,112	117	3.08	5.39	10.48	0.269	0.204	0.354	10.13
85 to 167	315	6,195	102	3.32	7.00	15.56	0.352	0.267	0.468	9.72
Open Continuously	231	8,640	179	2.38	5.00	11.00	0.356	0.272	0.500	10.06
Ownership and Occupancy										
Nongovernment Owned	1,975	35,972	499	2.33	4.83	8.96	0.248	0.160	0.338	5.76
Owner Occupied	1,539	26,674	392	2.50	5.00	9.52	0.254	0.162	0.344	5.79
Single Establishment	1,383	20,431	313	2.59	5.16	10.00	0.253	0.160	0.348	6.58
Multiple Establishment	155	6,243	79	2.00	4.17	7.27	0.259	0.193	0.327	13.14
Nonowner Occupied	393	8,556	104	2.20	4.33	8.00	0.247	0.174	0.333	10.71
Single Establishment	249	4,135	55	2.50	5.19	8.89	0.238	0.150	0.333	13.86
Multiple Establishment	144	4,421	49	1.89	3.33	6.08	0.267	0.202	0.330	15.49
Vacant	43	741	Q	0.67	2.00	5.50	0.101	0.069	0.152	26.26
Government Owned	401	11,440	130	2.27	3.98	7.14	0.220	0.152	0.320	7.90
Space-Heating Energy Source										
Electricity	879	18,925	286	3.20	5.71	11.27	0.254	0.163	0.351	7.18
Electricity Main	642	11,546	196	3.88	6.67	13.27	0.255	0.167	0.362	8.11
Electricity Secondary	237	7,378	91	2.18	4.08	6.70	0.237	0.155	0.332	12.88
Other Excluding Electricity	1,325	25,571	314	2.20	4.17	8.00	0.245	0.163	0.333	6.66
Building Not Heated	171	2,916	29	0.69	2.25	5.83	0.196	0.104	0.302	26.74
Main Space-Heating Energy Source										
Electricity	642	11,546	196	3.88	6.67	13.27	0.255	0.167	0.362	8.11
Natural Gas	1,188	24,950	305	2.29	4.33	8.00	0.249	0.167	0.333	7.61
Fuel Oil	182	3,016	26	1.90	3.20	5.59	0.234	0.147	0.314	18.93
District Heat	67	3,836	62	2.18	3.53	5.50	0.314	0.183	0.473	17.67
Propane	85	594	6	2.86	5.56	10.00	0.210	0.129	0.244	24.25
Wood	21	99	1	1.63	3.33	9.60	0.272	0.091	0.319	31.91
Any Other	Q	320	2	1.00	2.64	3.57	0.162	0.106	0.260	38.42

See footnotes at end of table.

Table 3.29. Distribution of Peak Watts per Square Foot and Load Factors, 1992 (Continued)

Building Characteristics	All Demand-Metered Buildings			Peak Watts per Square Foot			Load Factor			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Electricity Consumed (billion kWh)	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	
RSE Column Factor:	0.9	1.0	1.1	NF	NF	NF	NF	NF	NF	
Replacement Energy Source for Main Heating										
Electricity Only	165	1,621	16	2.37	4.52	8.40	0.232	0.149	0.303	13.52
Natural Gas Only	109	1,401	17	2.00	4.32	10.18	0.257	0.178	0.337	18.99
Fuel Oil Only	91	3,946	65	1.67	3.33	7.90	0.265	0.201	0.352	15.79
Propane Only	105	1,614	18	2.31	4.40	7.50	0.224	0.135	0.330	17.54
Any Other Single Energy Source	16	344	3	1.99	4.00	4.55	0.282	0.163	0.396	40.81
More than One Energy Source	47	596	7	2.17	4.17	8.13	0.245	0.149	0.319	24.80
No Replacement Energy Source	1,671	34,973	474	2.67	5.00	9.37	0.249	0.167	0.340	5.99
Building Not Heated	171	2,916	29	0.69	2.25	5.83	0.196	0.104	0.302	26.74
Cooling Energy Source										
Electricity	1,914	40,313	562	2.75	5.19	9.54	0.254	0.168	0.343	5.41
Other Excluding Electricity	57	1,804	30	2.87	4.33	6.13	0.263	0.195	0.388	19.32
A/C Not Performed	404	5,295	37	1.11	2.50	5.17	0.199	0.110	0.292	16.52
Water-Heating Energy Source										
Electricity	915	18,572	269	2.92	5.50	10.49	0.248	0.165	0.344	6.82
Other Excluding Electricity	1,013	24,173	329	2.45	4.56	8.57	0.266	0.190	0.354	7.11
Water Heating Not Performed	447	4,667	32	1.36	3.33	6.52	0.183	0.104	0.258	18.35
Cooking Energy Source										
Electricity	250	9,780	164	3.53	6.44	15.42	0.314	0.171	0.433	8.60
Other Excluding Electricity	258	8,081	120	3.04	5.92	14.05	0.309	0.217	0.400	9.86
Cooking Not Performed	1,866	29,550	345	2.16	4.32	7.60	0.232	0.150	0.317	6.37
Percent of Floorspace Heated										
Not Heated	171	2,916	29	1.90	4.28	5.78	0.237	0.160	0.309	26.74
1 to 50	330	7,488	53	2.30	5.52	11.08	0.275	0.220	0.377	13.29
51 to 99	323	7,411	103	2.33	4.69	8.70	0.243	0.156	0.336	9.62
100	1,550	29,596	444	0.69	2.25	5.83	0.196	0.104	0.302	5.91
Percent of Floorspace Cooled										
Not Cooled	404	5,295	37	1.46	2.92	5.52	0.222	0.140	0.299	16.52
1 to 50	632	15,200	107	2.88	4.94	9.58	0.264	0.192	0.376	7.05
51 to 99	375	10,193	175	2.81	5.24	9.93	0.250	0.163	0.339	9.18
100	964	16,724	310	1.11	2.50	5.17	0.199	0.110	0.292	6.97
Percent Lit when Open										
Not Lit	60	776	3	1.78	2.99	5.56	0.244	0.167	0.313	30.56
1 to 50	376	5,901	37	3.27	5.22	9.16	0.283	0.196	0.400	14.57
51 to 99	443	10,641	131	4.00	6.67	12.67	0.248	0.161	0.348	6.61
100	1,496	30,093	458	0.69	2.00	4.21	0.094	0.073	0.203	6.34
Percent Lit when Closed										
Not Lit	1,322	23,145	310	1.43	3.13	5.45	0.196	0.121	0.283	6.76
1 to 50	990	22,934	297	2.39	4.55	8.38	0.259	0.192	0.336	6.76
51 to 99	23	790	13	2.75	5.37	10.00	0.255	0.167	0.354	29.75
100	40	543	9	2.13	4.44	8.38	0.216	0.130	0.319	27.36
Lighting Equipment (more than one may apply)										
Incandescent	1,265	27,508	389	2.65	5.00	9.33	0.265	0.198	0.356	5.56
Standard Fluorescent	2,193	44,880	601	3.62	7.40	11.66	0.419	0.264	0.525	5.24
Compact Fluorescent	132	6,173	110	3.88	5.64	8.78	0.340	0.267	0.452	11.35
High-Intensity Discharge	244	14,369	183	2.50	5.00	9.09	0.249	0.161	0.340	9.13
Other	39	1,060	16	2.44	4.75	8.95	0.248	0.165	0.339	28.86

See footnotes at end of table.

Table 3.29. Distribution of Peak Watts per Square Foot and Load Factors, 1992 (Continued)

Building Characteristics	All Demand-Metered Buildings			Peak Watts per Square Foot			Load Factor			RSE Row Factor
	Number of Buildings (thousand)	Total Floorspace (million square feet)	Total Electricity Consumed (billion kWh)	25th Percentile	Median	75th Percentile	25th Percentile	Median	75th Percentile	
RSE Column Factor:	0.9	1.0	1.1	NF	NF	NF	NF	NF	NF	
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	634	19,429	326	2.33	5.22	7.20	0.287	0.196	0.388	6.22
Walk-in Units	431	14,850	267	1.97	3.60	6.50	0.286	0.211	0.384	6.97
Cases and Cabinets	513	15,822	275	3.75	5.48	9.78	0.263	0.154	0.360	6.55
None	1,741	27,982	303	3.53	6.96	15.00	0.332	0.232	0.442	6.92
Personal Computers and/or Computer Terminals										
1 to 4	625	8,439	94	3.85	8.97	17.01	0.354	0.264	0.482	7.44
5 to 9	224	4,438	59	3.88	7.50	15.56	0.348	0.255	0.468	11.09
10 to 19	153	4,735	60	2.05	4.17	7.24	0.221	0.140	0.298	11.75
20 to 49	130	6,405	75	2.50	4.71	9.75	0.248	0.171	0.331	10.79
50 or More	96	12,112	223	2.68	4.29	7.22	0.280	0.222	0.355	10.33
Annual Consumption (kilowatthours)										
10,000 or Less	265	1,156	2	2.17	4.29	6.67	0.272	0.202	0.369	14.69
10,001 to 50,000	834	6,210	22	2.75	4.53	6.70	0.287	0.188	0.384	8.33
50,001 to 100,000	404	4,398	29	2.80	4.80	7.25	0.380	0.290	0.477	8.94
100,001 to 500,000	646	12,316	141	0.80	1.89	3.57	0.103	0.071	0.195	5.51
500,001 to 1,000,000	103	5,559	70	2.00	3.88	6.90	0.202	0.132	0.254	12.12
1,000,001 to 5,000,000	108	11,274	208	2.71	5.33	9.50	0.257	0.184	0.330	10.20
Over 5,000,000	15	6,498	157	3.59	6.50	13.91	0.314	0.246	0.428	14.31
Peak Electricity Demand (kilowatts)										
10 or Less	434	2,330	6	3.48	6.14	10.90	0.372	0.297	0.474	13.94
11 to 25	635	4,410	23	4.11	6.47	12.64	0.420	0.339	0.549	8.19
26 to 50	500	4,994	45	4.40	5.24	9.23	0.499	0.405	0.590	6.90
51 to 100	389	6,929	74	0.88	1.88	3.33	0.203	0.113	0.268	7.88
101 to 250	246	8,410	103	2.35	4.25	7.14	0.223	0.149	0.291	8.24
251 to 1,000	141	12,155	198	3.24	6.00	11.60	0.262	0.178	0.350	9.72
Over 1,000	30	8,184	181	3.41	6.27	13.15	0.269	0.167	0.363	14.63
Season of Peak Electricity Demand										
Summer	1,342	29,289	414	3.72	6.46	12.67	0.302	0.206	0.384	7.10
Winter	854	15,679	187	4.18	6.73	15.71	0.359	0.225	0.471	8.64
Summer and Winter	179	2,444	28	5.00	11.18	50.72	0.344	0.056	0.481	13.29
Building Generates Electricity										
Yes	109	8,618	164	2.53	5.00	8.89	0.260	0.176	0.352	9.68
No	2,266	38,794	465	2.24	4.47	8.73	0.219	0.137	0.310	5.77

NF = No applicable RSE column factor.

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

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.30. Total Natural Gas Consumption and Expenditures, 1992

Building Characteristics	All Buildings Using Natural Gas			Natural Gas Consumption		Natural Gas Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion cubic feet)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.3	1.3	1.1	
All Buildings	2,657	44,994	16.9	2,174	2,113	9,901	5.80
Building Floorspace (square feet)							
1,001 to 5,000	1,325	3,752	2.8	321	312	1,716	6.39
5,001 to 10,000	573	4,262	7.4	251	244	1,342	5.51
10,001 to 25,000	417	6,835	16.4	438	426	1,882	7.40
25,001 to 50,000	182	6,521	35.9	324	314	1,559	10.29
50,001 to 100,000	83	5,735	69.2	255	248	1,184	8.12
100,001 to 200,000	52	7,134	137.1	206	200	893	7.28
200,001 to 500,000	18	5,600	305.1	215	209	742	13.40
Over 500,000	6	5,155	847.5	165	160	582	17.21
Principal Building Activity							
Education	197	6,856	34.7	291	283	1,271	11.07
Food Sales	70	509	7.3	24	23	134	20.10
Food Service	196	1,145	5.8	157	152	818	11.96
Health Care	45	1,544	34.1	189	184	662	18.65
Lodging	98	2,233	22.8	193	187	929	16.48
Mercantile and Service	762	9,357	12.3	381	370	1,899	10.72
Office	474	7,846	16.6	388	377	1,618	13.37
Parking Garage	11	Q	Q	9	9	43	31.62
Public Assembly	169	2,536	15.0	100	97	490	13.43
Public Order and Safety	37	582	15.7	37	36	173	25.79
Religious Worship	209	2,899	13.9	65	63	332	12.28
Warehouse and Storage	264	6,333	23.9	196	190	939	12.50
Other	29	778	27.3	84	82	302	27.00
Vacant	95	2,008	21.2	61	59	290	22.48
Year Constructed							
1899 or Before	110	1,237	11.2	62	60	281	16.44
1900 to 1919	178	2,785	15.7	102	99	516	14.52
1920 to 1945	436	5,735	13.1	310	301	1,442	13.83
1946 to 1959	516	7,300	14.1	355	345	1,665	12.59
1960 to 1969	463	8,871	19.2	426	414	1,903	10.21
1970 to 1979	513	9,217	18.0	528	513	2,187	10.75
1980 to 1989	387	8,222	21.2	345	335	1,668	9.44
1990 to 1992	53	1,625	30.8	48	47	239	17.67
Census Region and Division							
Northeast	370	8,559	23.1	354	344	2,014	12.51
New England	63	1,761	28.0	75	72	476	26.22
Middle Atlantic	307	6,798	22.1	280	272	1,538	14.62
Midwest	843	13,775	16.3	747	726	3,011	8.22
East North Central	557	8,646	15.5	516	501	2,076	11.06
West North Central	287	5,129	17.9	231	225	935	15.57
South	882	13,361	15.1	697	677	2,998	12.71
South Atlantic	185	4,744	25.7	240	233	1,147	27.10
East South Central	223	3,248	14.6	159	154	787	19.96
West South Central	474	5,369	11.3	299	290	1,064	19.03
West	562	9,299	16.6	376	365	1,878	10.67
Mountain	198	2,560	12.9	137	133	559	16.86
Pacific	364	6,738	18.5	239	232	1,319	12.61
Climate Zone: 45-Year Average							
Fewer than 2,000 CDD and --							
More than 7,000 HDD	229	3,686	16.1	189	184	790	14.62
5,500-7,000 HDD	763	13,718	18.0	746	725	3,264	8.41
4,000-5,499 HDD	480	10,497	21.9	447	434	2,158	17.26
Fewer than 4,000 HDD	647	11,008	17.0	469	456	2,386	14.97
More than 2,000 CDD and --							
Fewer than 4,000 HDD	539	6,084	11.3	324	314	1,304	17.17

See footnotes at end of table.

Table 3.30. Total Natural Gas Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Natural Gas			Natural Gas Consumption		Natural Gas Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion cubic feet)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.3	1.3	1.1	
Energy Sources (more than one may apply)							
Electricity	2,655	44,987	16.9	2,174	2,113	9,900	6.05
Natural Gas	2,657	44,994	16.9	2,174	2,113	9,901	5.80
Fuel Oil	130	8,426	64.9	410	399	1,623	13.28
District Heat	36	2,677	75.1	116	113	429	24.62
District Chilled Water	16	923	57.8	45	44	178	24.05
Propane	19	797	42.5	41	40	201	31.74
Any Other	43	788	18.2	18	17	100	22.57
Energy End Uses (more than one may apply)							
Heated Buildings	2,619	44,527	17.0	2,159	2,098	9,815	5.71
Buildings with A/C	2,254	41,324	18.3	1,987	1,931	8,969	6.13
Buildings with Water Heating	2,324	43,047	18.5	2,118	2,058	9,582	5.90
Buildings with Cooking	531	18,458	34.7	942	915	4,103	7.61
Buildings with Manufacturing	81	2,528	31.1	157	153	678	20.35
Workers (main shift)							
Less than 5	1,258	8,051	6.4	331	322	1,778	7.72
5 to 9	559	4,500	8.0	299	291	1,244	10.77
10 to 19	383	5,473	14.3	278	270	1,413	11.39
20 to 49	300	8,357	27.9	474	460	2,302	10.67
50 to 99	87	5,974	68.5	280	272	1,206	14.20
100 or More	70	12,638	181.1	513	498	1,958	9.32
Weekly Operating Hours							
39 or Fewer	404	4,019	10.0	151	147	731	12.46
40 to 48	755	9,529	12.6	388	377	1,869	8.75
49 to 60	597	9,553	16.0	406	395	1,888	9.80
61 to 84	403	9,132	22.6	396	385	1,666	9.24
85 to 167	299	6,509	21.8	312	303	1,521	11.27
Open Continuously	199	6,251	31.3	520	506	2,226	12.20
Ownership and Occupancy							
Nongovernment Owned	2,300	34,083	14.8	1,674	1,627	7,808	6.01
Owner Occupied	1,806	26,127	14.5	1,344	1,306	6,091	5.72
Single Establishment	1,597	19,619	12.3	1,167	1,134	5,236	6.24
Multiple Establishment	209	6,508	31.1	177	172	855	12.57
Nonowner Occupied	458	7,466	16.3	310	301	1,618	13.11
Single Establishment	261	2,869	11.0	170	166	895	20.80
Multiple Establishment	197	4,596	23.3	140	136	723	14.87
Vacant	35	490	13.8	20	19	99	33.06
Government Owned	357	10,910	30.6	500	486	2,094	9.96
Predominant Exterior Wall Material							
Masonry	1,945	34,286	17.6	1,654	1,607	7,734	6.30
Siding or Shingles	318	1,961	6.2	103	100	561	11.67
Metal Panels	292	3,449	11.8	240	233	851	15.78
Concrete Panels	50	3,557	70.8	127	124	528	16.49
Window Glass	27	1,024	38.6	30	29	133	20.56
Other	26	716	28.0	20	19	93	31.82
Predominant Roof Material							
Built-Up	1,039	21,288	20.5	997	969	4,610	8.04
Shingles (Not Wood)	752	6,511	8.7	329	320	1,682	8.37
Metal Surfacing	402	4,285	10.7	254	246	948	13.25
Synthetic or Rubber	267	9,326	34.9	445	432	1,908	10.07
Other	196	3,583	18.3	150	146	753	13.42

See footnotes at end of table.

Table 3.30. Total Natural Gas Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Natural Gas			Natural Gas Consumption		Natural Gas Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion cubic feet)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.3	1.3	1.1	
Space-Heating Energy Source							
Natural Gas	2,397	38,467	16.1	1,938	1,884	8,756	6.14
Natural Gas Main	2,269	35,129	15.5	1,822	1,770	8,277	6.36
Natural Gas Secondary	127	3,338	26.2	117	113	479	19.19
Other Excluding Natural Gas	222	6,059	27.3	220	214	1,059	10.39
Building Not Heated	38	467	12.2	Q	Q	Q	38.92
Main Space-Heating Energy Source							
Electricity	266	5,245	19.7	192	186	975	11.53
Natural Gas	2,269	35,129	15.5	1,822	1,770	8,277	6.36
Fuel Oil	37	1,262	34.2	15	15	99	21.67
District Heat	31	2,256	72.7	87	84	326	18.56
Propane	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating							
Electricity Only	278	2,096	7.5	157	152	537	16.51
Natural Gas Only	62	959	15.4	30	30	154	20.44
Fuel Oil Only	111	4,959	44.5	356	346	1,389	13.99
Propane Only	130	1,705	13.1	81	78	340	18.10
Any Other Single Energy Source	25	371	14.7	10	10	62	33.62
More than One Energy Source	62	691	11.1	40	39	209	23.56
No Replacement Energy Source	1,949	33,746	17.3	1,485	1,443	7,124	6.43
Building Not Heated	38	467	12.2	Q	Q	Q	38.92
Cooling Energy Source							
Natural Gas	106	1,906	17.9	186	181	782	20.13
Other Excluding Natural Gas	2,148	39,418	18.4	1,801	1,750	8,186	5.95
A/C Not Performed	402	3,670	9.1	187	182	932	12.16
Water-Heating Energy Source							
Natural Gas	1,643	29,950	18.2	1,644	1,598	7,620	6.75
Other Excluding Natural Gas	681	13,096	19.2	474	461	1,962	10.25
Water Heating Not Performed	333	1,947	5.8	56	55	319	9.69
Cooking Energy Source							
Natural Gas	430	15,204	35.3	816	793	3,562	8.03
Other Excluding Natural Gas	101	3,254	32.3	126	122	541	13.21
Cooking Not Performed	2,126	26,535	12.5	1,233	1,198	5,798	7.19
Manufacturing Energy Source							
Natural Gas	22	799	36.7	78	76	316	34.44
Other Excluding Natural Gas	60	1,729	29.0	80	77	362	21.83
Manufacturing Not Performed	2,575	42,465	16.5	2,017	1,960	9,224	5.99
Percent of Floorspace Heated							
Not Heated	38	467	12.2	Q	Q	Q	38.92
1 to 50	377	7,186	19.0	175	170	871	15.76
51 to 99	425	7,685	18.1	362	352	1,578	12.13
100	1,816	29,656	16.3	1,622	1,576	7,367	6.32

See footnotes at end of table.

Table 3.30. Total Natural Gas Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Natural Gas			Natural Gas Consumption		Natural Gas Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion cubic feet)	Total (million dollars)	
RSE Column Factor:	0.9	0.9	0.8	1.3	1.3	1.1	
Heating Equipment (more than one may apply)							
Heat Pumps	135	4,657	34.5	213	207	1,006	15.87
Furnaces	1,257	14,330	11.4	724	703	3,209	9.43
Individual Space Heaters	881	16,221	18.4	708	688	3,293	9.01
District Heat	35	2,679	76.5	135	131	474	20.18
Boilers	443	17,022	38.4	936	910	4,030	7.45
Packaged Heating Units	604	12,905	21.4	583	566	2,815	9.00
Other	23	678	29.2	Q	Q	Q	31.77
Water-Heating Equipment (more than one may apply)							
Centralized System	1,323	22,503	17.0	1,309	1,272	5,716	7.92
Distributed System	1,039	22,013	21.2	890	865	4,225	7.85
Annual Consumption (hundred cubic feet)							
1,000 or Less	834	5,311	6.4	44	43	328	8.78
1,001 to 5,000	1,117	11,453	10.2	276	268	1,572	5.53
5,001 to 10,000	329	5,663	17.2	235	229	1,232	6.82
10,001 to 25,000	231	8,046	34.8	370	360	1,817	8.51
25,001 to 50,000	84	5,522	65.6	287	279	1,448	11.53
50,001 to 100,000	33	3,311	100.7	231	224	1,018	12.74
Over 100,000	28	5,687	202.7	731	710	2,486	16.73
Gas Transported for the Account of Others							
Used in Building	58	3,281	56.4	353	343	1,318	25.20
Not Used in Building	2,599	41,713	16.1	1,821	1,770	8,583	5.53

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.31. Natural Gas Consumption and Expenditure Intensities, 1992

Building Characteristics	Natural Gas Consumption						Natural Gas Expenditures			RSE Row Factor
	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)	
RSE Column Factor:	1.2	1.2	1.3	25th Percentile	Median	75th Percentile	1.0	1.0	0.6	
All Buildings	795	47.0	41.3	15.6	35.5	74.4	3.7	0.22	4.69	5.41
Building Floorspace (square feet)										
1,001 to 5,000	235	83.0	54.1	21.2	44.4	94.5	1.3	0.46	5.51	8.07
5,001 to 10,000	426	57.3	47.5	14.1	30.5	60.8	2.3	0.31	5.50	6.03
10,001 to 25,000	1,021	62.3	60.3	11.7	28.4	57.2	4.5	0.28	4.42	15.03
25,001 to 50,000	1,732	48.2	55.5	10.0	24.9	55.7	8.6	0.24	4.96	13.73
50,001 to 100,000	2,988	43.2	43.3	9.7	29.2	56.0	14.3	0.21	4.78	7.63
100,001 to 200,000	3,850	28.1	31.1	5.0	13.7	33.8	17.2	0.13	4.46	11.71
200,001 to 500,000	11,380	37.3	36.7	3.8	15.8	40.0	40.4	0.13	3.55	13.87
Over 500,000	26,331	31.1	16.5	1.8	11.5	28.3	95.7	0.11	3.63	17.89
Principal Building Activity										
Education	1,434	41.3	52.3	17.0	30.2	60.4	6.4	0.19	4.49	7.97
Food Sales	334	45.9	42.6	13.4	26.8	82.3	1.9	0.26	5.75	15.79
Food Service	775	132.9	83.5	81.3	146.4	225.1	4.2	0.71	5.38	8.48
Health Care	4,067	119.2	61.4	21.0	39.6	90.8	14.6	0.43	3.60	14.67
Lodging	1,907	83.8	107.0	34.7	71.9	136.7	9.5	0.42	4.97	12.08
Mercantile and Service	486	39.5	28.4	15.9	35.5	68.5	2.5	0.20	5.13	11.23
Office	795	48.0	21.9	14.6	30.3	59.9	3.4	0.21	4.30	21.50
Parking Garage	830	Q	126.5	48.2	97.5	205.6	4.0	Q	4.84	18.29
Public Assembly	571	38.1	55.4	12.4	31.9	67.2	2.9	0.19	5.06	10.45
Public Order and Safety	975	62.1	64.4	43.5	60.2	121.2	4.7	0.30	4.80	17.22
Religious Worship	302	21.8	42.7	11.7	26.7	45.5	1.6	0.11	5.27	8.83
Warehouse and Storage	720	30.1	66.2	10.6	25.4	53.9	3.5	0.15	4.93	10.14
Other	2,866	105.1	88.1	6.8	32.2	106.3	10.6	0.39	3.69	29.08
Vacant	626	29.6	74.7	8.9	23.7	53.0	3.1	0.14	4.89	15.50
Year Constructed										
1899 or Before	542	48.3	58.6	14.3	32.8	64.5	2.5	0.23	4.70	13.44
1900 to 1919	555	35.4	43.8	16.1	39.7	72.5	2.9	0.19	5.23	11.31
1920 to 1945	690	52.5	60.2	15.2	35.5	82.5	3.3	0.25	4.79	11.85
1946 to 1959	667	47.2	50.4	14.7	35.4	71.9	3.2	0.23	4.83	13.40
1960 to 1969	894	46.6	29.7	15.8	35.4	68.3	4.1	0.21	4.60	10.37
1970 to 1979	1,000	55.7	51.2	17.1	40.3	86.5	4.3	0.24	4.26	12.61
1980 to 1989	866	40.8	33.0	15.6	32.9	68.5	4.3	0.20	4.97	10.54
1990 to 1992	884	28.7	23.7	12.3	23.4	58.6	4.5	0.15	5.14	15.45
Census Region and Division										
Northeast	931	40.2	26.2	21.0	40.4	84.0	5.4	0.24	5.85	10.02
New England	1,151	41.1	35.3	23.4	52.9	100.6	7.6	0.27	6.57	15.06
Middle Atlantic	885	40.0	24.5	20.9	39.3	76.5	5.0	0.23	5.66	11.90
Midwest	861	52.7	57.4	25.2	49.2	90.8	3.6	0.22	4.15	5.51
East North Central	901	58.0	63.0	26.8	51.6	96.0	3.7	0.24	4.14	6.69
West North Central	784	43.8	47.9	21.9	45.2	86.7	3.3	0.18	4.16	10.64
South	768	50.7	48.4	11.8	27.3	55.1	3.4	0.22	4.43	14.86
South Atlantic	1,262	49.2	44.9	13.7	33.3	84.9	6.2	0.24	4.91	20.79
East South Central	692	47.4	43.4	16.4	30.2	64.4	3.5	0.24	5.11	13.75
West South Central	611	54.0	55.1	9.8	24.4	51.0	2.2	0.20	3.67	27.44
West	650	39.3	32.0	11.5	25.4	63.5	3.3	0.20	5.14	9.26
Mountain	670	51.9	43.3	17.0	36.6	82.4	2.8	0.22	4.21	14.82
Pacific	639	34.5	27.8	9.5	20.6	51.8	3.6	0.20	5.68	10.80
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	803	49.8	58.6	25.2	53.9	100.4	3.5	0.21	4.30	9.29
5,500-7,000 HDD	951	52.9	53.6	25.6	49.6	92.0	4.3	0.24	4.50	6.77
4,000-5,499 HDD	905	41.3	28.8	16.9	35.8	71.1	4.5	0.21	4.97	13.33
Fewer than 4,000 HDD	705	41.4	34.2	12.7	25.5	57.5	3.7	0.22	5.23	11.95
More than 2,000 CDD and --										
Fewer than 4,000 HDD	584	51.7	51.3	8.7	22.6	51.7	2.4	0.21	4.15	22.05

See footnotes at end of table.

Table 3.31. Natural Gas Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Natural Gas Consumption						Natural Gas Expenditures			RSE Row Factor
	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)	
RSE Column Factor:	1.2	1.2	1.3	25th Percentile	Median	75th Percentile	1.0	1.0	0.6	
Energy Sources (more than one may apply)										
Electricity	796	47.0	41.3	15.6	35.5	74.4	3.7	0.22	4.69	5.20
Natural Gas	795	47.0	41.3	15.6	35.5	74.4	3.7	0.22	4.69	5.41
Fuel Oil	3,071	47.3	33.0	9.3	29.8	62.5	12.5	0.19	4.07	12.60
District Heat	3,155	42.0	32.1	4.2	15.8	45.3	12.0	0.16	3.81	24.10
District Chilled Water	2,727	47.2	33.4	8.6	18.1	45.3	11.2	0.19	4.10	19.35
Propane	2,109	49.6	63.0	14.0	25.3	69.9	10.7	0.25	5.10	21.13
Any Other	403	22.2	26.7	10.7	18.3	51.5	2.3	0.13	5.72	15.71
Energy End Uses (more than one may apply)										
Heated Buildings	801	47.1	41.3	15.9	35.8	74.6	3.7	0.22	4.68	5.27
Buildings with A/C	857	46.7	39.3	15.5	35.3	74.6	4.0	0.22	4.64	5.59
Buildings with Water Heating	886	47.8	41.4	16.4	37.5	80.4	4.1	0.22	4.66	5.46
Buildings with Cooking	1,723	49.6	36.1	21.8	58.5	139.6	7.7	0.22	4.48	5.70
Buildings with Manufacturing	1,881	60.5	74.5	14.7	31.4	73.7	8.3	0.27	4.43	20.32
Workers (main shift)										
Less than 5	256	40.0	121.2	15.2	35.5	70.8	1.4	0.22	5.53	5.42
5 to 9	520	64.6	80.1	17.5	38.0	90.8	2.2	0.28	4.28	15.31
10 to 19	705	49.3	55.1	15.1	35.8	73.8	3.7	0.26	5.24	10.32
20 to 49	1,537	55.1	53.3	15.4	33.6	91.0	7.7	0.28	5.00	11.34
50 to 99	3,118	45.5	47.6	12.3	32.7	68.8	13.8	0.20	4.43	13.40
100 or More	7,143	39.4	19.4	6.3	23.1	53.5	28.1	0.15	3.93	8.95
Weekly Operating Hours										
39 or Fewer	364	36.6	71.7	11.7	28.9	53.0	1.8	0.18	4.97	10.01
40 to 48	500	39.6	32.2	15.5	31.0	59.9	2.5	0.20	4.95	8.21
49 to 60	662	41.3	40.4	13.6	32.1	61.5	3.2	0.20	4.78	11.29
61 to 84	956	42.2	39.0	17.8	38.0	86.9	4.1	0.18	4.32	12.90
85 to 167	1,013	46.5	28.6	23.4	56.3	132.9	5.1	0.23	5.02	8.75
Open Continuously	2,535	80.9	70.4	28.6	66.7	136.7	11.2	0.36	4.40	11.56
Ownership and Occupancy										
Nongovernment Owned	707	47.7	45.1	15.1	35.0	74.9	3.4	0.23	4.80	6.41
Owner Occupied	723	50.0	48.0	15.8	36.6	78.7	3.4	0.23	4.66	6.02
Single Establishment	710	57.8	59.6	16.4	37.6	80.8	3.3	0.27	4.62	6.57
Multiple Establishment	824	26.5	21.0	12.0	28.8	68.5	4.1	0.13	4.96	9.54
Nonowner Occupied	658	40.4	34.6	12.3	29.4	59.4	3.5	0.22	5.37	14.03
Single Establishment	635	57.7	48.5	14.4	37.9	78.3	3.4	0.31	5.40	20.43
Multiple Establishment	688	29.5	25.6	10.4	20.8	39.1	3.7	0.16	5.32	17.93
Vacant	545	39.4	Q	16.4	34.7	64.7	2.8	0.20	5.14	25.17
Government Owned	1,362	44.6	32.2	19.3	40.6	74.1	5.9	0.19	4.31	7.88
Predominant Exterior Wall Material										
Masonry	826	46.9	47.6	15.1	35.0	75.9	4.0	0.23	4.81	5.18
Siding or Shingles	316	51.2	43.6	19.8	36.6	69.0	1.8	0.29	5.59	9.25
Metal Panels	800	67.6	90.1	14.4	33.5	64.4	2.9	0.25	3.65	23.65
Concrete Panels	2,461	34.7	14.2	10.3	29.8	60.5	10.5	0.15	4.27	14.59
Window Glass	1,107	28.7	11.6	8.3	41.0	145.7	5.0	0.13	4.54	18.31
Other	760	27.1	15.3	23.7	57.4	82.6	3.7	0.13	4.80	23.29
Predominant Roof Material										
Built-Up	932	45.5	42.1	13.5	30.9	71.2	4.4	0.22	4.76	7.93
Shingles (Not Wood)	425	49.1	52.2	19.8	38.4	84.1	2.2	0.26	5.26	8.55
Metal Surfacing	613	57.5	62.8	13.9	32.3	68.4	2.4	0.22	3.85	20.97
Synthetic or Rubber	1,618	46.3	29.3	14.4	39.3	77.1	7.1	0.20	4.41	7.91
Other	745	40.8	43.2	17.9	41.8	84.5	3.8	0.21	5.16	11.47

See footnotes at end of table.

Table 3.31. Natural Gas Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Natural Gas Consumption						Natural Gas Expenditures			RSE Row Factor
	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)	
RSE Column Factor:	1.2	1.2	1.3	25th Percentile	Median	75th Percentile	1.0	1.0	0.6	
Space-Heating Energy Source										
Natural Gas	786	49.0	44.0	16.4	35.8	73.8	3.7	0.23	4.65	5.63
Natural Gas Main	780	50.4	45.1	17.3	37.0	74.6	3.6	0.24	4.68	5.86
Natural Gas Secondary	890	34.0	31.4	7.0	17.1	57.3	3.8	0.14	4.23	22.12
Other Excluding Natural Gas	965	35.4	27.0	9.7	31.6	94.0	4.8	0.17	4.94	9.24
Building Not Heated	Q	Q	Q	4.8	13.3	21.6	Q	Q	5.67	10.07
Primary Space-Heating Energy Source										
Electricity	699	35.5	29.1	11.7	30.4	85.9	3.7	0.19	5.24	8.52
Natural Gas	780	50.4	45.1	17.3	37.0	74.6	3.6	0.24	4.68	5.86
Fuel Oil	395	11.5	8.0	2.5	11.3	32.9	2.7	0.08	6.83	17.17
District Heat	2,711	37.3	26.8	3.5	14.4	45.3	10.5	0.14	3.88	16.32
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating										
Electricity Only	547	72.6	77.4	14.4	29.2	67.5	1.9	0.26	Q	19.77
Natural Gas Only	476	30.9	32.7	6.8	21.0	95.8	2.5	0.16	5.21	13.84
Fuel Oil Only	3,102	69.7	76.9	23.5	47.7	90.4	12.5	0.28	4.02	10.92
Propane Only	604	46.0	45.8	21.0	37.4	66.3	2.6	0.20	4.34	21.98
Any Other Single Energy Source	402	27.4	Q	11.5	26.5	59.9	2.4	0.17	6.07	29.24
More than One Energy Source	626	56.5	65.3	15.6	30.3	49.3	3.4	0.30	5.36	20.52
No Replacement Energy Source	740	42.8	35.6	16.3	37.4	76.5	3.7	0.21	4.94	5.55
Building Not Heated	Q	Q	Q	4.8	13.3	21.6	Q	Q	5.67	10.07
Cooling Energy Source										
Natural Gas	1,698	94.8	74.4	25.7	38.4	95.0	7.4	0.41	4.33	29.90
Other Excluding Natural Gas	815	44.4	37.5	15.0	35.0	74.0	3.8	0.21	4.68	5.26
A/C Not Performed	452	49.6	89.1	16.2	38.3	74.3	2.3	0.25	5.12	8.50
Water-Heating Energy Source										
Natural Gas	972	53.3	45.8	18.2	40.8	92.5	4.6	0.25	4.77	5.51
Other Excluding Natural Gas	676	35.2	30.9	13.6	30.3	57.6	2.9	0.15	4.26	12.35
Water Heating Not Performed	165	28.1	38.2	10.9	23.5	48.6	1.0	0.16	5.82	9.75
Cooking Energy Source										
Natural Gas	1,843	52.2	36.7	25.0	72.8	147.8	8.3	0.23	4.49	6.15
Other Excluding Natural Gas	1,211	37.5	32.3	12.5	36.6	63.9	5.4	0.17	4.43	14.18
Cooking Not Performed	564	45.1	46.4	15.0	32.4	62.6	2.7	0.22	4.84	8.20
Manufacturing Energy Source										
Natural Gas	3,478	94.8	120.7	25.6	61.6	183.5	14.5	0.39	4.17	34.07
Other Excluding Natural Gas	1,297	44.7	54.2	12.3	25.1	53.4	6.1	0.21	4.68	19.91
Manufacturing Not Performed	761	46.2	39.9	15.6	35.5	74.6	3.6	0.22	4.71	5.72
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	4.8	13.3	21.6	Q	Q	5.67	10.07
1 to 50	450	23.6	21.3	8.0	17.6	47.1	2.3	0.12	5.13	15.72
51 to 99	829	45.8	41.5	13.6	32.1	65.2	3.7	0.21	4.48	16.20
100	868	53.1	45.9	19.5	40.1	84.6	4.1	0.25	4.68	5.40

See footnotes at end of table.

Table 3.31. Natural Gas Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Natural Gas Consumption						Natural Gas Expenditures			RSE Row Factor
	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (kWh/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)	
RSE Column Factor:	1.2	1.2	1.3	25th Percentile	Median	75th Percentile	1.0	1.0	0.6	
Heating Equipment (more than one may apply)										
Heat Pumps	1,531	44.4	41.3	10.2	31.0	71.9	7.4	0.22	4.86	15.75
Furnaces	559	49.1	41.4	17.6	35.0	69.7	2.6	0.22	4.56	11.66
Individual Space Heaters	781	42.4	37.3	13.4	34.1	69.1	3.7	0.20	4.79	8.98
District Heat	3,741	48.9	38.3	3.8	14.4	45.3	13.5	0.18	3.62	21.78
Boilers	2,054	53.4	46.7	21.9	51.1	95.0	9.1	0.24	4.43	6.20
Packaged Heating Units	938	43.9	30.4	14.5	37.6	85.9	4.7	0.22	4.97	7.62
Other	Q	Q	Q	14.4	38.4	201.2	Q	Q	5.14	7.03
Water-Heating Equipment (more than one may apply)										
Centralized System	962	56.5	49.3	18.9	39.3	84.5	4.3	0.25	4.49	7.50
Distributed System	832	39.3	33.2	14.6	35.4	75.2	4.1	0.19	4.88	5.97
Annual Consumption (hundred cubic feet)										
1,000 or Less	52	8.1	8.5	6.0	13.3	24.4	0.4	0.06	7.59	4.15
1,001 to 5,000	240	23.4	22.8	23.6	40.7	74.3	1.4	0.14	5.87	3.64
5,001 to 10,000	695	40.4	36.2	37.0	72.2	161.3	3.7	0.22	5.39	4.50
10,001 to 25,000	1,554	44.7	43.0	42.1	83.6	174.1	7.9	0.23	5.05	3.84
25,001 to 50,000	3,311	50.5	45.4	47.6	78.9	127.4	17.2	0.26	5.19	5.27
50,001 to 100,000	6,819	67.7	65.4	56.5	91.1	221.1	31.0	0.31	4.54	5.41
Over 100,000	25,317	124.9	69.8	85.2	164.3	821.2	88.6	0.44	3.50	14.12
Gas Transported for the Account of Others										
Used in Building	5,898	104.6	103.6	27.1	44.8	97.8	22.6	0.40	3.84	27.59
Not Used in Building	681	42.4	37.0	15.4	35.3	74.1	3.3	0.21	4.85	5.04

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.32. Natural Gas Consumption and Conditional Energy Intensity by Census Region, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	0.9	1.5	1.2	1.1	0.8	0.8	0.9	0.9	0.6	1.3	1.0	RSE Row Factor
All Buildings	344	726	677	365	8,559	13,775	13,361	9,299	40.2	52.7	50.7	39.3	10.67
Building Floorspace (square feet)													
1,001 to 5,000	36	104	115	57	451	1,231	1,343	726	79.7	84.6	85.5	77.9	14.30
5,001 to 10,000	31	88	63	62	649	1,403	1,290	919	48.4	62.8	48.5	67.3	15.20
10,001 to 25,000	53	126	162	85	965	2,203	1,931	1,736	54.7	57.1	84.1	48.9	19.67
25,001 to 50,000	70	85	113	47	1,306	1,822	1,977	1,415	53.4	46.5	57.2	33.2	22.15
50,001 to 100,000	52	86	65	44	1,082	1,680	1,870	1,103	48.4	51.4	34.7	40.0	18.83
100,001 to 200,000	32	81	47	40	1,135	1,891	2,257	1,852	28.4	42.8	20.8	21.6	20.37
200,001 to 500,000	31	100	Q	26	897	2,298	1,375	1,029	34.3	43.4	Q	25.6	27.66
Over 500,000	39	56	61	4	2,073	1,247	1,316	519	18.8	45.2	46.1	8.2	32.47
Principal Building Activity													
Education	64	113	63	43	1,457	2,291	1,933	1,174	43.9	49.4	32.6	36.6	17.16
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Food Service	29	51	35	37	294	412	243	197	99.8	123.7	142.9	189.1	22.26
Health Care	30	67	71	15	286	453	549	257	106.4	148.7	129.3	59.8	26.71
Lodging	41	40	53	54	390	523	725	596	104.1	76.2	73.0	90.4	26.10
Mercantile and Service	63	128	111	68	2,080	2,852	2,656	1,768	30.3	45.0	41.8	38.2	22.25
Office	31	102	187	57	1,285	2,080	2,443	2,037	24.2	48.9	76.3	28.2	17.55
Parking Garage	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Public Assembly	20	34	18	25	553	608	785	591	36.3	55.5	23.5	41.5	24.22
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Religious Worship	7	30	13	12	340	977	870	713	22.0	30.7	15.4	17.2	23.95
Warehouse and Storage	33	89	54	14	1,127	2,238	1,992	975	29.5	39.7	27.1	14.5	25.22
Other	Q	15	Q	Q	Q	195	Q	Q	Q	74.9	Q	Q	43.12
Vacant	Q	27	12	15	Q	502	Q	517	Q	53.6	18.3	28.6	31.95
Year Constructed													
1899 or Before	15	27	Q	Q	417	627	Q	Q	36.2	43.3	Q	Q	27.29
1900 to 1919	26	39	12	22	742	951	Q	459	34.8	41.2	18.6	47.7	28.29
1920 to 1945	50	131	89	30	1,630	1,742	1,463	900	31.0	75.4	60.7	33.8	22.94
1946 to 1959	40	111	141	54	1,272	2,309	2,360	1,360	31.2	47.9	59.7	39.4	20.15
1960 to 1969	80	131	137	65	1,715	2,035	3,141	1,980	46.7	64.5	43.7	32.8	18.68
1970 to 1979	65	162	171	114	1,260	3,149	2,613	2,195	51.5	51.6	65.6	52.0	21.35
1980 to 1989	61	107	101	66	1,359	2,435	2,608	1,820	45.0	44.0	38.8	36.3	19.73
1990 to 1992	7	17	14	8	164	527	476	458	42.5	32.8	29.1	18.4	31.95
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	150	Q	34	Q	3,047	Q	Q	Q	49.1	Q	52.9	21.68
5,500-7,000 HDD	213	450	Q	62	4,715	7,778	Q	1,226	45.2	57.9	Q	50.5	16.59
4,000-5,499 HDD	131	126	Q	34	3,844	2,950	2,402	1,301	34.1	42.8	59.0	26.5	21.40
Fewer than 4,000 HDD	Q	Q	259	197	Q	Q	5,634	5,375	Q	Q	46.0	36.7	19.15
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	277	Q	Q	Q	5,325	759	Q	Q	52.0	49.8	23.59
Energy Sources (more than one may apply)													
Electricity	344	726	677	365	8,559	13,775	13,355	9,299	40.2	52.7	50.7	39.3	10.96
Natural Gas	344	726	677	365	8,559	13,775	13,361	9,299	40.2	52.7	50.7	39.3	10.67
Fuel Oil	99	152	113	36	2,880	2,060	2,127	1,358	34.2	73.5	52.9	26.4	23.74
District Heat	22	45	Q	21	841	1,022	Q	439	26.3	44.2	Q	47.6	39.74
District Chilled Water	Q	Q	17	Q	Q	Q	327	Q	Q	Q	52.7	Q	22.80
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)													
Heated Buildings	344	725	674	355	8,559	13,765	13,249	8,953	40.2	52.7	50.9	39.6	10.68
Buildings with A/C	316	638	662	315	7,885	12,329	12,988	8,122	40.0	51.8	51.0	38.7	11.12
Buildings with Water Heating	342	708	652	356	8,447	13,255	12,416	8,928	40.4	53.4	52.5	39.9	10.83
Buildings with Cooking	196	322	235	162	4,517	5,480	5,180	3,281	43.3	58.8	45.4	49.4	14.26
Buildings with Manufacturing	27	34	75	17	573	753	790	411	46.7	45.6	95.5	40.1	32.77

See footnotes at end of table.

Table 3.32. Natural Gas Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	0.9	1.5	1.2	1.1	0.8	0.8	0.9	0.9	0.6	1.3	1.0	
Workers (main shift)													
Less than 5	44	140	76	62	955	2,932	2,772	1,391	45.8	47.7	27.6	44.3	15.03
5 to 9	31	99	127	34	729	1,518	1,343	910	43.1	64.9	94.3	37.5	18.43
10 to 19	51	69	77	73	1,018	1,617	1,617	1,221	50.0	42.7	47.9	59.4	21.48
20 to 49	78	140	162	80	1,500	2,335	2,721	1,802	51.9	60.0	59.7	44.4	19.43
50 to 99	60	70	98	44	1,311	1,679	1,640	1,344	45.4	41.7	60.0	32.8	23.26
100 or More	81	209	136	73	3,046	3,694	3,268	2,631	26.5	56.6	41.6	27.6	17.99
Weekly Operating Hours													
39 or Fewer	24	69	37	17	671	1,342	1,434	572	35.7	51.4	25.8	29.6	21.03
40 to 48	40	139	140	59	1,085	2,867	3,686	1,892	37.0	48.3	37.9	31.1	15.74
49 to 60	48	126	144	78	1,595	3,007	2,890	2,062	29.8	41.7	49.9	37.7	18.76
61 to 84	72	143	105	65	2,003	2,698	2,326	2,105	35.8	53.1	Q	31.0	21.06
85 to 167	71	104	58	71	1,871	1,979	1,176	1,483	37.9	52.4	48.9	47.7	20.61
Open Continuously	90	146	194	76	1,334	1,882	1,849	1,186	67.5	77.7	104.8	63.7	20.81
Ownership and Occupancy													
Nongovernment Owned	256	541	537	293	6,197	10,239	10,082	7,565	41.4	52.8	53.2	38.8	11.51
Owner Occupied	212	448	429	217	4,556	8,304	7,581	5,687	46.4	54.0	56.6	38.2	11.41
Single Establishment	185	370	396	183	2,978	6,115	6,435	4,091	62.2	60.5	61.5	44.7	12.31
Multiple Establishment	26	79	33	34	1,578	2,189	1,146	1,595	16.7	36.0	28.8	21.5	22.91
Nonowner Occupied	44	88	Q	70	1,594	1,809	2,314	1,749	27.5	48.4	Q	39.9	23.51
Single Establishment	27	44	Q	23	Q	618	832	658	35.3	71.9	Q	34.6	28.86
Multiple Establishment	17	43	29	Q	833	1,191	1,482	1,090	20.5	36.2	19.3	Q	20.84
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	88	186	141	72	2,362	3,536	3,279	1,734	37.2	52.5	42.9	41.4	16.91
Predominant Exterior Wall Material													
Masonry	284	563	490	270	6,685	10,752	10,181	6,668	42.6	52.3	48.1	40.5	12.14
Siding or Shingles	17	41	22	21	384	678	427	472	44.2	60.5	51.1	43.7	22.18
Metal Panels	Q	62	135	22	492	1,178	1,367	414	27.7	52.9	99.0	53.1	26.09
Concrete Panels	Q	40	20	40	Q	641	917	1,210	Q	62.1	22.3	32.9	27.00
Window Glass	Q	13	7	5	Q	246	362	258	Q	54.4	18.3	19.4	32.71
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material													
Built-Up	126	306	340	196	3,435	5,367	6,838	5,649	36.8	57.0	49.8	34.7	14.47
Shingles (Not Wood)	53	115	96	56	1,179	2,225	1,703	1,404	45.3	51.5	56.1	40.2	17.56
Metal Surfacing	10	67	147	22	336	1,314	2,097	539	30.8	51.0	70.2	40.7	23.65
Synthetic or Rubber	128	204	60	41	2,667	3,869	1,940	851	47.9	52.7	30.9	47.7	18.27
Other	26	35	34	50	943	1,001	784	856	28.0	35.2	43.9	58.4	27.04
Space-Heating Energy Source													
Natural Gas	318	667	603	294	6,871	12,289	11,563	7,744	46.3	54.3	52.2	38.0	11.68
Natural Gas Main	301	638	554	277	6,049	11,459	10,637	6,984	49.8	55.7	52.1	39.6	12.14
Natural Gas Secondary	17	29	Q	18	822	831	926	759	20.5	35.3	Q	23.1	32.14
Other Excluding Natural Gas	26	58	71	60	1,688	1,476	1,686	1,210	15.3	39.1	41.8	49.7	19.26
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Primary Space-Heating Energy Source													
Electricity	15	41	73	57	609	1,171	2,063	1,402	25.0	34.9	35.3	40.8	22.16
Natural Gas	301	638	554	277	6,049	11,459	10,637	6,984	49.8	55.7	52.1	39.6	12.14
Fuel Oil	11	Q	Q	Q	1,003	Q	Q	Q	10.7	Q	Q	Q	23.73
District Heat	16	28	21	19	769	830	323	334	21.0	34.1	65.6	55.4	30.68
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.32. Natural Gas Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.2	0.9	1.5	1.2	1.1	0.8	0.8	0.9	0.9	0.6	1.3	1.0	
Replacement Energy Source for Primary Heating													
Electricity Only	10	36	Q	12	216	698	742	440	44.2	52.1	Q	27.9	25.39
Natural Gas Only	4	Q	Q	Q	242	Q	Q	Q	15.7	Q	Q	Q	34.58
Fuel Oil Only	93	150	83	21	1,419	1,970	1,211	358	65.2	75.9	68.2	58.4	25.63
Propane Only	Q	29	14	13	Q	671	362	485	Q	43.6	38.0	26.1	27.13
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	197	489	465	290	6,133	9,915	10,572	7,127	32.2	49.4	44.0	40.8	11.59
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source													
Natural Gas	19	65	Q	23	320	512	420	654	60.5	127.0	Q	34.9	27.03
Other Excluding Natural Gas	296	573	589	292	7,565	11,817	12,568	7,468	39.2	48.5	46.8	39.1	11.08
A/C Not Performed	28	88	15	51	674	1,446	373	1,177	42.3	60.7	40.8	42.9	22.25
Water-Heating Energy Source													
Natural Gas	278	577	441	301	5,607	9,150	8,476	6,717	49.5	63.1	52.1	44.9	12.02
Other Excluding Natural Gas	64	131	211	55	2,840	4,105	3,940	2,211	22.4	32.0	53.5	24.8	17.43
Water Heating Not Performed	Q	18	26	9	Q	520	945	371	Q	34.4	27.0	23.6	21.02
Cooking Energy Source													
Natural Gas	172	278	194	149	3,891	4,388	4,296	2,628	44.1	63.4	45.2	56.8	15.61
Other Excluding Natural Gas	24	44	41	13	626	1,091	884	653	38.4	40.5	46.4	19.7	24.36
Cooking Not Performed	148	404	442	203	4,042	8,295	8,181	6,018	36.7	48.7	54.1	33.7	12.62
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	37	32	66	35	1,813	1,422	2,401	1,549	20.2	22.3	27.5	22.8	25.23
51 to 99	68	75	Q	92	1,513	1,998	2,038	2,136	45.0	37.6	Q	43.1	19.61
100	239	618	491	227	5,233	10,345	8,810	5,268	45.8	59.8	55.7	43.1	10.77
Heating Equipment (more than one may apply)													
Heat Pumps	39	42	87	40	866	982	1,463	1,347	45.3	42.4	59.2	29.3	27.75
Furnaces	102	261	270	71	2,492	5,041	3,900	2,896	40.8	51.7	69.2	24.7	16.52
Individual Space Heaters	137	232	228	91	3,259	5,191	5,013	2,757	41.9	44.8	45.5	32.9	16.37
District Heat	22	45	Q	19	835	1,016	411	418	26.2	44.0	110.3	45.7	32.41
Boilers	189	389	216	115	4,402	6,241	3,886	2,493	43.0	62.4	55.5	46.2	13.09
Packaged Heating Units	107	156	172	131	2,622	2,885	4,266	3,132	40.9	54.1	40.4	41.8	17.09
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Annual Consumption (hundred cubic feet)													
1,000 or Less	4	8	19	11	699	753	2,183	1,675	6.1	11.2	8.8	6.7	16.29
1,001 to 5,000	43	100	75	49	1,810	3,065	3,989	2,589	23.6	32.8	18.9	19.1	11.23
5,001 to 10,000	36	99	54	39	1,057	1,843	1,771	992	34.5	53.9	30.7	38.9	14.81
10,001 to 25,000	42	145	95	78	1,000	3,090	2,136	1,821	42.2	46.9	44.3	43.0	15.32
25,001 to 50,000	76	72	66	64	1,793	1,489	1,137	1,103	42.6	48.5	58.5	57.7	20.39
50,001 to 100,000	42	83	62	38	606	1,252	836	617	68.8	66.3	74.2	60.9	23.65
Over 100,000	101	218	305	86	1,594	2,283	1,309	501	63.1	95.5	233.2	172.2	29.14

See footnotes at end of table.

Table 3.32. Natural Gas Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	**1.2**	**0.9**	**1.5**	**1.2**	**1.1**	**0.8**	**0.8**	**0.9**	**0.9**	**0.6**	**1.3**	**1.0**	
Gas Transported for the Account of Others													
Used in Building	50	137	Q	Q	633	1,464	Q	436	78.9	93.4	Q	Q	26.35
Not Used in Building	294	590	568	318	7,926	12,311	12,612	8,863	37.1	47.9	45.1	35.8	10.43

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.33. Natural Gas Expenditures by Census Region, 1992

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures (dollars) per Thousand Cubic Feet				Natural Gas Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.7	1.2	1.9	1.8	0.6	0.4	0.8	0.3	1.2	0.9	1.5	1.4	
All Buildings	2,014	3,011	2,998	1,878	5.85	4.15	4.43	5.14	0.24	0.22	0.22	0.20	8.54
Building Floorspace (square feet)													
1,001 to 5,000	266	515	599	337	7.39	4.94	5.21	5.96	0.59	0.42	0.45	0.46	9.62
5,001 to 10,000	230	430	338	343	7.34	4.88	5.40	5.55	0.36	0.31	0.26	0.37	9.41
10,001 to 25,000	336	576	543	427	6.38	4.58	3.34	5.03	0.35	0.26	0.28	0.25	15.96
25,001 to 50,000	371	361	595	231	5.32	4.26	5.27	4.93	0.28	0.20	0.30	0.16	15.22
50,001 to 100,000	329	356	288	210	6.28	4.13	4.44	4.77	0.30	0.21	0.15	0.19	12.80
100,001 to 200,000	161	301	228	204	4.98	3.71	4.84	5.09	0.14	0.16	0.10	0.11	16.42
200,001 to 500,000	133	312	Q	104	4.33	3.13	3.72	3.93	0.15	0.14	Q	0.10	19.50
Over 500,000	187	160	214	21	4.81	2.84	3.53	4.95	0.09	0.13	0.16	0.04	23.79
Principal Building Activity													
Education	352	411	305	203	5.51	3.63	4.85	4.72	0.24	0.18	0.16	0.17	13.90
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Food Service	198	233	170	217	6.75	4.57	4.91	5.84	0.67	0.57	0.70	1.10	15.11
Health Care	126	197	264	75	4.15	2.92	3.73	4.87	0.44	0.43	0.48	0.29	20.48
Lodging	188	171	300	270	4.65	4.28	5.68	5.02	0.48	0.33	0.41	0.45	17.65
Mercantile and Service	407	605	542	344	6.47	4.71	4.88	5.10	0.20	0.21	0.20	0.19	14.31
Office	210	430	Q	297	6.77	4.23	Q	5.17	0.16	0.21	Q	0.15	10.89
Parking Garage	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Public Assembly	126	146	97	121	6.27	4.31	5.28	4.94	0.23	0.24	0.12	0.21	14.36
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Religious Worship	50	142	78	62	6.61	4.75	5.85	5.07	Q	0.15	0.09	0.09	11.72
Warehouse and Storage	202	384	273	80	6.05	4.32	5.06	5.63	0.18	0.17	0.14	0.08	14.84
Other	Q	59	Q	Q	Q	4.03	Q	Q	Q	0.30	Q	Q	28.61
Vacant	Q	107	71	80	Q	3.99	5.78	5.41	Q	0.21	0.11	0.16	18.36
Year Constructed													
1899 or Before	101	110	Q	Q	6.69	4.06	Q	Q	0.24	0.18	Q	Q	23.30
1900 to 1919	165	184	69	99	6.38	4.68	5.85	4.52	0.22	0.19	0.11	0.22	17.72
1920 to 1945	316	548	409	169	6.25	4.18	4.60	5.56	0.19	0.31	0.28	0.19	16.91
1946 to 1959	260	460	676	269	6.56	4.15	4.80	5.02	0.20	0.20	0.29	0.20	16.85
1960 to 1969	433	523	599	348	5.40	3.98	4.37	5.35	0.25	0.26	0.19	0.18	12.97
1970 to 1979	388	643	584	572	5.97	3.96	Q	5.01	0.31	0.20	0.22	0.26	12.58
1980 to 1989	318	463	535	352	5.20	4.32	5.28	5.33	0.23	0.19	0.21	0.19	14.48
1990 to 1992	34	81	79	46	4.87	4.65	5.72	5.41	0.21	0.15	0.17	0.10	20.25
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	659	Q	132	Q	4.40	Q	3.89	Q	0.22	Q	0.21	13.50
5,500-7,000 HDD	1,216	1,810	Q	238	5.71	4.02	Q	3.84	0.26	0.23	Q	0.19	12.13
4,000-5,499 HDD	798	543	Q	165	6.08	4.29	4.60	4.78	0.21	0.18	0.27	0.13	14.29
Fewer than 4,000 HDD	Q	Q	1,253	1,132	Q	Q	4.84	5.75	Q	Q	0.22	0.21	12.05
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	1,093	Q	Q	Q	3.95	5.59	Q	Q	0.21	0.28	12.82
Energy Sources (more than one may apply)													
Electricity	2,014	3,011	2,996	1,878	5.85	4.15	4.42	5.14	0.24	0.22	0.22	0.20	8.57
Natural Gas	2,014	3,011	2,998	1,878	5.85	4.15	4.43	5.14	0.24	0.22	0.22	0.20	8.54
Fuel Oil	512	502	443	166	5.19	3.31	3.94	4.62	0.18	0.24	0.21	0.12	18.78
District Heat	101	146	Q	98	4.56	3.24	Q	4.69	0.12	0.14	Q	0.22	30.55
District Chilled Water	Q	Q	64	Q	Q	Q	3.71	Q	Q	Q	0.20	Q	15.29
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.33. Natural Gas Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures (dollars) per Thousand Cubic Feet				Natural Gas Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.7	1.2	1.9	1.8	0.6	0.4	0.8	0.3	1.2	0.9	1.5	1.4	
Energy End Uses (more than one may apply)													
Heated Buildings	2,014	3,006	2,978	1,817	5.85	4.15	4.42	5.13	0.24	0.22	0.22	0.20	8.54
Buildings with A/C	1,825	2,594	2,923	1,626	5.78	4.06	4.41	5.17	0.23	0.21	0.23	0.20	8.73
Buildings with Water Heating	1,995	2,919	2,846	1,822	5.84	4.12	4.37	5.11	0.24	0.22	0.23	0.20	8.69
Buildings with Cooking	1,025	1,225	1,047	807	5.24	3.80	4.45	4.98	0.23	0.22	0.20	0.25	10.00
Buildings with Manufacturing	173	146	285	74	6.46	4.26	3.77	4.47	0.30	0.19	0.36	0.18	21.31
Workers (main shift)													
Less than 5	311	674	451	342	7.11	4.82	5.90	5.54	0.33	0.23	0.16	0.25	9.83
5 to 9	218	460	372	194	6.94	4.67	Q	5.70	0.30	0.30	0.28	0.21	8.74
10 to 19	347	305	389	372	6.83	4.42	5.02	5.13	0.34	0.19	0.24	0.30	13.20
20 to 49	411	607	870	414	5.28	4.33	5.35	5.18	0.27	0.26	0.32	0.23	13.14
50 to 99	332	289	378	207	5.57	4.14	3.84	4.70	0.25	0.17	0.23	0.15	15.44
100 or More	395	676	538	349	4.89	3.24	3.96	4.80	0.13	0.18	0.16	0.13	13.89
Weekly Operating Hours													
39 or Fewer	140	297	208	86	5.83	4.31	5.61	5.09	0.21	0.22	0.14	0.15	15.46
40 to 48	273	604	684	308	6.82	4.36	4.89	5.23	0.25	0.21	0.19	0.16	10.08
49 to 60	330	571	594	393	6.95	4.55	4.12	5.06	0.21	0.19	0.21	0.19	13.47
61 to 84	442	596	292	336	6.16	4.16	Q	5.16	0.22	0.22	0.13	0.16	14.22
85 to 167	405	437	295	384	5.72	4.22	5.13	5.42	0.22	0.22	0.25	0.26	13.89
Open Continuously	424	506	925	371	4.70	3.46	4.77	4.91	0.32	0.27	0.50	0.31	16.08
Ownership and Occupancy													
Nongovernment Owned	1,539	2,349	2,373	1,547	6.00	4.35	4.42	5.27	0.25	0.23	0.24	0.20	9.40
Owner Occupied	1,238	1,930	1,784	1,138	5.85	4.31	4.16	5.23	0.27	0.23	0.24	0.20	9.40
Single Establishment	1,050	1,597	1,627	962	5.67	4.32	4.11	5.25	0.35	0.26	0.25	0.24	9.92
Multiple Establishment	188	333	157	176	7.13	4.24	4.76	5.13	0.12	0.15	0.14	0.11	14.61
Nonowner Occupied	296	397	Q	379	6.74	4.54	5.45	5.43	0.19	0.22	Q	0.22	13.49
Single Establishment	180	204	Q	128	6.70	4.60	5.36	5.60	0.24	0.33	Q	0.19	17.61
Multiple Establishment	116	193	162	Q	6.80	4.48	5.67	5.35	0.14	0.16	0.11	Q	12.48
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	475	662	625	331	5.41	3.56	4.44	4.61	0.20	0.19	0.19	0.19	11.94
Predominant Exterior Wall Material													
Masonry	1,647	2,339	2,357	1,391	5.79	4.16	4.81	5.14	0.25	0.22	0.23	0.21	8.95
Siding or Shingles	122	195	125	120	7.17	4.75	5.71	5.83	0.32	0.29	0.29	0.26	13.19
Metal Panels	Q	286	367	113	6.32	4.58	Q	5.12	0.18	0.24	0.27	0.27	15.72
Concrete Panels	Q	113	103	187	Q	2.83	5.03	4.69	Q	0.18	0.11	0.15	18.06
Window Glass	Q	48	33	28	Q	3.55	4.95	5.54	Q	0.19	0.09	0.11	19.96
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material													
Built-Up	780	1,235	1,587	1,008	6.18	4.04	4.66	5.14	0.23	0.23	0.23	0.18	10.70
Shingles (Not Wood)	363	543	479	297	6.80	4.74	5.01	5.26	0.31	0.24	0.28	0.21	10.85
Metal Surfacing	74	311	442	121	7.16	4.64	Q	5.52	0.22	0.24	0.21	0.22	14.33
Synthetic or Rubber	639	774	318	177	5.00	3.80	5.30	4.35	0.24	0.20	0.16	0.21	13.92
Other	158	148	172	275	5.96	4.20	5.02	5.51	0.17	0.15	0.22	0.32	18.35
Space-Heating Energy Source													
Natural Gas	1,855	2,797	2,612	1,492	5.83	4.19	4.33	5.07	0.27	0.23	0.23	0.19	9.37
Natural Gas Main	1,754	2,682	2,428	1,413	5.82	4.20	4.38	5.11	0.29	0.23	0.23	0.20	9.64
Natural Gas Secondary	101	115	185	78	5.98	3.94	3.72	4.45	0.12	0.14	0.20	0.10	22.41
Other Excluding Natural Gas	159	209	365	326	6.14	3.62	5.18	5.42	0.09	0.14	0.22	0.27	13.45
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.33. Natural Gas Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures (dollars) per Thousand Cubic Feet				Natural Gas Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.7	1.2	1.9	1.8	0.6	0.4	0.8	0.3	1.2	0.9	1.5	1.4	
Primary Space-Heating Energy Source													
Electricity	101	171	398	304	6.63	4.20	5.46	5.33	0.17	0.15	0.19	0.22	13.53
Natural Gas	1,754	2,682	2,428	1,413	5.82	4.20	4.38	5.11	0.29	0.23	0.23	0.20	9.64
Fuel Oil	77	Q	Q	Q	7.15	Q	Q	Q	0.08	Q	Q	Q	14.51
District Heat	77	90	70	89	4.79	3.18	3.30	4.81	0.10	0.11	0.22	0.27	19.90
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating													
Electricity Only	65	171	228	73	6.76	4.72	Q	5.95	0.30	0.25	0.31	0.17	14.06
Natural Gas Only	27	Q	Q	Q	7.12	Q	Q	Q	0.11	Q	Q	Q	20.82
Fuel Oil Only	502	493	307	87	5.42	3.29	3.72	4.16	0.35	0.25	0.25	0.24	18.19
Propane Only	Q	132	65	68	Q	4.51	4.75	5.41	Q	0.20	0.18	0.14	17.96
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	1,231	2,112	2,283	1,497	6.24	4.32	4.91	5.15	0.20	0.21	0.22	0.21	8.43
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source													
Natural Gas	118	208	Q	114	6.10	3.19	4.66	5.02	0.37	0.41	Q	0.18	26.65
Other Excluding Natural Gas	1,707	2,387	2,581	1,511	5.76	4.16	4.38	5.18	0.23	0.20	0.21	0.20	8.40
A/C Not Performed	189	417	75	252	6.62	4.75	4.92	4.99	0.28	0.29	0.20	0.21	13.47
Water-Heating Energy Source													
Natural Gas	1,606	2,341	2,112	1,562	5.78	4.06	4.79	5.18	0.29	0.26	0.25	0.23	9.02
Other Excluding Natural Gas	390	578	734	260	6.11	4.40	3.49	4.74	0.14	0.14	0.19	0.12	12.86
Water Heating Not Performed	Q	92	152	56	Q	5.17	5.94	6.42	Q	0.18	0.16	0.15	13.05
Cooking Energy Source													
Natural Gas	891	1,042	882	746	5.19	3.75	4.54	5.00	0.23	0.24	0.21	0.28	10.75
Other Excluding Natural Gas	134	183	164	61	5.58	4.13	4.01	4.70	0.21	0.17	0.19	0.09	18.69
Cooking Not Performed	989	1,786	1,951	1,071	6.66	4.42	4.41	5.28	0.24	0.22	0.24	0.18	10.12
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	220	161	294	196	6.00	5.07	4.45	5.55	0.12	0.11	0.12	0.13	15.69
51 to 99	404	333	354	486	5.93	4.44	Q	5.28	0.27	0.17	0.17	0.23	13.90
100	1,390	2,512	2,330	1,136	5.81	4.06	4.75	5.00	0.27	0.24	0.26	0.22	8.31
Heating Equipment (more than one may apply)													
Heat Pumps	208	139	448	211	5.29	3.34	5.17	5.35	0.24	0.14	0.31	0.16	18.40
Furnaces	580	1,210	1,052	367	5.70	4.64	3.90	5.14	0.23	0.24	0.27	0.13	13.61
Individual Space Heaters	736	983	1,129	445	5.39	4.23	4.95	4.90	0.23	0.19	0.23	0.16	11.92
District Heat	99	145	Q	92	4.54	3.23	3.05	4.82	0.12	0.14	0.34	0.22	21.51
Boilers	1,099	1,483	918	531	5.81	3.81	4.25	4.61	0.25	0.24	0.24	0.21	9.71
Packaged Heating Units	589	650	855	721	5.49	4.17	4.96	5.50	0.22	0.23	0.20	0.23	12.35
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Annual Consumption (hundred cubic feet)													
1,000 or Less	39	54	144	90	9.13	6.45	7.50	7.99	0.06	0.07	0.07	0.05	9.89
1,001 to 5,000	331	518	433	289	7.77	5.16	5.74	5.85	0.18	0.17	0.11	0.11	7.59
5,001 to 10,000	259	460	299	215	7.09	4.63	5.48	5.59	0.24	0.25	0.17	0.22	9.67
10,001 to 25,000	279	651	478	410	6.61	4.50	5.06	5.23	0.28	0.21	0.22	0.22	10.50
25,001 to 50,000	471	316	349	312	6.17	4.37	5.25	4.90	0.26	0.21	0.31	0.28	12.91
50,001 to 100,000	220	344	280	175	5.27	4.15	4.51	4.65	0.36	0.27	0.33	0.28	15.08
Over 100,000	415	669	1,015	387	4.13	3.07	3.32	4.49	0.26	0.29	0.78	0.77	23.30

See footnotes at end of table.

Table 3.33. Natural Gas Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Natural Gas Expenditures (million dollars)				Natural Gas Expenditures (dollars) per Thousand Cubic Feet				Natural Gas Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	**1.7**	**1.2**	**1.9**	**1.8**	**0.6**	**0.4**	**0.8**	**0.3**	**1.2**	**0.9**	**1.5**	**1.4**	
Gas Transported for the Account of Others													
Used in Building	202	391	Q	Q	4.04	2.86	Q	5.05	0.32	0.27	Q	Q	22.37
Not Used in Building	1,813	2,621	2,511	1,639	6.16	4.45	4.42	5.16	0.23	0.21	0.20	0.18	7.94

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.34. Natural Gas Consumption and Conditional Energy Intensity by Building Size, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			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:	1.0	1.3	1.5	0.7	0.8	1.1	0.7	1.0	1.1	
All Buildings	556	988	569	8,014	19,091	17,889	69.3	51.8	31.8	8.27
Principal Building Activity										
Education	16	166	101	373	3,491	2,991	41.9	47.7	33.8	14.72
Food Sales	11	Q	Q	219	Q	Q	51.2	Q	Q	42.21
Food Service	117	34	Q	637	453	Q	183.8	73.9	Q	17.54
Health Care	7	19	158	118	259	1,167	58.8	74.9	135.1	23.39
Lodging	37	113	37	284	1,245	704	130.4	91.0	52.4	22.25
Mercantile and Service	142	180	48	2,533	3,514	3,309	56.1	51.3	14.4	15.00
Office	110	206	60	1,437	2,991	3,419	76.7	69.0	17.6	20.46
Parking Garage	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Public Assembly	28	52	Q	572	1,327	637	49.1	39.1	26.3	20.47
Public Order and Safety	12	16	Q	120	239	Q	99.3	67.8	Q	28.48
Religious Worship	21	39	Q	605	1,625	Q	34.4	24.1	Q	13.80
Warehouse and Storage	36	87	68	715	2,497	3,121	50.0	34.8	21.7	16.91
Other	Q	Q	Q	Q	376	Q	Q	Q	Q	39.21
Vacant	11	24	25	302	727	Q	34.8	33.6	25.0	27.12
Year Constructed										
1899 or Before	29	22	Q	458	708	Q	63.6	30.7	Q	21.89
1900 to 1919	35	45	19	589	1,045	1,151	58.9	42.6	16.9	21.31
1920 to 1945	101	111	89	1,275	2,601	1,860	78.9	42.8	48.0	17.68
1946 to 1959	95	194	55	1,485	3,571	2,245	64.0	54.4	24.7	16.40
1960 to 1969	87	196	131	1,357	3,621	3,894	64.2	54.2	33.5	15.53
1970 to 1979	113	238	162	1,619	3,579	4,019	70.0	66.5	40.2	14.85
1980 to 1989	90	159	87	1,083	3,327	3,812	82.9	47.7	22.8	16.33
1990 to 1992	6	23	17	148	640	837	39.3	36.5	20.8	24.93
Census Region and Division										
Northeast	67	175	102	1,100	3,353	4,105	61.3	52.1	24.8	14.41
New England	15	44	14	184	698	879	79.7	62.6	16.0	28.24
Middle Atlantic	53	131	88	916	2,656	3,226	57.6	49.4	27.3	16.92
Midwest	192	297	237	2,634	5,705	5,436	73.0	52.0	43.6	10.05
East North Central	132	208	161	1,739	3,800	3,107	76.1	54.6	52.0	12.22
West North Central	60	89	76	895	1,905	2,329	66.9	46.9	32.5	19.13
South	177	340	160	2,634	5,779	4,948	67.4	58.9	32.3	19.49
South Atlantic	33	Q	80	490	1,703	2,550	67.2	70.6	31.4	29.75
East South Central	52	76	26	701	1,691	857	74.3	44.8	30.7	26.06
West South Central	92	144	Q	1,443	2,385	1,541	64.1	60.6	Q	32.22
West	118	176	71	1,645	4,254	3,400	72.0	41.4	20.8	14.77
Mountain	48	69	16	559	1,412	589	86.6	48.7	26.4	21.38
Pacific	70	107	55	1,086	2,842	2,811	64.5	37.7	19.6	18.53
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	52	81	50	722	1,549	1,416	72.7	52.5	35.2	19.17
5,500-7,000 HDD	175	338	212	2,341	6,179	5,198	74.9	54.7	40.8	11.28
4,000-5,499 HDD	80	222	132	1,378	3,722	5,397	58.0	59.6	24.5	16.50
Fewer than 4,000 HDD	133	214	109	1,923	4,841	4,245	68.9	44.2	25.8	19.18
More than 2,000 CDD and --										
Fewer than 4,000 HDD	115	133	66	1,651	2,800	1,634	69.9	47.5	40.4	31.24
Energy Sources (more than one may apply)										
Electricity	555	988	569	8,007	19,091	17,889	69.4	51.8	31.8	8.22
Natural Gas	556	988	569	8,014	19,091	17,889	69.3	51.8	31.8	8.27
Fuel Oil	13	122	263	281	1,950	6,196	46.1	62.7	42.5	20.82
District Heat	Q	43	69	Q	732	1,900	Q	58.5	36.4	26.52
District Chilled Water	Q	Q	26	Q	295	603	Q	54.1	43.5	21.68
Propane	Q	Q	25	Q	Q	567	Q	Q	43.6	24.68
Any Other	7	Q	Q	181	Q	Q	38.8	Q	Q	27.94

See footnotes at end of table.

Table 3.34. Natural Gas Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			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:	1.0	1.3	1.5	0.7	0.8	1.1	0.7	1.0	1.1	
Energy End Uses (more than one may apply)										
Heated Buildings	543	985	569	7,906	18,974	17,646	68.7	51.9	32.3	8.30
Buildings with A/C	474	906	551	6,751	17,231	17,343	70.2	52.6	31.8	8.76
Buildings with Water Heating	519	972	567	7,012	18,307	17,728	74.0	53.1	32.0	8.39
Buildings with Cooking	156	370	389	1,336	6,143	10,980	117.0	60.2	35.4	10.34
Buildings with Manufacturing	15	86	Q	255	1,086	1,187	57.1	79.2	Q	28.54
Workers (main shift)										
Less than 5	216	83	Q	4,060	3,058	Q	53.2	27.2	Q	10.22
5 to 9	159	122	Q	1,902	2,343	Q	83.8	52.2	Q	22.49
10 to 19	109	151	10	1,383	3,225	865	78.6	46.8	11.6	19.06
20 to 49	67	354	40	632	5,852	1,874	106.1	60.4	21.1	16.33
50 to 99	Q	177	91	Q	2,849	3,089	Q	62.2	29.3	19.10
100 or More	Q	101	398	Q	1,765	10,873	Q	57.0	36.6	12.56
Weekly Operating Hours										
39 or Fewer	50	73	Q	1,299	2,036	Q	38.3	35.8	Q	14.44
40 to 48	159	162	56	2,358	4,713	2,459	67.5	34.3	22.9	13.23
49 to 60	91	212	92	1,824	4,473	3,256	49.8	47.3	28.4	16.31
61 to 84	96	190	99	1,223	3,393	4,516	78.4	56.0	22.0	15.98
85 to 167	101	128	74	769	2,374	3,366	130.9	54.1	21.9	16.19
Open Continuously	59	223	223	540	2,101	3,609	109.4	106.3	61.9	16.73
Ownership and Occupancy										
Nongovernment Owned	498	778	351	7,106	14,968	12,010	70.0	52.0	29.2	9.04
Owner Occupied	418	590	298	5,653	11,395	9,079	73.9	51.8	32.8	9.80
Single Establishment	382	524	228	4,978	9,576	5,066	76.7	54.7	45.1	10.67
Multiple Establishment	36	66	70	675	1,819	4,013	53.6	36.5	17.4	17.77
Nonowner Occupied	74	176	51	1,328	3,274	2,863	55.7	53.8	17.9	16.51
Single Establishment	51	Q	21	779	1,043	1,047	65.8	89.6	19.9	23.88
Multiple Establishment	23	83	30	549	2,231	1,816	41.4	37.0	16.8	20.47
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	58	210	218	908	4,123	5,880	63.9	50.9	37.1	12.53
Predominant Exterior Wall Material										
Masonry	394	784	429	5,792	15,700	12,794	67.9	49.9	33.6	8.21
Siding or Shingles	65	32	Q	1,024	712	Q	63.8	45.0	Q	17.80
Metal Panels	82	Q	Q	989	1,308	1,152	82.8	Q	Q	24.79
Concrete Panels	Q	48	69	Q	1,051	2,437	Q	45.5	28.2	20.09
Window Glass	Q	13	11	Q	231	714	Q	56.8	16.0	24.50
Other	Q	Q	12	Q	Q	566	Q	Q	21.7	25.42
Predominant Roof Material										
Built-Up	186	475	308	3,031	8,943	9,315	61.2	53.1	33.1	10.45
Shingles (Not Wood)	189	119	12	2,413	3,061	1,037	78.5	38.8	11.4	15.32
Metal Surfacing	83	129	Q	1,339	2,026	921	62.2	63.6	Q	21.95
Synthetic or Rubber	48	199	186	658	3,628	5,040	72.4	54.7	36.9	13.63
Other	50	67	29	573	1,432	1,577	86.8	46.9	18.4	19.11
Space-Heating Energy Source										
Natural Gas	482	893	508	7,288	16,786	14,393	66.2	53.2	35.3	8.84
Natural Gas Main	469	855	446	6,885	15,687	12,557	68.1	54.5	35.5	9.13
Natural Gas Secondary	13	38	Q	403	1,099	1,836	32.7	34.6	Q	21.35
Other Excluding Natural Gas	61	92	61	618	2,188	3,253	98.9	42.0	18.8	15.32
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.34. Natural Gas Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			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:	1.0	1.3	1.5	0.7	0.8	1.1	0.7	1.0	1.1	
Primary Space-Heating Energy Source										
Electricity	68	84	33	832	2,078	2,336	82.2	40.6	14.3	16.58
Natural Gas	469	855	446	6,885	15,687	12,557	68.1	54.5	35.5	9.13
Fuel Oil	Q	7	3	Q	488	666	Q	14.0	4.3	30.77
District Heat	Q	38	45	Q	642	1,581	Q	59.8	28.7	19.10
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating										
Electricity Only	72	Q	Q	942	856	Q	76.5	Q	Q	28.27
Natural Gas Only	14	13	Q	171	387	Q	83.9	32.5	Q	27.84
Fuel Oil Only	21	85	240	271	1,362	3,326	76.8	62.7	72.0	19.12
Propane Only	25	43	Q	397	745	Q	62.1	57.3	Q	29.24
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	8	Q	Q	186	Q	Q	41.8	Q	Q	36.55
No Replacement Energy Source	401	742	300	5,870	15,137	12,739	68.3	49.0	23.5	9.06
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source										
Natural Gas	22	98	61	340	789	777	64.1	123.8	78.8	27.66
Other Excluding Natural Gas	452	808	490	6,410	16,442	16,565	70.6	49.1	29.6	8.83
A/C Not Performed	81	82	18	1,263	1,860	547	64.5	44.3	33.1	19.96
Water-Heating Energy Source										
Natural Gas	390	765	442	4,838	13,500	11,613	80.7	56.7	38.1	8.68
Other Excluding Natural Gas	129	207	125	2,174	4,807	6,115	59.3	43.1	20.4	18.29
Water Heating Not Performed	36	16	Q	1,002	783	Q	36.4	20.4	Q	16.09
Cooking Energy Source										
Natural Gas	139	313	341	1,016	5,031	9,157	136.5	62.2	37.3	10.97
Other Excluding Natural Gas	18	57	48	320	1,111	1,823	55.0	51.0	26.3	20.55
Cooking Not Performed	399	618	180	6,678	12,948	6,910	59.8	47.8	26.1	11.96
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	53	62	Q	1,185	2,628	3,373	44.3	23.4	Q	17.62
51 to 99	77	184	91	1,273	3,140	3,271	60.7	58.5	27.9	16.44
100	414	740	422	5,449	13,206	11,002	75.9	56.0	38.4	9.13
Heating Equipment (more than one may apply)										
Heat Pumps	53	64	90	404	1,451	2,802	130.0	44.4	32.1	22.06
Furnaces	255	362	86	4,139	6,139	4,051	61.5	59.0	21.3	16.96
Individual Space Heaters	149	321	219	2,633	6,495	7,093	56.4	49.4	30.8	12.68
District Heat	Q	41	89	Q	704	1,929	Q	58.2	46.3	22.59
Boilers	90	434	386	996	7,168	8,858	89.9	60.6	43.6	10.10
Packaged Heating Units	149	273	145	1,700	5,570	5,636	87.4	49.0	25.8	12.89
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Annual Consumption (hundred cubic feet)										
1,000 or Less	38	5	(*)	2,579	2,205	527	14.9	2.2	0.2	13.84
1,001 to 5,000	202	63	4	3,993	4,871	2,590	50.5	12.9	1.5	8.10
5,001 to 10,000	128	97	4	932	3,432	1,299	136.9	28.2	3.4	9.93
10,001 to 25,000	106	229	25	422	4,543	3,082	250.6	50.3	8.3	10.36
25,001 to 50,000	Q	200	50	Q	2,553	2,901	Q	78.4	17.2	10.93
50,001 to 100,000	Q	136	75	Q	973	2,329	Q	140.1	32.0	13.05
Over 100,000	Q	259	411	Q	513	5,161	Q	503.6	79.7	17.05

See footnotes at end of table.

Table 3.34. Natural Gas Consumption and Conditional Energy Intensity by Building Size, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			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:	1.0	1.3	1.5	0.7	0.8	1.1	0.7	1.0	1.1	
Gas Transported for the Account of Others										
Used in Building	20	Q	207	130	630	2,521	157.5	Q	82.1	28.08
Not Used in Building	535	872	363	7,884	18,460	15,369	67.9	47.2	23.6	8.21

(*) = Value rounds to zero in the units displayed.
NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.35. Natural Gas Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.0	1.5	1.3	1.2	0.7	1.2	0.7	0.9	0.9	0.9	1.1	0.9	
All Buildings	301	69	284	93	5,007	4,349	3,514	4,332	60.1	15.8	80.8	21.4	15.73
Building Floorspace (square feet)													
1,001 to 5,000	77	Q	70	Q	1,221	Q	653	Q	63.4	Q	107.0	Q	17.52
5,001 to 10,000	65	Q	40	Q	1,312	Q	784	Q	49.4	Q	51.4	Q	13.64
10,001 to 25,000	130	Q	Q	Q	1,478	Q	1,099	Q	88.3	Q	Q	Q	25.32
25,001 to 50,000	28	Q	Q	Q	997	Q	978	Q	28.5	Q	Q	Q	27.06
50,001 to 100,000	Q	21	Q	33	Q	1,040	Q	913	Q	20.5	Q	35.6	20.36
100,001 to 200,000	Q	19	Q	22	Q	1,267	Q	1,360	Q	14.9	Q	16.5	24.87
200,001 to 500,000	Q	Q	Q	26	Q	532	Q	1,072	Q	11.9	Q	24.2	31.42
Over 500,000	Q	22	Q	12	Q	1,510	Q	987	Q	14.8	Q	12.0	26.92
Year Constructed													
1899 or Before	4	Q	Q	Q	149	Q	Q	Q	24.4	Q	Q	Q	30.75
1900 to 1919	12	Q	11	Q	303	Q	211	Q	41.1	Q	50.6	Q	28.74
1920 to 1945	41	Q	35	Q	877	Q	533	Q	46.6	Q	66.0	Q	20.35
1946 to 1959	61	Q	Q	Q	1,110	Q	484	Q	54.7	Q	Q	Q	29.87
1960 to 1969	75	22	22	20	817	1,388	526	880	92.0	16.0	41.7	22.6	27.08
1970 to 1979	73	17	Q	15	943	994	623	736	77.8	17.5	Q	20.4	27.63
1980 to 1989	29	15	Q	17	714	1,123	725	1,161	40.7	13.6	Q	14.6	19.62
1990 to 1992	Q	Q	Q	9	Q	Q	Q	305	Q	Q	Q	30.3	43.31
Census Region and Division													
Northeast	37	Q	18	13	919	Q	545	741	40.6	Q	33.2	17.5	22.86
New England	Q	Q	Q	4	Q	Q	Q	195	Q	Q	Q	21.5	31.95
Middle Atlantic	32	Q	12	9	824	Q	418	545	38.2	Q	28.3	16.1	26.62
Midwest	106	22	61	40	1,749	1,104	1,062	1,018	60.7	20.1	57.6	39.8	18.95
East North Central	68	16	44	35	1,098	573	689	734	62.0	27.5	64.2	48.3	21.31
West North Central	38	Q	17	Q	650	Q	373	Q	58.5	Q	45.3	Q	29.71
South	96	15	Q	18	1,504	1,152	932	1,511	63.8	13.2	181.0	11.8	28.21
South Atlantic	11	Q	Q	7	269	Q	213	801	41.2	Q	Q	Q	38.89
East South Central	37	Q	24	Q	536	Q	306	Q	68.8	Q	77.5	Q	32.47
West South Central	Q	Q	Q	4	700	Q	413	346	Q	Q	Q	12.1	33.11
West	62	6	36	21	836	932	975	1,062	73.7	6.4	36.8	20.2	27.06
Mountain	15	Q	17	Q	409	Q	283	Q	37.2	Q	61.2	Q	34.14
Pacific	Q	Q	19	17	426	752	692	920	Q	5.3	26.9	18.5	26.23
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	32	Q	16	Q	512	Q	229	Q	63.3	Q	70.9	Q	31.50
5,500-7,000 HDD	91	22	62	45	1,732	1,291	1,206	1,134	52.4	17.0	51.3	39.7	17.95
4,000-5,499 HDD	61	Q	Q	21	1,111	1,248	599	1,586	55.3	19.0	Q	13.1	31.39
Fewer than 4,000 HDD	93	10	42	17	924	856	1,041	1,106	100.1	11.8	40.2	15.4	25.16
More than 2,000 CDD and --													
Fewer than 4,000 HDD	24	4	Q	4	729	587	440	366	32.7	7.4	Q	12.2	31.64
Energy Sources (more than one may apply)													
Electricity	301	69	284	93	5,002	4,349	3,514	4,332	60.1	15.8	80.8	21.4	15.85
Natural Gas	301	69	284	93	5,007	4,349	3,514	4,332	60.1	15.8	80.8	21.4	15.73
Fuel Oil	Q	Q	Q	40	Q	Q	Q	1,946	Q	Q	Q	20.6	22.66
District Heat	Q	Q	Q	Q	Q	Q	Q	546	Q	Q	Q	Q	35.23
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.35. Natural Gas Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.0	1.5	1.3	1.2	0.7	1.2	0.7	0.9	0.9	0.9	1.1	0.9	
Energy End Uses (more than one may apply)													
Heated Buildings	294	68	284	93	4,983	4,096	3,514	4,323	59.0	16.5	80.8	21.5	15.85
Buildings with A/C	247	68	276	92	4,336	4,288	3,441	4,329	57.0	15.9	80.2	21.3	16.40
Buildings with Water Heating	282	68	281	93	4,380	4,313	3,470	4,313	64.3	15.7	81.1	21.5	16.13
Buildings with Cooking	Q	48	Q	50	341	2,975	Q	2,398	Q	16.0	Q	21.0	19.28
Buildings with Manufacturing	11	Q	Q	Q	220	Q	Q	Q	50.1	Q	Q	Q	32.59
Workers (main shift)													
Less than 5	73	Q	21	Q	1,755	Q	415	Q	41.5	Q	50.4	Q	15.39
5 to 9	42	Q	Q	Q	1,062	Q	634	Q	39.4	Q	Q	Q	16.81
10 to 19	73	Q	36	Q	1,018	Q	593	Q	71.5	Q	61.1	Q	25.39
20 to 49	66	Q	Q	Q	923	Q	1,101	Q	71.4	Q	Q	Q	23.88
50 to 99	Q	15	17	Q	219	883	485	Q	210.8	17.4	34.1	Q	27.85
100 or More	Q	42	14	81	Q	2,584	286	3,649	Q	16.1	47.6	22.2	19.62
Weekly Operating Hours													
39 or Fewer	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
40 to 48	43	Q	123	24	956	Q	2,034	1,111	44.8	Q	60.3	21.8	18.91
49 to 60	120	Q	38	26	2,111	Q	772	1,535	56.8	Q	49.3	17.1	22.37
61 to 84	70	33	Q	18	1,238	2,456	357	1,026	56.6	13.4	Q	17.8	21.39
85 to 167	53	25	Q	Q	503	1,227	Q	Q	104.6	20.1	Q	Q	26.78
Open Continuously	Q	Q	Q	Q	Q	Q	Q	272	Q	Q	Q	Q	45.06
Ownership and Occupancy													
Nongovernment Owned	284	55	268	75	4,773	3,729	3,144	3,678	59.5	14.8	85.4	20.5	16.72
Owner Occupied	200	34	199	56	3,580	2,456	2,274	2,738	55.8	14.0	87.5	20.4	18.77
Single Establishment	171	20	174	22	3,015	1,124	1,603	894	56.6	18.0	108.6	24.6	25.73
Multiple Establishment	29	14	25	34	565	1,332	671	1,845	51.5	10.6	37.1	18.5	24.98
Nonowner Occupied	84	21	Q	19	1,193	1,273	870	940	70.8	16.2	Q	20.7	25.06
Single Establishment	34	Q	Q	4	475	Q	278	268	72.0	Q	Q	16.5	34.15
Multiple Establishment	Q	20	15	15	718	1,199	592	672	Q	16.8	25.2	22.3	24.09
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	17	Q	15	17	235	Q	370	654	72.0	Q	41.7	26.6	24.58
Predominant Exterior Wall Material													
Masonry	218	53	173	62	3,581	3,627	2,749	2,372	60.8	14.7	62.8	26.1	18.02
Siding or Shingles	21	Q	23	Q	398	Q	432	Q	52.1	Q	54.3	Q	28.71
Metal Panels	57	Q	Q	Q	878	Q	137	Q	64.5	Q	Q	Q	23.49
Concrete Panels	Q	Q	Q	11	Q	Q	Q	703	Q	Q	Q	15.6	27.41
Window Glass	Q	Q	Q	13	Q	Q	Q	610	Q	Q	Q	21.3	34.49
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material													
Built-Up	167	33	120	46	2,224	2,458	1,599	1,966	75.1	13.5	75.0	23.2	22.49
Shingles (Not Wood)	42	Q	72	Q	822	Q	946	Q	50.5	Q	76.3	Q	22.69
Metal Surfacing	55	Q	Q	Q	1,128	Q	189	Q	49.0	Q	Q	Q	20.40
Synthetic or Rubber	30	28	15	39	551	1,318	502	1,600	54.4	21.6	30.5	24.7	23.25
Other	7	Q	18	Q	283	Q	278	222	25.3	Q	64.8	6.8	33.49
Space-Heating Energy Source													
Natural Gas	274	61	278	86	4,721	3,554	3,236	3,292	58.0	17.2	86.1	26.2	16.91
Natural Gas Main	267	51	271	81	4,517	2,747	3,013	2,912	59.0	18.5	90.0	27.7	17.90
Natural Gas Secondary	7	10	Q	Q	204	807	223	381	34.0	12.8	32.5	Q	33.20
Other Excluding Natural Gas	20	Q	5	6	261	542	279	1,031	77.3	11.9	19.4	6.2	29.13
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.35. Natural Gas Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.0	1.5	1.3	1.2	0.7	1.2	0.7	0.9	0.9	0.9	1.1	0.9	
Primary Space-Heating Energy Source													
Electricity	18	15	7	Q	328	1,138	360	690	54.1	13.1	19.8	Q	25.18
Natural Gas	267	51	271	81	4,517	2,747	3,013	2,912	59.0	18.5	90.0	27.7	17.90
Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
District Heat	Q	Q	Q	5	Q	Q	Q	440	Q	Q	Q	12.5	32.14
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating													
Electricity Only	19	Q	Q	Q	507	Q	305	Q	37.4	Q	Q	Q	21.79
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Fuel Oil Only	15	Q	Q	13	324	Q	Q	Q	45.9	Q	Q	Q	33.72
Propane Only	9	Q	8	Q	174	Q	271	Q	49.7	Q	29.3	Q	34.04
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	234	59	171	72	3,715	3,539	2,625	3,415	63.1	16.7	65.1	21.1	17.10
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source													
Natural Gas	Q	Q	Q	Q	Q	Q	204	Q	Q	Q	Q	Q	39.12
Other Excluding Natural Gas	235	68	226	83	4,108	4,231	3,237	4,248	57.2	16.1	69.7	19.5	16.51
A/C Not Performed	54	Q	Q	Q	671	Q	Q	Q	80.6	Q	Q	Q	26.74
Water-Heating Energy Source													
Natural Gas	213	47	168	67	2,914	2,689	2,339	2,485	73.0	17.3	71.9	27.1	20.27
Other Excluding Natural Gas	69	21	Q	25	1,466	1,624	1,131	1,828	47.2	13.0	99.9	13.8	20.61
Water Heating Not Performed	19	Q	Q	Q	627	Q	Q	Q	30.6	Q	Q	Q	17.12
Cooking Energy Source													
Natural Gas	Q	41	Q	37	256	2,540	Q	1,702	Q	16.3	Q	21.8	22.73
Other Excluding Natural Gas	Q	6	Q	13	Q	435	Q	696	Q	14.4	Q	19.1	29.80
Cooking Not Performed	256	21	272	42	4,666	1,374	3,325	1,934	54.9	15.5	81.7	21.9	20.23
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	23	Q	5	Q	823	Q	209	Q	27.5	Q	21.9	Q	26.97
51 to 99	65	7	Q	19	1,103	646	682	1,220	58.6	11.4	Q	15.7	30.32
100	207	41	207	72	3,056	2,578	2,623	2,684	67.6	16.1	79.0	26.7	17.27
Annual Consumption (hundred cubic feet)													
1,000 or Less	13	Q	9	Q	1,176	Q	749	Q	10.9	Q	12.3	Q	13.69
1,001 to 5,000	89	Q	42	1	2,356	Q	1,450	787	38.0	Q	29.1	1.6	14.78
5,001 to 10,000	48	Q	25	2	826	Q	531	327	58.4	Q	46.2	5.4	19.24
10,001 to 25,000	40	10	47	14	401	911	572	1,010	98.7	10.7	82.3	13.5	20.02
25,001 to 50,000	Q	22	Q	25	Q	1,029	Q	1,070	Q	21.0	Q	23.3	25.77
50,001 to 100,000	Q	12	Q	16	Q	375	Q	533	Q	31.1	Q	29.4	25.98
Over 100,000	Q	Q	Q	36	Q	Q	Q	448	Q	Q	Q	79.3	26.89

See footnotes at end of table.

Table 3.35. Natural Gas Consumption and Conditional Energy Intensity for Mercantile and Office Buildings, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)				Total Floorspace of Buildings Using Natural Gas (million square feet)				Natural Gas Energy Intensity (cubic feet/sq. ft.)				RSE Row Factor
	Mercantile		Office		Mercantile		Office		Mercantile		Office		
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	
RSE Column Factor:	1.0	1.5	1.3	1.2	0.7	1.2	0.7	0.9	0.9	0.9	1.1	0.9	
Gas Transported for the Account of Others													
Used in Building	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Not Used in Building	264	60	226	76	4,957	3,947	3,441	4,063	53.3	15.3	65.6	18.6	15.53

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Small buildings are 50,000 square feet or less. Large buildings are greater than 50,000 square feet. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.36. Natural Gas Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.0	1.0	1.3	1.0	0.7	0.9	0.8	
All Buildings	283	184	176	6,856	1,544	1,655	41.3	119.2	106.1	11.36
Building Floorspace (square feet)										
1,001 to 5,000	8	3	80	169	78	536	45.3	42.8	148.5	20.84
5,001 to 10,000	8	Q	49	204	Q	319	39.0	Q	152.3	20.77
10,001 to 25,000	37	Q	30	676	Q	406	55.2	Q	73.0	22.64
25,001 to 50,000	48	Q	Q	1,196	Q	260	39.9	Q	51.1	29.24
50,001 to 100,000	81	Q	Q	1,620	Q	Q	50.3	Q	Q	13.53
100,001 to 200,000	49	39	Q	1,445	379	Q	34.0	103.6	Q	24.08
200,001 to 500,000	52	74	Q	1,532	472	Q	33.6	156.5	Q	28.28
Over 500,000	Q	45	Q	Q	316	Q	Q	141.0	Q	19.96
Year Constructed										
1899 or Before	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1900 to 1919	14	Q	Q	424	Q	Q	32.7	Q	Q	43.76
1920 to 1945	43	Q	33	942	194	233	45.4	Q	140.0	25.68
1946 to 1959	74	13	22	1,748	141	304	42.5	92.9	72.3	21.68
1960 to 1969	66	55	27	1,724	429	266	38.1	129.2	101.0	24.58
1970 to 1979	66	66	40	1,426	500	292	46.6	131.5	137.7	20.77
1980 to 1989	17	23	34	461	234	314	35.8	97.2	109.8	21.01
1990 to 1992	Q	Q	Q	Q	Q	Q	26.3	Q	Q	52.46
Census Region and Division										
Northeast	64	30	32	1,457	286	369	43.9	106.4	87.0	23.45
New England	12	Q	Q	312	Q	Q	38.4	Q	Q	49.77
Middle Atlantic	52	23	26	1,145	177	259	45.4	127.2	101.1	23.35
Midwest	113	67	59	2,291	453	570	49.4	148.7	103.1	18.54
East North Central	79	53	37	1,479	232	382	53.7	227.0	97.8	18.25
West North Central	34	15	21	812	221	188	41.6	66.5	114.0	38.18
South	63	71	40	1,933	549	360	32.6	129.3	112.6	19.45
South Atlantic	23	Q	15	677	Q	103	34.6	159.0	142.3	28.39
East South Central	15	Q	Q	458	Q	Q	32.3	Q	Q	32.25
West South Central	25	Q	19	798	Q	198	31.0	Q	93.8	25.46
West	43	15	44	1,174	257	356	36.6	59.8	124.2	22.16
Mountain	25	Q	Q	374	Q	Q	65.8	Q	Q	37.34
Pacific	18	14	33	800	226	215	23.0	60.0	154.9	24.12
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	28	Q	12	491	Q	108	57.7	Q	112.9	37.67
5,500-7,000 HDD	122	77	59	2,192	452	603	55.7	169.6	98.2	15.56
4,000-5,499 HDD	56	22	35	1,711	247	384	32.7	90.8	90.8	25.64
Fewer than 4,000 HDD	49	59	52	1,536	578	365	32.0	101.3	143.0	22.79
More than 2,000 CDD and --										
Fewer than 4,000 HDD	28	17	17	926	151	195	29.9	113.0	87.6	23.12
Energy Sources (more than one may apply)										
Electricity	283	184	176	6,856	1,544	1,655	41.3	119.2	106.1	11.07
Natural Gas	283	184	176	6,856	1,544	1,655	41.3	119.2	106.1	11.36
Fuel Oil	44	144	Q	1,332	993	Q	33.1	144.8	Q	24.13
District Heat	Q	27	Q	Q	344	Q	Q	79.5	Q	24.36
District Chilled Water	3	15	Q	157	208	Q	20.7	73.1	Q	31.30
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.36. Natural Gas Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.0	1.0	1.3	1.0	0.7	0.9	0.8	
Energy End Uses (more than one may apply)										
Heated Buildings	283	184	173	6,856	1,544	1,625	41.3	119.2	106.7	11.39
Buildings with A/C	252	184	172	6,096	1,539	1,614	41.4	119.5	106.8	11.43
Buildings with Water Heating	278	184	175	6,635	1,544	1,653	41.9	119.2	106.1	11.39
Buildings with Cooking	203	152	165	4,975	1,164	1,391	40.7	130.3	119.0	12.97
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)										
Less than 5	6	Q	23	231	Q	367	24.6	Q	63.1	22.52
5 to 9	9	Q	53	255	Q	420	36.0	Q	125.6	26.04
10 to 19	24	Q	49	498	Q	406	48.2	Q	121.7	22.71
20 to 49	90	Q	41	2,179	120	331	41.5	82.3	122.7	24.00
50 to 99	92	Q	Q	1,886	Q	Q	48.9	Q	Q	12.75
100 or More	62	165	Q	1,808	1,217	Q	34.1	135.2	Q	20.93
Weekly Operating Hours										
39 or Fewer	44	Q	Q	960	Q	Q	45.6	Q	Q	24.67
40 to 48	83	Q	7	2,218	113	66	37.2	36.1	101.4	24.39
49 to 60	44	6	11	1,190	110	79	37.2	51.8	133.5	27.48
61 to 84	64	Q	46	1,276	Q	358	50.3	Q	128.8	16.88
85 to 167	47	Q	94	1,113	Q	902	42.6	Q	104.5	23.43
Open Continuously	Q	151	17	Q	1,151	234	Q	131.3	72.1	22.46
Ownership and Occupancy										
Nongovernment Owned	40	131	171	1,119	1,067	1,548	35.7	123.1	110.4	13.67
Owner Occupied	37	127	135	1,059	1,010	1,173	34.5	125.4	114.8	14.23
Single Establishment	32	112	127	998	893	1,088	32.3	125.0	116.8	14.85
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Nonowner Occupied	Q	Q	36	Q	Q	375	Q	Q	96.7	24.31
Single Establishment	Q	Q	32	Q	Q	304	Q	Q	105.8	27.00
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	243	Q	Q	5,737	477	Q	42.4	110.5	43.7	18.58
Predominant Exterior Wall Material										
Masonry	243	171	142	6,275	1,412	1,383	38.8	121.1	102.9	11.64
Siding or Shingles	1	Q	25	57	Q	201	25.9	Q	121.9	31.09
Metal Panels	4	Q	Q	117	Q	Q	37.9	Q	Q	47.40
Concrete Panels	Q	Q	Q	324	Q	Q	92.3	Q	Q	33.01
Window Glass	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	134	113	66	3,587	940	680	37.4	120.3	97.5	14.56
Shingles (Not Wood)	17	Q	46	510	100	421	32.8	96.5	110.3	27.39
Metal Surfacing	17	Q	18	303	Q	134	57.0	Q	133.6	30.38
Synthetic or Rubber	98	56	17	1,936	447	259	50.7	125.0	66.2	22.00
Other	17	Q	28	520	Q	161	32.6	Q	172.4	27.53
Space-Heating Energy Source										
Natural Gas	267	166	139	5,957	1,223	1,300	44.8	135.5	107.3	12.42
Natural Gas Main	259	150	139	5,642	1,017	1,248	45.9	147.8	111.1	12.71
Natural Gas Secondary	8	Q	Q	315	Q	Q	25.2	Q	Q	38.64
Other Excluding Natural Gas	16	18	34	899	321	325	18.0	57.1	104.5	27.33
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.36. Natural Gas Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	1.1	1.5	1.0	1.0	1.3	1.0	0.7	0.9	0.8	
Primary Space-Heating Energy Source										
Electricity	11	Q	29	387	138	271	29.5	53.5	105.9	33.66
Natural Gas	259	150	139	5,642	1,017	1,248	45.9	147.8	111.1	12.71
Fuel Oil	Q	Q	Q	504	Q	Q	Q	Q	Q	28.46
District Heat	8	26	Q	269	327	Q	31.1	79.9	Q	26.56
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating										
Electricity Only	7	Q	19	Q	Q	177	34.5	Q	106.0	43.41
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Fuel Oil Only	66	124	Q	1,311	676	Q	50.2	183.0	Q	23.85
Propane Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	203	55	131	5,068	718	1,182	40.0	76.4	110.9	13.16
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source										
Natural Gas	Q	Q	Q	487	Q	Q	61.3	Q	Q	40.58
Other Excluding Natural Gas	222	161	163	5,609	1,433	1,560	39.6	112.6	104.5	11.75
A/C Not Performed	31	Q	3	759	Q	41	40.7	Q	79.7	39.20
Water-Heating Energy Source										
Natural Gas	249	159	150	5,514	1,150	1,280	45.1	138.5	117.3	11.90
Other Excluding Natural Gas	30	25	25	1,121	394	374	26.5	62.7	67.9	28.43
Water Heating Not Performed	5	Q	Q	221	Q	Q	21.6	Q	Q	33.02
Cooking Energy Source										
Natural Gas	171	139	157	4,179	1,000	1,269	40.8	139.5	123.9	13.89
Other Excluding Natural Gas	32	12	8	796	164	122	40.3	Q	67.1	30.32
Cooking Not Performed	80	32	10	1,880	380	264	42.8	85.2	38.3	22.19
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	18	Q	Q	208	Q	Q	84.8	33.56
51 to 99	28	21	41	979	192	364	28.7	110.0	111.6	28.66
100	254	161	115	5,847	1,330	1,053	43.4	121.1	109.4	12.48
Annual Consumption (hundred cubic feet)										
1,000 or Less	3	1	3	425	43	197	7.9	17.5	13.8	26.08
1,001 to 5,000	15	Q	24	1,175	Q	373	12.7	Q	63.6	16.59
5,001 to 10,000	12	Q	54	535	Q	459	22.7	Q	117.3	20.58
10,001 to 25,000	58	Q	63	1,630	Q	423	35.3	Q	149.6	17.06
25,001 to 50,000	62	Q	Q	1,095	Q	Q	56.3	Q	Q	16.97
50,001 to 100,000	57	Q	Q	1,148	Q	Q	50.1	Q	Q	23.26
Over 100,000	76	162	Q	847	967	Q	89.7	167.7	Q	17.07

See footnotes at end of table.

Table 3.36. Natural Gas Consumption and Conditional Energy Intensity for Education, Health Care, and Food Sales and Service Buildings, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	Education	Health Care	Food Sales and Service	
RSE Column Factor:	**1.1**	**1.5**	**1.0**	**1.0**	**1.3**	**1.0**	**0.7**	**0.9**	**0.8**	
Gas Transported for the Account of Others										
Used in Building	52	82	Q	1,205	386	Q	43.5	211.1	Q	20.40
Not Used in Building	231	103	169	5,651	1,158	1,604	40.8	88.5	105.4	12.90

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.37. Natural Gas Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.0	1.2	1.2	0.8	0.9	0.9	0.8	1.0	1.1	
All Buildings	804	414	513	17,059	8,871	9,217	47.1	46.6	55.7	10.78
Building Floorspace (square feet)										
1,001 to 5,000	132	48	66	1,798	636	761	73.3	75.6	87.2	10.97
5,001 to 10,000	128	39	47	2,010	720	858	63.6	54.1	54.8	14.02
10,001 to 25,000	145	99	131	2,916	1,302	1,118	49.8	76.1	117.4	20.45
25,001 to 50,000	147	45	51	3,079	1,064	1,203	47.8	41.8	42.3	20.32
50,001 to 100,000	79	53	56	1,929	1,255	1,258	41.1	41.9	44.6	18.16
100,001 to 200,000	80	46	38	2,359	1,769	1,280	33.8	26.1	29.9	20.63
200,001 to 500,000	31	Q	83	1,374	1,138	1,486	22.2	42.8	55.7	29.24
Over 500,000	Q	36	40	1,594	987	1,253	39.2	36.0	32.3	31.99
Principal Building Activity										
Education	131	66	66	3,114	1,724	1,426	42.0	38.1	46.6	16.43
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Food Service	64	21	36	593	128	223	107.2	165.6	162.2	21.54
Health Care	40	55	66	350	429	500	113.7	129.2	131.5	29.48
Lodging	51	31	31	641	343	473	80.3	91.7	66.3	23.47
Mercantile and Service	130	97	91	3,042	2,205	1,937	42.6	44.2	46.8	22.88
Office	165	42	Q	2,763	1,406	1,359	59.9	29.8	Q	21.12
Parking Garage	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Public Assembly	34	14	33	853	423	726	40.0	33.6	45.1	22.75
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Religious Worship	39	10	9	1,715	558	323	22.9	18.0	28.3	22.07
Warehouse and Storage	57	42	46	2,112	982	1,324	26.9	42.4	34.6	21.56
Other	Q	16	Q	348	165	Q	135.6	95.7	Q	37.98
Vacant	26	Q	Q	1,154	Q	Q	22.6	Q	Q	32.45
Census Region and Division										
Northeast	131	80	65	4,061	1,715	1,260	32.3	46.7	51.5	18.56
New England	23	Q	26	745	Q	360	31.2	Q	71.9	31.63
Middle Atlantic	108	71	39	3,316	1,562	900	32.5	45.6	43.3	20.91
Midwest	308	131	162	5,629	2,035	3,149	54.8	64.5	51.6	12.90
East North Central	236	96	93	4,001	1,425	1,734	59.1	67.3	53.6	14.20
West North Central	72	35	70	1,628	610	1,415	44.2	58.0	49.1	25.29
South	254	137	171	4,523	3,141	2,613	56.1	43.7	65.6	23.58
South Atlantic	Q	Q	36	1,320	1,479	870	81.5	45.8	41.0	29.74
East South Central	57	25	33	991	610	719	57.3	40.3	45.8	21.82
West South Central	89	Q	Q	2,212	1,052	1,024	40.3	Q	100.4	32.67
West	111	65	114	2,846	1,980	2,195	39.1	32.8	52.0	19.85
Mountain	57	15	34	910	385	557	63.1	38.8	60.6	22.79
Pacific	54	50	Q	1,936	1,596	1,638	27.8	31.4	49.1	24.40
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	58	36	55	1,342	541	1,161	43.4	67.4	47.3	22.94
5,500-7,000 HDD	324	125	154	6,232	1,886	2,747	52.0	66.4	55.9	13.25
4,000-5,499 HDD	207	88	77	4,333	2,692	1,532	47.7	32.8	50.1	20.27
Fewer than 4,000 HDD	101	137	121	2,983	2,531	2,617	34.0	54.3	46.3	24.48
More than 2,000 CDD and --										
Fewer than 4,000 HDD	113	26	Q	2,168	1,220	1,158	52.3	21.6	Q	24.92
Energy Sources (more than one may apply)										
Electricity	804	414	513	17,059	8,871	9,215	47.1	46.6	55.7	10.48
Natural Gas	804	414	513	17,059	8,871	9,217	47.1	46.6	55.7	10.78
Fuel Oil	114	88	106	2,537	1,618	1,811	45.0	54.6	58.4	25.48
District Heat	38	16	Q	1,061	547	Q	35.4	29.7	Q	36.86
District Chilled Water	Q	14	Q	Q	250	Q	Q	55.9	Q	29.84
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	8	Q	Q	387	Q	Q	20.6	Q	Q	30.49

See footnotes at end of table.

Table 3.37. Natural Gas Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.0	1.2	1.2	0.8	0.9	0.9	0.8	1.0	1.1	
Energy End Uses (more than one may apply)										
Heated Buildings	802	404	510	16,963	8,822	8,938	47.3	45.8	57.1	10.79
Buildings with A/C	696	370	496	14,844	8,162	8,775	46.9	45.3	56.5	11.42
Buildings with Water Heating	781	407	497	16,147	8,500	8,840	48.3	47.8	56.2	11.04
Buildings with Cooking	297	200	247	6,128	4,163	4,115	48.5	48.0	59.9	13.77
Buildings with Manufacturing	74	16	40	1,206	283	533	61.5	58.1	74.8	31.83
Workers (main shift)										
Less than 5	153	51	73	3,857	1,604	1,502	39.8	31.8	48.8	12.34
5 to 9	106	40	Q	2,422	661	709	43.9	61.0	Q	15.34
10 to 19	99	48	77	2,351	922	1,136	42.3	52.1	67.6	21.92
20 to 49	208	87	80	3,149	1,728	1,616	66.0	50.3	49.6	19.76
50 to 99	111	73	45	2,469	1,299	1,018	44.9	56.3	44.3	24.33
100 or More	126	114	147	2,810	2,658	3,236	45.0	43.0	45.4	19.20
Weekly Operating Hours										
39 or Fewer	75	29	35	2,233	805	612	33.6	36.6	56.9	20.43
40 to 48	178	63	57	4,436	1,668	1,551	40.2	38.0	36.6	12.61
49 to 60	181	72	94	4,412	1,600	1,473	41.0	45.2	63.5	23.34
61 to 84	120	72	133	2,456	2,052	2,177	49.0	35.2	61.3	21.08
85 to 167	98	68	78	1,960	1,548	1,730	50.0	43.8	44.9	19.86
Open Continuously	151	109	117	1,562	1,198	1,674	97.0	90.7	69.7	23.38
Ownership and Occupancy										
Nongovernment Owned	633	282	390	12,773	5,925	6,938	49.6	47.5	56.2	12.51
Owner Occupied	492	238	307	9,932	4,805	5,357	49.5	49.6	57.2	12.60
Single Establishment	408	218	272	7,415	4,052	4,039	55.0	53.8	67.3	13.48
Multiple Establishment	84	21	35	2,517	753	1,318	33.4	27.2	26.5	22.35
Nonowner Occupied	131	39	80	2,628	1,002	1,482	49.8	39.4	53.8	26.00
Single Establishment	99	18	28	1,305	337	560	Q	54.4	50.1	26.27
Multiple Establishment	32	21	Q	1,323	665	921	24.3	31.7	Q	22.56
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	171	132	123	4,286	2,946	2,279	39.9	44.9	54.0	17.40
Predominant Exterior Wall Material										
Masonry	705	317	349	15,360	6,409	6,554	45.9	49.5	53.3	11.68
Siding or Shingles	42	9	18	900	242	299	46.6	39.0	60.3	22.94
Metal Panels	Q	35	Q	460	791	853	Q	44.1	Q	29.77
Concrete Panels	Q	38	48	Q	1,121	1,104	Q	34.2	43.1	30.35
Window Glass	Q	11	7	Q	188	291	Q	56.9	25.1	31.50
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	416	229	202	8,535	5,107	4,126	48.8	44.8	49.0	15.13
Shingles (Not Wood)	156	42	52	3,449	879	1,175	45.2	47.9	44.5	14.54
Metal Surfacing	Q	33	106	689	785	1,146	Q	Q	92.5	29.70
Synthetic or Rubber	119	83	130	2,903	1,663	2,132	41.2	50.2	61.1	16.57
Other	65	27	22	1,483	436	637	44.2	61.6	Q	24.84
Space-Heating Energy Source										
Natural Gas	747	376	446	14,964	7,858	7,649	49.9	47.8	58.3	11.47
Natural Gas Main	696	361	422	13,989	7,223	7,026	49.7	50.0	60.1	11.72
Natural Gas Secondary	Q	14	23	975	634	623	Q	22.5	37.4	27.77
Other Excluding Natural Gas	55	29	64	1,999	965	1,289	27.5	29.9	49.9	20.42
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.37. Natural Gas Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.0	1.2	1.2	0.8	0.9	0.9	0.8	1.0	1.1	
Primary Space-Heating Energy Source										
Electricity	40	22	60	905	725	1,275	44.8	31.0	47.0	20.68
Natural Gas	696	361	422	13,989	7,223	7,026	49.7	50.0	60.1	11.72
Fuel Oil	7	Q	Q	885	Q	Q	7.8	Q	Q	31.31
District Heat	34	13	Q	933	504	276	36.8	25.4	Q	30.82
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating										
Electricity Only	31	11	Q	845	385	387	36.8	29.4	Q	20.75
Natural Gas Only	14	Q	Q	418	Q	Q	33.0	Q	Q	31.86
Fuel Oil Only	119	77	110	1,867	1,248	1,295	64.0	62.0	85.1	26.91
Propane Only	18	Q	16	447	Q	407	40.1	Q	39.7	23.03
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	12	Q	Q	324	Q	Q	38.2	Q	Q	26.87
No Replacement Energy Source	603	280	299	12,863	6,351	6,519	46.9	44.1	45.8	11.98
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source										
Natural Gas	112	20	33	593	428	423	188.9	45.7	77.1	31.43
Other Excluding Natural Gas	584	350	463	14,250	7,734	8,351	41.0	45.3	55.5	11.30
A/C Not Performed	108	44	17	2,215	709	442	48.7	61.6	39.0	21.44
Water-Heating Energy Source										
Natural Gas	633	346	353	11,756	6,536	5,733	53.9	53.0	61.6	12.20
Other Excluding Natural Gas	147	60	144	4,391	1,964	3,107	33.6	30.7	46.4	20.30
Water Heating Not Performed	24	7	16	912	371	377	25.9	19.0	42.1	19.70
Cooking Energy Source										
Natural Gas	251	170	224	5,097	3,455	3,502	49.2	49.3	63.9	15.16
Other Excluding Natural Gas	47	30	23	1,030	709	613	45.2	41.9	37.6	25.60
Cooking Not Performed	507	214	266	10,931	4,708	5,102	46.4	45.4	52.2	14.34
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	92	34	27	3,322	1,491	1,080	27.7	22.5	25.2	30.62
51 to 99	99	50	149	3,075	1,527	1,431	32.3	32.7	104.3	20.96
100	611	321	334	10,566	5,804	6,427	57.8	55.3	51.9	10.84
Heating Equipment (more than one may apply)										
Heat Pumps	46	26	55	1,191	730	1,019	38.9	35.1	54.2	26.27
Furnaces	279	145	148	6,303	3,091	2,321	44.3	46.8	63.6	20.79
Individual Space Heaters	250	137	156	5,454	3,024	3,836	45.8	45.2	40.8	16.44
District Heat	Q	13	28	1,109	506	488	53.8	25.5	58.4	35.00
Boilers	387	228	181	7,587	3,541	3,218	51.0	64.5	56.3	13.20
Packaged Heating Units	172	101	159	3,097	2,726	3,003	55.7	36.9	52.8	17.17
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Annual Consumption (hundred cubic feet)										
1,000 or Less	22	7	8	2,358	1,143	943	9.2	6.1	8.3	14.65
1,001 to 5,000	122	44	53	4,769	2,021	2,184	25.7	21.6	24.2	10.79
5,001 to 10,000	103	37	55	2,537	907	1,207	40.7	41.3	45.5	13.26
10,001 to 25,000	149	70	78	2,981	1,658	1,575	50.1	42.1	49.2	15.29
25,001 to 50,000	109	65	45	1,870	1,031	982	58.2	63.1	45.7	18.56
50,001 to 100,000	94	45	34	1,032	666	732	91.2	67.7	46.7	24.24
Over 100,000	205	146	241	1,512	1,446	1,593	135.4	100.8	151.3	28.60

See footnotes at end of table.

Table 3.37. Natural Gas Consumption and Conditional Energy Intensity in Older Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	1959 or Before	1960-1969	1970-1979	
RSE Column Factor:	1.0	1.2	1.2	0.8	0.9	0.9	0.8	1.0	1.1	
Gas Transported for the Account of Others										
Used in Building	158	59	101	1,246	710	986	126.5	83.7	102.6	34.49
Not Used in Building	647	354	412	15,813	8,162	8,231	40.9	43.4	50.0	10.45

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.38. Natural Gas Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.0	1.1	0.8	0.9	1.1	
All Buildings	261	75	47	6,265	1,957	1,625	41.6	38.2	28.7	14.79
Building Floorspace (square feet)										
1,001 to 5,000	Q	11	3	373	127	56	Q	85.0	46.6	26.95
5,001 to 10,000	17	10	3	420	163	91	40.2	62.6	34.8	27.34
10,001 to 25,000	30	12	Q	884	400	214	33.4	31.0	39.2	23.61
25,001 to 50,000	50	16	7	656	260	259	75.5	61.6	25.2	28.94
50,001 to 100,000	40	Q	Q	857	270	167	46.8	41.0	50.4	30.11
100,001 to 200,000	27	5	4	1,283	256	185	20.8	20.6	21.7	32.81
200,001 to 500,000	29	Q	11	890	Q	471	32.6	27.9	23.6	33.44
Over 500,000	17	2	2	902	238	181	18.8	9.5	12.9	29.32
Principal Building Activity										
Education	13	3	Q	371	90	Q	36.2	34.0	26.3	25.23
Food Sales	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Food Service	17	Q	Q	100	Q	Q	172.8	Q	Q	35.08
Health Care	21	Q	Q	186	Q	Q	110.5	Q	Q	34.77
Lodging	48	Q	6	458	Q	96	104.4	Q	59.3	32.35
Mercantile and Service	37	8	Q	1,474	362	336	24.8	21.5	Q	24.73
Office	Q	14	11	1,270	617	431	Q	23.0	26.2	22.66
Parking Garage	Q	Q	Q	Q	Q	29	Q	Q	21.0	36.20
Public Assembly	8	Q	Q	314	Q	156	25.4	Q	Q	38.25
Public Order and Safety	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Religious Worship	3	Q	Q	220	Q	Q	14.8	Q	Q	37.28
Warehouse and Storage	36	8	3	1,379	306	230	25.8	25.3	11.3	29.77
Other	Q	Q	Q	75	Q	Q	84.0	Q	Q	62.26
Vacant	6	Q	Q	Q	Q	Q	Q	Q	66.2	17.54
Census Region and Division										
Northeast	48	13	7	1,048	311	164	45.8	42.4	42.5	34.62
New England	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Middle Atlantic	Q	6	Q	634	243	142	65.2	24.7	44.1	32.37
Midwest	87	20	17	2,003	433	527	43.4	46.5	32.8	21.06
East North Central	51	12	13	938	240	308	53.9	51.9	43.6	25.86
West North Central	36	8	4	1,064	192	219	34.2	39.9	17.7	31.69
South	77	24	14	1,863	746	476	41.2	32.9	29.1	28.88
South Atlantic	14	3	5	612	258	Q	23.3	13.2	Q	31.74
East South Central	20	Q	Q	525	214	190	38.9	54.7	40.4	24.35
West South Central	Q	9	Q	726	273	82	Q	34.4	18.5	31.65
West	49	17	8	1,352	468	458	36.2	36.3	18.4	26.38
Mountain	22	Q	Q	436	129	Q	51.4	18.2	Q	32.51
Pacific	27	15	7	916	339	314	29.0	43.3	20.7	32.37
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	27	Q	Q	499	Q	Q	55.1	Q	Q	35.61
5,500-7,000 HDD	82	23	17	1,858	452	541	44.0	50.8	31.7	24.82
4,000-5,499 HDD	43	10	9	1,250	366	323	34.4	27.0	28.9	28.18
Fewer than 4,000 HDD	51	29	16	1,580	745	552	32.4	39.1	28.3	23.61
More than 2,000 CDD and --										
Fewer than 4,000 HDD	Q	8	3	1,078	321	138	Q	25.1	19.6	32.59
Energy Sources (more than one may apply)										
Electricity	260	75	47	6,260	1,957	1,624	41.6	38.2	28.7	15.44
Natural Gas	261	75	47	6,265	1,957	1,625	41.6	38.2	28.7	14.79
Fuel Oil	51	18	21	1,432	460	568	35.8	38.9	37.2	31.84
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
District Chilled Water	Q	Q	Q	145	Q	62	85.9	Q	Q	47.25
Propane	Q	Q	Q	Q	Q	Q	33.6	Q	Q	31.98
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.38. Natural Gas Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.0	1.1	0.8	0.9	1.1	
Energy End Uses (more than one may apply)										
Heated Buildings	261	74	47	6,249	1,954	1,600	41.7	37.8	29.1	14.79
Buildings with A/C	251	72	46	6,070	1,904	1,569	41.4	37.7	29.0	15.02
Buildings with Water Heating	256	73	45	6,064	1,922	1,574	42.2	38.0	28.4	15.29
Buildings with Cooking	114	36	21	2,564	877	612	44.4	41.2	34.8	22.84
Buildings with Manufacturing	18	Q	Q	412	Q	Q	44.5	Q	Q	39.19
Workers (main shift)										
Less than 5	30	9	5	755	164	170	39.5	55.5	29.8	29.05
5 to 9	Q	6	3	432	160	115	Q	35.3	23.5	24.67
10 to 19	24	14	Q	682	233	149	35.5	60.1	49.8	25.43
20 to 49	61	19	6	1,133	417	315	53.9	44.5	18.1	30.15
50 to 99	27	9	7	692	281	215	39.1	32.0	31.2	26.75
100 or More	73	19	19	2,571	702	661	28.5	26.4	28.7	25.92
Weekly Operating Hours										
39 or Fewer	3	Q	2	213	Q	104	13.3	Q	21.2	32.45
40 to 48	60	10	9	1,153	386	336	51.9	25.4	27.8	27.36
49 to 60	32	9	7	1,190	412	465	26.9	21.1	15.6	21.14
61 to 84	45	10	5	1,853	376	218	24.3	25.4	21.3	22.38
85 to 167	31	19	Q	730	343	199	42.5	54.7	48.1	31.93
Open Continuously	90	25	14	1,127	387	303	79.9	65.5	Q	28.57
Ownership and Occupancy										
Nongovernment Owned	222	66	34	5,565	1,708	1,174	39.9	38.7	29.1	16.49
Owner Occupied	189	49	32	4,014	1,118	901	47.0	43.8	35.1	18.24
Single Establishment	166	44	27	2,523	899	692	65.9	48.6	38.5	19.78
Multiple Establishment	23	5	Q	1,491	220	208	15.1	24.0	23.9	32.62
Nonowner Occupied	32	17	3	1,505	575	274	21.1	29.4	9.4	23.70
Single Establishment	10	10	Q	299	224	Q	31.8	42.7	8.9	35.59
Multiple Establishment	22	7	1	1,206	351	130	18.5	20.9	9.8	28.53
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	39	9	12	700	249	450	55.4	35.0	27.6	27.22
Predominant Exterior Wall Material										
Masonry	156	51	30	3,649	1,247	1,068	42.7	40.5	27.7	17.58
Siding or Shingles	19	8	Q	399	83	Q	47.6	94.6	Q	33.64
Metal Panels	61	5	3	1,073	180	92	57.3	28.2	34.8	32.07
Concrete Panels	15	Q	7	547	Q	307	27.0	31.7	23.4	33.30
Window Glass	3	Q	1	287	105	41	11.6	7.9	13.5	31.07
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	87	20	15	2,344	689	486	37.0	29.3	30.6	23.97
Shingles (Not Wood)	60	7	3	787	98	123	75.7	74.2	22.7	34.43
Metal Surfacing	40	15	5	1,067	394	204	37.7	38.0	25.1	21.10
Synthetic or Rubber	55	23	21	1,355	603	670	40.9	37.4	31.3	25.82
Other	19	10	Q	712	174	141	26.3	56.7	19.9	37.65
Space-Heating Energy Source										
Natural Gas	217	58	41	5,117	1,555	1,325	42.3	37.1	30.8	16.39
Natural Gas Main	195	57	39	4,180	1,485	1,225	46.6	38.4	31.7	16.75
Natural Gas Secondary	22	Q	Q	936	Q	Q	23.0	Q	Q	38.33
Other Excluding Natural Gas	44	16	6	1,133	399	276	38.9	40.8	20.8	23.49
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.38. Natural Gas Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.0	1.1	0.8	0.9	1.1	
Primary Space-Heating Energy Source										
Electricity	44	Q	6	1,648	397	296	26.5	33.1	21.8	26.91
Natural Gas	195	57	39	4,180	1,485	1,225	46.6	38.4	31.7	16.75
Fuel Oil	Q	Q	Q	Q	Q	Q	1.5	Q	Q	16.55
District Heat	22	Q	Q	398	Q	72	55.0	Q	Q	36.58
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating										
Electricity Only	Q	Q	Q	318	113	Q	Q	Q	Q	39.08
Natural Gas Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Fuel Oil Only	31	Q	Q	416	Q	81	75.0	Q	75.0	29.85
Propane Only	Q	Q	Q	240	Q	Q	Q	Q	Q	55.72
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	163	60	38	5,071	1,546	1,396	32.1	38.6	27.2	13.82
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source										
Natural Gas	Q	Q	Q	368	Q	Q	35.5	Q	Q	32.34
Other Excluding Natural Gas	238	70	44	5,703	1,855	1,525	41.8	37.7	29.0	15.43
A/C Not Performed	9	Q	Q	195	53	Q	47.6	Q	18.3	32.59
Water-Heating Energy Source										
Natural Gas	174	57	34	3,634	1,175	1,117	47.9	48.7	30.0	15.87
Other Excluding Natural Gas	82	16	11	2,430	747	457	33.6	21.2	24.4	26.25
Water Heating Not Performed	5	Q	Q	201	Q	50	23.3	Q	37.2	41.45
Cooking Energy Source										
Natural Gas	102	33	13	1,950	748	452	52.2	44.8	28.9	24.85
Other Excluding Natural Gas	12	3	Q	614	129	Q	19.6	20.3	Q	32.81
Cooking Not Performed	147	39	25	3,701	1,080	1,013	39.7	35.9	25.0	16.28
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	10	Q	1	875	240	Q	12.0	21.6	Q	34.10
51 to 99	32	15	7	1,101	305	247	29.0	49.5	27.2	28.82
100	218	54	38	4,274	1,410	1,176	51.0	38.1	32.7	15.85
Heating Equipment (more than one may apply)										
Heat Pumps	65	Q	6	1,316	179	222	49.5	47.7	27.8	39.26
Furnaces	105	18	9	1,893	415	307	55.4	42.6	30.9	26.99
Individual Space Heaters	109	18	18	2,709	631	567	40.2	28.4	31.3	22.83
District Heat	22	Q	Q	406	81	89	54.0	Q	Q	36.57
Boilers	78	17	19	1,806	436	434	43.1	38.4	43.0	25.54
Packaged Heating Units	81	40	14	2,367	960	752	34.2	41.3	19.1	20.64
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Annual Consumption (hundred cubic feet)										
1,000 or Less	4	1	1	542	182	143	8.2	7.9	5.5	23.60
1,001 to 5,000	31	12	7	1,567	488	425	19.8	23.6	15.8	17.83
5,001 to 10,000	21	8	Q	549	256	Q	38.0	29.5	Q	27.98
10,001 to 25,000	40	17	6	1,076	388	369	37.2	43.1	17.4	24.99
25,001 to 50,000	36	18	6	1,110	345	183	32.8	51.7	31.2	33.22
50,001 to 100,000	38	Q	5	668	Q	94	56.3	Q	48.8	25.61
Over 100,000	90	Q	18	751	Q	205	119.9	Q	86.8	38.83

See footnotes at end of table.

Table 3.38. Natural Gas Consumption and Conditional Energy Intensity in Newer Buildings by Year Constructed, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)			Total Floorspace of Buildings Using Natural Gas (million square feet)			Natural Gas Energy Intensity (cubic feet/sq. ft.)			RSE Row Factor
	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	1980-1986	1987-1989	1990-1992	
RSE Column Factor:	1.0	1.2	1.3	0.7	1.0	1.1	0.8	0.9	1.1	
Gas Transported for the Account of Others										
Used in Building	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Not Used in Building	246	73	38	6,100	1,905	1,502	40.3	38.4	25.2	14.91

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.39. Natural Gas Consumption and Conditional Energy Intensity for Buildings Heated with Natural Gas, 1992

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)		Total Floorspace of Buildings Using Natural Gas (million square feet)		Natural Gas Energy Intensity (cubic feet/sq. ft.)		RSE Row Factor
	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	
RSE Column Factor:	1.2	1.2	0.8	0.9	1.0	1.0	
All Buildings	1,884	1,770	38,467	35,129	49.0	50.4	6.41
Building Floorspace (square feet)							
1,001 to 5,000	274	267	3,399	3,241	80.6	82.4	10.11
5,001 to 10,000	208	202	3,889	3,644	53.6	55.5	7.16
10,001 to 25,000	397	386	6,105	5,763	65.0	67.0	13.07
25,001 to 50,000	280	269	5,648	5,377	49.5	49.9	16.47
50,001 to 100,000	216	201	5,033	4,547	43.0	44.1	10.60
100,001 to 200,000	187	172	6,212	5,420	30.2	31.8	12.06
200,001 to 500,000	189	177	4,544	4,225	41.5	41.8	18.51
Over 500,000	132	97	3,637	2,912	36.3	33.4	24.62
Principal Building Activity							
Education	267	259	5,957	5,642	44.8	45.9	9.75
Food Sales	22	22	445	398	49.6	54.3	23.24
Food Service	117	117	855	850	137.3	137.7	13.96
Health Care	166	150	1,223	1,017	135.5	147.8	17.09
Lodging	125	108	1,298	1,004	96.7	107.8	21.09
Mercantile and Service	335	318	8,275	7,264	40.5	43.7	13.17
Office	365	352	6,528	5,924	55.9	59.4	16.70
Parking Garage	Q	Q	Q	Q	Q	Q	NF
Public Assembly	87	80	2,267	2,024	38.3	39.3	14.24
Public Order and Safety	36	35	480	468	74.1	74.5	23.61
Religious Worship	61	59	2,672	2,612	22.8	22.7	12.39
Warehouse and Storage	181	175	5,920	5,612	30.5	31.2	12.87
Other	75	51	633	535	119.1	95.8	27.17
Vacant	38	36	1,583	1,450	24.3	25.1	24.35
Year Constructed							
1899 or Before	57	53	1,150	1,070	49.9	49.2	17.93
1900 to 1919	88	84	2,345	2,292	37.6	36.5	16.30
1920 to 1945	278	245	4,960	4,513	56.1	54.3	13.99
1946 to 1959	323	315	6,509	6,115	49.7	51.4	14.87
1960 to 1969	376	361	7,858	7,223	47.8	50.0	11.57
1970 to 1979	446	422	7,649	7,026	58.3	60.1	13.94
1980 to 1989	274	252	6,671	5,665	41.1	44.5	13.15
1990 to 1992	41	39	1,325	1,225	30.8	31.7	19.11
Census Region and Division							
Northeast	318	301	6,871	6,049	46.3	49.8	13.69
New England	60	57	1,153	805	52.0	70.6	21.48
Middle Atlantic	258	245	5,718	5,244	45.2	46.7	15.96
Midwest	667	638	12,289	11,459	54.3	55.7	7.76
East North Central	475	457	7,830	7,356	60.7	62.1	9.50
West North Central	193	182	4,459	4,103	43.2	44.3	15.60
South	603	554	11,563	10,637	52.2	52.1	14.78
South Atlantic	207	197	3,945	3,627	52.5	54.2	27.80
East South Central	130	120	2,883	2,665	45.2	45.2	15.65
West South Central	266	237	4,735	4,345	56.2	54.5	22.99
West	294	277	7,744	6,984	38.0	39.6	12.79
Mountain	107	98	2,183	2,029	48.9	48.3	15.01
Pacific	188	179	5,561	4,956	33.8	36.1	17.77
Climate Zone: 45-Year Average							
Fewer than 2,000 CDD and --							
More than 7,000 HDD	175	157	3,360	3,010	52.2	52.2	15.96
5,500-7,000 HDD	681	656	12,265	11,366	55.5	57.7	8.67
4,000-5,499 HDD	380	356	8,528	7,595	44.6	46.8	16.35
Fewer than 4,000 HDD	376	365	9,373	8,783	40.1	41.5	17.70
More than 2,000 CDD and --							
Fewer than 4,000 HDD	272	237	4,941	4,375	55.1	54.1	22.63

See footnotes at end of table.

Table 3.39. Natural Gas Consumption and Conditional Energy Intensity for Buildings Heated with Natural Gas, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)		Total Floorspace of Buildings Using Natural Gas (million square feet)		Natural Gas Energy Intensity (cubic feet/sq. ft.)		RSE Row Factor
	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	
RSE Column Factor:	1.2	1.2	0.8	0.9	1.0	1.0	
Energy Sources (more than one may apply)							
Electricity	1,883	1,770	38,460	35,122	49.0	50.4	6.34
Natural Gas	1,884	1,770	38,467	35,129	49.0	50.4	6.41
Fuel Oil	350	318	5,951	4,680	58.8	68.0	13.69
District Heat	36	Q	549	Q	65.2	Q	33.35
District Chilled Water	15	Q	338	Q	44.4	Q	30.62
Propane	36	34	725	675	50.0	50.3	25.04
Any Other	16	12	649	302	23.9	39.3	24.78
Energy End Uses (more than one may apply)							
Heated Buildings	1,884	1,770	38,467	35,129	49.0	50.4	6.41
Buildings with A/C	1,725	1,620	35,258	32,106	48.9	50.5	6.84
Buildings with Water Heating	1,834	1,721	36,621	33,374	50.1	51.6	6.52
Buildings with Cooking	818	764	14,606	12,900	56.0	59.2	8.20
Buildings with Manufacturing	145	118	2,196	2,002	66.1	59.2	20.96
Workers (main shift)							
Less than 5	267	259	7,077	6,712	37.8	38.7	7.75
5 to 9	272	267	4,112	3,946	66.1	67.6	17.40
10 to 19	241	229	4,808	4,504	50.1	50.9	14.63
20 to 49	400	384	7,502	7,024	53.3	54.7	13.08
50 to 99	242	202	5,274	4,514	45.9	44.7	16.37
100 or More	462	429	9,695	8,429	47.6	50.9	11.10
Weekly Operating Hours							
39 or Fewer	125	123	3,471	3,368	36.1	36.5	12.85
40 to 48	360	349	8,680	8,127	41.4	42.9	9.96
49 to 60	373	339	8,604	8,083	43.3	41.9	12.32
61 to 84	357	337	7,742	6,715	46.1	50.2	14.22
85 to 167	258	248	5,509	5,039	46.8	49.1	12.01
Open Continuously	411	375	4,462	3,797	92.2	98.8	15.44
Ownership and Occupancy							
Nongovernment Owned	1,448	1,349	29,323	26,528	49.4	50.8	7.25
Owner Occupied	1,152	1,069	22,329	20,094	51.6	53.2	7.20
Single Establishment	995	921	17,116	15,527	58.1	59.3	7.84
Multiple Establishment	156	148	5,212	4,567	30.0	32.4	13.25
Nonowner Occupied	279	264	6,570	6,059	42.5	43.6	17.32
Single Establishment	152	148	2,566	2,368	59.4	62.3	28.04
Multiple Establishment	127	117	4,003	3,691	31.7	31.6	20.12
Vacant	17	15	424	374	39.5	41.1	31.87
Government Owned	436	421	9,145	8,601	47.7	49.0	10.01
Predominant Exterior Wall Material							
Masonry	1,436	1,361	29,036	26,529	49.4	51.3	6.99
Siding or Shingles	89	86	1,772	1,584	50.2	54.1	13.59
Metal Panels	214	185	3,238	2,930	66.0	63.1	23.49
Concrete Panels	102	98	2,969	2,749	34.4	35.7	17.93
Window Glass	27	24	825	749	32.4	32.1	22.92
Other	17	17	628	589	26.6	28.4	23.57
Predominant Roof Material							
Built-Up	883	835	17,897	16,323	49.3	51.2	9.21
Shingles (Not Wood)	282	269	5,895	5,590	47.8	48.1	11.27
Metal Surfacing	227	196	4,086	3,614	55.5	54.3	20.05
Synthetic or Rubber	381	366	7,765	7,163	49.0	51.1	10.46
Other	111	104	2,824	2,439	39.4	42.7	15.90

See footnotes at end of table.

Table 3.39. Natural Gas Consumption and Conditional Energy Intensity for Buildings Heated with Natural Gas, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)		Total Floorspace of Buildings Using Natural Gas (million square feet)		Natural Gas Energy Intensity (cubic feet/sq. ft.)		RSE Row Factor
	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	
RSE Column Factor:	1.2	1.2	0.8	0.9	1.0	1.0	
Space-Heating Energy Source							
Natural Gas	1,884	1,770	38,467	35,129	49.0	50.4	6.41
Natural Gas Main	1,770	1,770	35,129	35,129	50.4	50.4	6.57
Natural Gas Secondary	113	Q	3,338	Q	34.0	Q	23.17
Other Excluding Natural Gas	Q	Q	Q	Q	Q	Q	NF
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Primary Space-Heating Energy Source							
Electricity	56	Q	2,178	Q	25.7	Q	17.60
Natural Gas	1,770	1,770	35,129	35,129	50.4	50.4	6.57
Fuel Oil	8	Q	450	Q	16.9	Q	31.85
District Heat	23	Q	315	Q	73.1	Q	29.26
Propane	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Primary Heating							
Electricity Only	152	152	2,096	2,096	72.6	72.6	26.85
Natural Gas Only	8	Q	608	Q	13.4	Q	33.68
Fuel Oil Only	323	314	4,672	4,586	69.1	68.4	13.82
Propane Only	74	71	1,511	1,477	49.0	48.2	21.90
Any Other Single Energy Source	9	9	231	231	38.9	38.9	22.68
More than One Energy Source	32	30	603	581	53.2	51.5	23.49
No Replacement Energy Source	1,285	1,194	28,746	26,158	44.7	45.7	7.06
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source							
Natural Gas	174	166	1,816	1,687	95.6	98.4	24.07
Other Excluding Natural Gas	1,552	1,454	33,442	30,419	46.4	47.8	6.66
A/C Not Performed	158	150	3,209	3,023	49.3	49.7	13.22
Water-Heating Energy Source							
Natural Gas	1,427	1,377	26,313	24,868	54.2	55.4	7.03
Other Excluding Natural Gas	407	344	10,307	8,505	39.5	40.4	14.39
Water Heating Not Performed	50	49	1,846	1,755	26.9	28.0	10.37
Cooking Energy Source							
Natural Gas	699	655	11,868	10,606	58.9	61.7	9.13
Other Excluding Natural Gas	118	109	2,738	2,293	43.3	47.6	15.33
Cooking Not Performed	1,066	1,006	23,862	22,229	44.7	45.3	8.43
Percent of Floorspace Heated							
Not Heated	Q	Q	Q	Q	Q	Q	NF
1 to 50	154	122	6,667	5,863	23.0	20.9	16.12
51 to 99	315	303	6,596	6,064	47.8	49.9	17.36
100	1,415	1,345	25,204	23,202	56.1	58.0	6.78
Heating Equipment (more than one may apply)							
Heat Pumps	153	128	3,633	2,541	42.0	50.4	23.23
Furnaces	674	628	13,783	12,641	48.9	49.7	11.25
Individual Space Heaters	606	546	13,947	12,515	43.5	43.6	10.51
District Heat	54	Q	553	Q	97.9	Q	35.40
Boilers	893	867	15,949	14,709	56.0	59.0	7.55
Packaged Heating Units	512	486	11,521	10,606	44.5	45.8	10.27
Other	Q	Q	549	474	Q	Q	33.27

See footnotes at end of table.

Table 3.39. Natural Gas Consumption and Conditional Energy Intensity for Buildings Heated with Natural Gas, 1992 (Continued)

Building Characteristics	Total Natural Gas Consumption (billion cubic feet)		Total Floorspace of Buildings Using Natural Gas (million square feet)		Natural Gas Energy Intensity (cubic feet/sq. ft.)		RSE Row Factor
	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	All Buildings Heated with Natural Gas	Buildings with Natural Gas Main Heating	
RSE Column Factor:	1.2	1.2	0.8	0.9	1.0	1.0	
Annual Consumption (hundred cubic feet)							
1,000 or Less	39	36	4,287	3,715	9.2	9.8	9.81
1,001 to 5,000	245	235	9,554	8,954	25.6	26.2	5.79
5,001 to 10,000	204	197	4,742	4,472	43.0	44.2	7.29
10,001 to 25,000	319	307	7,303	6,673	43.7	46.0	8.89
25,001 to 50,000	239	226	4,836	4,251	49.4	53.1	10.29
50,001 to 100,000	200	179	2,841	2,448	70.4	73.0	14.97
Over 100,000	638	591	4,905	4,616	130.1	127.9	17.25
Gas Transported for the Account of Others							
Used in Building	308	277	2,791	2,545	110.4	108.9	23.32
Not Used in Building	1,575	1,493	35,677	32,584	44.2	45.8	6.29

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.40. Natural Gas Transported for the Account of Others, Consumption and Expenditures, 1992

Building Characteristics	All Buildings Using Natural Gas		Natural Gas Consumption			Natural Gas Expenditures			RSE Row Factor
	Number of Buildings (thousand)	Floor-space (million square feet)	Total (billion cubic feet)	Transported Gas (billion cubic feet)	Percent Transported Gas	Total (million dollars)	Transported Gas (million dollars)	Percent Transported Gas	
RSE Column Factor:	0.5	0.5	0.6	1.9	1.8	0.6	1.7	1.8	
All Buildings	2,657	44,994	2,113	279	13.2	9,901	988	10.0	12.80
Building Floorspace (square feet)									
1,001 to 10,000	1,899	8,014	556	17	3.1	3,058	49	1.6	16.35
10,001 to 100,000	682	19,091	988	Q	Q	4,625	Q	Q	13.43
Over 100,000	76	17,889	569	167	29.3	2,218	498	22.5	13.57
Principal Building Activity									
Education	197	6,856	283	44	15.7	1,271	162	12.7	15.90
Health Care	45	1,544	184	68	36.8	662	188	28.5	22.22
All Others	2,414	36,594	1,646	167	10.2	7,969	637	8.0	15.72
Census Region and Division									
Northeast	370	8,559	344	41	12.0	2,014	151	7.5	17.68
New England	63	1,761	72	1	1.7	476	Q	Q	46.82
Middle Atlantic	307	6,798	272	40	14.8	1,538	147	9.6	19.31
Midwest	843	13,775	726	113	15.6	3,011	319	10.6	14.11
East North Central	557	8,646	501	92	18.4	2,076	251	12.1	16.36
West North Central	287	5,129	225	Q	Q	935	Q	Q	29.03
South	882	13,361	677	Q	Q	2,998	Q	Q	22.69
South Atlantic	185	4,744	233	Q	Q	1,147	Q	Q	49.81
East South Central	223	3,248	154	Q	Q	787	Q	Q	36.06
West South Central	474	5,369	290	Q	Q	1,064	Q	Q	33.37
West	562	9,299	365	Q	Q	1,878	Q	7.9	20.76
Mountain	198	2,560	133	Q	Q	559	8	Q	31.78
Pacific	364	6,738	232	Q	Q	1,319	Q	10.6	23.91
Annual Consumption (hundred cubic feet)									
1,000 or Less	834	5,311	43	(*)	0.6	328	1	0.4	17.86
1,001 to 5,000	1,117	11,453	268	3	1.2	1,572	17	1.1	10.95
5,001 to 10,000	329	5,663	229	4	1.6	1,232	19	1.5	17.61
10,001 to 25,000	231	8,046	360	9	2.5	1,817	39	2.1	19.25
25,001 to 50,000	84	5,522	279	14	5.0	1,448	59	4.1	23.17
50,001 to 100,000	33	3,311	224	Q	Q	1,018	51	5.0	23.51
Over 100,000	28	5,687	710	236	33.3	2,486	801	32.2	23.87

(*) = Value rounds to zero in the units displayed.
Q = Data withheld because the Relative Standard Error (RSE) was greater than 50 percent, or data were reported for fewer than 20 buildings.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.41. Total Fuel Oil Consumption and Expenditures, 1992

Building Characteristics	All Buildings Using Fuel Oil			Fuel Oil Consumption		Fuel Oil Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (million gallons)	Total (million dollars)	
RSE Column Factor:	1.0	0.8	0.8	1.2	1.2	1.2	
All Buildings	560	13,215	24	272	1,955	1,400	11.90
Building Floorspace (square feet)							
1,001 to 5,000	289	831	3	40	291	252	11.84
5,001 to 10,000	125	925	7	46	331	264	13.63
10,001 to 25,000	62	978	16	27	192	150	17.32
25,001 to 50,000	38	1,367	36	55	396	271	15.16
50,001 to 100,000	21	1,539	72	30	212	140	16.24
100,001 to 200,000	11	1,571	144	28	203	134	19.14
200,001 to 500,000	10	3,025	300	26	181	113	20.49
Over 500,000	4	2,980	833	Q	Q	76	21.03
Principal Building Activity							
Education	28	1,837	67	62	441	277	17.36
Food Sales	Q	Q	Q	Q	Q	Q	NF
Food Service	Q	Q	Q	Q	Q	Q	NF
Health Care	7	1,093	148	21	147	86	37.77
Lodging	18	827	46	16	112	79	34.98
Mercantile and Service	200	2,109	11	55	396	318	18.14
Office	87	3,603	41	47	340	245	16.13
Parking Garage	Q	Q	Q	Q	Q	Q	NF
Public Assembly	29	822	29	15	107	80	38.18
Public Order and Safety	Q	Q	Q	Q	Q	Q	NF
Religious Worship	60	532	9	12	86	72	22.35
Warehouse and Storage	63	1,012	16	24	172	139	25.64
Other	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	NF
Year Constructed							
1899 or Before	31	344	11	10	75	60	26.44
1900 to 1919	52	764	15	24	174	126	25.48
1920 to 1945	106	1,750	16	58	413	283	23.76
1946 to 1959	107	1,647	15	60	432	310	16.10
1960 to 1969	89	2,363	26	50	359	262	22.29
1970 to 1979	91	2,735	30	49	351	251	22.39
1980 to 1989	74	2,870	39	17	124	90	22.42
1990 to 1992	8	743	Q	Q	Q	Q	39.19
Census Region and Division							
Northeast	284	5,535	20	194	1,388	989	15.34
New England	104	2,184	21	90	643	433	24.34
Middle Atlantic	180	3,351	19	103	744	556	20.95
Midwest	80	2,543	32	26	187	132	25.48
East North Central	60	1,605	27	14	101	76	24.37
West North Central	20	938	47	Q	Q	Q	36.24
South	182	3,579	20	48	343	257	22.45
South Atlantic	130	2,308	18	40	291	213	27.51
East South Central	35	565	16	Q	Q	Q	39.19
West South Central	17	706	42	Q	Q	Q	42.98
West	14	1,557	115	Q	Q	Q	25.58
Mountain	Q	Q	Q	Q	Q	Q	NF
Pacific	11	1,210	109	Q	Q	Q	28.43
Climate Zone: 45-Year Average							
Fewer than 2,000 CDD and --							
More than 7,000 HDD	80	1,550	19	46	327	233	35.60
5,500-7,000 HDD	185	4,211	23	96	688	479	19.89
4,000-5,499 HDD	211	4,009	19	111	797	579	18.02
Fewer than 4,000 HDD	52	2,196	42	Q	Q	Q	38.05
More than 2,000 CDD and --							
Fewer than 4,000 HDD	31	1,248	40	Q	Q	53	42.62

See footnotes at end of table.

Table 3.41. Total Fuel Oil Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Fuel Oil			Fuel Oil Consumption		Fuel Oil Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (million gallons)	Total (million dollars)	
RSE Column Factor:	1.0	0.8	0.8	1.2	1.2	1.2	
Energy Sources (more than one may apply)							
Electricity	557	13,208	24	272	1,952	1,398	12.16
Natural Gas	130	8,426	65	108	772	507	15.43
Fuel Oil	560	13,215	24	272	1,955	1,400	11.90
District Heat	11	1,288	115	Q	Q	Q	35.28
District Chilled Water	2	588	242	Q	Q	Q	35.89
Propane	61	1,243	20	37	267	187	26.85
Any Other	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)							
Heated Buildings	555	12,930	23	272	1,951	1,397	11.90
Buildings with A/C	378	12,076	32	218	1,564	1,103	12.43
Buildings with Water Heating	434	12,599	29	252	1,803	1,274	12.06
Buildings with Cooking	101	7,452	74	109	778	514	15.44
Buildings with Manufacturing	20	739	36	30	211	136	35.49
Workers (main shift)							
Less than 5	305	1,795	6	56	404	335	16.39
5 to 9	94	776	8	35	253	199	20.93
10 to 19	67	884	13	23	164	131	19.88
20 to 49	43	1,094	26	53	381	263	21.69
50 to 99	21	1,494	70	32	228	158	25.19
100 or More	29	7,172	248	74	524	315	15.52
Weekly Operating Hours							
39 or Fewer	119	1,136	10	36	259	202	21.93
40 to 48	147	2,449	17	68	493	352	15.48
49 to 60	131	2,473	19	39	280	218	15.05
61 to 84	76	2,317	30	41	296	218	17.52
85 to 167	41	1,695	41	38	275	198	31.06
Open Continuously	44	3,145	71	50	351	213	23.39
Ownership and Occupancy							
Nongovernment Owned	484	9,420	19	172	1,234	936	13.62
Owner Occupied	415	7,628	18	152	1,088	824	15.22
Single Establishment	367	4,949	13	116	834	657	16.06
Multiple Establishment	48	2,679	56	36	255	167	33.01
Nonowner Occupied	63	1,600	25	19	139	105	24.15
Single Establishment	40	644	16	6	45	36	28.69
Multiple Establishment	23	957	41	13	95	70	33.74
Vacant	Q	Q	Q	Q	Q	Q	NF
Government Owned	75	3,795	51	100	721	465	17.40
Predominant Exterior Wall Material							
Masonry	374	9,618	26	225	1,614	1,128	11.71
Siding or Shingles	114	631	6	22	159	131	19.10
Metal Panels	48	699	15	15	106	85	30.98
Concrete Panels	5	1,077	211	Q	Q	Q	28.42
Window Glass	9	839	Q	6	44	33	38.54
Other	10	350	34	Q	Q	Q	44.85
Predominant Roof Material							
Built-Up	171	5,783	34	105	756	542	15.66
Shingles (Not Wood)	190	1,681	9	50	361	282	15.67
Metal Surfacing	85	675	8	20	142	112	25.99
Synthetic or Rubber	73	3,768	51	75	535	364	19.50
Other	40	1,308	33	23	161	100	30.04

See footnotes at end of table.

Table 3.41. Total Fuel Oil Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Fuel Oil			Fuel Oil Consumption		Fuel Oil Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (million gallons)	Total (million dollars)	
RSE Column Factor:	1.0	0.8	0.8	1.2	1.2	1.2	
Space-Heating Energy Source							
Fuel Oil	478	7,323	15	262	1,877	1,336	12.55
Fuel Oil Main	394	4,404	11	233	1,677	1,211	13.67
Fuel Oil Secondary	84	2,919	35	28	200	125	20.70
Other Excluding Fuel Oil	77	5,607	73	10	74	61	23.45
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source							
Electricity	51	2,482	49	7	51	40	24.52
Natural Gas	75	4,680	63	22	156	112	16.99
Fuel Oil	394	4,404	11	233	1,677	1,211	13.67
District Heat	11	1,104	105	Q	Q	Q	33.99
Propane	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating							
Electricity Only	Q	Q	Q	Q	Q	Q	NF
Natural Gas Only	55	882	16	48	345	232	24.66
Fuel Oil Only	46	2,730	60	15	107	71	24.88
Propane Only	42	361	9	13	97	77	28.22
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	347	8,392	24	182	1,302	939	13.13
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source							
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
Other Excluding Fuel Oil	377	11,962	32	215	1,540	1,087	12.50
A/C Not Performed	182	1,138	6	54	391	297	14.10
Water-Heating Energy Source							
Fuel Oil	125	2,469	20	138	992	683	17.12
Other Excluding Fuel Oil	309	10,131	33	113	811	591	12.99
Water Heating Not Performed	125	615	5	21	151	126	21.34
Cooking Energy Source							
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
Other Excluding Fuel Oil	100	7,361	74	99	705	469	14.44
Cooking Not Performed	459	5,762	13	164	1,177	886	13.35
Manufacturing Energy Source							
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
Other Excluding Fuel Oil	14	681	50	21	151	96	39.61
Manufacturing Not Performed	539	12,475	23	243	1,744	1,264	11.67
Percent of Floorspace Heated							
Not Heated	Q	Q	Q	Q	Q	Q	NF
1 to 50	92	1,479	16	27	191	142	31.64
51 to 99	85	2,694	32	43	309	214	17.65
100	377	8,757	23	202	1,451	1,041	13.35

See footnotes at end of table.

Table 3.41. Total Fuel Oil Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using Fuel Oil			Fuel Oil Consumption		Fuel Oil Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (million gallons)	Total (million dollars)	
RSE Column Factor:	1.0	0.8	0.8	1.2	1.2	1.2	
Heating Equipment (more than one may apply)							
Heat Pumps	26	1,579	61	19	135	92	26.36
Furnaces	266	2,240	8	59	429	351	15.87
Individual Space Heaters	189	4,694	25	74	531	391	16.30
District Heat	11	1,249	112	Q	Q	Q	30.00
Boilers	220	7,844	36	204	1,462	1,018	12.59
Packaged Heating Units	29	1,974	67	18	129	86	21.08
Other	Q	Q	Q	Q	Q	Q	NF
Energy Conservation Features (more than one may apply)							
Any Conservation Features	541	13,119	24	271	1,944	1,391	11.92
Building Shell	525	13,000	25	260	1,863	1,332	12.29
HVAC	397	12,099	31	240	1,718	1,213	12.58
Lighting	190	8,608	45	121	864	610	16.46
Other	56	1,830	33	48	341	222	25.51
Energy Management Practices (more than one may apply)							
Energy Management and Control System	37	5,373	147	58	413	262	21.81
Demand-Side Management[1] Participation	65	4,135	64	70	499	325	19.87
Energy Audit	85	4,531	53	77	550	381	19.80
Building Energy Manager	6	673	118	Q	Q	Q	43.42
Annual Consumption (gallons)							
1,000 or less	277	6,228	22	15	108	101	14.80
1,001 to 5,000	215	2,744	13	64	460	395	13.76
5,001 to 10,000	35	1,406	40	35	249	186	22.45
10,001 to 25,000	19	907	48	41	295	207	20.33
Over 25,000	12	1,929	155	118	842	511	20.47

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.42. Fuel Oil Consumption and Expenditure Intensities, 1992

Building Characteristics	Fuel Oil Consumption			Fuel Oil Expenditures			RSE Row Factor
	per Building (gallons)	per Square Foot (kWh)	per Worker (gallons)	per Building (thousand dollars)	per Square Foot (dollars)	per Gallon (dollars)	
RSE Column Factor:	1.3	1.3	1.5	1.2	1.3	0.3	
All Buildings	3,494	0.15	108.2	2.5	0.11	0.72	8.65
Building Floorspace (square feet)							
1,001 to 5,000	1,006	0.35	297.0	0.9	0.30	0.87	7.53
5,001 to 10,000	2,652	0.36	324.3	2.1	0.29	0.80	12.60
10,001 to 25,000	3,115	0.20	209.5	2.4	0.15	0.78	12.90
25,001 to 50,000	10,356	0.29	334.3	7.1	0.20	0.68	23.67
50,001 to 100,000	9,946	0.14	105.5	6.6	0.09	0.66	15.82
100,001 to 200,000	18,556	0.13	75.3	12.3	0.09	0.66	24.29
200,001 to 500,000	17,907	0.06	40.1	11.2	0.04	0.62	26.75
Over 500,000	Q	0.05	Q	21.4	0.03	0.51	37.62
Principal Building Activity							
Education	16,030	0.24	303.7	10.1	0.15	0.63	11.86
Food Sales	Q	Q	Q	Q	Q	Q	NF
Food Service	Q	Q	Q	Q	Q	Q	NF
Health Care	Q	0.13	69.1	Q	0.08	0.58	33.61
Lodging	6,261	0.14	0.0	4.4	0.10	0.70	22.83
Mercantile and Service	1,980	0.19	216.5	1.6	0.15	0.80	15.26
Office	3,911	0.09	37.1	2.8	0.07	0.72	13.57
Parking Garage	Q	Q	Q	Q	Q	Q	NF
Public Assembly	3,727	0.13	141.5	2.8	0.10	0.74	28.07
Public Order and Safety	Q	Q	Q	Q	Q	Q	NF
Religious Worship	1,431	0.16	224.0	1.2	0.14	0.83	14.27
Warehouse and Storage	2,746	0.17	277.8	2.2	0.14	0.81	20.81
Other	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	NF
Year Constructed							
1899 or Before	2,398	0.22	182.8	1.9	0.18	0.80	14.11
1900 to 1919	3,355	0.23	180.4	2.4	0.17	0.73	22.09
1920 to 1945	3,892	0.24	286.2	2.7	0.16	0.68	19.81
1946 to 1959	4,037	0.26	213.7	2.9	0.19	0.72	13.61
1960 to 1969	4,017	0.15	93.4	2.9	0.11	0.73	20.07
1970 to 1979	3,855	0.13	89.9	2.7	0.09	0.71	18.33
1980 to 1989	1,658	0.04	27.2	1.2	0.03	0.73	20.91
1990 to 1992	Q	Q	Q	Q	Q	0.69	38.85
Census Region and Division							
Northeast	4,891	0.25	189.2	3.5	0.18	0.71	8.61
New England	6,202	0.29	237.4	4.2	0.20	0.67	11.64
Middle Atlantic	4,136	0.22	160.9	3.1	0.17	0.75	11.08
Midwest	2,333	0.07	68.6	1.6	0.05	0.70	29.26
East North Central	1,684	0.06	57.1	1.3	0.05	0.75	19.19
West North Central	Q	Q	Q	Q	Q	0.65	38.35
South	1,886	0.10	58.7	1.4	0.07	0.75	19.02
South Atlantic	2,242	0.13	89.2	1.6	0.09	0.73	22.13
East South Central	888	0.06	Q	0.8	0.05	0.85	17.88
West South Central	0	Q	Q	0.0	Q	0.86	8.88
West	2,698	Q	Q	1.7	Q	0.61	25.34
Mountain	Q	Q	Q	Q	Q	Q	NF
Pacific	1,782	Q	Q	1.2	Q	0.65	23.70
Climate Zone: 45-Year Average							
Fewer than 2,000 CDD and --							
More than 7,000 HDD	4,078	0.21	215.8	2.9	0.15	0.71	14.59
5,500-7,000 HDD	3,708	0.16	130.7	2.6	0.11	0.70	13.78
4,000-5,499 HDD	3,779	0.20	140.2	2.7	0.14	0.73	15.45
Fewer than 4,000 HDD	1,475	0.03	Q	1.1	0.03	0.74	33.69
More than 2,000 CDD and --							
Fewer than 4,000 HDD	2,145	0.05	36.5	1.7	0.04	0.79	29.45

See footnotes at end of table.

Table 3.42. Fuel Oil Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Fuel Oil Consumption			Fuel Oil Expenditures			RSE Row Factor
	per Building (gallons)	per Square Foot (kWh)	per Worker (gallons)	per Building (thousand dollars)	per Square Foot (dollars)	per Gallon (dollars)	
RSE Column Factor:	1.3	1.3	1.5	1.2	1.3	0.3	
Energy Sources (more than one may apply)							
Electricity	3,502	0.15	108.1	2.5	0.11	0.72	8.83
Natural Gas	5,951	0.09	64.0	3.9	0.06	0.66	15.11
Fuel Oil	3,494	0.15	108.2	2.5	0.11	0.72	8.65
District Heat	Q	Q	Q	Q	0.02	0.44	37.89
District Chilled Water	Q	0.08	Q	Q	0.05	0.62	26.90
Propane	4,404	0.21	224.3	3.1	0.15	0.70	14.02
Any Other	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)							
Heated Buildings	3,516	0.15	109.2	2.5	0.11	0.72	8.64
Buildings with A/C	4,138	0.13	91.5	2.9	0.09	0.71	9.85
Buildings with Water Heating	4,155	0.14	101.7	2.9	0.10	0.71	8.99
Buildings with Cooking	7,727	0.10	69.7	5.1	0.07	0.66	11.84
Buildings with Manufacturing	10,395	0.29	289.1	6.7	0.18	0.65	28.14
Workers (main shift)							
Less than 5	1,324	0.23	682.2	1.1	0.19	0.83	7.34
5 to 9	2,701	0.33	439.4	2.1	0.26	0.78	14.00
10 to 19	2,439	0.19	200.2	1.9	0.15	0.80	11.72
20 to 49	8,897	0.35	287.1	6.1	0.24	0.69	19.27
50 to 99	10,660	0.15	167.9	7.4	0.11	0.69	19.08
100 or More	18,098	0.07	39.1	10.9	0.04	0.60	18.37
Weekly Operating Hours							
39 or Fewer	2,181	0.23	303.3	1.7	0.18	0.78	13.21
40 to 48	3,343	0.20	127.3	2.4	0.14	0.71	13.64
49 to 60	2,137	0.11	69.3	1.7	0.09	0.78	9.65
61 to 84	3,886	0.13	99.3	2.9	0.09	0.73	13.94
85 to 167	6,655	0.16	157.9	4.8	0.12	0.72	19.34
Open Continuously	7,899	0.11	76.8	4.8	0.07	0.61	24.42
Ownership and Occupancy							
Nongovernment Owned	2,547	0.13	94.4	1.9	0.10	0.76	9.92
Owner Occupied	2,623	0.14	102.7	2.0	0.11	0.76	10.63
Single Establishment	2,272	0.17	133.5	1.8	0.13	0.79	10.83
Multiple Establishment	5,311	0.10	58.4	3.5	0.06	0.66	25.89
Nonowner Occupied	2,194	0.09	56.4	1.7	0.07	0.76	19.64
Single Establishment	1,114	0.07	53.9	0.9	0.06	0.80	23.79
Multiple Establishment	4,047	0.10	57.6	3.0	0.07	0.74	30.34
Vacant	Q	Q	Q	Q	Q	Q	NF
Government Owned	9,602	0.19	144.4	6.2	0.12	0.64	14.91
Predominant Exterior Wall Material							
Masonry	4,320	0.17	141.9	3.0	0.12	0.70	10.15
Siding or Shingles	1,389	0.25	187.5	1.1	0.21	0.83	10.70
Metal Panels	2,223	0.15	149.1	1.8	0.12	0.80	26.41
Concrete Panels	Q	Q	Q	Q	Q	0.65	17.21
Window Glass	Q	0.05	21.6	Q	0.04	0.73	28.97
Other	1,738	Q	Q	1.5	Q	0.84	27.79
Predominant Roof Material							
Built-Up	4,425	0.13	89.7	3.2	0.09	0.72	14.63
Shingles (Not Wood)	1,898	0.21	200.5	1.5	0.17	0.78	8.25
Metal Surfacing	1,661	0.21	246.0	1.3	0.17	0.79	15.49
Synthetic or Rubber	7,300	0.14	95.0	5.0	0.10	0.68	17.47
Other	4,032	0.12	98.9	2.5	0.08	0.62	24.17

See footnotes at end of table.

Table 3.42. Fuel Oil Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Fuel Oil Consumption			Fuel Oil Expenditures			RSE Row Factor
	per Building (gallons)	per Square Foot (kWh)	per Worker (gallons)	per Building (thousand dollars)	per Square Foot (dollars)	per Gallon (dollars)	
RSE Column Factor:	1.3	1.3	1.5	1.2	1.3	0.3	
Space-Heating Energy Source							
Fuel Oil	3,926	0.26	228.2	2.8	0.18	0.71	8.26
Fuel Oil Main	4,260	0.38	338.3	3.1	0.28	0.72	6.85
Fuel Oil Secondary	2,367	0.07	61.2	1.5	0.04	0.63	22.52
Other Excluding Fuel Oil	966	0.01	7.7	0.8	0.01	0.82	23.64
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source							
Electricity	1,010	0.02	13.2	0.8	0.02	0.78	23.61
Natural Gas	2,090	0.03	22.9	1.5	0.02	0.72	17.31
Fuel Oil	4,260	0.38	338.3	3.1	0.28	0.72	6.85
District Heat	Q	Q	Q	Q	Q	0.39	23.29
Propane	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating							
Electricity Only	Q	Q	Q	Q	Q	Q	NF
Natural Gas Only	6,261	0.39	390.0	4.2	0.26	0.67	18.78
Fuel Oil Only	2,344	0.04	32.6	1.5	0.03	0.66	21.46
Propane Only	2,297	0.27	202.3	1.8	0.21	0.80	15.15
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	3,748	0.16	104.8	2.7	0.11	0.72	9.89
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source							
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
Other Excluding Fuel Oil	4,081	0.13	90.8	2.9	0.09	0.71	9.91
A/C Not Performed	2,152	0.34	402.6	1.6	0.26	0.76	9.29
Water-Heating Energy Source							
Fuel Oil	7,923	0.40	327.3	5.4	0.28	0.69	10.68
Other Excluding Fuel Oil	2,626	0.08	55.1	1.9	0.06	0.73	10.99
Water Heating Not Performed	1,207	0.25	457.3	1.0	0.21	0.83	11.32
Cooking Energy Source							
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
Other Excluding Fuel Oil	7,052	0.10	64.2	4.7	0.06	0.67	10.65
Cooking Not Performed	2,565	0.20	170.5	1.9	0.15	0.75	11.06
Manufacturing Energy Source							
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
Other Excluding Fuel Oil	0	0.22	226.7	7.0	0.14	0.63	29.97
Manufacturing Not Performed	3,234	0.14	100.6	2.3	0.10	0.72	8.15
Percent of Floorspace Heated							
Not Heated	Q	Q	Q	Q	Q	Q	NF
1 to 50	2,074	0.13	165.8	1.5	0.10	0.74	28.30
51 to 99	3,614	0.11	87.4	2.5	0.08	0.69	14.43
100	3,846	0.17	110.0	2.8	0.12	0.72	9.37
Heating Equipment (more than one may apply)							
Heat Pumps	5,214	0.09	54.8	3.6	0.06	0.68	23.94
Furnaces	1,613	0.19	180.2	1.3	0.16	0.82	10.95
Individual Space Heaters	2,817	0.11	78.4	2.1	0.08	0.74	13.09
District Heat	Q	Q	Q	Q	0.02	0.42	38.59
Boilers	6,654	0.19	135.7	4.6	0.13	0.70	9.66
Packaged Heating Units	4,374	0.07	43.1	2.9	0.04	0.67	22.76
Other	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.42. Fuel Oil Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	Fuel Oil Consumption			Fuel Oil Expenditures			RSE Row Factor
	per Building (gallons)	per Square Foot (kWh)	per Worker (gallons)	per Building (thousand dollars)	per Square Foot (dollars)	per Gallon (dollars)	
RSE Column Factor:	1.3	1.3	1.5	1.2	1.3	0.3	
Energy Conservation Features (more than one may apply)							
Any Conservation Features	3,596	0.15	108.1	2.6	0.11	0.72	8.63
Building Shell	3,545	0.14	104.3	2.5	0.10	0.71	8.91
HVAC	4,333	0.14	99.2	3.1	0.10	0.71	9.10
Lighting	4,540	0.10	64.7	3.2	0.07	0.71	12.26
Other	6,065	0.19	149.2	4.0	0.12	0.65	27.19
Energy Management Practices (more than one may apply)							
Energy Management and Control System	11,293	0.08	41.1	7.2	0.05	0.63	17.84
Demand-Side Management[1] Participation	7,692	0.12	69.9	5.0	0.08	0.65	15.83
Energy Audit	6,451	0.12	68.4	4.5	0.08	0.69	14.24
Building Energy Manager	Q	0.05	Q	Q	0.03	0.64	37.93
Annual Consumption (gallons)							
1,000 or less	390	0.02	12.0	0.4	0.02	0.93	10.62
1,001 to 5,000	2,139	0.17	140.3	1.8	0.14	0.86	7.62
5,001 to 10,000	7,047	0.18	129.7	5.3	0.13	0.75	9.80
10,001 to 25,000	15,529	0.33	205.0	10.9	0.23	0.70	8.91
Over 25,000	67,746	0.44	349.3	41.1	0.26	0.61	12.77

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.43. Fuel Oil Consumption and Conditional Energy Intensity by Census Region, 1992

Building Characteristics	Total Fuel Oil Consumption (million gallons)				Total Floorspace of Buildings Using Fuel Oil (million square feet)				Fuel Oil Energy Intensity (gallons/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	0.9	1.7	1.2	0.8	0.7	0.8	0.8	1.0	0.6	1.7	1.1	1.5	
All Buildings	1,388	187	343	Q	5,535	2,543	3,579	1,557	0.25	0.07	0.10	Q	20.24
Building Floorspace (square feet)													
1,001 to 10,000	400	73	130	Q	973	228	542	Q	0.41	0.32	0.24	Q	21.06
10,001 to 100,000	593	39	Q	Q	2,014	827	830	Q	0.29	Q	Q	Q	23.59
Over 100,000	394	Q	55	Q	2,547	1,488	2,207	1,333	0.15	Q	0.03	Q	29.25
Principal Building Activity													
Education	343	Q	Q	Q	1,078	Q	Q	Q	0.32	Q	Q	Q	21.10
Mercantile and Service	243	Q	Q	Q	956	Q	339	Q	0.25	Q	Q	Q	26.22
Office	270	Q	34	Q	1,269	519	1,211	604	0.21	Q	0.03	Q	32.75
Public Assembly	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Warehouse and Storage	116	Q	Q	Q	466	Q	Q	Q	0.25	Q	Q	Q	50.56
All Others	339	Q	79	Q	1,418	858	1,106	Q	0.24	Q	0.07	Q	28.31
Year Constructed													
1945 or Before	462	Q	66	Q	1,760	548	399	Q	0.26	Q	0.17	Q	32.44
1946 to 1959	332	Q	67	Q	816	Q	413	Q	0.41	Q	0.16	Q	26.47
1960 to 1969	260	Q	76	Q	885	386	901	Q	0.29	Q	0.08	Q	36.63
1970 to 1979	219	Q	Q	Q	909	615	823	Q	0.24	0.03	Q	Q	34.58
1980 to 1989	93	Q	23	Q	990	522	872	Q	0.09	Q	0.03	Q	39.74
1990 to 1992	Q	Q	Q	Q	176	202	171	194	Q	Q	Q	Q	48.20
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	53	Q	Q	Q	816	Q	Q	0.38	0.06	Q	Q	30.01
5,500-7,000 HDD	613	58	Q	Q	2,642	1,420	Q	Q	0.23	0.04	Q	Q	24.95
4,000-5,499 HDD	501	Q	207	Q	2,164	Q	1,183	Q	0.23	Q	0.18	Q	26.97
Fewer than 4,000 HDD	Q	Q	Q	Q	Q	Q	1,364	832	Q	Q	0.05	Q	41.31
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	Q	Q	Q	Q	1,033	Q	Q	Q	0.06	Q	36.46
Energy Sources (more than one may apply)													
Electricity	1,388	184	343	Q	5,535	2,536	3,579	1,557	0.25	0.07	0.10	Q	21.23
Natural Gas	505	Q	Q	Q	2,880	2,060	2,127	1,358	0.18	Q	Q	Q	27.81
Fuel Oil	1,388	187	343	Q	5,535	2,543	3,579	1,557	0.25	0.07	0.10	Q	20.24
District Heat	Q	Q	Q	Q	605	Q	Q	Q	0.08	Q	Q	Q	68.06
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Propane	217	Q	Q	Q	817	Q	Q	Q	0.27	Q	Q	Q	33.31
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)													
Heated Buildings	1,388	187	340	Q	5,529	2,543	3,528	1,330	0.25	0.07	0.10	Q	20.18
Buildings with A/C	1,106	142	303	12	4,828	2,355	3,387	1,506	0.23	Q	0.09	0.01	20.83
Buildings with Water Heating	1,307	163	298	Q	5,239	2,444	3,370	1,547	0.25	0.07	0.09	Q	20.95
Buildings with Cooking	568	Q	102	5	2,891	1,453	2,127	981	0.20	Q	0.05	0.01	21.06
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)													
Less than 10	396	81	162	Q	1,240	534	732	Q	0.32	Q	0.22	Q	22.08
10 to 99	611	26	Q	Q	1,905	664	626	Q	0.32	0.04	0.20	Q	25.40
100 or More	381	Q	56	Q	2,389	1,345	2,221	1,217	0.16	Q	0.03	Q	29.09
Weekly Operating Hours													
48 or Fewer	508	64	170	Q	1,685	699	1,067	Q	0.30	Q	0.16	Q	28.51
49 to 84	408	48	100	Q	1,865	854	1,329	742	0.22	0.06	0.08	Q	22.56
85 to 168	472	Q	74	Q	1,985	990	1,184	Q	0.24	Q	0.06	Q	33.79

See footnotes at end of table.

Table 3.43. Fuel Oil Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Fuel Oil Consumption (million gallons)				Total Floorspace of Buildings Using Fuel Oil (million square feet)				Fuel Oil Energy Intensity (gallons/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	0.9	1.7	1.2	0.8	0.7	0.8	0.8	1.0	0.6	1.7	1.1	1.5	
Ownership and Occupancy													
Nongovernment Owned	939	94	176	Q	4,070	1,712	2,365	1,273	0.23	0.05	0.07	Q	19.54
Owner Occupied	840	87	137	Q	3,352	1,415	1,883	978	0.25	0.06	0.07	Q	20.21
Single Establishment	622	62	129	21	2,292	822	1,311	525	0.27	0.07	0.10	0.04	24.24
Multiple Establishment	218	Q	Q	Q	1,061	593	572	453	0.21	Q	Q	Q	37.89
Nonowner Occupied	96	Q	38	Q	617	Q	473	Q	0.15	Q	0.08	Q	40.82
Single Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Multiple Establishment	Q	Q	Q	Q	Q	Q	253	Q	Q	Q	Q	Q	43.22
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	448	Q	Q	Q	1,465	831	1,214	Q	0.31	Q	Q	Q	27.03
Predominant Exterior Wall Material													
Masonry	1,155	155	274	Q	4,286	1,797	2,447	1,089	0.27	0.09	0.11	Q	22.28
Siding or Shingles	118	Q	Q	Q	441	Q	Q	Q	0.27	Q	Q	Q	25.91
Metal Panels	Q	Q	Q	Q	325	Q	Q	Q	0.19	Q	Q	Q	71.39
Concrete Panels	Q	Q	Q	Q	Q	Q	278	Q	Q	Q	Q	Q	40.37
Window Glass	Q	Q	Q	Q	Q	Q	402	Q	Q	Q	Q	Q	54.27
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material													
Built-Up	527	44	169	Q	1,935	1,017	1,907	924	0.27	0.04	0.09	Q	29.24
Shingles (Not Wood)	269	Q	59	Q	1,032	Q	315	Q	0.26	Q	0.19	Q	24.77
Metal Surfacing	57	Q	53	Q	229	Q	255	Q	0.25	Q	0.21	Q	37.42
Synthetic or Rubber	388	Q	Q	Q	1,548	1,003	849	Q	0.25	Q	Q	Q	29.68
Other	145	Q	14	Q	791	Q	253	Q	0.18	Q	Q	Q	50.21
Space-Heating Energy Source													
Fuel Oil	1,369	168	310	Q	4,228	1,225	1,618	Q	0.32	0.14	0.19	Q	22.47
Fuel Oil Main	1,256	146	248	Q	3,202	426	728	Q	0.39	0.34	0.34	Q	23.89
Fuel Oil Secondary	113	Q	62	Q	1,026	799	890	Q	0.11	Q	0.07	Q	41.86
Other Excluding Fuel Oil	19	Q	Q	7	1,301	1,318	1,910	1,078	Q	0.01	Q	0.01	33.61
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source													
Electricity	Q	Q	20	Q	584	316	1,106	477	Q	Q	0.02	Q	39.13
Natural Gas	55	Q	64	Q	1,018	1,502	1,389	771	0.05	Q	0.05	Q	31.15
Fuel Oil	1,256	146	248	Q	3,202	426	728	Q	0.39	0.34	0.34	Q	23.89
District Heat	Q	Q	Q	Q	574	291	Q	Q	Q	Q	Q	Q	54.40
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating													
Electricity Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Natural Gas Only	255	Q	Q	Q	531	Q	Q	Q	0.48	Q	Q	Q	37.62
Fuel Oil Only	40	7	Q	Q	758	897	841	Q	0.05	0.01	0.05	Q	34.69
Propane Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	973	92	222	Q	3,772	1,357	2,247	1,015	0.26	0.07	0.10	Q	22.57
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Water-Heating Energy Source													
Fuel Oil	825	Q	Q	Q	2,157	Q	Q	Q	0.38	Q	Q	Q	20.04
Other Excluding Fuel Oil	482	98	203	28	3,082	2,329	3,201	1,518	0.16	0.04	0.06	0.02	21.46
Water Heating Not Performed	81	Q	45	Q	296	Q	209	Q	0.27	Q	0.21	Q	34.49

See footnotes at end of table.

Table 3.43. Fuel Oil Consumption and Conditional Energy Intensity by Census Region, 1992 (Continued)

Building Characteristics	Total Fuel Oil Consumption (million gallons)				Total Floorspace of Buildings Using Fuel Oil (million square feet)				Fuel Oil Energy Intensity (gallons/sq. ft.)				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	0.9	1.7	1.2	0.8	0.7	0.8	0.8	1.0	0.6	1.7	1.1	1.5	
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	Q	Q	726	Q	Q	Q	0.17	Q	Q	Q	53.37
51 to 99	214	Q	43	Q	1,187	358	639	510	0.18	Q	0.07	Q	31.91
100	1,047	Q	252	Q	3,616	1,981	2,496	663	0.29	Q	0.10	Q	22.80
Heating Equipment (more than one may apply)													
Heat Pumps	94	Q	33	Q	610	Q	528	Q	0.15	Q	0.06	Q	43.81
Furnaces	242	Q	96	Q	926	594	631	Q	0.26	Q	0.15	Q	24.12
Individual Space Heaters	359	44	108	Q	1,711	915	1,563	505	0.21	Q	0.07	Q	26.65
District Heat	Q	Q	Q	Q	600	300	251	Q	0.08	Q	0.01	Q	52.90
Boilers	1,111	Q	220	Q	3,749	1,568	1,792	734	0.30	Q	0.12	Q	24.65
Packaged Heating Units	80	Q	Q	Q	711	456	534	Q	0.11	Q	Q	Q	42.20
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy Conservation Features (more than one may apply)													
Any Conservation Features	1,382	186	340	Q	5,520	2,507	3,538	1,553	0.25	0.07	0.10	Q	20.27
Building Shell	1,350	182	310	Q	5,459	2,502	3,494	1,545	0.25	0.07	0.09	Q	20.78
HVAC	1,287	136	276	Q	5,162	2,272	3,136	1,530	0.25	0.06	0.09	Q	22.08
Lighting	613	Q	102	23	3,345	1,645	2,361	1,258	0.18	Q	0.04	0.02	26.28
Other	289	Q	Q	Q	800	415	506	Q	0.36	Q	0.07	Q	40.23
Energy Management Practices (more than one may apply)													
Energy Management and Control System	248	Q	Q	Q	1,349	1,378	1,715	931	0.18	Q	Q	Q	31.23
Demand-Side Management[1] Participation	366	Q	58	Q	1,577	835	1,277	447	0.23	Q	0.05	Q	32.70
Energy Audit	461	Q	60	7	1,932	641	1,240	717	0.24	Q	0.05	Q	26.86
Building Energy Manager	Q	Q	Q	Q	Q	Q	336	Q	Q	Q	Q	Q	47.27
Annual Consumption (gallons)													
1,000 or less	44	11	50	Q	1,369	1,699	1,945	1,216	0.03	0.01	0.03	Q	26.37
1,001 to 5,000	312	60	87	Q	1,201	549	877	Q	0.26	0.11	Q	Q	21.19
5,001 to 10,000	173	Q	Q	Q	936	Q	Q	Q	0.18	Q	Q	Q	33.80
10,001 to 25,000	247	Q	Q	Q	580	Q	Q	Q	0.43	Q	Q	Q	30.99
Over 25,000	612	Q	Q	Q	1,448	Q	Q	Q	0.42	Q	Q	Q	25.61

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.44. Fuel Oil Expenditures by Census Region, 1992

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures (dollars) per Gallon				Fuel Oil Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.4	2.6	1.9	1.4	0.3	0.5	0.3	0.3	0.9	2.6	1.8	2.2	
All Buildings	989	132	257	Q	0.71	0.70	0.75	0.61	0.18	0.05	0.07	Q	13.65
Building Floorspace (square feet)													
1,001 to 10,000	332	58	115	Q	0.83	0.79	0.89	Q	0.34	0.26	0.21	Q	10.69
10,001 to 100,000	418	30	Q	Q	0.71	0.76	0.68	Q	0.21	0.04	Q	Q	12.72
Over 100,000	239	Q	34	Q	0.61	0.59	0.62	0.74	0.09	Q	0.02	Q	22.70
Principal Building Activity													
Education	217	Q	Q	Q	0.63	Q	Q	Q	0.20	Q	Q	Q	13.52
Mercantile and Service	204	Q	Q	Q	0.84	Q	0.76	Q	0.21	Q	0.23	Q	13.19
Office	192	Q	25	Q	0.71	0.77	0.74	0.74	0.15	Q	0.02	Q	24.86
Public Assembly	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Warehouse and Storage	95	Q	Q	Q	0.82	Q	Q	Q	0.20	Q	Q	Q	26.50
All Others	224	Q	64	Q	0.66	0.66	0.81	Q	0.16	Q	0.06	Q	20.96
Year Constructed													
1945 or Before	332	Q	53	Q	0.72	0.64	0.80	Q	0.19	Q	0.13	Q	17.33
1946 to 1959	236	Q	51	Q	0.71	Q	0.76	Q	0.29	Q	0.12	Q	16.04
1960 to 1969	188	Q	56	Q	0.72	0.83	0.74	Q	0.21	Q	0.06	Q	20.24
1970 to 1979	154	Q	Q	Q	0.71	0.81	0.71	Q	0.17	0.03	Q	Q	15.64
1980 to 1989	65	Q	18	Q	0.70	0.85	0.79	Q	0.07	Q	0.02	Q	19.10
1990 to 1992	Q	Q	Q	Q	0.65	0.83	0.84	0.95	Q	Q	Q	Q	23.95
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	Q	40	Q	Q	0.71	0.75	Q	Q	0.27	0.05	Q	Q	16.46
5,500-7,000 HDD	427	43	Q	Q	0.70	0.73	Q	Q	0.16	0.03	Q	Q	17.23
4,000-5,499 HDD	368	Q	154	Q	0.74	Q	0.74	Q	0.17	Q	0.13	Q	16.01
Fewer than 4,000 HDD	Q	Q	Q	Q	Q	Q	0.73	0.79	Q	Q	0.04	Q	32.05
More than 2,000 CDD and --													
Fewer than 4,000 HDD	Q	Q	53	Q	Q	Q	0.79	Q	Q	Q	0.05	Q	23.28
Energy Sources (more than one may apply)													
Electricity	989	130	257	Q	0.71	0.70	0.75	0.61	0.18	0.05	0.07	Q	12.37
Natural Gas	329	Q	97	Q	0.65	0.66	0.68	0.63	0.11	Q	0.05	Q	21.14
Fuel Oil	989	132	257	Q	0.71	0.70	0.75	0.61	0.18	0.05	0.07	Q	13.65
District Heat	Q	Q	Q	Q	0.37	Q	Q	Q	0.03	Q	Q	Q	36.12
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Propane	150	Q	Q	Q	0.69	Q	Q	Q	0.18	Q	Q	Q	18.94
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)													
Heated Buildings	989	132	254	Q	0.71	0.70	0.75	0.61	0.18	0.05	0.07	Q	13.65
Buildings with A/C	774	96	223	10	0.70	0.68	0.73	0.77	0.16	0.04	0.07	0.01	12.68
Buildings with Water Heating	921	113	218	Q	0.70	0.69	0.73	0.61	0.18	0.05	0.06	Q	14.49
Buildings with Cooking	376	Q	68	4	0.66	0.64	0.67	0.75	0.13	Q	0.03	(*)	12.74
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)													
Less than 10	328	63	132	Q	0.83	0.78	0.81	Q	0.26	Q	0.18	Q	10.42
10 to 99	436	20	90	Q	0.71	0.77	0.72	Q	0.23	0.03	0.14	Q	15.33
100 or More	225	Q	35	Q	0.59	0.61	0.62	0.75	0.09	Q	0.02	Q	21.52
Weekly Operating Hours													
48 or Fewer	371	50	127	Q	0.73	0.79	0.75	Q	0.22	0.07	0.12	Q	15.91
49 to 84	311	32	79	Q	0.76	0.67	0.79	0.61	0.17	0.04	0.06	Q	13.41
85 to 168	307	Q	51	Q	0.65	0.65	0.69	Q	0.15	Q	0.04	Q	25.84

See footnotes at end of table.

Table 3.44. Fuel Oil Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures (dollars) per Gallon				per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.4	2.6	1.9	1.4	0.3	0.5	0.3	0.3	0.9	2.6	1.8	2.2	
Ownership and Occupancy													
Nongovernment Owned	703	73	144	Q	0.75	0.78	0.82	0.64	0.17	0.04	0.06	Q	11.94
Owner Occupied	630	67	112	Q	0.75	0.77	0.81	0.63	0.19	0.05	0.06	Q	12.40
Single Establishment	490	49	105	Q	0.79	0.80	0.81	0.61	0.21	0.06	0.08	Q	14.22
Multiple Establishment	140	Q	Q	Q	0.64	0.70	0.88	0.73	0.13	Q	Q	Q	27.29
Nonowner Occupied	69	Q	32	Q	0.72	Q	0.84	Q	0.11	Q	0.07	Q	27.20
Single Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Multiple Establishment	Q	Q	Q	Q	Q	Q	0.82	Q	Q	Q	Q	Q	2.82
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	286	Q	Q	Q	0.64	0.63	0.67	Q	0.20	Q	Q	Q	13.96
Predominant Exterior Wall Material													
Masonry	805	104	201	Q	0.70	0.67	0.74	0.58	0.19	0.06	0.08	Q	16.99
Siding or Shingles	98	Q	Q	Q	0.83	Q	Q	Q	0.22	Q	Q	Q	13.03
Metal Panels	Q	Q	Q	Q	0.78	Q	Q	Q	0.15	Q	Q	Q	37.19
Concrete Panels	Q	Q	Q	Q	Q	Q	0.88	Q	Q	Q	Q	Q	70.49
Window Glass	Q	Q	Q	Q	Q	Q	0.67	Q	Q	Q	Q	Q	53.01
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material													
Built-Up	386	30	117	Q	0.73	0.67	0.69	0.60	0.20	0.03	0.06	Q	15.70
Shingles (Not Wood)	204	Q	52	Q	0.76	Q	0.88	Q	0.20	Q	0.17	Q	13.99
Metal Surfacing	46	Q	43	Q	0.81	Q	0.82	Q	0.20	Q	0.17	Q	17.18
Synthetic or Rubber	263	Q	Q	Q	0.68	0.67	0.73	Q	0.17	Q	Q	Q	20.77
Other	89	Q	Q	Q	0.61	Q	0.68	Q	0.11	Q	Q	Q	33.33
Space-Heating Energy Source													
Fuel Oil	974	116	230	Q	0.71	0.69	0.74	Q	0.23	0.09	0.14	Q	13.29
Fuel Oil Main	910	103	184	Q	0.72	0.70	0.74	Q	0.28	0.24	0.25	Q	12.76
Fuel Oil Secondary	64	Q	46	Q	0.57	Q	0.74	Q	0.06	Q	0.05	Q	25.53
Other Excluding Fuel Oil	15	Q	Q	6	0.81	0.84	0.81	0.84	0.01	0.01	Q	0.01	27.67
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source													
Electricity	Q	Q	18	Q	0.70	Q	0.88	0.89	Q	Q	0.02	Q	24.54
Natural Gas	41	Q	45	Q	0.74	0.68	0.71	Q	0.04	Q	0.03	Q	26.02
Fuel Oil	910	103	184	Q	0.72	0.70	0.74	Q	0.28	0.24	0.25	Q	12.76
District Heat	Q	Q	Q	Q	0.35	0.79	Q	Q	0.00	Q	Q	Q	27.06
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Replacement Energy Source for Main Heating													
Electricity Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Natural Gas Only	173	Q	Q	Q	0.68	Q	Q	Q	0.33	Q	Q	Q	22.35
Fuel Oil Only	28	6	Q	Q	0.71	0.79	0.63	Q	0.04	0.01	0.03	Q	21.05
Propane Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	694	69	167	Q	0.71	0.75	0.75	0.62	0.18	0.05	0.07	Q	15.20
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Water-Heating Energy Source													
Fuel Oil	574	Q	Q	Q	0.70	Q	Q	Q	0.27	Q	Q	Q	12.35
Other Excluding Fuel Oil	347	73	152	19	0.72	0.75	0.75	0.66	0.11	0.03	0.05	Q	13.19
Water Heating Not Performed	68	Q	39	Q	0.84	Q	0.87	Q	0.23	Q	0.19	Q	19.49

See footnotes at end of table.

Table 3.44. Fuel Oil Expenditures by Census Region, 1992 (Continued)

Building Characteristics	Total Fuel Oil Expenditures (million dollars)				Fuel Oil Expenditures (dollars) per Gallon				Fuel Oil Expenditures (dollars) per Square Foot				RSE Row Factor
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West	
RSE Column Factor:	1.4	2.6	1.9	1.4	0.3	0.5	0.3	0.3	0.9	2.6	1.8	2.2	
Percent of Floorspace Heated													
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	Q	Q	0.68	Q	Q	Q	0.12	Q	Q	Q	NF
51 to 99	151	Q	31	8	0.71	0.62	0.73	0.58	0.13	Q	0.05	Q	25.85
100	751	94	184	Q	0.72	0.71	0.73	0.61	0.21	0.05	0.07	Q	13.15
Heating Equipment (more than one may apply)													
Heat Pumps	60	Q	27	Q	0.64	Q	0.80	Q	0.10	Q	0.05	Q	27.89
Furnaces	203	57	82	Q	0.84	0.77	0.85	Q	0.22	Q	0.13	Q	13.93
Individual Space Heaters	258	34	86	Q	0.72	0.79	0.80	0.61	0.15	Q	0.06	Q	15.12
District Heat	Q	Q	2	Q	0.37	0.79	0.68	Q	0.03	Q	0.01	Q	28.56
Boilers	784	Q	150	Q	0.71	0.65	0.68	0.61	0.21	Q	0.08	Q	11.71
Packaged Heating Units	54	Q	Q	Q	0.67	0.53	0.77	Q	0.08	0.03	Q	Q	30.87
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy Conservation Features (more than one may apply)													
Any Conservation Features	984	131	254	Q	0.71	0.70	0.75	0.61	0.18	0.05	0.07	Q	13.66
Building Shell	961	128	230	Q	0.71	0.70	0.74	0.66	0.18	0.05	0.07	Q	14.06
HVAC	908	93	199	Q	0.71	0.69	0.72	0.65	0.18	0.04	0.06	Q	15.29
Lighting	441	Q	72	Q	0.72	0.66	0.70	0.64	0.13	Q	0.03	Q	17.49
Other	184	Q	Q	Q	0.64	0.82	0.70	Q	0.23	Q	0.05	Q	28.48
Energy Management Practices (more than one may apply)													
Energy Management and Control System	159	Q	Q	Q	0.64	0.59	0.64	0.73	0.12	Q	Q	Q	17.07
Demand-Side Management[1] Participation	241	Q	40	Q	0.66	0.58	0.69	0.83	0.15	Q	0.03	Q	19.64
Energy Audit	319	Q	44	5	0.69	0.59	0.73	0.75	0.17	0.02	0.04	Q	16.21
Building Energy Manager	Q	Q	Q	Q	Q	Q	0.72	Q	Q	Q	Q	Q	40.57
Annual Consumption (gallons)													
1,000 or less	42	10	46	Q	0.94	0.89	0.92	1.04	0.03	0.01	0.02	Q	15.11
1,001 to 5,000	268	50	76	Q	0.86	0.83	0.87	Q	0.22	0.09	Q	Q	9.97
5,001 to 10,000	131	Q	Q	Q	0.76	Q	Q	Q	0.14	Q	Q	Q	19.72
10,001 to 25,000	174	Q	Q	Q	0.71	Q	Q	Q	0.30	Q	Q	Q	16.91
Over 25,000	373	Q	Q	Q	0.61	Q	Q	Q	0.26	Q	Q	Q	18.68

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

(*) = Value rounds to zero in the units displayed.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.45. Fuel Oil Consumption and Conditional Energy Intensity for Buildings Heated with Fuel Oil, 1992

Building Characteristics	Total Fuel Oil Consumption (million gallons)			Total Floorspace of Buildings Using Fuel Oil (million square feet)			Fuel Oil Energy Intensity (gallons/sq. ft.)			RSE Row Factor
	All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	1.0	1.1	1.7	0.8	0.9	1.1	0.7	0.6	1.6	
All Buildings	1,877	1,677	200	7,323	4,404	2,919	0.26	0.38	0.07	14.62
Building Floorspace (square feet)										
1,001 to 10,000	603	560	Q	1,620	1,406	Q	0.37	0.40	Q	15.32
10,001 to 100,000	772	718	55	2,764	1,868	895	0.28	0.38	0.06	19.67
Over 100,000	502	399	102	2,939	1,130	1,810	0.17	0.35	0.06	24.20
Principal Building Activity										
Education	439	414	Q	1,548	996	Q	0.28	0.42	Q	16.93
Mercantile and Service	382	357	Q	1,128	833	Q	0.34	0.43	Q	26.05
Office	323	307	16	1,345	998	346	0.24	0.31	0.05	23.00
Public Assembly	107	Q	Q	509	Q	Q	0.21	Q	Q	48.12
Warehouse and Storage	157	121	Q	683	366	Q	0.23	0.33	Q	33.75
All Others	470	385	Q	2,110	976	1,134	0.22	0.39	Q	27.21
Year Constructed										
1945 or Before	643	543	Q	2,348	1,555	794	0.27	0.35	0.13	23.68
1946 to 1959	426	415	Q	1,201	996	Q	0.35	0.42	Q	20.00
1960 to 1969	339	301	38	1,505	739	766	0.23	0.41	0.05	28.05
1970 to 1979	338	299	38	1,484	700	784	0.23	0.43	0.05	26.86
1980 to 1989	109	101	Q	660	350	Q	0.17	0.29	Q	30.07
1990 to 1992	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Census Region and Division										
Northeast	1,369	1,256	113	4,228	3,202	1,026	0.32	0.39	0.11	17.26
New England	630	559	Q	1,718	1,366	Q	0.37	0.41	Q	23.57
Middle Atlantic	739	697	42	2,509	1,835	674	0.29	0.38	0.06	19.54
Midwest	168	146	Q	1,225	426	799	0.14	0.34	Q	41.33
East North Central	85	64	Q	610	283	Q	0.14	0.22	Q	31.59
West North Central	Q	Q	Q	615	Q	Q	Q	Q	(*)	37.64
South	310	248	62	1,618	728	890	0.19	0.34	0.07	29.75
South Atlantic	267	225	42	1,332	627	705	0.20	0.36	Q	35.15
East South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
West South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
West	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Mountain	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Pacific	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Climate Zone: 45-Year Average										
Fewer than 2,000 CDD and --										
More than 7,000 HDD	322	309	Q	1,283	861	423	0.25	0.36	Q	37.59
5,500-7,000 HDD	660	559	Q	2,322	1,360	962	0.28	0.41	0.11	23.35
4,000-5,499 HDD	783	751	33	2,827	1,984	843	0.28	0.38	0.04	17.77
Fewer than 4,000 HDD	Q	Q	Q	Q	Q	Q	0.09	Q	Q	62.20
More than 2,000 CDD and --										
Fewer than 4,000 HDD	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy Sources (more than one may apply)										
Electricity	1,877	1,677	200	7,322	4,404	2,919	0.26	0.38	0.07	15.00
Natural Gas	721	548	174	3,861	1,262	2,598	0.19	0.43	0.07	23.76
Fuel Oil	1,877	1,677	200	7,323	4,404	2,919	0.26	0.38	0.07	14.62
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
District Chilled Water	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Propane	245	233	Q	935	664	Q	0.26	0.35	Q	27.21
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.45. Fuel Oil Consumption and Conditional Energy Intensity for Buildings Heated with Fuel Oil, 1992 (Continued)

Building Characteristics	Total Fuel Oil Consumption (million gallons)			Total Floorspace of Buildings Using Fuel Oil (million square feet)			Fuel Oil Energy Intensity (gallons/sq. ft.)			RSE Row Factor
	All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	1.0	1.1	1.7	0.8	0.9	1.1	0.7	0.6	1.6	
Energy End Uses (more than one may apply)										
Heated Buildings	1,877	1,677	200	7,323	4,404	2,919	0.26	0.38	0.07	14.62
Buildings with A/C	1,497	1,309	187	6,296	3,528	2,768	0.24	0.37	0.07	15.80
Buildings with Water Heating	1,734	1,544	190	6,785	3,899	2,885	0.26	0.40	0.07	14.71
Buildings with Cooking	741	663	79	3,484	1,704	1,780	0.21	0.39	0.04	18.50
Buildings with Manufacturing	197	Q	Q	505	Q	Q	0.39	Q	Q	41.77
Workers (main shift)										
Less than 10	640	588	51	2,244	1,768	476	0.29	0.33	0.11	19.84
10 to 99	751	705	46	2,263	1,556	707	0.33	0.45	0.06	17.78
100 or More	486	383	103	2,817	1,080	1,736	0.17	0.36	0.06	25.82
Weekly Operating Hours										
48 or Fewer	738	698	41	2,560	2,006	554	0.29	0.35	Q	20.01
49 to 84	558	496	62	2,192	1,347	845	0.25	0.37	0.07	15.76
85 to 168	581	484	Q	2,570	1,050	1,520	0.23	0.46	0.06	27.95
Ownership and Occupancy										
Nongovernment Owned	1,173	1,032	140	4,933	3,150	1,784	0.24	0.33	0.08	17.03
Owner Occupied	1,035	909	126	4,017	2,568	1,450	0.26	0.35	0.09	18.27
Single Establishment	786	715	71	3,191	2,067	1,124	0.25	0.35	0.06	17.10
Multiple Establishment	249	194	Q	827	501	Q	0.30	0.39	Q	34.10
Nonowner Occupied	132	118	Q	787	453	Q	0.17	0.26	Q	30.86
Single Establishment	41	40	Q	308	187	Q	0.13	0.21	Q	37.38
Multiple Establishment	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Government Owned	704	645	59	2,390	1,254	1,135	0.29	0.51	0.05	22.03
Predominant Exterior Wall Material										
Masonry	1,566	1,400	165	5,825	3,493	2,332	0.27	0.40	0.07	16.44
Siding or Shingles	151	144	Q	534	475	Q	0.28	0.30	Q	19.19
Metal Panels	102	82	Q	481	271	Q	0.21	0.30	Q	42.54
Concrete Panels	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Window Glass	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material										
Built-Up	720	640	80	2,824	1,386	1,438	0.25	0.46	0.06	21.45
Shingles (Not Wood)	347	335	Q	1,421	1,180	Q	0.24	0.28	Q	17.62
Metal Surfacing	137	114	Q	509	352	Q	0.27	0.32	Q	28.51
Synthetic or Rubber	514	482	32	1,924	1,143	781	0.27	0.42	0.04	25.19
Other	159	107	Q	645	343	Q	0.25	0.31	Q	35.66
Space-Heating Energy Source										
Fuel Oil	1,877	1,677	200	7,323	4,404	2,919	0.26	0.38	0.07	14.62
Fuel Oil Main	1,677	1,677	Q	4,404	4,404	Q	0.38	0.38	Q	14.14
Fuel Oil Secondary	200	Q	200	2,919	Q	2,919	0.07	Q	0.07	21.76
Other Excluding Fuel Oil	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source										
Electricity	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Natural Gas	121	Q	121	2,212	Q	2,212	0.05	Q	0.05	18.55
Fuel Oil	1,677	1,677	Q	4,404	4,404	Q	0.38	0.38	Q	14.14
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Propane	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.45. Fuel Oil Consumption and Conditional Energy Intensity for Buildings Heated with Fuel Oil, 1992 (Continued)

Building Characteristics	Total Fuel Oil Consumption (million gallons)			Total Floorspace of Buildings Using Fuel Oil (million square feet)			Fuel Oil Energy Intensity (gallons/sq. ft.)			RSE Row Factor
	All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	1.0	1.1	1.7	0.8	0.9	1.1	0.7	0.6	1.6	
Replacement Energy Source for Main Heating										
Electricity Only	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Natural Gas Only	338	336	Q	730	702	Q	0.46	0.48	Q	31.61
Fuel Oil Only	89	Q	72	2,160	Q	2,151	0.04	Q	0.03	23.67
Propane Only	91	91	Q	260	257	Q	0.35	0.35	Q	28.10
Any Other Single Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
More than One Energy Source	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
No Replacement Energy Source	1,260	1,138	123	3,726	3,053	673	0.34	0.37	0.18	17.74
Building Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Water-Heating Energy Source										
Fuel Oil	986	956	Q	2,401	2,115	Q	0.41	0.45	Q	18.01
Other Excluding Fuel Oil	748	588	160	4,383	1,784	2,599	0.17	0.33	0.06	17.39
Water Heating Not Performed	143	133	Q	538	505	Q	0.27	0.26	Q	27.10
Percent of Floorspace Heated										
Not Heated	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
1 to 50	183	121	Q	741	526	Q	0.25	0.23	Q	35.52
51 to 99	295	263	Q	1,444	815	628	0.20	0.32	Q	23.46
100	1,399	1,294	105	5,138	3,062	2,076	0.27	0.42	0.05	15.77
Heating Equipment (more than one may apply)										
Heat Pumps	115	Q	16	602	Q	327	0.19	Q	Q	35.74
Furnaces	418	374	43	1,745	1,291	454	0.24	0.29	0.10	19.86
Individual Space Heaters	508	435	73	2,098	1,265	833	0.24	0.34	0.09	20.91
District Heat	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Boilers	1,423	1,330	94	5,250	3,120	2,130	0.27	0.43	0.04	14.83
Packaged Heating Units	107	Q	Q	627	Q	Q	0.17	Q	Q	33.37
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy Conservation Features (more than one may apply)										
Any Conservation Features	1,867	1,668	199	7,246	4,357	2,889	0.26	0.38	0.07	14.65
Building Shell	1,785	1,601	185	7,142	4,265	2,878	0.25	0.38	0.06	15.18
HVAC	1,651	1,477	175	6,282	3,732	2,550	0.26	0.40	0.07	15.50
Lighting	805	713	92	3,798	1,946	1,852	0.21	0.37	0.05	18.47
Other	335	272	Q	960	492	Q	0.35	0.55	Q	30.05
Energy Management Practices (more than one may apply)										
Energy Management and Control System	384	344	40	1,841	684	1,157	0.21	0.50	0.03	26.97
Demand-Side Management[1] Participation	479	432	47	2,031	949	1,083	0.24	0.45	0.04	23.93
Energy Audit	526	461	65	2,248	1,271	978	0.23	0.36	0.07	24.14
Building Energy Manager	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.45. Fuel Oil Consumption and Conditional Energy Intensity for Buildings Heated with Fuel Oil, 1992 (Continued)

Building Characteristics	Total Fuel Oil Consumption (million gallons)			Total Floorspace of Buildings Using Fuel Oil (million square feet)			Fuel Oil Energy Intensity (gallons/sq. ft.)			RSE Row Factor
	All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		All Buildings Heated with Fuel Oil	Buildings Heated with Fuel Oil		
		Main Heating	Secondary Heating		Main Heating	Secondary Heating		Main Heating	Secondary Heating	
RSE Column Factor:	1.0	1.1	1.7	0.8	0.9	1.1	0.7	0.6	1.6	
Annual Consumption (gallons)										
1,000 or less	94	78	16	2,058	547	1,511	0.05	0.14	0.01	19.18
1,001 to 5,000	438	399	Q	1,799	1,288	Q	0.24	0.31	Q	16.96
5,001 to 10,000	241	208	Q	953	604	Q	0.25	0.34	Q	26.94
10,001 to 25,000	278	256	Q	728	561	Q	0.38	0.46	Q	25.43
Over 25,000	826	737	Q	1,784	1,403	Q	0.46	0.53	Q	23.13

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

(*) = Value rounds to zero in the units displayed.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.46. Total District Heat Consumption and Expenditures, 1992

Building Characteristics	All Buildings Using District Heat			District Heat Consumption		District Heat Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion pounds)	Total (million dollars)	
RSE Column Factor:	1.1	1.0	0.9	1.0	1.0	1.0	
All Buildings	95	5,245	55	435	435	2,901	15.98
Building Floorspace (square feet)							
1,001 to 5,000	Q	Q	Q	Q	Q	Q	NF
5,001 to 10,000	Q	Q	Q	Q	Q	Q	NF
10,001 to 25,000	28	450	16	65	65	336	28.29
25,001 to 50,000	16	545	35	Q	Q	Q	16.68
50,001 to 100,000	9	638	68	50	50	353	24.21
100,001 to 200,000	6	780	123	59	59	451	22.37
200,001 to 500,000	5	1,532	324	109	109	755	22.14
Over 500,000	1	1,172	888	70	70	483	24.50
Principal Building Activity							
Education	21	688	33	49	49	315	29.02
Food Sales	Q	Q	Q	Q	Q	Q	NF
Food Service	Q	Q	Q	Q	Q	Q	NF
Health Care	Q	403	178	55	55	346	27.70
Lodging	9	580	64	65	65	421	37.05
Mercantile and Service	Q	Q	Q	Q	Q	Q	NF
Office	24	1,712	72	109	109	728	27.49
Parking Garage	Q	Q	Q	Q	Q	Q	NF
Public Assembly	10	348	34	23	23	164	31.63
Public Order and Safety	Q	Q	Q	Q	Q	Q	NF
Religious Worship	Q	Q	Q	Q	Q	Q	NF
Warehouse and Storage	Q	Q	Q	Q	Q	Q	NF
Other	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	NF
Year Constructed							
1899 or Before	Q	Q	Q	Q	Q	Q	NF
1900 to 1919	Q	Q	Q	Q	Q	Q	NF
1920 to 1945	13	1,057	83	82	82	546	28.31
1946 to 1959	22	566	25	54	54	346	30.23
1960 to 1969	22	1,419	63	121	121	750	30.22
1970 to 1979	9	976	107	55	55	363	25.93
1980 to 1989	11	681	Q	Q	Q	566	38.10
1990 to 1992	Q	Q	Q	Q	Q	Q	NF
Census Region and Division							
Northeast	23	1,559	68	123	123	973	19.49
New England	Q	413	Q	32	32	219	40.16
Middle Atlantic	17	1,146	66	91	91	754	18.49
Midwest	24	1,884	80	183	183	1,069	30.26
East North Central	10	991	97	103	103	580	32.07
West North Central	13	893	67	79	79	Q	45.70
South	27	890	33	78	78	492	34.19
South Atlantic	Q	436	Q	35	35	282	42.12
East South Central	Q	Q	Q	Q	Q	Q	NF
West South Central	Q	Q	Q	Q	Q	Q	NF
West	21	912	44	51	51	368	31.69
Mountain	Q	Q	Q	Q	Q	Q	NF
Pacific	12	548	46	27	27	181	35.46
Climate Zone: 45-Year Average							
Fewer than 2,000 CDD and --							
More than 7,000 HDD	10	513	51	49	49	229	34.80
5,500-7,000 HDD	29	1,944	67	179	179	1,150	25.76
4,000-5,499 HDD	27	1,691	63	121	121	984	26.07
Fewer than 4,000 HDD	13	595	46	37	37	270	42.01
More than 2,000 CDD and --							
Fewer than 4,000 HDD	16	503	Q	49	49	267	41.58

See footnotes at end of table.

Table 3.46. Total District Heat Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using District Heat			District Heat Consumption		District Heat Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion pounds)	Total (million dollars)	
RSE Column Factor:	1.1	1.0	0.9	1.0	1.0	1.0	
Energy Sources (more than one may apply)							
Electricity	95	5,245	55	435	435	2,901	17.90
Natural Gas	36	2,677	75	212	212	1,608	21.29
Fuel Oil	11	1,288	115	102	102	723	28.14
District Heat	95	5,245	55	435	435	2,901	15.98
District Chilled Water	23	1,585	68	122	122	789	27.36
Propane	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)							
Heated Buildings	94	5,230	55	435	435	2,901	15.98
Buildings with A/C	81	4,707	58	382	382	2,533	17.39
Buildings with Water Heating	81	5,098	63	421	421	2,819	16.24
Buildings with Cooking	19	2,280	123	169	169	1,260	18.76
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)							
Less than 5	22	Q	Q	26	26	Q	46.01
5 to 9	14	320	23	Q	Q	Q	41.65
10 to 19	22	494	22	41	41	327	32.25
20 to 49	17	518	31	67	67	443	27.14
50 to 99	10	728	72	45	45	237	29.12
100 or More	10	2,789	267	202	202	1,484	19.33
Weekly Operating Hours							
39 or Fewer	Q	Q	Q	Q	Q	Q	NF
40 to 48	34	806	24	72	72	412	31.37
49 to 60	16	981	62	Q	Q	376	31.43
61 to 84	9	702	82	43	43	260	37.44
85 to 167	7	508	69	40	40	277	37.54
Open Continuously	19	1,888	100	210	210	1,500	22.73
Ownership and Occupancy							
Nongovernment Owned	44	2,814	64	242	242	1,556	22.16
Owner Occupied	34	2,462	72	222	222	1,360	22.72
Single Establishment	31	1,836	60	193	193	1,126	27.07
Multiple Establishment	4	625	168	29	29	234	37.21
Nonowner Occupied	Q	350	39	20	20	193	34.58
Single Establishment	Q	Q	Q	Q	Q	Q	NF
Multiple Establishment	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	NF
Government Owned	51	2,431	48	193	193	1,345	19.82
Predominant Exterior Wall Material							
Masonry	76	3,753	49	309	309	2,038	14.71
Siding or Shingles	Q	Q	Q	Q	Q	Q	NF
Metal Panels	Q	Q	Q	Q	Q	Q	NF
Concrete Panels	7	699	99	57	57	436	32.66
Window Glass	Q	Q	345	Q	Q	115	24.78
Other	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material							
Built-Up	40	2,412	60	200	200	1,422	17.53
Shingles (Not Wood)	10	Q	Q	40	40	199	43.55
Metal Surfacing	Q	Q	Q	Q	Q	Q	NF
Synthetic or Rubber	14	1,477	104	109	109	739	28.51
Other	19	647	Q	50	50	367	41.89

See footnotes at end of table.

Table 3.46. Total District Heat Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using District Heat			District Heat Consumption		District Heat Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion pounds)	Total (million dollars)	
RSE Column Factor:	1.1	1.0	0.9	1.0	1.0	1.0	
Space-Heating Energy Source							
District Heat	91	5,130	56	404	404	2,776	15.71
District Heat Main	89	4,749	54	393	393	2,702	15.35
District Heat Secondary	4	Q	0	19	19	131	40.68
Other Excluding District Heat	Q	Q	Q	Q	Q	Q	NF
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source							
Electricity	Q	Q	Q	Q	Q	Q	NF
Natural Gas	Q	Q	Q	Q	Q	Q	NF
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
District Heat	89	4,749	54	393	393	2,702	15.35
Propane	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source							
District Heat	(*)	210	464	18	18	173	26.95
Other Excluding District Heat	81	4,497	56	364	364	2,361	18.00
A/C Not Performed	13	538	40	53	53	368	26.07
Water-Heating Energy Source							
District Heat	36	3,292	91	299	299	1,913	18.11
Other Excluding District Heat	45	1,806	40	121	121	906	25.89
Water Heating Not Performed	Q	Q	Q	Q	Q	Q	NF
Cooking Energy Source							
District Heat	6	809	131	71	71	551	25.60
Other Excluding District Heat	12	1,471	118	98	98	709	23.15
Cooking Not Performed	76	2,965	39	266	266	1,641	23.41
Manufacturing Energy Source							
District Heat	Q	Q	Q	Q	Q	Q	NF
Other Excluding District Heat	Q	Q	Q	Q	Q	Q	NF
Manufacturing Not Performed	88	4,837	55	385	385	2,629	15.57
Percent of Floorspace Heated							
Not Heated	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	Q	Q	Q	Q	NF
51 to 99	9	815	Q	46	46	339	35.07
100	81	4,105	50	378	378	2,498	18.05
Heating Equipment (more than one may apply)							
Heat Pumps	8	450	55	37	37	318	39.03
Furnaces	Q	Q	Q	Q	Q	Q	NF
Individual Space Heaters	15	1,114	74	97	97	610	34.45
District Heat	93	5,145	55	407	407	2,785	15.23
Boilers	Q	Q	Q	Q	Q	Q	NF
Packaged Heating Units	Q	279	Q	26	26	224	22.92
Other	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.46. Total District Heat Consumption and Expenditures, 1992 (Continued)

Building Characteristics	All Buildings Using District Heat			District Heat Consumption		District Heat Expenditures	RSE Row Factor
	Number of Buildings (thousand)	Floorspace (million square feet)	Floorspace per Building (thousand square feet)	Total (trillion Btu)	Total (billion pounds)	Total (million dollars)	
RSE Column Factor:	1.1	1.0	0.9	1.0	1.0	1.0	
Energy Conservation Features (more than one may apply)							
Any Conservation Features	94	5,222	56	434	434	2,892	15.99
Building Shell	90	5,041	56	424	424	2,819	16.23
HVAC	86	5,067	59	415	415	2,787	16.08
Lighting	50	3,046	61	249	249	1,707	17.48
Other	10	687	Q	49	49	359	30.18
Energy Management Practices (more than one may apply)							
Energy Management and Control System	26	2,523	99	195	195	1,205	22.63
Demand-Side Management[1] Participation	30	1,598	53	163	163	987	19.34
Energy Audit	27	1,821	67	146	146	981	19.93
Building Energy Manager	5	786	145	46	46	226	32.50

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

(*) = Value rounds to zero in the units displayed.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.47. District Heat Consumption and Expenditure Intensities, 1992

Building Characteristics	District Heat Consumption			District Heat Expenditures			RSE Row Factor
	per Building (thousand pounds)	per Square Foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)	
RSE Column Factor:	1.2	1.0	1.2	1.2	1.0	0.6	
All Buildings	4,596	82.90	60.9	30.7	0.55	6.67	14.29
Building Floorspace (square feet)							
1,001 to 5,000	Q	Q	Q	Q	Q	Q	NF
5,001 to 10,000	Q	Q	Q	Q	Q	Q	NF
10,001 to 25,000	2,289	144.13	118.7	11.8	0.75	5.18	32.45
25,001 to 50,000	Q	Q	Q	Q	Q	6.11	17.85
50,001 to 100,000	5,264	77.84	72.7	37.4	0.55	7.11	19.42
100,001 to 200,000	9,363	75.86	52.3	71.4	0.58	7.62	22.65
200,001 to 500,000	23,107	71.30	62.7	159.7	0.49	6.91	19.42
Over 500,000	52,815	59.50	30.5	365.7	0.41	6.92	18.88
Principal Building Activity							
Education	2,339	71.84	77.3	14.9	0.46	6.38	18.80
Food Sales	Q	Q	Q	Q	Q	Q	NF
Food Service	Q	Q	Q	Q	Q	Q	NF
Health Care	24,221	136.02	69.2	152.9	0.86	6.31	19.66
Lodging	7,232	112.88	308.0	46.4	0.72	6.42	27.30
Mercantile and Service	Q	Q	Q	Q	Q	Q	NF
Office	4,579	63.60	24.6	30.6	0.43	6.69	23.85
Parking Garage	Q	Q	Q	Q	Q	Q	NF
Public Assembly	2,202	64.89	63.9	16.0	0.47	7.27	22.01
Public Order and Safety	Q	Q	Q	Q	Q	Q	NF
Religious Worship	Q	Q	Q	Q	Q	Q	NF
Warehouse and Storage	Q	Q	Q	Q	Q	Q	NF
Other	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	NF
Year Constructed							
1899 or Before	Q	Q	Q	Q	Q	Q	NF
1900 to 1919	Q	Q	Q	Q	Q	Q	NF
1920 to 1945	6,447	77.53	72.5	43.0	0.52	6.67	21.29
1946 to 1959	2,393	95.00	62.8	15.4	0.61	6.44	38.18
1960 to 1969	5,421	85.50	50.2	33.5	0.53	6.18	20.92
1970 to 1979	6,047	56.74	46.5	39.6	0.37	6.55	20.67
1980 to 1989	Q	Q	Q	Q	0.83	6.91	34.75
1990 to 1992	Q	Q	Q	Q	Q	Q	NF
Census Region and Division							
Northeast	5,332	78.92	45.0	42.1	0.62	7.90	16.73
New England	Q	77.13	74.3	Q	0.53	6.88	26.01
Middle Atlantic	5,230	79.57	39.6	43.2	0.66	8.26	17.58
Midwest	7,728	97.01	97.5	45.2	0.57	5.85	21.69
East North Central	10,091	104.27	89.2	56.6	0.58	5.61	22.90
West North Central	5,923	88.96	110.8	Q	0.55	6.16	34.99
South	2,895	Q	77.5	18.2	Q	6.28	27.56
South Atlantic	Q	79.21	60.7	Q	0.65	8.18	36.95
East South Central	Q	Q	Q	Q	Q	Q	NF
West South Central	Q	Q	Q	Q	Q	Q	NF
West	2,432	55.57	33.3	17.7	Q	7.26	34.91
Mountain	Q	Q	Q	Q	Q	Q	NF
Pacific	2,305	Q	Q	15.2	Q	6.58	26.84
Climate Zone: 45-Year Average							
Fewer than 2,000 CDD and --							
More than 7,000 HDD	4,860	94.62	84.5	22.9	0.45	4.72	27.43
5,500-7,000 HDD	6,140	92.03	75.0	39.5	0.59	6.43	19.86
4,000-5,499 HDD	4,491	71.58	41.3	36.5	0.58	8.13	23.66
Fewer than 4,000 HDD	2,921	62.97	46.2	21.1	0.45	7.22	32.33
More than 2,000 CDD and --							
Fewer than 4,000 HDD	Q	Q	110.9	Q	Q	5.46	12.69

See footnotes at end of table.

Table 3.47. District Heat Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	District Heat Consumption			District Heat Expenditures			RSE Row Factor
	per Building (thousand pounds)	per Square Foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)	
RSE Column Factor:	1.2	1.0	1.2	1.2	1.0	0.6	
Energy Sources (more than one may apply)							
Electricity	4,596	82.90	60.9	30.7	0.55	6.67	14.96
Natural Gas	5,955	79.34	60.5	45.1	0.60	7.57	17.00
Fuel Oil	9,105	79.02	43.5	64.7	0.56	7.10	22.83
District Heat	4,596	82.90	60.9	30.7	0.55	6.67	14.29
District Chilled Water	5,211	77.16	53.7	33.6	0.50	6.45	20.39
Propane	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Energy End Uses (more than one may apply)							
Heated Buildings	4,610	83.13	61.0	30.8	0.55	6.67	14.29
Buildings with A/C	4,707	81.12	55.7	31.2	0.54	6.64	15.83
Buildings with Water Heating	5,173	82.53	60.7	34.7	0.55	6.70	14.58
Buildings with Cooking	9,085	74.16	40.0	67.7	0.55	7.45	15.58
Buildings with Manufacturing	Q	Q	Q	Q	Q	Q	NF
Workers (main shift)							
Less than 5	1,202	Q	Q	Q	Q	Q	39.29
5 to 9	Q	Q	Q	Q	Q	4.24	15.96
10 to 19	1,845	82.05	145.4	14.9	0.66	8.07	27.28
20 to 49	4,035	129.33	130.3	26.7	0.86	6.62	27.33
50 to 99	4,457	61.59	65.5	23.6	0.33	5.29	25.25
100 or More	19,387	72.57	36.6	142.2	0.53	7.33	14.01
Weekly Operating Hours							
39 or Fewer	Q	Q	Q	Q	Q	Q	NF
40 to 48	2,127	88.76	48.3	12.2	0.51	5.76	28.93
49 to 60	Q	Q	Q	23.6	0.38	6.17	33.46
61 to 84	4,977	60.60	46.8	30.4	0.37	6.11	19.27
85 to 167	5,368	77.96	80.5	37.5	0.54	6.99	15.15
Open Continuously	11,116	111.38	114.5	79.3	0.79	7.14	15.77
Ownership and Occupancy							
Nongovernment Owned	5,542	86.00	59.5	35.6	0.55	6.43	20.28
Owner Occupied	6,459	90.11	66.3	39.6	0.55	6.13	21.75
Single Establishment	6,310	105.25	94.8	36.8	0.61	5.83	25.62
Multiple Establishment	7,684	45.66	21.9	63.1	0.37	8.21	28.58
Nonowner Occupied	2,194	56.54	27.4	21.4	0.55	9.74	25.81
Single Establishment	Q	Q	Q	Q	Q	Q	NF
Multiple Establishment	Q	Q	Q	Q	Q	Q	NF
Vacant	Q	Q	Q	Q	Q	Q	NF
Government Owned	3,785	79.31	62.7	26.4	0.55	6.97	14.30
Predominant Exterior Wall Material							
Masonry	4,053	82.33	70.9	26.7	0.54	6.60	13.69
Siding or Shingles	Q	Q	Q	Q	Q	Q	NF
Metal Panels	Q	Q	Q	Q	Q	Q	NF
Concrete Panels	8,038	81.37	53.2	61.6	0.62	7.67	26.36
Window Glass	15,981	46.37	23.0	101.5	0.29	6.35	14.12
Other	Q	Q	Q	Q	Q	Q	NF
Predominant Roof Material							
Built-Up	4,991	82.83	48.7	35.5	0.59	7.12	16.26
Shingles (Not Wood)	3,856	86.44	110.2	19.4	0.43	5.02	35.77
Metal Surfacing	Q	Q	Q	Q	Q	Q	NF
Synthetic or Rubber	7,688	73.96	64.6	52.0	0.50	6.77	18.80
Other	Q	77.81	79.4	Q	0.57	7.29	24.56

See footnotes at end of table.

Table 3.47. District Heat Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	District Heat Consumption			District Heat Expenditures			RSE Row Factor
	per Building (thousand pounds)	per Square Foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)	
RSE Column Factor:	1.2	1.0	1.2	1.2	1.0	0.6	
Space-Heating Energy Source							
District Heat	4,422	78.71	57.7	30.4	0.54	6.88	13.26
District Heat Main	4,425	82.71	59.3	30.4	0.57	6.88	12.54
District Heat Secondary	4,646	43.43	Q	31.2	Q	6.71	41.71
Other Excluding District Heat	Q	Q	Q	Q	Q	Q	NF
Building Not Heated	Q	Q	Q	Q	Q	Q	NF
Main Space-Heating Energy Source							
Electricity	Q	Q	Q	Q	Q	Q	NF
Natural Gas	Q	Q	Q	Q	Q	Q	NF
Fuel Oil	Q	Q	Q	Q	Q	Q	NF
District Heat	4,425	82.71	59.3	30.4	0.57	6.88	12.54
Propane	Q	Q	Q	Q	Q	Q	NF
Wood	Q	Q	Q	Q	Q	Q	NF
Any Other	Q	Q	Q	Q	Q	Q	NF
Cooling Energy Source							
District Heat	39,518	85.21	24.8	380.4	0.82	9.63	14.17
Other Excluding District Heat	4,511	80.93	59.3	29.3	0.53	6.49	16.67
A/C Not Performed	3,927	98.47	188.4	27.3	0.68	6.94	22.13
Water-Heating Energy Source							
District Heat	8,255	90.95	61.2	52.7	0.58	6.39	14.42
Other Excluding District Heat	2,692	67.18	59.5	20.1	0.50	7.47	25.18
Water Heating Not Performed	Q	Q	Q	Q	Q	Q	NF
Cooking Energy Source							
District Heat	11,503	88.10	46.4	88.9	0.68	7.73	22.06
Other Excluding District Heat	7,879	66.50	36.4	57.1	0.48	7.25	21.08
Cooking Not Performed	3,496	89.62	91.1	21.6	0.55	6.18	20.44
Manufacturing Energy Source							
District Heat	Q	Q	Q	Q	Q	Q	NF
Other Excluding District Heat	Q	Q	Q	Q	Q	Q	NF
Manufacturing Not Performed	4,356	79.49	56.5	29.8	0.54	6.84	13.70
Percent of Floorspace Heated							
Not Heated	Q	Q	Q	Q	Q	Q	NF
1 to 50	Q	Q	Q	Q	Q	Q	NF
51 to 99	Q	56.93	31.6	Q	0.42	7.31	30.67
100	4,645	92.05	68.1	30.7	0.61	6.61	15.44
Heating Equipment (more than one may apply)							
Heat Pumps	Q	82.74	43.3	Q	0.71	8.56	21.53
Furnaces	Q	Q	Q	Q	Q	Q	NF
Individual Space Heaters	6,459	87.26	60.6	40.5	0.55	6.27	32.35
District Heat	4,371	79.03	57.8	29.9	0.54	6.85	13.10
Boilers	Q	Q	Q	Q	Q	Q	NF
Packaged Heating Units	Q	93.59	52.1	Q	0.80	8.58	21.68
Other	Q	Q	Q	Q	Q	Q	NF

See footnotes at end of table.

Table 3.47. District Heat Consumption and Expenditure Intensities, 1992 (Continued)

Building Characteristics	District Heat Consumption			District Heat Expenditures			RSE Row Factor
	per Building (thousand pounds)	per Square Foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)	
RSE Column Factor:	1.2	1.0	1.2	1.2	1.0	0.6	
Energy Conservation Features (more than one may apply)							
Any Conservation Features	4,620	83.06	60.8	30.8	0.55	6.67	14.38
Building Shell	4,723	84.10	60.1	31.4	0.56	6.65	14.40
HVAC	4,830	81.85	59.5	32.5	0.55	6.72	14.27
Lighting	4,983	81.88	46.1	34.1	0.56	6.85	14.75
Other	Q	71.85	54.8	Q	0.52	7.28	21.25
Energy Management Practices (more than one may apply)							
Energy Management and Control System	7,647	77.45	42.7	47.2	0.48	6.17	18.72
Demand-Side Management[1] Participation	5,451	102.19	62.5	32.9	0.62	6.04	19.83
Energy Audit	5,364	80.11	49.7	36.1	0.54	6.72	19.25
Building Energy Manager	8,579	59.02	59.0	41.8	0.29	4.87	22.40

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

NF = 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.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.48. Electricity and Natural Gas Consumption by Energy Conservation Features, 1992

Building Characteristics	Electricity			Natural Gas			RSE Row Factor
	Total (billion kWh)	per Building (thousand kWh)	per Square Foot (kWh)	Total (billion cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	
RSE Column Factor:	0.9	1.0	0.6	1.4	1.3	1.2	
All Buildings	765	166	11.5	2,113	795	47.0	5.09
Energy Conservation Features (more than one may apply)							
Any Conservation Features	755	177	11.9	2,069	817	46.8	5.07
Building Shell	735	178	12.0	2,032	827	47.3	5.14
HVAC	656	252	13.1	1,753	1,058	48.4	5.35
Lighting	418	355	14.2	976	1,254	46.1	6.40
Other	72	275	12.2	202	1,158	42.9	8.81
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling Insulation	626	190	12.5	1,693	855	47.9	5.33
Wall Insulation	442	193	13.4	1,105	828	49.6	6.36
Storm or Multiple Glazing	379	228	12.8	1,102	1,060	51.3	6.86
Tinted or Reflective Glass or Shading Film	379	358	15.0	918	1,321	50.6	8.65
Exterior or Interior Shading or Awnings	466	253	13.7	1,176	965	47.3	6.87
Windows that Open	270	131	9.5	1,087	918	53.3	6.72
HVAC Conservation Features (more than one may apply)							
VAV System	239	959	17.1	461	2,406	44.9	9.21
Economizer Cycle	300	725	16.4	604	2,176	43.6	6.79
HVAC Maintenance	645	258	13.1	1,726	1,079	48.6	5.44
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	224	391	14.7	535	1,485	47.3	9.57
Natural Lighting Control Sensors	48	645	15.6	107	2,336	43.8	17.57
Occupancy Sensors	62	1,049	17.1	112	2,715	40.0	11.56
Time Clock	183	542	15.2	319	1,346	36.4	10.08
Manual Dimmer Switches	190	459	15.4	506	1,664	50.3	10.28
Other	37	471	14.2	85	1,632	45.3	12.54
Energy Management Practices (more than one may apply)							
Energy Management and Control System	241	1,020	16.8	483	2,696	46.5	10.14
Demand-Side Management[1] Participation	166	527	14.7	513	2,609	59.1	10.23
Energy Audit	207	398	14.1	534	1,584	49.0	8.73
Building Energy Manager	38	772	16.5	112	3,606	66.8	23.91
Energy Management and Control System (more than one may apply)							
Present in Building	241	1,020	16.8	483	2,696	46.5	10.14
Controls Heating	217	977	16.2	401	2,350	41.0	8.89
Controls Cooling	219	1,114	17.6	427	2,850	47.6	10.86
Controls Hot Water Heating	53	1,552	13.7	168	7,900	67.3	19.83
Controls Lighting	83	1,516	16.0	140	3,771	40.4	21.53
Controls Other Equipment	16	1,286	18.0	24	2,489	30.4	23.08
Not Present in Building	524	120	10.0	1,630	658	47.1	5.58

See footnotes at end of table.

Table 3.48. Electricity and Natural Gas Consumption by Energy Conservation Features, 1992 (Continued)

Building Characteristics	Electricity			Natural Gas			RSE Row Factor
	Total (billion kWh)	per Building (thousand kWh)	per Square Foot (kWh)	Total (billion cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	
RSE Column Factor:	0.9	1.0	0.6	1.4	1.3	1.2	
Demand-Side Management[1] Programs (more than one may apply)							
Any DSM Programs	166	527	14.7	513	2,609	59.1	10.23
Building Shell Program	16	434	14.5	29	1,217	32.5	19.81
HVAC Program	96	627	15.1	262	2,830	53.3	12.13
Lighting Program	126	555	14.4	367	2,534	53.5	10.41
Other DSM Programs	106	961	17.1	317	4,590	61.8	13.82
Off-Hour Equipment Reduction (more than one may apply)							
Heating	459	135	9.9	1,360	637	40.1	5.34
Cooling	447	156	10.5	1,251	670	39.4	5.58
Hot Water	101	175	10.1	319	915	44.4	9.16
Lighting	551	135	10.1	1,542	644	40.6	5.41
Other	90	164	11.2	218	671	40.8	12.97

[1] These Demand-Side Management (DSM) data, which include utility-sponsored programs, in-house programs, and third-party sponsored programs, were reported by the building respondent on the Building Questionnaire (Form EIA-871A). The electric utility-sponsored DSM data reported by the electricity suppliers (Form EIA-871E-1b) are presented in the "At a Glance" section and Table 3.49 of this section. See Appendix B, "Nonsampling and Sampling Errors," for a discussion of the differences between the energy supplier-reported data and building respondent-reported data.

Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Table 3.49. Participation in Electric Utility-Sponsored DSM Programs as Reported by Building Respondent and Electric Utility Respondent, 1992

Building Characteristics	Participation in Electric Utility-Sponsored DSM Programs												RSE Row Factor
	According to Building Respondent						According to Utility Respondent						
	Number of Buildings (thousand)	Floorspace (million square feet)	Major Fuel Consumption (trillion Btu)	Major Fuel Expenditures (million dollars)	Electricity Consumption (billion kWh)	Electricity Expenditures (million dollars)	Number of Buildings (thousand)	Floorspace (million square feet)	Major Fuel Consumption (trillion Btu)	Major Fuel Expenditures (million dollars)	Electricity Consumption (billion kWh)	Electricity Expenditures (million dollars)	
RSE Column Factor:	1.1	1.2	1.3	1.1	1.1	1.1	0.9	0.8	1.0	0.9	0.8	0.8	
All Buildings Offered A DSM Program	205	6,572	743	9,294	93	7,287	1,596	26,898	2,324	30,597	311	24,140	8.25
Building Floorspace (square feet)													
1,001 to 10,000	116	562	78	1,190	11	949	1,180	4,864	454	6,738	56	5,265	13.28
10,001 to 100,000	76	2,299	267	2,995	25	2,184	368	10,332	971	11,978	116	9,070	11.08
Over 100,000	13	3,711	398	5,109	56	4,154	48	11,701	900	11,881	139	9,805	11.76
Principal Building Activity													
Education	29	1,292	119	1,284	11	879	113	3,459	279	3,197	27	2,292	16.96
Mercantile and Service	33	1,126	96	1,659	15	1,437	462	5,635	406	5,910	57	4,775	20.90
Office	42	1,664	155	2,590	29	2,239	248	5,634	577	8,719	97	7,312	11.75
Public Assembly	13	360	42	510	5	377	116	1,407	109	1,387	14	1,063	24.65
Warehouse and Storage	17	382	Q	419	3	259	212	3,834	188	2,299	25	1,815	24.90
All Others	71	1,747	280	2,833	30	2,096	446	6,929	764	9,084	92	6,883	12.32
Year Constructed													
1945 or Before	47	1,080	121	1,328	10	860	416	5,879	371	4,813	37	3,456	16.00
1946 to 1959	34	838	84	884	10	684	291	4,087	366	4,130	39	2,960	17.57
1960 to 1969	37	1,733	189	2,553	25	2,048	272	5,530	533	6,845	71	5,374	16.46
1970 to 1979	46	1,701	214	2,744	29	2,215	306	5,402	510	7,005	77	5,750	14.51
1980 to 1989	36	969	119	1,458	15	1,185	275	5,147	486	6,860	77	5,770	15.33
1990 to 1992	Q	252	17	328	3	294	35	854	58	943	11	831	22.75
Census Region and Division													
Northeast	77	2,721	294	4,200	34	3,232	426	7,771	625	9,302	71	7,049	12.96
New England	33	749	91	1,292	10	950	75	1,688	155	2,178	17	1,626	26.16
Middle Atlantic	44	1,972	202	2,908	25	2,283	350	6,084	470	7,124	54	5,423	17.42
Midwest	57	1,765	203	1,852	20	1,361	378	6,311	576	5,720	67	4,237	18.01
East North Central	43	1,215	139	1,292	12	915	258	3,833	363	3,588	38	2,584	21.24
West North Central	14	550	64	560	8	445	120	2,478	213	2,131	29	1,653	33.81
South	23	789	128	1,419	19	1,155	477	6,633	588	6,970	85	5,551	21.08
South Atlantic	22	756	124	1,369	18	1,111	312	4,762	427	5,177	64	4,141	23.28
East South Central	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	11	599	49.29
West South Central	Q	Q	Q	Q	Q	Q	111	987	Q	Q	Q	Q	57.53
West	47	1,297	119	1,823	19	1,539	315	6,182	535	8,605	88	7,304	17.32
Mountain	Q	228	Q	180	Q	155	36	871	116	1,614	20	1,329	39.09
Pacific	41	1,070	102	1,643	16	1,384	279	5,311	419	6,992	69	5,976	18.49
Climate Zone: 45-Year Average													
Fewer than 2,000 CDD and --													
More than 7,000 HDD	50	1,309	118	1,142	12	857	215	3,464	287	2,787	32	1,979	23.73
5,500-7,000 HDD	70	2,150	260	2,917	25	2,106	456	7,872	698	8,387	79	6,273	14.85
4,000-5,499 HDD	33	1,551	203	2,903	30	2,371	379	7,304	636	8,568	87	6,692	18.09
Fewer than 4,000 HDD	41	1,267	137	1,908	19	1,561	401	6,648	536	8,298	85	7,006	20.32
More than 2,000 CDD and --													
Fewer than 4,000 HDD	10	295	25	423	6	392	144	1,608	168	2,556	28	2,191	27.31

See footnotes at end of table.

Table 3.49. Participation in Electric Utility-Sponsored DSM Programs as Reported by Building Respondent and Electric Utility Respondent, 1992 (Continued)

Building Characteristics	Participation in Electric Utility-Sponsored DSM Programs												RSE Row Factor
	According to Building Respondent						According to Utility Respondent						
	Number of Buildings (thousand)	Floorspace (million square feet)	Major Fuel Consumption (trillion Btu)	Major Fuel Expenditures (million dollars)	Electricity Consumption (billion kWh)	Electricity Expenditures (million dollars)	Number of Buildings (thousand)	Floorspace (million square feet)	Major Fuel Consumption (trillion Btu)	Major Fuel Expenditures (million dollars)	Electricity Consumption (billion kWh)	Electricity Expenditures (million dollars)	
RSE Column Factor:	1.1	1.2	1.3	1.1	1.1	1.1	0.9	0.8	1.0	0.9	0.8	0.8	
Energy Sources (more than one may apply)													
Electricity	205	6,572	743	9,294	93	7,287	1,596	26,898	2,324	30,597	311	24,140	8.09
Natural Gas	132	4,945	568	7,013	67	5,471	913	19,688	1,842	22,872	227	17,559	10.23
Fuel Oil	35	2,223	318	3,800	37	2,901	284	6,927	730	8,709	93	6,740	15.60
District Heat	18	1,049	188	1,986	17	1,241	41	2,285	382	4,389	41	2,892	21.13
District Chilled Water	6	407	67	725	9	510	13	876	154	1,796	19	1,298	31.33
Propane	13	242	20	408	4	373	159	1,534	107	1,738	17	1,455	25.49
Any Other	Q	Q	Q	Q	Q	Q	63	680	30	454	4	355	33.07
Energy End Uses (more than one may apply)													
Heated Buildings	202	6,500	738	9,198	91	7,193	1,458	25,506	2,280	29,668	301	23,264	8.18
Buildings with A/C	175	6,120	708	8,887	90	7,038	1,170	23,265	2,151	28,398	295	22,615	8.34
Buildings with Water Heating	188	6,334	733	9,105	91	7,126	1,235	24,509	2,256	29,403	301	23,140	8.33
Buildings with Cooking	59	3,805	475	6,018	62	4,867	288	10,383	1,124	14,446	152	11,539	10.43
Buildings with Manufacturing	10	389	86	747	6	458	44	1,489	162	1,721	17	1,225	23.73
Workers (main shift)													
Less than 10	106	1,088	95	1,060	9	766	1,138	8,073	491	6,741	58	5,131	15.46
10 to 99	85	2,265	244	2,937	27	2,170	414	10,423	937	11,890	115	9,101	11.55
100 or More	14	3,219	404	5,297	57	4,351	44	8,402	896	11,966	138	9,909	11.47
Weekly Operating Hours													
48 or Fewer	68	1,357	103	1,256	11	916	702	7,672	480	6,190	58	4,691	14.05
49 to 84	81	2,436	245	3,282	32	2,655	597	11,351	825	11,803	116	9,555	10.86
85 to 168	56	2,779	395	4,757	50	3,716	297	7,875	1,019	12,604	138	9,894	12.90
Space-Heating Energy Sources (more than one may apply)													
Electricity	61	2,530	293	4,169	44	3,526	463	10,152	857	12,436	139	10,591	11.94
Natural Gas	119	4,039	448	5,394	52	4,237	833	17,008	1,509	18,193	181	13,931	11.68
Fuel Oil	27	1,203	207	1,923	17	1,301	255	4,314	456	4,911	46	3,550	17.99
District Heat	16	991	149	1,764	15	1,148	40	2,232	347	4,218	40	2,846	19.22
Propane	Q	Q	Q	Q	Q	Q	112	703	28	664	7	640	28.91
Wood	Q	Q	Q	Q	Q	Q	41	247	9	154	1	124	33.35
Any Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	NF
Energy Conservation Features (more than one may apply)													
Any Conservation Features	204	6,564	743	9,289	93	7,284	1,486	26,120	2,297	30,208	309	23,848	8.29
Building Shell	200	6,515	739	9,216	92	7,235	1,442	24,986	2,250	29,462	300	23,219	8.36
HVAC	168	6,134	707	8,851	89	6,997	948	21,057	2,045	26,803	279	21,252	8.40
Lighting	106	5,002	559	7,333	74	5,863	481	13,790	1,360	18,253	195	14,762	9.20
Other	27	1,037	125	1,536	13	1,102	113	2,597	251	3,145	32	2,410	14.91

See footnotes at end of table.

Table 3.49. Participation in Electric Utility-Sponsored DSM Programs as Reported by Building Respondent and Electric Utility Respondent, 1992 (Continued)

Building Characteristics	Participation in Electric Utility-Sponsored DSM Programs												RSE Row Factor
	According to Building Respondent						According to Utility Respondent						
	Number of Buildings (thousand)	Floorspace (million square feet)	Major Fuel Consumption (trillion Btu)	Major Fuel Expenditures (million dollars)	Electricity Consumption (billion kWh)	Electricity Expenditures (million dollars)	Number of Buildings (thousand)	Floorspace (million square feet)	Major Fuel Consumption (trillion Btu)	Major Fuel Expenditures (million dollars)	Electricity Consumption (billion kWh)	Electricity Expenditures (million dollars)	
RSE Column Factor:	1.1	1.2	1.3	1.1	1.1	1.1	0.9	0.8	1.0	0.9	0.8	0.8	
Building Shell Conservation Features (more than one may apply)													
Roof or Ceiling Insulation	175	5,671	653	8,239	84	6,529	1,138	20,300	1,915	24,917	263	19,832	8.80
Wall Insulation	128	3,628	436	5,393	55	4,235	802	13,513	1,279	16,796	179	13,445	9.76
Storm or Multiple Glazing	118	3,879	464	5,339	56	4,124	667	13,201	1,255	15,474	164	12,043	9.68
Tinted or Reflective Glass or Shading Film	60	3,419	444	5,608	59	4,518	338	10,142	1,097	14,441	158	11,749	11.68
Exterior or Interior Shading or Awnings	103	3,951	455	5,699	62	4,514	601	13,859	1,391	17,934	192	14,243	9.49
Windows that Open	91	3,418	391	4,447	41	3,337	790	12,465	1,129	13,174	118	9,529	11.56
HVAC Conservation Features (more than one may apply)													
VAV System	20	2,451	307	4,043	44	3,393	109	5,956	684	9,012	106	7,556	13.17
Economizer Cycle	50	3,404	391	5,177	56	4,255	167	8,368	894	11,945	141	9,984	11.05
HVAC Maintenance	165	6,022	699	8,773	89	6,937	921	20,728	2,021	26,531	276	21,044	8.54
Lighting Conservation Features (more than one may apply)													
Specular Reflectors	55	2,967	342	4,712	48	3,846	228	7,277	769	10,075	113	8,182	13.01
Natural Lighting Control Sensors	6	804	80	1,110	10	895	28	1,269	151	1,980	21	1,555	26.31
Occupancy Sensors	7	814	105	1,356	16	1,071	28	1,896	207	3,029	31	2,464	17.13
Time Clock	36	2,279	204	3,295	33	2,882	131	5,293	475	7,573	83	6,572	14.74
Manual Dimmer Switches	36	2,807	319	4,305	46	3,530	179	6,421	694	8,585	94	6,762	13.80
Other	19	878	94	1,186	12	925	50	1,742	173	2,249	22	1,743	17.63
Energy Management and Control System (more than one may apply)													
Present in Building	31	2,898	383	4,418	49	3,458	105	6,764	753	9,540	110	7,759	12.28
Controls Heating	30	2,656	350	4,070	43	3,176	102	6,392	707	8,895	101	7,188	12.60
Controls Cooling	24	2,317	302	3,671	41	2,949	80	5,525	626	8,143	97	6,736	12.98
Controls Hot Water Heating	7	872	111	1,232	14	985	15	1,861	179	2,216	24	1,817	22.83
Controls Lighting	10	1,128	93	1,463	16	1,287	25	2,031	178	2,746	32	2,417	21.76
Controls Other Equipment	1	226	23	342	4	299	6	496	50	828	9	732	34.99
Not Present in Building	173	3,674	361	4,877	44	3,829	1,490	20,134	1,571	21,057	202	16,381	9.75

NF = 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.
Notes: • To obtain the RSE percentage for any table cell, multiply the corresponding RSE column and RSE row factors. • See Glossary for explanation of abbreviations and definitions of terms used in this report. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity, which is not included in the "Total of Major Fuels" category, is site electricity plus the conversion losses in the electric generation process at the utility plant. • Statistics for the "energy end uses" represent consumption in buildings that have end use, not consumption for a particular fuel for a particular end use. • A/C = Air Conditioning. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable Air Volume. • Because of rounding, data may not sum to totals.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F of the 1992 Commercial Buildings Energy Consumption Survey.

Appendix A

How the Survey Was Conducted

Appendix A

How the Survey Was Conducted

Introduction

The Commercial Buildings Energy Consumption Survey (CBECS) is conducted by the Energy Information Administration (EIA) on a triennial basis to provide basic statistical information on energy consumption and expenditures for U.S. commercial buildings and data on energy-related characteristics of these buildings. To obtain this information, a survey is conducted based upon a sample of commercial buildings selected according to the sample design requirements described in the "Sample Design" section of this appendix. A "building" is the basic unit for the CBECS as opposed to an "establishment" because a building is the energy-consuming unit.

This is the fifth in a series of surveys for the commercial sector. Previous surveys were conducted in 1979, 1983, 1986, and 1989. The 1979, 1983, and 1986 surveys were called the Nonresidential Buildings Energy Consumption Survey (NBECS). In 1989, the survey's name was changed to Commercial Buildings Energy Consumption Survey (CBECS); however, the survey's design remained essentially the same. For consistency, all the surveys will be referred to as CBECS in this report. A special feature of the 1992 CBECS is that it was designed as a longitudinal survey to revisit the same buildings as interviewed in the 1986 CBECS.

The CBECS is conducted in two major data collection stages: a Building Characteristics Survey and an Energy Suppliers Survey. The first stage, the Building Characteristics Survey, collects information about selected commercial buildings through voluntary personal interviews with the buildings' owners, managers, or tenants. These data are collected on Forms EIA-871A, Building Questionnaire (consisting of the Building Questionnaire together with the Authorization Form) and EIA-871G, Construction Improvements and Maintenance and Repairs Supplement, for the Bureau of the Census (Census). The Census Form was incorporated as Section R of Form EIA-871A. The Authorization Form is used to secure the release of the buildings' energy consumption and expenditures records from the energy supplier. These data are collected during the Energy Suppliers Survey, which is the second stage.

The Energy Suppliers Survey obtains data concerning the building's actual consumption of energy and expenditures for energy from records maintained by energy suppliers. This information is obtained by means of a mail survey conducted under EIA's mandatory data collection authority using Forms EIA-871C through F. Additionally, the 1992 CBECS asked energy suppliers about any Demand-Side Management (DSM) programs they may have provided to the building. Under EIA's direction, a survey research firm conducted both the personal interviews for the Building Characteristics Survey and the mail survey for the Energy Suppliers Survey.

This report includes 1992 CBECS data from both the Building Characteristics Survey and the Energy Suppliers Survey. An earlier report, *Characteristics of Commercial Buildings 1992*, was based solely on the Buildings Characteristics Survey and was published April 1994.

This appendix has three main sections: "Sample Design," "Building Characteristics Survey," and "Energy Suppliers Survey." These sections focus on components of the sample and on the procedures for collecting and processing the CBECS data. Additional sections include: "Public-Use Data Preparation," "Confidentiality," "Longitudinal Issues," and "Special Data Collection for the Census." The data collected for the Bureau of the Census are published by that agency and are not included in this report. The Building Questionnaire, the Authorization Form, the Energy Supplier Forms, and the Census Supplement are shown in Appendix G, "Survey Forms."

Target Population

The target population for the 1992 CBECS consisted of all commercial buildings in the United States larger than 1,000 square feet. Thus, to be eligible for the survey, a building had to satisfy three criteria: (1) it had to meet the survey's definition of a building, (2) it had to be used primarily for some commercial purpose, and (3) it had to measure 1,001 square feet or more. A commercial building is defined by CBECS as a structure totally enclosed by walls that extend from the foundation to the roof and is intended for human access. To be used primarily for some commercial purpose, the building must have more than 50 percent of its floorspace devoted to activities that are neither residential, industrial, nor agricultural. Further information on these criteria are provided later in the "Building Characteristics Survey" section under "Determining Building Eligibility for CBECS." The 1992 CBECS estimated that there were 4,806 thousand buildings in the target population.

What's New in 1992 CBECS

For the 1992 CBECS, new questions were added, previous questions were expanded, and in some cases, the energy supply data were collected on computer diskettes. The new questions collected information on issues such as energy-related functions and DSM programs. The expanded questions collected more detailed information on issues ranging from building use to lighting. Wording and structural changes were incorporated into the 1992 questionnaires in order to: (1) improve data quality by ensuring comparability with the 1986 Building Questionnaire; (2) resolve ambiguities, which ultimately help the interviewers and the respondents to better understand the questions; and (3) meet the user needs, which were reported in an extensive CBECS User-Needs Study conducted in 1991. (See Appendix G, "Survey Forms.")

HIGHLIGHTS OF CHANGES IN THE 1992 CBECS

- Sample-size increase of 400 buildings including 150 new, large office buildings
- Longitudinal revisit of 1986 CBECS (longitudinal data not included in this report)
- Expanded question about the building to assist the interviewer in selecting the correct structure to interview
- Extensive CBECS user-needs study to maintain client-oriented survey results in extending and adding new questions to provide more detail on energy-related building characteristics:
  - -- Equipment - lighting, personal computers, refrigeration, hot water heating
  - -- Physical Characteristics - below-ground-level floors, building shape, ground-level length and width of square and rectangular buildings, attachment to other structures, renovations and demolitions
  - -- Conservation and Energy Management - Demand-Side Management (DSM) participation, additional operating hours for equipment, responsibility for operation and maintenance of equipment, economizer cycles, special space functions
  - -- Energy Source and Related Information - gas transported for the account of others, photovoltaic cells (PVC's), solar thermal panels, wood, special energy technologies.

Comparability with the 1986 Building Questionnaire

Since the 1992 CBECS was a longitudinal revisit of the same buildings as in the 1986 CBECS, revisions were made to ensure that for certain questions, the CBECS Building Questionnaire for 1992 was comparable to the one for 1986. Additionally, a section of questions was added to confirm that the interview was being conducted for the same building as defined for the 1986 CBECS interview. These questions required the interviewer to compare the statistics provided in 1986 and 1992 for square footage, number of floors, and year constructed. The respondents were required to explain any differences in the numbers. This additional information assisted the interviewer when determining if the 1992 building was the same building for which the interview was conducted in 1986.

Resolving Ambiguities

Some questionnaire revisions were conducted to resolve ambiguities noted in the 1989 CBECS. One such ambiguity involved identifying the correct structure to interview. The resulting revision was the development of a section (interviewer observation of the building) for the interviewer to complete before the interview began. This section assisted the interviewer in selecting the correct structure and parts of the structure to interview. Other revisions that occurred to resolve ambiguities are discussed below.

1992 CBECS User-Needs Study

Assessment of previous CBECS data through an extensive CBECS user-needs study[10] conducted in 1991, resulted in a list of specific user needs and led to revisions in the 1992 CBECS Building Questionnaire content. EIA conducted this assessment in response to heightened awareness of energy-related issues sparked by the Department of Energy's development of the National Energy Strategy (NES) and the associated pending Congressional legislation (Energy Policy Act of 1992, enacted in 1993). Since CBECS is the sole nationwide data set addressing energy-related issues in commercial buildings, changes to the CBECS Building Questionnaire were essential to begin addressing questions raised by the energy legislation. Major changes to the 1992 CBECS Building Questionnaire are listed below.

Equipment

- Lighting - Questions related to types of lighting were expanded to distinguish among incandescent, fluorescent, compact fluorescent, HID, and other types of lighting. A 1986 question about lighting conservation features was expanded to record whether specular reflectors, daylighting controls, occupancy sensors, time clocks or timed switches, dimmer switches, or other lighting conservation equipment existed in the building.

- Office - 1992 was the first time CBECS collected data on the number of personal computers/computer terminals located in the building. Since office equipment is believed to be one of the fastest growing segments of energy consumption in buildings, personal computers and computer terminals are an indication of other types of office equipment such as facsimile machines and copying machines.

- Heating, Ventilation, and Cooling System (HVAC) - The equipment questions were expanded to obtain a more precise identification of the types of HVAC equipment in buildings, such as: an open-ended question about the overall system used to heat and/or cool the building; questions asking the percent of floorspace that was heated by each type of equipment and linking the distribution system to the specific heating equipment (also asking the same for cooling); and, residential-type central air conditioners were added to the types of specific equipment that may be a part of the cooling system.

[10] For a detailed discussion of the 1992 CBECS user-needs study, see *User-Needs Study for the 1992 Commercial Buildings Energy Consumption Survey*, DOE/EIA-0555(92)/4, Energy Information Administration (Washington, D.C: Government Printing Office, September 1992).

- Other - Refrigeration questions were expanded to obtain more details about the types of refrigeration units. For the first time, the number of refrigeration units was also obtained. Also, this was the first time CBECS asked whether the hot water heating system was a centralized or distributed system.

Building Characteristics

- Physical Characteristics - Questions were expanded to determine: whether there were any below-ground-level floors in buildings; whether the building was attached to another building; the shape of the building; and the length and width at ground level of square- and rectangular-shaped buildings. Also, the exterior wall material category "concrete panels" was renamed "pre-cast concrete panels," and "sheet metal panels" were added as a category.

- Building Activities - This was the first time CBECS separated the principal building activity category of "assembly" into "public assembly" and "religious worship." Also, for the first time CBECS asked how space was used in a building (space function) and the percent of floorspace used for each of the following energy-related space functions: commercial food preparation and serving; computer room(s) with separate air conditioning systems; special ventilation equipment such as laboratories or clean rooms; any activity requiring large amounts of hot water, and any other function that requires large amounts of energy.

- Renovations and Demolitions - As in 1989, the 1992 CBECS Building Questionnaire asked whether the building's floorspace had increased or decreased since 1986 and, if so, by how much.

Conservation Activities and Energy Management

- DSM - This was the first time detailed questions about DSM programs were asked. These questions included whether the building's electric or natural gas utility had sponsored any DSM programs; whether the building or facility had participated in, or planned to participate in, any DSM programs sponsored in-house, by a utility, or a third party; which specific DSM program areas the building had participated in, such as, lighting, building envelope, and HVAC systems; identification of specific program sponsors; and what type of assistance was received through the DSM program, such as, general information, incentives, or alternatives rates. During the Energy Suppliers Survey, additional data were collected on DSM participation for the specific building.

- Ownership and Occupancy Characteristics - Questions about vacant buildings were expanded to ask which months the building or part of the building was vacant and the percentage of floorspace vacant each month. The occupancy characteristic questions were changed to distinguishing the occupant by type of government agency, privately owned utility company, church or other occupant. Questions were added about detailed daily operating schedules and the number of workers across all shifts as well as the main shift.

- Energy Management Characteristics - Energy management questions were expanded to ask whether there was a change in the temperature setting or a reduction in the use of the hot water heating, lighting, or other equipment when the building was not in full use. Questions were added to obtain the "shoulder hours" for the HVAC and/or lighting equipment ("shoulder hours" are the additional hours other than normal operating hours when the HVAC and/or lighting equipment was in use.) If there were shoulder hours, the 1992 CBECS obtained the approximate hours per week this equipment was operating. Also, the 1992 CBECS specifically asked about the individual responsible for the day-to-day operation and maintenance of the building's HVAC equipment; whether most windows could be opened; whether a heating and/or cooling system had variable air volume and/or an economizer cycle; and whether there were any special energy technologies in the building.

Energy Sources and Related Information

- Natural Gas Transported for the Account of Others - Questions were included about natural gas transported for the account of others (often referred to as transported gas). These included whether the building purchased it, who supplied it, and what costs were involved.

- Renewable Energy Sources - Questions were asked about photovoltaic cells (PVC's) that convert sunlight directly into energy and solar thermal panels that use sunlight to heat fluids. PVC's and solar thermal panels were added as separate categories for the types of fuels or energy sources used in the building.

- Wood - Questions were asked about the number of cords burned in the building by the end of calendar year 1992, whether the wood was purchased or provided free of charge from some other source, and categorical expenditures for wood during calendar year 1992.

- Special Energy Technologies - This was the first time since the 1983 survey that a question was asked about special energy technologies that might be present in buildings. The categories asked were thermal energy storage (TES) or pump storage; passive solar features; geothermal energy; well water for cooling; waste incineration to produce energy; and wind generation.

Assessment of Energy Suppliers Forms

Prior to the 1992 CBECS, an assessment of the energy suppliers forms was undertaken in order to determine the most effective way to: (1) capture data related to Gas Transported for the Account of Others; (2) more fully understand the building's participation in DSM programs; and (3) collect the data electronically.

Natural Gas Transported for the Account of Others. As a result of input from selected energy suppliers or their representatives, a change was made in the natural gas data collection forms to facilitate the collection of natural gas consumption, including gas transported for the account of others. In 1992, gas sales and the corresponding costs were more clearly delineated on the form as either utility gas sales or transportation gas deliveries. This change resulted in processing the forms more efficiently and in identifying more easily those cases where double counting of natural gas consumption might occur.

DSM Programs. To determine whether electric and natural gas suppliers could provide information on DSM program participation at the building level, EIA obtained feedback from energy suppliers as to the ease and reasonableness of providing this information. Based on discussions with the suppliers, it was concluded that they could provide the following types of information: (1) the buildings' participation in a utility-offered DSM program, (in the case of the natural gas suppliers, an Integrated Resources Planning (IRP) program); (2) the type of DSM or IRP measure the building participated in; and (3) the type of assistance the building received from the utility in respect to the programs. The DSM and IRP questions that were asked of the energy suppliers mirrored the questions asked of the building respondent during the Building Characteristics Survey.

Additionally, it was determined that the questions could more accurately be answered by someone in an office that tracks DSM participation rather than by the respondent who answers the consumption and expenditure forms. As a result, the DSM and IRP questions were included on separate forms that were inserted in the regular energy suppliers forms. The energy supplier respondent was responsible for coordinating the transfer of the insert forms to the correct office and then seeing that all the forms were returned for processing. This coordination appeared to work well, with the majority of the DSM or IRP forms being returned with the energy usage forms.

Electronic Data Collection. In an attempt to reduce the amount of burden associated with the collection of energy supply data, the electric and natural gas suppliers that were asked to submit data for five or more buildings and the fuel oil suppliers that were asked to submit data for two or more buildings, received both paper forms and formatted computer diskettes. The suppliers could choose to submit the required data in either format. Approximately 10 percent of the forms were submitted on diskettes, with the larger natural gas and electric utilities choosing to submit the data in this format. Fuel oil suppliers were the least likely to submit the data on diskettes.

Sample Design

A consistent, comprehensive list of all buildings in the target population does not exist. Such a list for the entire Nation would be prohibitively expensive to develop and maintain. As a result, the sample design for the CBECS is not based upon sampling from a national list of commercial buildings.

The sample design for the CBECS is a multistage area probability cluster sample design supplemented by a list sample of "large" buildings, recently constructed buildings, and "special" buildings (Federal Government buildings, post offices, hospitals, nursing homes, colleges, universities, secondary schools, and elementary schools). The area sample portion of the design is a sample from the broad spectrum of commercial buildings. The supplemental list sample provides an oversample of "large" buildings and "special" buildings. Similarly, for recently constructed buildings, the area sample is used to provide a sample from the broad spectrum of new buildings and the supplemental list sample provides an oversample of "large," new buildings.

The accuracy of the estimates of the total amount of energy used in commercial buildings is increased if energy-intensive buildings are sampled at a higher rate. The sampling rate for different types of buildings varies in the area sample portion of the design, but the cost of the area sample design increases as the difference between sampling rates increases. The addition of the supplemental list sample to the sample design allows the use of very high sampling rates for the largest commercial buildings at a lower cost than expanding the scope of the area sample. Similarly, it is more cost effective to use the supplemental list sample to oversample "special" buildings and recently constructed buildings than to expand the area sample approach.

Longitudinal Sample Design

The sample design for the 1992 CBECS was essentially the same as for earlier CBECS, particularly the 1986 CBECS. The 1992 CBECS is a longitudinal revisit of the 1986 sample and deliberately maximizes overlap with that earlier sample. The buildings selected in 1986 were re-selected in 1992 with some exceptions as described in the "Field-Listing Buildings Within Segments" section.

The primary objective of the longitudinal sample design was to observe the changes in a sample of the same commercial buildings over a 6-year period between two CBECS (1986 and 1992). Previously, a longitudinal sample design was incorporated in the 1983 CBECS using the 1979 CBECS buildings. However, data analysis revealed that 4 years were not enough time to expect a change in energy consumption and expenditures.

Sample Design Updates

The 1986 sample was updated for the 1992 CBECS in three ways:

Area Sample

- For the area sample, field workers visited a portion of the areas surveyed in 1986 and updated the building listings from that earlier survey. A sample of buildings was selected from the "new" (i.e., not previously listed) buildings identified during this area sample list update.

Supplemental List Samples

- Large facilities that were sampled from the 1986 lists were recontracted in 1992 by telephone to ascertain if there were any new buildings constructed since the 1986 sample.

- An additional list sample was selected from Dodge Reports of new construction projects to ensure better representation in the sample of (1) newly constructed large buildings and (2) large (250,000 square feet or more) office buildings. This list frame identified buildings constructed between the 1986 and 1992 CBECS.[11] For more indepth discussion, see "Supplementary Sample from Lists of Large and Specialized Buildings" section in this appendix.

Sampling Procedures

As briefly described earlier, the 1992 CBECS sample was a multistage area probability sample supplemented by a sample from lists of "large" buildings and "special" buildings. For both the area sample and the supplemental list sample, sampling procedures began with the selection of Primary Sampling Units (PSU), the geographic areas of the country in which all subsequent sampling procedures were carried out. Sampling procedures for the area sample were as follows: ZIP Code Groups were subsampled as the Secondary Sampling Units (SSU's) within the sampled PSU's; segments were subsampled within the SSU's; lists of all nonresidential buildings were compiled for all sampled segments; and, buildings were selected from those lists. For the supplemental list sample, "large" and "special" buildings were selected directly from the lists of large and specialized buildings for each PSU. These lists covered the entire PSU's, not just the sampled ZIP Code Groups used for the area sample.

Projected Sampling Results

The goal of the 1992 CBECS sampling procedures (both the area sample and the supplemental list sample) was to achieve completed interviews of 6,400 buildings, including an additional 150 large, new office buildings taken from the Dodge list of large (250,000 square feet or more) office buildings. This total would include 4,850 buildings from the area sample and 1,550 buildings from the supplemental list sample, which includes the "large" buildings and "special" buildings lists and lists of new construction projects since 1986.

Actual Sample Selected

In order to achieve the 1992 CBECS sampling goal, the actual sample selected included 7,699 buildings from the area sample and 2,472 buildings from the supplemental list sample.

Actual Sampling Results

These procedures resulted in 6,637 completed interviews. This total included 4,944 buildings from the area sample and 1,693 buildings from the supplemental list sample. Therefore, the 1992 CBECS sampling procedures achieved the goals for the number of completed surveys. More importantly, the 1992 CBECS adequately represents the U.S. commercial buildings population to efficiently measure commercial buildings energy consumption.

The following sections provide more details about the sample design and selection for the area sample and the supplemental list sample components.

[11]Dodge Reports are collected, maintained, and distributed by the F.W. Dodge Division of the McGraw-Hill Information Systems Company, New York, NY.

Multistage Area Probability Sample

The area component of the 1992 CBECS sample used a four-stage cluster sampling design: Selecting Primary Sampling Units, Selecting Secondary Sampling Units, Selecting Segments, and Selecting Buildings (Figure A1). The first three of these stages involved sampling progressively smaller geographic areas. For the 1992 CBECS, the PSU's, SSU's and Segments selected for the 1986 CBECS were reused, since 1992 was a revisit of the 1986 sample. For the fourth stage of sampling, selection of buildings were re-executed in 1992 using procedures to update the building lists from the 1986 CBECS to include new construction in selected segments and to maximize the overlap with the 1986 sample.

Selecting Primary Sampling Units

To prepare for the first-stage of the area sample, approximately 3,100 counties and independent cities of the United States were grouped into 1,799 PSU's. A PSU typically consists of one or more contiguous counties, such as a metropolitan statistical area (MSA) with surrounding suburban counties or a set of one or more rural counties. Essentially, for the first stage, the same PSU's were selected for the 1986, 1989, and 1992 CBECS. These CBECS all used the same PSU's that were selected for the first stage of the 1984 Residential Energy Consumption Survey (RECS).[12] The two survey designs diverged at the second and subsequent stages.

PSU's with similar characteristics were grouped to form 129 strata. Characteristics used to define the strata were Census division, MSA or non-MSA status, the predominant residential heating fuel in 1980, and climate zone.[13] Within each stratum, one PSU was selected with probability proportional to its 1980 Census population. The design of efficient area samples requires that the area segments be as nearly equal in size as possible. For CBECS, population is correlated with the survey's characteristic of interest—commercial buildings.

Probability-proportional-to-size (PPS) sampling is commonly used to take advantage of existing knowledge about the sample units to improve the reliability of survey estimates. For quantities roughly proportional to these measures of size (MOS's), estimates based on PPS sampling have lower variances than estimates based on equal-probability sampling. 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 for each of these PSU's to form a stratum by itself, so that each was selected with certainty. For the noncertainty PSU's, the Keyfitz method was used to assign selection probabilities.[14] This method enhanced the probability of inclusion of specific PSU's that had been selected for the previous RECS, while ensuring that the current RECS selection probabilities were still proportional to 1980 population levels. Controlled selection was used to improve the geographic coverage of the sample by maximizing the number of different States represented by the sampled PSU's.[15]

For the 1989 and 1992 CBECS, 10 non-MSA PSU's were randomly deleted from the initial sample of PSU's to reduce survey costs. The PSU's to be dropped were selected in 1989 by subsampling PSU's from entirely non-MSA strata in each of the four Census regions. The same 10 PSU's that were dropped for the 1989 CBECS were dropped again in 1992, reducing the number of PSU's from the 129 in the 1986 CBECS to 119 in 1989 and 1992.

The reduction in the number of PSU's was accompanied by a reduction in the building sample. That is, there was no attempt to "replace," in other PSU's, the buildings that would have been selected from the deleted PSU's. An additional weighing factor was introduced in the 1989 sample design and again in the 1992 sample design to compensate for the reduced sampling rate in entirely non-MSA strata.

[12] Energy Information Administration, Office of Energy Markets and End Use, *1987 Residential Energy Consumption Survey Sample Design Procedures Manual* (Princeton, NJ: Response Analysis Corporation, September 1988).

[13] *1987 Residential Energy Consumption Survey Sample Design Procedures Manual.*

[14] M.H., Hansen, W. N. Hurwitz, and W. G. Madow, *Sample Survey Methods and Theory*, Vol. 2 (New York: John Wiley and Sons, 1953).

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

Figure A1. Multistage Area Probability Sample Portion for the 1992 CBECS

Selecting Secondary Sampling Units

To form second-stage sampling units for CBECS, each sampled PSU was divided into areas corresponding to five-digit ZIP Codes.[16] ZIP Codes covering small areas or representing individual buildings or post office boxes were grouped together with larger area ZIP Codes. All second-stage sampling units are, thus, referred to as ZIP groups. A total of about 3,900 ZIP groups were formed within the sampled PSU's. Of these, 444 ZIP groups were selected, using probabilities proportional to a second-stage MOS, which was the estimated number of buildings in the ZIP group. The second-stage MOS was designed to reflect the level of commercial activity and was computed for each ZIP group using employment data from the Census' 1983 County Business Patterns (CBP) reports, and employee occupancy rates in different building types obtained from the 1979 CBECS.

The ZIP group MOS was 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 of all ZIP groups in the PSU's of that cell. The desired number of third-stage sampling units (prior to deletion of the 10 non-MSA PSU's) 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.

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 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 a large MOS were selected two or more times. A total of 509 selections occurred within the original sample of 129 PSU's, representing 444 unique ZIP groups. The number of times that a ZIP group was selected corresponded to the number of third-stage sampling units to be drawn into the sample from that ZIP group.

Selecting Segments

The third-stage sampling 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 maps and rough counts of the number of nonresidential buildings on each block face. Within the original sample of 129 PSU's, 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 nationwide. Within PSU's and ZIP groups, the segments were selected such that 509 of the 43,260 potential segments nationwide were sampled with equal overall probabilities. However, due to the subsampling of PSU's mentioned earlier, segments in the non-MSA PSU's in the 119 PSU's designated for the 1992 CBECS had overall probabilities of selection equal to approximately three-fourths of the probabilities of selection of segments in the MSA PSU's. After deleting the 10 subsampled PSU's (and the 23 segments located in them), a total of 486 segments remained for the area sample for the 1992 CBECS.

Field-Listing Buildings Within Segments

Once segments were selected, preparations were made for the fourth stage of sampling, selecting commercial buildings from within segments. With a few exceptions, a building, for purposes of CBECS, is defined as a structure totally enclosed by walls extending from the foundation to the roof; commercial buildings house some type of commercial activity.

Since the 1992 CBECS is a longitudinal revisit of the 1986 sample, the 1992 sample deliberately maximized overlap with that earlier sample. That is, the buildings selected in 1986 were re-selected in 1992, with the exception of the 1986 buildings that were in the 10 PSU's that were dropped from the 1989 and 1992 surveys. These 1986 buildings in the dropped PSU's were excluded from the 1992 building selection.

[16]Energy Information Administration, Office of Energy Markets and End Use, The 1992 *Commercial Buildings Energy Consumption Survey Sample Selection Procedures Manual* (Princeton, NJ: Response Analysis Corporation, October 1992).

In 1986, field workers canvassed on foot each sampled segment, identifying and listing the addresses of all commercial buildings. Field workers also estimated the square footage and apparent principal usage of listed buildings. This information was subsequently used to assign buildings to strata for sampling.

Updating the Area Sample for New Construction. A complete relisting (updating) of 191 of the originally sampled 509 segments was conducted for the 1992 CBECS to account for any buildings newly constructed or converted to commercial use after the earlier survey as well as those demolished or converted *from* commercial use.

The selection in 1989 of the 191 update segments was made randomly within strata defined on the basis of advance estimates of the number of newly constructed buildings in the segment. Since the update segments represented a stratified subsample of the original sample of segments, new buildings in these segments could be appropriately weighted to provide national estimates of newly constructed buildings. The remaining segments were not updated, and thus were weighted to reflect only those buildings in existence at the time of the 1986 CBECS.

To avoid double counting, buildings in nonupdate segments that were constructed after the 1986 listings were not eligible for the sample, since such new construction was already represented by the weighted update sample. For this reason, if a sampled building in a nonupdate segment was found during the interview to have a construction year later than 1986, the building was deleted on the assumption that it was a new building on the site of an old listing. Nonupdate segment buildings reported as constructed in 1987 were retained if they otherwise matched the 1986 listing description.

Selecting Buildings. Buildings were sampled within size/usage 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 under 10,000 square feet was sampled at an overall rate of only 1 in 1,400 (.000714), the stratum of office buildings with 50,000 or more square feet was sampled at a rate of 1 in 204 (.004902). This stratified sampling is similar to PPS sampling in that each uses MOS (but in a different way) to increase the reliability of estimates of square footage and energy consumption. The desired overall sampling rates used for selection of the area sample for the 1992 CBECS are provided in Table A1.

Table A1. Area Sampling Rates by Size and Use Class

Use Class	Size (Square Feet)			
	Under 10,000	10,000 - 24,000	25,000 - 49,999	50,000 or more
Retail	.000595	.002101	.003677	.004902
Office	.000714	.002451	.003677	.004902
Open Space	.000714	.002451	.004902	.007354
Other	.000794	.002451	.003677	.003677

Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

Approximately 16 buildings were sampled from each of the 486 segments. The number of buildings included in the CBECS varied from the number sampled, depending on what the interviewer actually found at the building site. If during the interview a sample selection turned out to be a facility (for example, a campus or complex) of two or three buildings rather than a single building, all buildings in the facility were taken into the sample. Buildings at facilities of four or more buildings were subsampled. A final total of 7,699 buildings was selected into the multistage area probability sample.

Supplementary List Sample from Lists of Large and Specialized Buildings

As mentioned previously, a supplemental list sample was used to correct the under-representation of some commercial buildings in the 1992 CBECS sample. 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 drawn from seven lists of special buildings (Figure A2).

Figure A2. 1992 CBECS Sample Design

Compiling the Large Building and Special Building Lists

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 included buildings of 100,000 or more square feet. The list was compiled through inquiries with Chambers of Commerce, other local sources, and special directories. The seven lists of specialized buildings were limited to certain types of buildings or facilities with 50,000 or more square feet. These lists included (1) hospitals, (2) colleges and universities, (3) elementary and secondary schools, (4) post offices, (5) Federal Government buildings, (6) Dodge reports for "small" new construction projects (50,000 to 250,000 square feet) and (7) Dodge reports for "large" new construction projects (over 250,000 square feet).

These lists of specialized buildings were used for three reasons. First, they contained many large buildings and, thus, helped ensure accurate coverage of significant energy users. (The Dodge reports ensured better representation in the sample of newly constructed large buildings.) Second, the special lists ensured good coverage for certain building types that are distinguished separately in CBECS reports, such as health care and education. Third, the lists compensated for inadequacies in the MOS's developed for ZIP groups using the CBP reports. The CBP reports do not cover employees exempt from the Social Security System, such as a portion of the Federal workforce.

The weighing 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.

Updating the Supplemental List Sample. The compiled supplemental lists included both individual buildings and facilities (complexes of buildings). Facilities from the supplemental list sample were updated centrally by telephone prior to field work to determine how many buildings were in the facility. If there were four or more buildings, all buildings were listed (by phone if possible) and the listings were subsampled. If there were three or fewer buildings, all the buildings were included. All facilities that could not be updated centrally were updated during the field period.

Selecting Buildings. The lists within each sampled PSU were stratified by building size and general usage, and buildings were sampled with equal probability within strata. (For some buildings, 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 with 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 eight lists (that is, the large buildings list and seven 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, whereby, a building present on a lower priority list was disregarded if it was selected from a higher priority list. 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, (7) Dodge reports over 250,000 square feet and (8) Dodge reports 50,000 to 250,000 square feet. For example, if a given building was present on the hospitals list, its selection from a lower priority list was disregarded.[17]

The desired overall sampling rates used for selection of the large buildings and special buildings list for the 1992 CBECS were the same as the area sample, supplemented by rates for larger size classes. The supplemental list sampling rates by size class are as follows: 100,000 to 249,999 square feet, .013889; 250,000 to 399,999 square feet, .05; 400,000 to 999,999 square feet, .10; 1,000,000 to 4,999,999 square feet, .10; 5,000,000 square feet or more, 1.00.

[17]Energy Information Administration, Office of Energy Markets and End Use, The 1992 *Commercial Buildings Energy Consumption Survey Sample Selection Procedures Manual* (Princeton, NJ: Response Analysis Corporation, October 1989).

Dodge Lists of New Construction

For the Dodge reports on large projects (over 250,000 feet), a complete list of projects in each sampled PSU was obtained, and a sample was drawn from that list. Thus, it was possible to determine if a building sampled from some other source was also included in this Dodge list. For small Dodge projects (between 50,000 and 250,000 square feet), only a sample was obtained. Therefore, there was no way to verify whether a building that by definition should have been covered by this list was in fact included in the list from which that sample was drawn. For this reason, this "conceptual list" was given lowest priority.

There was also a problem of overlap between the supplemental 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.[18] A new building sampled from an update segment of the area sample and between 50,000 and 250,000 square feet in size was assumed to appear on the (unverifiable) Dodge list for that size range. Smaller new buildings were assumed not to appear on Dodge lists, and larger ones were checked against the complete lists that were obtained for that size range.

Sample of Large, New Office Buildings

In the 1992 CBECS, in addition to the regular supplemental list sample of Dodge reports of New Construction, another sample of approximately 150 buildings was selected from the Dodge list of large (250,000 or more square feet) office buildings. This sample was limited to buildings with a construction start date after February 1, 1989, and was included to permit special study of energy conservation issues in office buildings. The final weights for the sample were adjusted to compensate for this oversampling.

The overall sampling rates for the Dodge lists were the same as for other list samples except for the newer large office buildings. The sampling rates by size class for the newer large office buildings were as follows: 100,000 to 249,999 square feet, .208333; 250,000 to 399,999 square feet, .75; 400,000 to 999,999 square feet, 1.0; 1,000,000 to 4,999,999, 1.0; 5,000,000 square feet or more, 1.0. These rates achieved the desired supplemental list sample of newer large office buildings.

Total List Sample

A total of 1,871 list entries were sampled. Because some entries were multibuilding facilities, the final list sample comprised 2,472 individual buildings.

Building Characteristics Survey

Determining Building Eligibility

To be eligible for the survey, a building had to satisfy three criteria: (1) it had to meet the survey's definition of a building, (2) it had to be used primarily for some commercial purpose, and (3) it had to measure 1,001 square feet or more. The eligibility of a building for inclusion in this survey was evaluated at three different times: during the development of the area and supplemental sample listings, at the time the interviewer observed the building, and during the interview of the building owner or manager. To prevent inaccurate exclusion of eligible buildings based on lister or interviewer judgment, somewhat looser criteria were applied at the stages of listing and interviewer observation to allow a knowledgeable respondent to ultimately screen eligible buildings during the interview.

[18]A. Chu "Proof that the Assignment of Conditional Weights Will Produce Unbiased Estimates," in Weighing Procedures for CBECS III, Technical Memorandum (Rockville, MD: Westat., 1987).

The first eligibility criterion, building definition, has been used consistently in all the CBECS. The second criterion, commercial activity, has been more strictly interpreted in the successive surveys, to concentrate on a well-defined population that does not overlap with a group covered by other EIA surveys. The third criterion, size, was added in the 1986 CBECS to eliminate the very small buildings, which form a large, inherently ill-defined, group of marginal structures. These buildings contribute minimally to total commercial floorspace and energy consumption of the overall sample; yet, different, reasonable decisions on how to identify these buildings could lead to substantial variations in building counts.

Criterion 1: Building Definition

The definition of a building was the same one used in previous CBECS: a structure totally enclosed by walls that extend from the foundation to the roof and intended for human access. Thus, structures such as water, radio and television towers were excluded from the survey. Also excluded were (1) partially open structures, such as lumber yards; (2) enclosed structures that people usually do not enter, such as pumping stations and cooling towers at electric power plants; (3) enclosed structures that are not buildings, such as oil tanks, statues, and monuments; and (4) dilapidated or incomplete buildings missing a roof or a wall. There are two exceptions to the building definition criterion: a structure built on pillars so that the first fully enclosed level is elevated; and parking garages since they can have energy-using equipment such as HVAC and lighting equipment.

Criterion 2: Building Use

The second criterion was that a building had to be primarily used for some commercial purpose; that is, more than 50 percent of the building's floorspace must have been devoted to activities that were neither residential, industrial, nor agricultural. The primary use of the sampled building governed whether the building was included in the CBECS. That is, if an administrative office building within an industrial complex was the sampled building, it was considered in scope because its principal building activity was commercial. However, if the sampled building was an industrial processing plant within the same complex, it would have been out of scope because its principal building activity was industrial. Examples of nonresidential buildings that were not included in the CBECS samples are:

- Farm Buildings, such as barns, unless space is used for retail sales to the general public
- Industrial or Manufacturing Buildings that involve the processing or procurement of goods, merchandise, or food
- Buildings on most military bases
- Buildings where access is restricted for national security reasons
- Single-family detached dwellings that are primarily residential, even if the occupants use part of the dwelling for business purposes
- Mobile homes that are not placed on a permanent foundation (even if the mobile home is used for nonresidential purposes).

Buildings used for industrial purposes and for processing of agricultural products were included in the listing stage. However, during the interviewing stage, interviewers were instructed not to begin interviews at buildings where they observed 75 percent or more of the floorspace used for residential, industrial, or agricultural purposes. Once the interview began, initial screening questions instructed the interviewer to terminate the interview if the respondent indicated that 50 percent or more of the square footage was used for residential, industrial, or agricultural purposes.

In the 1979 and 1983 CBECS, buildings used primarily for residential purposes, but having any commercial activity, were included in the survey and report tables. Beginning with the 1986 CBECS, if more than 50 percent of the floorspace of these buildings was used for residential purposes they were excluded from CBECS. In 1992, interviewers retired 463 buildings prior to beginning the interview and terminated 948 interviews because the building's use was not predominantly commercial.

Criterion 3: Building Size

The third criterion was that a commercial building had to measure more than 1,000 square feet (about twice the size of a two-car garage) to be considered in scope for the 1992 CBECS. This building size criteria was met in two successive size cutoffs, which were evaluated during the listing and interviewing stages. During the listing stage, a building had to measure 500 square feet to be included in the segment listing. Interviewers did not begin interviews when they observed a building to be 500 square feet or less. During the interviewing stage, a building had to measure more than 1,000 square feet for continuance of the interview. Interviewers asked screening questions designed to terminate the interview when the square footage was 1,000 square feet or less. In 1992, 154 buildings were retired during the listing stage and interviewers terminated 521 interviews because the building's size was less than 1,000 square feet.

Data Collection

Data Collection for the 1992 CBECS involved many phases and began with the questionnaire design. After the questionnaire design, the data collection phases continued with supervisor and interviewer training, data processing, and concluded with minimizing nonresponse to ensure output of quality data. A survey contractor performed the data collection under the direction of EIA.

Building Questionnaire Design

Questionnaire design work for the 1992 CBECS was conducted by EIA. Although a set of core questions remained the same as those used in previous surveys, the 1992 Building Questionnaire was redesigned to improve data quality. The redesign of the 1992 Building Questionnaire included new questions, expanded questions, and incorporated some structural and wording changes to questions. A more detailed discussion of revisions to the 1992 CBECS Building Questionnaire is provided in "What's New in 1992 CBECS" section of this appendix.

As in 1989, the 1992 CBECS Building Questionnaire also asked if the sampled building was part of a multibuilding facility and whether the multibuilding facility had a central physical plant that produced district heating, district cooling, or electricity. In 1992, the CBECS asked for the primary function of multibuilding facilities or complexes to help provide a standard building classification scheme for these commercial buildings.

In the 1992 CBECS, questions were added at the request, and with the financial support of the Department of Energy's Office of Energy Efficiency and Renewable Energy. These questions obtained information about special ways space was used in the building, special energy technologies, water heating equipment, the energy source distribution system, building shape, and how energy was managed in the building.

Also, as in 1986 and 1989, the 1992 CBECS Building Questionnaire contained questions added at the request, and with the financial support, of the Census (Section R, Form EIA-871G, Construction Improvements and Maintenance and Repairs Supplement). The content of Section R, collected by EIA as an agent for the Census, was essentially unchanged from 1989. For more details on the Census-funded questions, see "Special Data Collection for the Bureau of the Census" later in this appendix.

Supervisor and Interviewer Training

The CBECS Building Questionnaire is a complex instrument designed to be collected in a personal interview at the building site. Well-trained interviewers are imperative to collecting the technical information. Training for the 1992 CBECS included three in-person training sessions: one for supervisors and two for interviewers. At all sessions, mixed media techniques were used including lectures, slide presentations, small group sessions to practice interviewing and administering the questionnaire, and a tour of the HVAC system at the hotel where the training was conducted. EIA and the Census personnel observed the interviewer training sessions and were available as resource persons. EIA personnel also participated in all training sessions providing an overview of the CBECS and a presentation on the key 1992 CBECS energy concepts.

In July 1992, six regional supervisors and their assistants were trained at a 4-day supervisor training session in Washington, DC. They were trained in CBECS data collection, field office procedures, and quality control. The supervisors were also trained to serve as small-group leaders at the subsequent interviewer training sessions.

Prior to interviewer training, all interviewer trainees received the CBECS Interviewers' Manual, the survey questionnaire, a home-study exercise to be completed prior to training, and a training agenda. The CBECS Interviewer's Manual included step-by-step instructions for planning, conducting, and recording interviews. Interviewer trainees who had not previously worked as CBECS interviewers received *CBECS: General Interviewing Techniques Manual* and *Home Study Guide* with exercises to be completed and reviewed by the supervisor prior to training.

In August 1992, 162 interviewer trainees attended one of two, three-and-a-half-day interviewer training sessions in either the Washington, DC area or Denver, Colorado. All interviewers working on CBECS were trained at one of these sessions. Forty-six of the interviewing staff had worked on the 1989 CBECS. Of the 162 interviewers, 114 had some prior interviewing experience, and 48 had no prior interviewing experience.

For the first time, the 1992 CBECS interviewing training sessions included a formalized evaluation process. Based on the results of a key concepts quiz/test and an evaluation by supervisors, the interviewers were considered to have successfully completed training, or were placed on probation, or were released from the study. At the end of the interviewer training sessions, 13 interviewers were placed on probation and one trainee was released. The remaining interviewers successfully completed training and were certified to conduct CBECS interviews.

Each interviewer training session was conducted by the survey contractor's central office staff with the assistance of the regional supervisors. The sessions covered the background of the CBECS, the definition of a building, finding the sampled building, determining a building's activity, a review of the most important or different questions in the questionnaire, and administrative information. New interviewers were trained in an additional session on general interviewing techniques, which included a video tape on basic interviewing techniques. All interviewers received the question-by-question specifications describing the intent of each question, definitions of terms used in the survey, and how to ask each question. These materials completed the CBECS Interviewers Manual that the interviewers received prior to attending the interviewer training sessions. 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.

Interviewer Supervision

Several steps were taken to ensure that the interviews were conducted as intended. Questionnaires were field-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 "Data Editing" later in this appendix.

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 completed interviews would be checked. The regional supervisors telephoned the respondents identified on the questionnaire to confirm that the interview had been conducted and to verify several key data items. Overall, 17.9 percent of completed interviews were validated.

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 interviewer problems and, as a last resort, dismissing the interviewer.

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. Respondents were asked about the building as a whole rather than individual establishments located within the building.

The completed building interview lasted an average of 49 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. The Census section added 6 minutes to the interview.

The average time for each completed interview (including interviewer preparation, travel, callbacks, interviewing, and editing time) was 6 hours and 14 minutes. Each interviewer conducted an average of 46 interviews: 9 interviewers each completed 10 or fewer interviews, while 5 interviewers each completed more than 90.

Data Collection Procedures

Initial contacts with the building representatives were made through an introductory letter mailed to them at each building in the survey sample. The letter, signed by the Director of the Office of Energy Markets and End Use of the EIA, was addressed to the building owner or 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 CBECS data in setting national energy policies. To protect confidentiality, the letter was addressed by the survey contractor after it was signed at EIA.

Data collection began the week of August 28, 1992, and ended December 4, 1992. The data were collected by the contractor's field staff consisting of 162 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 a subsampling assistant.

Natural Disaster Areas

Several natural disasters occurred in areas that affected the 1992 CBECS. In these areas, all data collection procedures were stopped after the disaster. To allow EIA to evaluate the effect of these disasters on the CBECS sample, procedures were developed to obtain the following information about the sampled buildings: (1) condition of the building and surrounding buildings; (2) current principal building activity; (3) approximate size; and (4) approximate age. Extra efforts were undertaken to make up for the loss of these buildings by assuring that the response rate for the nonaffected buildings would remain high. (See Appendix B, "Nonsampling and Sampling Errors," for a discussion on imputations for these buildings.)

Interviewers

Prior to the interview, the interviewer observed the outside of the building to assess the approximate size and the principal building activity. Interviewers visited all sampled buildings in person to ascertain if the structure met the eligibility requirements of the survey. Failure to meet any one of several criteria resulted in the building's ineligibility for interviewing. These criteria were explained in the "Determining Building Eligibility" section; however, several other circumstances may have resulted in ineligible buildings. These circumstances included duplication of buildings, demolished buildings, and buildings for which construction was not completed. When these circumstances occurred, buildings were assigned an "ineligible for contact" disposition code. For certain demolished buildings, interviewers obtained information on the condition of the building, the current principal building activity, the approximate size, and the estimated age of the building.

During the initial visit to the sampled buildings, the interviewers also identified and attempted to schedule an interview with an individual associated with the building who met the survey criteria for a building representative and who could serve as that building's 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. Table A2 shows the number of in-person contacts required to obtain a completed 1992 CBECS Building Questionnaire.

Table A2. Number of In-Person Contacts to Obtain a Completed Building Questionnaire

Number of In-Person Contacts	Completed Interviews	Percent
1	1,775	26.7
2	2,443	36.8
3	1,313	19.8
4	589	8.9
5+	517	7.8
Total	6,637	100.0

Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

Minimizing Nonresponse

Several approaches were employed in the effort to minimize nonresponse, including: advance mailings to building owners or managers; in-person visits and telephone callbacks; establishment of an 800 "hot line" number to address respondents' concerns or questions; personalized letters to documented refusals; and providing additional field staff in several MSA's to help those who still had problem cases. These approaches dealt with the three categories of nonresponse for CBECS: refusals, cases where the knowledgeable respondent was located outside of the sample PSU's, and cases where the respondent was unavailable during the field data collection period. Although a telephone version of the 1992 CBECS Building Questionnaire was produced and ready for use, the 1992 CBECS response rates were sufficiently high that telephone nonresponse conversion was not warranted.

An additional type of nonresponse conversion dealt with respondents who declined to sign the authorization forms that would allow their energy suppliers to release the building's energy consumption records and information on DSM program participation. Personalized written requests for signed authorization forms were mailed for all buildings for which energy usage had been reported and a signed form had not been obtained by an interviewer. Such requests were mailed to 305 buildings interviewed by field staff. A total of 83 signed authorization forms were received by mail.

As previously noted, before the initial contact with the building was made, a letter, along with a brochure showing the 1989 CBECS data, was sent from the Director of the Office of Energy Markets and End Use to each building owner or manager. Then, during the field period, the interviewer assigned to the building was authorized to make up to four in-person visits at different times of the day throughout the week to minimize the number of building representatives not contacted. After two failed in-person visits, the interviewer and supervisor discussed the case to determine if subsequent in-person visits should be authorized. After the fourth in-person visit, three additional in-person visits could be authorized only to obtain signed authorization forms. Field supervisors also notified the central office of potential refusals and the field director sent personalized letters addressing individual concerns and urging participation. Approximately 330 such letters were mailed to 363 buildings (or facilities); completed interviews were obtained for 102 of these buildings.

Response Rates

As mentioned in the "Sample Design" section, the total 1992 CBECS sample consisted of 10,171 buildings; 7,699 from the area sample and 2,472 from the supplemental list sample (Figure A2). Of these, 7,282 buildings were eligible for interviewing, 5,464 from the area sample and 1,818 from the supplemental list sample. Of the total number of buildings eligible, interviews were completed at 91.1 percent, or 6,637 buildings. Authorization forms were obtained for 88.5 percent of interviews completed (5,719 of 6,463 buildings) where energy was used in the buildings. Eligibility was not determined for an additional 146 buildings located in areas devastated by natural disasters. Of these, 133 were from the area sample and 13 from the supplemental list sample. (See Appendix B, "Nonsampling and Sampling Errors," for a discussion of imputation procedures used for these buildings.) Table A3 provides the detailed information on the building disposition for the total sample, the area sample, and the supplemental list sample.

Data Editing

Data editing for the 1992 CBECS Building Characteristics Survey occurred at several points during data collection and processing. During data collection, questionnaires were edited by the interviewers and the supervisors. Upon receipt of the questionnaire for data processing and during data entry, questionnaires were manually edited. Once data entry was complete, questionnaires were machine edited. The final data editing occurred during review of data frequencies and crosstabulations.

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 "Field Edit Form" to check a set of 17 specified data items. The purpose of this field edit was to provide the supervisor, the survey contractor, and the interviewer with continuous feedback on the quality of the data being collected. The supervisor mailed a copy of the form to the interviewer, discussed the results of these edits in weekly telephone conferences with each interviewer, and mailed a copy of the field edit form with each questionnaire to the survey contractor's central office.

After the central office received the questionnaires, they manually edited and coded the questionnaires in preparation for data entry. The manual scan edit checked for completeness and logical consistency and identified cases with missing data. The coding process assigned the "Other Specify" questionnaire responses to either previously created codes or newly created codes. Preparation for data entry involved checking the accuracy of the questionnaire skip patterns and checking that only allowable values or codes were entered. All data entry was performed with 100 percent verification of all keystrokes. Throughout the editing and coding process, inconsistencies or ambiguities in the data occurred that needed correcting before data entry or machine edit.

Table A3. Number and Distribution of 1992 CBECS Sample Buildings by Building Disposition

Building Disposition	Number of Buildings	Percent of All Buildings	Percent of Eligible Buildings	Percent of Eligible and Disaster Area Buildings
Combined Sample				
Total	10,171	100.0		
Eligible for Interview	7,282	71.6	100.0	
Interviewed	6,637	65.2	91.1	89.4
Not Interviewed	645	6.3	8.9	
Not Eligible for Interview	2,743	27.0		
Natural Disaster Areas	146	1.4		
Area Sample				
Total	7,699	100.0		
Eligible for Interview	5,464	71.0	100.0	
Interviewed	4,944	64.2	90.5	88.3
Not Interviewed	520	6.8	9.5	
Not Eligible for Interview	2,102	27.3		
Natural Disaster Areas	133	1.7		
List Sample				
Total	2,472	100.00		
Eligible for Interview	1,818	73.5	100.0	
Interviewed	1,693	68.5	93.1	92.5
Not Interviewed	125	5.0	6.9	
Not Eligible for Interview	641	26.0		
Natural Disaster Areas	13	0.5		

Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

The survey contractor took several steps to resolve inconsistencies or ambiguities in the data. First, the contractor reviewed other parts of the questionnaire for explanations that might help solve the problem. Several open-ended questions were included in the questionnaire, which allowed the respondent to either describe or include additional information about a particular item. Also, the interviewers had been asked to write comments or to explain any special cases in the margin of the questionnaire during and after the interview. These open-ended questions and notes were relied upon extensively in the resolution process and were very helpful in explaining some of the inconsistencies. Second, in some hard-to-resolve cases, EIA personnel provided technical guidance on how to reconcile some questionnaire responses. Finally, when these efforts failed to resolve a problem, especially when the energy sources or heating and cooling equipment were concerned, the survey contractor contacted the respondent by telephone for clarification. Telephone data retrieval only occurred before machine edit, if selected key data items were missing from the questionnaire.

After manual editing, coding and telephone data retrieval for selected missing key data items were complete, the data were machine edited to ensure further 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 to determine how to correct the problem. 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. Telephone data retrieval was conducted for the remaining edit failures.

Overall, telephone contacts to clarify both questionable or missing information were made to the respondents for 1,558 buildings, 23 percent of all completed cases. 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.

As the last step, prior to the delivery of the data tape to the EIA, the contractor produced data frequencies and crosstabulations. These were reviewed to search for outlying values and inconsistencies that the edits may not have identified. After having inconsistencies corrected by the contractor, the EIA began the data preparation for the report.

Energy Suppliers Survey

During the Building Characteristics Survey, each respondent was asked to provide the name, address, and account numbers of all suppliers of energy to the building. In addition, respondents were asked to sign the Authorization Form at the end of the Building Questionnaire. The Authorization Form gives permission to the suppliers to release the building's monthly billing data to the EIA. EIA's survey contractor sent copies of this form to the suppliers to secure the release of the buildings' billing records as well as the buildings' participation in any demand-side management programs, if programs were available from the energy supplier. Attempts were made to contact all suppliers of electricity, natural gas (including suppliers of natural gas transported for the account of others) , fuel oil, district sources (steam, hot water, and chilled water) that were identified during the Building Characteristics Survey.

This section deals specifically with the Energy Suppliers Survey, describing the forms, response rates, data collection and processing procedures, and data preparation for the statistical reports.

Energy Suppliers Forms

Consumption and Expenditure Forms: Each supplier of electricity, natural gas, fuel oil, district sources to a sampled building, was asked to provide consumption and expenditures data on a mailed survey form. Additionally, for the first time, electric, natural gas, and fuel oil suppliers could submit their data on a formatted computer diskette provided by EIA. Response to the forms was mandatory for the supplier. The format of the form varied by the type of energy supplied and whether or not a signed authorization form had been obtained. To meet these varying needs, six data-collection instruments were developed, four were in booklet or folder form and two were single sheets printed on two-part chemical transfer paper. The forms were color-coded by the type of energy supplied and numbered according to the format. Following is a list of the survey forms. (See Appendix G, "Survey Forms," for copies of these forms.)

Form EIA-871C-1: Building Natural Gas Usage and IRP Program Participation Forms
Schedule A, Form EIA-871C-1a: Building Natural Gas Usage Form (pink)
Schedule B, Form EIA-871C-1b: Building Natural Gas Usage IRP Program Participation Form (gray)
Form EIA-871C-2: Worksheet for Natural Gas Usage (2-part paper)
Form EIA-871D: District Heating and Cooling Usage Form (blue)
Form EIA-871E-1: Building Electricity Usage and DSM Program Participation Form
Schedule A, Form EIA-871E-1a: Building Electricity DSM Program Participation Form (yellow)
Schedule B, Form EIA-871C-1b: Building Electricity DSM Program Participation Form (gold)
Form EIA-871E-2: Worksheet for Electricity Usage (2-part paper)
Form EIA-871F: Building Fuel Oil Usage (green)

The reporting form for each energy source had one of two types of formats:

1. The basic form (Type-1) was used when an authorization form had been obtained. The same form was used whether there was only one customer in the building or many customers. In the latter case, the supplier was asked to provide data for the building summed over all the customers in the building.

2. The worksheet (Type-2) was a special one-page form on two-part paper used when an authorization form 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. The special two-part paper was designed so that only the total for all the buildings appeared on the sheet returned to EIA. This form was used only for suppliers of electricity and natural gas.

Both form types asked for data summed over several customers. The basic 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.

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 basic 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 (Schedule A) requested kilowatt (kW) demand; the natural gas forms (Schedule A) included transportation gas, as well as provision for reporting variable units of measures (such as therms, cubic feet or 1,000 cubic feet); the fuel oil forms requested fuel-tank data; and the district heating and cooling forms asked for information concerning the entire district or system.

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) dates of deliveries or consumption; and (5) number of customers included in both the consumption and cost data reported on the form.

The data were requested for a 14-month period between December 1, 1991 and January 31, 1993. 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, "Nonsampling and Sampling Errors," for details on the annualization procedures.)

Schedule B: DSM and IRP Forms - For the 1992 CBECS, a special form (Schedule B) was inserted in the electricity and natural gas usage forms to collect data about the building's participation in utility-offered energy-savings programs. Both forms collected essentially the same type of information, although each was tailored to the particular energy source, either electricity or natural gas. For example, the electricity suppliers were asked about DSM programs such as lighting, energy-efficient motors, metered peak demand, time-of-day pricing, and standby electricity generation. The natural gas form asked about IRP programs and did not include those measures that were not applicable to natural gas suppliers, such as peak demand or time-of-day pricing. (See Appendix G, "Survey Forms," for examples of these two forms.)

Energy Suppliers Survey Response Rates

The overall response rate for the 1992 Energy Suppliers Survey was 86.9 percent (Table A4). 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 three 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 of 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 1992.

Response rates for natural gas that was not identified as gas transported for the account of others, and for electricity were 91.3 and 89.2 percent, respectively, which is similar to results obtained in previous CBECS; these suppliers accounted for 86 percent of all supplier records. Response rates for the suppliers of gas transported for the account of others was 76.6 percent. Response rates for fuel oil and district sources (including steam, hot water, and chilled water) were 75.9 percent, 74.8 percent, 28.7 percent and 50.3 percent, respectively.

Table A4. Response Rates by Energy Source

	Electricity	Natural Gas	Transported Gas(a)	Fuel Oil	Steam	Hot Water	Chilled Water	Total
Total Mailed Out	6,569	4,145	432	1,051	425	168	227	13,017
Out of Scope	87	171	82	209	20	32	38	639
Nonresponse	514	264	45	193	100	97	94	1,307
Complete: Usable Records	5,780	3,627	268	639	303	39	95	10,751
Complete: Unusable Records	188	83	37	10	2	0	0	320
Response Rate (b) (Percent)	89.2	91.3	76.6	75.9	74.8	28.7	50.3	86.9

[a]Transported gas is gas transported for the account of others.
[b]Response rate = complete usable record divided by total mailed out minus out of scope.
Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

A total of 749 forms could not be mailed. These 749 forms were subtracted to calculate the total number of forms that were mailed out (line 1 in Table A4.) In the case of fuel oil, which accounted for 59 percent 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 authorization forms and could not be grouped on a worksheet. Grouping was impossible in cases where data from a second or third building without an authorization form was not available to allow the respondent to aggregate information.

Of the forms mailed, 1,307 were classified as nonresponse. This included refusals, inability to respond within the data collection period, and inability to locate the correct account for the building.

Data Collection Procedures

Advance Mailings

A copy of the 1989 CBECS report, *Commercial Buildings Consumption and Expenditures 1989,* was mailed in May 1992 to electricity and natural gas suppliers who had participated in the 1989 CBECS. The letter accompanying the report described plans and schedules for the 1992 CBECS since it was likely that these suppliers would also be included in the 1992 survey. The letter also requested that the companies provide the survey contractor with any updates or changes to the contact information for the 1992 CBECS.

Survey Mailings

As the Building Questionnaires and Authorization Forms 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 6,637 buildings for which responses had been obtained in the Building Characteristics Survey, a total of 13,017 Energy Suppliers forms were mailed to 1,295 suppliers of energy. Of these, 466 (36 percent) were electricity and natural gas suppliers (including suppliers of gas transported for the account of others), 428 (33 percent) were fuel oil suppliers, and the remaining 401 (31 percent) were district heating and cooling suppliers.

The initial mailing to the energy suppliers was on February 8, 1993 with a due date of March 12, 1993 for the forms. Reminder letters to suppliers were sent in March 1993, with a second written request to nonrespondents in April. Telephone prompts for electricity and natural gas suppliers were carried out between May and September 1993. Survey close-out was September 30, 1993.

Nonresponse Conversion

Extensive efforts were used to obtain usable energy supplier data. Letters and telephone prompts were made to the energy suppliers throughout the data collection period to remind the suppliers to deliver the data within the required time period. In addition, a toll-free telephone number was provided to all suppliers, both in the cover letter accompanying the survey forms and printed on the face of each survey form. Suppliers were encouraged to call this number if they had any questions. This "hotline" was staffed by trained CBECS contractor staff familiar with the CBECS Energy Suppliers Survey. Hotline staff were knowledgeable regarding the most frequent technical problems encountered by suppliers and the instructions to be given to suppliers calling with these questions. At the end of each call, the supplier was asked for a filing date for the forms.

The nonresponse effort for the suppliers of electricity, natural gas, and district sources began with a letter approximately 6 weeks after the initial mailing in February 1993. A second followup letter was sent in April. Nonrespondents were then telephoned and asked for an expected forms completion date. They were called again if that date arrived and they still had not responded. The nonresponse procedure was followed both for complete nonresponse by an energy supplier and for incomplete or missing buildings within a supplier's response.

Because of lower response rates in previous CBECS among the fuel oil suppliers, special nonresponse conversion efforts were made in 1992. These procedures consisted of additional reminder letters and telephone calls to the suppliers. In early March 1993, a reminder letter was sent to each fuel oil supplier that had not yet returned all the survey forms. Two weeks later a computer-generated listing of the building addresses for which survey forms had not been returned was sent. Beginning two weeks after that, telephone calls were made to fuel oil nonrespondents. These calls were followed by another reminder letter one month later at the end of April. Finally, from May through August 1993, a final effort was made to obtain responses from fuel oil suppliers; trained data retrieval staff telephoned nonresponding companies and attempted to obtain the information by telephone.

This extensive nonrespondent conversion effort for fuel oil suppliers resulted in an increase in the response rate from 66 percent in the 1989 CBECS to 76 percent in the 1992 CBECS.

Data Editing

As the suppliers forms were received, they were screened for accuracy and completeness. Forms were then keyed and extensive computer edits were performed. The EIA specified ranges and values to be used for the technical edits. These values were based on previous CBECS 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 coding or data entry error. If the causes of the error were not apparent to the technical reviewer, it was referred to supervisory staff for resolution.

Eight subject-matter specific or technical edit checks were specified by EIA and were performed on the supplier data. These technical edits resulted in 14,829 edit failures, which were reviewed by data analysts and sometimes referred to EIA personnel for resolution (Table A5). Of the 14,829 edit failures, 10,671 were resolved through a record update. The remaining 3,618 (24 percent) were overridden for various reasons.

Error correction was routine for the first two levels of editing. The technical edits had more complicated decision rules and required more supervisory involvement. The data reviewers basically had three choices when confronted with a technical edit failure:

- Update the data to eliminate the error conditions due to errors made by the coder, data entry operator, or supplier for future rounds of the edit cycle
- Override the edit failure by assigning an override code and eliminate the failure for future rounds of the edit cycle or
- Flag the case with a Problem Card and send it for review by a supervisor.

During the update process, data analysts assigned a reason for each update. Of the 60,287 updates to correct any type of edit failure, the majority (83 percent) were due to a clerical error by the energy supplier, data coder, or data editor. Following the technical edits, there were 1,191 updates (2 percent) as a result of data retrieval telephone contacts with suppliers.

Table A5. Frequency of Technical Edit Failures by Failure Type

Edit #	Edit Description	Total Failures
1	Billing period appeared too long or too short	1,324
2.1	Annual consumption does not match the building characteristics	1,130
3.1	No expenditures, but consumption is reported	102
3.1A	No consumption, but expenditures are reported	8
3.1B	Expenditures reported were out of range for low consumption	3,946
3.2	The price per period was out of range, based on known market prices	6,598
4	The metered demand was out of range	1,721
	Total Edit Failures	14,829

Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

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, "Nonsampling and Sampling Errors." Cases missing all or part of calendar year 1992 consumption or expenditures were considered as particular kinds of item nonresponse. Adjustments for these cases were made as described under "Annual Consumption and Expenditures" in Appendix B. For cases where the Energy Suppliers 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 procedures 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 source 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. A total of 2,464 energy source records were selected for disaggregation.

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 customers. A total of 132 cases required aggregation. An aggregation factor was calculated based on the proportion of customers reported.

Worksheet Processing

Worksheets were used to request electricity and natural gas suppliers to report consumption when an Authorization Form had not been obtained for a building. 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 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 fuel oil 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.
- 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.

Any errors identified were corrected by the survey contractor prior to the delivery to EIA of the final data file.

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 CBECS sample. Working with NOAA division maps and building address information, one of 356 division codes was assigned to each building.
- A file of NOAA data covering the 27-month period from January 1991 to March 1993 (the most recent information available at the time) was used to compute the average daily temperature for each day in the 27-month period for each weather division.
- Daily heating and cooling degree-day averages were computed for each of 10 base temperatures (degrees Fahrenheit): 50, 55, 57, 60, 65, 68, 70, 73, 75, 80. Only base temperature 65 degrees Fahrenheit is covered in this report.

- Degree-day totals were constructed for each billing period, or gap between billing periods, for each energy supplier for each building. In addition, degree-day totals were constructed for each of the 12 calendar months of 1992 for each sampled building, whether or not the building had any energy supplied in 1992.

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

Data Preparation for Report

Subsequent to receiving the data tapes from the Energy Suppliers Survey portion of the 1992 CBECS, EIA data analysts reviewed and processed the data to prepare them for the final data tape. Crosstabulations were run to check for internal consistency of the data, and the 1992 CBECS data were compared with data from previous CBECS. Commercial buildings' consumption and expenditure data are complex and interrelated. The EIA review was extensive and paid special attention to the issues of peak electricity demand, gas transported for the account of others, and incomplete data for buildings. Questions concerning data accuracy or outlier values were referred to the survey contractor for verification. Respondents were recontacted to verify responses when possible. EIA staff reviewed the data questionnaires at the survey contractor's site, and EIA's staff judgment was the final authority on some of the data items.

The sections above on data adjustments and weather data provide details on the work undertaken to prepare the data for this report. In addition, if retrieval of missing data for one or more items failed, or if retrieval was not performed because the item was not a key item, data values were supplied by imputation. Also, in 1992 some buildings were located in areas of natural disasters. For those buildings, all values were imputed, including their eligibility. For a description of the imputation process, see Appendix B, "Nonsampling and Sampling Errors."

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 Suppliers Survey determination was coded separately. The Suppliers Survey response was the basis for statistics published in this report. Appendix B, "Nonsampling and Sampling Errors," discusses in more detail the discrepancy between building respondent and energy supplier reports of fuels used.

Annualization was the estimation of calendar year 1992 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, "Nonsampling and Sampling Errors," for details on the annualization and imputation process.)

Once the annualized consumption and expenditures were computed or imputed for each building, a final data tape was prepared and delivered to EIA in July, 1994. Statistical tables of aggregated data were then produced and analyzed. The report text was based on these tables, which are presented both in the text and in Section 3, "Detailed Tables," of this report.

Public-Use Data Preparation

In addition to the publication of the 1992 CBECS statistical reports for both the Building Characteristics Survey and the Energy Suppliers Survey, the basic survey data at the microlevel were provided to the public on public-use data diskettes. As with previous CBECS, measures for the 1992 CBECS data such as the stripping of all geographic identifiers, except Census region and Census division, were taken to mask the data to ensure that the identity of individual respondents was kept confidential.

The 1992 CBECS public-use data diskettes were made available in conjunction with each part of the survey. Diskettes containing only the Building Characteristics Survey data were released with the publication of the first report from the 1992 CBECS. Data from the Energy Suppliers Survey and the Building Characteristics Survey will be made available shortly after this report is published. (In 1986 and 1989, only a combined Building Characteristics Survey and Energy Suppliers Survey data file was released after the publication of the *Commercial Buildings Energy Consumption and Expenditures* report.) The public-use diskettes are available to the public through the National Technical Information Service (NTIS) and the Office of Scientific and Technical Information (OSTI). (See Appendix I for ordering information.)

Confidentiality of Information

EIA does not receive nor take possession of the names or addresses of individual respondents or any other individually identifiable energy data that could be specifically linked with a building respondent. All names and addresses are maintained by the survey contractor for survey verification purposes only. In addition, geographic identifiers and NOAA Weather Division identifiers are not included on any data files delivered to EIA. Geographic location information is provided to EIA at the Census division level. (See Appendix F for map.) Building characteristics, which could uniquely identify a particular responding building, such as number of floors, building square footage, and number of workers in the building, are masked on any data provided to EIA. All building-level records that are placed on public-use data files are masked for further confidentiality protection.

Special Data Collection for the Bureau of the Census

For the 1986, 1989 and 1992 CBECS, the U.S. Bureau of the Census (Census) funded the data collection on expenditures for construction improvements and for maintenance and repairs. EIA collected this supplemental information in the 1992 CBECS Building Questionnaire and in a subsequent Census Followup study. The Census section of the Building Questionnaire was submitted separately to the U.S. Office of Management and Budget for clearance and approval.

In the 1992 CBECS Building Questionnaire, the Census-funded questions were in Section R (Census Supplement) and all respondents were asked these questions. Any respondent who did not have access to the construction improvements 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 Census Followup. Before the Census Followup was conducted, item response on the key item concerning construction improvements was 93.8 percent, or 6,155 of the 6,561 buildings had completed data for this item.

A subsequent three-phase Census Followup study was conducted to reduce both total and partial nonresponse to the Census Supplement, as well as to verify independently the data that were obtained during the original interview. Buildings owned by private utility companies were not eligible for the Census Followup. In the spring of 1993, a letter explaining the purpose of the followup study, along with worksheets and definitions, was sent to 337 building owners and tenant representatives. 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. Several weeks later, specially trained telephone interviewers called to obtain the data. Five cases met the inclusion criteria for more than one phase of the Census Followup. The overall response rate for the Census Followup was 79.2 percent.

In the first phase of the Census Followup, "Nonresponse Conversion" buildings were selected. These were buildings that failed to answer one or both questions in the Census Supplement during the building characteristics interview. There were 104 "Nonresponse Conversion" buildings. A total of 75 responses was obtained from the first-phase followup effort.

In the second phase of the Census Followup, cases were selected for item nonresponse of "don't know" to the Census-sponsored construction improvements question. Cases were included if the respondent provided the name, address, and telephone number of the person or persons who would have the information. These referrals were often to management companies not located in the same city as the sampled buildings. There were a total of 146 item nonresponse buildings; and 120 or 82.2 percent provided additional information.

In the third and final phase of the Census Followup, cases were selected to verify independently the data obtained in the original interview when the reported expenditures for one or both questions were $5 million or more. 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-sponsored questions. The respondents were then telephoned to obtain the data. Of the original interviews, a sample of 92 buildings was selected and 76, or 82.6 percent, resubmitted the data.

The results of the Census Followup study are being evaluated by the Census and will be used in the design of future surveys. The data from the construction improvements and maintenance and repairs questions will be published by the Bureau of the Census in a supplement to the *Current Construction Reports, C-30 Series, Value of New Construction Put in Place.*[19]

[19]1989 results were published in Expenditures for Nonresidential Improvements and Repairs:1989, *Current Construction Reports Special Studies,* Bureau of the Census, December 1991.

Appendix B

Nonsampling and Sampling Errors

Appendix B

Nonsampling and Sampling Errors

Introduction

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 reports from representatives of a randomly chosen subset of the entire population of commercial buildings. As a result, the estimates always differ from the true population values.

The differences between the estimated values and the actual population values are of two types, nonsampling errors and sampling errors. Nonsampling errors are differences that would be expected to occur in all possible samples, or in the average of all estimates from all possible samples.

The first four sections (Nonresponse, Annual Consumption and Expenditures, Annual Peak Electricity Demand, and Additional Data Notes) that follow this introduction describe some of the sources of nonsampling error and how the survey is designed and conducted to minimize such errors. Nonsampling errors can result from: (1) inaccuracy in the data collection due to questionnaire design errors, interviewer error, respondent misunderstanding, and data processing errors; (2) nonresponse for an entire sampled building (unit nonresponse); (3) nonresponse on a particular question (item nonresponse); and (4) incomplete coverage due to deficiencies in the sampling frame. The section "Nonresponse" provides an overview of the procedures used to handle unit nonresponse and the item nonresponse associated with the building characteristics portion of the survey. (For a detailed discussion of these procedures, see Appendix C, "Nonsampling and Sampling Errors," in *Commercial Buildings Characteristics 1992*; April 1994, DOE/EIA-0246(92)). The consumption and expenditures featured in this report were based on monthly billing records submitted by the buildings' energy suppliers. The section, "Annual Consumption and Expenditures" provide a detailed explanation of the procedures used to obtain annual consumption and expenditure estimates from the bills, as well as the procedures used to handle partial or completely missing data. The peak electricity demand estimates in this report were also based on the monthly billing data, as described in the section, "Annual Peak Electricity Demand." The fourth section dealing with nonsampling error is titled, "Additional Data Notes," and discusses special problems encountered when reconciling building and supplier reports on energy sources used, gas transported for the account of others, demand-side management programs, and primary energy consumption for electricity.

The last section, "Estimation of Sampling Errors," describes how the sampling error is estimated and presented for statistics given in this report. Sampling errors are random differences between the survey estimate and the population value that occur because of the particular sample that was selected by chance. The sampling error, averaged over all possible samples, would be zero, but since there is only one sample for the 1992 CBECS, the sampling error is nonzero and unknown for the particular sample chosen. The sample design permits sampling errors to be estimated.

Most unit nonresponse cases were caused by a respondent's unavailability or refusal to participate in the survey. Item nonresponse resulted when the respondent did not know, or, less frequently, refused to give the answer to a particular question. Unlike the sampling error, the nonsampling error's magnitude cannot be estimated from the sample data. For this reason, avoiding biases at the outset is a primary objective at all stages of survey design and field procedures. The wording and format of the survey questionnaires, and the quality control built into the data collection, receipt, and processing operations were all designed to minimize these sources of error. For a discussion of the questionnaire design, interviewer training and data control, see Appendix A, "How the Survey Was Conducted."

Nonresponse

Unit Nonresponse

The response rate for the 1992 Building Characteristics Survey portion of CBECS, as reported in Appendix A, was 91.1 percent. That is, of the 7,282 buildings eligible for interview, 8.9 percent did not respond at all to the Building Characteristics Survey. This rate was similar to that for the 1989 CBECS and represents an extremely low unit nonresponse rate for a voluntary survey of this length and complexity.

Weight adjustment was the method used to reduce unit nonresponse bias in the survey statistics. The CBECS sample was designed so that survey responses could be used to estimate characteristics of the entire stock of commercial buildings in the United States. Weight adjustment resulted in basic sampling weights (base weights) that related the sampled buildings to the entire stock of commercial 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.

To reduce the bias from unit nonresponse in the survey statistics, the base weights of respondent buildings were adjusted upward, so that the respondent buildings would represent not only unsampled buildings but also nonrespondent buildings. The base weights of respondent buildings were multiplied by the adjustment factor "A," defined as the sum of the base weights over all buildings selected for the sample divided by 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 119 subgroups according to characteristics known from the sampling stage for both responding and nonresponding buildings. These characteristics included the general building activity, the approximate size of the building, Census region, and metropolitan versus nonmetropolitan area.

Item Nonresponse—Building Characteristics

Item nonresponse is the type of nonresponse that occurs when an item (or several items) is missing in an otherwise completed questionnaire. Nonresponse in the Building Characteristics Survey was imputed to allow publication of *Commercial Buildings Characteristics 1992*, the companion volume to this report. The Energy Suppliers Survey consisted of four distinct data collections (electricity, natural gas, fuel oil, and district heating/cooling surveys) to obtain 1992 consumption information for buildings in the Building Characteristics Survey. Partial and complete nonresponse in the Energy Suppliers Survey are discussed in this section under "Annual Consumption and Expenditures."

The companion volume contains item nonresponse rates for many of the building characteristics used to present estimates in this report. Nonresponses to items in the Building Questionnaire were treated by a technique known as "hot-deck" imputation. In hot-decking, when a certain response is missing for a given building, another building, called a "donor," is randomly chosen to furnish its reported value for that missing item. That value is then assigned to the building with item nonresponse (the nonrespondent or "receiver").

To serve as a donor, a building had to be similar to the nonrespondent in characteristics correlated with the missing item. This procedure was used to reduce the bias caused by different nonresponse rates for a particular item among different types of buildings. Characteristics that were used to define "similar" depended on the nature of the item to be imputed. The most frequently used characteristics were: principal building activity, floorspace category, year constructed category, and Census region. Other characteristics (such as type of heating fuel, type of heating and cooling equipment and the responses to particular items in the 1986 CBECS for those buildings that were surveyed in 1986) were used for specific items.

As in the 1986 and 1989 surveys, the 1992 CBECS used a vector hot-deck procedure. With this procedure, the building that donated a particular item to a receiver also donated certain related items if any of these were missing. Thus, a vector of values, rather than a single value, is copied from the donor to the receiver. This procedure helps to keep the hot-decked values internally consistent, avoiding the generation of implausible combinations of building characteristics.

Special Imputations for 1992 CBECS

In 1992, due to natural disasters, there were large areas that were inaccessible to interviewers and consequently, no interviews could occur at buildings in those areas. Because these buildings were clustered in a few areas, they were not adequately represented by buildings elsewhere. Therefore, it was decided that the unit nonresponse adjustment procedure would not be the optimal way to compensate for these buildings. Instead, in those few areas, all of the building characteristics, including eligibility, were imputed based on information available from the 1992 sample listing stage and from the 1986 survey. To hot-deck values for a particular item, all buildings were first grouped according to the values of the matching characteristics specified for that item. Within each group defined by the matching variables, donor buildings were assigned randomly to receiver buildings.

Annual Consumption and Expenditures

This report presents estimates of energy consumption and expenditures in commercial buildings during calendar year 1992. These estimates were computed from the annual consumption and expenditures determined for each building in the CBECS sample. However, these "annual" values were not obtained directly from the suppliers for the buildings. Rather, energy suppliers provided monthly billing data, which were used to calculate calendar year consumption and expenditures 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 calendar year 1992 consumption would be completely accounted for, the data requested from suppliers were bills covering the period from December 1991 through January 1993. 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 1992, covering exactly the energy consumed within the sampled building. The data for the discrete-delivery energy source (fuel oil) should have been in the form of complete data records for all deliveries during 1992. 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 square footage than just the sampled building's square footage, or did not match the target time frame, calendar year 1992. 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 1991 and 1993 as well as calendar year 1992. 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, 1992.

- Bill coverage spanned at least a 1-year period, but did not include all of 1992. In most such cases, the time frame covered by the bills extended from the middle of 1992 into the middle of 1993. Many energy suppliers maintain accessible billing records only for the most recent 13 months. Thus, at the time of reporting, the data available did not cover the beginning of 1992.

- Bill coverage spanned less than a 1-year period.

- Bill coverage was for several sampled buildings combined. This occurred when no authorization form 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 under coverage 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 Characteristics 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 authorization from each.

- The problem of determining bill coverage was compounded by incomplete dates. In the most common case, the billing period date included a month and year, but not the day of the month.

To reconcile the discrepancies between the ideal billing data and what could actually be obtained, the following seven processing steps were taken:

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

2. Complete the billing dates for all bills

3. Annualize bills with full-year time frame coverage

4. Annualize bills with part-year time frame coverage

5. Adjust annualized bills, other than worksheet cases, for building over and undercoverage

6. Impute annual consumption and expenditures for buildings with completely missing data

7. Allocate worksheet totals among the buildings included on worksheets.

Each of these processing steps is explained below.

Step 1. Classifying Coverage of Building and Time Frame

This classification was performed by the CBECS contractor as part of the data collection recordkeeping. To track responses to the mailed Energy Suppliers 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 1992. 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 1992.

A more complicated 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 authorization form 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 1992 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 Suppliers 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 1992 or not. Part-year data were treated as incomplete, unless the supplier specifically indicated otherwise.

Particularly complicated were some electricity and natural gas 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 obtained from both the Building Characteristics Survey respondent and the energy suppliers. Two types of problems could arise: (1) the energy bills covered more buildings than just the sampled building or (2) the energy bills omitted some of the building's occupants. In the first case, if the Building Characteristics Survey respondent indicated that a particular supplier's bill covered several buildings, the total square footage of buildings on that bill was requested. Then a disaggregation factor was 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 Characteristics 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 Characteristics 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 indicating that disaggregation was needed, but not possible, was placed on the building records. In these cases, annual consumption and expenditures were imputed as if the data for the building were completely missing.

In the second case, 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 median number of days in billing periods of known length.

Step 3. Annualizing Full-Year Data

One of the main reasons that the CBECS requested energy supplier data from December 1991 through January 1993 was to assure that 1992 consumption would be completely accounted for in the case of a complete response. However, unless a billing period happened to end on December 31, 1991, or December 31, 1992, consumption as reported by the energy suppliers ran over from the target period of calendar 1992, forward into 1993 and backward into 1991. 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 (electricity, natural gas, and district sources), consumption and expenditures for a billing period extending into 1993 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 1992 were included in the total expenditures and consumption for 1992. An analogous procedure was used for a billing period extending into 1991. The assumption that the use 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 1992 did not affect the discrete-delivery energy source (fuel oil) because, for this energy source, all deliveries during 1992 were accumulated. For fuel oil, the ending dates on the bills were used to determine which bills were for deliveries during 1992. 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 billing time frame covered a full year but was shifted so that either the beginning or the end of 1992 was not included, a similar procedure was used. In these cases, the data were annualized to a 1-year period within the reported time frame, overlapping as much as possible with 1992. The amount of shifting required to obtain 1-year periods is shown in Table B1 for electricity, natural gas, and district heat. A limited amount of shifting (involving 49 sampled buildings) was also performed for fuel oil.

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. 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 analyzing 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 B2, B3, and B4.

Table B1. Days of Data from Outside Calendar Year 1992 Used to Obtain Annual Estimates

Shift of Reporting Period from Calendar Year 1992	Number of Buildings					
	Sample			Population (thousand)		
	Electricity	Natural Gas	District Heat	Electricity	Natural Gas	District Heat
All Buildings with Reported Data	5,754	3,706	339	4,064	2,379	45
Over 30 Days into 1991	16	25	9	13	19	2
30 or Fewer Days into 1991	152	168	35	115	118	1
No Days Shifted	5,049	3,152	287	3,600	2,034	40
30 or Fewer Days into 1993	267	146	4	169	82	1
31 to 90 Days into 1993	241	156	3	144	96	2
91 to 180 Days into 1993	44	38	0	15	21	0
Over 180 Days into 1993	12	21	1	8	9	0

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Table B2. Days of Reported Consumption and Expenditures Data for Electricity

Days of Reported Electricity Data	Consumption			Expenditures		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)
All Buildings	6,568	4,611	2,609	6,568	4,611	57,619
Days of Electricity Data						
30 or Fewer Days	813	546	396	824	550	9,323
31 to 330 Days	118	84	27	132	87	919
331 to 365 Days	87	53	27	94	56	846
366 Days	5,197	3,689	1,986	5,165	3,678	42,586
Worksheets	353	240	173	353	240	3,945

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Table B3. Days of Reported Consumption and Expenditures Data for Natural Gas

Days of Reported Electricity Data	Consumption			Expenditures		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)
All Buildings	4,152	2,657	2,487	4,152	2,657	10,679
Days of Natural Gas Data						
30 or Fewer Days	439	277	226	517	309	1,403
31 to 330 Days	170	71	57	138	62	244
331 to 365 Days	73	42	110	71	43	168
366 Days	3,233	2,120	1,796	3,189	2,097	7,619
Worksheets	237	147	298	237	147	1,245

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Table B4. Days of Reported Consumption and Expenditures Data for District Heat

Days of Reported Electricity Data	Consumption			Expenditures		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)
All Buildings	558	95	435	558	95	2,901
Days of District Heat Data						
30 or Fewer Days	237	52	181	234	51	1,540
31 to 330 Days	15	3	9	5	2	18
331 to 365 Days	6	1	1	6	1	10
366 Days	300	38	243	313	40	1,333

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

The part-year annualization method for the consumption of continuous-delivery energy sources 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. In certain cases, at least 331 days of consumption were reported, but 366 days of expenditures were reported[20]. In these cases, the missing consumption was computed using the average price for billing periods in which both consumption and expenditures were reported. Summing all reported and imputed consumption then yielded the total annual consumption.

Expenditure imputations were performed after completion of 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.

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 within the set of bills for a given building. Using bills where both consumption and expenditures were reported, the consumption and the expenditures were summed. The average price was then calculated as the sum of the expenditures divided by the sum of the consumption. This average price was multiplied by the reported (or imputed) consumption to obtain the estimated expenditures.

For fuel oil, a discrete-delivery energy source, the billing dates are not linked to the time of consumption. Thus, the annualized data represent the total deliveries of fuel oil 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. Table B5 shows the numbers of sampled buildings by the completeness of reported fuel oil data.

Buildings rarely had more than one supplier for a continuous-delivery energy source, such as electricity, but multiple suppliers for fuel oil occurred frequently. If data for one or more of several suppliers were missing, even though responding suppliers had reported all their 1992 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). An average price P_x, for each set of bills, was computed using the data from billing periods in which both consumption and expenditures were reported. If expenditures were missing, the expenditures were imputed as P_x times the quantity delivered on date x. For missing deliveries, the reported expenditures were divided by P_x to impute the amount delivered.

[20]Because 1992 was a leap year, all annualization calculations were based on 366 days.

Table B5. Completeness of Reported Consumption and Expenditures Data for Fuel Oil

Completeness of Data	Consumption			Expenditures		
	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Consumption (trillion Btu)	Sample Number of Cases	Population Number of Buildings (thousand)	Estimated Expenditures (million dollars)
All Buildings	1,230	560	279	1,230	560	1,400
Complete	768	379	180	769	379	920
Partial	1	0	0	0	0	0
Missing	461	180	93	461	180	480

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

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 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 on the Building or Suppliers 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 1992. Reasons for missing data included energy supplier refusal; archived, lost, or destroyed billing records; and authorization form 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 Characteristics 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 building 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 366 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 floorspace of all the buildings reported on the form. District heating cases were kept if the sampled building accounted for more than double or less than a tenth of the floorspace. Finally, any buildings with imputed values for building characteristics 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. Because the distributions were found to be highly skewed a log transformation of the dependent variable was undertaken. Just as the consumption variable was highly skewed, so too were some of the potential regressor variables. Square footage, for instance, varied from 1,000 square feet to more than 1,000,000 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, separate equations were developed for each of 13 principal building activities. For natural gas, which had a smaller sample size, 10 equations were developed. For fuel oil and district heat sample sizes were not large enough to permit regression equations to be fit by principal building activity.

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.

Accordingly, the consumption values were calculated using parameter values estimated in two stages: the initial regression of log consumption on building characteristics, and a bias correction. The bias correction 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 CBECS, rate schedules were not collected for the sampled buildings. Even the identity of the supplier was not disclosed to EIA. 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 366 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) of the total floorspace 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:

$$\log(\text{expenditures}) = a + b \times \log(\text{consumption}).$$

This is for consumption above the cutoff. Transformed back from the log scale, this equation becomes:

$$\text{expenditures} = a \times \text{consumption}^{b}.$$

This equation 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 most Census division for electricity and natural gas. However, the CBECS sample size was insufficient to support this level of estimation for fuel oil, and district heat. For these two 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 or district heat.

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 sampled 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 366 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:

$$\hat{W} = \sum_{i=1}^{n} \frac{\text{days}_i}{366} \times \frac{\hat{x}_i}{\text{adj}_i},$$

where

$\hat{W}$ = the regression-estimated worksheet total,

n = the number of buildings included on the worksheet,

$days_i$ = the number of days of data reported for the i^{th} building,

$\hat{x}_i$ = the annual value estimated via regression for the i^{th} building,

adj_i = the aggregation/disaggregation adjustment for the i^{th} building (as discussed in Step 1).

The ratio $\hat{x}_i/adj_i$ estimated the annual total that would have been reported for a building requiring aggregation or disaggregation by the factor adj_i. The ratio $days_i/366$ 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 $\hat{W}$ was thus the regression-based estimate of what the worksheet total would have been.

The quantity (consumption or expenditures) for the i^{th} building, x_i, was then calculated as:

$$x_i = \frac{W}{\hat{W}} \times \hat{x}_i,$$

where W was the supplier-reported worksheet total for the worksheet that included the i^{th} building. The ratio $W/\hat{W}$ scaled the regression-imputed annual values, $\hat{x}_i$, to be consistent with the reported worksheet totals.

Annual Peak Electricity Demand

Peak electricity demand data were requested for the same billing periods for which electricity consumption and expenditures were reported. (See Appendix G for copies of the electricity supplier forms.) Ideally, the metered demand represented the maximum consumption rate (in kW) during the billing period. However, 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 of electricity. Second, in multicustomer buildings, each customer with a demand meter has its own peak demand. Since these peaks would rarely be coincident, the building peak cannot be taken as the sum of individual peaks. However, the overall building peak must be greater than or equal to the maximum customer peak.

Following Step 2 of "Annual Consumption and Expenditures," the peak electricity demand data was processed in three additional steps:

1. Using the billing data, each building was classified as either demand-metered or not demand-metered.

2. The annual peak demand, the season of the peak, and the annual load factor were determined for each building.

3. Peak demand and season of peak were imputed for demand-metered buildings missing these data.

These steps are described below.

Step 1. Classification of Buildings

For the 1992 CBECS, a building was considered to be demand-metered if the billing data for any account within the building showed metered peak demand.[21]

[21]The 1989 CBECS obtained demand-metered information from both the building respondent and the energy supplier. However, there was considerable discrepancy between what the building respondent reported and the actual billing situation. As a result of the inability of the building respondent to adequately provide demand-metered data, the 1992 CBECS only obtained this information from the energy supplier.

Step 2. Determination of Peak Demand and Related Items

For single-account 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 multicustomer buildings, the overall building peak demand was not available. However, the overall peak had to be at least as high as the highest peak reported for any single customer. In buildings where one customer's peak was substantially larger than that of any other customer, that customer's peak would have been close to the overall peak. Therefore, in processing bills from multicustomer buildings, the peak demand for any single customer was designated as a "partial peak" (associated with part of the building electricity consumption), although the overall building peak was still treated as missing.

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 occurring May through October were classified as summer peaks.

The annual load factor was then calculated, using previously calculated annual electricity consumption, as follows:

$$\text{annual load factor} = \frac{\text{annual consumption}}{366 \times 24 \times \text{peak annual demand}} .$$

As an edit, the annual load factor was calculated using the partial peak, and the partial peak was set to missing if the load factor was less than .10 or greater than 1.

Step 3. Imputation for Missing Peak Demand

Although any electricity consumer has a peak demand, three types of buildings were missing peak demand:

- Buildings determined to be not demand-metered
- Buildings with completely missing supplier data
- Multicustomer buildings, and other buildings with partial peaks.

No attempt was made to impute for the first type of missing demand, mainly because buildings without demand-metering tended to be smaller than the demand-metered buildings, so that imputation would involve extrapolation beyond the range of the reported data. Accordingly, tables dealing with peak electricity demand have been limited to buildings with (reported or imputed) demand-metering.

Once the decision was 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 B6 shows the amount of each type of imputation that was necessary.

Table B6. Item Response for Peak Electricity Demand Data

Response Category	Demand Metering		Peak Demand		Season of Peak	
	Sample Number of Cases	Population Number of Buildings (thousand)	Sample Number of Cases	Population Number of Buildings (thousand)	Sample Number of Cases	Population Number of Buildings (thousand)
Eligible Buildings	6,568	4,611	4,365	2,375	4,365	2,375
Reported	5,428	3,846	3,171	1,786	3,050	1,752
Imputed	1,140	765	1,194	589	1,315	623

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Imputation of the demand-metering attribute made use of the relationship observed within suppliers between the presence of demand-metering and annual electricity consumption. Using buildings with reported data, the probability of being a 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 unclassified 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 Characteristics 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 hours, end uses of electricity, and percent of floorspace heated). Separate imputation equations were estimated for each of nine principal building activities. The imputed annual peak demand was then calculated by solving the load factor equation for the annual peak.

Load factors were imputed, and peak demand values calculated, for multiple-account buildings which had partial peaks (from Step 2). If the partial peak was less than the imputed peak, then the imputed peak was treated as the buildings' annual peak demand; otherwise, the partial peak was used.

Load factors and peak intensities were computed for each building reported or imputed to have metered demand. Also of 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 can be considerably greater than the overall regional peak.

Additional Data Notes

Energy Sources Used--Building and Supplier Survey Estimates

As explained in Appendix A, "How the Survey Was Conducted," the CBECS was conducted in two stages. During the first stage, the building representative was asked which energy sources were used in the building during 1992. 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 Characteristics Survey response 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 Suppliers Survey.

When a supplier reported that a particular building was not a customer during 1992, 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 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 Characteristics Survey and Energy Suppliers Survey estimates for the use of each energy source were small for both the building counts and the floorspace totals (Tables B7 and B8).

The Energy Suppliers 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 Characteristics Survey respondent happened to omit an energy supplier, but reported all the other supplier data correctly, the omitted supplier would not have been discovered. However, 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 1992. For continuous-delivery energy sources (electricity, natural gas, and district heating and cooling), the building was classified as not using the energy source. For the discrete-delivery energy source fuel oil, though, the building was classed as using the energy source, but with zero consumption and expenditures for 1992. Thus, for example, those buildings whose respondents reported that fuel oil was used during 1992, 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 the type of energy sources that were used in the building had an impact on the energy end-use data also. The Building Characteristics Survey data on the type of energy sources that were used for a particular end use were collected in concert with the data on energy sources used. (See Appendix G for copies of the survey forms.) Edit checks on the Building Characteristics 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 Suppliers 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, no associated end uses were coded for energy sources that were added for a building. 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.

Natural Gas Transported for the Account of Others

The 1992 CBECS attempted to collect data on natural gas transported for the account of others[22] from both the building respondent and the natural gas suppliers—both utility suppliers and nonutility suppliers. Natural gas transported for the account of others is a type of purchasing arrangement where large natural gas users purchase their natural gas directly from a source other than the local distributing company (LDC) or utility. The LDC then delivers the gas to the building via the local pipelines.

Schedule A of Form EIA-871C-1a requested: (1) consumption and expenditures for gas bought from the LDC; (2) consumption of gas purchased other than from LDC; (3) delivery charges for gas purchased from other than the LDC; and (4) total charges for this gas (See Appendix G, "Survey Forms").

[22]"Gas transported for the account of others" is also referred to as "direct purchase gas," "spot market gas" or "transportation gas."

Table B7. Energy Sources Used As Reported on Building Questionnaire and Energy Supplier Survey, Number of Buildings
(Thousand)

Reported Use	Energy Sources					
	Electricity	Natural Gas	Fuel Oil	District Steam	District Hot Water	District Chilled Water
Total Reported on Building Questionnaire	4,616	2,665	559	64	39	28
Unchanged Based on Energy Supplier Survey	4,611	2,655	558	61	38	28
Deleted Based on Energy Supplier Survey	4	10	1	2	1	0
Added Based on Energy Supplier Survey	NC	2	2	0	1	NC
Total Based on Energy Supplier Survey (Final Resolution)	4,611	2,657	560	62	39	28
Not Used Based on Both Building and Energy Supplier Survey	190	2,138	4,245	4,742	4,766	4,777

NC No cases in responding sample.
Notes: • See the "Glossary" for explanation of abbreviations and definitions of terms used in this report. • Items may not add due to rounding.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Table B8. Energy Sources Used As Reported on Building Questionnaire and Energy Supplier Survey, Floorspace
(Million Square Feet)

Reported Use	Energy Sources					
	Electricity	Natural Gas	Fuel Oil	District Steam	District Hot Water	District Chilled Water
Total Reported on Building Questionnaire	66,549	45,097	13,218	4,571	1,310	2,066
Unchanged Based on Energy Supplier Survey	66,525	44,975	13,204	4,466	1,068	1,914
Deleted Based on Energy Supplier Survey	25	121	14	105	241	152
Added Based on Energy Supplier Survey	NC	18	10	7	12	NC
Total Based on Energy Supplier Survey (Final Resolution)	66,525	44,994	13,215	4,473	1,080	1,914
Not Used Based on Both Building and Energy Supplier Survey	1,327	22,761	54,648	63,298	66,555	65,810

NC No cases in responding survey.
Note: See the "Glossary" for explanation of abbreviations and definitions of terms used in this report.
Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Analysis of the natural gas transported for the account of others data collected in the 1989 CBECS indicated that while the LDC could report the volume of natural gas used, they often could not report the total expenditures, since the LDC did not know the purchase price the building paid for the independent purchase of this gas. Consequently, in the 1992 CBECS, the building respondent was asked to provide the expenditure information such as wellhead costs, city gate price, LDC charge and other costs associated with this type of purchasing arrangement. However, this proved to be an area where the building respondent was unable to provide the requested information, so expenditure data for natural gas transported for the account of others was taken from the supplier forms.

Since local distribution companies know the total volume of natural gas delivered, the total consumption data seem complete. (If natural gas consumption was completely missing, then the volume was imputed as described in Step 6 of "Annual Consumption and Expenditures"). The allocation of consumption between transported gas and local utility-owned gas was then imputed by hot-decking the proportion of gas that was transported gas. This method allowed imputed buildings to have both transported and local utility gas, as might happen if (1) building demand exceeded the direct purchase contract amount or (2) the building switched to or from a direct purchase contract during the year.

This report contains estimates of the number of buildings, floorspace, total natural gas consumption, and consumption of natural gas transported for the account of others (Table 3.40). Table 3.40 also includes the percentage of natural gas volume which was natural gas transported for the account of others. Overall, 15 percent of natural gas consumed in commercial buildings was gas transported for the account of others. This figure is very close to the amount reported in the *Natural Gas Annual 1992*, where 17 percent of commercial natural gas deliveries in 1992 were estimated to be for the account of others.

Estimating consumption and expenditures could become complicated because frequently the LDC filled out the gas transported for the account of others portion of the supplier form since they knew that the gas being provided was transportation gas. Conversely, gas companies which provide only natural gas transported for the account of others did not always fill in the form correctly. They often filled in the first available space, which was intended for utility gas only. Similar confusion occurred when filling in transported gas expenditures. The LDC would be expected to fill out the transport charges column but because this was the only expense collected by the LDC, they sometimes filled it in the "total" column. Finally, since the same volume of gas was reported by the LDC and the transportation gas company, double reporting of volumes sometimes occurred. All these problems were identified by visual inspection of the appropriate records.

Demand-Side Management Participation

The data on DSM participation during the three years prior to the 1992 CBECS that are presented in Section 3, "Detailed Tables," of this report (with the exception of Table 3.49) and in the companion volume to this report, *Commercial Buildings Characteristics 1992*, are based solely on information gathered from the building questionnaire. The DSM data in Section 2, "At a Glance," on the other hand, is based on information gathered from the supplier survey. It would be expected that the information from the building questionnaire would indicate higher levels of DSM participation, because the data in the tables do not restrict participation to DSM programs sponsored by an electric utility, and include participation regardless of the sponsor of the program. However, the data in Section 2 indicate much higher rates of participation, even though they include only data from electric utilities. The data in this section have been imputed for nonresponse, but that is not the source of the discrepancy. The statistics in Tables B9 and B10 have been categorized to separate the programs sponsored by electric utilities from programs sponsored by natural gas utilities (as indicated by the utilities themselves and the building respondent), and cases in which the question was not answered have been included. From these tables it can be seen that suppliers consistently indicated a higher rate of participation than building respondents. This is perhaps because the suppliers had more detailed records of DSM participation, and also because the utilities may have included the distribution of general information, such as brochures about their programs, as a type of DSM participation.

Table B9. Commercial Buildings Participating in Electric DSM Programs

	Participation According Building Questionnaire			
	Electricity Not Used	Yes	No	Not Ascertained
Participation According to Supplier Survey				
Electricity Not Used	177	0	4	2
Yes	0	327	1,504	113
No	0	154	3,014	206
Not Ascertained	0	91	932	227

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A, EIA-871E-1b, 1992 Commercial Buildings Energy Consumption Survey

Table B10. Commercial Buildings Participating in Natural Gas DSM Programs

	Participation According Building Questionnaire			
	Natural Gas Not Used	Yes	No	Not Ascertained
Participation According to Supplier Survey				
Natural Gas Not Used	2,582	0	13	4
Yes	1	11	284	29
No	4	38	2,528	195
Not Ascertained	0	20	894	148

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-871A, EIA-871C-1b, 1992 Commercial Buildings Energy Consumption Survey.

Comparison of CBECS and Form EIA-861 Data: Of the electric utilities surveyed by CBECS, 46 percent of them reported that they had a DSM program, 40 percent reported that they did not have a DSM program, and 13 percent did not respond. These figures were compared to the data reported on Form EIA-861, "Annual Electric Utility Report," which is utility-reported data.[23] The findings corresponded very closely. Of the utilities that reported data on the Form EIA-861 and who were also in the CBECS sample, 50 percent reported that they had a DSM program and 50 percent reported that they did not have a DSM program. However, the utilities did not always have the same response to both the CBECS and the Form EIA-861. Of the utilities that responded to both surveys, 31 percent had inconsistent answers.

It was decided to use the responses to Form EIA-861 to override the CBECS responses where they conflicted for the following two reasons: (1) Form EIA-861 is mandatory, whereas CBECS had some nonresponse, and (2) there were four utilities that responded to the CBECS for multiple buildings but were not consistent across all of the buildings.

Primary Energy Consumption for Electricity

The CBECS collects data on the amount of energy delivered to commercial buildings, the "site energy consumption." It does not collect data on the amount of energy needed to produce the site energy, the "primary energy consumption." However, concern with improving energy efficiency has promoted awareness of the need to account for the amount of energy lost in the production of the site energy, especially during the generation of electricity.

In the generation of electricity, large amounts of energy losses occur:

- When heat is converted into mechanical energy for turning electric generators
- When the power plant uses electricity for such uses as pumping water into elevated reservoirs in pumped-storage hydroelectric plants
- When electricity is transmitted and distributed from the power plant to the consumer.[24]

Measuring the amount of these energy losses is complicated because their amount varies from year to year and from utility plant to utility plant, depending on the conversion process and energy sources used, the particular mix of energy sources, and the efficiency of the utility plant. Since collecting data on these factors for each utility plant is obviously unreasonable within the framework of EIA consumption surveys, the amount of energy consumed to produce the electricity consumed on site in any given year can only be estimated. EIA bases this estimate on the approximate annual amount of fossil fuels (coal, natural gas, and petroleum products) used by steam-electric generating plants, which generate most of the Nation's electricity.[25]

[23]The number of electric utilities that sponsor a DSM program is reported on Form EIA-861, "Annual Electric Utility Report," and collected by EIA, Office of Coal, Nuclear, Electric and Alternate Fuels.

[24]Although energy losses also occur during the production of natural gas, fuel oil, and district heat, they are so small compared with those occurring during the production of electricity that they are not considered in measuring primary energy consumption in this report.

[25]The fossil fuels, especially coal, provide the principal energy sources for the generation of electricity. Nuclear and hydroelectric power are used to a lesser extend, with wood/waste, wind, geothermal, and solar energy supplying only a small amount of energy for electricity generation.

In 1992, U.S. steam-electric utility plants are estimated to have used approximately 10,302 Btu of fossil-fuel energy to generate 1 kilowatthour of electricity—or approximately 3.02 Btu of fossil-fuel energy to generate 1 Btu of electricity, since 3,412 Btu equals 1 kilowatthour of electricity.[26] Accordingly, in this report:

- Estimates of site electricity consumption in kilowatthours can be converted to estimates of primary energy consumption by using 10,302 as the conversion factor.

- Estimates of site electricity consumption in Btu can be converted to estimates of primary energy consumption by using 3.02 (10,302 divided by 3,412) as the conversion factor.

Estimates of primary energy consumption for electricity using a particular conversion factor should be considered as rough estimates only, but they do provide a more comprehensive picture of the amount of energy used in the commercial sector in a given year than is gained by merely looking at site consumption.

Estimation of Sampling 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 subset, 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 the root-mean-square 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 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 noneligible 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.

Jackknife Replication

Throughout this report, standard errors are given as percents of their estimated values, that is, as RSE's. Computations of standard errors are more conveniently described, however, in terms of the estimation variance, which is the square of the standard error.

For some types of surveys, a convenient algebraic formula for computing variances can be obtained. However, the CBECS 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 CBECS 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. The idea behind replication methods is to form 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.

[26]"Table A8. Approximate Heat Rates for Electricity," *Monthly Energy Review* (August 1994), p. 165.

The replication method used begins by pairing first-stage sampling units, such that the units in each group represent two or more independent draws from the same pool of first-stage units, and draws for different groups are also independent. This grouping of first-stage sampling units must be done in accordance with the way the sampling was actually conducted. For the 1992 CBECS, 44 groups of first-stage sampling units were created in this way.

The k^{th} jackknife pseudoreplicate sample set is obtained by deleting all observations from one of the members in the k^{th} group and multiplying the weights on all cases in the other group member by 2 if there are 2 members in the group and by 1.5 if there are 3 members in the group. Observations in all other groups are unaffected. The k^{th} pseudoestimate 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 pseudoestimates 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 pseudoestimate of X based on the k^{th} pseudoreplicate sample. The estimated variance of the full-sample estimate X' is then given by:

$$S_{X'}^2 = \sum_{k=1}^{44} (X_k' - X')^2 .$$

The standard error of X' is given by:

The relative standard error (percent) of X' is obtained from this standard error as:

$$RSE_{X'} = \left(\frac{S_{X'}}{X'} \right) \times 100 .$$

Effects of Missing Data on Error Estimation

Earlier in this appendix, the procedures used to adjust for unit and item nonresponse were described. 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 in previous surveys, RSE's of consumption, expenditures, and peak-demand related items were computed excluding cases that were imputed by regression. RSE's 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, which found the resulting RSE estimates to be reasonable approximations to the true RSE's.[27] However, basing estimated RSE's on reported cases is an ad hoc procedure. This practice may be misleading, especially for fuel oil and district heat, where a substantial portion of the estimated totals were imputed (see Tables B4 and B5).

[27]E. M. Burns, Imputing for Missing Survey Data: "Energy Consumption in Commercial Buildings," Proceedings of the Business and Economic Statistics Section of the American Statistical Association (1987).

Generalized Variances

For every estimate in this report, the RSE was computed by the methods described above. This was the RSE used for any statistical tests or confidence intervals given in the text, or to determine if the estimate was too inaccurate to publish (RSE 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 i^{th} row and j^{th} 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. (See Section 3, "Detailed Tables," for a discussion of how to use the RSE Row and Column factors in this report.)

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 by:

$$m = \overline{\log(RSE)}$$

$$a_i = \overline{\log(RSE_{i.})} - \overline{\log(RSE)}$$

$$b_j = \overline{\log(RSE_{.j})} - \overline{\log(RSE)} ,$$

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:

$$R_i = \log^{-1}(m + a_i) = \log^{-1}(\overline{\log(RSE_{i.})})$$

$$C_j = \log^{-1}(b_j) = \log^{-1}(\overline{\log(RSE_{.j})} - \overline{\log(RSE)}) .$$

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 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.[4] 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.

Appendix C

CBECS Coverage Related to EIA Supply Surveys

Appendix C

CBECS Coverage Related to EIA Supply Surveys

The primary purpose of the CBECS is to collect accurate statistics of energy consumption by individual buildings. The statistics are totalled and presented by building characteristic. The EIA also collects data on total energy supply (sales). For the information on sales totals, a different reporting system is used for each fuel and the boundaries between the different sectors (e.g., residential, commercial, industrial) are drawn differently for each fuel.[28] This appendix provides: (1) background on the issue of consumption versus supply coverage; and (2) an analysis of the account classification as reported in the 1992 CBECS Energy Suppliers Survey.

Background

EIA sales data on the different fuels are collected using individual fuel forms. Annual electricity sales data are currently collected on Form EIA-861, "Annual Electric Utility Report," which is sent to all electric utilities in the United States. Supply data for natural gas are collected on Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." This form must be submitted by all gas pipeline companies and other plant operators that deliver gas directly to consumers. Fuel oil and kerosene sales are collected on Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report." The supply data are summarized at the national level as well as State level in several EIA reports, including *State Energy Data Report* (SEDR) and the *Monthly Energy Review* (MER). When comparing the CBECS totals with the national commercial sales totals from the SEDR or MER only electricity, natural gas, and fuel oil, can be compared directly. CBECS does not collect data on coal consumption, and SEDR or MER does not collect district heating information.

Differences between CBECS totals and sales totals can result from either (a) consumption that is included in the CBECS but not in the sales totals; and, conversely, (b) consumption that is included in commercial sales totals but is not considered commercial in CBECS and, therefore, excluded from CBECS totals. A principal reason that a component of consumption may be in the CBECS totals but not in the sales totals, or vice versa, is differences in how **buildings** are classified for CBECS and how customer **accounts** are classified in the sales reporting system. Each energy supplier has its own system of classifying accounts. When reporting sales totals to EIA by end-use sector, the supplier uses EIA guidelines, as well as the supplier's own account classification, to determine whether a particular account belongs in the residential, commercial, industrial, or transportation sector.

There are several general differences between the CBECS and the energy suppliers as to how each defines which buildings or accounts are commercial.

- CBECS covers only consumption in buildings. Energy suppliers' commercial accounts are not necessarily associated only with buildings, but may also be associated with unenclosed equipment or outdoor lighting. This outdoor lighting is included in commercial sales data reported in the SEDR but not included in the commercial sales data reported in the MER.

[28]For detailed examination of these differences and the differences between the supply and consumption surveys, see *Energy Consumption by End Use Sector: A Comparison of Measures by Consumption and Supply Surveys*, Energy Information Administration, DOE/EIA-0533 (Washington DC. 1990).

- CBECS covers consumption for the entire building whose principal activity is commercial, i.e., nonindustrial or nonresidential; CBECS covers no consumption in other buildings. As a result, consumption for commercial activity in noncommercial buildings is not included in CBECS, whereas consumption for noncommercial activity in a commercial building is included. For example, in the first case if the building's principal activity is manufacturing, but there is a small office in the building, the energy associated with the office space would not be included in the CBECS. In the second case, if the building's principal activity is retail but there is a small portion of the building devoted to manufacturing, in CBECS, the energy associated with the manufacturing would be included and reported as commercial. While energy suppliers may have several accounts within a building and those accounts could be classified as commercial or noncommercial sales, energy consumed in the CBECS buildings is classified as commercial.

- The activities included as commercial differ between the CBECS and the supply-side reporting systems. On the supply side, as noted, the definitions also differ among fuels.

CBECS Account Classification Analysis

To help understand the relationship between CBECS consumption totals and EIA's commercial sales totals, the CBECS Energy Suppliers Survey collected information, from the suppliers, on how they classified each of the accounts for the CBECS sample.

The 1992 CBECS energy suppliers' account classification information showed the amount of consumption in commercial buildings that is likely to be excluded from commercial sales totals. Accounts classified by the energy supplier as residential or industrial are ordinarily included in EIA's sales totals for those sectors, not in commercial sales, as reported in the CBECS. Accounts classified by the supplier as commercial, school, government or institutional are ordinarily included in EIA's commercial sales total, while accounts with hybrid or combination classifications are probably included partly in commercial and partly in noncommercial totals.

Electricity: In 1992, about 78 percent of the 2.6 quadrillion Btu of electricity consumed in commercial buildings was classified by both CBECS and the electricity suppliers as commercial. This represented about 82 percent of total floorspace in buildings supplied with electricity. About 10 percent of the 1992 CBECS electricity consumption estimate and 7 percent of the floorspace was classified by the suppliers as either residential or industrial accounts. The remaining 12 percent of electricity consumption and 10 percent of floorspace was classified as mixed noncommercial/commercial by the supplier.

Natural gas: For buildings supplied with natural gas, about 75 percent of the 2.5 quadrillion Btu of natural gas consumed and about 84 percent of the floorspace were classified by both CBECS and the natural gas suppliers as commercial. About 11 percent of the natural gas consumption was consumed in buildings classified as industrial by the supplier. However, this represented only about 3 percent of the floorspace in buildings that use natural gas. Only 1 percent of the natural gas consumption and 1 percent of the floorspace were classified as residential accounts. The remaining 16 percent of consumption and 12 percent of floorspace were classified by the supplier as mixed noncommercial/commercial accounts.

Fuel oil: About 83 percent of the 0.3 quadrillion Btu of fuel oil consumption and 82 percent of the floorspace in buildings supplied with fuel oil in 1992 were classified by both the CBECS and the suppliers as commercial accounts. Energy suppliers classified about 7 percent of the consumption and 6 percent of the floorspace as either industrial or residential accounts. The remaining 10 percent of fuel oil consumption and 12 percent of floorspace were in buildings with mixed account classifications.

Therefore, about 22 percent of the CBECS electricity consumption, 25 percent of the CBECS natural gas consumption and 17 percent of the CBECS fuel oil consumption are potentially excluded from the 1992 commercial sales because of differences in account classification between the energy suppliers and the CBECS.

Table C1 shows the number of buildings, total floorspace and energy consumption by the CBECS suppliers' account classification for 1992 CBECS buildings. Every building represented in this table is considered commercial by CBECS definition of a building; the lines where the supplier classification is commercial indicate agreement between the CBECS and the energy suppliers' classification of their accounts for the CBECS buildings, as reported in the Energy Suppliers Survey portion of the CBECS. Since the SEDR and MER collect data from the energy suppliers, the unshaded areas could potentially be classified by SEDR or MER as either residential, industrial, or other, which includes sales to public authorities. However, they are included in the CBECS totals for commercial buildings.

Table C1. Energy Suppliers' Account Classification of Commercial Buildings, 1992

Energy Suppliers Account Classification	Number of Buildings	Percent	Square Feet (million)	Percent	Consumption (trillion Btu)	Percent
Electricity Suppliers						
All Commercial Buildings Using Electricity	4,611	100	66,525	100	2,609	100
Residential	126	3	830	1	15	1
Commercial	**3,990**	**87**	**54,713**	**82**	**2,040**	**78**
Industrial	135	3	4,016	6	231	9
Mixed	360	8	6,965	10	322	12
Natural Gas Suppliers						
All Commercial Buildings Using Natural Gas	2,657	100	44,994	100	2,487	100
Residential	70	3	478	1	19	1
Commercial	**2,295**	**86**	**37,621**	**84**	**1,857**	**75**
Industrial	40	2	1,377	3	271	11
Mixed	253	10	5,518	12	338	14
Fuel Oil Suppliers						
All Commercial Buildings Using Fuel Oil	560	100	13,215	100	272	100
Residential	38	7	239	2	10	4
Commercial	**456**	**81**	**10,833**	**82**	**227**	**83**
Industrial	15	3	503	4	9	3
Mixed	51	9	1,639	12	27	10

Note: Due to rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Form EIA-871A-F, 1992 Commercial Buildings Energy Consumption Survey.

Appendix D

Comparison of CBECS, 1983 to 1992

Appendix D

Comparison of CBECS, 1983 to 1992

This appendix provides a thumbnail sketch of the CBECS[29] over survey years 1983, 1986, 1989, and 1992 to assist the user in interpreting the changes that have occurred in the CBECS between 1983 and 1992. This appendix is a direct result of an extensive user-needs study conducted in 1991 for the 1992 CBECS. Users commented that comparisons of CBECS reports were often difficult because of changes to the CBECS questionnaire content. This appendix facilitates the comparison of CBECS data by providing a survey-to-survey glance at energy-related building characteristics that are vital to providing data characteristics for commercial buildings in the United States.

The first survey of commercial buildings was in 1979 and resulted from public concern about foreign oil dependency during the energy crisis in the 1970's. The next commercial buildings survey was in 1983, and thereafter, the CBECS was conducted on a triennial basis. Since the 1983 CBECS was a revisit of the 1979 survey, this appendix begins with the major energy-related commercial building characteristics collected in 1983. Throughout the development of the CBECS energy policy and concerns changed; therefore, the survey of commercial buildings changed to meet these needs. Although comparisons of CBECS reports are difficult, each successive CBECS has evolved to better reflect the energy-related characteristics of U.S. commercial buildings during that survey. Many of these changes were the direct result of input from the users of the CBECS data for the user-needs study. Also, each CBECS reflects the EIA's commitment to obtain the most current energy-related characteristics for commercial buildings. Tables D1 through D5 present a comparison of how selected CBECS data were collected in 1983, 1986, 1989, and 1992. Tables D6 and D7 show new or expanded information for the 1992 CBECS. Additional tables, D8 and D9, are provided for users to compare the CBECS supplier surveys and supplier survey forms from 1983 to 1992.

Table D1. CBECS Survey Sample and Design, 1983 to 1992[a]

Survey Sample and Design	1983	1986	1989	1992
Sample Size (in scope)	8,479 total 6,773 from 1979 sample and updates 1,706 supplemental list sample	9,189 total 7,349 area sample 1,840 supplemental list sample	8,791 total 6,659 area sample 2,132 supplemental list sample	10,171 total 7,699 area sample 2,472 supplemental list sample Includes an oversample of 400 buildings and 150 office buildings
Target Population - Buildings	Subset of nonresidential buildings excluding buildings in which industrial or agricultural activities occupy more of the total floorspace than any other type of activity	Used primarily for commercial purpose 1,001 square feet or more Buildings 1,000 square feet or less were excluded from the published estimates.[b]	Same as 1986 Interviews were not conducted at buildings 1,000 square feet or less.	Same as 1986 Same as 1989
Target Population - Location	48 contiguous States and District of Columbia	50 States and District of Columbia	Same as 1986	Same as 1986
Data Collection Instruments	Computer Assisted Telephone Interview (CATI)	Personal interview	Same as 1986	Same as 1986
Supplemental Collections	None Collected	Census - collected data on expenditures and maintenance and repairs for construction improvement	Census - same as 1986 EPA - collected data on asbestos EIA - conducted a Facility Survey	Census - same as 1986

[a] For a discussion on the 1992 CBECS sample design, see Appendix A, How the Survey was Conducted.

[b] For a detailed discussion of the scope of the 1986 publication, see the *1986 Commercial Buildings Consumption and Expenditures*, DOE/EIA-0318(86), Energy Information Administration (Washington, DC: Government Printing Office, May 1989).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

[29] Previous surveys were conducted in 1979, 1983, and 1986 under the name Nonresidential Buildings Energy Consumption Survey (NBECS); for consistency, all surveys will be referred to as CBECS in this appendix as well as throughout this report.

Building structure characteristics, such as, year constructed and building activity, and building use characteristics like ownership, hours of operation, and number of employees are all related to a commercial buildings energy consumption. Table D2 shows how the building's characteristics are updated in successive CBECS questionnaires to reflect changes in energy-related interests. The major energy-related commercial building characteristics are square footage, year constructed, and principal building activity. Since the number of occupants (establishments) and the building's operating hours are major contributing factors to energy consumption in commercial buildings, the questionnaire items that measure these characteristics are constantly being updated to reflect the changes in the commercial sector.

Table D2. Comparison of Building Use and Structure Characteristics, 1983 to 1992

Building Characteristics 1983 Baseline	1986	1989	1992
Principal Building Activity Categories			
Only asked of respondent Categories: 1. Assembly 2. Education 3. Food Sales/Service 4. Health Care 5. Lodging 6. Mercantile/Service 7. Office 8. Residential 9. Warehouse 10. Other 11. Vacant	Asked of respondent **and** interviewer observation; Categories: 1. Assembly 2. Education 3. Food Sales 4. Food Service 5. Health Care 6. Lodging - includes Skilled Nursing 7. Mercantile/Service 8. Office 9. Public Order and Safety 10. Warehouse 11. Other 12. Vacant	Same as 1986 Categories: 1. Assembly 2. Education 3. Food Sales 4. Food Services 5. Health Care 6. Lodging - includes Skilled Nursing 7. Mercantile/Service 8. Office 9. Parking Garage 10. Public Order and Safety 11. Warehouse 12. Other 13. Vacant	Same as 1986 Categories: 1. Education 2. Food Sales 3. Food Service 4. Health Care 5. Lodging - includes Skilled Nursing 6. Mercantile/Service 7. Office 8. Parking Garage 9. Public Assembly 10. Public Order and Safety 11. Religious Worship 12. Warehouse and Storage 13. Other 14. Vacant
Floorspace			
Actual square footage OR Square footage categories: 5,000 or Less 5,001 to 10,000 10,001 to 25,000 25,001 to 50,000 50,001 to 100,000 100,001 to 200,000 Over 200,000	Actual square footage OR Square footage categories: 5,000 or Less 5,001 to 10,000 10,001 to 25,000 25,001 to 50,000 50,001 to 100,000 100,001 to 200,000 200,001 to 500,000 Over 500,000	Actual square footage OR Square footage categories: 1,001 to 5,000 5,001 to 10,000 10,001 to 25,000 25,001 to 50,000 50,001 to 100,000 100,001 to 200,000 200,001 to 500,000 Over 500,000	Actual square footage OR Same categories as 1989.
Year Constructed			
Actual year constructed OR Year constructed categories: 1900 or Before 1901-1920 1921-1945 1946-1960 1961-1970 1971-1973 1974-1979 1980-1983	Actual year constructed OR Year constructed categories: 1900 or Before 1901-1920 1921-1945 1946-1960 1961-1970 1971-1973 1974-1979 1980-1983 1984-1986	Actual year constructed OR **Different categories:** 1899 or before 1900-1919 1920-1945 1946-1959 1960-1969 1970-1979 1980-1983 1984-1986 1987-1989	Actual year constructed OR Year constructed categories: 1899 or before 1900-1919 1920-1945 1946-1959 1960-1969 1970-1979 1980-1989 1990-1992

See footnotes at end of table.

Table D2. Comparison of Building Use and Structure Characteristics, 1983 to 1992 (Continued)

Building Characteristics - - 1983 Baseline	1986	1989	1992
Ownership/Occupancy			
Occupancy by an agency of the Federal, State, or local governments	Occupant of the building is the buildings' owner or the owner's business	Occupancy question expanded to include more ways establishments and businesses can occupy a building	1989 occupancy question and a new occupancy question collects: Federal government, State government, local government, private utility, or church
Ownership by an agency of the Federal, State, or local governments	Ownership by Federal, State, and/or local governments (yes, no for each)	Ownership by a government agency. If yes, choose only one; Federal, State, or local agency	Ownership by: Federal government, State government, local government, private utility, or church
Hours of Operation			
Number of hours building is "in operation" each day of the week for any activity	Number of usual operating hours for weekdays, Saturday, Sunday, and holidays when at least 50% of the building's floorspace was in full use OR Open 24 hours or not open	Number of usual operating hours for weekdays, Saturday, Sunday (does not ask for holidays) during the months the building is in use OR Open 24 hours or not open OR Hours vary	Number of normal operating hours for each day of the week (similar to 1983) when the building is in use OR Open 24 hours, not open, or hours vary by day OR Hours vary by season
Number of Workers			
Number of workers in the building (for a typical workday most of the year)	Number of workers in the building "most of the year?" (for all shifts on a typical workday during the year)	Number of workers in the building during the "main shift" during the months the building is in use (for main shift on a typical workday during the year)	Number of workers during the "main shift" when the building is use AND Number of workers across all shifts when the building is in use
Number of Floors			
Number of floors in the tallest section; includes basement, floors in parking garage and below ground level	Same as 1983.	Same as 1983.	Same as 1983 and a separate question collected number of floors below ground level
Predominant Exterior Wall Material Categories			
Not Collected	(Includes Frame) Masonry Over Wood Frame Masonry Frame Steel Frame Siding Over Wood Frame Masonry Frame Metal Panels Concrete Panels	Masonry Siding or Shingles Metal Panels Concrete Panels Window Glass	Same as 1989.
Predominant Roof Material Categories			
Not Collected	(Includes Surface Area) Built-Up Shingles (not wood) Metal Surfacing Synthetic or Rubber Slate or Tile Wood Shingles, Shakes or Other Wooden Materials	Built-Up Shingles (not wood) Metal Surfacing Synthetic or Rubber Slate or Tile Concrete Wooden Materials	Built-Up Shingles (not wood) Metal Surfacing Synthetic or Rubber Slate or Tile Concrete

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

One of the major objectives of CBECS is to collect information on the type of energy that is used in the commercial sector and the use of that energy. To meet this objective, CBECS has consistently collected data about the major energy sources and also about renewable energy sources. Very few buildings reported having a secondary water-heating fuel in the 1986 CBECS; therefore, the 1992 CBECS (as well as the 1989 CBECS) did not distinguish between primary and secondary water heating.

Table D3. Comparison of Energy Sources and End Uses, 1983 to 1992

Energy Sources and End Uses - 1983 Baseline	1986	1989	1992
Energy Source Categories			
Electricity Natural Gas Fuel Oil/Kerosene Purchased Steam Propane Other Purchased Chilled Water Coal Purchased Hot Water Wood Solar	Electricity Natural Gas Fuel Oil/Kerosene/Diesel District Steam or Hot Water District Chilled Water Propane Minor Fuels Coal LPG or Bottled Gas Wood Solar	Electricity Natural Gas Fuel Oil/Diesel/Kerosene Bottled Gas/LPG/Propane District Heat District Chilled Water Other Wood Coal Active Solar with Collector Panels	Electricity Natural Gas Fuel Oil/Diesel/Kerosene Bottled Gas/LPG/Propane District Heat District Chilled Water Other District Hot Water Wood Coal Photovoltaic Cells (PVCs) that convert sunlight directly into energy Solar thermal panels that use sunlight to heat fluids
End Use Categories			
Heating Air Conditioning for Cooling Water Heating Cooking Manufacturing Electricity Generation	Space Heating Primary Secondary Air conditioning for Cooling Water Heating Primary Secondary Cooking Manufacturing Electricity Generation	Heating Main Secondary or Backup Air Conditioning for Cooling Water Heating Cooking Manufacturing Electricity Generation	Heating Main Any Other Air Conditioning for Cooling Water Heating Cooking Manufacturing Electricity Generation

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

In the 1983 CBECS, several separate questions obtained the data for the heating equipment, heating distribution systems, and cooling equipment in the building. Beginning with the 1986 CBECS, the format was changed to group several categories under a single question. The 1986 CBECS grouped the heating and cooling equipment together; the 1989 CBECS grouped the heating equipment and heating distribution systems together and the cooling equipment and cooling distribution systems together; and the 1992 CBECS linked the equipment and the distribution systems in matrix form. Self-contained units usually serve more than one room and contain both heating equipment and fans. Although the 1983 CBECS collected these specifically as self-contained units, later CBECS defined these as packaged heating units. In 1989, heating panels were no longer a separate distribution category; instead, they were included in the individual space heaters category. In 1992, the category for evaporative coolers (swamp coolers) was collected after a 6-year hiatus.

Table D4. Comparison of Selected Equipment and Equipment-Related Practices, 1983 to 1992

Heating/Cooling - 1983 Baseline	1986	1989	1992
Heating Equipment Categories			
Furnaces/Boilers (inside/outside) Self-Contained Units Heat Pumps Passive Solar Heating	Boilers (inside) Warm-Air Furnaces Individual Space Heaters or Electric Baseboards Packaged Heating Units Air Source Heat Pump Receives District Heat	Boilers (inside) Furnaces Individual Space Heaters Packaged Heating Units Heat Pumps	Heat Pumps Furnaces Individual Space Heaters District Steam or Hot Water Boilers Packaged Heating Units
Cooling Equipment Categories			
Window Units Wall Units Central Systems Heat Pumps Well Water for Cooling	Central Cooling (chillers) Individual Air Conditioners (A/C) Packaged A/C Units Air Source Heat Pumps Receives District Chilled Water Swamp Coolers (Evaporative Coolers)	Central Cooling Individual A/C Packaged A/C Units Heat Pump for Cooling	Residential Type A/C Heat Pumps Individual Room A/C District Chilled Water Central Chillers Packaged A/C Units Swamp Coolers (Evaporative Coolers)
Heating Distribution/Circulation Categories			
Air Forced through Ducts Baseboards Electric Hot Water Steam Radiators/Convectors/Heating Panels in Wall/Floor/Ceiling	Ducted-Forced Air Heating Only Heating and Cooling Variable Air-Volume System Used Steam Radiators or Baseboards Hot Water Radiators or Baseboards Fan-Coil Units Heating Only Heating and Cooling Heating Panels	Air Ducts Heating or Reheating Coils Fan-Coil Units Steam or Hot Water Radiators or Baseboards	Radiators or Baseboards Ducts for Heating Heating Only Heating and Cooling Variable Air-Volume System Used Fan-Coil Units for Heating Heating Only Heating and Cooling Individual Space Heaters
Percent of Floorspace Heated			
Percentage of total heated floorspace	Percentage total floorspace heated to at least 50 degrees Fahrenheit	Same as 1986.	Same as 1986
Percent of Floorspace Cooled			
Percentage of the total square footage cooled	Same as 1983.	Percentage total floorspace cooled by air conditioning equipment	Same as 1989.
Lighting Equipment			
Not Collected	Types of bulbs and percent of floorspace lit by: Standard Fluorescent Energy Efficient Fluorescent Standard Incandescent Fluorescent Energy Efficient Incandescent High-Intensity Discharge	Types of Bulbs and Percent of Floorspace lit by: Incandescent Fluorescent High-Intensity Discharge	Types of Bulbs and Percent of Floorspace lit by: Incandescent Fluorescent other than Compact Fluorescent Compact Fluorescent High-Intensity Discharge
Equipment Related Practices			
Heating/cooling reduced during off-hours	Same as 1983.	Same as 1983.	Heating/Cooling, Hot Water and Lighting reduced during off hours

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

Conservation and energy management has become an increasingly important CBECS issue. Because energy-efficient equipment is critical to increased conservation in commercial buildings, the 1992 CBECS included more questions on lighting equipment and HVAC systems.

Table D5. Comparison of Selected Conservation Measures, 1983 to 1992

Conservation Measures - Baseline 1983	1986	1989	1992
Lighting			
Not Collected	Percent of floorspace lit: During operating hours During off hours Presence of: High-Efficiency Ballasts Daylighting Controls Occupancy Sensors/Timed Switches/Time Clocks "Delamping" program	Same as 1986 Presence of: High-Efficiency Ballasts	Same as 1986 Use of: Specular Reflectors Daylighting Controls Occupancy Sensors Time Clocks/Timed Switches Manual Dimmer Switches
Insulation and Weatherstripping Categories			
Roof or Ceiling Insulation Wall Insulation Tinted, reflective, insulated, or thermal pane (special glass) Presence of insulation, insulation added recently, more insulation to be added	Roof or Ceiling Insulation Wall Insulation Storm or Multiple Glazing Tinted or Reflective Glass or Shading Film Exterior or Interior Shadings or Awnings Weatherstripping or Caulking Same as 1983	Same as 1986 Installed during building construction or added afterwards and when was feature added	Same as 1989 except deletes weatherstripping or caulking
Percent of Exterior Window Glass Categories			
Less than 25 25 to 49 50 to 74 75 or more	25 or Less 26 to 50 51 to 75 Over 75	Not Collected	25 or Less 26 to 50 51 to 75 76 to 100
Energy Audit			
Energy audit conducted in the past year? If yes, was the auditor a private contractor or a utility professional. Measures were taken in response to energy audit. Insulation added as a result of energy audit. If so, was cost savings a reason for addition.	Energy audit ever conducted? If yes, the year. If the year was 1986, the month.	Not Collected	Energy audit conducted since December 31, 1986? If yes, was the sponsor the government, utility or sponsored in-house.
Energy Management and Control System			
Heating or cooling system monitored or controlled by a computerized building automation system	Presence of a Computerized Energy Management and Control System	Energy Management and Control System for: Lighting Heating and Cooling	Energy Management and Control System for: Lighting Heating Cooling Domestic Hot Water
Maintenance and Control of Heating and Cooling			
Regular maintenance at least once a year Heating and/or Cooling Monitored or Controlled by Employee	Same as 1983. Same as 1983.	Regular maintenance program as of July 1989. Same as 1983; if yes, "with thermostat?"	Regularly scheduled maintenance and repair program Not Collected
Heating, Ventilation, and Air Conditioning			
Not Collected	Variable Air-Volume System Waste Heat Recovery	Not Collected	Variable Air-Volume System Economizer Cycle

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

In the 1992 CBECS, both new and expanded data on energy-related characteristics were collected on: lighting, equipment (personal computers, refrigeration, and water-heating), building shape, energy-related space functions, Demand-Side Management (DSM) participation, and gas transported for the account of others.[30] Questions were added on gas transported for the account of others (transported gas) to explain some of the differences between supply data and consumption data. Collecting information on the person with the day-to-day responsibility for the heating and cooling system was intended to obtain information about the types of buildings that used a building energy manager. These data are reported in Section 3, "Detailed Tables," under the row category "Energy Management Practices." (For detailed information on the new or expanded energy-related characteristics, see Appendix A, "How the Survey Was Conducted," and *User-Needs for the 1992 Commercial Buildings Energy Consumption Survey* (DOE/EIA-0555(92)/4, September 1992)).

Table D6. New Energy-Related Building Characteristics, 1992

New Energy-Related Characteristics

Demand-Side Management (DSM)	**Day-to-Day Responsibility**	**Energy-Related Space Functions**	**Principal Facility Activity**
Type of DSM Program Sponsor of Program Type of Assistance	Building Owner/Manager Custodian or Maintenance Engineer Building Energy Manager Cleaning or Maintenance Contractor Repair Service Called	Commercial Food Preparation Computer Room Rooms with Special Ventilation Activities with Large Amounts of Hot Water	Collected to provide finer breakdown for buildings on a multibuilding facility
Water-Heating Equipment	**Additional Operating Hours for Equipment**	**Gas Transported for the Account of Others**	**Number of Personal Computers/ Computer Terminals**
Centralized System Self-Heating Tank Heated by Space Equipment Decentralized Residential-Type Storage Tank Instantaneous Heater	Number of additional operating hours when heating and/or cooling or lighting are in use	Purchase of gas transported for the account of others, Supplier of gas, Costs of gas (Previously collected on the 1989 CBECS Supplier Survey)	Collects ranges that match the ranges for the number of employees to allow the data user to calculate the approximate ratio of equipment to worker

Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

Table D7. Expanded Energy-Related Building Characteristics, 1992

Expanded Energy-Related Characteristics

Special Energy Technologies	**Refrigeration**	**Heating, Ventilation, and Cooling**	**Lighting Conservation Features**
1992 Categories: thermal energy storage (TES) passive solar geothermal energy well water cooling waste incineration to produce energy wind generation	1992 collects how many cases or cabinets are "open" and "closed" and the approximate linear feet of these cases or cabinets	1992 collects description of overall heating and cooling system Collects the percent of floorspace heated/cooled by equipment types Links the distribution system to the equipment	1992 collects percent of floorspace lit by: Specular Reflectors Natural Lighting Controls Occupancy Sensors Time Clocks/Switches Manual Dimmer Switches
Similar categories first introduced in the 1983 CBECS	Limited refrigeration information collected in 1989	Similar characteristics collected in 1983 CBECS	Limited information collected in the 1983 survey and modified

Source: Energy Information Administration, Office of Energy Markets and End Use, 1992 Commercial Buildings Energy Consumption Survey.

[30]The companion volume, *Commercial Buildings Energy Consumption and Expenditures 1992* will contain data about gas transported for the account of others.

During the Building Characteristics Survey, each respondent was asked to provide the name, address, and account numbers of all suppliers of major energy sources to the building. In addition, respondents were asked to sign the Authorization Form at the end of the Building Questionnaire. Copies of this form were sent to the suppliers to secure the release of the buildings' billing records to EIA's survey contractor. Attempts were made to contact all suppliers of electricity, natural gas, fuel oil, district steam, hot water and chilled water that were identified during the Building Characteristics Survey.

The supplier surveys are mailed to the suppliers of energy to buildings that indicated the usage of major fuels, which are electricity, natural gas, fuel oil, and district heat (district steam and district chilled water). Each supplier of these major fuels were asked to provide consumption and expenditures data on the mailed survey form. The supplier's response to the survey was mandatory. The format of the form varied by the type of energy supplied and whether or not a signed authorization form had been obtained.

Tables D8 and D9 provide a comparison of the CBECS supplier surveys and supplier survey forms to help the user understand the differences among supplier surveys. The tables provide information with 1983 as the baseline because the 1979 and the 1983 surveys were, for the most part, exactly alike.

Table D8. CBECS Supplier Surveys, 1983 to 1992[a]

Supplier Surveys	1983	1986	1989	1992
Energy Sources Collected	Electricity Natural Gas Fuel Oil Coal Wood Propane District steam, purchased hot water, and purchased chilled water	Electricity Natural Gas Fuel Oil Bottled Gas Propane District steam (purchased and nonpurchased), hot water, and chilled water	Electricity Natural Gas Fuel Oil District steam, hot water, and chilled water	Electricity Natural Gas: Added Gas Transported for the Account of Others Fuel Oil District steam, hot water, and chilled water
Supplier Forms	Form EIA-788C - Used for all Supplier Forms Electricity Usage: Form 01Y Aggregate Usage: Form 02Y Worksheet Instructions: Form 05Y Natural Gas Utility Gas Usage: Form 01B Aggregate Utility Gas Usage: Form 02B Utility Gas Worksheet Form: 05B Fuel Oil Fuel Oil: Form 01P Aggregate Fuel Oil: Form 02P Fuel Oil Worksheet Form: 05P Other coal and propane and other energy sources specified by the supplier Individual: Form 01G Aggregate: Form 02G District Heating and Cooling Individual Steam: Form 01S	Electricity: EIA-871E-1,-2,-3 (yellow) Natural Gas EIA-871C-1,-2,-3 (pink) Fuel Oil EIA-871F-1,-2 (green) Bottled Gas (propane) EIA-871B-1,-2 (blue) District Heating and Cooling EIA-871D-1 (white)	Electricity: EIA-871E-1 (yellow) EIA-871E-2 (2-part) Natural Gas EIA-871C-1 (pink) EIA-871C-2 (2-part) Fuel Oil EIA-871F (green) District Heating and Cooling EIA-871D (blue)	Electricity: EIA-871E-1 (yellow) EIA-871E-1b (gold) EIA-871E-2 (2-part) Natural Gas EIA-871C-1 (pink) EIA-871C-1b (gray) EIA-871C-2 (2-part) Fuel Oil EIA-871F (green) District Heating and Cooling EIA-871D (blue)
Other Forms Collected	None Collected	None Collected	Facility Survey: Form EIA-871B Color: Gold Conducted to capture more information about multibuilding facilities or complexes that had their own central plant that supplied energy	Electricity DSM Program Participation and Natural Gas IRP Program Participation Forms: EIA-871E-1b EIA-871C-1b Reference period: January 1, 1990 to December 31, 1992
Response Rate	77.5 percent	88 percent	86.7 percent	86.9 percent

See footnotes at end of table.

Table D8. CBECS Supplier Surveys, 1983 to 1992 (Continued)

Supplier Surveys	1983	1986	1989	1992
Type of forms	Separate forms were used depending on the type of energy supplied, number of customers and whether authorization obtained. Three—depending upon number of customers and whether authorization obtained: (1) individual form (Type-01) - used when authorization obtained and only one customer (2) aggregate form (Type-02) - used when authorization obtained and more than one customer (3) worksheet (Type-05)—one-page worksheet with two-part chemical transfer paper used when authorization had not been obtained, used only for electricity and natural gas	Same as 1983	Separate forms used depending on the type of energy supplied and whether authorization obtained NOT number of customers in building. Two—depending on whether authorization obtained: (1) basic form (Type-1) - booklet or folder form used when authorization was obtained If more than one customer, supplier asked to sum building data over all the customers in the single building. (2) worksheet (Type-2)—one-page worksheet with two-part chemical transfer paper used when authorization had not been obtained Worksheet used for summation across all accounts in a group of buildings	Same as 1989
Information required	(1) quantity consumed or delivered (2) cost (3) unit of measure (4) dates of deliveries or consumption (5) number of customers included in both the consumption and cost data reported on the form	Same as 1983	Same as 1983	Same as 1983 and Account Classification (1) residential, or (2) commercial, or (3) industrial, or (4) commercial/industrial, or (5) other
Reference period	14-month period between December 1, 1982 and January 31, 1984	14-month period between December 1, 1985 and January 31, 1987	14-month period between December 1, 1988 and January 31, 1990	14-month period between December 1, 1991 and January 31, 1993
Transcription requirements	Data accepted in any format as long as necessary information was provided: Including computer printouts	Same as 1983	Same as 1983	Option to submit data on a computer diskette as well as computer printouts and mailing back the mailed form

[a] For a discussion on the 1992 CBECS supplier surveys, see Appendix A, How the Survey was Conducted.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

Table D9. CBECS Supplier Forms, 1983 to 1992

Supplier Form — 1983 Baseline	1986	1989	1992
Electricity			
Form dropped: usage disaggregated by end use 6,773 from 1979 sample and updates 1,706 supplemental list sample	Optional: usage disaggregated by end use (although was never used by supplier) Added kilowatt demand column and split into metered and billed Dropped question on the number of meters Added rate features questions—on four types of electric rate schedules or tariffs	Dropped form: usage disaggregated by end use Billed kilowatt demand column dropped Variation in reporting form: Kilowatt demand Number of accounts opened and closed, by time period Dropped rate features questions—added to Building Questionnaire CBECS	Same as 1989 and Added DSM Program participation form as an insert to Electricity Form, participation reference period 1/1/90-12/31/92 separate form to allow more knowledgeable person to respond, for (1) building's participation, (2) type of DSM measure building participated in, (3) type of assistance received
Response rate reported for electricity and natural gas—91 percent	Response rate—92 percent	Response rate—90.7 percent	Response rate—89.2 percent
Natural Gas			
Subset of nonresidential buildings excluding buildings in which industrial or agricultural activities occupy more of the total floorspace than any other type of activity	Asked if building on interruptible service, if so what alternative fuel was used during interruptible period	Dropped interruptible service and backup fuel for the building question Variation in reporting form: transportation gas volume and expenditures associated with these volumes included units of measure—therms, cubic feet or 1,000 cubic feet	Same as 1989 and Added IRP Program participation form as an insert to Natural Gas Form, participation reference period 1/1/90-12/31/92 separate form to allow more knowledgeable person to respond, for (1) building's participation, (2) type of IRP measure building participated in, (3) type of assistance received More clearly delineated as either utility gas sales or transportation gas deliveries
Response rate reported for electricity and natural gas—91 percent	Response rate—92 percent	Response rate—91.8 percent	Response rate—91.3 percent excluding gas transported for the account of others

Table D9. CBECS Supplier Forms, 1983 to 1992 (Continued)

Supplier Form — 1983 Baseline	1986	1989	1992
Fuel Oil			
Fuel oil categories requested eight breakouts and "other"	Fuel oil categories combined to create three major groupings and "other", instead of the previously requested eight breakouts and "other"	Asked whether reported delivery was first delivery to this customer Variation in reporting form: fuel-tank data	Same as 1989
Response rate—73.8 includes all fuels except electricity and natural gas	Response rate—72 percent	Response rate—65.5 percent	Response rate—75.9 percent
District Sources			
Collects steam	Added columns to obtain hot water and chilled water in addition to steam Form renamed "District Heating and Cooling" Added questions whether energy purchased and whether building was a heating or cooling plant	Added question whether quantity reported included that supplied to other buildings. If yes, asked to provide either the estimated percentage of the reported quantity used by the CBECS sampled building OR the square footage of both the specific building and the combined district loop Variation in reporting form: entire district or system	Same as 1989 Dropped interruptible service Asked how consumption data obtained when buildings on district loop other than CBECS selected
Response rate—73.8 includes all fuels except electricity and natural gas	Response rate: District purchased—75 percent District not purchased—56 percent	Response rate: steam—60.9 percent hot water—26.8 percent chilled water—49.7 percent	Response rate: steam—74.8 percent hot water—28.7 percent chilled water—50.3 percent

Source: Energy Information Administration, Office of Energy Markets and End Use, 1983, 1986, 1989, and 1992 Commercial Buildings Energy Consumption Surveys.

Appendix E

Types of Buildings

Appendix E

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 been used for 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.

1. **Agricultural**: See **Other**.

2. **Education**: refers to buildings used for academic or technical classroom instruction. This category includes the following:

   Schools:
   - Preschool
   - Elementary
   - Junior high
   - Senior high
   - College or university classrooms/Laboratories
   - Vocational school

   Other activities that occur on school campuses are reported separately:

   Administration (see Office)
   - Auditorium (see Public Assembly)
   - Dormitory (see Lodging)
   - Gymnasium (see Public Assembly)
   - Infirmary (see Health Care)
   - Library (see Public Assembly)
   - Museum (see Public Assembly)
   - School for the Mentally Retarded (see Health Care)
   - Stadium (see Public Assembly)
   - Student Union (see Public Assembly)

3. **Food Sales**: refer to buildings used for retail or wholesale of food. This category includes the following:

   - Convenience store or market
   - Farmer's market, Fruit/Vegetable market
   - Meat/Seafood store
   - Retail bakery
   - Specialty food store
   - Supermarket/Grocery store

4. **Food Service**: refers to buildings used for preparation and sale of prepared food and beverages for consumption. This category includes 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

5. **Health Care**: refers to buildings used as 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 category 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

   Excluded from this group are skilled nursing or other residential care facilities (nursing homes). These buildings are classified as "Lodging" buildings.

   Outpatient care may be medical, dental, or psychiatric. A building used for outpatient veterinary practices also falls into this category. This category includes the following:

   Dental Clinic

Medical Clinic:
Abortion/birth control
Ear, eye, nose, and throat
Emergency walk-in
General

Mental health/psychiatric clinic

Veterinary clinic

(Inpatient and outpatient buildings are combined in the "Health Care" category in Appendix A, "Detailed Tables" of this report.)

6. **Industrial/Manufacturing**: See **Other.**

7. **Laboratory**: refers to buildings used for activities which utilize equipment for experimental testing or for analysis. This category includes the following:

Mechanical/Electrical Laboratory
Medical/Dental Laboratory
Agricultural Laboratory

(Laboratory buildings are included in the "Other" category in Appendix A, "Detailed Tables" of this report.)

8. **Lodging**: refers to buildings used to offer multiple accommodations for short-term or long-term residents (including nursing homes). This category includes the following:

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 Appendix A, "Detailed Tables" of this report.)

9. **Mercantile and Service**: refers to buildings used for sales and displays of goods or services (excluding food). This category includes the following:

Automotive Sales and Service:
Automobile dealers
Gasoline stations
Motor vehicle repair/service

Retail Sales:
Building materials, garden supply, hardware store
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)

10. **Nonrefrigerated Warehouse or Storage**: See **Warehouse and Storage**.

11. **Office**: refers to buildings used for general office space, professional offices, and administrative offices. This category includes the following:

Data Processing:
Computer center
Data entry/Keypunch

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

12. **Other**: refers to buildings used for activities that do not fit into any of the specifically named categories. This category includes the following:

Crematorium
Hangar
Public restrooms/Showers
Telephone exchange

(Also included in the "Other" category are buildings that have several commercial activities that together represent 50 percent or more of the floorspace, but whose largest single activity is agricultural, industrial/manufacturing, or residential.)

(Laboratory buildings are also included in the "Other" category in Appendix A, "Detailed Tables," of this report.)

13. **Parking Garage**: refers to buildings in which cars are parked. Buildings in this category need not be totally enclosed by walls.

14. **Public Assembly**: refers to buildings in which people gather, in private or public meeting halls, for social, cultural, or recreational activities. (In previous surveys, Public Assembly has been classified under **Assembly**.) This category includes the following:

    Cultural/Entertainment Building:
    - Archive/art gallery/exhibit hall/library/museum
    - Coliseum/arena (enclosed)
    - Concert hall
    - Observatory/planetarium
    - Night Club
    - 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)

    Social/Public/Civic Assembly:
    - Assembly hall
    - Auditorium
    - Convention hall
    - Funeral home
    - Lecture hall
    - Lodge hall
    - Meeting hall
    - Student union
    - Town hall

    Other Enclosed Assembly Building:
    - Armory
    - Passenger terminal
    - Stadium

15. **Public Order and Safety**: refers to buildings used for the preservation of law and order or safety. This category includes the following:

    - Courthouse
    - Fire station
    - Jail/prison
    - Penitentiary
    - Police station
    - Reformatory
    - Sheriff's office

16. **Refrigerated Warehouse or Storage**: See **Warehouse and Storage.**

17. **Religious Worship**: refers to buildings in which people gather for religious activities. (In previous surveys, Religious Assembly has been classified under **Assembly**.) This category includes the following:

    - Chapel
    - Church
    - Mosque
    - Synagogue
    - Temple

18. **Residential**: See **Other**.

19. **Skilled Nursing/Other Residential Care**: refers to buildings used as facilities which offer 24-hour nursing/medical care. This category includes the following:

    Homes for the aged
    Nursing homes

    (Skilled nursing homes are included in the "Lodging" category in Appendix A, "Detailed Tables," of this report.)

20. **Warehouse and Storage**: refers to buildings used to store goods, manufactured products, merchandise, or raw materials. This category includes the following:

    Refrigerated Storage
    Nonrefrigerated Warehouse

    (Refrigerated storage is specifically designed to store perishable goods or merchandise under refrigeration. Includes "cold storage" facilities, which store products at temperatures between 0 degrees Fahrenheit and 50 degrees Fahrenheit and "freezer facilities," which store products at between 0 degrees Fahrenheit and -20 degrees Fahrenheit).

    (Refrigerated and nonrefrigerated warehouses are combined under the "Warehouse" category in Appendix A, "Detailed Tables," of this report).

21. **Vacant**: refers to commercial buildings in which more floorspace was vacant than was used for any single commercial activity (as defined above) at the time of interview. Thus a vacant building may have some occupied floorspace.

Appendix F

U.S. Climate Zones and Census Regions and Divisions Maps

Appendix F

U.S. Climate Zones and Census Regions and Division Maps

U.S. Census Regions and Divisions

Appendix G

Survey Forms

Appendix G

Survey Forms

This appendix contains the following data collection forms used in the 1992 Commercial Buildings Energy Consumption Survey.

- Form EIA-871A—Building Questionnaire.
- Form EIA-871A—Authorization Form. This is included as the last two pages of the Building Questionnaire.
- Form EIA-871G—Construction Improvement and Maintenance and Repairs Supplement (collected for the U.S. Bureau of the Census). This is included as Section R in the Building Questionnaire.
- Form EIA-871C-1—Building Natural Gas Usage and IRP Program Participation Form (Schedules A and B).
- Form EIA-871D—District Heating and Cooling Form.
- Form EIA-871E-1—Building Electricity Usage and DSM Program Participation Form (Schedules A and B).
- Form EIA-871F—Building Fuel Oil Usage Form.

Appendix H

Metric Conversion Factors

Appendix H

Metric Conversion Factors

Data in the Energy Information Administration publications are expressed in units, such as British thermal units, barrels, cubic feet, and short tons, that historically have been used in the United States. However, because U.S. activities involve foreign nations, most of which use metric units of measure, the United States is committed to making the transition to the metric system. The metric conversion factors presented in Table H1 can be used to calculate the metric-unit equivalents of values expressed in U.S. units. For example, 500 short tons are the equivalent of 453.6 metric tons (500 short tons x 0.9071847 metric tons/short tons=453.6 metric tons).

Table H1. Metric Conversion Factors

Type of Unit	U.S. Unit		Conversion Factor	Metric Unit
Mass	Short Tons	X	0.907 1847	= Metric Tons (t)
	Short Tons Uranium Oxide ($U_3 0_8$)	X	0.769	= Metric Tons Uranium (U)
	Short Tons Uranium Fluoride (UF_6)	X	0.613	= Metric Tons Uranium (U)
	Long Tons	X	1.016	= Metric Tons(t)
	Pounds(lb)	X	0.453 592 37[a]	= Kilograms(kg)
	Pounds Uranium Oxide(lb U_3O_8)	X	0.384 645[b]	= Kilograms (Kg)
	Ounces, Avoirdupois(oz)	X	28. 349 52	= Grams(g)
	Barrels of Oil(bbl)	X	0.158 987 3	= Cubic Meters (m^3)
Volume	Cubic Yards(yd^3)	X	0.765 555	= Cubic Meters (m^3)
	Cubic Feet(ft^3)	X	0.028 316 85	= Cubic Meters (m^3)
	U.S. Gallons(gal)	X	3.785 412	= Liter (L)
	Ounces, Fluid(fl oz)	X	29.573 53	= Milliliters (ml)
	Cubic Inches(in^3)	X	16.387 06	= Milliliters (ml)
Length	Miles (mi)	X	1,609 344[a]	= Kilometers (km)
	Yards (yd)	X	0.914 4[a]	= Meters (m)
	Feet (ft)	X	0.304 8[a]	= Meters (m)
	Inches (in)	X	2.54[a]	= Centimeters (cm)
Area	Acres	X	0.404 69	= Hectares (ha)
	Square Miles (mi^2)	X	2,589 988	= Square Kilometers (km^2)
	Square Yards (yd^2)	X	0.836 127 4	= Square Meters (m^2)
	Square Feet (ft^2)	X	0.092 903 04[a]	= Square Meters (m^2)
	Square Inches (in^2)	X	6.4561 6[a]	= Square Centimeters (cm^2)
Temperature	Degrees Fahrenheit[c] (^oF)	X	5/9 (after subtracting 32)[a]	= Degrees Celsius (^oc)
Energy	British thermal units (Btu)	X	1,055.056	= Joules (J)
	Calories (cal)	X	4.186 8	= Joules (J)
	Kilowatthours (kWh)	X	3.6	= Megajoules (MJ)

[a]Exact Conversion.
[b]Calculated by the Energy Information Administration.
[c]To convert degrees Celsius (^oC) to degrees Fahrenheit (^oF) multiply by 9/5, then add 32.
Sources: •General Services Administration, Federal Standard 376B, *Preferred Metric Units for General Use by the Federal Government* (Washington, DC, January 27, 1993), pp. 9-11, 13, and 16. •National Institute of Standards and Technology, *Special Publications* 330, 811, and 814. •American National Standards Institute/Institute of Electrical and Electronic Engineers, ANS/EEE Std.268-1982, pp 28 and 29. •Energy Information Administration/*Monthly Energy Review August 1993*, Appendix B, pp 161.

Appendix I

Related EIA Publications on Energy Consumption

Appendix I

Related EIA Publications on Energy Consumption

For information about how to obtain these publications, see the inside cover of this report. Please note that the prices quoted here are subject to change.

In addition to the reports listed below, public use data tapes and data diskettes for the residential, residential transportation, and commercial sectors are available from the National Technical Information Service (NTIS). To obtain information on how to order the tapes/diskettes, you may call NTIS at 703-487-4807, FAX number 703-321-8547. Data diskettes can also be obtained from the Office of Scientific and Technical Information (OSTI). For OSTI ordering information, call 615-576-8401.

Commercial Sector

Note: The name of the Nonresidential Buildings Energy Consumption Survey was changed to the Commercial Buildings Energy Consumption Survey, beginning with the 1989 survey. The survey name was also dropped from the report title at that time and subsequently.

Characteristics of Buildings

Commercial Buildings Characteristics 1992; April 1994, DOE/EIA-0246(92), GPO Stock No. 061-003-00850-0, $28.00.

"Commercial Buildings Characteristics 1992," *Monthly Energy Review*, January 1994, DOE/EIA-0035(94/01).

Commercial Buildings Characteristics 1989; June 1991, DOE/EIA-0246(89), GPO Stock No. 061-003-00699-0, $18.00.

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 NTIS, Order No. 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

Commercial Buildings Consumption and Expenditures 1989; April 1992, DOE/EIA-0318(89), GPO Stock No. 061-003-00753-8, $25.00.

Nonresidential Buildings Energy Consumption Survey: Commercial Buildings Consumption and Expenditures 1986; May 1989, DOE/EIA-0318(86), GPO Stock No. 061-003-00613-2, $19.00.

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, Coal, Fuel Oil, LPG, and Total Fuels; December 1983, DOE/EIA-0318(79)/2, GPO Stock No. 061--003-00366-4, $6.00.

Other Publications on the Commercial Sector

Energy Consumption Series— *Energy End-Use Intensities in Commercial Buildings*, September 1994, DOE/EIA-0555(94)/2, GPO Stock No. 061-003-0087-9, 9.00.

"Assessment of Energy Use in Multibuilding Facilities," *Monthly Energy Review*, December 1993, DOE/EIA-0035(93/12).

Energy Consumption Series—*Assessment of Energy Use in Multibuilding Facilities*, August 1993, DOE/EIA-0555(93)/1, GPO Stock No. 061-003-00817-8, $7.50.

Energy Consumption Series—*User-Needs Study for the 1992 Commercial Buildings Energy Consumption Survey*, September 1992, DOE/EIA-0555(92)/4, GPO Stock No. 061-003-00770-8, $8.50.

Energy Consumption Series—*Lighting in Commercial Buildings*; March 1992, DOE/EIA-0555(92)/1, GPO Stock No. 061-003-00749-0, $6.50.

Residential Sector

Housing Characteristics

Note: The survey name was dropped from the beginning of the report title starting with the 1987 data reports.

Housing Characteristics 1990; May 1992, DOE/EIA-0314(90), GPO Stock No. 061-003-00754-6, $23.00.

Housing Characteristics 1987; May 1989, DOE/EIA-0314(87), GPO Stock No. 061-003-00619-1, $13.00.

Residential Energy Consumption Survey: Housing Characteristics 1984; October 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. available).

Consumption and Expenditures

Note: The survey name was dropped from the beginning of the report title starting with the 1987 data reports. The titles were changed to *Household Energy Consumption and Expenditures 1987, Part 1: National* and *Part 2: Regional*.

"Household Energy Consumption and Expenditures 1990," *Monthly Energy Review*, August 1993, DOE/EIA-0035(93/08).

Household Energy Consumption and Expenditures 1990; February 1993, DOE/EIA-0321/1(90), GPO Stock No. 061-003-00795-3, $22.00.

Household Energy Consumption and Expenditures 1990\S; DOE/EIA-0321/2(90), GPO Stock No. 061-003-00796-1, $21.00.

Household Energy Consumption and Expenditures 1987, Part 1: National Data; October 1989, DOE/EIA-0321/1(87), GPO Stock No. 061-003-00635-3, $15.00. Note: Energy end-use data are included in this report.

Household Energy Consumption and Expenditures 1987, Part 2: Regional Data; DOE/EIA-0321/2(87) (no GPO Stock No. available), $16.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1984 Through March 1985, Part 1: National Data; March 1987, DOE/EIA-0321/1(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. Note: Energy end-use data are included in this report.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1982 Through March 1983, Part 1: National Data; November 1984, DOE/EIA-0-321/1(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-0-321/2(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-0-321/1(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-032-1/2(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 II: Regional Data; May 1981, DOE/EIA-0262/2, GPO Stock No. 061-003-00189-1, $8.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 Through March 1979; July 1980, DOE/EIA-0207/5, GPO Stock No. 061-003-00131-9, $7.50.

Single-Family Households: Fuel Oil Inventories and Expenditures: National Interim Energy Consumption Survey; December 1979, DOE/EIA-0207/1, GPO Stock No. 061-003-00075-4, $3.50.

Other Publications on the Residential Sector

Energy Consumption Series—*Sample Design for the Residential Energy Consumption Survey*, August 1994, DOE/EIA-0555(94)/1, GPO Stock No. 061-003-00865-8, $6.50.

Energy Consumption Series—*User-Needs Study of the 1993 Residential Energy Consumption Survey*, September 1993, DOE/EIA-0555(93)/2, GPO Stock No. 061-003-00819-4, $13.00.

"End-Use Consumption of Residential Energy" *Monthly Energy Review* (Article), pp. vii-xiv, 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. 061-00300-347-8, $5.00.

National Interim Energy Consumption Survey: Exploring the Variability In Energy Consumption; July 1981, DOE/EIA-0272, GPO Stock No. 061-003-00-205-6, $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

Note: The survey name was dropped from the beginning of the report title starting with the 1988 data report, and the report title changed to *Household Vehicles Energy Consumption 1988*.

Household Vehicles Energy Consumption 1991; December 1993, DOE/EIA-0464(91), GPO Stock No. 061-003-00652-3, $14.00.

"Energy Preview: Residential Transportation Energy Consumption Survey Preliminary Estimates, 1991," *Monthly Energy Review*, January 1993, DOE/EIA-0035(93/01).

Household Vehicles Energy Consumption 1988; February 1990, DOE/EIA-0464(88), GPO Stock No. 061-003-00652-3, $11.00.

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.).

Industrial Sector

"Energy Preview: Manufacturing Energy Consumption Survey Preliminary Estimates, 1991," *Monthly Energy Review*, September 1993, DOE/EIA-0035(93/01).

"Energy Efficiency in the Manufacturing Sector," *Monthly Energy Review* (Article), p.1, December 1992.

Manufacturing Energy Consumption Survey: Changes in Energy Intensity in the Manufacturing Sector 1980-1988, December 1991, DOE/EIA-0552(80-88). GPO Stock No. 061-003-00734-1, $4.75.

Manufacturing Energy Consumption Survey: Manufacturing Fuel-Switching Capability 1988; September 1991, DOE/EIA-0515(88), GPO Stock No. 061-003-00720-1, $9.00.

Manufacturing Energy Consumption Survey: Consumption of Energy, 1988; May 1991, DOE/EIA-0512(88), GPO Stock No. 061-003-00703-8, $11.00.

Manufacturing Energy Consumption Survey: Energy Efficiency in Manufacturing, 1985; January 1990, DOE/EIA-0516(85), GPO Stock No. 061-003-00650-7, $4.25.

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: Methodological 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.

"Manufacturing Sector Energy Consumption 1985 Provisional Estimates," *Monthly Energy Review* (Article), pp. vii-x, January 1987, DOE/EIA-0035(-87/01).

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.).

Other Publications on the Industry Sector

Energy Consumption Series—*Derived Annual Estimates of Manufacturing Energy Consumption 1974-1988*, August 1992, DOE/EIA-0555(92)/3, GPO Stock No. 061-003-00766-0, $7.00.

Energy Consumption Series—*Development of the 1991 Manufacturing Energy Consumption Survey*, May 1992, DOE/EIA-0555(92)/2, GPO Stock No. 061-003-00757-1, $5.50.

Cross-Sector

Energy Consumption by End-Use Sector: A Comparison of Measures by Consumption and Supply Surveys; April 6, 1990, DOE/EIA-0533 (no GPO Stock No. available), $2.50.

Natural Gas: Use and Expenditures; April 1983, DOE/EIA-0382, GPO Stock No. 061-003-00307-9, $5.50.

Public Use Tapes

Note: All tapes are available through the NTIS.

Residential and Residential Transportation Sectors

Residential Energy Consumption Survey: 1987 and Residential Transportation Energy Consumption Survey, 1988, Order No. PB90-501461, $220.

Residential Energy Consumption Survey: 1984 and Residential Transportation Energy Consumption Survey, 1985; Order No. PB87-186540, $220.

Residential Energy Consumption Survey: 1982 and Residential Transportation Energy Consumption Survey, 1983; Order No. PB85-221760, $220.

Residential Energy Consumption Survey: Consumption and Expenditures, 1980-1981; Monthly Billing Data; Order No. PB84-166230, $220.

Residential Energy Consumption Survey: Housing Characteristics, 1981; Consumption and Expenditures, 1981-1982; Monthly Billing Data; Order No. PB84-1-20476, $220.

Residential Energy Consumption Survey: Housing Characteristics, Annualized Consumption and Expenditures, 1980-1981; Order No. PB83-199554, $220.

Residential Energy Consumption Survey: Household Transportation Panel Monthly Gas Purchases and Vehicle and Household Characteristics, 6/79-9/81; Order No. PB84-162452, $220.

Residential Energy Consumption Survey: Household Screener Survey, 1979-1980; Order No. PB82-114877, $220.

Residential Energy Consumption Survey: Household Monthly Energy Consumption and Expenditures, 1978-1979; Order No. PB82-114901, $220.

National Interim Energy Consumption Survey (Residential), 1978; Order No. PB81-108714, $220.

Commercial Sector

Nonresidential Buildings Energy Consumption Survey: 1986 Data; Order No. PB90-500034, $220.

Nonresidential Buildings Energy Consumption Survey: 1979 and 1983 Data; Order No. PB88-245162, $220.

Public Use Diskettes

Note: Diskettes are available through the Office of Scientific and Technical Information (OSTI) and NTIS.

Commercial Buildings Consumption and Expenditures, 1992 data, **OSTI** - ASCII or dBASE format, order by title, $10 per diskette, $40 set of four. **NTIS** - ASCII or dBASE format, order by title, call for prices.

Commercial Buildings Characteristics 1992 data, **OSTI** - ASCII or dBASE format, order by title, $10 per diskette, $40 set of four. **NTIS** - ASCII or dBASE format: Order No. PB-94-504305, call for prices.

Commercial Buildings Energy Consumption Survey 1989 data, **OSTI** - ASCII format, order by title, $10 per diskette, $40 set of four. **NTIS** - ASCII format: Order No. PB92-504232, $140.

Residential Transportation Energy Consumption Survey 1988 Data, **OTSI** - ASCII or dBASE format, order by title, $10 per diskette, $40 for set of four. **NTIS** - ASCII format: Order No. PB91-507269, dBASE format: Order No. PB91-507277, $50 each.

Residential Energy Consumption Survey 1987 Data, **OSTI** - ASCII or dBASE format, order by title, $10 per diskette, $40 set of four. **NTIS** - ASCII format: Order No. PB-91-505115, $130, and dBASE format: Order No. PB-91-505107, $130.

Nonresidential Buildings Energy Consumption Survey 1986 Data, **NTIS** - ASCII format: Order No. PB91-506808, $130.

Planned Publications

Housing Characteristics 1993; planned for summer 1995.

Household Energy Consumption and Expenditures 1993; planned for September 1995.

Buildings and Energy in the 1980's (Energy Consumption Series); planned for mid 1995.

Measuring Energy Efficiency in the U.S. Economy (Energy Consumption Series); planned for late 1995.

Note: The Energy Information Administration also publishes annually the *State Energy Data Report, Consumption Estimates*, DOE/EIA-0214 and the *State Energy Price and Expenditures Report*, DOE/EIA-0376; and the *Monthly Energy Review*, DOE/EIA-0035. These reports contain annual and monthly consumption information derived from EIA supply surveys.

Glossary

Account Classification: As used in this report, this term refers to the way in which suppliers of electricity, natural gas, or fuel oil classify and bill their customers. Commonly used account classifications are "Commercial," "Industrial," and "Residential." Suppliers' definitions of these terms vary from supplier to supplier and from the definitions used in CBECS. In addition, the same customer may be classified differently by each of its energy suppliers.

Activities with Large Amounts of Hot Water: One of the energy-related space function activities within the building that required large amounts of hot water for other than space heating. Examples of these activities are commercial laundry rooms, heated swimming pools, spas, or sauna and steam rooms. (See **Energy-Related Space Functions**.)

Agricultural: In this survey, activities involving the production, processing, sale, storage, or housing of agricultural products, including livestock. Buildings that housed such activities were included during the listing stage. However, buildings that had 50 percent or more of the floorspace devoted to agricultural activity were considered out of scope and were deleted from the sample during the interview phase. Farms and farm buildings, whose buildings are overwhelmingly residential and agricultural, were out of scope for the CBECS and were not listed. (See **Commercial Building**, **Out of Scope**, **Nonresidential Building**, **Building, Principal Building Activity**, and Appendix A, "How the Survey was Conducted.")

Air Conditioning: See **Cooling**.

Air-Handling Units: A method for channeling warm or cool air to different parts of a building. The process of moving the conditioned air often involves drawing air over heating or cooling coils and forcing it from a central location through ducts or air-handling units. Air-handling units are hidden in the walls or ceilings, where they use steam or hot water to heat or chilled water to cool the air inside the duct work. In the "Detailed Tables," air-handling units are included in the "Ducts for Heating" heating distribution category and in the "Ducts for Cooling" cooling distribution category. (See **Cooling, Duct,** and **Space Heating**.)

Alternative-Rate DSM Program Assistance: A DSM program assistance that offers special rate structures or discounts on the consumer's monthly electric bill in exchange for participation in DSM programs aimed at cutting peak demands or changing load shape. These rates are intended to reduce consumer bills and shift hours of operation of equipment from on-peak to off-peak periods through the application of time-differentiated rates. For example, utilities often pay consumers several dollars a month (refund on their monthly electric bill) for participation in a load control program. Large commercial and industrial consumers sometimes obtain interruptible rates, which provide a discount in return for the consumer's agreement to cut electrical loads upon request from the utility (usually during critical periods, such as summer afternoons when the system demand approaches the utility's generating capability). (See **Demand-Side Management (DSM)**.)

Asphalt or Fiberglass Shingles: See **Shingles**.

Authorization Form: A form signed by the building respondent, authorizing energy suppliers that serve the building to release information on the amounts and costs of energy consumed in the building and the participation by the building in DSM programs during a specified period. (See **Energy Supplier** and Appendix A, "How the Survey Was Conducted.")

Barrel: A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. (See **Gallon**.)

Baseboard: As a type of heating distribution equipment, a 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 **Electric Baseboard** and **Individual Space Heater**.)

Boiler: A type of space-heating equipment consisting of a vessel or tank where heat produced from the combustion of fuels such as natural gas, fuel oil, or coal is used to generate hot water or steam. 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 part of the building's heating system. Steam or hot water piped into a building from a central plant is considered district heat. (See **Furnace, Heating, Ventilation, and Air Conditioning (HVAC),** and **District Heat**.)

Bottled Gas: See **Liquefied Petroleum Gas (LPG)** and **Propane**.

British Thermal Unit: See **Btu (British Thermal Unit)**.

Btu (British Thermal Unit): A unit 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. Energy consumption is expressed in Btu in this report to allow for consumption comparisons among fuels that are measured in different units. (See **Btu Conversion Factors** and **Metric Conversion Factors**.)

Btu Conversion Factors: The Btu conversion factors used for this survey are as follows:

	Btu Equivalent	Unit
Electricity	3,412	Kilowatthour
Natural Gas	1,033	cubic foot
Distillate Fuel Oils (Nos. 1,2, and 4)	138,690	gallon
Residual Fuel Oils (Nos. 5 and 6)	149,690	gallon
Kerosene	135,000	gallon
District Heat (Steam and Hot Water)	1,000	pound

Note: Btu of district hot water have been converted into equivalent pounds of steam using the conversion 1,000 Btu hot water ≈ 1 pound steam.

Sources: Energy Information Administration, *Natural Gas Annual* (1992), p. 81 for natural gas; *Monthly Energy Review* (June 1992), pp. 138-141, for electricity, distillate, residual, and kerosene; and *Methodological Issues In the Nonresidential Buildings Energy Consumption Survey* (September 1983), pp. 173-175 for district steam.

Building: In this survey, a structure totally enclosed by walls extending from the foundation to the roof, containing over 1,000 square feet of floorspace, 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 commercial activity; and oil storage tanks. (See **Commercial Building** and **Nonresidential Building**.)

Building Energy Manager: A person whose chief day-to-day responsibility is the physical operation and maintenance of the building's heating and/or cooling equipment. In Section 3, "Detailed Tables," this is included under the "Energy Management Practices" category. (See **Energy Management Practices**.)

Building Floorspace: See **Floorspace**.

Building Ownership (Owner/Manager): See **Ownership of Building**.

Building Shape: The shape of the building that mostly resembles the floorplan of the building. This is often referred to as the "footprint" of the building. For this survey, the following response categories were given for the building shape: square, rectangle, rectangle or square with courtyard, right angle (L shape) and H, U, E, T, or cross shapes. In the "Detailed Tables" of this report, the "Other" category under Building Shape includes rectangle or square with courtyard, H, U, E, T, L and cross shapes.

Building Shell Conservation Features: Building features designed to reduce the energy loss or gain through the shell or envelope of the building. In the "Detailed Tables," this category includes roof, ceiling or wall insulation; storm windows or double- or triple-paned glass (multiple glazing); tinted or reflective glass or shading films; exterior or interior shadings or awnings, and windows that open. This category does not include any building shell DSM program participation. In the "Detailed Tables," any building shell DSM program participation is included in DSM programs. (See **Roof or Ceiling Insulation, Wall Insulation, Storm Windows, Storm Doors, Storm or Multiple Glazing, Tinted or Reflective Glass or Shading Film**, **Exterior or Interior Shadings or Awnings**, and **Windows that Open**.)

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 (Envelope) DSM Program: A DSM program that promotes reduction of energy consumption through improvements to the building envelope. Includes installation of insulation, weatherstripping, caulking, window film, and window replacement. In the "Detailed Tables," this is included in the "DSM Programs" category. (See **Building Shell (Envelope)** and **Demand-Side Management (DSM) Programs**.)

Built-Up Roof: A roof covering consisting of several successive layers (each of which is called a ply), usually of roofing felt, with mopping 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**.

Cases or Cabinets: Refrigeration in cabinets (units) without covers or with flexible covers made of plastic or some other material, hung in strips or curtains (fringed material, usually plastic, that push aside like a bead curtain). Flexible covers stop the flow of warm air into the refrigerated space. (See **Commercial Refrigeration/Freezer Equipment**.)

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 F.) The States are grouped into four regions and nine divisions:

Region	Division	States
Northeast	New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont
	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 F.

Central Chiller: Any centrally located air-conditioning system that produces chilled water in order to cool air. The chilled water or cold air is then distributed throughout the building using pipes or air ducts, or both. These systems are also commonly known as "chillers," "centrifugal chillers," "reciprocating chillers" or "absorption chillers." Chillers are generally located in, or just outside, the building they serve. Chillers located at central plants are included under district chilled water. (See **Cooling, District Chilled Water, Central Physical Plant,** and **Heating, Ventilation, and Air Conditioning (HVAC)**.)

Central Cooling: Cooling of an entire building with a refrigeration unit to condition the air. Typically, central chillers and ductwork are present in a centrally cooled building. (See **Cooling**.)

Central Physical Plant: A plant that is owned by, and on the grounds of, a multibuilding facility that provides district heating, district cooling, or electricity to one or more buildings on the same facility. The central physical plant may be by itself in a separate building or may be located in a building where other activities occur. (See **Multibuilding Facility, District Heat,** or **District Chilled Water**.)

Centralized Water-Heating System: Equipment to heat and store water for purposes other than space heating which provides hot water from a single location for distribution throughout a building. A residential-type tank water heater is a good example of a centralized water heater. (See **Water-Heating Equipment** and **Distributed/Point-of-Use Water-Heating System**.)

Chiller: See **Central Chiller**.

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 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 degrees Fahrenheit). 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**.)

The zones are defined as follows:

Climate Zone	Average Annual Cooling Degree-Days	Average Annual Heating Degree-Days
1	Less than 2,000	More than 7,000
2	Less than 2,000	5,500 to 7,000
3	Less than 2,000	4,000 to 5,499
4	Less than 2,000	Less than 4,000
5	2,000 or more	Less than 4,000

Coal: A black or brownish-black solid, combustible substance formed by the partial decomposition of vegetable matter without access to air. In this report, the term includes anthracite, bituminous and subbituminous coal, as well as the derivative of coal (formed by destructive distillation or imperfect combustion) known as coke. This survey determined if coal was used in the commercial building but did not collect consumption and expenditure data on the use of coal as an energy source. In this report, coal is included in the "Any Other" category for the energy sources, main space-heating energy sources, and space-heating energy sources categories. (See **Energy Source**.)

Cogeneration: The sequential or simultaneous process in which useful heat/steam is generated, used in a variety of process applications, and then directed into a turbine to generate electricity and/or mechanical work from the useful thermal energy still available for use. This process of electric generation may be electrically interconnected with an electric utility and grid, to deliver electricity to the grid as well as receive it from the grid. 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**.)

Commercial: Neither residential, manufacturing/industrial, nor agricultural. (See **Residential**, **Manufacturing/ Industrial**, **Agricultural,** and **Commercial Building**.)

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 sites with restricted access, such as some military bases or reservations. Agricultural buildings, residences, and manufacturing buildings were excluded from the survey. For a more complete list of buildings in the survey, see Appendix E, "Types of Buildings." (See **Building, Commercial, Residential, Manufacturing/Industrial, Agricultural, Nonresidential Building,** and **Principal Building Activity.**)

Commercial Food Preparation and Serving: In this survey, this term denotes space specifically designed and equipped to meet the needs for preparing and serving food commercially. This includes kitchens in restaurants, diners, and other commercial institutions such as schools. The term "commercial" also includes what is sometimes classified as "institutional"; that is, food preparation and serving areas in schools, hospitals, prisons, shelters, churches and nursing homes. This category includes cafeterias where food is brought in and kept warm with steam tables or other warming devices until it is served. It does not include employee or student "lounge" areas with microwave or other food preparation equipment and/or vending machines. (See **Energy-Related Space Functions**.)

Commercial Refrigeration/Freezer Equipment: These include: commercial refrigeration/freezer units for the sale or storage of perishable materials; residential-type refrigerators/freezers; water coolers; or any other refrigeration equipment, excluding air conditioning. Freezers are designed to keep their contents below the freezing point (32 degrees Fahrenheit) and refrigeration equipment is designed to maintain the stored items below room temperature, but above the freezing point. In this report, data are collected on refrigeration/freezer equipment inside and/or adjacent to the building. (See **Cases and Cabinets** and **Walk-in Refrigeration Units.)**

Compact Fluorescent Light Bulbs: Designed to replace screw-in incandescent light bulbs, they are often found in table lamps, wall sconces and hall and ceiling fixtures of commercial buildings with residential type lights. They combine the efficiency of fluorescent lighting with the convenience of standard incandescent bulbs. Light is produced the same way as other fluorescent lamps. Compact fluorescent bulbs have either electronic or magnetic ballasts. (See **Light Bulbs** and **Fluorescent Light Bulbs**).

Computer Room with Separate Air-Conditioning System: In this survey, space specifically designed and equipped to meet the needs of computer equipment for controlled temperatures and/or humidity. The air-conditioning system for this area is separate from that used to control the environment in other parts of the building. The space is usually separated by walls and doors. Sometimes such rooms have raised floors with ventilation equipment located under the floor. (See **Energy-Related Space Functions**.)

Computer Terminal: An electronic system which consists of a computer screen (monitor) or terminal and a data entry device such as a keyboard. Terminals used in offices usually look like PCs without the box or central processing unit (CPU) case. The "CPU" for the terminal is the mainframe computer located in a central place. (See **Personal Computer**.)

Concrete Panel: A wall construction panel made of concrete, which is either prefabricated in a factory or poured at the site and then hoisted onto the structure. (See **Precast Concrete Panel**.)

Concrete Roof: A poured concrete roof, often intended to bear the load of a parking garage that occupies the roof area of a building.

Conditional Energy Intensity: Total consumption of a particular energy source(s) or fuel(s) divided by the total floorspace of buildings that use the energy source(s) or fuel(s), i.e., the ratio of consumption to energy source-specific floorspace. This measure is used in the fuel-specific tables in the "Detailed Tables." (See **Energy Source-Specific Floorspace**.)

Confidence Interval: A range that is estimated to include the population value at a given confidence level, usually 95 percent. The range is calculated from the sample data. The confidence level is the expected fraction of such confidence intervals that actually do include the corresponding, unknown population value. (See Appendix B, "Nonsampling and Sampling Errors.")

Conservation Features: A feature in the building designed to reduce the usage of energy. (See **Building Shell Conservation Features, HVAC Conservation Features**, and **Lighting Conservation Features**.)

Consumption: The amount of energy used in, or delivered to, a building during a given period of time. For this report, unless otherwise noted, all consumption statistics are site energy consumption, which includes electric utility sales to commercial buildings but excludes electrical system and district heat energy losses. Statistics for this report are presented on an annual basis for the 365-day period of calendar year 1992. Site consumption is the amount of energy delivered to the site (building); no adjustment is made for the fuels consumed to produce electricity or district sources. Site consumption is also referred to as net energy. However, primary consumption is the amount of site consumption plus losses that occur in the electricity generation process.

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 reported for those buildings would typically include other uses of electricity as well (such as lighting and water heating). (See **Btu**, **Conversion Losses**, **Energy Supplier**, **Expenditures**, and the section on "Annual Consumption and Expenditures" in Appendix B, "Nonsampling and Sampling Errors.")

Consumption per Square Foot: The aggregate ratio of total consumption for a particular set of buildings to the total floorspace of those buildings. (See **Consumption, Energy Intensity**, and **Floorspace**.)

Consumption per Worker: The aggregate ratio of total consumption to total number of workers (main shift). (See **Consumption** and **Workers (Main Shift)**.)

Continuous-Delivery Energy Sources: Those energy sources provided continuously to a building. In this report, continuous delivery energy sources are electricity, natural gas, and district heating and cooling. (See **Energy Source** and **Discrete-Delivery Energy Sources**.)

Conversion Factors: See **Btu, Btu Conversion Factors**, and **Metric Conversion Factors**.

Conversion Losses: The amount of energy lost during generation, transmission, and distribution of energy sources particularly electricity, including plant and unaccounted-for uses. (See **Consumption**, **Site Electricity**, and **Primary Electricity**.)

Cooking: In this report, the use of energy for commercial or institutional food preparation. This survey asked specifically about "commercial or institutional 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**.)

Cooling: Conditioning of room air for human comfort by a refrigeration unit (such as an air conditioner or heat pump) or by a central cooling or district cooling system that circulates chilled water. 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 uses specifically asked for in this survey. (See **Energy End Use, Central Cooling, Central Chiller, Heat Pump, Heating, Ventilation, and Air Conditioning (HVAC)**, and **Residential-Type Central Air Conditioner**.)

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 degrees Fahrenheit, and the period of time is one year. The cooling degree-day is the difference between that day's average temperature and the base temperature if the daily average is greater than the base; it is 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)**, **Climate Zone**, and **NOAA Division**.)

Cooling Distribution Equipment: The part of a cooling system that distributes conditioned water and/or air throughout by means of pipes, ducts, or fans. Often the distribution serves both heating and cooling. (See **Duct**, **Individual Room Air Conditioners in Wall or Windows**, and **Fan-Coil Unit**.)

Cooling Equipment: The equipment used for cooling room air in the building for human comfort. (See **Cooling Distribution Equipment** and also descriptions of specific response categories collected in the CBECS: **Residential-Type Central Air Conditioner, Heat Pump, Individual Room Air Conditioners in Walls or Windows, Central Chillers,** and **Packaged Units**.)

Daylighting Controls: See **Natural Lighting Control Sensors**.

Cubic Foot (cf): As a natural gas measure, the volume of gas contained in a cube with an edge that is 1 foot long at standard temperature and pressure (60 degrees Fahrenheit and 14.73 pounds standard per square inch.) The thermal content varies by the composition of the gas. (See **Natural Gas** and **Btu Conversion Factors.)**

Decorative or Construction Glass: An exterior building wall material of glass decorative coverings such as glass blocks or spandrels, that are not window or vision (see-through) glass. Structural glass or glass curtain walls used on the outside of buildings are also included in this category. In Section 3, "Detailed Tables," decorative or construction glass is included in the "Other" wall materials category. (See **Window or Vision Glass**.)

Degree-Days 45-Year Average: The average of the total annual heating and cooling degree-days (base, 65 Degrees Fahrenheit) in each NOAA Division, for the 45 years, 1931 through 1975. Computed form the Division's daily temperature averages for each year in question and used to assign individual buildings to climate zones. (See **Heating Degree-Days (HDD)**, **Cooling Degree-Days (CDD)**, **NOAA Division,** and **Climate Zone**.)

Demand: The rate of energy consumption per unit of time. The term is most commonly applied to electricity, for which demand is typically measured in watts (W) or kilowatts (kW). (See **Consumption** and **Peak Demand**.)

Demand-Metered: Having a meter to measure peak demand (in addition to total consumption) during a billing period. The 1992 CBECS 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, "Nonsampling and Sampling Errors.")

Demand-Side Management (DSM): In this report, this is the planning and implementation of strategies designed to encourage consumers to improve energy efficiency, reduce energy costs, change the time of usage, or promote the use of a different energy source. DSM covers the complete range of load-shape objectives, including strategic conservation and load management, as well as strategic load growth.

The 1992 CBECS collected information on a variety of DSM strategies. This information included whether the building's electric or natural gas utility has sponsored any DSM programs; whether the building or facility had participated in, or planned to participate in, any DSM programs sponsored in-house, by a utility, or third-party; which specific DSM program areas the building had participated in, such as: lighting, building envelope, and HVAC systems; identification of specific program sponsors; and what type of assistance was received through the DSM program, such as: general information, incentives, or alternative rates.

Demand-Side Management (DSM) Program Assistance: In this report, DSM program assistance consists of: general information, site-specific information, incentives, alternative-rate programs, fuel-switching programs, and other DSM programs. This assistance can be provided by utilities, in-house group, or third parties, such as an energy service company or contractor. Assistance for DSM programs may be monetary or non-monetary awards to encourage consumers to buy energy-efficient equipment and to participate in programs designed to reduce energy usage. Examples of incentives are zero or low-interest loans, rebates, and direct installation of low-cost measures, such as water-heater wraps or compact fluorescent bulbs.

Demand-Side Management (DSM) Programs: In this report, DSM programs consist of the Building Envelope or Shell DSM Programs; HVAC DSM Programs; Lighting DSM Programs; and Other DSM Programs, including Direct Electricity Load-Control DSM Programs, Energy Efficient Motors DSM Programs, Process Heating or Cooling DSM Programs, Standby Electricity Generation DSM Programs, Thermal Storage DSM Programs, and Water Heating DSM Programs. In Section 3, "Detailed Tables," DSM Program Participation is a category under Energy Management Practices.

Demand-Side Management (DSM) Program Sponsor: A DSM program can be sponsored by electric and natural gas utilities, in-house, or a third party, such as an energy service company or contractor. A sponsor suggests ways to increase the energy efficiency of buildings, to reduce energy costs, to change the usage patterns, or to promote the use of a different energy source through DSM programs.

Direct Electricity Load-Control DSM Program: DSM program activities that can interrupt consumer load at the time of peak load by direct control of the utility system operator by interrupting the power supply to individual equipment on consumer premises. In Section 3, "Detailed Tables," this is included in the "Other DSM Programs" category under DSM Program Participation and in the "DSM Program Participation" category under Energy Management Practices. (See **Demand-Side Management (DSM)**.)

Discrete-Delivery Energy Sources: Energy sources that arrive at a building (site) in units or containers of a fixed size, rather than being available on a continuous basis. In this report, fuel oil is the only discrete delivery energy source. (See **Energy Source** and **Continuous-Delivery Energy Sources**.)

Distributed/Point-of-Use Water-Heating System: A system for heating hot water, for other than space-heating purposes, which is located at more than one place within a building. A point-of use water heater is located at the faucet and heats water only as required for immediate use. Because water is not heated until it is required, this equipment is more energy efficient. (See **Water-Heating Equipment** and **Centralized Water Heating System**.)

District Chilled Water: Chilled water from an outside source used as an energy source for cooling 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 central physical plant in a separate building that is part of the same multibuilding facility (for example, a hospital complex or university). (See **Energy Source, Central Physical Plant**, and **Multibuilding Facility**.)

District Heat: Steam or hot water from an outside source as an energy source for space heating or another end use 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 central physical plant in a separate building that is part of the same multibuilding facility (for example, a hospital complex or university.) For this report, district steam and district hot water are reported together as district heat in most places. (See **Energy Source, Central Physical Plant**, and **Multibuilding Facility**.)

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**.)

DSM: See **Demand-Side Management (DSM)**.

Duct: A passageway made of sheet metal or other suitable material to convey air from the heating, ventilating, and cooling systems to and from the point of utilization. (See **Air-Handling Units**.)

Economizer Cycle: An HVAC conservation feature, a method of operating a ventilation system to reduce the air-conditioning load. Wherever 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. An economizer consists of indoor and outdoor temperature and humidity sensors, dampers, motors, and motor controls. In Section 3, "Detailed Tables," this is included under the "HVAC Conservation Features" category. (See **HVAC Conservation Features**.)

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 or from a central physical plant in a separate building that is part of the same multibuilding facility. Electric power generated within a building for exclusive use in that building is specifically excluded from the definition of electricity as an energy source. (See **Energy Source, Central Physical Plant, Multibuilding Facility, Primary Electricity,** and **Site Electricity**.)

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. Not included in this survey were electricity-generating plants belonging to utility companies that produce electric power for sale to other buildings but are not part of the same multibuilding facility. (See **Energy End Use, Electricity, Multibuilding Facility,** and **Cogeneration**.)

EMCS: See **Energy Management and Control System (EMCS)**.

Energy Audit: In this report, an evaluation to provide information on the physical and operating characteristics of a building and its energy uses and processes that is collected at the premise or facility by trained auditors. Audit services vary from simple walk-throughs to building management training programs and site-specific process and efficiency evaluations. Audits can be initiated or sponsored and performed by a local utility, a Federal, State or local government, a building owner, or an energy service contractor. In Section 3, "Detailed Tables," this is included in the "Energy Management Practices" category. (See **Energy Management Practices**.)

Energy Conservation Features: In Section 3, "Detailed Tables," this includes building shell conservation features, HVAC conservation features, lighting conservation features, and other conservation features incorporated by the building. However, this category does not include any DSM program participation by the building. Any DSM program participation is included in "DSM Programs" category. (See **Building Shell Conservation Features, HVAC Conservation Features**, and **Lighting Conservation Features**.)

Energy-Efficient Motor(s) DSM Program: A DSM program designed to promote the use of high-efficiency motors, adjustable speed drives or variable speed motors to ensure that the motor's speed and size is properly matched to the load placed on the motor. In Section 3, "Detailed Tables," this is included in "Other DSM Programs" under the "DSM Programs" category. (See **Demand-Side Management (DSM) Programs**.)

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,** and **Water Heating**.)

Energy Intensity: The ratio of consumption to unit of measurement (floorspace, number of workers, etc.) In this report, energy intensity is usually given on an aggregate basis, as the ratio of the total consumption for a set of buildings to the total floorspace in those buildings. This report presents both conditional energy intensity and gross energy intensity. The energy intensity can also be computed for individual buildings. (See **Consumption**, **Conditional Energy Intensity**, **Gross Energy Intensity**, 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. In Section 3, "Detailed Tables," this is included under the "Energy Management Practices" category. Not included as EMCS are time-clock thermostats.

Energy Management Practices: In this report, involvement, as a part of the building's normal operations, in energy efficiency programs that are designed to reduce the energy used by specific end-use systems. In Section 3, "Detailed Tables," this includes the following: EMCS, DSM Program Participation, Energy Audit, and a Building Energy Manager. (See **Energy Management and Control System (EMCS), DSM Program Participation, Energy Audit**, and **Building Energy Manager**.)

Energy-Related Space Functions: In this survey, the use of space in the building for one or more of four specific functions: commercial food preparation and serving, computer rooms with separate air conditioning systems, special ventilation equipment, activities with large amounts of hot water, and any other large use of energy. The total square footage used for each special space function was also collected. (See **Commercial Food Preparation and Serving, Computer Room with Separate Air-Conditioning System, Rooms with Special Ventilation**, and **Activities with Large Amounts of Hot Water**.)

Energy Source: A type of energy or fuel consumed in the building. For this report, the major energy sources identified are electricity, natural gas, fuel oil, district heat, and district chilled water. In this survey, information about the use of propane, wood, coal, photovoltaic cells and solar thermal panels in commercial buildings was obtained from the building respondent. (See **Electricity, Natural Gas, Fuel Oil, District Heat, District Chilled Water, Liquefied Petroleum Gas (LPG), Propane, Wood, Coal, Photovoltaic Cells (PCV's)** and **Solar Thermal Panels**.)

Energy Source-Specific Floorspace: Total floorspace of those buildings that use a particular fuel. (See **Conditional Energy Intensity**.)

Energy Supplier: Fuel companies supplying electricity, natural gas, fuel oil, or other sources of energy to a building. In the 1992 CBECS, only suppliers of electricity, natural gas, fuel oil, and district heat or chilled water were sent the Energy Supplier Survey forms. (See **Energy Source** and Appendix A, "How the Survey was Conducted.")

Energy Supplier Survey: This is the second stage of the CBECS (the Building Characteristics Survey is the first stage) where data concerning actual energy consumption were obtained from the energy suppliers to the building. Monthly billing data were obtained for each building using a mandatory mail survey. (See Appendix A, "How the Survey was Conducted.")

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." In this survey, respondents were asked how many establishments or organizations occupy (i.e., hold or lease space on a full-time basis) the building.

Evaporative Cooler (Swamp Cooler): An air-cooling unit that turns air into moist, cool air by saturating the air with water vapor. It does not cool air by use of a refrigeration unit. This type of equipment is commonly found in warm, dry climates. In this report, evaporative coolers are included under "Other" in the cooling equipment category. (See **Cooling**.)

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 1992. 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 Supplier**, and the section on "Annual Consumption and Expenditures" in Appendix B, "Nonsampling and Sampling Errors.")

Expenditures per Million Btu: The aggregate ratio of a group of buildings' total expenditures for a given fuel to the total consumption of that fuel. (See **Expenditures** and **Consumption**.)

Expenditures per Square Foot: The aggregate ratio of a group of buildings' total expenditures for a given fuel to the total floorspace in those buildings. (See **Expenditures, Floorspace,** and **Square Footage**.)

Exterior or Interior Shadings or Awnings: A building shell conservation feature designed to reduce the flux of light into a building. Exterior shadings or awnings include any type of shading (including architectural) or awning on the outside of the building designed to limit solar penetration. Interior shadings are drapes, horizontal or vertical shades, mini blinds, or any other means of covering a window from the inside to limit the amount of solar or thermal penetration. (See **Building Shell Conservation Features**.)

Facility: At the sampling stage, an establishment that encompasses more than one building at a single location. Examples include college campuses and large hospital complexes. The building represents the interviewed sampling unit for this survey. Listings for the area sample ordinarily identified each building individually. However, listings for the large and specialized buildings lists sometime represented a facility including several buildings. If an intended sampling unit turned out to be a cluster of buildings such as a campus, sampling proceeded in one of two ways: (1) If there were three or fewer buildings in the cluster, all buildings were sampled or (2) If there were four or more buildings, subsampling from the cluster was performed. For all sample buildings, a survey question determined whether the building was part of a multibuilding facility. In many cases, a building was reported during the interview to be part of a multibuilding facility even though the building had not been identified as part of a facility at the sampling stage. More rarely, a building identified as part of a facility during sampling was reported not to be part of a multibuilding facility during the interview. (See **Building, List Sample, Multibuilding Facility** and Appendix A, "How the Survey was Conducted.")

Fan-Coil Unit: A type of heating and cooling distribution equipment that circulates hot or chilled water with fans but without ducts. Fan-coil units have thermostatically controlled built-in fans that draw air from the room and then across finned tubes containing hot water, steam, or chilled water. The hot water, steam or chilled water can be produced by equipment within the building or be piped into the building as part of a district heating or cooling system. (See **Space Heating** and **Cooling**.)

Floors: The number of levels in the tallest section of a building that are actually considered a part of the 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, floorspace was summed or aggregated over all buildings in a category (such as all office buildings in the United States). (See **Square Footage**.)

Fluorescent Light Bulbs: These are usually long, narrow, white tubes made of glass coated on the inside with fluorescent material that are connected to a fixture at both ends of the light bulb; the tubes may also be circular or U-shaped. The light bulb produces light by passing electricity through mercury vapor, causing the fluorescent coating to glow or fluoresce. Excluded are compact fluorescent light bulbs, which are a separate category. In Section 3, "Detailed Tables," these bulbs are included in the "Standard Fluorescent" category under Lighting Equipment. (See **Light Bulbs**, and **Compact Fluorescent Light Bulbs**.)

Forced Air Through Vents or Air-Handling Units: See **Air-Handling Units**.

Fuel: See **Energy Source**.

Fuel Oil: A liquid petroleum product less volatile than gasoline, used as an energy source. In this report, fuel oil includes distillate fuel oil (No. 1, 2, and 4), residual fuel oil (No. 5 and 6), and kerosene. Number 1 distillate fuel oil is used mostly as a blending stock to assure that heavier grades of fuel flow under severe cold weather conditions. Number 2 fuel oil is the most common form of heating oil. Number 2 distillate collectively refers to Number 2 heating oil and Number 2 diesel fuel. Although these products are not precisely identical, they are essentially interchangeable in most applications. Number 4 distillate is a blend of Numbers 2, 5 or Number 6 residual fuel oil, used in large stationary diesel engines and boilers equipped with fuel preheating equipment. (See **Energy Source**.)

Fuel-Switching: See **Replacement Energy Source for Main Heating**.

Fuel-Switching DSM Program Assistance: DSM program assistance where the sponsor encourages consumers to change from one fuel to another for a particular end-use service. For example, utilities might encourage consumers to replace electric water heaters with gas units or encourage industrial consumers to use electric microwave heaters instead of natural gas-heaters. (See **Demand-Side Management (DSM) Program Assistance**.)

Furnace: An enclosed chamber where fuel is burned or electrical resistance is used to heat air directly, without using steam or hot water. The warm air for heating is distributed throughout the building, typically by air ducts. (See **Boiler**; **Duct**; **Space Heating**; and **Heating, Ventilation, Air Conditioning, and Heating (HVAC)**.)

Gas Transported for the Account of Others: Natural gas physically delivered to a building by a local utility, but not bought from that utility. A separate transaction is made to purchase the volume of gas and the utility is paid for the use of its pipeline to deliver the gas. Included are quantities covered by long-term contracts and quantities involved in short-term or spot-market sales. Also called "Direct-Purchase Gas," "Spot- Market Gas," "Spot Gas," "Transported Gas," and "Self-Help Gas." (See Appendix B, "Nonsampling and Sampling Errors.)

Gallon: A volumetric measure equal to 4 quarts (231 cubic inches) used to measure fuel oil. One barrel equals 42 gallons. (See **Barrel**.)

General Information DSM Program Assistance: This DSM program assistance refers to efforts of a DSM sponsor to inform consumers about DSM options through such mechanisms as brochures, bill stuffers, and workshops. (See **Demand-Side Management (DSM) Program Assistance** and **Demand-Side Management (DSM)**.)

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.

Gross Floorspace: Total floorspace of a group of buildings, regardless of which end uses are present or which energy sources or fuels are used within the buildings. (See **Energy Source-Specific Floorspace** and **Gross Energy Intensity**.)

Gross Energy Intensity: Total consumption of a particular energy source(s) or fuel(s) by a group of buildings, divided by the total floorspace of those buildings, including buildings and floorspace where the energy source or fuel is not used, i.e., the ratio of consumption to gross floorspace. (See **Energy Intensity** and **Conditional Energy Intensity**.)

HDD: See **Heating Degree-Days (HDD).**

Heating: See **Space Heating** or **Water Heating**.

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 degrees Fahrenheit, and the period of time is one year. The heating degree-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: The part of a heating system that distributes conditioned water and/or air throughout a building by means of pipes, ducts, or fans. Often the distribution equipment serves both heating and cooling. (See **Radiators**, **Baseboard**, **Duct**, **Individual Space Heater**, and **Fan-Coil Unit**.)

Heating Equipment: The equipment used for heating ambient air in the building such as a heat pump, furnace, individual space heater, district steam or hot water piped in from outside the building, boiler and packaged-heating units. (See **Heating Distribution Equipment**, and also descriptions of specific types of space-heating equipment collected in the CBECS, **Boiler, Furnace, Heat Pump, Individual Space Heater**, and **Packaged Units**.)

Heating, Ventilation, and Air Conditioning (HVAC): The system or systems that condition air in a building.

Heat Pump: Heating and/or cooling equipment that 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. (See **Cooling, Space Heating, Central Cooling,** and **Heating, Ventilation, and Air Conditioning (HVAC)**.)

HID: See **High-Intensity Discharge (HID) Light Bulbs**.

High-Intensity Discharge (HID) Light Bulbs: 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- and low-pressure sodium lamps. HID lamps have an extremely long life and emit far more lumens per fixture than do fluorescent lights. (See **Light Bulbs.**)

Hot-Deck Imputation: An imputation procedure for deriving a probable response to a questionnaire item concerning the commercial building using random resampling from nonmissing cases to fill in values for missing cases. (See **Imputation** and Appendix B, "Nonsampling and Sampling Errors.")

HVAC: See **Heating, Ventilation, and Air Conditioning (HVAC)**.

HVAC Conservation Features: A building feature designed to reduce the amount of energy consumed by the heating, cooling, and ventilating equipment. In this report, this category includes the presence of variable air-volume (VAV) systems, an economizer cycle, and preventive maintenance programs for the heating and cooling equipment. However, this category does not include any HVAC DSM Program Participation. Any HVAC DSM program participation is included in DSM Programs. (See **Variable Air-Volume (VAV) System, Economizer Cycle**, and **Preventive Maintenance Program for the Heating and/or Cooling Equipment**.)

HVAC DSM Program: A DSM program designed to promote the efficiency of the heating or cooling delivery system, including replacement. Includes ventilation (economizers; heat recovery from exhaust air), cooling (evaporative cooling, cool storage; heat recovery from chillers; high-efficiency air conditioning), heating, and automatic energy management systems. In Section 3, "Detailed Tables," this is included under the "DSM Program" category. (See **Demand-Side Management Programs (DSM)**.)

HVAC Maintenance: See **Preventive Maintenance Program for Heating and/or Cooling Equipment**.

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 **Regression** Appendix B, "Nonsampling and Sampling Errors.")

Incandescent Light Bulbs: A light bulb that produces a soft warm light by electrically heating a tungsten filament so that it glows. Because so much of the energy is lost as heat, these are highly inefficient sources of light. The halogen light bulb is a type of incandescent light bulb made more efficient by the addition of a halogen gas. Included in this category are the familiar type of light bulbs which screw into sockets, as well as energy-efficient incandescent bulbs such as Tungsten Halogen (spotlights), Reflector or R-Lamps (accent and task lighting), Parabolic Aluminized Reflector (PAR) lamps (flood and spot lighting), and Ellipsoidal Reflector (ER) lamps (recessed lighting). (See **Light Bulbs**.)

Individual A/C: See **Individual Room Air Conditioners in Walls or Windows**.

Individual Room 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). These units are characterized by a lack of pipes or duct work for distributing the cool air; the units condition air only in the room or areas where they are located. In Section 3, "Detailed Tables," labeled as individual A/C. (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, heating panels, gas- or kerosene-fired unit heaters, wood stoves, and infrared radiant heaters. These heaters are characterized by a lack of pipes or duct work for distributing hot water, steam, or warm air through the building. (See **Baseboard** and **Electric Baseboard**.)

Industrial: See **Manufacturing/Industrial**.

In Scope: Meeting the requirements for eligibility in the CBECS, and, therefore, included in the population covered by the survey. These eligibility requirements were (a) that the structure be a building, according to the CBECS 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 Features**.)

Intensity: The amount of a quantity per unit of measurement (floorspace, number of workers, etc.) This is a method of adjusting either the amount of energy consumed or expenditures spent, for the effects of various building characteristics such as size of the building, number of workers, or number of operating hours, to facilitate comparisons of energy across time, fuels, and buildings. (See **Conditional Energy Intensity**, **Energy Intensity**, **Expenditures per Square Foot**, **Gross Energy Intensity**, and **Peak Intensity**.)

Kerosene: A petroleum distillate with properties similar to No. 1 fuel oil, used primarily in space heaters, cooking stoves, and water heaters. In this report, no distinction is made between kerosene and fuel oil. (See **Fuel Oil.**)

Kilowatthour (kWh): 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** and **Electricity**.)

Lamp: See **Light Bulbs**.

Large and Specialized Buildings Lists: Lists that were used to select a supplementary sample of buildings for the CBECS. The sample of buildings drawn from these lists was 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, Special Measures of Occupancy,** and Appendix E, "Types of Buildings.")

Light Bulbs: A term generally used to describe a manmade source of light. The term is often used when referring to a "bulb" or "tube." The CBECS collects data only about light bulbs using electricity. (See **Incandescent Light Bulbs, Fluorescent Light Bulbs, Compact Fluorescent Light Bulbs** and **High-Intensity Discharge (HID) Light Bulbs**.)

Lighting Conservation Features: A building feature or practice designed to reduce the amount of energy consumed by the lighting system. In Section 3, "Detailed Tables," Lighting Conservation Features include natural lighting control sensors, manual dimmer switches, occupancy sensors, specular reflectors, and time clocks or timed switches. However, this category does not include Lighting DSM Program participation. Any Lighting DSM Program participation is included in DSM Programs. (See **Natural Lighting Control Sensors, Manual Dimmer Switches, Occupancy Sensors, Specular Reflectors**, and **Time Clocks or Timed Switches**.)

Lighting DSM Program: A DSM program designed to promote efficient lighting systems in new construction or existing facilities. Lighting DSM Programs can include: certain types of high-efficiency fluorescent fixtures including T-8 lamp technology, solid state electronic ballasts, specular reflectors, compact fluorescent fixtures, LED and Electro-Luminescent Emergency Exit Signs, High Pressure Sodium with switchable ballasts, Compact Metal Halide, occupancy sensors, and daylighting controllers. These are included in Section 3, "Detailed Tables," under the "DSM Programs" category. (See **Demand-Side Management (DSM) Programs**.)

Lighting Equipment: These are light bulbs used to light the building's interior, such as incandescent light bulbs, fluorescent light bulbs, compact fluorescent light bulbs, and high-intensity discharge (HID) lights. (See **Incandescent Light Bulbs, Fluorescent Light Bulbs, Compact Fluorescent Light Bulbs, and High-Intensity Discharge (HID) Light Bulbs**.)

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. (See **Energy Source, Propane**, 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 Section 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 1992, as

$$\text{Load Factor} = \frac{\text{Annual Consumption (kWh)}/(366 \times 24 \text{ Hours})}{\text{Annual Peak Demand (kW)}}$$

Load Factors were computed only for individual buildings, not for aggregates, since aggregate peak demand could not be meaningfully determined. (See **Demand**, **Peak Demand**, and "Electricity Peak Demand" in Appendix B, "Nonsampling and Sampling Errors.")

LPG: See **Liquefied Petroleum Gas (LPG).**

Main Space-Heating Energy Source: The energy source used to heat most of the square footage in the building most of the time.

Major Energy Sources: The energy sources or fuels for which consumption and expenditures data were collected in the 1992 CBECS. These fuels or energy sources are: electricity, fuel oil, 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 energy sources or fuels; all other major fuels are included in these totals. (See **Energy Sources**.)

Major Fuels: See **Major Energy Sources**.

Manual Dimmer Switches: A lighting conservation feature that changes the level of light in the building. These are like residential-style dimmer switches, which are not commonly used with fluorescent or HID lamps. (See **Lighting Conservation Features**.)

Manufacturing: As an energy end use, any of the energy-using operations required for manufacturing/industrial processes. Manufacturing is one of the six end uses of energy specifically requested in this survey. (See **Energy End Use** and **Manufacturing/Industrial**.)

Manufacturing/Industrial: As a building activity 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, metalwork, glasswork, 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.

Commercial buildings (such as offices) that were associated with a manufacturing establishment were included, but the manufacturing and industrial buildings were excluded from the population covered. Such buildings could be 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 **Principal Building Activity**, Appendix A, "How the Survey Was Conducted and Appendix E, "Types of Buildings.")

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. (See **Separate Metering**.)

Masonry: A general term covering wall construction using masonry materials such as brick, concrete block, stone, and tile that are set in mortar; also included is stucco. This category does not include concrete panels since concrete panels represent a different method of constructing buildings. Concrete panels are reported separately. (See **Concrete Panel**.)

Mean: The simple arithmetic average for a population 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. (See **Median** and **Weight**.)

Mean Operating Hours: The arithmetic average number of operating hours per building is the weighted sum of the number of operating hours divided by the weighted sum of the number of buildings.

Mean Square Feet per Building: The arithmetic average square feet per building is the weighted sum of the total square feet divided by the weighted sum of the number of buildings.

Mean Square Feet per Worker: The arithmetic average square feet per worker is the weighted sum of the total square feet divided by the weighted sum of the total number of main shift workers.

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. For example, 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**.)

Median Age of the Building: The middle age of all buildings in the CBECS--half of all buildings have an age above the median age of the building and half of all buildings have an age below the median age of the building.

Median Operating Hours: The middle number of operating hours of all buildings in the CBECS--half of all buildings have operating hours above the median operating hours and half of all buildings have operating hours below the median operating hours.

Median Square Feet per Building: The middle size (in square feet) of all buildings in the CBECS--half of all buildings have a size above the median square feet per building and half of all buildings have a size below the median square feet per building.

Median Square Feet per Worker: The middle amount of the floorspace per worker of all buildings in the CBECS--half of all buildings have floorspace per worker above the median square feet per worker and half of all buildings have floorspace below the median square feet per worker.

Metal Panels: An exterior wall construction material made of aluminum or galvanized steel panels fabricated in factories and fastened to the frame of the building to form outside walls. Pre-engineered metal buildings are also included in this category.

Metal Surfacing: Light-gauge metal sheets used for roofing.

Metered Peak Demand: The presence of a device to measure the maximum rate of electricity consumption per unit of time. This device allows electric utility companies to bill their customers for maximum rate of consumption, as well as for total consumption.

Metric Conversion Factors: In this report, estimates are presented in customary U.S. units. Floorspace estimates may be converted to metric units by using the relationship: 1 square foot is approximately equal to .0929 square meters. Energy estimates may be converted to metric units by using the relationship, 1 Btu is approximately equal to 1,055 joules. One kilowatthour is exactly equal to 3,600,000 joules. One gigajoule (10_9 joules) is approximately 278 kilowatthours (kWh).) (For additional metric conversions, see Appendix H, "Metric Conversion Factors.")

Metropolitan Statistical Area (MSA): As defined by the U.S. Office of Management and Budget, an MSA is a county or group of contiguous counties that contain (1) at least one city of 50,000 inhabitants or more (or "twin cities" with a combined population of at least 50,000), or (2) an urbanized area of at least 50,000 inhabitants and a total MSA population of at least 100,000 (75,000 in New England). The contiguous counties are included in an MSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, MSA's consist of towns and cities, rather than counties. (See **Nonmetropolitan Statistical Area.**)

Metropolitan Status: A building classification referring to the location of the building either located within an MSA or outside of an MSA. (See **Metropolitan Statistical Area (MSA)** and **Nonmetropolitan Statistical Area**.)

More than One May Apply: In Section 3, "Detailed Tables," a row stub accompanied by this phrase indicates overlapping categories, so that a particular building may be represented in more than one line under this stub. In general, row stubs without this designation are exclusive, that is, they divide the population of buildings into distinct groups, so that a particular building is represented in no more than one line under this stub.

MSA: See **Metropolitan Statistical Area (MSA)**.

Multibuilding Facility: A group of two or more buildings on the same site owned or operated by a single organization, business, or individual. Examples include university campuses and hospital complexes. (See **Building, Facility,** 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 this 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**, and **Building**.)

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 representative 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 (LPG) or to privately owned gas wells operated by a building owner. (See **Energy Source, Liquefied Petroleum Gas (LPG),** and **Propane.**)

Natural Gas Utility DSM Program Sponsor: A DSM program sponsored by a natural gas utility that suggests ways to increase the energy efficiency of buildings, to reduce energy costs, to change the usage patterns, or to promote the use of a different energy source. (See **Demand-Side Management (DSM) Program Sponsor** and **Utility-Sponsored DSM Program**).

Natural Lighting Control Sensors: A lighting conservation feature that takes advantage of sunlight to cut the amount of electric lighting used in a building; control system that varies the light output of an electric lighting system in response to variations in available daylight. It is sometimes referred to as "daylighting controls" or "photocells." (See **Lighting Conservation Features**.)

NOAA Division: One of the 356 weather divisions designated by the National Oceanic and Atmospheric Administration (NOAA), encompassing the 50 contiguous 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; a NOAA division contains an average of nine counties. (See **Climate Zone, Cooling Degree-Days,** and **Heating Degree-Days**.)

Nongovernment Owned: Owned by a private-owned utility company, a church, synagogue, or other religious organization or any other type of individual or group; such as, a private business or nonprofit organization. The building may be occupied by more than one nongovernment agency, and may be owner occupied, nonowner occupied or unoccupied.

Nonmetropolitan Statistical Area: Buildings not located within MSA's as defined by the U.S. Office of Management and Budget. (See **Metropolitan Statistical Area (MSA)**.)

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, Principal Building Activity, Out of Scope**, and Appendix E, "Types of Buildings.")

Nonowner Occupied: Having anyone other than the owner or the owner's business represented at the site. A building is considered nonowner occupied if anyone other than an employee or representative of the owner maintains a majority of the space in the building.

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 house. (See **Principal Building Activity, Special Measures of Occupancy**, and Appendix E, "Types of Buildings.")

Occupancy of Building: To occupy is to lease or hold a space on a full-time basis.

Occupancy Sensors: A lighting conservation feature that uses motion or sound to switch lights on or off; also known as "ultrasonic switching." When movement is detected, the lights turn 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. In this report, occupancy sensors refer to detecting movement, not sound. (See **Lighting Conservation Features**.)

Off-Hours Equipment Reduction: A method of conserving energy by changing the temperature setting or reducing the use of heating, cooling, domestic hot water heating, lighting or any other equipment either manually or automatically when the building is closed. (See **Conservation Features**.)

Operating Hours: See **Weekly Operating Hours.**

Other DSM Assistance Programs: A DSM program assistance that includes alternative-rate, fuel-switching, and any other DSM assistance programs that are offered to consumers to encourage their participation in DSM programs. (Excludes General Information, Site-Specific and Incentive DSM assistance programs.) (See **Alternative-Rate DSM Program Assistance**, **Demand-Side Management (DSM) Program Assistance**, and **Fuel-Switching DSM Program Assistance**.)

Out of Scope: Violating one or more of the requirements for eligibility in the survey, therefore not included in the population covered by CBECS. (See **In Scope**.)

Owner Occupied: Having the owner 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 the majority of 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.

Ownership and Occupancy: See **Occupancy of Building** and **Ownership of Building**.

Ownership of Building: The individual, agency, or organization that owns the building. In this report, building ownership is grouped into the following categories: Federal, State, or local government agency; a privately owned utility company; a church, synagogue, or other religious group; or any other type of individual or group.

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 self-contained unit to heat or cool 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. Some types of electric packaged units are also called "Direct Expansion" or DX units. (See **Cooling; Heating, Ventilation, and Air Conditioning (HVAC)**; and **Space Heating**.)

Passive Solar Features: As an energy conservation feature, a deliberate approach to designing buildings to make use of natural ways to heat buildings in the winter and keep them cool in the summer. Passive solar design features include structuring the building on the lot so that large window areas face south to capture sunlight during the winter months; building "overhangs" on the south-facing windows to keep the sun from over heating the building during the summer; using certain types of building material to absorb heat during the day and release heat at night; and planting trees and vegetation to minimize heat gain in the building in the summer.

Peak Demand: The maximum rate of energy consumption per unit time over a period of measurement (also called "peak load"). In this report, peak demand was determined on an annual basis for calendar year 1992 and peak demand data were presented only for electricity. Peak demand was computed only for individual buildings, not for aggregates, since aggregate peak demand could not be meaningfully determined. (See **Demand** and "Peak Electricity Demand" in Appendix B, "Nonsampling and Sampling 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 **Peak Demand**, **Floorspace**, and the Section on "Electricity Peak Demand" in Appendix B, "Nonsampling and Sampling Errors.")

Peak Load: See **Peak Demand**.

Percent Lit When Closed: The percentage of the building's square footage that is lit electrically during all hours other than the usual operating hours. (See **Percent Lit When Open**, **Square Footage**, and **Weekly Operating Hours.**)

Percent Lit When Open: The percentage of the building's square footage that is lit electrically during usual operating hours. (See **Percent Lit When Closed**, **Square Footage** and **Weekly Operating Hours.**)

Percent of Floorspace 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 of Floorspace Heated: The percentage of the building's square footage designed to be heated to at least 50 degrees Fahrenheit. (See **Square Footage** and **Space Heating**.)

Percent Window Glass: The percentage of the building's exterior wall construction material made of glass that can be seen through from the inside of the building. This percentage excludes glass covered or constructed of glass material that cannot be seen through. (See **Decorative or Construction Glass** and **Window or Vision Glass**.)

Personal Computer: A self-contained electronic system with all the components necessary to perform computerized functions which is called a terminal and has a screen (monitor), keyboard and/or mouse, and a CPU; a microcomputer for producing written, programmed or coded material, playing games, or doing calculations. (See **Computer Terminal**.)

Photovoltaic Cells (PVC): A device that produces electrical current by converting light or similar radiation. In Section 3, "Detailed Tables," PVC's are included in the "Any Other" Energy Sources, Space-Heating and Main Space-Heating categories.

Plastic, Rubber, or Synthetic Roofing: A layer of heavy gauge plastic or rubber used for roofing. In Section 3, "Detailed Tables," plastic, rubber or synthetic roofing are included in the "Synthetic or Rubber" roof materials category.

Point-of-Use Water-Heating System: See **Distributed/Point-of-Use Water-Heating System**.

Pounds (District Heat): 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 CBECS, a conversion factor of 1,000 Btu per pound was used for steam. Hot water, always reported in Btu, was converted to equivalent pounds of steam using the same factor of 1,000 Btu per pound. (See **Btu**, **District Steam**, and **District Heat**.)

Precast Concrete Panel: Refers to concrete panels usually made in factories and delivered to the construction site where they are hoisted onto the structure. Sometimes concrete panels are poured at the site and then hoisted on the structure. The panels are either solid or insulated. They can have plain, colored or textured finishing. In Section 3, "Detailed Tables," pre-cast concrete panels are included in the "Concrete Panels" wall materials category. (See **Concrete Panel.**)

Preventive Maintenance Program for Heating and/or Cooling Equipment: As used in this report, an HVAC conservation feature consisting of a program of routine inspection and service for the heating and/or cooling equipment. The inspection is performed on a regular basis, even if there are no apparent problems. In Section 3, "Detailed Tables," this is included in the "HVAC Conservation Features" category. (See **HVAC Conservation Features.**)

Primary Electricity: The amount of electricity delivered to commercial buildings adjusted to account for the fuels used to produce the electricity. That is, site electricity plus the conversion losses in the generation process at the utility plant. (See **Consumption, Conversion Losses, Electricity** and **Site Electricity**.)

Primary Energy Consumption: See **Consumption**.

Primary Sampling Unit (PSU): A sampling unit selected at the first stage in a multistage area probability sample. A PSU typically consists of one to several contiguous counties--for example, a MSA with surrounding suburban counties. (See **Multistage Area Probability Sample, Metropolitan Statistical Area (MSA),** 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 and service. (See Appendix E, "Types of Buildings.")

Principal Facility Activity: The main purpose for the activities across all buildings in a facility; for example, the principal building activity for a library on a school campus is "public assembly"; however, the principal facility activity is "school."

Process Heating or Cooling DSM Program: A DSM program designed to promote increased electric energy efficiency applications in industrial process heating or cooling. In Section 3, "Detailed Tables," this is included in the "Other DSM Programs" under the "DSM Program" category. (See **Demand-Side Management (DSM) Programs** and **Waste-Heat Recovery**.)

Propane: A gaseous petroleum product that liquefies under pressure; propane is a major component in liquefied petroleum gas, or LPG. Any LPG reported in the CBECS was assumed to be propane. (See **Liquefied Petroleum Gas (LPG)**.)

PSU: See **Primary Sampling Unit (PSU)**.

Public Assembly: The principal building activity for buildings in which people gather, in private or public meeting halls, for social, cultural, or recreational activities. This building activity was first reported in the 1992 CBECS. In previous surveys, "Public Assembly" (along with "Religious Worship") had been classified under the principal building activity "Assembly." (See **Religious Worship** and Appendix E, "Types of Buildings.")

Quad: Quadrillion (10^{15}) Btu. (See **Btu**.)

Radiator: A heating unit usually visibly exposed within the room or space to be heated; it transfers heat from steam or hot water by radiation to objects within visible range and by conduction to the surrounding air, which in turn is circulated by natural convection. Typically, a radiator is a freestanding, cast-iron fixture. (See **Space Heating**.)

Reduced Use--Off Hours: See **Off-Hours Equipment Reduction**.

Reflectors: See **Specular Reflectors**.

Regression: A statistical procedure used in this report to estimate consumption of, or expenditures for, energy when data were unavailable. The procedure takes into account many characteristics of buildings (such as size, age, principal activity, heating fuels). (See **Imputation** and Appendix B, "Nonsampling and Sampling Errors.")

Regular HVAC Maintenance: See **Preventive Maintenance Program for Heating and/or Cooling Equipment**.

Reheating Coils: A part of some air-conditioning systems, these are electric coils in air ducts used primarily to raise the temperature of circulated air after it was over cooled to remove moisture. Some buildings report reheating coils as their sole heating source. (See **Air-Handling Units, Cooling,** and **Space Heating**.)

Relative Standard Error: See **RSE or Relative Standard Error**.

Religious Worship: The principal building activity for buildings in which people gather for religious activities. This building activity was first reported in the 1992 CBECS. In previous surveys, "Religious Worship" (along with "Public Assembly") had been classified under the principal building activity "Assembly." (See **Public Assembly** and Appendix E, "Types of Buildings.")

Replacement Energy Source for Main Heating: In this report, the heating energy source to which the building could switch within one week without major modifications to the main heating equipment, without substantially reducing the area heated, and without substantially reducing the temperature maintained in the heated area.

Residential: As a building activity in this survey, activities related to use as a dwelling for one or more households. Residential buildings that contained commercial activities were included in the sample during the listing stage. However, buildings that had 50 percent or more of their square footage devoted to residential activities were considered out of scope and dropped from the sample during the interview stage. (See **Principal Building Activity, In Scope, Commercial Building**, and Appendix A, "How the Survey Was Conducted.")

Residential Type-Central Air Conditioner: There are four basic parts to a residential central air-conditioning system: (1) a condensing unit, (2) a cooling coil, (3) ductwork, and (4) a control mechanism such as a thermostat. There are two basic configurations of residential central systems: (1) a "split system" where the condensing unit is located outside and the other components are inside, and (2) a packaged-terminal air-conditioning (PTAC) unit that both heats and cools or cools only. This system contains all four components encased in one unit and is usually found in a "utility closet." If the residential type is a "PTAC", it is considered a "Packaged air-conditioning unit."

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 Features**.)

Rooms with Special Ventilation: This survey collects data for "any use that requires special ventilation equipment, such as laboratories or 'clean room'." This category refers to the part of buildings that have special ventilation equipment for cleaning the air or controlling or maintaining the temperature or humidity. In addition to laboratories, other examples of spaces with special ventilation requirements include dry cleaning establishments, enclosed parking garages, auto body repair shops, operating rooms in hospitals, kitchens in full-service restaurants, or other areas, which utilize fume hoods; safety cabinets, ventilation fans, diffusers, exhaust air system, exhaust fans, and supply fans. **Note**: To be considered special ventilation equipment, a fan must be attached to ducts and these ducts must be ducted to the outside. (See **Energy-Related Space Functions**.)

RSE Column Factor: An adjustment factor that appears above each column of the published tables and is used to compute RSE's. 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 or Relative Standard Error, RSE Row Factor**, Section 3, "Detailed Tables," and Appendix B, "Nonsampling and Sampling Errors.")

RSE or Relative Standard Error: A measure of the reliability or precision of a survey statistic. Variability occurs in survey statistics because the different samples that could be drawn would each produce different values for the survey statistics. The RSE is defined as the standard error (the square root of the variance,) of a survey estimate, divided by the survey estimate and multiplied by 100. For example, an RSE of 10 percent means that the standard error is one-tenth as large as the survey estimate. (See Appendix B, "Nonsampling and Sampling Errors.")

RSE Row Factor: A component that appears to the right of each row of the published tables and is 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 or Relative Standard Error, RSE Column Factor,** Section 3, "Detailed Tables," and Appendix B, "Nonsampling and Sampling Errors.")

Sales Accounts: See **Account Classification**.

Sampling: The procedure used to select cases (in this survey, buildings) for interview from the population (commercial buildings in the United States). (See **Multistage Area Probability Sample** and Appendix A, "How the Survey Was Conducted.")

Seating Capacity: The number of persons that can be seated at a given time in a classroom/lecture hall of an education building, food service building, or in a building used for public assembly or religious worship. (See **Principal Building Activity, Special Measures of Occupancy,** and Appendix E, "Types of Buildings.")

Secondary Heating Fuel: Fuels used in secondary space-heating equipment. When no secondary space-heating equipment is used, a secondary space-heating fuel that is used in the main space-heating equipment is not included in the tabulations. This occurs when, for example, wood and coal are both used in a furnace but wood is named the main space-heating fuel. Coal, in this case, is not tabulated.

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. (See **Master-Metering**.)

Shadings or Awnings: See **Exterior or Interior Shadings or Awnings**.

Shakes: Flat pieces of weatherproof material laid with others in a series of overlapping rows as covering for roofs and sometimes the sides of buildings. Shakes are similar to wood shingles, but instead of having a cut and smoothly planed surface, shakes have textured grooves and a rough or "split" appearance to give a rustic feeling. (See **Shingles, Siding,** and **Wooden Materials**.)

Sheet Metal Panels: Includes metal panels made in factories and shipped to the building site where they are fastened to the building frame. They are usually aluminum or galvanized steel. (See **Metal Panels**.)

Shingles: Flat pieces of weatherproof material laid with others in a series of overlapping rows as covering for roofs and sometimes the walls of buildings. Shingles are manufactured in a variety of materials including fiberglass, wood, plastic, baked clay, tile, asbestos, asphalt, and aluminum. Wood Shingles are included in the "Other" roof material category. (See **Siding, Shakes, Slate or Tile Shingles,** and **Wooden Materials**.)

Siding: An exterior wall covering material made of wood, plastic (including vinyl), or metal. The structural walls may be masonry or wood. Siding is generally produced in the shape of boards applied to the outside of a building in overlapping rows. (See **Wooden Materials**.)

Single-Establishment Building: A building that houses only one establishment, for example, a building dedicated to the offices of a single corporation. (See **Establishment, Multiple-Establishment Building**, and **Building**.)

Site Electricity: The amount of electricity delivered to commercial buildings. (See **Consumption, Conversion Losses, Electricity** and **Primary Electricity**.)

Site-Specific Information DSM Program Assistance: A DSM assistance program that provides guidance on energy efficiency and load-management options tailored to a particular customer's facility; it often involves an on-site inspection of the customer facility to identify cost-effective DSM actions that could be taken. They include audits, engineering design calculations on information provided about the building, and technical assistance to architects and engineers who design new facilities. (See **Demand-Side Management (DSM) Program Assistance**.)

Slate or Tile Shingles: 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. (See **Shingles**.)

Solar Thermal Panels: These are thermal panels that use sunlight to heat fluids, a system that actively concentrates thermal energy from the sun by means of solar collector panels. The panels typically consist of flat, sun-oriented boxes with transparent covers, containing water tubes or air baffles under a blackened heat-absorbent panel. The energy is usually used for space heating, for water heating and/or for heating swimming pools. This is included under the "Any Other" energy sources category. (See **Energy Sources**.)

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 degrees Fahrenheit. This is one of the six end uses of energy specifically asked for in this survey. (See **Energy End Use**.)

Special Measures of Occupancy: A measure relating to the intensity of use of a building, for example, the number of licensed beds in a hospital or the number of guest rooms in a hotel. (See **Seating Capacity**, **Number of Rooms - Lodging**, and **Licensed Bed Capacity**.)

Specular Reflectors: A lighting conservation feature, this is the mirror-like backing of a florescent lighting fixture specifically designed to reflect light into the room. The materials and shape of the reflector are designed to reduce absorption of light within the fixture, while delivering light in the desired angular pattern. The most common materials used are silver (highest reflectivity) and aluminum (lowest cost). (See **Lighting Conservation Features**.)

Square Feet per Worker: The ratio of the total square footage in each category to the total number of workers in the category.

Square Footage: Floorspace, in units of square feet. One square foot is approximately equal to 0.0929 square meters. (See **Floorspace** and **Metric Conversion Factors**.)

Standard Error: A measure of the precision of an estimate, equal to the square root of the variance. (See **Variance, RSE or Relative Standard Error**, Section 3, "Detailed Tables," and Appendix B, "Nonsampling and Sampling Errors.")

Standard Fluorescent: See **Fluorescent Light Bulbs**.

Standby Electricity Generation: Involves use of generators during times of high demand on utilities to avoid extra "peak-demand" charges.

Standby Electricity Generation DSM Program: A DSM program that encourages consumers to use generators during times of high electricity demand to avoid "peak-demand" charges. In Section 3, "Detailed Tables," this is included in the "Other DSM Programs" under the "DSM Programs" category. (See **Demand-Side Management (DSM) Programs**.)

Steam: See **District Steam**.

Steam or Hot Water Radiators or Baseboards: See **Baseboard** and **Radiator**.

Storm Doors: A building shell conservation feature consisting of a second door installed outside or inside a prime door creating an insulating air space. Included are sliding glass doors made of double glass or of insulating glass such as thermopane, double- or triple-pane glass as well as sliding glass doors with glass or plexiglass installed outside or inside of the door. Plastic materials covering doors or doors with storm window covering on just the glass portion of the door are counted only if they can be used year after year. (See **Storm or Multiple Glazing**.)

Storm or Multiple Glazing: A building shell conservation feature consisting of storm windows, storm doors, or double- or triple-pane glass that are placed on the exterior of the building to reduce the rate of heat loss. (See **Building Shell Conservation Features**.)

Storm Windows: A building shell conservation feature consisting of a window or glazing material placed outside or inside a window creating an insulating air space. Windows with double glass or thermopanes are considered storm windows as well as windows with glass or plexiglass placed on the outside or inside of the window. Plastic material over windows is counted as a storm window if the same plastic material can be used year after year. (See **Storm or Multiple Glazing**.)

Summer and Winter Peaking: Having the annual peak demand reached both during the summer months (May through October) and during the winter months (November through April). (See **Peak Demand**, **Summer Peaking**, **Winter Peaking**, and "Peak Electricity Demand" in Appendix B, "Nonsampling and Sampling Errors.")

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, "Nonsampling and Sampling Errors.")

Swamp Coolers: See **Evaporative Cooler (Swamp Cooler)** and **Cooling**.

Synthetic or Rubber Roofing: See **Plastic, Rubber or Synthetic Roofing**.

Thermal Energy Storage (TES) or Pump Storage: The temporary storage of energy for later use. Examples of thermal storage are the storage of solar energy for night heating, the storage of summer heat for winter use, the storage of winter ice for space cooling in the summer, and the storage of heat or coolness generated electrically during time when electricity is cheaper (off-peak hours) for later use when electricity rates are higher. There are four basic types TES systems: ice storage, water storage, storage in a thermal mass such as soil, rock or other solids, and storage in other material such as glycol. The most commonly installed types of thermal energy storage systems in commercial buildings are those using ice or chilled water for cooling the building.

Thermal Storage DSM Program: This is a DSM program that shifts the time of energy usage through the temporary storage of energy for later use. In Section 3, "Detailed Tables," this is included in the "Other Program" under the "DSM Programs" category. (See **Demand-Side Management (DSM) Programs** and **Thermal Energy Storage (TES) or Pump Storage**.)

Thermostat: A device that adjusts the amount of heating and cooling produced and/or distributed by automatically responding to the temperature in the environment.

Third-Party DSM Program Sponsor: An energy service company (ESCO), which promotes a program sponsored by a manufacturer or distributor of energy products such as lighting or refrigeration whose goal is to encourage consumers to improve energy efficiency, reduce energy costs, change the time of usage, or promote the use of a different energy source. (See **Demand-Side Management (DSM)** and **Demand-Side Management (DSM) Program Sponsor**.)

Time Clocks or Timed Switches: Time clocks are automatic controls that turn lights off and on at predetermined times. (See **Lighting Conservation Features.**)

Tinted or Reflective Glass, or Shading 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 Features**.)

Transported Gas: See **Gas Transported for the Account of Others**.

Trillion Btu: Equivalent to 1,000,000,000,000 (10^{12}) Btu. (See **Btu**.)

Usage Requiring Special Ventilation Equipment: See **Rooms with Special Ventilation**.

Utility-Sponsored DSM Program: In this report, this is any DSM program sponsored by an electric and/or natural gas utility to review equipment and construction features in buildings and advise on ways, among other things, to increase the energy efficiency of buildings; such as, programs to encourage the use of more energy-efficient equipment. Also, included in this survey were programs to improve the energy efficiency in the lighting system or building equipment, or the thermal efficiency of the building shell. (See **Demand-Side Management (DSM) Program Sponsor**.)

Vacant: As a principal building activity, the designation for a building in which most of the floorspace was not occupied by any tenant or establishment. A vacant building may contain occupants who are using up to 50 percent of the floorspace. The CBECS also measures vacancy in terms of the fraction of space vacant within an individual building and the fraction of time the building was in use. For all buildings, data were collected on the percent of floorspace vacant for three or more consecutive months, and/or the number of months the building was in use. (See **Principal Building Activity**, and Appendix E, "Types of Buildings.")

Variable Air-Volume (VAV) System: An HVAC system that supplies varying quantities of conditioned (heated or cooled) air to different parts of the building according to the heating and cooling needs of those specific areas. This is an HVAC conservation feature and is usually referred to as "VAV." (See **HVAC Conservation Features**.)

Variance: A measure of the variability of a set of 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. The variance is the square of the standard error of estimates. For statistics presented in this report, the variance indicates the likely difference between the value computed from the CBECS 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 **Standard Error**, and Appendix B, "Nonsampling and Sampling Errors.")

VAV: See **Variable Air-Volume (VAV) System**.

Vintage: The year of origin or age. Used in this report, the year of construction for the building, as in "building vintage." (See **Year Constructed**.)

Walk-In Refrigeration Units: Refrigeration/freezer units within a building that are large enough to walk into. They may be portable or permanent, such as a meat storage locker in a butcher store. Walk-in units may or may not have a door, plastic strips, or other flexible covers. (See **Commercial Refrigeration/Freezer Equipment**.)

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 Features.**)

Warm-Air Furnace: See **Furnace**.

Waste-Heat Recovery: Any conservation system whereby some space heating or water heating is done by actively capturing byproduct heat that would otherwise be ejected into the environment. In commercial buildings, sources of waste-heat recovery include refrigeration/air-conditioner compressors, manufacturing or other processes, data processing centers, lighting fixtures, ventilation exhaust air, and the occupants themselves. Not to be considered is the passive use of radiant heat from lighting, workers, motors, ovens, etc., when there are no special systems for collecting and redistributing heat. This is included in "Other DSM Programs" under the "DSM Programs" category. (See **Process Heating or Cooling DSM Program.)**

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-Heating DSM Programs: These are DSM programs designed to promote increased efficiency in water heating, including water-heater insulation wraps. In Section 3, "Detailed Tables," this is included in the "Other Program" under the "DSM Programs" category. (**See Demand-Side Management (DSM) Programs**.)

Water-Heating Equipment: Automatically controlled, thermal insulated equipment designed for heating water at temperatures less than 180 degrees Fahrenheit for other than space heating purposes. This survey collected data to distinguish between two types of water heating equipment: centralized and distributed/point-of-use. (See **Centralized Water-Heating System** and **Distributed/Point-of-Use Water-Heating System.)**

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. If operating hours varied throughout a building, the usual operating hours of the largest business in the building (based on square footage) determined the operating hours for the building.

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 buildings population as a whole, each sample building's value is multiplied by the building's weight. Summing (aggregating) the weighted sample values provides an estimate of the nationwide total. (See **Multistage Area Probability Sample**, and Appendix B, "Nonsampling and Sampling Errors.")

Window or Vision Glass: An exterior wall construction material made of glass that can be seen through from the inside of the building--the glass especially found in windows. Walls that are glass covered or constructed of glass material, but cannot be seen through, are excluded from this category. (See **Decorative or Construction Glass**.)

Windows that Open: Windows that can be opened from the inside of the building to assist in ventilation. In Section 3, "Detailed Tables," this is included under the "Building Shell Conservation Features" category. (See **Building Shell Conservation Features**.)

Winter Peaking: Having the annual peak demand occurring during the winter. In this report, a building was classified as 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, "Nonsampling and Sampling Errors.")

Wood: As an energy source, wood logs, chips, or wood products that are used as fuel. In this survey, information about the use of wood as fuel in commercial buildings was obtained from the building respondent. Wood is included in the "Any Other" under the "Energy Sources" category. (See **Energy Source**.)

Wooden Materials: Wood shingles, wood shakes, or other wooden materials used as roofing materials. (The questionnaire also includes wood siding and shingles under exterior wall construction.) (See **Shingles** and **Shakes**.)

Workers (Main Shift): The number of people working in a building during the main shift on a typical workday during the year. The main shift is the time when most people are in the building. 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 who work out of the office, such as salespeople who report in, delivery people with routes, and messengers.

Year Constructed: The year in which the major part or the largest portion of a building was constructed.