

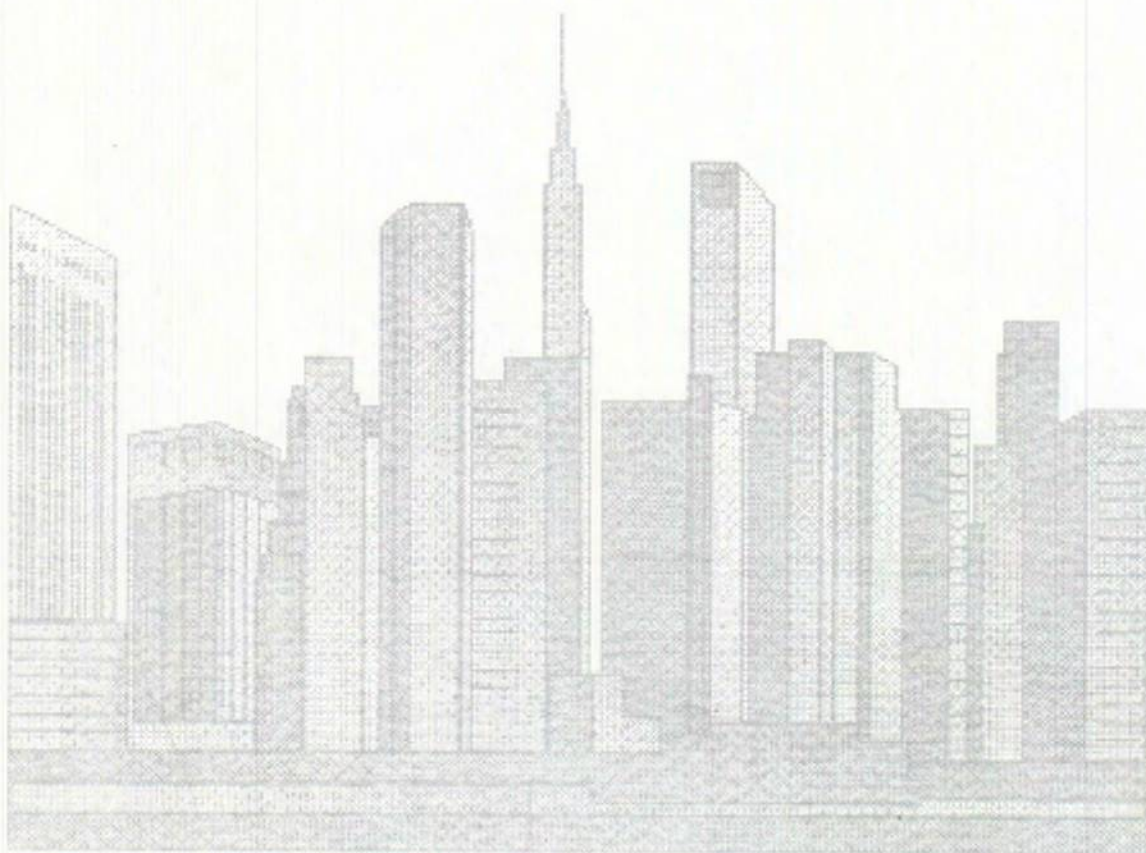
SR/EMEU/95-02
Service Report

EIA

Energy Information Administration

November 1995

Federal Buildings Supplemental Survey 1993



EIA Announces World Wide Web Site
<http://www.eia.doe.gov>

This publication is available free of charge from the National Energy Information Center at the following address:

National Energy Information Center, EI-231
Energy Information Administration
Forrestal Building, Room 1F-048
Washington, DC 20585
(202) 586-8800
(202) 586-0727 (FAX)
TTY: For people who are deaf or hard
of hearing: (202) 586-1181
9 a.m. to 5 p.m., eastern time, M-F

Internet Addresses:

E-mail: infoctr@eia.doe.gov
World Wide Web Site: <http://www.eia.doe.gov>
Gopher Site: <gopher://gopher.eia.doe.gov>
FTP Site: <ftp://ftp.eia.doe.gov>



Federal Buildings Supplemental Survey 1993

November 1995

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

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

Contacts

The Energy Information Administration (EIA) prepared this publication under the general direction of W. Calvin Kilgore, Director of the Office of Energy Markets and End Use (202-586-1617). The project was directed by Lynda T. Carlson, Director of the Energy End Use and Integrated Statistics Division (EEUUSD) (202-586-1112) and Nancy L. Leach, Chief of the Residential and Commercial Branch (202-586-1114). Specific technical information may be obtained from the Federal Buildings Supplemental Survey (FBSS) Manager, Emilda Rivers (202-586-5744). The Fax number for all EEUUSD personnel is 202-586-0018.

For detailed technical questions on the topics indicated, refer to the following members of the EEUUSD:

FBSS Manager	Emilda Rivers	202-586-5744 erivers@eia.doe.gov
At a Glance - Highlights on Federal Buildings	Emilda Rivers	202-586-5744
	Joelle Davis	202-586-8952 jdavis@eia.doe.gov
	Martha Johnson	202-586-1135 mjohnson@eia.doe.gov
Public-Use Data and Detailed Tables	Vickie Moorhead	202-586-1133 vmoorhea@eia.doe.gov
Appendix A	Emilda Rivers	202-586-5744
	Ivy Harrison	202-586-5931 iharrison@eia.doe.gov
Appendix E	Emilda Rivers	202-586-5744
Appendices B, C, D, F	Hattie Ramseur	202-586-1124 hramseur@eia.doe.gov
Data Imputations	Jay Olsen	202-586-1137 jolsen@eia.doe.gov
Glossary	Joelle Davis	202-586-8952

The EEUUSD would also like to acknowledge LaVerne Gilchrist for her desktop publishing expertise in this report.

Support for the FBSS was received from the Office of Federal Energy Management Programs (OFEMP), U.S. Department of Energy.

Data in this report are in the public domain and, with appropriate credit, may be reproduced without permission. A suggested citation is "U.S. Department of Energy, Energy Information Administration, *Federal Buildings Supplemental Survey 1993*" or "U.S. Department of Energy, Energy Information Administration, 1993 Federal Buildings Supplemental Survey."

Public Use Data Diskettes containing FBSS data are available through the Office of Scientific and Technical Information (OSTI) and the National Technical Information Service (NTIS). (See Appendix F, "Related EIA Publications on Energy Consumption," for ordering information.) For questions about the contents of EPUB reports and data availability of this information on CD-ROM, call (202) 586-8800. EIA also maintains a Home Page(<http://www.eia.doe.gov>) on the Internet.

Preface

The Energy Information Administration (EIA) of the U.S. Department of Energy (DOE) is mandated by Congress to be the agency that collects, analyzes, and disseminates impartial, comprehensive data about energy including the volume consumed, its customers, and the purposes for which it is used. To comply with this Congressional mandate, the EIA conducts a number of energy consumption surveys to provide meaningful, objective, and accurate energy information for a wide audience that includes Congress, Federal and State agencies, industry, and the general public.

The Federal Buildings Supplemental Survey (FBSS) was conducted by EIA in conjunction with DOE's Office of Federal Energy Management Programs (OFEMP) to gain a better understanding of how Federal buildings use energy. This report presents the data from 881 completed telephone interviews with Federal buildings in three Federal regions. These buildings were systematically selected using OFEMP's specifications; therefore, these data do not statistically represent all Federal buildings in the country .

OFEMP requested that the FBSS provide building-level energy-related characteristics for a special sample of commercial buildings owned by the Federal Government. This special sample met the following OFEMP-specified criteria:

- Federal buildings from different areas of the country -- Federal Regions 3, 6, and 9
- Fewer sampled buildings from Department of Defense (DOD) -- Sample selection ratio of 1:10 for DOD buildings in each Federal Region
- Commercial Building Eligibility based on (1) size -- 10,000 square feet or over and (2) building use -- exclude buildings with the majority of the floorspace used for warehouse/storage purposes.

The FBSS was conducted by telephone from July to December 1994 with Federal buildings in the following regions:

Federal Region 3 -- Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia

Federal Region 6 -- Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

Federal Region 9 -- Arizona, California, Hawaii, and Nevada.

Information for Federal commercial buildings is also collected in the Commercial Buildings Energy Consumption Survey (CBECS), which is one of the consumption surveys conducted by EIA. CBECS is conducted on a triennial basis, and is a nationwide survey of approximately 6,500 commercial buildings and their energy suppliers. Government-owned commercial buildings are one type of building that is included in the CBECS sample. In the 1992 CBECS, approximately 15.1 billion square feet (22 percent) of commercial floorspace was government-owned.¹ Of this government-owned floorspace, 8 percent was in buildings owned by the Federal government. The number of Federal buildings that are selected for the relatively small CBECS sample does not allow for in-depth examination of energy use and characteristics of these buildings, which is necessary to meet the Energy Policy Act of 1992 (EPACT). Therefore, the FBSS was conducted to provide more detailed information about Federal buildings.

The purpose of the FBSS was threefold: (1) to understand the characteristics of Federal buildings and their energy use; (2) to provide a baseline in these three Federal regions to measure future energy use in Federal buildings as required in EPACT; and (3) to compare building characteristics and energy use with the data collected in the CBECS.

¹Commercial Buildings Characteristics 1992, DOE/EIA-0246(92) (Washington, DC, April 1994).



Contents

Preface	iii
1. Introduction	1
2. At a Glance - Highlights on Federal Buildings	3
Conservation and Energy Management	5
3. Detailed Tables	11
Table Organization	14
Quick-Reference Guide	18
Electronic Data Sets	18
Appendices	
A. How the Survey Was Conducted	137
B. Types of Buildings	147
C. Federal Regions Map	153
D. Metric Conversion Factors	157
E. Outreach Efforts	161
F. Related EIA Publications on Energy Consumption	189
Glossary	197
Tables	
2.1. Selected Energy-Related Statistics by Federal Agency, 1993	4
2.2. Age of Equipment and Whether Retrofitted or Purchased in Past Ten Years, Number of FBSS Buildings, 1993	6
2.3. Sponsor of Retrofit or Purchase of Equipment, Number of FBSS Buildings, 1993	7
2.4. Type of Assistance Received for Retrofit or Purchase of Equipment, Number of FBSS Buildings, 1993	8
2.5. Motor Characteristics by Equipment Type, Number of FBSS Buildings, 1993	9
3.1. Sample and Weighted Totals in FBSS Buildings in Regions 3, 6, and 9, 1993	11
3.2. Regional-level Estimates and Confidence Intervals for Selected Building Characteristics, Number of FBSS Buildings, 1993	12
3.3. Regional-level Estimates and Confidence Intervals for Selected Buildings Characteristics, FBSS Building Floorspace, 1993	13
3.4. Regional-level Estimates and Confidence Intervals for Major Fuels, FBSS Consumption and Expenditures, 1993	14
3.5. Number of FBSS Buildings with "Don't Know" Responses, 1993	16
3.6. Floorspace of FBSS Buildings with "Don't Know" Responses, 1993	17
3.7. Summary of FBSS Buildings and Floorspace in Federal Regions 3, 6, and 9, 1993	19
3.8. Energy Sources in FBSS Buildings in Federal Regions 3, 6, and 9, Number Buildings, 1993	24
3.9. Energy Sources in FBSS Buildings in Federal Regions 3, 6, and 9, Floorspace, 1993	25
3.10. Heating Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993	26
3.11. Heating Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993	28
3.12. Heating Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993	30
3.13. Heating Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993	32
3.14. Heating Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993	34
3.15. Heating Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993	36
3.16. Cooling Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993	38

3.17. Cooling Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993	40
3.18. Cooling Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993	42
3.19. Cooling Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993	44
3.20. Cooling Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993	46
3.21. Cooling Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993	48
3.22. Refrigeration Equipment in FBSS Buildings in Federal Region 3, Number of Buildings and Floorspace, 1993	50
3.23. Refrigeration Equipment in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993	51
3.24. Refrigeration Equipment in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993	52
3.25. Water-Heating Equipment in FBSS Buildings in Federal Region 3, Number of Buildings and Floorspace, 1993	53
3.26. Water-Heating Equipment in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993	54
3.27. Water-Heating Equipment in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993	55
3.28. Lighting Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993	56
3.29. Lighting Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993	58
3.30. Lighting Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993	60
3.31. Lighting Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993	62
3.32. Lighting Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993	64
3.33. Lighting Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993	66
3.34. Energy Conservation Features in FBSS Buildings in Federal Region 3, Number of Buildings and Floorspace, 1993	68
3.35. Energy Conservation Features in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993	71
3.36. Energy Conservation Features in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993	74
3.37. Energy Management Practices in FBSS Buildings in Federal Region 3, Number of Buildings, 1993 ...	77
3.38. Energy Management Practices in FBSS Buildings in Federal Region 6, Number of Buildings, 1993 ...	80
3.39. Energy Management Practices in FBSS Buildings in Federal Region 9, Number of Buildings, 1993 ...	83
3.40. Energy Management Practices in FBSS Buildings in Federal Region 3, Floorspace, 1993	86
3.41. Energy Management Practices in FBSS Buildings in Federal Region 6, Floorspace, 1993	89
3.42. Energy Management Practices in FBSS Buildings in Federal Region 9, Floorspace, 1993	92
3.43. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 3, 1993	95
3.44. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 6, 1993	99
3.45. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 9, 1993	103
3.46. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993 ...	107
3.47. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993 ...	111
3.48. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993 ...	115
3.49. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993	119
3.50. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993	122
3.51. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993	125
3.52. District Heat Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993	128
3.53. District Heat Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993	130

3.54. District Heat Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993	132
A.1. Stratum Sample Size	140
A.2. Regional Response Rates for Panel I and Panel II	141

Figure

2.1. Selected Characteristics of Motors, 1993	10
---	----



1. Introduction

The 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.

Respondents to the Federal Buildings Supplemental Survey (FBSS) 1993 were interviewed to collect information about the building, such as the principal building activity, structural characteristics, building use, energy sources, energy-using equipment, and conservation features and programs; as well as to collect billing data on energy consumption and expenditures. These billing data were collected from the Federal building manager because they were expected to have immediate access to their consumption and expenditure account data.

Following are examples of some of the data that were collected about the sampled Federal buildings:

- **Structural characteristics:** size (square feet of floorspace), year constructed, and roof and wall materials
- **Building use:** primary building activity, regular and additional operating hours, number of workers, and personal computers/terminals
- **Energy sources used:** four major sources; (1) electricity, (2) natural gas, (3) fuel oil (including kerosene), and (4) 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 collected; however, no consumption statistics were gathered on these energy sources
- **Energy end use:** heating, air-conditioning, hot water heating, commercial cooking and serving, manufacturing, and electricity generation
- **Consumption:** consumption and expenditure estimates for electricity, natural gas, and district sources for Fiscal Year 1993
- **Energy-using equipment:** type of heating and cooling equipment and distribution systems, type of refrigeration, water-heating equipment and lighting
- **Motors:** number of motors with 10 or more horsepower; age, number of energy-efficient motors, and maintenance practices
- **Conservation features and programs:** energy audits, conservation features and programs related to building shell; heating, ventilation and air-conditioning (HVAC) systems (regular HVAC maintenance, variable-air volume, economizer cycles); and lighting (daylighting controls, manual dimmer switches, occupancy sensors, and reflectors).

²See Appendix F, "Related EIA Publications on Energy Consumption," for a listing of publications from the Commercial Buildings Energy Consumption Survey and from other EIA consumption surveys.

This report also includes estimates of energy intensities. Energy intensities provide a measure for controlling or adjusting the amount of energy consumed for the effects of various building characteristics, such as size or number of workers. The intensities in this report are all conditional (fuel-specific) intensities; for example, the intensity per square foot for electricity is calculated by dividing electricity consumption by the floorspace of only those buildings that use electricity. The adjustment facilitates comparisons of energy consumption across energy sources and building types.

Many of the questions that were asked in the 1992 CBECS were asked in the FBSS to provide a comparison with the CBECS. Prior to the telephone interview, the energy managers of the sample buildings were contacted by the survey contractor to schedule the telephone appointment and provide advance questions that might require research as follows:

- **Building Square Footage**
- **Motors Data:** Age and number of motors 10 or more horsepower, and maintenance practices
- **Energy Consumption:** Fiscal Year 1993 (October 1992 - September 1993)
- **Energy Expenditures:** Fiscal Year 1993

The statistics published in this report are from a systematically selected sample of Federal buildings in Federal Regions 3, 6, and 9. Interviews were completed at 881 of these sampled Federal buildings. EIA worked closely with the Federal regions to ensure that respondent burden was minimized in the sampled buildings. (See Appendix E, "Outreach Efforts," for more information.)

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

2. At a Glance - Highlights on Federal Buildings

This section of *Federal Buildings Supplemental Survey 1993* provides synopses of selected energy-related characteristics. Extensive analysis of the data was not conducted because this report represents the 881 responding buildings (buildings for which interviews were completed) and cannot be used to generalize about Federal buildings in each region. Crosstabulations of the data from the 881 buildings are provided in the Detailed Tables section.

- **Energy Consumption:** In FY 1993, the 881 responding Federal commercial buildings in Federal Regions 3, 6, and 9 consumed about 22 trillion Btu of electricity, natural gas, fuel oil, and district heat (Table 2.1).
- **Energy Expenditures:** Expenditures for the 22 trillion Btu of energy consumed in the responding Federal commercial buildings totaled about \$308 million dollars (Table 2.1).
- **Energy Intensity:** The major fuel energy consumption intensity was 125.79 thousand Btu per square foot for the 881 buildings (Table 2.1).
- **Principal Building Activity:** Principal building activity, the activity that occupies the most floorspace in the building, indicates the diversity of the Federal commercial building population. In the 881 responding buildings in Federal Regions 3, 6, and 9, office buildings accounted for the greatest number of buildings, 33 percent, and about 48 percent of the floorspace. Although health care buildings were only about 14 percent of the buildings in the sample, they constituted 21 percent of the floorspace (Table 3.7).
- **Selected Characteristics by Agency:** In a commercial building, building size and number of workers impact the consumption, expenditures and the associated energy intensities. Table 2.1 provides these data on an agency level. In FY 1993, of the total Federal expenditures for major fuel consumption in the 881 responding buildings in Federal Regions 3, 6, and 9 (\$308 million), the General Services Administration (GSA) spent about \$105 million. Overall, the GSA consumed about 27 percent of the total energy consumed in the sampled buildings in Federal Regions 3, 6, and 9 in FY 1993. The Veterans Administration was the next largest consumer of energy among the participating FBSS agencies.

Table 2.1. Selected Energy-Related Statistics by Federal Agency, 1993

Federal Agencies in FBSS - Federal Regions 3, 6, and 9	Number of Buildings	Floorspace (thousand square feet)	Number of Workers	Sum of Major Fuel Consumption (billion Btu)	Major Fuel Intensity (thousand Btu per square foot)	Sum of Major Fuel Expenditures (thousand dollars)	Major Fuel Expenditures per square foot (dollars)
Responding Agencies	881	175,012	492,172	22,014	125.79	308,401	1.76
Department of Agriculture	14	720	1,156	148	205.98	2,008	2.79
Department of Commerce	17	2,390	3,579	682	285.31	9,481	3.97
Department of Defense	122	24,145	60,534	3,192	132.20	43,274	1.79
Department of Education	2	80	131	6	78.88	55	.69
Department of Energy	86	7,990	14,001	2,473	309.53	32,400	4.05
Department of Justice	20	1,212	1,947	231	190.57	3,065	2.53
Department of Labor	7	729	577	54	74.07	666	.91
Department of the Interior	30	971	1,378	63	65.15	963	.99
Department of the Treasury	2	800	1,580	59	73.41	1,003	1.25
Department of Transportation	13	1,426	4,909	189	132.19	2,882	2.02
Environmental Protection Agency	1	50	145	13	251.87	176	3.53
Federal Emergency Management Agency	2	81	103	7	86.68	75	.92
General Accounting Office	1	1,844	2,588	106	57.28	1,827	.99
General Services Administration	157	66,598	220,080	5,919	88.88	105,118	1.58
Government Printing Office	2	1,420	4,100	220	155.22	2,777	1.96
Health and Human Services	23	2,042	4,243	760	372.11	7,940	3.89
National Aeronautics and Space Administration	52	4,180	9,878	913	218.52	11,881	2.84
National Science Foundation	1	23	20	27	1,164.35 ^a	476	20.70
United States Postal Service	181	24,806	103,458	2,373	95.66	32,732	1.32
Veterans Administration	148	33,504	57,765	4,579	136.67	49,603	1.48

^aThe National Science Foundation building is the National Radio Astronomy Observatory and includes the consumption and expenditures for the observatory as well as the office floorspace.

Notes: • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • Totals may not equal sum of components due to independent rounding. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Conservation and Energy Management

In response to OFEMP's request that EIA provide detailed information on energy efficiency and energy management for Federal buildings, the FBSS included a number of questions about energy efficiency features, energy management practices, and the reduction of equipment use during off-hours. Federal agencies have a variety of strategies available for implementation to reduce their energy consumption including energy-efficient equipment retrofits.

There are various sponsors and assistance programs available to retrofit equipment. The following synopsis provides data for retrofitting equipment practices for the FBSS.

- Of the 881 Federal commercial buildings that responded to the FBSS, about 39 percent reported using boilers as their heating equipment and 36 percent reported using district steam. In about 70 percent of the buildings using boilers and 84 percent of buildings using district steam, the equipment was 10 years or older (Table 2.2).
- Less than 10 percent of FBSS buildings reported using heat pumps as their heating equipment, and as might be expected, the majority of the heat pumps were less than 10 years old. Buildings with packaged units for heating were about evenly divided between those less than 10 years old and those 10 years or older.
- In buildings with water heating equipment, approximately 62 percent of that equipment was 10 years or older.
- The vast majority of building respondents reported purchasing new equipment rather than retrofitting existing equipment within the past 10 years.
- Lighting equipment was an overwhelming "favorite" for retrofitting or purchasing (56 percent of the 871 buildings with lighting equipment) followed by retrofits or purchases for heating equipment, water-heating equipment and central chillers. Of the 487 building respondents reporting either the retrofit or purchase of their lighting equipment, about 39 percent reported retrofitting rather than purchasing.
- With the exception of retrofitting lighting equipment, the majority of the 881 Federal buildings that were surveyed did not report the purchase or retrofit of energy-using equipment within the last 10 years.

Table 2.2. Age of Equipment and Whether Retrofitted or Purchased in Past Ten Years, Number of FBSS Buildings, 1993

Type of Equipment (more than one may apply)	All Buildings with Each Type of Equipment	Age of Equipment				Retrofitted or Purchased Equipment in Past Ten Years			
		Less Than Ten Years Old	Ten Years or Older	Some Less Than Ten Years, Some More than Ten Years	Don't Know/Not Ascertained	Retrofitted	Purchased	Both Retrofitted and Purchased	Don't Know/Not Ascertained
Heating (more than one may apply)									
Furnace	59	25	32	0	2	1	16	0	1
Heat Pump	84	55	28	0	1	2	36	0	2
Space Heater	138	70	64	0	4	2	53	0	2
District Steam	320	45	269	3	3	10	25	0	3
Boiler	341	83	238	4	16	13	54	0	17
Packaged Unit ...	151	66	67	3	15	3	46	0	15
Central Chillers	419	128	257	18	16	15	98	2	20
Water-Heating	857	285	528	4	36	23	199	0	38
Lighting	871	NA	NA	NA	NA	190	288	9	46
Refrigeration	242	90	136	3	13	8	58	1	5

NA= Not Applicable.

Notes: • Only buildings in which the equipment was less than ten years old or the age was unknown were asked whether it was retrofitted or purchased (buildings answering no are not provided). • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Sponsors of programs aimed at assisting buildings in purchasing new equipment or retrofitting existing equipment include utilities, the Federal government (under the Federal Energy Management Program (FEMP)), and third-parties such as an energy service company (ESCO). Buildings can also institute energy-saving programs in-house (Table 2.3).

- Of the buildings that had retrofitted or purchased equipment, the majority did so within programs that were sponsored in-house.
- Of the buildings that reported receiving assistance from FEMP, most reported assistance in the area of lighting equipment.

Table 2.3. Sponsor of Retrofit or Purchase of Equipment, Number of FBSS Buildings, 1993

Type of Equipment (More than one may apply)	Buildings that Retrofitted or Purchased Equipment in Past Ten Years	Sponsor of Retrofit or Purchase (More than one may apply)					
		Electric Utility	In-House	Third Party	Other	FEMP	Don't Know/Not Ascertained
Heating (more than one may apply)							
Furnace	17	0	13	4	0	0	0
Heat Pump	38	0	29	7	0	1	1
Space Heater	55	0	48	5	2	0	0
District Steam	35	0	27	8	0	0	1
Boiler	67	3	45	9	3	3	4
Packaged Unit	49	0	42	5	2	0	1
Central Chillers	115	3	84	18	3	3	8
Water-Heating	222	3	190	24	1	1	4
Lighting	487	46	387	49	5	15	4

Note: • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Federal buildings have access to various types of programs aimed at saving energy. Among the programs that assist in either the purchase of new energy-using equipment or the retrofit of existing equipment are: incentives that offer monetary or non-monetary awards such as low-interest loans, rebates, and direct installation of low-cost measures; the Federal Energy Efficiency Fund (FEEF), sponsored by FEMP, that provides grants to Federal agencies to assist them in meeting energy efficiency and water conservation requirements; and alternative energy rates offered by utilities that are intended to reduce consumer bills and shift hours of operation of equipment from on-peak to off-peak periods (Table 2.4).

- For the most part, those buildings that had purchased or retrofitted equipment did not receive assistance in upgrading their equipment.
- Incentives were the most often reported type of assistance. This was followed by assistance from the FEEF and use of alternatives rates.

Table 2.4. Type of Assistance Received for Retrofit or Purchase of Equipment, Number of FBSS Buildings, 1993

Type of Equipment (more than one may apply)	Types of Assistance (More than one may apply)						
	Buildings that Retrofitted or Purchased Equipment in Past Ten Years	Federal Energy Efficiency Fund	Incentives	Alternative Rates	Fuel Switching	Other/None	Don't Know/Not Ascertained
Heating(more than one may apply)							
Furnace	17	0	0	0	2	12	3
Heat Pump	38	1	2	2	2	29	5
Space Heater	55	1	0	1	0	52	1
District Steam	35	0	0	0	0	33	2
Boiler	67	2	1	5	1	47	11
Packaged Unit	49	1	0	2	0	44	3
Central Chillers	115	1	1	6	0	98	11
Water-Heating	222	3	2	5	1	191	20
Lighting Equipment	487	24	88	18	1	344	23

Note: •These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. •Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

The FBSS collected detailed data on the number, type, and age of motors in Federal commercial buildings in addition to information about how many were rewound and how many were considered energy efficient (Table 2.5)

- Most buildings reported between one to five motors that were 10 or more horsepower in their equipment.
- With the exception of buildings using motors for their heat pumps, most buildings reported having equipment with motors that were 10 years or older.

Table 2.5. Motor Characteristics by Equipment Type, Number of FBSS Buildings, 1993

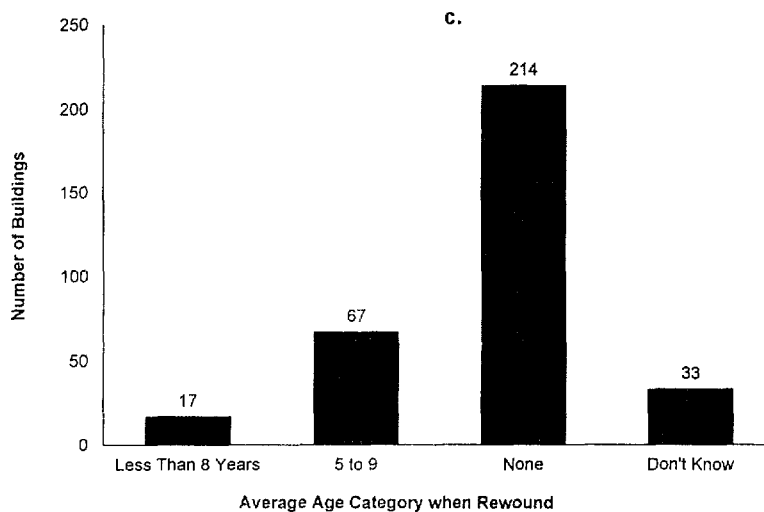
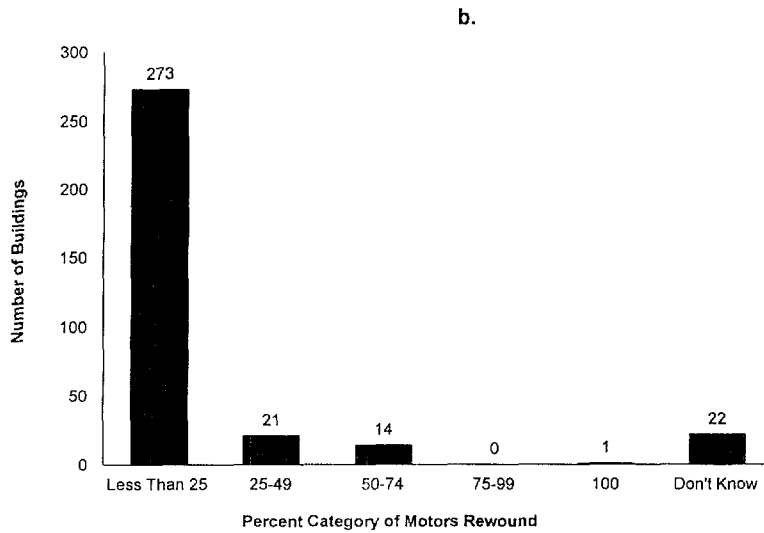
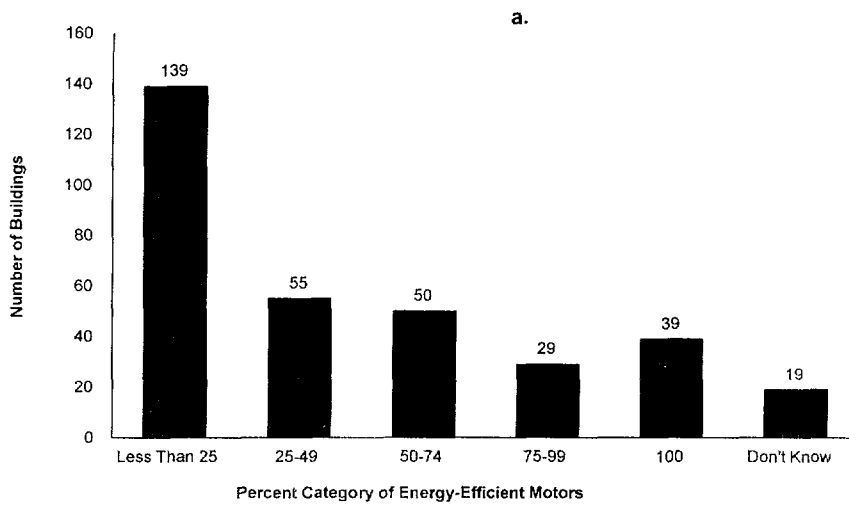
Motors Characteristics	Type of Equipment with Motors 10 or More Horsepower (more than one may apply)							
	Chillers	Heat Pumps	Fans	Air Compressors	Water Pumps	Elevators	Escalators	Refrigeration
All Buildings	381	23	461	294	374	411	35	86
Number of Motors								
One to Five	320	18	201	221	194	280	21	44
Six to Ten	39	2	89	47	92	61	6	16
Ten to 100	16	2	160	18	76	62	4	16
Don't Know/Not Ascertained	6	1	11	8	12	8	4	10
Age of Motors								
Less Than Ten Years Old	127	12	119	109	96	79	6	23
Ten Years or Older	179	8	245	132	192	272	24	41
Some Less Than Ten Years, Some More Than Ten Years	32	0	39	17	33	22	0	11
Don't Know/Not Ascertained	43	3	58	36	53	38	5	11

Notes: •These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • Totals may not equal sum of components due to independent rounding. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

- Forty-two percent of 331 buildings that had equipment with motors less than 10 years old had fewer than 25 percent energy-efficient motors (Figure 2.1a).
- A higher percent (82 percent) of 331 buildings that had equipment with motors less than 10 years old had fewer than 25 percent of their motors rewound (Figure 2.1b). Sixty-five percent or 214 of the 331 building respondents said none of their motors were rewound (Figure 2.1c.) This suggests that Federal buildings could target the purchase of energy efficient motors for future conservation improvement.

Figure 2.1 Selected Characteristics of Motors, 1993



Note: These graphs are based on 331 buildings of the 881 responding buildings that had equipment with motors less than 10 years old.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

3. Detailed Tables

There were 881 completed interviews for the FBSS. The population consisted of all Federal buildings in Federal Regions 3, 6, and 9 in the commercial sector. Based upon the sample, the population of interest includes 11,032 buildings. Because the sample was not a simple random sample, descriptions of the sample do not correspond to descriptions of the population. Of particular importance, larger buildings were sampled at a higher rate than smaller buildings and non-Department of Defense (DOD) buildings were sampled at a higher rate than DOD buildings. Hence, the sample contains a higher proportion of large buildings and a higher proportion of non-DOD buildings than the population. Sampling weights are used to account for differences in the sampling rates. Estimates of population percentages and population means can be obtained from the sample data using the sampling weights. Table 3.1 below shows the differences between the sample frequencies and the weighted frequencies by size and type (DOD versus non-DOD) of building.

Table 3.1. Sample and Weighted Totals in FBSS Buildings in Regions 3, 6, and 9, 1993

Federal Agency	Sample Frequencies			Weighted Frequencies		
	Size of Building			Size of Building		
	Small	Medium	Large	Small	Medium	Large
Total Buildings	349	326	206	8,548	2,144	340
Department of Defense						
Number of Buildings	67	39	16	6,332	1,490	81
Percent of Buildings	19	12	8	74	69	24
Non-Department of Defense						
Number of Buildings	282	287	190	2,217	654	258
Percent of Buildings	81	88	92	26	31	76
Total Floorspace (thousand square feet)	9,014	35,395	130,604	188,150	186,186	201,663
Department of Defense						
Floorspace (thousand square feet)	1,819	3,732	18,595	141,667	122,874	53,274
Percent of Floorspace	20	11	14	75	66	26
Non-Department of Defense						
Floorspace (thousand square feet)	7,195	31,663	112,009	46,483	63,312	148,389
Percent of Floorspace	80	89	86	25	34	74

Notes: • Small = 10,000 to 50,000 square feet; Medium = 50,000 to 200,000 square feet; and Large = Over 200,000 square feet.
 • These sample frequencies provide data from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. These weighted frequencies provide regional-level estimates. • Totals may not equal sum of components due to independent rounding. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Regional-level Estimates and Confidence Intervals

Per the request of the Office of Federal Energy Management Programs, the data presented in this service report represent the 881 specifically responding buildings and cannot be used to generalize for Federal buildings in each region. However, the FBSS sample design permits regional-level estimates to be obtained by weighting the building-level data. Tables 3.2 through 3.4 provide regional-level estimates (weighted building-level data) for selected building characteristics and consumption and expenditures. Because these regional-level estimates are based on the sample surveyed, they are subject to sampling error. To help the reader interpret the regional-level estimates, 95-percent confidence intervals have been constructed along with the estimates. A confidence interval is an interval around an

Table 3.2. Regional-Level Estimates and Confidence Intervals for Selected Building Characteristics, Number of FBSS Buildings, 1993

Building Characteristics	Federal Region 3	Federal Region 6	Federal Region 9
	Estimates and Confidence Intervals	Estimates and Confidence Intervals	Estimates and Confidence Intervals
Building Floorspace			
10,000 to 50,000	1,289 (547 - 2,030)	2,750 (2,487 - 3,014)	4,510 (3,556 - 5,463)
50,001 to 200,000	909 (522 - 1,295)	454 (55 - 652)	782 (484 - 1,080)
Over 200,000	165 (137 - 193)	62 (44 - 79)	113 (73 - 153)
Principal Building Activity			
Education	220 (*)	262 (*)	287 (80 - 495)
Health Care	122 (43 - 200)	135 (*)	311 (52 - 571)
Laboratory	112 (59 - 164)	202 (*)	180 (42 - 318)
Lodging	441 (250 - 632)	774 (319 - 1,229)	1,061 (927 - 1,195)
Mercantile & Service	239 (176 - 302)	345 (264 - 426)	900 (577 - 1,223)
Office	391 (259 - 524)	1,095 (573 - 1,617)	964 (638 - 1,290)
All Others	837 (163 - 1,511)	453 (217 - 689)	1,701 (1,055 - 2,346)
Year Constructed			
1959 or Before	1,504 (1,254 - 1,754)	1,068 (635 - 1,501)	2,883 (2,656 - 3,109)
1960 to 1969	381 (175 - 586)	234 (79 - 389)	709 (17 - 1,300)
1970 to 1979	214 (117 - 312)	431 (*)	1,125 (555 - 1,694)
1980 to 1989	226 (78 - 373)	1,244 (692 - 1,795)	598 (262 - 935)
1990 to 1993	38 (23 - 54)	288 (*)	90 (57 - 124)
Federal Agency			
Department of Defense	1,466 (1,055 - 1,878)	2,389 (2,048 - 2,730)	4,048 (2,985 - 5,111)
General Services			
Administration	129 (105 - 153)	89 (68 - 109)	161 (*)
United States Postal			
Service	280 (220 - 340)	405 (381 - 430)	262 (219 - 321)
Veteran's Administration ..	184 (153 - 216)	69 (46 - 92)	190 (43 - 238)
All Others	302 (209 - 396)	314 (235 - 393)	744 (328 - 1160)
Energy Sources			
Electricity	2,355 (1,932 - 2,777)	3,265 (2,922 - 3,609)	5,378 (4,535 - 6,221)
Natural Gas	711 (437 - 985)	2,772 (2,122 - 3,423)	3,182 (9,553 - 3,811)
Fuel Oil	841 (121 - 1,561)	57 (3 - 110)	337 (118 - 555)
District Heat	1,154 (623 - 1,685)	580 (*)	1,154 (896 - 1,412)
District Chilled Water	189 (115 - 264)	655 (278 - 1,032)	386 (27 - 746)
Propane	88 (*)	141 (*)	642 (28 - 856)
Any Other	21 (*)	19 (*)	24 (*)

*Data withheld because variances are too large.

Notes: • These data are weighted to provide regional-level estimates. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

estimate, which by virtue of the way it is constructed, "contains" the true (but unknown) population value of interest for 95 percent of all possible samples. Confidence intervals have lower bounds and upper bounds that provide minimum and maximum values expected for the estimate. For example, Table 3.2 provides an estimate of 122 health care buildings in Federal Region 3 with a lower bound of 43 and an upper bound of 200. This means that for 95 percent of all possible samples, the estimate of the number of health care buildings in Federal Region 3 would be between 43 and 200 buildings. The confidence interval serves as a measure of the level of variability in the survey estimate. The wider the confidence interval, the higher the sampling variability of the survey estimate. For an estimate with high sampling variability, confidence intervals are not provided.

Selected estimates and their confidence intervals are provided as approximations and as such confidence intervals must also be regarded as only approximate.

Table 3.3. Regional-Level Estimates and Confidence Intervals for Selected Building Characteristics, FBSS Building Floorspace, 1993 (Thousand Square Feet)

Building Characteristics	Federal Region 3	Federal Region 6	Federal Region 9
	Estimates and Confidence Intervals	Estimates and Confidence Intervals	Estimates and Confidence Intervals
Building Floorspace			
10,000 to 50,000	28,502 (16,526- 40,477)	59,272 (45,133- 73,411)	100,376 (80,933-119,819)
50,001 to 200,000	80,079 (61,678- 98,479)	38,844 (25,597- 52,092)	67,263 (44,235- 90,291)
Over 200,000	122,544 (95,549-149,540)	29,680 (19,326- 40,034)	49,438 (34,706- 64,170)
Principal Building Activity			
Education	14,602 (*)	6,589 (*)	14,527 (*)
Health Care	25,466 (16,072- 34,859)	24,073 (7,909- 40,238)	19,316 (14,164- 24,467)
Laboratory	9,328 (8,174- 10,481)	8,286 (1,341- 15,230)	8,064 (3,650- 12,477)
Lodging	33,012 (10,720- 55,305)	20,418 (13,111- 27,726)	34,863 (24,637- 45,088)
Mercantile & Service	20,142 (10,235- 30,049)	16,702 (11,881- 21,524)	33,760 (18,231- 49,290)
Office	89,325 (65,588- 113,063)	34,714 (22,574- 46,855)	52,742 (38,734- 66,750)
All Others	39,250 (20,184- 58,315)	17,013 (6,606- 27,421)	53,806 (40,287- 67,324)
Year Constructed			
1959 or Before	107,102 (82,826-131,377)	43,362 (27,288- 59,437)	99,013 (86,649-111,377)
1960 to 1969	47,026 (15,092- 78,960)	16,015 (6,342- 25,689)	33,064 (17,555- 48,574)
1970 to 1979	42,666 (17,911- 67,422)	23,146 (5,488- 40,805)	47,267 (29,343- 65,192)
1980 to 1989	27,056 (8,634- 45,478)	34,926 (14,483- 55,369)	31,566 (18,265- 44,867)
1990 to 1993	7,275 (5,408- 9,141)	10,346 (*)	6,167 (1,399- 10,935)
Federal Agency			
Department of Defense	99,413 (88,447-110,380)	73,132 (44,214-102,051)	145,269 (131,017-159,520)
General Services Administration	65,382 (43,053-86,711)	10,277 (7,175- 13,379)	5,945 (10,433- 21,457)
United States Postal Service	22,436 (13,100- 31,772)	17,094 (16,078- 18,109)	16,187 (12,137- 20,137)
Veterans Administration	22,664 (21,979- 23,348)	12,758 (11,665- 13,852)	15,641 (15,010- 16,273)
All Others	21,229 (18,925- 23,532)	14,535 (10,906- 18,165)	24,035 (17,112- 30,959)
Energy Sources			
Electricity	225,630 (202,611-248,650)	127,797 (98,761-156,832)	216,545 (202,386-230,703)
Natural Gas	126,202 (97,906-154,498)	103,091 (74,463-131,719)	128,406 (117,871-138,940)
Fuel Oil	87,096 (58,257-115,935)	9,643 (2,270- 17,016)	24,784 (15,523- 34,045)
District Heat	133,203 (98,279-168,126)	29,739 (13,754- 45,724)	57,104 (41,754- 72,455)
District Chilled Water	40,202 (36,942- 3,461)	24,859 (16,964- 33,753)	21,052 (8,917- 33,186)
Propane	6,125 (*)	3,853 (*)	13,776 (8,862- 18,690)
Any Other	5,549 (5,053- 6,045)	3,878 (2,087- 5,670)	3,766 (1,517- 6,016)

*Data withheld because variances were too large.

Notes: • These data are weighted to provide regional-level estimates. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.4. Regional-Level Estimates and Confidence Intervals for Major Fuels, FBSS Consumption and Expenditures, 1993

Major Fuels	Federal Region 3		Federal Region 6		Federal Region 9	
	Estimates	Confidence Intervals	Estimates	Confidence Intervals	Estimates	Confidence Intervals
Consumption (billion Btu)						
All Major Fuels	33,322	(25,233-39,410)	20,716	(11,383-30,049)	24,424	(20,523-28,324)
Electricity	16,033	(13,068-18,998)	9,655	(7,063-12,246)	14,469	(10,854-18,085)
Natural Gas	5,594	(3,164-18,024)	8,225	(2,922-13,529)	5,594	(4,531- 6,657)
Fuel Oil	1,517	(437- 2,598)	20	(1- 40)	233	(9- 457)
District Heat	9,177	(4,933-13,422)	2,815	(694- 4,936)	4,127	(3,707- 4,547)
Expenditures (million dollars)						
All Major Fuels	413	(352- 475)	203	(143- 264)	397	(345- 448)
Electricity	273	(3- 304)	146	(117- 176)	322	(269- 376)
Natural Gas	23	(15- 30)	27	(11- 43)	27	(23- 32)
Fuel Oil	8	(2- 13)	0	(0- 0)	1	(0- 3)
District Heat	110	(63- 157)	30	(5- 55)	45	(37- 54)

Notes: • These data are weighted to provide regional-level estimates. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table Organization

The following 48 detailed tables in this section present unweighted cross-tabulations of commercial buildings' characteristics and consumption and expenditure data for the 881 responding Federal buildings in Federal Regions 3, 6, and 9. This section provides assistance in reading the detailed tables by explaining some of the data categories and some of the headings for the data categories.

Overall Organization

The detailed tables have been grouped to make it easier to find related information. Table 3.7 summarizes the total number of buildings, square footage, and workers and the average square footage per building for all the buildings interviewed in Federal Regions 3, 6, and 9 and the number of buildings and square footage for each of the three Federal regions in the FBSS. After Table 3.7, the tables are grouped by Federal region for building characteristics data (Tables 3.8 through 3.42) and consumption and expenditure data (Tables 3.43 through 3.54). Tables 3.8 through 3.33 contain data about the energy sources and equipment in Federal buildings. Tables 3.34 through 3.42 contain information about conservation measures and programs in the Federal buildings. Tables 3.43 through 3.54 contain consumption and expenditures data for electricity, natural gas, and district heat. There is a Quick Reference Guide to the tables on page 18 to help the reader quickly locate specific tables of interest.

Generally, for each Federal region there are two tables for each topic, one giving the number of buildings in each cross tabulation cell, the other giving the floorspace in those buildings. For example, for the topic "Heating Equipment," Tables 3.10 through 3.12 provide the number of buildings for Federal Regions 3, 6, and 9, respectively, while Tables 3.13 through 3.15 provide the floorspace for those regions for this same topic. For some smaller tables, the number of buildings and floorspace appear together in a single table.

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 tables.)

Core Categories

The following core set of categories appear in the same order in all basic tables: floorspace, principal building activity, year constructed, and Federal agency. Additional categories are included on the tables when they relate to specific overall topic areas. Table 3.7, the summary table, contains the core categories as well as most of the additional categories.

The "Sum of Major Fuels" is the sum of site electricity, natural gas, fuel oil, and district heat. Statistics in this category exclude data from "Primary Electricity." Although electricity is technically not a fuel, "Major Fuel" rather than "Major Energy Source," was retained as the title of this category to remain consistent with previous CBECS reports. Although fuel oil is considered a major fuel, Federal building respondents reported very little use of fuel oil; therefore, an individual consumption and expenditures table is not included.

Exclusive/Nonexclusive Categories

There are two types of categories, those that indicate exclusive, nonoverlapping categories and those that indicate nonexclusive, overlapping subsets of categories. For example, "building floorspace" is a set of exclusive categories; a given building belongs in only one of these. "Energy sources," on the other hand, is a set of nonexclusive categories; a given building may be included in more than one line under this category since the building may use more than one energy source. The phrase, "more than one may apply," indicates that the categories under this row header are overlapping. Both exclusive and overlapping categories may be nonexhaustive; that is, there may be some buildings that do not fall into any of the listed categories.

Nonexclusive Categories. For the exclusive nonoverlapping categories, the response option "don't know" is included on the detailed tables whenever applicable. However, in the nonexclusive overlapping categories, each line had the possibility of being answered "don't know;" these were not included in the detailed tables. Tables 3.5 and 3.6 provide the number of buildings and floorspace, respectively, for respondents that answered "don't know" for each line in the nonexclusive overlapping categories.

Table 3.5. Number of FBSS Buildings with "Don't Know" Responses, 1993

Building Characteristics	Regions 3, 6, and 9	Region 3	Region 6	Region 9
Heating Equipment				
Heat Pumps	6	0	1	5
Furnaces	5	0	0	5
Individual Space Heaters	6	1	1	4
District Heat	5	0	1	4
Boilers	4	0	0	4
Packaged Heating Units	8	1	2	5
Cooling Equipment				
Residential-Type Central A/C	2	0	1	1
Heat Pumps	4	0	2	2
Individual A/C	2	0	0	2
District Chilled Water	3	1	1	1
Central Chillers	1	0	0	1
Packaged A/C Units	3	0	1	2
Swamp Coolers	3	1	0	2
Lighting Equipment				
Incandescent	6	2	1	3
Standard Fluorescent	3	0	0	3
Compact Fluorescent	50	3	39	8
High-Intensity Discharge	30	3	13	14
Electronic Ballast	58	7	41	10
Building Shell Conservation Features				
Roof or Ceiling Insulation	37	4	8	25
Wall Insulation	65	12	21	32
Storm or Multiple Glazing	39	3	8	28
Tinted or Reflective Glass or Shading Film	38	0	8	30
Exterior or Interior Shading or Awnings	37	1	11	25
HVAC Conservation Features				
VAV System	25	9	2	14
Economizer Cycle	22	5	5	12
HVAC Maintenance	3	2	0	1
Lighting Conservation Features				
Specular Reflectors	7	0	2	5
Natural Lighting Control Sensors	4	0	0	4
Occupancy Sensors	6	0	1	5
Time Clock	5	0	1	4
Manual Dimmer Switches	20	2	14	4
Energy Management Practices				
Energy Management and Control System	42	7	12	23
Energy Conservation Programs	29	11	7	11
Energy Audit	57	16	11	30
HVAC Maintenance Staff	32	2	27	3
Off-Hours Reduction in Equipment				
Heating	32	2	25	5
Cooling	32	1	25	6
Hot Water	45	8	27	10
Lighting	28	1	23	4

Notes: •These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.6. Floorspace of FBSS Buildings with "Don't Know" Responses, 1993
(Thousand Square Feet)

Building Characteristics	Regions 3, 6, and 9	Region 3	Region 6	Region 9
Heating Equipment				
Heat Pumps	305	0	11	294
Furnaces	286	0	0	286
Individual Space Heaters	345	60	11	274
District Heat	285	0	11	274
Boilers	274	0	0	274
Packaged Heating Units	574	245	35	294
Cooling Equipment				
Residential-Type Central A/C	251	0	20	231
Heat Pumps	648	0	44	604
Individual A/C	260	0	0	260
District Chilled Water	551	300	20	260
Central Chillers	231	0	0	231
Packaged A/C Units	309	0	20	289
Swamp Coolers	729	300	0	429
Lighting Equipment				
Incandescent	1,010	727	20	263
Standard Fluorescent	263	0	0	263
Compact Fluorescent	6,918	792	4,522	1,604
High-Intensity Discharge	6,023	2,301	1,632	2,090
Electronic Ballast	5,299	500	4,454	345
Building Shell Conservation Features				
Roof or Ceiling Insulation	5,305	1,473	1,462	2,370
Wall Insulation	9,071	3,291	2,744	3,036
Storm or Multiple Glazing	5,182	1,579	668	2,934
Tinted or Reflective Glass or Shading Film	4,189	0	1,151	2,370
Exterior or Interior Shading or Awnings	3,743	54	1,404	2,285
HVAC Conservation Features				
VAV System	3,129	1,377	67	1,685
Economizer Cycle	2,137	683	170	1,284
HVAC Maintenance	186	73	0	113
Lighting Conservation Features				
Specular Reflectors	1,161	0	43	1,118
Natural Lighting Control Sensors	1,088	0	632	1,088
Occupancy Sensors	2,313	0	632	1,681
Time Clock	96	0	18	77
Manual Dimmer Switches	3,491	727	1,676	1,088
Energy Management Practices				
Energy Management and Control System	4,490	933	1,596	1,961
Energy Conservation Programs	5,045	3,110	1,239	696
Energy Audit	13,232	6,539	2,460	4,233
HVAC Maintenance Staff	4,403	87	4,163	152
Off-Hours Reduction in Equipment				
Heating	3,501	226	2,651	624
Cooling	3,509	169	2,651	689
Hot Water	7,455	3,415	2,687	1,343
Lighting	2,974	169	2,552	251

Notes: • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993).

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Quick-Reference Guide

The "Quick-Reference Guide" lists by broad class the topic areas covered by the detailed tables and the table numbers for the different types of tables. To find a particular two-way breakdown of interest, the tables featuring both topics should be consulted.

Quick-Reference Guide						
Data Item/Category	Table Numbers					
	Number of Buildings			Floorspace		
	Federal Region			Federal Region		
	3	6	9	3	6	9
Energy Sources	3.8	3.8	3.8	3.9	3.9	3.9
Equipment						
Heating Equipment	3.10	3.11	3.12	3.13	3.14	3.15
Cooling Equipment	3.16	3.17	3.18	3.19	3.20	3.21
Refrigeration Equipment	3.22	3.23	3.24	3.22	3.23	3.24
Water-Heating Equipment	3.25	3.26	3.27	3.25	3.26	3.27
Lighting Equipment	3.28	3.29	3.30	3.31	3.32	3.33
Conservation/Energy Management Features						
Energy Conservation Features	3.34	3.35	3.36	3.34	3.35	3.36
Energy Management Practices	3.37	3.38	3.39	3.40	3.41	3.42
	Consumption			Expenditures		
	Federal Region			Federal Region		
	3	6	9	3	6	9
Consumption and Expenditures						
Sum of Major Fuels, Electricity, Natural Gas	3.43	3.44	3.45	3.43	3.44	3.45
Electricity Consumption and Expenditure Intensities	3.46	3.47	3.48	3.46	3.47	3.48
Natural Gas Consumption and Expenditure Intensities	3.49	3.50	3.51	3.49	3.50	3.51
District Heat Consumption and Expenditure Intensities	3.52	3.53	3.54	3.52	3.53	3.54

Electronic Data Sets

All the tables in this report are also available on diskette. The electronic files on the diskette are flat ASCII files. The diskette containing the files also contains a READ.ME ASCII text file with a table of contents. In addition, FBSS data are available on Public-Use Diskettes either in ASCII or dBase format (for details on obtaining the diskettes, see "Public-Use Data Preparation" section in Appendix A, "How the Survey Was Conducted," Public-Use Diskettes).

Table 3.7. Summary of FBSS Buildings and Floorspace in Federal Regions 3, 6, and 9, 1993

Building Characteristics	Total Number of Buildings	Total Floorspace (thousand square feet)	Total Workers (thousand)	Floorspace per Building (thousand square feet)	Number of Buildings per Federal Region			Floorspace per Federal Region (thousand square feet)		
					3	6	9	3	6	9
All Buildings	881	175,012	492	198.7	312	243	326	94,880	35,816	44,316
Building Floorspace (square feet)										
10,000 to 50,000	349	9,013	21	25.8	94	107	148	2,564	2,591	3,858
50,001 to 200,000	326	35,395	74	108.6	117	86	123	13,166	9,548	12,680
Over 200,000	206	130,604	397	634.0	101	50	55	79,149	23,677	27,778
Principal Building Activity										
Education	26	1,394	2	53.6	8	6	12	598	168	628
Health Care	124	36,555	66	294.8	41	35	48	14,559	12,094	9,903
Laboratory	97	11,097	18	114.4	37	29	31	5,165	3,331	2,601
Lodging	51	4,720	2	92.6	13	16	22	2,558	942	1,220
Mercantile and Service	158	22,397	99	141.8	46	49	63	7,966	6,236	8,194
Office	292	84,060	277	287.9	124	76	92	56,881	10,799	16,380
All Others	133	14,789	28	111.2	43	32	58	7,152	2,247	5,390
Year Constructed										
1959 or Before	375	70,640	240	188.4	142	103	130	43,829	13,258	13,553
1960 to 1969	163	35,033	89	214.9	70	38	55	19,564	6,386	9,082
1970 to 1979	143	35,953	90	251.4	47	34	62	17,737	6,175	12,041
1980 to 1989	160	23,833	59	149.0	38	57	65	8,975	6,903	7,955
1990 to 1993	40	9,553	14	238.8	15	11	14	4,774	3,095	1,684
Federal Agency										
Department of Defense	122	24,145	61	197.9	22	22	78	13,988	1,668	8,489
General Services Administration	157	66,598	220	424.2	83	35	39	46,205	7,888	12,505
United States Postal Service	181	24,806	103	137.0	57	61	63	9,392	7,027	8,387
Veterans Administration	148	33,504	58	226.4	56	36	56	13,306	11,375	8,824
All Others	273	25,958	50	95.1	94	89	90	11,989	7,858	6,111
Energy Sources (more than one may apply)										
Electricity	879	174,273	490	198.3	311	243	325	94,161	35,816	44,296
Natural Gas	532	118,204	363	222.2	139	168	225	58,674	24,827	34,703
Fuel Oil	161	55,167	135	342.7	89	18	54	39,300	4,740	11,127
District Heat	296	89,185	289	301.3	154	68	74	63,991	13,437	11,757
District Chilled Water	114	37,263	95	326.9	57	30	27	22,922	7,980	6,362
Propane	20	2,259	4	113.0	5	5	10	941	200	1,117
Any Other	21	9,927	23	472.7	8	8	5	4,470	2,850	2,606
Energy End Uses (more than one may apply)										
Heating	853	171,718	483	201.3	307	242	304	94,063	35,734	41,921
Air Conditioning	838	170,634	485	203.6	305	241	292	93,454	35,273	41,907
Water Heating	856	171,343	485	200.2	303	238	315	93,138	35,221	42,984
Cooking	241	109,205	347	453.1	108	63	70	69,947	19,213	20,045
Manufacturing	108	40,070	134	371.0	50	28	30	27,041	5,335	7,693
Workers (main shift)										
Less than 50	234	10,335	5	44.2	71	70	93	4,102	2,548	3,684
50 to 99	132	6,090	10	46.1	39	44	49	1,903	2,026	2,161
100 to 499	321	36,678	69	114.3	107	80	134	13,632	9,029	14,017
500 or More	194	121,910	409	628.4	95	49	50	75,243	22,213	24,454
Weekly Operating Hours										
48 or Fewer	170	17,257	33	101.5	51	39	80	9,694	2,740	4,822
49 to 60	187	45,424	114	242.9	76	46	65	25,540	6,460	13,424
61 to 167	206	25,749	58	125.0	60	78	68	11,993	8,051	5,706
Open Continuously	318	86,582	288	272.3	125	80	113	47,653	18,565	20,364
Predominant Exterior Wall Material										
Masonry	658	117,869	343	179.1	236	203	219	65,621	26,577	25,671
Other	220	57,039	149	259.3	76	39	105	29,259	9,219	18,562
Don't Know	3	104	(*)	34.6	NC	1	2	NC	20	84

See footnotes at end of table.

Table 3.7. Summary of FBSS Buildings and Floorspace in Federal Regions 3, 6, and 9, 1993 (Continued)

Building Characteristics	Total Number of Buildings	Total Floorspace (thousand square feet)	Total Workers (thousand)	Floorspace per Building (thousand square feet)	Number of Buildings per Federal Region			Floorspace per Federal Region (thousand square feet)		
					3	6	9	3	6	9
Predominant Roof Material										
Built-Up	499	102,996	249	206.4	156	143	200	47,882	24,341	30,773
Synthetic or Rubber	121	32,530	101	268.8	58	33	30	23,371	4,377	4,782
Other	251	38,450	139	153.2	96	64	91	23,532	7,029	7,888
Don't Know	10	1,036	3	103.6	2	3	5	95	69	872
Floors										
One	233	14,045	32	60.3	56	74	103	4,414	4,504	5,127
Two	159	17,213	44	108.3	51	30	78	6,307	2,622	8,284
Three	162	18,239	45	112.6	60	40	62	7,440	3,598	7,201
Four to Nine	236	80,032	239	339.1	108	60	68	48,067	15,186	16,779
Ten to Twenty-five	59	40,731	124	690.4	34	15	10	27,430	6,722	6,579
Don't Know	32	4,751	9	148.5	3	24	5	1,222	3,184	345
Percent Window Glass										
50 or Less	771	146,270	428	189.7	269	204	298	79,002	29,836	37,432
51 to 100	84	25,107	59	298.9	42	16	26	14,878	3,429	6,800
Don't Know	26	3,635	6	139.8	1	23	2	1,000	2,552	84
Multibuilding Facility										
Yes	524	95,123	233	181.5	176	148	200	43,861	24,441	26,821
No	357	79,889	259	223.8	136	95	126	51,018	11,375	17,495
Space-Heating Energy Sources (more than one may apply)										
Electricity	211	37,748	100	178.9	70	66	75	18,459	9,859	9,430
Natural Gas	445	70,763	161	159.0	96	153	196	22,134	19,800	28,829
Fuel Oil	80	13,832	35	172.9	53	6	21	9,156	1,288	3,387
District Heat	284	86,885	282	305.9	151	65	68	62,321	13,244	11,319
Propane	11	322	1	29.3	NC	4	7	NC	65	257
Wood	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Any Other	6	926	2	154.4	3	2	1	289	234	403
Main Space-Heating Energy Source										
Electricity	111	15,763	46	142.0	36	31	44	6,798	4,639	4,326
Natural Gas	419	65,303	147	155.9	90	144	185	20,113	18,021	27,169
Fuel Oil	44	5,885	13	133.7	34	1	9	5,083	11	790
District Heat	270	84,544	277	313.1	147	63	60	62,068	13,008	9,467
Propane	9	223	(*)	24.8	NC	3	6	NC	54	169
Wood	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Any Other	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Replacement Energy Source for Main Heating										
Electricity Only	15	1,862	3	124.1	4	7	4	1,284	145	433
Natural Gas Only	21	2,768	5	131.8	12	3	6	2,253	356	159
Fuel Oil Only	170	38,875	88	228.7	66	37	67	14,166	8,544	16,165
Propane Only	25	2,354	4	94.2	NC	3	22	NC	184	2,170
Any Other Single Energy Source	9	2,028	5	225.4	2	1	6	1,016	11	1,001
More than One Energy Source	9	540	1	60.0	7	1	1	479	28	32
No Replacement Energy Source	541	114,410	359	211.5	206	158	177	70,765	23,310	20,335
Building Not Heated	28	3,294	9	117.6	5	1	22	817	82	2,394
Don't Know/										
Not Ascertained	63	8,881	19	141.0	10	32	21	4,100	3,157	1,625
Cooling Energy Sources (more than one may apply)										
Electricity	740	145,491	431	196.6	256	219	265	80,870	28,061	36,560
Natural Gas	8	263	1	32.8	1	1	6	22	47	193
District Chilled Water	109	29,667	67	272.2	55	29	25	15,695	7,742	6,230
Water-Heating Energy Sources (more than one may apply)										
Electricity	221	38,467	94	174.1	94	62	65	18,972	12,268	7,227
Natural Gas	381	60,841	147	159.7	78	125	178	18,101	15,655	27,085
Fuel Oil	30	6,364	18	212.1	19	1	10	4,679	760	925
District Heat	239	74,265	255	310.7	122	52	65	57,122	8,576	8,566
Propane	9	224	(*)	24.8	NC	4	5	NC	65	158

See footnotes at end of table.

Table 3.7. Summary of FBSS Buildings and Floorspace in Federal Regions 3, 6, and 9, 1993 (Continued)

Building Characteristics	Total Number of Buildings	Total Floorspace (thousand square feet)	Total Workers (thousand)	Floorspace per Building (thousand square feet)	Number of Buildings per Federal Region			Floorspace per Federal Region (thousand square feet)		
					3	6	9	3	6	9
Cooking Energy Sources (more than one may apply)										
Electricity	148	65,202	235	440.6	68	37	43	41,432	10,177	13,594
Natural Gas	111	59,944	229	540.0	46	31	34	39,084	11,004	9,857
Propane	7	332	(*)	47.4	2	NC	5	53	NC	279
Manufacturing Energy Sources (more than one may apply)										
Electricity	94	31,563	118	335.8	43	26	25	20,521	4,838	6,205
Natural Gas	14	7,192	17	513.7	5	1	8	5,319	37	1,836
Other	9	5,984	9	664.8	5	1	3	4,140	461	1,383
Percent of Floorspace Heated										
Not Heated	28	3,294	9	117.6	5	1	22	817	82	2,394
1 to 50	51	10,826	15	212.3	12	11	28	5,787	1,288	3,751
51 to 100	802	160,892	468	200.6	295	231	276	88,275	34,446	38,170
Percent of Floorspace Cooled										
Not Cooled	56	7,091	9	126.6	13	3	40	3,582	554	2,956
1 to 50	111	19,129	34	172.3	30	26	55	9,874	1,951	7,304
51 to 100	714	148,792	449	208.4	269	214	231	81,424	33,312	34,056
Percent Lit When Open										
1 to 50	46	3,572	4	77.6	11	15	20	663	1,062	1,847
51 to 100	831	171,118	488	205.9	300	227	304	94,070	34,672	42,375
No Operating Hours	3	258	(*)	86.0	1	1	1	147	82	29
Don't Know	1	64	(*)	64.4	NC	NC	1	NC	NC	64
Percent Lit When Closed										
Not Lit	107	9,504	50	88.8	39	33	35	5,149	2,691	1,664
1 to 50	564	103,736	289	183.9	194	165	205	57,953	20,495	25,288
51 to 100	111	33,550	88	302.3	42	25	44	17,412	8,029	8,109
No Off Hours	98	28,157	65	287.3	37	20	41	14,366	4,601	9,190
Don't Know	1	64	(*)	64.4	NC	NC	1	NC	NC	64
Heating Equipment (more than one may apply)										
Heat Pumps	84	14,968	39	178.2	34	10	40	10,922	964	3,081
Furnaces	59	3,689	6	62.5	16	18	25	1,694	791	1,204
Individual Space Heaters	138	45,264	128	328.0	75	30	33	34,923	5,408	4,933
District Heat	320	95,621	299	298.8	167	82	71	67,704	15,205	12,712
Boilers	341	60,810	148	178.3	93	102	146	20,082	16,718	24,010
Packaged-Heating Units	151	19,576	50	129.6	25	59	67	6,006	7,574	5,997
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	83	25,679	149	309.4	30	29	24	19,073	4,706	1,900
Heat Pumps	80	15,662	39	195.8	37	11	32	11,388	1,549	2,724
Individual A/C	182	40,755	170	223.9	80	50	52	28,082	6,950	5,723
District Chilled Water	147	46,698	116	317.7	72	44	31	28,194	10,856	7,647
Central Chillers	419	113,233	361	270.2	158	122	139	63,914	21,596	27,723
Packaged-A/C Units	375	94,757	322	252.7	127	97	151	56,664	14,104	23,989
Swamp Coolers	45	5,558	13	123.5	3	12	30	378	2,015	3,165
Lighting Equipment (more than one may apply)										
Incandescent	480	105,704	303	220.2	184	135	161	64,981	20,248	20,475
Standard Fluorescent	844	169,893	457	201.3	300	235	309	91,986	35,057	42,850
Compact Fluorescent	182	74,735	237	410.6	80	29	73	49,455	7,942	17,339
High-Intensity Discharge	250	87,517	303	350.1	111	64	75	52,593	16,188	18,736
Electronic Ballast	299	104,727	315	350.3	135	59	105	65,560	15,861	23,307
Water-Heating Equipment (more than one may apply)										
Centralized System	611	117,752	347	192.7	223	163	225	63,477	23,206	31,069
Distributed System	222	47,272	124	212.9	71	71	80	24,696	11,827	10,750
Don't Know/										
Not Ascertained	23	6,319	14	274.7	9	4	10	4,965	188	1,165

See footnotes at end of table.

Table 3.7. Summary of FBSS Buildings and Floorspace in Federal Regions 3, 6, and 9, 1993 (Continued)

Building Characteristics	Total Number of Buildings	Total Floorspace (thousand square feet)	Total Workers (thousand)	Floorspace per Building (thousand square feet)	Number of Buildings per Federal Region			Floorspace per Federal Region (thousand square feet)		
					3	6	9	3	6	9
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	242	98,429	322	406.7	109	70	63	61,731	17,917	18,781
Walk-in Units	162	79,141	269	488.5	78	40	44	54,223	12,381	12,536
Cases and Cabinets	181	82,507	204	455.8	87	44	50	53,454	14,125	14,928
None	639	76,583	170	119.8	203	173	263	33,149	17,899	25,535
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	604	144,849	437	239.8	229	162	213	81,286	29,015	34,547
Retrofit	245	80,767	214	329.7	79	63	103	43,128	15,029	22,610
Purchase	462	104,046	332	225.2	188	126	148	62,995	21,409	19,642
No Retrofit or Purchase	277	30,163	55	108.9	83	81	113	13,594	6,801	9,769
Energy Conservation Features (more than one may apply)										
Any Conservation Feature	870	174,119	492	200.1	309	242	319	94,361	35,734	44,023
Building Shell	766	152,607	446	199.2	290	228	248	84,557	33,946	34,105
HVAC	846	172,084	489	203.4	303	236	307	93,543	35,425	43,116
Lighting	563	141,432	401	251.2	210	136	217	80,953	25,654	34,825
Building Shell Conservation Features (more than one may apply)										
Roof or Ceiling										
Insulation	621	125,137	354	201.5	240	196	185	69,654	28,249	27,234
Wall Insulation	352	69,887	154	198.5	117	122	113	31,876	20,550	17,462
Storm or Multiple										
Glazing	326	74,340	227	228.0	173	96	57	46,141	17,939	10,260
Tinted or Reflective Glass or Shading Film	418	93,977	292	224.8	158	127	133	46,829	24,768	22,381
Exterior or Interior Shading or Awnings	503	107,620	301	214.0	197	142	164	57,183	26,067	24,370
HVAC Conservation Features (more than one may apply)										
VAV System	224	71,706	211	320.1	84	65	75	37,611	18,518	15,577
Economizer Cycle	419	110,998	353	264.9	156	123	140	61,089	23,542	26,367
HVAC Maintenance	841	171,841	489	204.3	301	234	306	93,402	35,341	43,098
Lighting Conservation Features (more than one may apply)										
Specular Reflectors	340	84,607	261	248.8	124	92	124	44,741	18,017	21,850
Natural Lighting Control										
Sensors	114	38,243	95	335.5	29	27	58	17,743	6,740	13,760
Occupancy Sensors	262	103,941	314	396.7	95	58	109	62,261	16,435	25,245
Time Clock	151	66,131	210	438.0	74	36	41	46,555	9,037	10,539
Manual Dimmer Switches	215	77,732	239	361.5	93	44	78	49,824	13,454	14,455
Energy Management Practices (more than one may apply)										
Energy Management and Control System	299	103,220	328	345.2	132	96	71	61,891	23,099	18,231
Energy Conservation Programs ¹	271	97,497	304	359.8	99	48	124	59,284	13,513	24,699
Energy Audit	262	66,755	165	254.8	99	64	99	37,621	11,690	17,444
HVAC Maintenance Staff ²	206	83,032	287	403.1	97	57	52	52,924	15,538	14,570
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	418	76,622	182	183.3	144	123	151	43,828	13,162	19,631
Cooling	426	76,840	184	180.4	145	124	157	43,757	13,864	19,219
Hot Water	178	44,187	105	248.2	77	33	68	26,018	4,554	13,614
Lighting	454	78,719	185	173.4	162	120	172	44,717	12,847	21,155

See footnotes at end of table.

Table 3.7. Summary of FBSS Buildings and Floorspace in Federal Regions 3, 6, and 9, 1993 (Continued)

Building Characteristics	Total Number of Buildings	Total Floorspace (thousand square feet)	Total Workers (thousand)	Floorspace per Building (thousand square feet)	Number of Buildings per Federal Region			Floorspace per Federal Region (thousand square feet)		
					3	6	9	3	6	9
Building Generates Electricity										
Yes	139	56,563	175	406.9	55	32	52	31,984	10,295	14,283
No	742	118,449	318	159.6	257	211	274	62,896	25,521	30,032
Natural Gas Transported for the Account of Others										
Used in Building	40	10,103	22	252.6	11	5	24	4,270	631	5,201
Not Used in Building	438	101,624	326	232.0	124	140	174	52,636	22,202	26,787
Don't Know/										
Not Ascertained	52	6,393	15	122.9	4	23	25	1,768	1,994	2,631

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.8. Energy Sources in FBSS Buildings in Federal Regions 3, 6, and 9, Number of Buildings, 1993

Building Characteristics	Number of Buildings in Region 3			Number of Buildings in Region 6			Number of Buildings in Region 9		
	All Buildings	Energy Sources Used in Region 3 (more than one may apply)		All Buildings	Energy Sources Used in Region 6 (more than one may apply)		All Buildings	Energy Sources Used in Region 9 (more than one may apply)	
		Electricity	Natural Gas		Electricity	Natural Gas		Electricity	Natural Gas
All Buildings	312	311	139	243	243	168	326	325	225
Building Floorspace (square feet)									
10,000 to 50,000	94	94	37	107	107	77	148	147	93
50,001 to 200,000	117	117	46	86	86	57	123	123	87
Over 200,000	101	100	56	50	50	34	55	55	45
Principal Building Activity									
Education	8	8	3	6	6	4	12	12	7
Health Care	41	41	25	35	35	25	48	48	26
Laboratory	37	37	8	29	29	14	31	31	29
Lodging	13	13	9	16	16	11	22	22	9
Mercantile and Service	46	45	27	49	49	39	63	63	47
Office	124	124	56	76	76	54	92	92	71
All Others	43	43	11	32	32	21	58	57	36
Year Constructed									
1959 or Before	142	142	63	103	103	63	130	129	78
1960 to 1969	70	70	24	38	38	30	55	55	48
1970 to 1979	47	46	26	34	34	26	62	62	45
1980 to 1989	38	38	18	57	57	41	65	65	42
1990 to 1993	15	15	8	11	11	8	14	14	12
Federal Agency									
Department of Defense	22	22	9	22	22	18	78	77	37
General Services Administration ..	83	83	40	35	35	29	39	39	38
United States Postal Service	57	56	35	61	61	49	63	63	53
Veterans Administration	56	56	31	36	36	24	56	56	29
All Others	94	94	24	89	89	48	90	90	68
Energy End Uses (more than one may apply)									
Heating	307	306	139	242	242	168	304	303	223
Air Conditioning	305	305	137	241	241	168	292	292	209
Water Heating	303	302	137	238	238	166	315	314	223
Cooking	108	108	62	63	63	48	70	70	51
Manufacturing	50	50	28	28	28	22	30	30	21
Workers (main shift)									
Less than 50	71	71	23	70	70	46	93	92	55
50 to 99	39	39	14	44	44	35	49	49	36
100 to 499	107	107	46	80	80	56	134	134	94
500 or More	95	94	56	49	49	31	50	50	40
Weekly Operating Hours									
48 or Fewer	51	51	13	39	39	30	80	80	43
49 to 60	76	76	28	46	46	26	65	65	56
61 to 167	60	60	28	78	78	54	68	68	57
Open Continuously	125	124	70	80	80	58	113	112	69

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals. Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.9. Energy Sources in FBSS Buildings in Federal Regions 3, 6, and 9, Floorspace, 1993

Building Characteristics	Floorspace in Region 3 (thousand square feet)			Floorspace in Region 6 (thousand square feet)			Floorspace in Region 9 (thousand square feet)		
	All Buildings	Energy Sources Used in Region 3 (more than one may apply)		All Buildings	Energy Sources Used in Region 6 (more than one may apply)		All Buildings	Energy Sources Used in Region 9 (more than one may apply)	
		Elec- tricity	Natural Gas		Elec- tricity	Natural Gas		Elec- tricity	Natural Gas
All Buildings	94,880	94,161	58,674	35,816	35,816	24,827	44,316	44,296	34,703
Building Floorspace (square feet)									
10,000 to 50,000	2,564	2,564	1,024	2,591	2,591	1,848	3,858	3,838	2,304
50,001 to 200,000	13,166	13,166	5,388	9,548	9,548	6,079	12,680	12,680	9,219
Over 200,000	79,149	78,430	52,262	23,677	23,677	16,900	27,778	27,778	23,180
Principal Building Activity									
Education	598	598	212	168	168	133	628	628	272
Health Care	14,559	14,559	11,682	12,094	12,094	9,552	9,903	9,903	6,836
Laboratory	5,165	5,165	2,305	3,331	3,331	1,467	2,601	2,601	2,547
Lodging	2,558	2,558	2,034	942	942	665	1,220	1,220	520
Mercantile and Service	7,966	7,247	6,152	6,236	6,236	4,279	8,194	8,194	6,630
Office	56,881	56,881	32,242	10,799	10,799	7,594	16,380	16,380	14,578
All Others	7,152	7,152	4,047	2,247	2,247	1,136	5,390	5,370	3,320
Year Constructed									
1959 or Before	43,829	43,829	24,528	13,258	13,258	8,424	13,553	13,534	9,153
1960 to 1969	19,564	19,564	13,000	6,386	6,386	4,889	9,082	9,082	8,212
1970 to 1979	17,737	17,018	12,981	6,175	6,175	4,840	12,041	12,041	9,847
1980 to 1989	8,975	8,975	5,512	6,903	6,903	3,688	7,955	7,955	5,967
1990 to 1993	4,774	4,774	2,673	3,095	3,095	2,985	1,684	1,684	1,524
Federal Agency									
Department of Defense	13,988	13,988	12,480	1,868	1,868	1,417	8,489	8,469	4,763
General Services Administration	46,205	46,205	24,708	7,888	7,888	6,293	12,505	12,505	12,232
United States Postal Service	9,392	8,673	7,197	7,027	7,027	5,026	8,387	8,387	7,070
Veterans Administration	13,306	13,306	10,098	11,375	11,375	8,716	8,824	8,824	5,378
All Others	11,989	11,989	4,192	7,858	7,858	3,375	6,111	6,111	5,260
Energy End Uses (more than one may apply)									
Heating	94,063	93,343	58,674	35,734	35,734	24,827	41,921	41,902	34,045
Air Conditioning	93,454	93,454	57,926	35,273	35,273	24,827	41,907	41,907	33,562
Water Heating	93,138	92,419	58,560	35,221	35,221	24,787	42,984	42,984	34,379
Cooking	69,947	69,947	49,082	19,213	19,213	15,802	20,045	20,045	15,826
Manufacturing	27,041	27,041	21,235	5,335	5,335	4,318	7,693	7,693	5,438
Workers (main shift)									
Less than 50	4,102	4,102	872	2,548	2,548	1,557	3,684	3,665	2,025
50 to 99	1,903	1,903	647	2,026	2,026	1,743	2,161	2,161	1,575
100 to 499	13,632	13,632	5,674	9,029	9,029	5,755	14,017	14,017	10,930
500 or More	75,243	74,524	51,481	22,213	22,213	15,771	24,454	24,454	20,174
Weekly Operating Hours									
48 or Fewer	9,694	9,694	2,996	2,740	2,740	1,540	4,822	4,822	3,003
49 to 60	25,540	25,540	11,652	6,460	6,460	3,824	13,424	13,424	12,675
61 to 167	11,993	11,993	7,186	8,051	8,051	4,718	5,706	5,706	5,329
Open Continuously	47,653	46,934	36,841	18,565	18,565	14,746	20,364	20,344	13,696

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals. Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.10. Heating Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
All Buildings	312	307	34	16	75	167	93	25
Building Floorspace (square feet)								
10,000 to 50,000	94	94	16	8	17	34	32	6
50,001 to 200,000	117	113	2	7	23	68	35	9
Over 200,000	101	100	16	1	35	65	26	10
Principal Building Activity								
Education	8	8	NC	NC	2	4	3	NC
Health Care	41	40	1	NC	6	31	8	3
Laboratory	37	37	1	NC	7	28	4	3
Lodging	13	13	2	NC	2	9	2	1
Mercantile and Service	46	46	6	8	14	2	28	6
Office	124	122	20	4	32	71	38	9
All Others	43	41	4	4	12	22	10	3
Year Constructed								
1959 or Before	142	139	15	6	35	90	37	12
1960 to 1969	70	69	3	3	12	47	14	5
1970 to 1979	47	47	7	3	16	11	27	3
1980 to 1989	38	37	7	3	9	11	14	4
1990 to 1993	15	15	2	1	3	8	1	1
Federal Agency								
Department of Defense	22	22	NC	NC	5	16	4	NC
General Services Administration ...	83	81	16	1	21	48	27	7
United States Postal Service	57	56	7	8	18	1	37	8
Veterans Administration	56	54	3	NC	7	39	10	3
All Others	94	94	8	7	24	63	15	7
Workers (main shift)								
Less than 50	71	67	9	4	9	34	18	4
50 to 99	39	39	6	4	8	19	12	3
100 to 499	107	106	7	8	23	53	37	8
500 or More	95	95	12	NC	35	61	26	10
Weekly Operating Hours								
48 or Fewer	51	48	9	3	12	32	11	4
49 to 60	76	76	7	3	21	44	21	4
61 to 167	60	60	9	6	14	17	23	5
Open Continuously	125	123	9	4	28	74	38	12
Multibuilding Facility								
Yes	176	173	13	4	44	115	37	10
No	136	134	21	12	31	52	56	15
Percent of Floorspace Heated								
Not Heated	5	NC	NC	NC	NC	NC	NC	NC
1 to 50	12	12	5	2	5	6	1	2
51 to 100	295	295	29	14	70	161	92	23
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	309	306	34	16	75	166	93	25
Building Shell	290	287	34	15	69	152	89	25
HVAC	303	300	32	15	73	164	91	24
Lighting	210	207	28	8	56	107	69	17

See footnotes at end of table.

Table 3.10. Heating Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	240	239	31	13	61	126	72	22
Wall Insulation	117	117	20	6	31	56	36	7
Storm or Multiple Glazing	173	172	23	12	37	82	56	17
Tinted or Reflective Glass or Shading Film	158	157	15	8	38	76	60	16
Exterior or Interior Shading or Awnings	197	195	23	8	48	106	65	20
HVAC Conservation Features (more than one may apply)								
VAV System	84	83	11	1	22	45	25	10
Economizer Cycle	156	154	14	4	40	83	51	18
HVAC Maintenance	301	299	32	15	73	164	90	24
Energy Management Practices (more than one may apply)								
Energy Management and Control System	132	132	19	1	39	80	40	11
Energy Conservation Programs ¹	99	98	13	1	29	58	28	7
Energy Audit	99	98	14	5	31	60	27	10
HVAC Maintenance Staff ²	97	96	6	2	27	64	24	8
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	144	144	21	9	41	73	47	12
Cooling	145	144	20	7	39	73	47	12
Hot Water	77	77	13	2	20	38	30	2
Lighting	162	159	22	11	41	78	49	11

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.11. Heating Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
All Buildings	243	242	10	18	30	82	102	59
Building Floorspace (square feet)								
10,000 to 50,000	107	107	6	13	9	26	36	34
50,001 to 200,000	86	85	3	5	13	36	40	15
Over 200,000	50	50	1	NC	8	20	26	10
Principal Building Activity								
Education	6	6	NC	1	2	2	2	1
Health Care	35	35	1	NC	5	22	12	9
Laboratory	29	29	NC	NC	1	18	12	3
Lodging	16	16	NC	3	1	8	3	2
Mercantile and Service	49	49	3	6	7	NC	19	27
Office	76	76	4	3	11	21	42	10
All Others	32	31	2	5	3	11	12	7
Year Constructed								
1959 or Before	103	102	3	7	11	55	38	13
1960 to 1969	38	38	2	3	6	9	23	10
1970 to 1979	34	34	1	2	5	4	23	10
1980 to 1989	57	57	3	4	6	12	15	24
1990 to 1993	11	11	1	2	2	2	3	2
Federal Agency								
Department of Defense	22	22	2	2	1	4	12	7
General Services Administration ...	35	35	1	1	5	7	26	2
United States Postal Service	61	61	3	7	8	NC	27	29
Veterans Administration	36	36	1	NC	5	29	5	6
All Others	89	88	3	8	11	42	32	15
Workers (main shift)								
Less than 50	70	69	2	8	7	24	21	23
50 to 99	44	44	4	7	3	11	18	7
100 to 499	80	80	3	3	10	29	37	19
500 or More	49	49	1	NC	10	18	26	10
Weekly Operating Hours								
48 or Fewer	39	38	2	4	5	13	16	6
49 to 60	46	46	2	3	5	22	17	9
61 to 167	78	78	3	7	9	18	32	25
Open Continuously	80	80	3	4	11	29	37	19
Multibuilding Facility								
Yes	148	147	5	5	17	80	51	20
No	95	95	5	13	13	2	51	39
Percent of Floorspace Heated								
Not Heated	1	NC	NC	NC	NC	NC	NC	NC
1 to 50	11	11	NC	2	1	2	4	2
51 to 100	231	231	10	16	29	80	98	57
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	242	242	10	18	30	82	102	59
Building Shell	228	228	10	18	30	73	99	57
HVAC	236	236	9	16	28	82	101	58
Lighting	136	136	7	11	20	42	57	39

See footnotes at end of table.

Table 3.11. Heating Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	196	196	9	15	22	61	89	47
Wall Insulation	122	122	7	7	11	34	51	34
Storm or Multiple Glazing	96	96	7	6	9	30	42	27
Tinted or Reflective Glass or Shading Film	127	127	6	10	17	32	62	35
Exterior or Interior Shading or Awnings	142	142	8	12	21	39	64	41
HVAC Conservation Features (more than one may apply)								
VAV System	65	65	2	1	7	26	31	13
Economizer Cycle	123	123	6	4	14	44	58	30
HVAC Maintenance	234	234	8	16	28	81	101	57
Energy Management Practices (more than one may apply)								
Energy Management and Control System	96	96	3	3	14	47	35	17
Energy Conservation Programs ¹	48	48	3	3	9	13	22	18
Energy Audit	64	64	4	4	6	12	28	21
HVAC Maintenance Staff ²	57	57	1	2	9	14	36	15
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	123	123	6	14	19	34	48	39
Cooling	124	124	6	14	19	35	47	39
Hot Water	33	33	3	1	7	9	15	10
Lighting	120	120	5	12	17	34	47	35

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.12. Heating Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
All Buildings	326	304	40	25	33	71	146	67
Building Floorspace (square feet)								
10,000 to 50,000	148	137	23	21	18	26	49	36
50,001 to 200,000	123	116	14	3	9	30	67	23
Over 200,000	55	51	3	1	6	15	30	6
Principal Building Activity								
Education	12	12	2	NC	NC	3	4	3
Health Care	48	47	1	NC	1	37	9	7
Laboratory	31	31	8	1	1	3	23	5
Lodging	22	19	2	1	1	9	6	1
Mercantile and Service	63	55	10	11	12	2	24	18
Office	92	87	12	8	8	6	57	20
All Others	58	53	5	4	10	11	23	13
Year Constructed								
1959 or Before	130	118	15	10	16	33	54	24
1960 to 1969	55	55	7	3	6	10	40	9
1970 to 1979	62	59	6	4	4	17	25	15
1980 to 1989	65	59	9	5	6	11	21	14
1990 to 1993	14	13	3	3	1	NC	6	5
Federal Agency								
Department of Defense	78	66	7	7	6	20	22	11
General Services Administration	39	39	NC	3	3	4	32	2
United States Postal Service	63	56	9	10	9	NC	26	21
Veterans Administration	56	55	2	NC	1	43	8	7
All Others	90	88	22	5	14	4	58	26
Workers (main shift)								
Less than 50	93	84	12	11	11	16	28	15
50 to 99	49	47	6	5	4	4	25	13
100 to 499	134	127	19	8	12	39	63	33
500 or More	50	46	3	1	6	12	30	6
Weekly Operating Hours								
48 or Fewer	80	74	7	5	9	17	36	27
49 to 60	65	63	7	7	6	13	37	5
61 to 167	68	63	8	9	9	3	28	20
Open Continuously	113	104	18	4	9	38	45	15
Multibuilding Facility								
Yes	200	186	28	12	17	63	77	29
No	126	118	12	13	16	8	69	38
Percent of Floorspace Heated								
Not Heated	22	NC	NC	NC	NC	NC	NC	NC
1 to 50	28	28	3	2	4	3	8	6
51 to 100	276	276	37	23	29	68	138	61
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	319	299	40	25	33	69	145	67
Building Shell	248	234	31	20	31	59	107	65
HVAC	307	290	39	22	32	69	143	65
Lighting	217	207	29	15	23	41	113	52

See footnotes at end of table.

Table 3.12. Heating Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling								
Insulation	185	175	27	12	23	48	80	51
Wall Insulation	113	111	13	13	12	32	41	27
Storm or Multiple Glazing	57	52	11	5	10	14	19	17
Tinted or Reflective Glass or Shading Film	133	125	21	10	14	22	62	37
Exterior or Interior Shading or Awnings	164	156	22	14	22	35	79	48
HVAC Conservation Features (more than one may apply)								
VAV System	75	74	9	1	11	15	48	23
Economizer Cycle	140	138	15	7	15	28	80	40
HVAC Maintenance	306	289	39	22	32	69	143	64
Energy Management Practices (more than one may apply)								
Energy Management and Control System	71	67	12	2	8	15	40	13
Energy Conservation Programs ¹	124	122	23	9	17	24	67	34
Energy Audit	99	92	15	10	13	20	47	13
HVAC Maintenance Staff ²	52	48	3	2	3	14	25	8
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	151	151	19	15	22	16	85	47
Cooling	157	147	18	11	17	20	84	45
Hot Water	68	66	2	7	5	5	48	21
Lighting	172	161	19	18	24	23	85	45

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.13. Heating Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
All Buildings	94,880	94,063	10,922	1,694	34,923	67,704	20,082	6,006
Building Floorspace (square feet)								
10,000 to 50,000	2,564	2,564	419	171	447	1,074	821	150
50,001 to 200,000	13,166	12,608	115	523	2,297	7,612	3,981	991
Over 200,000	79,149	78,891	10,388	1,000	32,179	59,018	15,279	4,865
Principal Building Activity								
Education	598	598	NC	NC	277	264	279	NC
Health Care	14,559	14,450	60	NC	3,453	10,624	3,725	1,583
Laboratory	5,165	5,165	20	NC	602	3,745	1,198	409
Lodging	2,558	2,558	406	NC	441	2,020	132	31
Mercantile and Service	7,966	7,966	832	480	2,762	1,391	4,995	1,080
Office	56,881	56,631	9,478	1,107	24,674	44,635	9,182	2,354
All Others	7,152	6,693	127	106	2,713	5,025	570	549
Year Constructed								
1959 or Before	43,829	43,299	3,474	1,211	21,328	35,819	5,862	2,857
1960 to 1969	19,564	19,477	2,427	155	3,759	16,687	2,512	1,311
1970 to 1979	17,737	17,737	4,196	152	5,817	9,022	6,626	741
1980 to 1989	8,975	8,775	755	163	1,895	2,571	4,975	1,067
1990 to 1993	4,774	4,774	70	14	2,124	3,605	106	30
Federal Agency								
Department of Defense	13,988	13,988	NC	NC	7,840	13,339	380	NC
General Services Administration ...	46,205	45,859	8,384	1,000	14,011	35,209	8,682	1,621
United States Postal Service	9,392	9,229	1,862	480	4,508	1,091	6,503	1,591
Veterans Administration	13,306	12,998	98	NC	3,317	8,259	3,858	1,583
All Others	11,989	11,989	578	214	5,248	9,806	657	1,210
Workers (main shift)								
Less than 50	4,102	3,448	645	108	618	2,160	605	492
50 to 99	1,903	1,903	174	234	654	1,034	540	142
100 to 499	13,632	13,469	1,729	1,352	1,940	7,233	4,105	768
500 or More	75,243	75,243	8,375	NC	31,710	57,277	14,832	4,604
Weekly Operating Hours								
48 or Fewer	9,694	9,336	2,219	1,086	3,325	6,728	1,456	546
49 to 60	25,540	25,540	3,533	51	10,806	20,047	3,961	1,051
61 to 167	11,993	11,993	2,841	314	4,072	6,816	3,842	851
Open Continuously	47,653	47,194	2,330	242	16,720	34,114	10,822	3,558
Multibuilding Facility								
Yes	43,861	43,466	7,487	1,107	17,213	30,922	9,023	2,804
No	51,018	50,597	3,435	587	17,711	36,782	11,059	3,201
Percent of Floorspace Heated								
Not Heated	817	NC	NC	NC	NC	NC	NC	NC
1 to 50	5,787	5,787	540	126	2,151	5,224	55	482
51 to 100	88,275	88,275	10,382	1,569	32,773	62,481	20,027	5,524
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	94,361	94,003	10,922	1,694	34,923	67,644	20,082	6,006
Building Shell	84,557	84,198	10,922	1,636	32,183	59,221	18,726	6,006
HVAC	93,543	93,184	10,485	1,635	34,717	67,055	20,009	5,579
Lighting	80,953	80,595	10,724	1,332	31,690	57,181	18,347	4,321

See footnotes at end of table.

Table 3.13. Heating Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling								
Insulation	69,654	69,567	9,240	512	28,784	51,320	13,283	5,321
Wall Insulation	31,876	31,876	6,084	174	11,695	20,857	8,687	1,433
Storm or Multiple Glazing	46,141	46,032	5,371	511	18,186	30,197	11,784	3,114
Tinted or Reflective Glass or Shading Film	46,829	46,666	6,339	276	15,553	29,742	15,263	3,286
Exterior or Interior Shading or Awnings	57,183	56,933	8,397	1,378	21,325	39,971	12,991	4,317
HVAC Conservation Features (more than one may apply)								
VAV System	37,611	37,502	4,125	21	13,828	23,372	11,640	3,308
Economizer Cycle	61,089	60,894	4,105	176	27,241	44,513	13,844	4,651
HVAC Maintenance	93,402	93,130	10,485	1,635	34,717	67,055	19,955	5,579
Energy Management Practices (more than one may apply)								
Energy Management and Control System	61,891	61,891	8,197	107	26,031	45,017	14,594	3,994
Energy Conservation Programs ¹	59,284	59,084	6,244	24	25,674	46,194	8,858	2,747
Energy Audit	37,621	37,421	7,066	1,233	20,648	27,770	7,222	1,745
HVAC Maintenance Staff ²	52,924	52,665	4,762	69	22,670	40,970	9,644	3,129
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	43,828	43,828	8,477	1,292	17,564	31,731	8,745	2,396
Cooling	43,757	43,594	8,247	1,247	17,266	31,731	8,531	2,396
Hot Water	26,018	26,018	6,649	1,050	9,995	17,684	5,680	716
Lighting	44,717	44,358	8,294	1,394	17,141	31,814	8,813	2,255

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.14. Heating Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
All Buildings	35,816	35,734	964	791	5,408	15,205	16,718	7,574
Building Floorspace (square feet)								
10,000 to 50,000	2,591	2,591	140	265	195	713	922	719
50,001 to 200,000	9,548	9,466	307	526	1,694	4,114	4,359	1,448
Over 200,000	23,677	23,677	517	NC	3,519	10,378	11,437	5,407
Principal Building Activity								
Education	168	168	NC	28	53	35	79	28
Health Care	12,094	12,094	142	NC	1,467	7,733	4,388	3,148
Laboratory	3,331	3,331	NC	NC	141	2,621	807	152
Lodging	942	942	NC	56	75	512	160	88
Mercantile and Service	6,236	6,236	593	429	704	NC	3,571	2,402
Office	10,799	10,799	99	42	2,753	3,263	6,815	1,404
All Others	2,247	2,165	130	236	214	1,041	896	351
Year Constructed								
1959 or Before	13,258	13,176	199	323	1,947	7,006	6,178	2,841
1960 to 1969	6,386	6,386	529	109	2,266	1,539	3,893	1,349
1970 to 1979	6,175	6,175	102	202	391	976	4,189	2,062
1980 to 1989	6,903	6,903	109	115	644	2,926	2,382	1,254
1990 to 1993	3,095	3,095	25	42	159	2,758	75	67
Federal Agency								
Department of Defense	1,668	1,668	88	105	20	285	1,218	895
General Services Administration	7,888	7,888	12	12	1,978	1,643	5,738	491
United States Postal Service	7,027	7,027	563	448	854	NC	4,335	2,637
Veterans Administration	11,375	11,375	142	NC	1,467	8,140	3,242	2,400
All Others	7,858	7,776	159	225	1,088	5,137	2,184	1,151
Workers (main shift)								
Less than 50	2,548	2,466	170	143	251	1,092	951	566
50 to 99	2,026	2,026	87	274	152	680	800	259
100 to 499	9,029	9,029	190	374	1,103	4,321	3,911	1,342
500 or More	22,213	22,213	517	NC	3,901	9,112	11,057	5,407
Weekly Operating Hours								
48 or Fewer	2,740	2,658	154	65	226	1,135	1,052	233
49 to 60	6,460	6,460	57	81	467	3,330	3,174	518
61 to 167	8,051	8,051	101	488	2,206	3,041	3,859	1,312
Open Continuously	18,565	18,565	652	158	2,509	7,699	8,633	5,511
Multibuilding Facility								
Yes	24,441	24,359	364	159	3,672	15,000	8,520	2,691
No	11,375	11,375	600	632	1,736	205	8,197	4,883
Percent of Floorspace Heated								
Not Heated	82	NC	NC	NC	NC	NC	NC	NC
1 to 50	1,288	1,288	NC	66	19	278	674	325
51 to 100	34,446	34,446	964	725	5,388	14,927	16,043	7,249
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	35,734	35,734	964	791	5,408	15,205	16,718	7,574
Building Shell	33,946	33,946	964	791	5,408	14,057	16,100	7,550
HVAC	35,425	35,425	939	680	5,377	15,205	16,576	7,563
Lighting	25,654	25,654	910	429	4,370	10,979	11,447	5,574

See footnotes at end of table.

Table 3.14. Heating Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					Packaged-Heating Units
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling								
Insulation	28,249	28,249	932	629	3,936	11,866	13,412	5,269
Wall Insulation	20,550	20,550	782	248	2,303	8,820	9,161	4,508
Storm or Multiple Glazing	17,939	17,939	422	261	1,029	8,950	8,045	3,968
Tinted or Reflective Glass or Shading Film	24,768	24,768	732	463	4,758	10,361	11,373	5,597
Exterior or Interior Shading or Awnings	26,067	26,067	434	592	4,282	9,915	13,567	6,807
HVAC Conservation Features (more than one may apply)								
VAV System	18,518	18,518	170	82	1,713	8,353	9,135	4,408
Economizer Cycle	23,542	23,542	376	189	3,509	10,756	11,332	5,842
HVAC Maintenance	35,341	35,341	876	680	5,377	15,183	16,576	7,500
Energy Management Practices (more than one may apply)								
Energy Management and Control System	23,099	23,099	199	87	3,592	11,254	10,580	4,982
Energy Conservation Programs ¹	13,513	13,513	100	45	2,576	5,546	7,178	4,016
Energy Audit	11,690	11,690	618	69	1,610	2,221	7,806	3,421
HVAC Maintenance Staff ²	15,538	15,538	12	202	1,881	5,867	8,854	4,743
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	13,162	13,162	299	633	2,898	5,002	6,937	2,044
Cooling	13,864	13,864	299	633	2,898	5,405	6,913	2,044
Hot Water	4,554	4,554	117	190	1,379	1,471	2,408	1,058
Lighting	12,847	12,847	255	585	2,859	4,444	6,949	1,981

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.15. Heating Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					Packaged-Heating Units
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	
All Buildings	44,316	41,921	3,081	1,204	4,933	12,712	24,010	5,997
Building Floorspace (square feet)								
10,000 to 50,000	3,858	3,626	566	496	511	810	1,321	1,040
50,001 to 200,000	12,680	12,016	1,346	242	879	3,191	6,911	2,439
Over 200,000	27,778	26,279	1,169	466	3,542	8,711	15,778	2,518
Principal Building Activity								
Education	628	628	96	NC	NC	188	220	124
Health Care	9,903	9,888	431	NC	107	7,842	1,904	1,306
Laboratory	2,601	2,601	535	12	41	363	1,987	259
Lodging	1,220	1,146	79	15	15	422	593	48
Mercantile and Service	8,194	6,567	1,186	836	2,051	58	4,430	1,220
Office	16,980	16,141	581	228	2,282	1,960	13,175	1,573
All Others	5,390	4,950	174	113	437	1,878	1,702	1,468
Year Constructed								
1959 or Before	13,553	12,957	1,324	422	1,598	3,924	5,689	2,409
1960 to 1969	9,082	9,082	639	107	2,019	1,437	7,535	591
1970 to 1979	12,041	11,355	623	77	514	4,765	6,326	1,590
1980 to 1989	7,955	6,986	449	94	335	2,586	3,291	740
1990 to 1993	1,684	1,541	46	503	466	NC	1,169	667
Federal Agency								
Department of Defense	8,489	7,815	260	322	551	3,963	1,701	949
General Services Administration ..	12,505	12,505	NC	82	1,453	1,500	11,218	605
United States Postal Service	8,387	6,844	1,171	710	2,023	NC	4,675	1,502
Veterans Administration	8,824	8,681	490	NC	28	6,803	1,598	1,186
All Others	6,111	6,077	1,160	90	877	447	4,819	1,755
Workers (main shift)								
Less than 50	3,684	3,272	225	239	327	805	996	347
50 to 99	2,161	2,122	231	99	227	247	1,349	424
100 to 499	14,017	13,572	1,657	400	1,038	4,322	6,816	3,622
500 or More	24,454	22,956	967	466	3,340	7,338	14,850	1,604
Weekly Operating Hours								
48 or Fewer	4,822	4,498	659	159	732	1,045	2,513	1,304
49 to 60	13,424	13,278	482	275	1,943	2,207	10,496	779
61 to 167	5,706	5,513	331	265	525	477	2,917	1,772
Open Continuously	20,364	18,634	1,610	505	1,732	8,984	8,085	2,142
Multibuilding Facility								
Yes	26,821	25,713	1,859	896	1,606	10,888	11,611	3,000
No	17,495	16,208	1,223	308	3,327	1,824	12,399	2,997
Percent of Floorspace Heated								
Not Heated	2,394	NC	NC	NC	NC	NC	NC	NC
1 to 50	3,751	3,751	132	30	116	1,471	499	741
51 to 100	38,170	38,170	2,949	1,174	4,817	11,241	23,511	5,256
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	44,023	41,775	3,081	1,204	4,933	12,659	23,976	5,997
Building Shell	34,105	32,838	2,731	1,037	4,907	10,381	17,304	5,848
HVAC	43,116	41,197	3,060	1,026	4,894	12,659	23,697	5,939
Lighting	34,825	32,968	2,684	816	3,962	8,815	20,724	4,692

See footnotes at end of table.

Table 3.15. Heating Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	All Heated Buildings	Heating Equipment (more than one may apply)					
			Heat Pumps	Furnaces	Individual Space Heaters	District Heat	Boilers	Packaged-Heating Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	27,234	26,350	2,512	805	4,165	9,869	13,175	4,603
Wall Insulation	17,462	17,416	935	851	2,800	6,865	8,136	2,761
Storm or Multiple Glazing	10,260	9,556	844	527	2,810	4,366	4,204	1,963
Tinted or Reflective Glass or Shading Film	22,381	21,601	2,395	803	4,082	5,227	12,523	3,980
Exterior or Interior Shading or Awnings	24,370	24,142	2,259	894	4,405	7,330	13,447	4,161
HVAC Conservation Features (more than one may apply)								
VAV System	15,577	15,562	746	466	3,221	4,948	9,605	1,824
Economizer Cycle	26,367	26,050	2,040	654	3,750	5,461	18,047	4,160
HVAC Maintenance	43,098	41,179	3,060	1,026	4,894	12,659	23,697	5,921
Energy Management Practices (more than one may apply)								
Energy Management and Control System	18,231	16,963	1,477	507	1,634	6,515	9,045	1,712
Energy Conservation Programs ¹	24,699	24,668	2,456	722	3,373	6,866	15,566	4,294
Energy Audit	17,444	16,711	894	763	2,609	4,926	11,129	863
HVAC Maintenance Staff ²	14,570	13,679	412	510	1,923	3,981	8,573	1,504
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	19,631	19,631	1,285	481	3,076	2,449	14,670	3,697
Cooling	19,219	18,834	1,086	337	2,577	2,595	13,976	3,608
Hot Water	13,614	13,574	162	218	1,664	1,641	11,615	1,887
Lighting	21,155	20,626	1,154	558	3,201	2,839	14,778	3,685

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.16. Cooling Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
All Buildings	312	305	30	37	80	72	158	127
Building Floorspace (square feet)								
10,000 to 50,000	94	92	8	20	20	10	25	37
50,001 to 200,000	117	114	6	1	23	38	61	34
Over 200,000	101	99	16	16	37	24	72	56
Principal Building Activity								
Education	8	8	NC	NC	2	NC	4	3
Health Care	41	40	3	1	10	22	15	16
Laboratory	37	37	2	1	5	14	16	7
Lodging	13	12	1	1	3	1	5	6
Mercantile and Service	46	44	4	6	9	NC	22	20
Office	124	123	16	24	39	25	82	61
All Others	43	41	4	4	12	10	14	14
Year Constructed								
1959 or Before	142	140	19	20	61	30	69	66
1960 to 1969	70	69	6	2	5	28	31	17
1970 to 1979	47	44	3	5	9	3	30	22
1980 to 1989	38	37	2	8	4	6	21	17
1990 to 1993	15	15	NC	2	1	5	7	5
Federal Agency								
Department of Defense	22	22	2	NC	6	9	5	5
General Services Administration	83	81	12	18	29	9	69	42
United States Postal Service	57	55	6	8	13	NC	30	28
Veterans Administration	56	54	3	3	12	24	19	20
All Others	94	93	7	8	20	30	35	32
Workers (main shift)								
Less than 50	71	66	7	11	18	12	17	21
50 to 99	39	39	2	8	9	7	10	14
100 to 499	107	106	5	5	18	30	58	38
500 or More	95	94	16	13	35	23	73	54
Weekly Operating Hours								
48 or Fewer	51	49	9	11	15	8	22	23
49 to 60	76	76	5	8	23	15	47	31
61 to 167	60	59	7	12	11	8	27	23
Open Continuously	125	121	9	6	31	41	62	50
Multibuilding Facility								
Yes	176	171	10	14	40	63	74	64
No	136	134	20	23	40	9	84	63
Percent of Floorspace Cooled								
Not Cooled	13	6	NC	NC	NC	NC	NC	NC
1 to 50	30	30	2	5	16	4	11	17
51 to 100	269	269	28	32	64	68	147	110
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	309	304	30	37	80	72	158	127
Building Shell	290	285	25	34	72	71	146	117
HVAC	303	298	29	35	79	72	155	125
Lighting	210	207	19	29	60	45	120	94

See footnotes at end of table.

Table 3.16. Cooling Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling								
Insulation	240	236	21	32	61	64	117	93
Wall Insulation	117	116	9	20	29	26	58	51
Storm or Multiple Glazing	173	170	16	23	40	38	89	68
Tinted or Reflective Glass or Shading Film	158	156	12	14	32	42	84	66
Exterior or Interior Shading or Awnings	197	196	18	25	55	55	102	86
HVAC Conservation Features (more than one may apply)								
VAV System	84	82	9	8	23	23	54	40
Economizer Cycle	156	154	16	19	41	35	99	78
HVAC Maintenance	301	297	29	35	79	72	154	125
Energy Management Practices (more than one may apply)								
Energy Management and Control System	132	131	13	19	36	38	80	65
Energy Conservation Programs ¹	99	95	8	15	28	20	70	50
Energy Audit	99	97	10	14	32	17	61	43
HVAC Maintenance Staff ²	97	96	13	9	28	26	70	44
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	144	143	19	24	39	22	82	66
Cooling	145	145	19	24	42	22	83	66
Hot Water	77	77	8	11	23	7	51	35
Lighting	162	159	18	28	44	23	91	69

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.17. Cooling Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
All Buildings	243	241	29	11	50	44	122	97
Building Floorspace (square feet)								
10,000 to 50,000	107	107	10	4	19	12	31	54
50,001 to 200,000	86	85	12	5	23	16	58	21
Over 200,000	50	49	7	2	8	16	33	22
Principal Building Activity								
Education	6	6	1	NC	NC	NC	3	3
Health Care	35	35	3	2	10	16	18	15
Laboratory	29	29	NC	NC	7	5	17	7
Lodging	16	16	2	NC	5	4	4	5
Mercantile and Service	49	48	8	4	5	NC	22	31
Office	76	76	11	3	15	13	47	24
All Others	32	31	4	2	8	6	11	12
Year Constructed								
1959 or Before	103	102	15	3	30	26	47	34
1960 to 1969	38	38	6	2	11	6	27	15
1970 to 1979	34	33	5	2	6	5	22	14
1980 to 1989	57	57	3	3	2	6	22	30
1990 to 1993	11	11	NC	1	1	1	4	4
Federal Agency								
Department of Defense	22	22	1	2	3	3	8	8
General Services Administration	35	35	5	1	4	8	27	10
United States Postal Service	61	60	11	3	6	NC	29	35
Veterans Administration	36	36	4	1	10	18	16	14
All Others	89	88	8	4	27	15	42	30
Workers (main shift)								
Less than 50	70	69	12	2	17	10	19	33
50 to 99	44	44	5	2	7	3	21	16
100 to 499	80	80	5	5	15	16	48	26
500 or More	49	48	7	2	11	15	34	22
Weekly Operating Hours								
48 or Fewer	39	38	6	2	9	4	20	11
49 to 60	46	46	3	2	7	14	22	19
61 to 167	78	78	10	3	16	7	30	35
Open Continuously	80	79	10	4	18	19	50	32
Multibuilding Facility								
Yes	148	147	15	7	39	44	73	47
No	95	94	14	4	11	NC	49	50
Percent of Floorspace Cooled								
Not Cooled	3	1	NC	NC	NC	NC	NC	NC
1 to 50	26	26	1	1	13	2	4	13
51 to 100	214	214	28	10	37	42	118	84
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	242	241	29	11	50	44	122	97
Building Shell	228	227	28	11	46	40	116	93
HVAC	236	235	27	10	48	44	121	96
Lighting	136	135	19	9	23	24	72	59

See footnotes at end of table.

Table 3.17. Cooling Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	196	195	23	11	39	29	101	77
Wall Insulation	122	121	9	8	22	13	63	51
Storm or Multiple Glazing	96	96	10	8	18	20	48	43
Tinted or Reflective Glass or Shading Film	127	126	16	8	23	22	73	59
Exterior or Interior Shading or Awnings	142	141	20	9	29	25	74	65
HVAC Conservation Features (more than one may apply)								
VAV System	65	65	6	3	8	18	41	22
Economizer Cycle	123	122	13	8	26	27	67	51
HVAC Maintenance	234	233	27	9	48	43	121	95
Energy Management Practices (more than one may apply)								
Energy Management and Control System	96	95	10	6	17	31	54	37
Energy Conservation Programs ¹	48	47	7	2	6	12	23	28
Energy Audit	64	64	8	4	10	8	32	29
HVAC Maintenance Staff ²	57	57	3	1	9	13	40	21
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	123	123	18	6	17	17	53	54
Cooling	124	124	17	6	17	18	54	54
Hot Water	33	33	2	3	1	8	17	14
Lighting	120	120	13	5	20	17	56	53

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.
² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.
 NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.18. Cooling Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					Central Chillers	Packaged-Air-Conditioning Units
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water			
All Buildings	326	292	24	32	52	31	139	151	
Building Floorspace (square feet)									
10,000 to 50,000	148	126	17	15	25	7	40	59	
50,001 to 200,000	123	114	5	15	18	15	61	63	
Over 200,000	55	52	2	2	9	9	38	29	
Principal Building Activity									
Education	12	8	NC	1	NC	NC	2	3	
Health Care	48	45	3	2	9	17	15	22	
Laboratory	31	29	3	7	5	1	24	17	
Lodging	22	16	1	1	4	5	3	5	
Mercantile and Service	63	60	7	8	11	1	30	30	
Office	92	88	8	9	16	5	45	54	
All Others	58	46	2	4	7	2	20	20	
Year Constructed									
1959 or Before	130	112	10	14	35	12	49	55	
1960 to 1969	55	50	3	5	9	2	32	29	
1970 to 1979	62	58	5	5	7	5	28	35	
1980 to 1989	65	59	4	5	1	11	27	25	
1990 to 1993	14	13	2	3	NC	1	3	7	
Federal Agency									
Department of Defense	78	64	6	4	18	6	25	22	
General Services Administration	39	38	2	NC	7	NC	26	25	
United States Postal Service	63	62	8	7	7	2	29	32	
Veterans Administration	56	51	3	3	10	18	12	26	
All Others	90	77	5	18	10	5	47	46	
Workers (main shift)									
Less than 50	93	70	9	7	16	5	17	24	
50 to 99	49	47	6	6	4	1	21	30	
100 to 499	134	128	7	17	25	17	62	69	
500 or More	50	47	2	2	7	8	39	28	
Weekly Operating Hours									
48 or Fewer	80	68	6	5	16	4	26	38	
49 to 60	65	61	3	5	14	4	36	37	
61 to 167	68	61	8	7	7	2	26	30	
Open Continuously	113	102	7	15	15	21	51	46	
Multibuilding Facility									
Yes	200	171	14	24	34	30	73	85	
No	126	121	10	8	18	1	66	66	
Percent of Floorspace Cooled									
Not Cooled	40	6	NC	NC	NC	NC	NC	NC	
1 to 50	55	55	6	5	27	3	15	25	
51 to 100	231	231	18	27	25	28	124	126	
Energy Conservation Features (more than one may apply)									
Any Conservation Feature	319	291	24	32	52	31	139	151	
Building Shell	248	228	21	26	38	27	106	120	
HVAC	307	282	22	32	49	31	136	147	
Lighting	217	205	15	25	32	21	114	121	

See footnotes at end of table.

Table 3.18. Cooling Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	185	169	16	22	23	22	84	85
Wall Insulation	113	105	9	14	13	17	50	49
Storm or Multiple Glazing	57	55	6	10	7	14	26	31
Tinted or Reflective Glass or Shading Film	133	130	10	19	19	19	63	76
Exterior or Interior Shading or Awnings	164	152	15	20	24	22	72	85
HVAC Conservation Features (more than one may apply)								
VAV System	75	74	5	6	7	12	52	43
Economizer Cycle	140	135	9	12	17	11	86	79
HVAC Maintenance	306	281	22	32	49	31	135	146
Energy Management Practices (more than one may apply)								
Energy Management and Control System	71	71	4	11	7	13	51	34
Energy Conservation Programs ¹	124	115	9	16	18	15	68	65
Energy Audit	99	92	10	11	13	12	47	44
HVAC Maintenance Staff ²	52	50	3	3	4	10	25	27
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	151	141	9	13	22	4	73	86
Cooling	157	157	13	12	29	3	74	88
Hot Water	68	64	3	1	9	NC	35	50
Lighting	172	158	15	15	32	6	73	87

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.19. Cooling Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
All Buildings	94,880	93,454	19,073	11,388	28,082	28,194	63,914	56,664
Building Floorspace (square feet)								
10,000 to 50,000	2,564	2,512	222	514	561	320	750	1,005
50,001 to 200,000	13,166	12,771	691	60	2,589	4,169	7,591	4,096
Over 200,000	79,149	78,171	18,161	10,814	24,932	23,706	55,573	51,562
Principal Building Activity								
Education	598	598	NC	NC	258	NC	210	317
Health Care	14,559	14,450	1,702	60	4,115	7,721	7,471	9,246
Laboratory	5,165	5,165	569	20	501	2,081	2,873	506
Lodging	2,558	2,529	36	31	442	66	816	541
Mercantile and Service	7,966	7,224	1,311	124	2,482	NC	5,759	4,086
Office	56,881	56,794	15,310	11,053	19,255	17,649	41,892	37,522
All Others	7,152	6,693	145	101	1,029	677	4,893	4,446
Year Constructed								
1959 or Before	43,829	43,462	15,136	5,577	19,969	16,274	26,489	30,974
1960 to 1969	19,564	19,477	1,286	2,182	1,608	5,296	13,536	6,958
1970 to 1979	17,737	16,966	1,652	3,102	3,857	3,593	13,559	11,450
1980 to 1989	8,975	8,775	999	458	1,011	1,787	6,735	4,831
1990 to 1993	4,774	4,774	NC	70	1,638	1,243	3,595	2,451
Federal Agency								
Department of Defense	13,988	13,988	6,836	NC	390	11,568	454	9,681
General Services Administration	46,205	45,859	8,083	9,904	15,376	8,147	41,067	27,650
United States Postal Service	9,392	8,650	1,488	1,174	4,030	NC	7,635	6,126
Veterans Administration	13,306	12,998	1,702	98	4,166	4,896	8,243	7,196
All Others	11,989	11,960	965	212	4,119	3,582	6,515	6,011
Workers (main shift)								
Less than 50	4,102	3,419	198	685	918	685	1,132	1,200
50 to 99	1,903	1,903	163	229	533	421	399	755
100 to 499	13,632	13,608	552	1,299	2,527	4,132	7,825	5,116
500 or More	75,243	74,524	18,161	9,176	24,104	22,956	54,558	49,592
Weekly Operating Hours								
48 or Fewer	9,694	9,499	3,943	3,732	3,561	1,164	6,286	7,577
49 to 60	25,540	25,540	2,461	3,575	9,528	7,076	20,682	14,457
61 to 167	11,993	11,969	2,377	2,901	3,956	938	10,252	6,419
Open Continuously	47,653	46,446	10,293	1,181	11,037	19,016	26,695	28,210
Multibuilding Facility								
Yes	43,861	42,718	6,223	7,434	12,523	18,875	24,994	22,887
No	51,018	50,736	12,851	3,954	15,559	9,319	38,921	33,777
Percent of Floorspace Cooled								
Not Cooled	3,582	2,156	NC	NC	NC	NC	NC	NC
1 to 50	9,874	9,874	78	1,439	5,230	5,301	5,180	9,078
51 to 100	81,424	81,424	18,995	9,949	22,852	22,893	58,734	47,586
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	94,361	93,394	19,073	11,388	28,082	28,194	63,914	56,664
Building Shell	84,557	83,590	16,160	9,517	25,938	28,046	56,118	51,507
HVAC	93,543	92,576	19,060	10,951	28,023	28,194	63,281	56,075
Lighting	80,953	80,039	16,883	11,170	23,933	23,915	57,368	51,246

See footnotes at end of table.

Table 3.19. Cooling Equipment in FBSS Buildings in Federal Region 3, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	69,654	68,795	14,632	8,197	20,569	25,244	43,797	41,467
Wall Insulation	31,876	31,847	4,645	6,557	9,348	10,104	22,676	19,876
Storm or Multiple Glazing	46,141	45,290	12,502	3,343	11,165	18,464	26,086	28,265
Tinted or Reflective Glass or Shading Film	46,829	46,086	6,349	5,287	14,276	12,692	34,311	27,592
Exterior or Interior Shading or Awnings	57,183	57,096	7,591	7,971	21,603	17,691	41,124	36,029
HVAC Conservation Features (more than one may apply)								
VAV System	37,611	36,783	4,320	2,670	14,118	12,225	28,104	22,157
Economizer Cycle	61,089	60,894	14,646	7,007	20,911	17,239	45,863	42,016
HVAC Maintenance	93,402	92,522	19,060	10,951	28,023	28,194	63,227	56,075
Energy Management Practices (more than one may apply)								
Energy Management and Control System	61,891	61,172	14,532	8,283	16,973	19,658	42,987	40,812
Energy Conservation Programs ¹	59,284	58,313	12,578	6,734	16,389	17,670	43,140	42,232
Energy Audit	37,621	37,392	9,461	7,113	13,066	12,419	25,333	26,167
HVAC Maintenance Staff ²	52,924	52,665	15,674	7,283	16,626	17,815	37,532	34,415
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	43,828	43,805	8,494	10,009	15,847	8,444	35,648	27,091
Cooling	43,757	43,757	8,415	9,798	15,843	8,444	35,589	27,036
Hot Water	26,018	26,018	5,189	5,917	8,884	4,751	19,722	14,679
Lighting	44,717	44,498	8,568	10,126	16,674	7,915	36,596	28,068

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.20. Cooling Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
All Buildings	35,816	35,273	4,706	1,549	6,950	10,856	21,596	14,104
Building Floorspace (square feet)								
10,000 to 50,000	2,591	2,591	177	95	484	306	909	1,268
50,001 to 200,000	9,548	9,466	1,213	604	3,013	1,791	6,696	2,399
Over 200,000	23,677	23,216	3,316	850	3,453	8,760	13,990	10,437
Principal Building Activity								
Education	168	168	28	NC	NC	NC	96	63
Health Care	12,094	12,094	414	277	2,552	6,789	5,520	5,111
Laboratory	3,331	3,331	NC	NC	351	909	1,625	562
Lodging	942	942	149	NC	385	168	447	271
Mercantile and Service	6,236	5,776	2,025	926	1,281	NC	4,942	3,189
Office	10,799	10,799	1,936	216	1,652	2,586	7,897	4,325
All Others	2,247	2,165	155	130	729	404	1,069	583
Year Constructed								
1959 or Before	13,258	13,176	1,049	199	4,516	4,028	8,341	5,200
1960 to 1969	6,386	6,386	2,558	679	1,581	1,211	5,037	3,503
1970 to 1979	6,175	5,714	1,035	435	786	1,355	3,366	2,601
1980 to 1989	6,903	6,903	64	211	24	1,562	4,602	2,692
1990 to 1993	3,095	3,095	NC	25	42	2,700	250	109
Federal Agency								
Department of Defense	1,668	1,668	24	88	68	106	604	872
General Services Administration	7,888	7,888	1,700	162	731	1,902	6,132	3,235
United States Postal Service	7,027	6,566	2,156	863	1,382	NC	5,695	3,468
Veterans Administration	11,375	11,375	409	142	2,539	6,788	5,327	4,422
All Others	7,858	7,776	418	294	2,230	2,061	3,839	2,107
Workers (main shift)								
Less than 50	2,548	2,466	477	170	775	363	1,137	847
50 to 99	2,026	2,026	333	42	339	144	1,216	549
100 to 499	9,029	9,029	581	487	1,977	2,153	5,557	2,399
500 or More	22,213	21,752	3,316	850	3,858	8,197	13,686	10,310
Weekly Operating Hours								
48 or Fewer	2,740	2,658	386	304	628	269	1,959	379
49 to 60	6,460	6,460	330	57	732	3,048	3,169	1,720
61 to 167	8,051	8,051	1,562	101	1,646	1,320	4,724	3,406
Open Continuously	18,565	18,104	2,429	1,087	3,944	6,218	11,744	8,599
Multibuilding Facility								
Yes	24,441	24,359	2,654	832	4,997	10,856	12,575	7,066
No	11,375	10,915	2,052	717	1,952	NC	9,021	7,038
Percent of Floorspace Cooled								
Not Cooled	554	11	NC	NC	NC	NC	NC	NC
1 to 50	1,951	1,951	24	63	888	454	425	1,108
51 to 100	33,312	33,312	4,683	1,486	6,061	10,402	21,171	12,996
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	35,734	35,273	4,706	1,549	6,950	10,856	21,596	14,104
Building Shell	33,946	33,485	4,579	1,549	6,405	10,258	20,632	13,783
HVAC	35,425	34,965	4,595	1,524	6,919	10,856	21,454	14,094
Lighting	25,654	25,193	4,166	1,507	3,509	9,134	14,852	10,742

See footnotes at end of table.

Table 3.20. Cooling Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	28,249	27,789	3,715	1,549	4,623	8,150	17,119	10,265
Wall Insulation	20,550	20,089	1,922	1,046	1,632	5,793	11,673	7,286
Storm or Multiple Glazing	17,939	17,939	960	858	2,937	7,518	9,559	7,045
Tinted or Reflective Glass or Shading Film	24,768	24,307	4,010	1,350	3,972	8,554	14,981	10,341
Exterior or Interior Shading or Awnings	26,067	25,606	3,685	1,019	5,014	8,430	15,968	11,876
HVAC Conservation Features (more than one may apply)								
VAV System	18,518	18,518	1,443	305	2,105	6,902	10,897	7,170
Economizer Cycle	23,542	23,081	2,507	994	4,263	8,463	13,305	10,331
HVAC Maintenance	35,341	34,880	4,595	1,461	6,919	10,834	21,454	14,031
Energy Management Practices (more than one may apply)								
Energy Management and Control System	23,099	22,638	2,379	829	4,000	9,349	13,285	9,541
Energy Conservation Programs ¹	13,513	13,052	2,207	88	1,009	5,258	7,116	6,929
Energy Audit	11,690	11,690	1,630	618	1,946	2,347	8,219	6,103
HVAC Maintenance Staff ²	15,538	15,538	673	162	2,121	5,840	9,365	6,418
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	13,162	13,162	2,260	449	1,868	3,760	7,813	4,832
Cooling	13,864	13,864	2,237	449	1,868	4,163	8,135	4,832
Hot Water	4,554	4,554	180	117	190	1,668	2,659	1,764
Lighting	12,847	12,847	2,115	405	1,998	3,185	8,199	4,940

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.21. Cooling Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
All Buildings	44,316	41,907	1,900	2,724	5,723	7,647	27,723	23,989
Building Floorspace (square feet)								
10,000 to 50,000	3,858	3,277	387	371	607	244	1,084	1,622
50,001 to 200,000	12,680	11,875	674	1,615	1,884	1,641	6,933	6,530
Over 200,000	27,778	26,754	839	738	3,232	5,763	19,706	15,837
Principal Building Activity								
Education	628	488	NC	38	NC	NC	128	205
Health Care	9,903	9,711	249	208	650	4,898	4,137	5,080
Laboratory	2,601	2,570	243	657	677	198	2,240	1,689
Lodging	1,220	982	15	59	79	165	310	208
Mercantile and Service	8,194	8,079	587	1,140	1,524	466	6,663	4,637
Office	16,380	15,551	417	464	2,466	448	12,001	10,923
All Others	5,390	4,526	388	159	326	1,472	2,245	1,246
Year Constructed								
1959 or Before	13,553	12,111	1,002	1,210	2,910	2,601	6,210	5,923
1960 to 1969	9,082	8,892	43	574	1,901	445	6,874	5,839
1970 to 1979	12,041	11,601	285	603	898	1,585	9,075	7,645
1980 to 1989	7,955	7,761	92	290	14	2,551	4,892	3,758
1990 to 1993	1,684	1,541	478	46	NC	466	672	823
Federal Agency								
Department of Defense	8,489	7,225	515	161	1,222	3,069	2,706	1,382
General Services Administration	12,505	12,146	202	NC	1,457	NC	10,369	8,924
United States Postal Service	8,387	8,375	615	1,089	1,452	626	6,693	4,763
Veterans Administration	8,824	8,469	289	266	772	3,504	3,815	5,078
All Others	6,111	5,691	280	1,207	821	448	4,140	3,843
Workers (main shift)								
Less than 50	3,684	2,830	170	112	732	165	492	1,025
50 to 99	2,161	2,032	171	409	205	76	1,050	1,396
100 to 499	14,017	13,382	720	1,667	2,633	2,026	7,527	6,942
500 or More	24,454	23,663	839	536	2,153	5,380	18,654	14,625
Weekly Operating Hours								
48 or Fewer	4,822	4,322	171	721	1,185	372	1,813	2,524
49 to 60	13,424	12,875	589	412	1,683	742	10,962	9,267
61 to 167	5,706	5,264	210	306	1,378	172	3,394	2,388
Open Continuously	20,364	19,446	930	1,285	1,477	6,361	11,554	9,810
Multibuilding Facility								
Yes	26,821	24,882	1,673	1,696	2,956	7,487	14,574	13,236
No	17,495	17,025	227	1,028	2,767	160	13,149	10,753
Percent of Floorspace Cooled								
Not Cooled	2,956	547	NC	NC	NC	NC	NC	NC
1 to 50	7,304	7,304	531	412	2,253	1,436	3,430	3,059
51 to 100	34,056	34,056	1,369	2,312	3,471	6,212	24,293	20,930
Energy Conservation Features (more than one may apply)								
Any Conservation Feature	44,023	41,894	1,900	2,724	5,723	7,647	27,723	23,989
Building Shell	34,105	32,754	1,670	2,320	4,149	7,342	20,592	18,416
HVAC	43,116	41,282	1,847	2,724	5,520	7,647	27,301	23,777
Lighting	34,825	33,846	1,693	2,439	4,449	5,559	24,098	20,584

See footnotes at end of table.

Table 3.21. Cooling Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	All Cooled Buildings	Cooling Equipment (more than one may apply)					
			Residential-Type Central Air Conditioners	Heat Pumps	Individual Air Conditioners	District Chilled Water	Central Chillers	Packaged-Air-Conditioning Units
Building Shell Conservation Features (more than one may apply)								
Roof or Ceiling Insulation	27,234	26,314	1,519	1,969	2,868	6,977	17,294	13,549
Wall Insulation	17,462	16,882	789	1,122	1,795	5,613	10,215	8,362
Storm or Multiple Glazing	10,260	10,213	863	413	943	4,513	5,617	5,754
Tinted or Reflective Glass or Shading Film	22,381	22,267	1,012	2,071	3,297	5,562	14,117	12,304
Exterior or Interior Shading or Awnings	24,370	23,549	1,466	1,898	2,499	6,065	14,874	14,363
HVAC Conservation Features (more than one may apply)								
VAV System	15,577	15,217	778	215	1,171	3,893	11,054	9,085
Economizer Cycle	26,367	25,751	1,221	1,678	2,927	1,598	21,105	15,872
HVAC Maintenance	43,098	41,264	1,847	2,724	5,520	7,647	27,284	23,759
Energy Management Practices (more than one may apply)								
Energy Management and Control System	18,231	18,231	1,013	1,433	1,620	5,146	13,372	8,856
Energy Conservation Programs ¹	24,699	24,044	1,118	1,823	2,404	5,465	16,944	14,389
Energy Audit	17,444	17,169	886	863	1,684	3,138	12,296	10,548
HVAC Maintenance Staff ²	14,570	14,403	677	412	726	4,034	9,296	9,034
Off-Hours Reduction in Equipment (more than one may apply)								
Heating	19,631	18,976	434	1,102	3,039	478	14,609	13,018
Cooling	19,219	19,219	329	904	2,915	279	14,276	12,614
Hot Water	13,614	13,163	103	107	1,239	NC	10,607	10,594
Lighting	21,155	20,247	756	1,179	3,391	860	14,872	13,192

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.
² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.
 NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.22. Refrigeration Equipment in FBSS Buildings in Federal Region 3, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings				Total Floorspace (thousand square feet)			
	All Buildings	Any Refrigeration Equipment	Walk-in	Cases and Cabinets	All Buildings	Any Refrigeration Equipment	Walk-in	Cases and Cabinets
All Buildings	312	109	78	87	94,880	61,731	54,223	53,454
Building Floorspace (square feet)								
10,000 to 50,000	94	21	12	14	2,564	611	393	446
50,001 to 200,000	117	25	15	20	13,166	3,269	2,137	2,499
Over 200,000	101	63	51	53	79,149	57,851	51,693	50,509
Principal Building Activity								
Education	8	3	2	3	598	333	296	333
Health Care	41	20	18	16	14,559	12,538	12,365	11,551
Laboratory	37	13	12	10	5,165	1,612	1,560	1,340
Lodging	13	6	4	4	2,558	545	492	492
Mercantile and Service	46	13	4	8	7,966	5,406	2,723	2,727
Office	124	45	33	38	56,881	38,733	34,471	34,464
All Others	43	9	5	8	7,152	2,563	2,316	2,547
Year Constructed								
1959 or Before	142	52	42	40	43,829	29,060	26,998	24,902
1960 to 1969	70	17	13	15	19,564	11,392	10,715	10,916
1970 to 1979	47	18	10	13	17,737	11,923	9,426	9,355
1980 to 1989	38	17	10	14	8,975	6,503	4,908	5,429
1990 to 1993	15	5	3	5	4,774	2,852	2,176	2,852
Federal Agency								
Department of Defense	22	12	8	10	13,988	11,914	11,729	10,698
General Services Administration ...	83	36	26	32	46,205	29,362	25,234	26,480
United States Postal Service	57	15	6	9	9,392	6,596	3,913	3,757
Veterans Administration	56	20	19	16	13,306	9,510	9,402	8,523
All Others	94	26	19	20	11,989	4,348	3,945	3,995
Workers (main shift)								
Less than 50	71	13	6	7	4,102	436	195	298
50 to 99	39	10	7	9	1,903	602	472	576
100 to 499	107	26	20	21	13,632	4,120	3,582	3,291
500 or More	95	60	45	50	75,243	56,572	49,974	49,289
Weekly Operating Hours								
48 or Fewer	51	15	8	12	9,694	3,253	2,424	3,186
49 to 60	76	26	19	20	25,540	16,534	14,755	13,772
61 to 167	60	12	6	10	11,993	5,103	4,581	5,068
Open Continuously	125	56	45	45	47,653	36,841	32,463	31,428
Multibuilding Facility								
Yes	176	62	50	48	43,861	25,949	23,440	21,708
No	136	47	28	39	51,018	35,782	30,783	31,745
Energy Management Practices (more than one may apply)								
Energy Management and Control System	132	62	45	53	61,891	45,906	39,610	40,299
Energy Conservation Programs ¹	99	45	34	38	59,284	42,794	39,087	39,676
Energy Audit	99	37	30	32	37,621	25,972	24,329	23,964
HVAC Maintenance Staff ²	97	45	37	38	52,924	36,640	33,334	31,884

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.23. Refrigeration Equipment in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings				Total Floorspace (thousand square feet)			
	All Buildings	Any Refrigeration Equipment	Walk-in	Cases and Cabinets	All Buildings	Any Refrigeration Equipment	Walk-in	Cases and Cabinets
All Buildings	243	70	40	44	35,816	17,917	12,381	14,125
Building Floorspace (square feet)								
10,000 to 50,000	107	18	9	10	2,591	541	297	309
50,001 to 200,000	86	28	18	15	9,548	3,104	1,993	1,512
Over 200,000	50	24	13	19	23,677	14,273	10,091	12,304
Principal Building Activity								
Education	6	2	1	1	168	73	55	55
Health Care	35	21	17	20	12,094	11,045	10,026	10,870
Laboratory	29	14	6	3	3,331	1,460	489	134
Lodging	16	5	4	2	942	495	432	212
Mercantile and Service	49	7	NC	4	6,236	1,990	NC	1,309
Office	76	12	5	8	10,799	2,255	827	1,200
All Others	32	9	7	6	2,247	599	552	345
Year Constructed								
1959 or Before	103	30	19	20	13,258	5,477	4,539	4,537
1960 to 1969	38	12	6	7	6,386	2,183	898	1,099
1970 to 1979	34	12	6	8	6,175	3,463	1,790	2,703
1980 to 1989	57	14	7	7	6,903	4,071	2,431	3,064
1990 to 1993	11	2	2	2	3,095	2,723	2,723	2,723
Federal Agency								
Department of Defense	22	7	3	6	1,668	951	835	936
General Services Administration	35	4	2	2	7,888	1,651	614	757
United States Postal Service	61	8	NC	5	7,027	2,261	NC	1,580
Veterans Administration	36	21	15	18	11,375	10,288	9,169	9,905
All Others	89	30	20	13	7,858	2,767	1,763	948
Workers (main shift)								
Less than 50	70	12	6	5	2,548	597	314	252
50 to 99	44	11	7	6	2,026	703	520	283
100 to 499	80	23	13	13	9,029	2,639	1,428	1,156
500 or More	49	24	14	20	22,213	13,979	10,119	12,434
Weekly Operating Hours								
48 or Fewer	39	10	7	7	2,740	825	614	487
49 to 60	46	13	4	6	6,460	2,131	1,206	1,659
61 to 167	78	11	4	3	8,051	1,471	211	83
Open Continuously	80	36	25	28	18,565	13,491	10,350	11,897
Multibuilding Facility								
Yes	148	52	30	31	24,441	12,886	8,881	9,701
No	95	18	10	13	11,375	5,031	3,499	4,424
Energy Management Practices (more than one may apply)								
Energy Management and Control System	96	43	23	29	23,099	15,512	10,672	12,539
Energy Conservation Programs ¹	48	23	12	18	13,513	10,486	7,573	8,774
Energy Audit	64	14	10	9	11,690	5,304	3,849	3,958
HVAC Maintenance Staff ²	57	15	13	13	15,538	7,950	7,464	7,804

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.
² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.
 NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.24. Refrigeration Equipment in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings				Total Floorspace (thousand square feet)			
	All Buildings	Any Refrigeration Equipment	Walk-in	Cases and Cabinets	All Buildings	Any Refrigeration Equipment	Walk-in	Cases and Cabinets
All Buildings	326	63	44	50	44,316	18,781	12,536	14,928
Building Floorspace (square feet)								
10,000 to 50,000	148	14	11	12	3,858	336	237	299
50,001 to 200,000	123	22	17	19	12,680	2,380	1,883	2,188
Over 200,000	55	27	16	19	27,778	16,065	10,416	12,441
Principal Building Activity								
Education	12	2	2	2	628	94	94	94
Health Care	48	18	15	15	9,903	7,062	6,811	6,349
Laboratory	31	4	4	4	2,601	325	325	325
Lodging	22	4	4	3	1,220	131	131	72
Mercantile and Service	63	11	6	8	8,194	3,921	2,372	2,793
Office	92	11	3	9	16,380	4,880	1,919	4,435
All Others	58	13	10	9	5,390	2,368	885	860
Year Constructed								
1959 or Before	130	19	14	15	13,553	3,577	1,552	1,725
1960 to 1969	55	13	8	11	9,082	3,410	2,083	3,018
1970 to 1979	62	14	12	12	12,041	6,298	4,796	5,904
1980 to 1989	65	14	9	11	7,955	4,647	3,788	3,963
1990 to 1993	14	3	1	1	1,684	848	(*)	(*)
Federal Agency								
Department of Defense	78	12	7	9	8,489	3,726	1,758	2,187
General Services Administration	39	8	3	7	12,505	4,332	1,867	3,955
United States Postal Service	63	9	4	6	8,387	3,785	2,236	2,657
Veterans Administration	56	17	15	13	8,824	5,394	5,228	4,823
All Others	90	17	15	15	6,111	1,544	1,448	1,507
Workers (main shift)								
Less than 50	93	10	10	8	3,684	234	234	197
50 to 99	49	2	1	2	2,161	66	54	66
100 to 499	134	24	16	20	14,017	3,029	2,054	2,525
500 or More	50	27	17	20	24,454	15,451	10,194	12,140
Weekly Operating Hours								
48 or Fewer	80	8	4	6	4,822	762	208	629
49 to 60	65	13	6	12	13,424	4,675	1,785	4,302
61 to 167	68	6	4	5	5,706	1,091	672	714
Open Continuously	113	36	30	27	20,364	12,253	9,871	9,282
Multibuilding Facility								
Yes	200	43	33	33	26,821	13,420	10,412	9,956
No	126	20	11	17	17,495	5,361	2,125	4,972
Energy Management Practices (more than one may apply)								
Energy Management and Control System	71	25	14	17	18,231	12,657	8,327	9,589
Energy Conservation Programs ¹	124	34	22	29	24,699	12,274	7,606	9,921
Energy Audit	99	26	17	23	17,444	9,337	6,259	7,420
HVAC Maintenance Staff ²	52	20	14	14	14,570	8,294	6,029	6,417

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.25. Water-Heating Equipment in FBSS Buildings in Federal Region 3, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings				Total Floorspace (thousand square feet)			
	All Buildings	All Buildings With Water Heating	Centralized System	Distributed System	All Buildings	All Buildings With Water Heating	Centralized System	Distributed System
All Buildings	312	303	223	71	94,880	93,138	63,477	24,696
Building Floorspace (square feet)								
10,000 to 50,000	94	92	65	24	2,564	2,525	1,860	595
50,001 to 200,000	117	113	89	21	13,166	12,671	10,005	2,343
Over 200,000	101	98	69	26	79,149	77,942	51,612	21,758
Principal Building Activity								
Education	8	8	5	3	598	598	423	176
Health Care	41	40	34	5	14,559	14,450	10,417	1,461
Laboratory	37	37	31	4	5,165	5,165	4,693	423
Lodging	13	13	8	5	2,558	2,558	965	1,593
Mercantile and Service	46	45	28	17	7,966	7,953	3,284	4,669
Office	124	121	93	23	56,881	56,125	41,602	12,240
All Others	43	39	24	14	7,152	6,288	2,094	4,134
Year Constructed								
1959 or Before	142	137	104	30	43,829	42,768	30,877	10,668
1960 to 1969	70	69	55	11	19,564	19,477	15,849	3,494
1970 to 1979	47	47	32	12	17,737	17,737	8,172	5,957
1980 to 1989	38	37	25	12	8,975	8,775	5,254	3,521
1990 to 1993	15	13	7	6	4,774	4,381	3,325	1,056
Federal Agency								
Department of Defense	22	21	15	4	13,988	13,888	8,525	2,730
General Services Administration ...	83	80	61	16	46,205	45,290	30,838	12,352
United States Postal Service	57	56	36	19	9,392	9,379	4,947	4,269
Veterans Administration	56	53	43	10	13,306	12,618	10,520	2,098
All Others	94	93	68	22	11,989	11,963	8,647	3,247
Workers (main shift)								
Less than 50	71	64	44	18	4,102	3,029	2,276	704
50 to 99	39	39	32	6	1,903	1,903	1,688	195
100 to 499	107	107	84	20	13,632	13,632	10,527	2,782
500 or More	95	93	63	27	75,243	74,574	48,986	21,016
Weekly Operating Hours								
48 or Fewer	51	49	30	15	9,694	9,499	5,026	4,115
49 to 60	76	74	61	11	25,540	24,871	18,837	5,999
61 to 167	60	58	44	14	11,993	11,954	9,788	2,165
Open Continuously	125	122	88	31	47,653	46,814	29,825	12,417
Multibuilding Facility								
Yes	176	171	122	41	43,861	42,986	24,249	13,935
No	136	132	101	30	51,018	50,152	39,228	10,761

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals. Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.26. Water-Heating Equipment in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings				Total Floorspace (thousand square feet)			
	All Buildings	All Buildings With Water Heating	Centralized System	Distributed System	All Buildings	All Buildings With Water Heating	Centralized System	Distributed System
All Buildings	243	238	163	71	35,816	35,221	23,206	11,827
Building Floorspace (square feet)								
10,000 to 50,000	107	104	70	31	2,591	2,539	1,675	811
50,001 to 200,000	86	85	68	16	9,548	9,466	7,426	1,905
Over 200,000	50	49	25	24	23,677	23,216	14,105	9,111
Principal Building Activity								
Education	6	6	5	1	168	168	143	25
Health Care	35	35	27	6	12,094	12,094	10,341	1,607
Laboratory	29	29	18	11	3,331	3,331	2,211	1,120
Lodging	16	16	15	1	942	942	815	127
Mercantile and Service	49	47	21	25	6,236	5,763	1,528	4,210
Office	76	75	58	16	10,799	10,779	6,697	4,064
All Others	32	30	19	11	2,247	2,146	1,472	674
Year Constructed								
1959 or Before	103	102	75	26	13,258	13,176	8,536	4,622
1960 to 1969	38	37	26	11	6,386	6,367	3,770	2,597
1970 to 1979	34	32	22	10	6,175	5,694	3,153	2,540
1980 to 1989	57	56	36	19	6,903	6,890	4,855	1,900
1990 to 1993	11	11	4	5	3,095	3,095	2,892	167
Federal Agency								
Department of Defense	22	21	18	3	1,668	1,648	928	721
General Services Administration ...	35	35	26	9	7,888	7,888	4,821	3,067
United States Postal Service	61	59	32	26	7,027	6,553	2,077	4,451
Veterans Administration	36	36	27	8	11,375	11,375	10,349	1,014
All Others	89	87	60	25	7,858	7,757	5,031	2,574
Workers (main shift)								
Less than 50	70	67	50	16	2,548	2,427	1,748	662
50 to 99	44	43	25	17	2,026	2,013	1,278	710
100 to 499	80	80	62	16	9,029	9,029	6,462	2,421
500 or More	49	48	26	22	22,213	21,752	13,718	8,034
Weekly Operating Hours								
48 or Fewer	39	37	29	8	2,740	2,639	2,181	457
49 to 60	46	45	35	10	6,460	6,440	3,966	2,473
61 to 167	78	77	45	30	8,051	8,038	5,458	2,538
Open Continuously	80	79	54	23	18,565	18,104	11,600	6,358
Multibuilding Facility								
Yes	148	146	98	45	24,441	24,339	16,457	7,719
No	95	92	65	26	11,375	10,881	6,749	4,108

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals. Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.27. Water-Heating Equipment in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings				Total Floorspace (thousand square feet)			
	All Buildings	All Buildings With Water Heating	Centralized System	Distributed System	All Buildings	All Buildings With Water Heating	Centralized System	Distributed System
All Buildings	326	315	225	80	44,316	42,984	31,069	10,750
Building Floorspace (square feet)								
10,000 to 50,000	148	142	101	37	3,858	3,728	2,612	1,044
50,001 to 200,000	123	120	87	29	12,680	12,325	8,929	3,024
Over 200,000	55	53	37	14	27,778	26,931	19,528	6,681
Principal Building Activity								
Education	12	12	11	1	628	628	590	38
Health Care	48	47	41	4	9,903	9,888	8,985	732
Laboratory	31	30	23	7	2,601	2,582	1,612	970
Lodging	22	22	17	5	1,220	1,220	988	232
Mercantile and Service	63	60	34	22	8,194	7,562	3,947	3,081
Office	92	90	64	26	16,380	16,329	12,672	3,657
All Others	58	54	35	15	5,390	4,775	2,275	2,040
Year Constructed								
1959 or Before	130	125	83	38	13,553	13,321	7,763	5,050
1960 to 1969	55	55	45	10	9,082	9,082	6,873	2,210
1970 to 1979	62	61	44	14	12,041	11,736	9,014	2,323
1980 to 1989	65	61	43	16	7,955	7,303	5,963	1,140
1990 to 1993	14	13	10	2	1,684	1,541	1,457	26
Federal Agency								
Department of Defense	78	73	49	22	8,489	7,928	4,447	2,995
General Services Administration	39	39	34	5	12,505	12,505	10,625	1,880
United States Postal Service	63	60	35	22	8,387	7,813	4,266	3,126
Veterans Administration	56	55	48	5	8,824	8,681	7,729	780
All Others	90	88	59	26	6,111	6,057	4,002	1,968
Workers (main shift)								
Less than 50	93	87	64	20	3,684	3,319	2,219	1,014
50 to 99	49	48	34	14	2,161	2,150	1,477	674
100 to 499	134	131	92	34	14,017	13,603	9,812	3,434
500 or More	50	49	35	12	24,454	23,912	17,561	5,629
Weekly Operating Hours								
48 or Fewer	80	76	48	27	4,822	4,611	2,520	2,080
49 to 60	65	64	51	11	13,424	13,344	10,505	2,353
61 to 167	68	65	46	14	5,706	5,369	3,717	1,344
Open Continuously	113	110	80	28	20,364	19,660	14,327	4,972
Multibuilding Facility								
Yes	200	192	146	40	26,821	26,063	20,291	5,039
No	126	123	79	40	17,495	16,921	10,778	5,711

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.28. Lighting Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
All Buildings	312	184	300	80	111	135
Building Floorspace (square feet)						
10,000 to 50,000	94	49	91	12	16	22
50,001 to 200,000	117	69	112	19	42	44
Over 200,000	101	66	97	49	53	69
Principal Building Activity						
Education	8	7	8	2	NC	NC
Health Care	41	28	40	9	10	24
Laboratory	37	30	36	2	13	11
Lodging	13	9	12	1	1	4
Mercantile and Service	46	18	44	7	25	9
Office	124	72	121	52	44	77
All Others	43	20	39	7	18	10
Year Constructed						
1959 or Before	142	94	133	34	37	64
1960 to 1969	70	49	68	18	26	31
1970 to 1979	47	19	47	15	25	19
1980 to 1989	38	17	37	10	18	14
1990 to 1993	15	5	15	3	5	7
Federal Agency						
Department of Defense	22	15	21	4	4	6
General Services Administration ...	83	44	80	44	32	57
United States Postal Service	57	23	54	7	33	10
Veterans Administration	56	37	54	9	10	29
All Others	94	65	91	16	32	33
Workers (main shift)						
Less than 50	71	36	67	6	14	13
50 to 99	39	23	37	5	8	8
100 to 499	107	65	104	24	36	47
500 or More	95	60	92	45	53	67
Weekly Operating Hours						
48 or Fewer	51	28	51	8	9	18
49 to 60	76	45	73	27	27	47
61 to 167	60	30	57	21	25	21
Open Continuously	125	81	119	24	50	49
Percent Window Glass						
50 or Less	269	163	258	64	100	113
51 to 100	42	20	41	15	10	22
Don't Know	1	1	1	1	1	NC
Multibuilding Facility						
Yes	176	109	171	35	59	73
No	136	75	129	45	52	62
Percent Lit When Open						
1 to 50	11	5	10	3	NC	3
51 to 100	300	179	290	77	111	132
No Operating Hours	1	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC

See footnotes at end of table.

Table 3.28. Lighting Equipment in FBSS Buildings in Federal Region 3, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
Percent Lit When Closed						
Not Lit	39	18	37	6	12	10
1 to 50	194	113	189	58	67	93
51 to 100	42	29	40	7	20	19
No Off Hours	37	24	34	9	12	13
Don't Know	NC	NC	NC	NC	NC	NC
Lighting Conservation Features (more than one may apply)						
Specular Reflectors	124	76	120	43	46	72
Natural Lighting Control Sensors	29	20	29	17	15	23
Occupancy Sensors	95	57	94	51	41	68
Time Clock	74	48	73	35	31	46
Manual Dimmer Switches	93	73	90	47	37	62
Energy Management Practices (more than one may apply)						
Energy Management and Control System	132	77	130	43	59	82
Energy Conservation Programs ¹	99	64	97	44	37	66
Energy Audit	99	60	98	31	36	53
HVAC Maintenance Staff ²	97	61	94	33	41	57
Off-Hours Reduction in Equipment (more than one may apply)						
Heating	144	80	142	50	51	75
Cooling	145	84	141	51	51	76
Hot Water	77	43	76	32	27	39
Lighting	162	90	157	51	50	76

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.29. Lighting Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
All Buildings	243	135	235	29	64	59
Building Floorspace (square feet)						
10,000 to 50,000	107	42	103	7	17	15
50,001 to 200,000	86	62	83	5	19	22
Over 200,000	50	31	49	17	28	22
Principal Building Activity						
Education	6	2	6	1	2	1
Health Care	35	20	35	5	9	16
Laboratory	29	21	28	1	10	1
Lodging	16	9	15	NC	1	4
Mercantile and Service	49	22	48	5	15	9
Office	76	43	75	17	19	23
All Others	32	18	28	NC	8	5
Year Constructed						
1959 or Before	103	67	98	13	23	23
1960 to 1969	38	25	37	7	13	14
1970 to 1979	34	17	34	4	14	11
1980 to 1989	57	22	55	4	13	9
1990 to 1993	11	4	11	1	1	2
Federal Agency						
Department of Defense	22	12	20	1	6	3
General Services Administration ...	35	21	34	15	12	19
United States Postal Service	61	28	59	6	16	10
Veterans Administration	36	14	35	2	6	19
All Others	89	60	87	5	24	8
Workers (main shift)						
Less than 50	70	29	66	3	10	7
50 to 99	44	22	43	2	8	7
100 to 499	80	53	77	9	19	23
500 or More	49	31	49	15	27	22
Weekly Operating Hours						
48 or Fewer	39	18	37	4	5	10
49 to 60	46	22	45	11	9	10
61 to 167	78	47	76	6	26	14
Open Continuously	80	48	77	8	24	25
Percent Window Glass						
50 or Less	204	103	196	25	44	51
51 to 100	16	10	16	4	4	8
Don't Know	23	22	23	NC	16	NC
Multibuilding Facility						
Yes	148	93	144	15	39	35
No	95	42	91	14	25	24
Percent Lit When Open						
1 to 50	15	9	14	NC	1	1
51 to 100	227	126	221	29	63	58
No Operating Hours	1	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC

See footnotes at end of table.

Table 3.29. Lighting Equipment in FBSS Buildings in Federal Region 6, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
Percent Lit When Closed						
Not Lit	33	10	30	4	11	8
1 to 50	165	97	162	21	38	34
51 to 100	25	18	25	4	10	9
No Off Hours	20	10	18	NC	5	8
Don't Know	NC	NC	NC	NC	NC	NC
Lighting Conservation Features (more than one may apply)						
Specular Reflectors	92	44	89	16	24	39
Natural Lighting Control						
Sensors	27	13	26	8	12	16
Occupancy Sensors	58	29	56	17	20	34
Time Clock	36	18	35	9	14	18
Manual Dimmer Switches	44	26	41	16	11	20
Energy Management Practices (more than one may apply)						
Energy Management and Control System	96	52	92	18	29	34
Energy Conservation Programs ¹	48	25	47	8	16	21
Energy Audit	64	27	60	10	16	22
HVAC Maintenance Staff ²	57	35	56	15	19	25
Off-Hours Reduction in Equipment (more than one may apply)						
Heating	123	57	119	21	23	30
Cooling	124	58	121	21	22	31
Hot Water	33	14	33	7	9	10
Lighting	120	61	117	19	21	33

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.30. Lighting Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
All Buildings	326	161	309	73	75	105
Building Floorspace (square feet)						
10,000 to 50,000	148	73	140	16	20	33
50,001 to 200,000	123	68	117	35	30	45
Over 200,000	55	20	52	22	25	27
Principal Building Activity						
Education	12	9	12	NC	4	1
Health Care	48	20	48	4	6	19
Laboratory	31	21	29	16	4	7
Lodging	22	15	19	2	2	2
Mercantile and Service	63	28	61	11	27	21
Office	92	37	88	34	14	40
All Others	58	31	52	6	18	15
Year Constructed						
1959 or Before	130	70	124	27	27	34
1960 to 1969	55	28	54	13	9	21
1970 to 1979	62	27	56	19	16	27
1980 to 1989	65	31	62	11	20	21
1990 to 1993	14	5	13	3	3	2
Federal Agency						
Department of Defense	78	33	73	9	19	14
General Services Administration ...	39	11	37	29	10	26
United States Postal Service	63	28	61	11	22	22
Veterans Administration	56	19	55	4	7	24
All Others	90	70	83	20	17	19
Workers (main shift)						
Less than 50	93	54	83	10	17	14
50 to 99	49	22	48	7	10	15
100 to 499	134	67	129	35	25	46
500 or More	50	18	49	21	23	30
Weekly Operating Hours						
48 or Fewer	80	40	73	5	15	12
49 to 60	65	23	64	28	15	32
61 to 167	68	34	65	10	19	27
Open Continuously	113	64	107	30	26	34
Percent Window Glass						
50 or Less	298	150	284	58	72	90
51 to 100	26	11	25	15	3	15
Don't Know	2	NC	NC	NC	NC	NC
Multibuilding Facility						
Yes	200	103	189	41	46	64
No	126	58	120	32	29	41
Percent Lit When Open						
1 to 50	20	11	18	1	2	1
51 to 100	304	150	291	72	73	104
No Operating Hours	1	NC	NC	NC	NC	NC
Don't Know	1	NC	NC	NC	NC	NC

See footnotes at end of table.

Table 3.30. Lighting Equipment in FBSS Buildings in Federal Region 9, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
Percent Lit When Closed						
Not Lit	35	10	33	3	6	10
1 to 50	205	107	197	46	45	71
51 to 100	44	32	41	22	9	11
No Off Hours	41	12	38	2	15	13
Don't Know	1	NC	NC	NC	NC	NC
Lighting Conservation Features (more than one may apply)						
Specular Reflectors	124	59	119	42	31	59
Natural Lighting Control Sensors	58	21	57	23	17	33
Occupancy Sensors	109	54	108	55	30	51
Time Clock	41	25	40	20	16	24
Manual Dimmer Switches	78	54	76	29	19	35
Energy Management Practices (more than one may apply)						
Energy Management and Control System	71	34	69	24	25	31
Energy Conservation Programs ¹	124	64	119	43	34	63
Energy Audit	99	48	95	24	24	45
HVAC Maintenance Staff ²	52	27	52	20	17	28
Off-Hours Reduction in Equipment (more than one may apply)						
Heating	151	71	142	40	30	60
Cooling	157	73	149	37	32	56
Hot Water	68	30	62	26	11	31
Lighting	172	80	164	38	36	65

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.31. Lighting Equipment in FBSS Building in Federal Region 3, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
All Buildings	94,880	64,981	91,986	49,455	52,593	65,560
Building Floorspace (square feet)						
10,000 to 50,000	2,564	1,398	2,494	349	368	640
50,001 to 200,000	13,166	7,539	12,661	2,180	5,287	5,285
Over 200,000	79,149	56,045	76,831	46,925	46,938	59,634
Principal Building Activity						
Education	598	571	598	162	NC	NC
Health Care	14,559	10,992	14,412	7,501	8,509	11,161
Laboratory	5,165	4,603	5,112	1,162	2,654	2,555
Lodging	2,558	2,431	2,508	31	375	364
Mercantile and Service	7,966	2,821	6,851	1,433	7,031	2,168
Office	56,881	40,025	55,892	36,601	30,658	45,520
All Others	7,152	3,538	6,613	2,565	3,366	3,791
Year Constructed						
1959 or Before	43,829	32,805	42,104	23,915	23,514	33,695
1960 to 1969	19,564	13,197	18,595	7,637	6,697	10,765
1970 to 1979	17,737	11,535	17,737	12,283	14,377	13,909
1980 to 1989	8,975	5,688	8,775	4,537	6,424	5,163
1990 to 1993	4,774	1,756	4,774	1,082	1,581	2,027
Federal Agency						
Department of Defense	13,988	13,431	13,938	10,688	11,155	10,819
General Services Administration ...	46,205	29,825	44,977	30,330	21,578	36,094
United States Postal Service	9,392	3,693	8,256	1,153	8,637	2,918
Veterans Administration	13,306	8,926	12,959	5,291	5,702	9,535
All Others	11,989	9,106	11,856	1,993	5,522	6,194
Workers (main shift)						
Less than 50	4,102	1,741	3,593	365	1,166	814
50 to 99	1,903	1,203	1,833	236	412	310
100 to 499	13,632	8,871	13,377	3,870	5,702	6,753
500 or More	75,243	53,166	73,183	44,983	45,313	57,682
Weekly Operating Hours						
48 or Fewer	9,694	6,878	9,694	4,841	2,164	5,933
49 to 60	25,540	17,434	24,519	13,371	12,454	22,383
61 to 167	11,993	7,802	11,922	8,519	8,062	8,530
Open Continuously	47,653	32,867	45,851	22,724	29,913	28,714
Percent Window Glass						
50 or Less	79,002	54,231	76,558	38,208	46,067	53,692
51 to 100	14,878	9,750	14,428	10,247	5,526	11,867
Don't Know	1,000	1,000	1,000	1,000	1,000	NC
Multibuilding Facility						
Yes	43,861	28,586	42,321	18,115	24,187	27,847
No	51,018	36,395	49,665	31,339	28,406	37,713
Percent Lit When Open						
1 to 50	663	229	643	291	NC	266
51 to 100	94,070	64,752	91,343	49,163	52,593	65,293
No Operating Hours	147	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC
Percent Lit When Closed						
Not Lit	5,149	2,079	4,039	1,708	3,311	2,244
1 to 50	57,953	36,667	56,880	28,192	26,092	40,357
51 to 100	17,412	13,955	17,161	10,197	14,864	13,725
No Off Hours	14,366	12,280	13,906	9,357	8,325	9,234
Don't Know	NC	NC	NC	NC	NC	NC

See footnotes at end of table.

Table 3.31. Lighting Equipment in FBSS Building in Federal Region 3, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
Lighting Conservation Features (more than one may apply)						
Specular Reflectors	44,741	32,688	44,126	27,412	24,739	36,255
Natural Lighting Control						
Sensors	17,743	15,216	17,743	14,476	9,237	16,076
Occupancy Sensors	62,261	45,486	61,742	43,991	37,666	52,610
Time Clock	46,555	39,907	46,036	36,171	29,709	39,466
Manual Dimmer Switches	49,824	42,097	49,259	37,377	28,905	43,797
Energy Management Practices (more than one may apply)						
Energy Management and Control System						
System	61,891	42,602	60,750	33,756	35,944	46,236
Energy Conservation Programs						
Programs ¹	59,284	42,505	58,634	37,128	32,936	48,576
Energy Audit	37,621	28,368	37,421	21,471	22,966	30,043
HVAC Maintenance Staff ²	52,924	39,568	51,125	30,245	29,904	40,191
Off-Hours Reduction in Equipment (more than one may apply)						
Heating	43,828	29,832	42,859	26,438	21,851	35,668
Cooling	43,757	30,067	42,742	26,261	21,774	35,491
Hot Water	26,018	19,184	25,499	17,164	10,462	20,798
Lighting	44,717	30,343	43,678	26,105	21,391	35,670

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.32. Lighting Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
All Buildings	35,816	20,248	35,057	7,942	16,188	15,861
Building Floorspace (square feet)						
10,000 to 50,000	2,591	1,099	2,478	164	406	440
50,001 to 200,000	9,548	7,017	9,146	602	2,343	2,620
Over 200,000	23,677	12,133	23,433	7,175	13,439	12,801
Principal Building Activity						
Education	168	43	168	18	53	55
Health Care	12,094	4,168	12,094	2,076	5,304	8,444
Laboratory	3,331	2,639	3,087	256	1,323	50
Lodging	942	607	783	NC	21	432
Mercantile and Service	6,236	3,927	6,192	671	4,060	1,299
Office	10,799	7,256	10,637	4,920	4,915	5,247
All Others	2,247	1,608	2,096	NC	512	334
Year Constructed						
1959 or Before	13,258	9,746	12,831	3,350	5,968	5,886
1960 to 1969	6,386	5,302	6,225	1,938	2,989	2,891
1970 to 1979	6,175	1,749	6,175	2,087	4,716	2,400
1980 to 1989	6,903	3,338	6,731	546	2,493	1,972
1990 to 1993	3,095	114	3,095	19	23	2,711
Federal Agency						
Department of Defense	1,668	665	1,612	633	992	165
General Services Administration	7,888	4,809	7,727	4,719	4,068	5,053
United States Postal Service	7,027	4,607	6,970	897	4,169	1,435
Veterans Administration	11,375	3,669	11,216	1,339	4,552	8,628
All Others	7,858	6,499	7,532	354	2,407	580
Workers (main shift)						
Less than 50	2,548	1,601	2,397	48	506	319
50 to 99	2,026	1,016	1,867	124	263	588
100 to 499	9,029	6,640	8,580	1,145	2,964	2,371
500 or More	22,213	10,992	22,213	6,625	12,456	12,582
Weekly Operating Hours						
48 or Fewer	2,740	1,280	2,497	174	361	1,046
49 to 60	6,460	2,878	6,447	2,968	2,314	1,834
61 to 167	8,051	6,731	7,995	1,783	4,117	2,472
Open Continuously	18,565	9,359	18,118	3,016	9,396	10,508
Percent Window Glass						
50 or Less	29,836	16,321	29,076	6,021	12,127	13,265
51 to 100	3,429	1,390	3,429	1,920	1,920	2,596
Don't Know	2,552	2,538	2,552	NC	2,141	NC
Multibuilding Facility						
Yes	24,441	14,792	23,933	4,014	9,206	10,340
No	11,375	5,457	11,124	3,927	6,983	5,521
Percent Lit When Open						
1 to 50	1,062	744	1,049	NC	183	75
51 to 100	34,672	19,505	34,008	7,942	16,005	15,786
No Operating Hours	82	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC
Percent Lit When Closed						
Not Lit	2,691	1,147	2,424	1,201	1,496	724
1 to 50	20,495	13,218	20,406	5,814	8,833	7,195
51 to 100	8,029	4,121	8,029	927	3,308	5,239
No Off Hours	4,601	1,763	4,199	NC	2,552	2,702
Don't Know	NC	NC	NC	NC	NC	NC

See footnotes at end of table.

Table 3.32. Lighting Equipment in FBSS Buildings in Federal Region 6, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
Lighting Conservation Features (more than one may apply)						
Specular Reflectors	18,017	9,240	17,664	4,173	7,863	11,662
Natural Lighting Control						
Sensors	6,740	2,524	6,581	2,025	2,658	5,669
Occupancy Sensors	16,435	8,859	16,114	4,909	8,217	11,542
Time Clock	9,037	3,236	8,878	2,875	3,191	6,225
Manual Dimmer Switches	13,454	6,641	13,249	4,457	4,567	8,110
Energy Management Practices (more than one may apply)						
Energy Management and Control System	23,099	10,360	22,511	6,385	11,491	12,411
Energy Conservation Programs ¹	13,513	6,777	13,480	3,388	6,805	9,798
Energy Audit	11,690	5,719	11,251	4,430	6,194	5,856
HVAC Maintenance Staff ²	15,538	7,664	15,376	4,995	6,374	9,417
Off-Hours Reduction in Equipment (more than one may apply)						
Heating	13,162	7,434	12,932	4,926	4,639	4,923
Cooling	13,864	7,837	13,657	4,926	4,615	5,246
Hot Water	4,554	2,503	4,554	1,780	2,266	1,387
Lighting	12,847	7,991	12,640	4,892	4,577	5,342

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment. NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.33. Lighting Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
All Buildings	44,316	20,475	42,850	17,339	18,736	23,307
Building Floorspace (square feet)						
10,000 to 50,000	3,858	1,864	3,663	415	562	1,032
50,001 to 200,000	12,680	7,322	12,228	4,155	3,503	5,236
Over 200,000	27,778	11,289	26,960	12,769	14,671	17,038
Principal Building Activity						
Education	628	450	628	NC	262	85
Health Care	9,903	4,574	9,903	2,484	2,472	4,961
Laboratory	2,601	1,960	2,527	1,592	213	631
Lodging	1,220	667	897	83	62	73
Mercantile and Service	8,194	3,716	8,111	859	6,475	4,237
Office	16,380	6,522	15,725	11,151	5,590	10,762
All Others	5,390	2,586	5,060	1,170	3,662	2,558
Year Constructed						
1959 or Before	13,553	6,594	12,818	4,673	4,693	6,824
1960 to 1969	9,082	4,486	9,027	5,204	3,997	5,592
1970 to 1979	12,041	5,426	11,622	4,454	5,379	7,411
1980 to 1989	7,955	3,097	7,842	2,750	3,741	3,241
1990 to 1993	1,684	870	1,541	258	926	239
Federal Agency						
Department of Defense	8,489	2,849	7,866	2,943	3,537	2,868
General Services Administration ...	12,505	4,354	12,165	10,436	5,024	9,527
United States Postal Service	8,387	3,827	8,304	1,001	6,229	4,292
Veterans Administration	8,824	4,269	8,681	1,043	2,615	5,302
All Others	6,111	5,175	5,834	1,916	1,330	1,318
Workers (main shift)						
Less than 50	3,684	2,242	2,945	719	930	753
50 to 99	2,161	1,100	2,142	437	604	705
100 to 499	14,017	7,305	13,540	4,446	3,734	5,095
500 or More	24,454	9,828	24,223	11,738	13,468	16,753
Weekly Operating Hours						
48 or Fewer	4,822	2,719	4,276	454	1,172	955
49 to 60	13,424	4,499	13,369	9,532	5,133	9,185
61 to 167	5,706	3,301	5,558	1,877	2,905	3,217
Open Continuously	20,364	9,955	19,647	5,476	9,526	9,950
Percent Window Glass						
50 or Less	37,432	18,276	36,105	12,394	16,372	17,762
51 to 100	6,800	2,199	6,745	4,945	2,363	5,545
Don't Know	84	NC	NC	NC	NC	NC
Multibuilding Facility						
Yes	26,821	14,046	26,038	8,337	10,972	12,980
No	17,495	6,429	16,812	9,002	7,763	10,327
Percent Lit When Open						
1 to 50	1,847	931	1,260	78	69	123
51 to 100	42,375	19,543	41,590	17,261	18,667	23,184
No Operating Hours	29	NC	NC	NC	NC	NC
Don't Know	84	NC	NC	NC	NC	NC
Percent Lit When Closed						
Not Lit	1,664	222	1,600	317	417	701
1 to 50	25,288	12,656	24,667	12,447	9,589	14,273
51 to 100	8,109	4,994	7,801	3,640	2,615	2,684
No Off Hours	9,190	2,603	8,781	935	6,115	5,648
Don't Know	84	NC	NC	NC	NC	NC

See footnotes at end of table.

Table 3.33. Lighting Equipment in FBSS Buildings in Federal Region 9, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Lighting Equipment Types (more than one may apply)				
		Incandescent	Standard Fluorescent	Compact Fluorescent	High-Intensity Discharge	Electronic Ballast
Lighting Conservation Features (more than one may apply)						
Specular Reflectors	21,850	9,554	21,637	12,265	8,640	13,517
Natural Lighting Control						
Sensors	13,760	4,011	13,617	7,935	6,074	8,258
Occupancy Sensors	25,245	11,469	25,180	15,083	12,036	16,127
Time Clock	10,539	6,482	10,484	7,210	6,584	6,656
Manual Dimmer Switches	14,455	10,224	14,371	7,795	6,245	7,293
Energy Management Practices (more than one may apply)						
Energy Management and Control System	18,231	7,727	17,903	7,441	10,875	11,378
Energy Conservation Programs ¹	24,699	11,924	24,511	13,891	10,570	16,181
Energy Audit	17,444	9,157	16,789	6,254	9,828	12,008
HVAC Maintenance Staff ²	14,570	8,130	14,570	8,282	6,651	8,859
Off-Hours Reduction in Equipment (more than one may apply)						
Heating	19,631	9,172	19,015	11,608	6,905	12,166
Cooling	19,219	8,636	18,599	10,787	6,834	11,521
Hot Water	13,614	5,154	13,155	9,541	4,876	9,004
Lighting	21,155	9,503	20,567	11,605	7,825	12,556

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment. NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.34. Energy Conservation Features in FBSS Building in Federal Region 3, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
All Buildings	312	309	290	303	210	94,880	94,361	84,557	93,543	80,953
Building Floorspace (square feet)										
10,000 to 50,000	94	94	91	92	52	2,564	2,564	2,451	2,541	1,401
50,001 to 200,000	117	115	110	112	74	13,166	12,906	12,381	12,538	8,315
Over 200,000	101	100	89	99	84	79,149	78,891	69,724	78,464	71,238
Principal Building Activity										
Education	8	8	8	8	5	598	598	598	598	459
Health Care	41	41	41	40	31	14,559	14,559	14,559	14,412	12,538
Laboratory	37	37	37	37	13	5,165	5,165	5,165	5,165	2,654
Lodging	13	13	12	13	6	2,558	2,558	1,077	2,558	605
Mercantile and Service	46	46	44	45	29	7,966	7,966	7,863	7,907	6,050
Office	124	124	111	120	103	56,881	56,881	48,877	56,269	53,853
All Others	43	40	37	40	23	7,152	6,633	6,418	6,633	4,795
Year Constructed										
1959 or Before	142	140	128	136	98	43,829	43,510	37,203	43,129	37,505
1960 to 1969	70	70	65	69	41	19,564	19,564	16,273	19,138	14,596
1970 to 1979	47	47	46	47	32	17,737	17,737	17,679	17,737	16,630
1980 to 1989	38	37	37	36	29	8,975	8,775	8,775	8,765	8,058
1990 to 1993	15	15	14	15	10	4,774	4,774	4,626	4,774	4,163
Federal Agency										
Department of Defense	22	21	20	21	14	13,988	13,928	12,447	13,928	12,088
General Services Administration ...	83	82	69	81	73	46,205	45,946	37,942	45,519	43,692
United States Postal Service	57	57	55	55	36	9,392	9,392	9,289	9,319	6,866
Veterans Administration	56	55	54	53	40	13,306	13,106	12,958	12,949	10,241
All Others	94	94	92	93	47	11,989	11,989	11,921	11,827	8,067
Energy Sources (more than one may apply)										
Electricity	311	308	289	302	209	94,161	93,642	83,838	92,824	80,234
Natural Gas	139	139	130	136	100	58,674	58,674	53,375	58,454	52,264
Fuel Oil	89	89	86	88	63	39,300	39,300	37,719	39,153	35,096
District Heat	154	153	142	151	103	63,991	63,931	57,611	63,342	56,414
District Chilled Water	57	57	57	56	35	22,922	22,922	22,922	22,495	19,908
Propane	5	5	5	5	4	941	941	941	941	905
Any Other	8	8	6	8	6	4,470	4,470	2,941	4,470	4,293
Energy End Uses (more than one may apply)										
Heating	307	306	287	300	207	94,063	94,003	84,198	93,184	80,595
Air Conditioning	305	304	285	298	207	93,454	93,394	83,590	92,576	80,039
Water Heating	303	302	284	296	205	93,138	93,078	83,299	92,260	80,064
Cooking	108	108	103	107	91	69,947	69,947	64,665	69,520	63,750
Manufacturing	50	49	48	48	35	27,041	26,981	26,923	26,922	24,375
Workers (main shift)										
Less than 50	71	69	64	66	35	4,102	3,643	3,113	3,194	1,978
50 to 99	39	39	38	39	26	1,903	1,903	1,858	1,903	1,354
100 to 499	107	106	103	103	68	13,632	13,572	13,300	13,203	8,973
500 or More	95	95	85	95	81	75,243	75,243	66,285	75,243	68,648
Weekly Operating Hours										
48 or Fewer	51	50	44	47	35	9,694	9,634	5,910	9,036	8,377
49 to 60	76	76	73	76	55	25,540	25,540	24,449	25,540	23,182
61 to 167	60	60	54	59	40	11,993	11,993	8,720	11,980	10,939
Open Continuously	125	123	119	121	80	47,653	47,194	45,477	46,987	38,455

See footnotes at end of table.

Table 3.34. Energy Conservation Features in FBSS Building in Federal Region 3, Number of Buildings and Floorspace, 1993 (Continued)

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
Percent Window Glass										
50 or Less	269	266	249	261	173	79,002	78,483	69,326	78,091	67,002
51 to 100	42	42	40	41	36	14,878	14,878	14,231	14,452	12,952
Don't Know	1	1	1	1	1	1,000	1,000	1,000	1,000	1,000
Multibuilding Facility										
Yes	176	174	163	170	110	43,861	43,601	38,067	42,806	33,289
No	136	135	127	133	100	51,018	50,760	46,490	50,737	47,664
Percent of Floorspace Heated										
Not Heated	5	3	3	3	3	817	359	359	359	359
1 to 50	12	12	11	10	7	5,787	5,787	5,639	5,350	5,127
51 to 100	295	294	276	290	200	88,275	88,215	78,559	87,834	75,468
Percent of Floorspace Cooled										
Not Cooled	13	11	10	11	7	3,582	3,123	1,641	3,123	1,209
1 to 50	30	30	25	29	18	9,874	9,874	9,351	9,864	9,047
51 to 100	269	268	255	263	185	81,424	81,364	73,565	80,556	70,697
Percent Lit When Open										
1 to 50	11	11	9	10	5	663	663	515	653	297
51 to 100	300	297	280	293	205	94,070	93,551	83,895	92,890	80,656
No Operating Hours	1	1	1	NC	NC	147	147	147	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)										
Heat Pumps	34	34	34	32	28	10,922	10,922	10,922	10,485	10,724
Furnaces	16	16	15	15	8	1,694	1,694	1,636	1,635	1,332
Individual Space Heaters	75	75	69	73	56	34,923	34,923	32,183	34,717	31,690
District Heat	167	166	152	164	107	67,704	67,644	59,221	67,055	57,181
Boilers	93	93	89	91	69	20,082	20,082	18,726	20,009	18,347
Packaged-Heating Units	25	25	25	24	17	6,006	6,006	6,006	5,579	4,321
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	30	30	25	29	19	19,073	19,073	16,160	19,060	16,883
Heat Pumps	37	37	34	35	29	11,388	11,388	9,517	10,951	11,170
Individual A/C	80	80	72	79	60	28,082	28,082	25,938	28,023	23,933
District Chilled Water	72	72	71	72	45	28,194	28,194	28,046	28,194	23,915
Central Chillers	158	158	146	155	120	63,914	63,914	56,118	63,281	57,368
Packaged-A/C Units	127	127	117	125	94	56,664	56,664	51,507	56,075	51,246
Swamp Coolers	3	3	3	3	3	378	378	378	378	378
Lighting Equipment (more than one may apply)										
Incandescent	184	182	170	180	133	64,981	64,662	57,532	64,593	57,794
Standard Fluorescent	300	299	281	294	205	91,986	91,926	82,147	91,255	80,314
Compact Fluorescent	80	80	72	80	72	49,455	49,455	42,933	49,455	48,012
High-Intensity Discharge	111	109	102	109	82	52,593	52,134	48,685	52,134	47,858
Electronic Ballast	135	135	126	135	115	65,560	65,560	60,177	65,560	62,397
Energy Management Practices (more than one may apply)										
Energy Management and Control System	132	132	127	132	105	61,891	61,891	57,447	61,891	55,202
Energy Conservation Programs ¹	99	97	87	97	84	59,284	59,024	51,419	59,024	56,297
Energy Audit	99	98	90	98	74	37,621	37,421	33,287	37,421	34,439
HVAC Maintenance Staff ²	97	96	84	96	67	52,924	52,665	43,488	52,665	44,519

See footnotes at end of table.

Table 3.34. Energy Conservation Features in FBSS Building in Federal Region 3, Number of Buildings and Floorspace, 1993 (Continued)

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	144	144	130	140	107	43,828	43,828	35,766	43,217	40,223
Cooling	145	145	130	141	109	43,757	43,757	35,669	43,145	40,171
Hot Water	77	77	69	76	65	26,018	26,018	21,230	25,591	24,187
Lighting	162	162	148	159	119	44,717	44,717	36,688	44,118	41,127

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.35. Energy Conservation Features in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
All Buildings	243	242	228	236	136	35,816	35,734	33,946	35,425	25,654
Building Floorspace (square feet)										
10,000 to 50,000	107	107	102	103	55	2,591	2,591	2,454	2,525	1,450
50,001 to 200,000	86	85	79	83	42	9,548	9,466	8,763	9,224	4,717
Over 200,000	50	50	47	50	39	23,677	23,677	22,728	23,677	19,487
Principal Building Activity										
Education	6	6	6	6	6	168	168	168	168	168
Health Care	35	35	32	34	24	12,094	12,094	11,738	11,951	10,284
Laboratory	29	29	27	29	8	3,331	3,331	3,131	3,331	715
Lodging	16	16	14	16	11	942	942	757	942	704
Mercantile and Service	49	49	48	48	30	6,236	6,236	5,791	6,136	4,474
Office	76	76	73	73	43	10,799	10,799	10,616	10,752	8,453
All Others	32	31	28	30	14	2,247	2,165	1,745	2,146	856
Year Constructed										
1959 or Before	103	102	94	100	52	13,258	13,176	11,805	13,023	7,543
1960 to 1969	38	38	36	36	26	6,386	6,386	6,107	6,356	5,577
1970 to 1979	34	34	34	33	20	6,175	6,175	6,175	6,075	4,743
1980 to 1989	57	57	54	57	31	6,903	6,903	6,822	6,903	4,785
1990 to 1993	11	11	10	10	7	3,095	3,095	3,037	3,070	3,006
Federal Agency										
Department of Defense	22	22	21	20	12	1,668	1,668	1,658	1,501	1,042
General Services Administration ...	35	35	35	35	28	7,888	7,888	7,888	7,888	7,128
United States Postal Service	61	61	57	59	37	7,027	7,027	6,396	6,916	4,947
Veterans Administration	36	36	33	36	24	11,375	11,375	11,019	11,375	9,709
All Others	89	88	82	86	35	7,858	7,776	6,984	7,746	2,828
Energy Sources (more than one may apply)										
Electricity	243	242	228	236	136	35,816	35,734	33,946	35,425	25,654
Natural Gas	168	168	163	163	98	24,827	24,827	24,186	24,544	18,117
Fuel Oil	18	18	17	17	14	4,740	4,740	4,294	4,598	4,492
District Heat	68	68	59	68	33	13,437	13,437	12,289	13,437	9,527
District Chilled Water	30	30	27	30	21	7,980	7,980	7,624	7,980	7,497
Propane	5	5	5	5	1	200	200	200	200	135
Any Other	8	8	8	8	7	2,850	2,850	2,850	2,850	2,709
Energy End Uses (more than one may apply)										
Heating	242	242	228	236	136	35,734	35,734	33,946	35,425	25,654
Air Conditioning	241	241	227	235	135	35,273	35,273	33,485	34,965	25,193
Water Heating	238	238	224	233	133	35,221	35,221	33,432	34,932	25,154
Cooking	63	63	62	63	48	19,213	19,213	19,203	19,213	16,821
Manufacturing	28	28	27	27	22	5,335	5,335	4,890	5,316	4,471
Workers (main shift)										
Less than 50	70	69	63	66	34	2,548	2,466	2,074	2,425	1,226
50 to 99	44	44	41	43	24	2,026	2,026	1,874	1,926	1,253
100 to 499	80	80	76	78	39	9,029	9,029	8,231	8,862	4,083
500 or More	49	49	48	49	39	22,213	22,213	21,767	22,213	19,091
Weekly Operating Hours										
48 or Fewer	39	38	33	35	22	2,740	2,658	2,245	2,486	1,802
49 to 60	46	46	45	46	28	6,460	6,460	6,447	6,460	5,279
61 to 167	78	78	75	75	32	8,051	8,051	7,636	7,915	3,672
Open Continuously	80	80	75	80	54	18,565	18,565	17,618	18,565	14,901

See footnotes at end of table.

Table 3.35. Energy Conservation Features in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993 (Continued)

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
Percent Window Glass										
50 or Less	204	203	189	197	125	29,836	29,754	27,965	29,445	23,491
51 to 100	16	16	16	16	11	3,429	3,429	3,429	3,429	2,163
Don't Know	23	23	23	23	NC	2,552	2,552	2,552	2,552	NC
Multibuilding Facility										
Yes	148	147	137	145	75	24,441	24,359	22,765	24,328	17,836
No	95	95	91	91	61	11,375	11,375	11,180	11,097	7,819
Percent of Floorspace Heated										
Not Heated	1	NC	NC	NC	NC	82	NC	NC	NC	NC
1 to 50	11	11	10	11	8	1,288	1,288	1,123	1,288	1,197
51 to 100	231	231	218	225	128	34,446	34,446	32,823	34,138	24,457
Percent of Floorspace Cooled										
Not Cooled	3	2	2	2	1	554	472	472	472	461
1 to 50	26	26	24	25	13	1,951	1,951	1,747	1,931	1,120
51 to 100	214	214	202	209	122	33,312	33,312	31,726	33,023	24,073
Percent Lit When Open										
1 to 50	15	15	12	15	7	1,062	1,062	873	1,062	485
51 to 100	227	227	216	221	129	34,672	34,672	33,072	34,364	25,169
No Operating Hours	1	NC	NC	NC	NC	82	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)										
Heat Pumps	10	10	10	9	7	964	964	964	939	910
Furnaces	18	18	18	16	11	791	791	791	680	429
Individual Space Heaters	30	30	30	28	20	5,408	5,408	5,408	5,377	4,370
District Heat	82	82	73	82	42	15,205	15,205	14,057	15,205	10,979
Boilers	102	102	99	101	57	16,718	16,718	16,100	16,576	11,447
Packaged-Heating Units	59	59	57	58	39	7,574	7,574	7,550	7,563	5,574
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	29	29	28	27	19	4,706	4,706	4,579	4,595	4,166
Heat Pumps	11	11	11	10	9	1,549	1,549	1,549	1,524	1,507
Individual A/C	50	50	46	48	23	6,950	6,950	6,405	6,919	3,509
District Chilled Water	44	44	40	44	24	10,856	10,856	10,258	10,856	9,134
Central Chillers	122	122	116	121	72	21,596	21,596	20,632	21,454	14,852
Packaged-A/C Units	97	97	93	96	59	14,104	14,104	13,783	14,094	10,742
Swamp Coolers	12	12	12	12	9	2,015	2,015	2,015	2,015	1,750
Lighting Equipment (more than one may apply)										
Incandescent	135	135	128	133	68	20,248	20,248	19,082	20,087	12,950
Standard Fluorescent	235	235	222	229	132	35,057	35,057	33,281	34,748	25,288
Compact Fluorescent	29	29	28	29	25	7,942	7,942	7,807	7,942	6,370
High-Intensity Discharge	64	64	64	64	36	16,188	16,188	16,188	16,188	11,208
Electronic Ballast	59	59	57	59	51	15,861	15,861	15,378	15,861	14,240
Energy Management Practices (more than one may apply)										
Energy Management and Control System	96	96	94	96	59	23,099	23,099	22,678	23,099	17,983
Energy Conservation Programs ¹	48	48	47	47	36	13,513	13,513	13,067	13,488	12,677
Energy Audit	64	64	62	61	45	11,690	11,690	11,231	11,643	8,781
HVAC Maintenance Staff ²	57	57	56	56	40	15,538	15,538	15,092	15,396	12,576

See footnotes at end of table.

Table 3.35. Energy Conservation Features in FBSS Buildings in Federal Region 6, Number of Buildings and Floorspace, 1993 (Continued)

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	123	123	115	117	75	13,162	13,162	12,360	12,854	9,864
Cooling	124	124	116	118	77	13,864	13,864	13,061	13,555	10,589
Hot Water	33	33	33	31	21	4,554	4,554	4,554	4,518	3,532
Lighting	120	120	112	114	74	12,847	12,847	12,045	12,538	9,586

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.36. Energy Conservation Features in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
All Buildings	326	319	248	307	217	44,316	44,023	34,105	43,116	34,825
Building Floorspace (square feet)										
10,000 to 50,000	148	143	116	136	81	3,858	3,711	3,079	3,506	2,086
50,001 to 200,000	123	121	90	117	91	12,680	12,534	9,234	12,092	9,914
Over 200,000	55	55	42	54	45	27,778	27,778	21,791	27,518	22,824
Principal Building Activity										
Education	12	12	8	12	4	628	628	434	628	234
Health Care	48	47	42	47	35	9,903	9,890	9,618	9,890	8,631
Laboratory	31	31	15	31	25	2,601	2,601	911	2,601	2,266
Lodging	22	19	19	17	6	1,220	1,116	1,116	832	357
Mercantile and Service	63	62	60	58	45	8,194	8,115	7,525	7,916	6,681
Office	92	91	59	89	66	16,380	16,314	9,826	16,223	13,419
All Others	58	57	45	53	36	5,390	5,360	4,674	5,026	3,236
Year Constructed										
1959 or Before	130	126	97	121	71	13,553	13,404	10,689	13,047	8,530
1960 to 1969	55	55	41	53	44	9,082	9,082	7,024	9,014	8,462
1970 to 1979	62	60	46	58	45	12,041	11,978	8,200	11,702	9,358
1980 to 1989	65	64	52	62	46	7,955	7,875	6,668	7,812	7,082
1990 to 1993	14	14	12	13	11	1,684	1,684	1,524	1,541	1,392
Federal Agency										
Department of Defense	78	71	56	61	31	8,489	8,196	6,964	7,448	4,260
General Services Administration ...	39	39	18	39	35	12,505	12,505	6,919	12,505	11,109
United States Postal Service	63	63	62	62	45	8,387	8,387	7,845	8,371	7,011
Veterans Administration	56	56	49	55	42	8,824	8,824	8,326	8,681	7,466
All Others	90	90	63	90	64	6,111	6,111	4,050	6,111	4,978
Energy Sources (more than one may apply)										
Electricity	325	318	247	306	216	44,296	44,004	34,085	43,096	34,805
Natural Gas	225	224	175	216	169	34,703	34,669	27,083	34,130	29,144
Fuel Oil	54	53	37	53	40	11,127	11,060	9,415	11,060	9,379
District Heat	74	71	61	71	45	11,757	11,675	9,705	11,675	9,252
District Chilled Water	27	27	24	27	20	6,362	6,362	5,629	6,362	5,484
Propane	10	10	9	10	3	1,117	1,117	1,106	1,117	815
Any Other	5	5	3	5	4	2,606	2,606	2,537	2,606	2,595
Energy End Uses (more than one may apply)										
Heating	304	299	234	290	207	41,921	41,775	32,838	41,197	32,968
Air Conditioning	292	291	228	282	205	41,907	41,894	32,754	41,282	33,846
Water Heating	315	309	244	299	214	42,984	42,771	33,733	42,140	34,007
Cooking	70	70	63	68	51	20,045	20,045	17,163	19,972	17,125
Manufacturing	30	30	25	30	22	7,693	7,693	6,948	7,693	5,539
Workers (main shift)										
Less than 50	93	89	66	83	44	3,684	3,579	2,334	3,184	1,841
50 to 99	49	48	38	46	31	2,161	2,120	1,414	2,083	1,429
100 to 499	134	132	104	128	98	14,017	13,871	10,879	13,395	10,897
500 or More	50	50	40	50	44	24,454	24,454	19,477	24,454	20,658
Weekly Operating Hours										
48 or Fewer	80	77	58	73	40	4,822	4,751	3,485	4,507	2,935
49 to 60	65	63	42	62	52	13,424	13,278	8,153	13,165	11,802
61 to 167	68	68	64	64	45	5,706	5,706	5,331	5,582	4,033
Open Continuously	113	111	84	108	80	20,364	20,289	17,136	19,862	16,054

See footnotes at end of table.

Table 3.36. Energy Conservation Features in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993 (Continued)

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
Percent Window Glass										
50 or Less	298	291	228	279	194	37,432	37,140	29,203	36,233	28,124
51 to 100	26	26	20	26	23	6,800	6,800	4,902	6,800	6,701
Don't Know	2	2	NC	2	NC	84	84	NC	84	NC
Multibuilding Facility										
Yes	200	195	144	187	123	26,821	26,575	21,499	25,764	19,635
No	126	124	104	120	94	17,495	17,448	12,605	17,352	15,190
Percent of Floorspace Heated										
Not Heated	22	20	14	17	10	2,394	2,248	1,267	1,919	1,856
1 to 50	28	27	22	26	17	3,751	3,722	3,056	3,683	1,754
51 to 100	276	272	212	264	190	38,170	38,053	29,782	37,514	31,215
Percent of Floorspace Cooled										
Not Cooled	40	34	25	31	16	2,956	2,676	1,840	2,381	1,420
1 to 50	55	55	42	54	33	7,304	7,304	5,776	7,265	4,415
51 to 100	231	230	181	222	168	34,056	34,044	26,489	33,470	28,990
Percent Lit When Open										
1 to 50	20	19	15	17	8	1,847	1,817	1,235	1,518	822
51 to 100	304	299	233	289	209	42,375	42,142	32,870	41,533	34,002
No Operating Hours	1	NC	NC	NC	NC	29	NC	NC	NC	NC
Don't Know	1	1	NC	1	NC	64	64	NC	64	NC
Heating Equipment (more than one may apply)										
Heat Pumps	40	40	31	39	29	3,081	3,081	2,731	3,060	2,684
Furnaces	25	25	20	22	15	1,204	1,204	1,037	1,026	816
Individual Space Heaters	33	33	31	32	23	4,933	4,933	4,907	4,894	3,962
District Heat	71	69	59	69	41	12,712	12,659	10,381	12,659	8,815
Boilers	146	145	107	143	113	24,010	23,976	17,304	23,697	20,724
Packaged-Heating Units	67	67	65	65	52	5,997	5,997	5,848	5,939	4,692
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	24	24	21	22	15	1,900	1,900	1,670	1,847	1,693
Heat Pumps	32	32	26	32	25	2,724	2,724	2,320	2,724	2,439
Individual A/C	52	52	38	49	32	5,723	5,723	4,149	5,520	4,449
District Chilled Water	31	31	27	31	21	7,647	7,647	7,342	7,647	5,559
Central Chillers	139	139	106	136	114	27,723	27,723	20,592	27,301	24,098
Packaged-A/C Units	151	151	120	147	121	23,989	23,989	18,416	23,777	20,584
Swamp Coolers	30	29	24	28	17	3,165	3,153	2,509	3,114	2,036
Lighting Equipment (more than one may apply)										
Incandescent	161	158	129	151	113	20,475	20,362	16,849	19,929	16,640
Standard Fluorescent	309	304	240	294	211	42,850	42,621	33,355	42,116	34,469
Compact Fluorescent	73	73	39	72	68	17,339	17,339	11,745	17,207	16,956
High-Intensity Discharge	75	73	57	69	55	18,736	18,626	16,115	18,199	15,564
Electronic Ballast	105	105	81	102	89	23,307	23,307	18,775	23,106	20,342
Energy Management Practices (more than one may apply)										
Energy Management and Control System	71	71	59	70	60	18,231	18,231	15,836	17,971	15,999
Energy Conservation Programs ¹	124	122	99	119	101	24,699	24,624	19,745	24,535	20,778
Energy Audit	99	98	82	91	67	17,444	17,432	14,266	16,780	13,223
HVAC Maintenance Staff ²	52	52	40	51	41	14,570	14,570	11,712	14,532	12,803

See footnotes at end of table.

Table 3.36. Energy Conservation Features in FBSS Buildings in Federal Region 9, Number of Buildings and Floorspace, 1993 (Continued)

Building Characteristics	Number of Buildings					Total Floorspace (thousand square feet)				
	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting	All Buildings	Any Conservation Feature	Building Shell	HVAC	Lighting
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	151	149	120	144	106	19,631	19,590	13,808	19,425	16,304
Cooling	157	156	124	151	108	19,219	19,207	13,253	19,007	15,693
Hot Water	68	67	46	66	57	13,614	13,585	8,258	13,566	11,973
Lighting	172	170	134	163	116	21,155	21,063	14,822	20,711	17,272

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.37. Energy Management Practices in FBSS Buildings in Federal Region 3, Number of Buildings, 1993

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
All Buildings	312	132	99	99	97	178	229
Building Floorspace (square feet)							
10,000 to 50,000	94	21	12	29	4	67	62
50,001 to 200,000	117	51	27	34	35	58	83
Over 200,000	101	60	60	36	58	53	84
Principal Building Activity							
Education	8	NC	2	3	NC	6	4
Health Care	41	29	15	9	12	4	37
Laboratory	37	10	3	11	16	16	20
Lodging	13	4	6	9	3	NC	9
Mercantile and Service	46	15	9	6	4	28	31
Office	124	62	54	47	56	104	104
All Others	43	12	10	14	6	20	24
Year Constructed							
1959 or Before	142	56	45	51	40	77	107
1960 to 1969	70	27	18	20	27	46	44
1970 to 1979	47	24	19	17	15	29	38
1980 to 1989	38	17	13	10	11	18	28
1990 to 1993	15	8	4	1	4	8	12
Federal Agency							
Department of Defense	22	7	6	6	8	7	13
General Services Administration ..	83	42	52	41	47	71	71
United States Postal Service	57	19	9	7	5	33	39
Veterans Administration	56	31	21	15	15	13	46
All Others	94	33	11	30	22	54	60
Energy Sources (more than one may apply)							
Electricity	311	131	98	99	97	178	228
Natural Gas	139	68	49	40	52	66	111
Fuel Oil	89	42	29	24	26	46	63
District Heat	154	70	57	54	55	91	119
District Chilled Water	57	26	13	17	20	27	41
Propane	5	NC	NC	1	1	4	3
Any Other	8	6	5	3	5	5	7
Energy End Uses (more than one may apply)							
Heating	307	132	98	98	96	175	227
Air Conditioning	305	131	95	97	96	175	224
Water Heating	303	130	96	98	94	172	225
Cooking	108	66	53	34	49	55	91
Manufacturing	50	28	20	13	18	22	33
Workers (main shift)							
Less than 50	71	17	13	23	4	43	45
50 to 99	39	12	4	11	1	26	25
100 to 499	107	39	21	33	36	58	75
500 or More	95	64	61	32	56	51	84
Weekly Operating Hours							
48 or Fewer	51	18	15	20	10	47	38
49 to 60	76	37	28	23	30	72	58
61 to 167	60	14	16	17	13	58	42
Open Continuously	125	63	40	39	44	1	91
Multibuilding Facility							
Yes	176	73	50	51	54	79	119
No	136	59	49	48	43	99	110

See footnotes at end of table.

Table 3.37. Energy Management Practices in FBSS Buildings in Federal Region 3, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Percent of Floorspace Heated							
Not Heated	5	NC	1	1	1	3	2
1 to 50	12	3	4	NC	2	6	8
51 to 100	295	129	94	98	94	169	219
Percent of Floorspace Cooled							
Not Cooled	13	2	6	5	3	5	7
1 to 50	30	8	6	10	5	21	19
51 to 100	269	122	87	84	89	152	203
Percent Lit When Open							
1 to 50	11	1	3	4	2	8	6
51 to 100	300	131	96	95	95	170	223
No Operating Hours	1	NC	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)							
Heat Pumps	34	19	13	14	6	25	29
Furnaces	16	1	1	5	2	12	12
Individual Space Heaters	75	39	29	31	27	44	60
District Heat	167	80	58	60	64	88	131
Boilers	93	40	28	27	24	54	67
Packaged-Heating Units	25	11	7	10	8	12	21
Cooling Equipment (more than one may apply)							
Residential-Type Central A/C	30	13	8	10	13	21	25
Heat Pumps	37	19	15	14	9	30	32
Individual A/C	80	36	28	32	28	47	61
District Chilled Water	72	38	20	17	26	30	52
Central Chillers	158	80	70	61	70	93	128
Packaged-A/C Units	127	65	50	43	44	74	101
Swamp Coolers	3	2	NC	2	2	1	3
Lighting Equipment (more than one may apply)							
Incandescent	184	77	64	60	61	100	132
Standard Fluorescent	300	130	97	98	94	173	223
Compact Fluorescent	80	43	44	31	33	56	73
High-Intensity Discharge	111	59	37	36	41	58	87
Electronic Ballast	135	82	66	53	57	84	125
Water-Heating Equipment (more than one may apply)							
Centralized System	223	95	69	75	76	130	165
Distributed System	71	29	25	23	18	37	57
Don't Know/							
Not Ascertained	9	6	2	NC	NC	5	3
Energy Conservation Features (more than one may apply)							
Any Conservation Feature	309	132	97	98	96	178	228
Building Shell	290	127	87	90	84	163	215
HVAC	303	132	97	98	96	174	227
Lighting	210	105	84	74	67	128	175

See footnotes at end of table.

Table 3.37. Energy Management Practices in FBSS Buildings in Federal Region 3, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling Insulation	240	110	70	75	69	135	176
Wall Insulation	117	61	31	29	29	69	87
Storm or Multiple Glazing	173	87	49	49	36	91	139
Tinted or Reflective Glass or Shading Film	158	83	47	40	56	94	117
Exterior or Interior Shading or Awnings	197	97	57	58	55	115	145
HVAC Conservation Features (more than one may apply)							
VAV System	84	59	33	25	37	37	75
Economizer Cycle	156	93	59	50	60	92	131
HVAC Maintenance	301	132	97	98	96	173	227
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	124	64	49	52	43	69	101
Natural Lighting Control							
Sensors	29	18	17	9	13	14	26
Occupancy Sensors	95	55	54	40	44	66	86
Time Clock	74	39	36	28	32	47	64
Manual Dimmer Switches	93	50	45	29	32	64	81

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.38. Energy Management Practices in FBSS Buildings in Federal Region 6, Number of Buildings, 1993

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
All Buildings	243	96	48	64	57	136	162
Building Floorspace (square feet)							
10,000 to 50,000	107	21	18	28	14	74	65
50,001 to 200,000	86	40	9	16	20	43	54
Over 200,000	50	35	21	20	23	19	43
Principal Building Activity							
Education	6	1	NC	NC	1	6	3
Health Care	35	28	9	6	10	6	31
Laboratory	29	10	3	1	3	14	9
Lodging	16	5	5	7	2	NC	13
Mercantile and Service	49	17	14	19	8	30	39
Office	76	30	16	25	30	61	50
All Others	32	5	1	6	3	19	17
Year Constructed							
1959 or Before	103	44	14	22	24	57	70
1960 to 1969	38	12	11	14	12	25	28
1970 to 1979	34	15	11	9	9	14	22
1980 to 1989	57	21	9	16	10	33	36
1990 to 1993	11	4	3	3	2	7	6
Federal Agency							
Department of Defense	22	6	5	10	6	16	13
General Services Administration ..	35	19	12	17	24	32	31
United States Postal Service	61	19	15	21	10	38	45
Veterans Administration	36	30	10	8	6	10	33
All Others	89	22	6	8	11	40	40
Energy Sources (more than one may apply)							
Electricity	243	96	48	64	57	136	162
Natural Gas	168	65	34	55	45	95	121
Fuel Oil	18	10	8	7	9	9	15
District Heat	68	36	11	5	12	36	40
District Chilled Water	30	22	12	5	10	16	25
Propane	5	1	2	NC	2	4	1
Any Other	8	4	3	NC	2	1	3
Energy End Uses (more than one may apply)							
Heating	242	96	48	64	57	136	162
Air Conditioning	241	95	47	64	57	136	161
Water Heating	238	95	47	62	56	133	160
Cooking	63	37	20	24	21	27	51
Manufacturing	28	13	8	14	9	16	21
Workers (main shift)							
Less than 50	70	10	10	19	10	43	41
50 to 99	44	15	4	9	9	27	26
100 to 499	80	36	11	14	13	47	50
500 or More	49	35	23	22	25	19	45
Weekly Operating Hours							
48 or Fewer	39	11	4	10	10	36	24
49 to 60	46	27	10	14	18	46	29
61 to 167	78	12	11	17	9	54	42
Open Continuously	80	46	23	23	20	NC	67
Multibuilding Facility							
Yes	148	69	29	33	29	64	95
No	95	27	19	31	28	72	67

See footnotes at end of table.

Table 3.38. Energy Management Practices in FBSS Buildings in Federal Region 6, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs¹	Energy Audit	HVAC Maintenance Staff²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Percent of Floorspace Heated							
Not Heated	1	NC	NC	NC	NC	NC	NC
1 to 50	11	5	2	3	3	8	8
51 to 100	231	91	46	61	54	128	154
Percent of Floorspace Cooled							
Not Cooled	3	2	1	NC	1	NC	2
1 to 50	26	4	2	6	3	14	14
51 to 100	214	90	45	58	53	122	146
Percent Lit When Open							
1 to 50	15	4	1	3	3	10	10
51 to 100	227	92	47	61	54	126	152
No Operating Hours	1	NC	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)							
Heat Pumps	10	3	3	4	1	7	6
Furnaces	18	3	3	4	2	14	14
Individual Space Heaters	30	14	9	6	9	19	23
District Heat	82	47	13	12	14	41	53
Boilers	102	35	22	28	36	52	66
Packaged-Heating Units	59	17	18	21	15	39	45
Cooling Equipment (more than one may apply)							
Residential-Type Central A/C	29	10	7	8	3	18	24
Heat Pumps	11	6	2	4	1	7	8
Individual A/C	50	17	6	10	9	20	31
District Chilled Water	44	31	12	8	13	22	33
Central Chillers	122	54	23	32	40	59	84
Packaged-A/C Units	97	37	28	29	21	59	75
Swamp Coolers	12	6	1	1	2	6	8
Lighting Equipment (more than one may apply)							
Incandescent	135	52	25	27	35	64	80
Standard Fluorescent	235	92	47	60	56	132	157
Compact Fluorescent	29	18	8	10	15	21	27
High-Intensity Discharge	64	29	16	16	19	24	45
Electronic Ballast	59	34	21	22	25	34	53
Water-Heating Equipment (more than one may apply)							
Centralized System	163	66	27	39	37	98	107
Distributed System	71	27	19	22	18	34	51
Don't Know/ Not Ascertained	4	2	1	1	1	1	2
Energy Conservation Features (more than one may apply)							
Any Conservation Feature	242	96	48	64	57	136	162
Building Shell	228	94	47	62	56	128	154
HVAC	236	96	47	61	56	130	158
Lighting	136	59	36	45	40	82	113

See footnotes at end of table.

Table 3.38. Energy Management Practices in FBSS Buildings in Federal Region 6, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling Insulation	196	82	42	53	43	106	129
Wall Insulation	122	49	26	35	25	58	76
Storm or Multiple Glazing	96	48	21	22	22	53	66
Tinted or Reflective Glass or Shading Film	127	59	39	41	42	69	98
Exterior or Interior Shading or Awnings	142	68	33	47	46	84	114
HVAC Conservation Features (more than one may apply)							
VAV System	65	40	16	20	25	32	47
Economizer Cycle	123	62	28	32	30	55	87
HVAC Maintenance	234	95	46	60	56	129	156
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	92	36	30	33	28	55	76
Natural Lighting Control Sensors	27	12	9	9	13	14	23
Occupancy Sensors	58	31	18	28	24	35	49
Time Clock	36	18	14	15	16	22	29
Manual Dimmer Switches	44	29	16	17	14	27	39

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.39. Energy Management Practices in FBSS Buildings in Federal Region 9, Number of Buildings, 1993

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
All Buildings	326	71	124	99	52	189	213
Building Floorspace (square feet)							
10,000 to 50,000	148	15	46	40	11	96	84
50,001 to 200,000	123	34	50	42	22	67	85
Over 200,000	55	22	28	17	19	26	44
Principal Building Activity							
Education	12	NC	1	2	1	7	4
Health Care	48	14	18	14	16	15	30
Laboratory	31	12	9	9	1	13	25
Lodging	22	2	8	8	1	1	11
Mercantile and Service	63	20	25	21	8	43	47
Office	92	18	43	27	17	75	65
All Others	58	5	20	18	8	35	31
Year Constructed							
1959 or Before	130	20	37	36	18	86	77
1960 to 1969	55	11	30	16	6	36	35
1970 to 1979	62	13	29	24	13	30	46
1980 to 1989	65	23	25	18	12	29	44
1990 to 1993	14	4	3	5	3	8	11
Federal Agency							
Department of Defense	78	14	17	26	6	52	36
General Services Administration	39	5	27	12	14	35	33
United States Postal Service	63	21	24	22	9	43	49
Veterans Administration	56	15	16	15	15	18	36
All Others	90	16	40	24	8	41	59
Energy Sources (more than one may apply)							
Electricity	325	71	123	98	52	189	212
Natural Gas	225	57	98	67	39	141	162
Fuel Oil	54	17	23	11	12	14	46
District Heat	74	13	21	24	15	29	39
District Chilled Water	27	6	6	14	8	10	15
Propane	10	1	4	2	1	4	5
Any Other	5	2	1	3	NC	2	3
Energy End Uses (more than one may apply)							
Heating	304	67	122	92	48	177	202
Air Conditioning	292	71	115	92	50	174	201
Water Heating	315	70	123	97	51	182	209
Cooking	70	23	42	25	22	25	54
Manufacturing	30	15	14	13	6	15	23
Workers (main shift)							
Less than 50	93	8	20	27	7	51	43
50 to 99	49	5	14	14	2	39	30
100 to 499	134	36	58	41	20	79	98
500 or More	50	22	32	17	23	20	42
Weekly Operating Hours							
48 or Fewer	80	8	20	21	3	67	29
49 to 60	65	9	27	18	14	59	45
61 to 167	68	14	26	26	8	63	52
Open Continuously	113	40	51	34	27	NC	87
Multibuilding Facility							
Yes	200	48	69	64	35	95	128
No	126	23	55	35	17	94	85

See footnotes at end of table.

Table 3.39. Energy Management Practices in FBSS Buildings in Federal Region 9, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Percent of Floorspace Heated							
Not Heated	22	4	2	7	4	12	11
1 to 50	28	6	6	11	3	20	18
51 to 100	276	61	116	81	45	157	184
Percent of Floorspace Cooled							
Not Cooled	40	1	12	8	4	19	16
1 to 50	55	9	14	13	7	32	39
51 to 100	231	61	98	78	41	138	158
Percent Lit When Open							
1 to 50	20	1	5	6	3	10	12
51 to 100	304	70	119	93	49	178	201
No Operating Hours	1	NC	NC	NC	NC	1	NC
Don't Know	1	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)							
Heat Pumps	40	12	23	15	3	21	34
Furnaces	25	2	9	10	2	18	16
Individual Space Heaters	33	8	17	13	3	24	28
District Heat	71	15	24	20	14	28	41
Boilers	146	40	67	47	25	92	102
Packaged-Heating Units	67	13	34	13	8	49	47
Cooling Equipment (more than one may apply)							
Residential-Type Central A/C	24	4	9	10	3	16	12
Heat Pumps	32	11	16	11	3	17	28
Individual A/C	52	7	18	13	4	35	38
District Chilled Water	31	13	15	12	10	7	17
Central Chillers	139	51	68	47	25	81	105
Packaged-A/C Units	151	34	65	44	27	99	112
Swamp Coolers	30	8	10	12	5	16	16
Lighting Equipment (more than one may apply)							
Incandescent	161	34	64	48	27	84	106
Standard Fluorescent	309	69	119	95	52	179	206
Compact Fluorescent	73	24	43	24	20	41	70
High-Intensity Discharge	75	25	34	24	17	40	56
Electronic Ballast	105	31	63	45	28	69	95
Water-Heating Equipment (more than one may apply)							
Centralized System	225	50	88	73	43	131	148
Distributed System	80	17	34	21	5	45	55
Don't Know/ Not Ascertained	10	3	1	3	3	6	6
Energy Conservation Features (more than one may apply)							
Any Conservation Feature	319	71	122	98	52	186	213
Building Shell	248	59	99	82	40	147	166
HVAC	307	70	119	91	51	179	210
Lighting	217	60	101	67	41	126	162

See footnotes at end of table.

Table 3.39. Energy Management Practices in FBSS Buildings in Federal Region 9, Number of Buildings, 1993 (Continued)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling Insulation	185	51	78	60	31	99	124
Wall Insulation	113	35	41	41	18	59	73
Storm or Multiple Glazing	57	18	30	15	13	26	48
Tinted or Reflective Glass or Shading Film	133	34	63	50	24	78	101
Exterior or Interior Shading or Awnings	164	41	73	51	31	90	117
HVAC Conservation Features (more than one may apply)							
VAV System	75	33	39	25	18	37	64
Economizer Cycle	140	45	79	44	31	86	107
HVAC Maintenance	306	69	118	91	51	178	209
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	124	26	75	32	30	85	96
Natural Lighting Control Sensors	58	15	26	20	16	35	45
Occupancy Sensors	109	38	48	42	25	52	92
Time Clock	41	12	21	19	8	28	34
Manual Dimmer Switches	78	28	34	28	21	29	62

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.40. Energy Management Practices in FBSS Buildings in Federal Region 3, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
All Buildings	94,880	61,891	59,284	37,621	52,924	46,595	81,286
Building Floorspace (square feet)							
10,000 to 50,000	2,564	604	361	868	141	1,819	1,617
50,001 to 200,000	13,166	5,984	3,395	3,545	4,785	6,455	9,405
Over 200,000	79,149	55,303	55,528	33,208	47,998	38,322	70,264
Principal Building Activity							
Education	598	NC	171	298	NC	462	264
Health Care	14,559	12,399	8,137	1,597	6,289	206	13,789
Laboratory	5,165	1,827	361	1,969	3,891	2,512	3,238
Lodging	2,558	2,157	784	2,373	1,840	NC	908
Mercantile and Service	7,966	6,058	3,124	1,454	2,233	1,300	6,387
Office	56,881	36,854	42,364	28,924	37,641	40,781	51,485
All Others	7,152	2,596	4,343	1,006	1,030	1,335	5,215
Year Constructed							
1959 or Before	43,829	25,341	29,902	20,038	29,624	23,359	39,006
1960 to 1969	19,564	11,821	11,618	7,852	12,049	11,333	14,706
1970 to 1979	17,737	14,405	10,803	6,179	5,099	8,812	15,377
1980 to 1989	8,975	6,446	5,230	2,874	5,035	2,085	8,308
1990 to 1993	4,774	3,877	1,732	678	1,117	1,006	3,889
Federal Agency							
Department of Defense	13,988	11,136	10,164	9,261	10,573	1,615	11,708
General Services Administration ...	46,205	26,744	35,701	20,539	27,705	35,547	40,941
United States Postal Service	9,392	7,143	2,343	2,255	2,382	2,398	7,910
Veterans Administration	13,306	10,289	6,427	1,687	6,748	956	11,866
All Others	11,989	6,579	4,650	3,880	5,515	6,079	8,861
Energy Sources (more than one may apply)							
Electricity	94,161	61,172	58,565	37,621	52,924	46,595	80,567
Natural Gas	58,674	44,873	38,182	20,605	32,344	21,566	51,875
Fuel Oil	39,300	30,851	24,941	16,293	20,200	11,751	33,574
District Heat	63,991	41,010	46,603	25,813	37,204	34,089	58,464
District Chilled Water	22,922	14,652	15,190	12,406	15,253	8,564	20,544
Propane	941	NC	NC	222	148	793	683
Any Other	4,470	3,059	3,462	2,761	4,410	4,273	4,441
Energy End Uses (more than one may apply)							
Heating	94,063	61,891	59,084	37,421	52,665	46,237	80,919
Air Conditioning	93,454	61,172	58,313	37,392	52,665	46,376	80,147
Water Heating	93,138	61,222	58,136	37,421	51,717	45,692	80,336
Cooking	69,947	52,300	49,012	28,107	40,466	31,295	62,196
Manufacturing	27,041	23,953	18,390	13,925	16,741	9,251	23,383
Workers (main shift)							
Less than 50	4,102	816	1,085	1,308	837	2,115	1,818
50 to 99	1,903	501	248	687	9	1,198	1,175
100 to 499	13,632	5,390	2,879	4,455	5,263	6,874	10,165
500 or More	75,243	55,184	55,073	31,171	46,804	36,409	68,128
Weekly Operating Hours							
48 or Fewer	9,694	4,600	6,042	3,534	5,139	9,367	8,337
49 to 60	25,540	14,948	17,947	12,556	15,985	25,233	22,537
61 to 167	11,993	5,270	6,234	6,552	8,344	11,948	10,868
Open Continuously	47,653	37,072	29,062	14,979	23,457	47	39,545

See footnotes at end of table.

Table 3.40. Energy Management Practices in FBSS Buildings in Federal Region 3, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Multibuilding Facility							
Yes	43,861	25,196	22,808	16,938	21,997	19,405	32,434
No	51,018	36,695	36,476	20,683	30,927	27,190	48,852
Percent of Floorspace Heated							
Not Heated	817	NC	200	200	259	359	367
1 to 50	5,787	4,358	3,361	NC	761	974	4,913
51 to 100	88,275	57,532	55,723	37,421	51,904	45,263	76,006
Percent of Floorspace Cooled							
Not Cooled	3,582	2,200	1,407	1,784	2,120	286	1,360
1 to 50	9,874	4,917	5,325	3,964	2,880	5,171	8,668
51 to 100	81,424	54,773	52,552	31,873	47,924	41,138	71,258
Percent Lit When Open							
1 to 50	663	213	267	404	199	497	373
51 to 100	94,070	61,677	59,017	37,218	52,725	46,098	80,913
No Operating Hours	147	NC	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)							
Heat Pumps	10,922	8,197	6,244	7,066	4,762	8,592	9,016
Furnaces	1,694	107	24	1,233	69	1,452	1,467
Individual Space Heaters	34,923	26,031	25,674	20,648	22,670	17,774	31,921
District Heat	67,704	45,017	46,194	27,770	40,970	33,405	60,246
Boilers	20,082	14,594	8,858	7,222	9,644	9,068	15,822
Packaged-Heating Units	6,006	3,994	2,747	1,745	3,129	2,396	5,406
Cooling Equipment (more than one may apply)							
Residential-Type Central A/C	19,073	14,532	12,578	9,461	15,674	8,781	17,818
Heat Pumps	11,388	8,283	6,734	7,113	7,283	10,179	10,453
Individual A/C	28,082	16,973	16,389	13,066	16,626	16,959	25,361
District Chilled Water	28,194	19,658	17,670	12,419	17,815	9,149	23,639
Central Chillers	63,914	42,987	43,140	25,333	37,532	36,983	57,948
Packaged-A/C Units	56,664	40,812	42,232	26,167	34,415	28,362	53,394
Swamp Coolers	378	358	NC	358	358	20	378
Lighting Equipment (more than one may apply)							
Incandescent	64,981	42,602	42,505	28,368	39,568	31,825	55,041
Standard Fluorescent	91,986	60,750	58,634	37,421	51,125	45,556	79,292
Compact Fluorescent	49,455	33,756	37,128	21,471	30,245	26,730	45,161
High-Intensity Discharge	52,593	35,944	32,936	22,966	29,904	22,390	47,085
Electronic Ballast	65,560	46,236	48,576	30,043	40,191	36,741	61,700
Water-Heating Equipment (more than one may apply)							
Centralized System	63,477	41,930	41,517	27,532	39,892	33,365	56,221
Distributed System	24,696	14,649	13,987	9,890	11,824	11,994	21,429
Don't Know/ Not Ascertained	4,965	4,642	2,632	NC	NC	333	2,686
Energy Conservation Features (more than one may apply)							
Any Conservation Feature	94,361	61,891	59,024	37,421	52,665	46,595	81,027
Building Shell	84,557	57,447	51,419	33,287	43,488	38,508	73,116
HVAC	93,543	61,891	59,024	37,421	52,665	45,983	80,865
Lighting	80,953	55,202	56,297	34,439	44,519	42,120	73,667

See footnotes at end of table.

Table 3.40. Energy Management Practices in FBSS Buildings in Federal Region 3, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling Insulation	69,654	49,683	42,066	26,983	33,849	29,888	59,342
Wall Insulation	31,876	26,169	16,376	9,623	12,884	14,838	28,026
Storm or Multiple Glazing	46,141	33,757	26,289	15,709	20,126	11,659	39,905
Tinted or Reflective Glass or Shading Film	46,829	36,581	24,607	15,439	25,852	22,644	39,533
Exterior or Interior Shading or Awnings	57,183	38,723	32,446	20,681	23,889	32,193	47,638
HVAC Conservation Features (more than one may apply)							
VAV System	37,611	29,150	22,577	14,320	19,649	13,711	33,689
Economizer Cycle	61,089	44,488	40,658	25,654	35,957	29,237	57,386
HVAC Maintenance	93,402	61,891	59,024	37,421	52,665	45,896	80,865
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	44,741	32,503	29,046	23,785	27,006	22,524	39,714
Natural Lighting Control Sensors	17,743	12,598	12,151	5,843	10,858	9,442	16,630
Occupancy Sensors	62,261	42,365	47,987	29,458	37,976	36,119	57,610
Time Clock	46,555	34,709	32,755	20,406	27,052	25,802	42,629
Manual Dimmer Switches	49,824	37,475	38,239	23,774	29,434	26,104	48,332

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.41. Energy Management Practices in FBSS Buildings in Federal Region 6, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
All Buildings	35,816	23,099	13,513	11,690	15,538	14,304	29,015
Building Floorspace (square feet)							
10,000 to 50,000	2,591	638	430	626	264	1,783	1,582
50,001 to 200,000	9,548	4,762	1,094	1,965	2,412	4,851	6,105
Over 200,000	23,677	17,698	11,989	9,099	12,862	7,670	21,328
Principal Building Activity							
Education	168	17	NC	NC	55	168	63
Health Care	12,094	11,662	6,935	2,754	6,770	1,435	11,812
Laboratory	3,331	1,633	99	244	72	979	1,264
Lodging	942	369	270	535	128	NC	597
Mercantile and Service	6,236	3,528	2,455	2,559	1,825	1,199	5,440
Office	10,799	5,607	3,720	5,237	6,615	9,274	8,868
All Others	2,247	283	33	361	274	1,250	972
Year Constructed							
1959 or Before	13,258	8,070	3,456	3,609	5,896	5,517	10,053
1960 to 1969	6,386	2,422	2,588	3,428	2,562	3,887	5,759
1970 to 1979	6,175	4,655	3,147	2,771	1,921	1,747	5,459
1980 to 1989	6,903	5,082	1,571	1,692	2,447	2,852	4,941
1990 to 1993	3,095	2,870	2,750	190	2,711	300	2,803
Federal Agency							
Department of Defense	1,668	848	779	1,129	1,133	793	1,277
General Services Administration ...	7,888	5,034	3,391	4,819	5,570	7,258	7,317
United States Postal Service	7,027	3,692	2,686	2,791	2,000	1,808	5,854
Veterans Administration	11,375	11,178	6,403	2,346	5,912	1,505	11,127
All Others	7,858	2,347	255	605	923	2,940	3,441
Energy Sources (more than one may apply)							
Electricity	35,816	23,099	13,513	11,690	15,538	14,304	29,015
Natural Gas	24,827	17,179	11,257	10,680	11,936	8,809	21,277
Fuel Oil	4,740	3,293	2,833	2,753	2,039	2,214	4,581
District Heat	13,437	9,499	5,031	1,376	5,836	5,034	9,972
District Chilled Water	7,980	6,984	5,258	1,818	4,647	2,669	7,577
Propane	200	135	24	NC	24	65	15
Any Other	2,850	2,458	1,436	NC	1,114	1,022	2,850
Energy End Uses (more than one may apply)							
Heating	35,734	23,099	13,513	11,690	15,538	14,304	29,015
Air Conditioning	35,273	22,638	13,052	11,690	15,538	14,304	28,555
Water Heating	35,221	22,638	13,052	11,657	15,518	14,251	28,535
Cooking	19,213	15,694	10,071	8,148	10,470	5,934	18,533
Manufacturing	5,335	3,545	2,597	2,957	2,378	2,549	5,140
Workers (main shift)							
Less than 50	2,548	415	204	498	247	1,291	1,510
50 to 99	2,026	944	231	577	566	1,044	1,241
100 to 499	9,029	4,647	730	1,275	1,774	4,652	5,211
500 or More	22,213	17,093	12,348	9,341	12,951	7,316	21,052
Weekly Operating Hours							
48 or Fewer	2,740	1,111	256	860	1,087	2,600	2,018
49 to 60	6,460	5,027	1,764	2,891	4,399	6,460	5,375
61 to 167	8,051	1,898	1,512	1,557	2,148	5,244	4,435
Open Continuously	18,565	15,063	9,982	6,381	7,904	NC	17,189

See footnotes at end of table.

Table 3.41. Energy Management Practices in FBSS Buildings in Federal Region 6, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Multibuilding Facility							
Yes	24,441	16,370	9,126	6,726	9,701	9,504	19,477
No	11,375	6,729	4,387	4,963	5,837	4,800	9,539
Percent of Floorspace Heated							
Not Heated	82	NC	NC	NC	NC	NC	NC
1 to 50	1,288	671	363	594	291	914	998
51 to 100	34,446	22,428	13,150	11,095	15,247	13,390	28,017
Percent of Floorspace Cooled							
Not Cooled	554	472	461	NC	11	NC	472
1 to 50	1,951	524	74	568	272	1,385	1,192
51 to 100	33,312	22,103	12,978	11,122	15,254	12,919	27,351
Percent Lit When Open							
1 to 50	1,062	326	183	102	272	742	687
51 to 100	34,672	22,773	13,330	11,587	15,265	13,562	28,328
No Operating Hours	82	NC	NC	NC	NC	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)							
Heat Pumps	964	199	100	618	12	313	877
Furnaces	791	87	45	69	202	633	584
Individual Space Heaters	5,408	3,592	2,576	1,610	1,881	2,898	4,846
District Heat	15,205	11,254	5,546	2,221	5,867	5,657	11,614
Boilers	16,718	10,580	7,178	7,806	8,854	7,088	14,190
Packaged-Heating Units	7,574	4,982	4,016	3,421	4,743	2,044	6,566
Cooling Equipment (more than one may apply)							
Residential-Type Central A/C	4,706	2,379	2,207	1,630	673	2,260	4,432
Heat Pumps	1,549	829	88	618	162	462	1,372
Individual A/C	6,950	4,000	1,009	1,946	2,121	1,998	5,338
District Chilled Water	10,856	9,349	5,258	2,347	5,840	4,328	9,701
Central Chillers	21,596	13,285	7,116	8,219	9,365	8,337	17,893
Packaged-A/C Units	14,104	9,541	6,929	6,103	6,418	5,049	12,808
Swamp Coolers	2,015	1,559	148	148	1,114	1,194	1,725
Lighting Equipment (more than one may apply)							
Incandescent	20,248	10,360	6,777	5,719	7,664	8,096	14,588
Standard Fluorescent	35,057	22,511	13,480	11,251	15,376	14,073	28,529
Compact Fluorescent	7,942	6,385	3,388	4,430	4,995	4,926	7,516
High-Intensity Discharge	16,188	11,491	6,805	6,194	6,374	4,651	13,662
Electronic Ballast	15,861	12,411	9,798	5,856	9,417	5,353	15,050
Water-Heating Equipment (more than one may apply)							
Centralized System	23,206	15,886	8,690	6,361	9,660	9,882	18,644
Distributed System	11,827	6,606	4,337	5,271	5,846	4,344	9,855
Don't Know/ Not Ascertained	188	146	25	25	11	25	36
Energy Conservation Features (more than one may apply)							
Any Conservation Feature	35,734	23,099	13,513	11,690	15,538	14,304	29,015
Building Shell	33,946	22,678	13,067	11,231	15,092	13,501	27,876
HVAC	35,425	23,099	13,488	11,643	15,396	13,995	28,826
Lighting	25,654	17,983	12,677	8,781	12,576	10,753	24,105

See footnotes at end of table.

Table 3.41. Energy Management Practices in FBSS Buildings in Federal Region 6, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling							
Insulation	28,249	19,380	11,688	8,794	11,081	10,088	23,169
Wall Insulation	20,550	14,492	9,928	6,991	8,650	5,384	16,527
Storm or Multiple Glazing	17,939	14,959	7,870	5,711	9,429	5,920	15,562
Tinted or Reflective Glass or Shading Film	24,768	17,244	11,836	8,557	12,800	10,141	21,955
Exterior or Interior Shading or Awnings	26,067	19,444	11,662	9,676	14,311	11,197	23,959
HVAC Conservation Features (more than one may apply)							
VAV System	18,518	14,894	8,839	6,867	11,160	6,306	15,889
Economizer Cycle	23,542	17,962	11,116	7,928	10,448	6,681	20,313
HVAC Maintenance	35,341	23,077	13,425	11,580	15,396	13,932	28,741
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	18,017	12,007	10,434	6,629	9,331	7,294	17,117
Natural Lighting Control							
Sensors	6,740	5,062	4,790	2,044	5,036	1,564	6,473
Occupancy Sensors	16,435	11,571	9,690	7,220	9,031	6,824	15,479
Time Clock	9,037	6,776	6,265	3,459	6,078	3,094	8,529
Manual Dimmer Switches	13,454	10,952	8,056	4,184	7,723	5,764	12,865

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.42. Energy Management Practices in FBSS Buildings in Federal Region 9, Floorspace, 1993
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
All Buildings	44,316	18,231	24,699	17,444	14,570	21,974	34,547
Building Floorspace (square feet)							
10,000 to 50,000	3,858	436	1,386	1,069	300	2,485	2,297
50,001 to 200,000	12,680	4,094	5,859	4,233	2,738	6,395	9,384
Over 200,000	27,778	13,701	17,454	12,142	11,533	13,095	22,867
Principal Building Activity							
Education	628	NC	38	157	21	388	200
Health Care	9,903	5,388	5,402	3,398	4,851	1,121	7,886
Laboratory	2,601	961	733	438	198	862	2,371
Lodging	1,220	308	421	616	59	29	608
Mercantile and Service	8,194	5,503	3,193	4,125	2,155	2,210	6,960
Office	16,380	3,868	11,694	6,572	6,660	14,700	14,196
All Others	5,390	2,203	3,219	2,138	627	2,664	2,327
Year Constructed							
1959 or Before	13,553	3,502	5,791	3,575	3,030	7,954	9,006
1960 to 1969	9,082	2,592	6,668	3,934	2,470	6,759	7,807
1970 to 1979	12,041	5,705	7,827	6,295	4,538	5,016	9,904
1980 to 1989	7,955	5,825	3,750	2,818	3,570	1,581	6,772
1990 to 1993	1,684	607	664	821	964	664	1,058
Federal Agency							
Department of Defense	8,489	4,442	4,072	2,738	1,850	3,720	4,555
General Services Administration ...	12,505	2,654	10,566	5,688	6,245	11,989	11,490
United States Postal Service	8,387	5,667	3,291	4,169	2,221	2,356	7,332
Veterans Administration	8,824	4,000	3,668	3,412	3,179	1,410	6,664
All Others	6,111	1,469	3,104	1,437	1,076	2,500	4,506
Energy Sources (more than one may apply)							
Electricity	44,296	18,231	24,680	17,424	14,570	21,974	34,527
Natural Gas	34,703	14,480	21,884	13,331	12,586	19,537	29,791
Fuel Oil	11,127	3,891	6,989	3,202	4,972	3,376	10,692
District Heat	11,757	5,426	5,771	4,039	4,204	3,160	8,528
District Chilled Water	6,362	3,286	3,259	1,737	4,042	1,073	5,462
Propane	1,117	752	878	841	752	86	813
Any Other	2,606	2,134	1,234	2,192	NC	1,245	1,648
Energy End Uses (more than one may apply)							
Heating	41,921	16,963	24,668	16,711	13,679	21,377	32,765
Air Conditioning	41,907	18,231	24,044	17,169	14,403	21,037	33,718
Water Heating	42,984	17,689	24,395	17,290	14,029	21,651	33,938
Cooking	20,045	11,783	14,043	10,482	9,567	7,179	16,241
Manufacturing	7,693	5,481	4,723	4,029	2,286	1,638	5,395
Workers (main shift)							
Less than 50	3,684	371	816	1,371	308	2,001	1,871
50 to 99	2,161	145	567	596	61	1,534	1,294
100 to 499	14,017	4,852	6,555	3,828	2,400	7,606	10,947
500 or More	24,454	12,863	16,762	11,649	11,801	10,833	20,435
Weekly Operating Hours							
48 or Fewer	4,822	949	1,537	1,504	369	4,176	1,937
49 to 60	13,424	3,181	9,623	5,773	5,427	12,945	11,669
61 to 167	5,706	1,804	3,153	1,914	1,311	4,853	5,019
Open Continuously	20,364	12,297	10,387	8,252	7,463	NC	15,922

See footnotes at end of table.

Table 3.42. Energy Management Practices in FBSS Buildings in Federal Region 9, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Multibuilding Facility							
Yes	26,821	13,401	13,884	11,814	8,369	9,385	19,618
No	17,495	4,830	10,816	5,630	6,201	12,589	14,930
Percent of Floorspace Heated							
Not Heated	2,394	1,268	32	733	891	597	1,782
1 to 50	3,751	2,120	1,913	2,011	253	1,923	1,899
51 to 100	38,170	14,843	22,755	14,700	13,426	19,453	30,866
Percent of Floorspace Cooled							
Not Cooled	2,956	193	942	455	371	1,293	1,308
1 to 50	7,304	3,000	2,539	1,949	995	2,868	5,383
51 to 100	34,056	15,038	21,218	15,039	13,204	17,814	27,857
Percent Lit When Open							
1 to 50	1,847	260	604	848	283	857	952
51 to 100	42,375	17,971	24,096	16,596	14,288	21,088	33,595
No Operating Hours	29	NC	NC	NC	NC	29	NC
Don't Know	64	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)							
Heat Pumps	3,081	1,477	2,456	894	412	1,414	2,941
Furnaces	1,204	507	722	763	510	558	499
Individual Space Heaters	4,933	1,634	3,373	2,609	1,923	3,201	4,180
District Heat	12,712	6,515	6,866	4,926	3,981	3,194	8,460
Boilers	24,010	9,045	15,566	11,129	8,573	15,082	20,352
Packaged-Heating Units	5,997	1,712	4,294	863	1,504	3,783	4,976
Cooling Equipment (more than one may apply)							
Residential-Type Central A/C	1,900	1,013	1,118	886	677	954	807
Heat Pumps	2,724	1,433	1,823	863	412	1,439	2,485
Individual A/C	5,723	1,620	2,404	1,684	726	3,678	4,953
District Chilled Water	7,647	5,146	5,465	3,138	4,034	1,058	4,932
Central Chillers	27,723	13,372	16,944	12,296	9,296	15,384	23,266
Packaged-A/C Units	23,989	8,856	14,389	10,548	9,034	13,817	20,197
Swamp Coolers	3,165	1,592	1,636	1,301	1,142	758	2,285
Lighting Equipment (more than one may apply)							
Incandescent	20,475	7,727	11,924	9,157	8,130	9,724	17,342
Standard Fluorescent	42,850	17,903	24,511	16,789	14,570	21,289	34,047
Compact Fluorescent	17,339	7,441	13,891	6,254	8,282	11,741	16,985
High-Intensity Discharge	18,736	10,875	10,570	9,828	6,651	7,978	14,352
Electronic Ballast	23,307	11,378	16,181	12,008	8,859	12,845	20,703
Water-Heating Equipment (more than one may apply)							
Centralized System	31,069	13,213	18,305	12,457	11,891	16,096	25,491
Distributed System	10,750	3,696	6,054	4,312	1,955	4,928	7,843
Don't Know/ Not Ascertained	1,165	781	36	521	183	628	604
Energy Conservation Features (more than one may apply)							
Any Conservation Feature	44,023	18,231	24,624	17,432	14,570	21,853	34,547
Building Shell	34,105	15,836	19,745	14,266	11,712	15,481	26,983
HVAC	43,116	17,971	24,535	16,780	14,532	21,502	34,455
Lighting	34,825	15,999	20,778	13,223	12,803	17,791	29,501

See footnotes at end of table.

Table 3.42. Energy Management Practices in FBSS Buildings in Federal Region 9, Floorspace, 1993 (Continued)
(Thousand Square Feet)

Building Characteristics	All Buildings	Energy Management and Control System	Energy Conservation Programs ¹	Energy Audit	HVAC Maintenance Staff ²	Off-Hour Equipment Reduction	Retrofit or Purchase of Energy Efficient Equipment
Building Shell Conservation Features (more than one may apply)							
Roof or Ceiling							
Insulation	27,234	15,092	16,156	12,807	9,157	9,929	21,217
Wall Insulation	17,462	10,333	10,951	9,275	7,263	5,872	13,563
Storm or Multiple Glazing	10,260	4,429	7,098	3,871	5,672	3,397	9,417
Tinted or Reflective Glass or Shading Film	22,381	10,096	14,637	9,488	8,991	9,823	19,110
Exterior or Interior Shading or Awnings	24,370	11,233	14,182	10,337	9,080	10,266	20,183
HVAC Conservation Features (more than one may apply)							
VAV System	15,577	7,683	10,148	6,474	8,209	6,212	13,029
Economizer Cycle	26,367	11,661	17,092	11,957	8,690	14,527	22,271
HVAC Maintenance	43,098	17,954	24,517	16,780	14,532	21,484	34,437
Lighting Conservation Features (more than one may apply)							
Specular Reflectors	21,850	7,520	15,832	5,450	10,376	13,481	20,033
Natural Lighting Control							
Sensors	13,760	6,808	8,689	4,365	6,208	6,717	12,187
Occupancy Sensors	25,245	12,584	15,295	11,847	11,003	11,773	22,559
Time Clock	10,539	5,499	8,426	5,292	5,304	5,810	9,778
Manual Dimmer Switches	14,455	7,269	9,461	5,939	7,711	5,206	12,377

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.43. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 3, 1993

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
All Buildings	312	94,880	12,010	167	20,445	6,772	121	1,968	8
Building Floorspace (square feet)									
10,000 to 50,000	94	2,564	477	6	605	201	3	63	(*)
50,001 to 200,000	117	13,166	2,290	28	3,470	1,149	18	304	1
Over 200,000	101	79,149	9,243	133	16,370	5,422	99	1,602	7
Principal Building Activity									
Education	8	598	65	1	85	28	(*)	6	(*)
Health Care	41	14,559	1,829	18	2,219	735	11	599	2
Laboratory	37	5,165	1,581	21	2,248	744	12	58	(*)
Lodging	13	2,558	216	3	393	130	2	35	(*)
Mercantile and Service	46	7,966	1,166	12	1,339	444	6	635	3
Office	124	56,881	6,074	97	12,044	3,989	75	598	2
All Others	43	7,152	1,080	16	2,118	702	11	38	(*)
Year Constructed									
1959 or Before	142	43,829	5,445	80	8,749	2,898	57	949	4
1960 to 1969	70	19,564	2,695	40	4,675	1,548	27	162	1
1970 to 1979	47	17,737	1,929	28	4,516	1,496	23	104	(*)
1980 to 1989	38	8,975	1,494	14	1,732	574	9	717	3
1990 to 1993	15	4,774	446	6	773	256	4	36	(*)
Federal Agency									
Department of Defense	22	13,988	1,911	23	2,900	961	14	448	2
General Services Administration	83	46,205	4,607	82	10,082	3,340	67	184	1
United States Postal Service	57	9,392	1,312	14	1,713	568	10	649	3
Veterans Administration	56	13,306	1,758	17	2,077	688	11	592	2
All Others	94	11,989	2,423	31	3,673	1,217	19	94	1
Energy Sources (more than one may apply)									
Electricity	311	94,161	11,990	167	20,445	6,772	121	1,949	8
Natural Gas	139	58,674	7,606	103	12,413	4,112	75	1,968	8
Fuel Oil	89	39,300	5,008	63	9,111	3,018	46	986	4
District Heat	154	63,991	8,106	126	14,023	4,645	87	425	2
District Chilled Water	57	22,922	3,305	43	4,940	1,636	26	384	1
Propane	5	941	115	2	179	59	1	3	(*)
Any Other	8	4,470	355	5	770	255	4	20	(*)
Energy End Uses (more than one may apply)									
Heating	307	94,063	11,991	167	20,390	6,754	120	1,968	8
Air Conditioning	305	93,454	11,970	167	20,407	6,759	120	1,947	8
Water Heating	303	93,138	11,924	166	20,246	6,706	119	1,963	8
Cooking	108	69,947	8,780	125	15,430	5,111	93	1,635	7
Manufacturing	50	27,041	3,755	48	6,701	2,220	34	583	2
Workers (main shift)									
Less than 50	71	4,102	444	5	548	181	3	61	(*)
50 to 99	39	1,903	319	3	336	111	2	53	(*)
100 to 499	107	13,632	2,321	29	3,460	1,146	18	358	2
500 or More	95	75,243	8,926	130	16,100	5,333	97	1,496	6
Weekly Operating Hours									
48 or Fewer	51	9,694	854	21	1,310	434	16	40	(*)
49 to 60	76	25,540	2,496	41	4,935	1,635	30	76	(*)
61 to 167	60	11,993	1,308	18	2,650	878	15	131	(*)
Open Continuously	125	47,653	7,352	88	11,550	3,826	60	1,722	7

See footnotes at end of table.

Table 3.43. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Multibuilding Facility									
Yes	176	43,861	5,572	71	9,379	3,107	50	787	3
No	136	51,018	6,437	96	11,066	3,666	71	1,182	5
Percent of Floorspace Heated									
Not Heated	5	817	18	(*)	55	18	(*)	NC	NC
1 to 50	12	5,787	395	6	722	239	4	17	(*)
51 to 100	295	88,275	11,596	161	19,668	6,515	116	1,951	8
Percent of Floorspace Cooled									
Not Cooled	13	3,582	180	2	334	111	2	39	(*)
1 to 50	30	9,874	870	13	1,617	536	9	36	(*)
51 to 100	269	81,424	10,960	152	18,494	6,126	109	1,894	8
Percent Lit When Open									
1 to 50	11	663	46	1	77	26	1	9	(*)
51 to 100	300	94,070	11,939	167	20,340	6,737	120	1,944	8
No Operating Hours	1	147	26	(*)	28	9	(*)	16	(*)
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC
Percent Lit When Closed									
Not Lit	39	5,149	449	7	879	291	5	44	(*)
1 to 50	194	57,953	6,919	107	11,770	3,899	78	1,006	5
51 to 100	42	17,412	2,786	32	4,134	1,369	20	655	2
No Off Hours	37	14,366	1,856	22	3,662	1,213	17	263	1
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)									
Heat Pumps	34	10,922	935	13	2,168	718	11	34	(*)
Furnaces	16	1,694	93	1	128	42	1	34	(*)
Individual Space Heaters	75	34,923	4,433	57	6,910	2,289	39	1,164	5
District Heat	167	67,704	8,711	131	14,899	4,935	91	749	3
Boilers	93	20,082	2,640	26	3,950	1,308	20	1,111	5
Packaged-Heating Units	25	6,006	1,162	12	1,206	399	7	659	3
Cooling Equipment (more than one may apply)									
Residential-Type Central A/C	30	19,073	2,655	43	4,292	1,422	31	471	2
Heat Pumps	37	11,388	987	15	2,234	740	13	11	(*)
Individual A/C	80	28,082	3,276	44	5,084	1,684	31	914	4
District Chilled Water	72	28,194	4,102	51	6,319	2,093	32	586	2
Central Chillers	158	63,914	7,621	113	13,867	4,593	86	1,246	6
Packaged-A/C Units	127	56,664	6,677	98	11,321	3,750	72	1,481	6
Swamp Coolers	3	378	99	1	195	65	1	35	(*)
Lighting Equipment (more than one may apply)									
Incandescent	184	64,981	8,811	122	14,418	4,776	85	1,487	7
Standard Fluorescent	300	91,986	11,709	162	19,860	6,578	117	1,946	8
Compact Fluorescent	80	49,455	5,583	84	10,301	3,412	63	826	3
High-Intensity Discharge	111	52,593	6,889	88	11,695	3,874	62	1,445	6
Electronic Ballast	135	65,560	7,548	112	13,264	4,394	82	1,192	5
Water-Heating Equipment (more than one may apply)									
Centralized System	223	63,477	8,916	116	14,310	4,740	80	1,730	7
Distributed System	71	24,696	2,438	44	4,653	1,541	34	206	1
Don't Know/ Not Ascertained	9	4,965	571	6	1,283	425	5	28	(*)

See footnotes at end of table.

Table 3.43. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Commercial Refrigeration Equipment (more than one may apply)									
Any Equipment	109	61,731	8,358	116	14,116	4,676	84	1,633	7
Walk-in Units	78	54,223	7,473	105	12,314	4,079	75	1,543	7
Cases and Cabinets	87	53,454	7,508	105	12,534	4,152	76	1,519	6
None	203	33,149	3,652	51	6,329	2,096	36	336	1
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)									
Retrofit and/or Purchase	229	81,286	9,984	142	16,613	5,503	102	1,843	8
Retrofit	79	43,128	4,664	67	8,449	2,799	48	718	3
Purchase	188	62,995	8,180	113	13,081	4,333	81	1,722	7
No Retrofit or Purchase	83	13,594	2,025	26	3,832	1,269	18	125	1
Energy Conservation Features (more than one may apply)									
Any Conservation Feature	309	94,361	11,986	167	20,407	6,760	120	1,968	8
Building Shell	290	84,557	11,201	147	18,863	6,248	103	1,871	8
HVAC	303	93,543	11,922	166	20,330	6,734	120	1,951	8
Lighting	210	80,953	9,866	140	17,200	5,697	103	1,652	7
HVAC Conservation Features (more than one may apply)									
VAV System	84	37,611	4,764	59	8,153	2,700	43	1,130	5
Economizer Cycle	156	61,089	8,255	110	14,240	4,717	79	1,582	7
HVAC Maintenance	301	93,402	11,917	166	20,316	6,729	120	1,951	8
Lighting Conservation Features (more than one may apply)									
Specular Reflectors	124	44,741	5,880	73	9,465	3,135	51	1,346	6
Natural Lighting Control									
Sensors	29	17,743	1,830	32	3,312	1,097	26	311	1
Occupancy Sensors	95	62,261	6,564	103	12,728	4,216	79	749	3
Time Clock	74	46,555	5,309	80	9,750	3,229	60	633	2
Manual Dimmer Switches	93	49,824	5,521	85	9,856	3,265	62	752	3
Energy Management Practices (more than one may apply)									
Energy Management and Control System	132	61,891	7,959	109	13,645	4,520	81	1,692	7
Energy Conservation Programs ¹	99	59,284	7,021	105	12,129	4,018	77	1,375	6
Energy Audit	99	37,621	4,388	60	7,990	2,647	44	585	2
HVAC Maintenance Staff ²	97	52,924	6,266	97	11,252	3,727	72	930	4
Off-Hours Reduction in Equipment (more than one may apply)									
Heating	144	43,828	4,127	73	8,085	2,678	56	199	1
Cooling	145	43,757	4,129	73	8,083	2,677	56	198	1
Hot Water	77	26,018	2,407	45	4,552	1,508	35	115	1
Lighting	162	44,717	4,316	75	8,302	2,750	58	230	1
Sponsor of Program (more than one may apply)									
FEMP	3	1,848	208	3	339	112	2	7	(*)
Electric Utility	29	20,357	2,466	33	4,103	1,359	24	687	3
Natural Gas Utility	NC	NC	NC	NC	NC	NC	NC	NC	NC
In-house	33	26,265	3,221	45	5,606	1,857	32	510	2
Third Party	5	4,322	443	6	882	292	5	110	(*)

See footnotes at end of table.

Table 3.43. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Type of Assistance (more than one may apply)									
Federal Energy Efficiency Fund	4	962	128	1	123	41	1	9	(*)
General Information	7	6,729	573	8	1,135	376	6	109	(*)
Site-Specific Information	9	16,219	2,292	30	4,028	1,334	20	486	2
Incentives	18	12,755	1,066	19	2,313	766	14	10	(*)
Alternate Rates	8	7,707	1,100	12	1,176	389	8	567	3
Fuel Switching	4	2,154	185	3	373	123	2	12	(*)
Building Generates Electricity									
Yes	55	31,984	4,282	53	7,462	2,472	37	724	3
No	257	62,896	7,728	115	12,983	4,301	83	1,244	6
Natural Gas Transported for the Account of Others									
Used in Building	11	4,270	394	4	573	190	3	142	1
Not Used in Building	124	52,636	6,973	96	11,240	3,723	70	1,805	8
Don't Know/									
Not Ascertained	4	1,768	239	2	601	199	2	21	(*)

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity is site electricity plus the conversion losses in the electric generation process at the utility plant. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.44. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 6, 1993

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
All Buildings	243	35,816	5,318	65	10,046	3,328	51	1,002	3
Building Floorspace (square feet)									
10,000 to 50,000	107	2,591	515	5	814	270	4	150	(*)
50,001 to 200,000	86	9,548	1,780	22	3,109	1,030	16	354	1
Over 200,000	50	23,677	3,023	38	6,123	2,028	31	498	2
Principal Building Activity									
Education	6	168	21	(*)	24	8	(*)	8	(*)
Health Care	35	12,094	1,659	17	2,255	747	12	636	2
Laboratory	29	3,331	1,340	19	2,471	819	13	58	(*)
Lodging	16	942	109	1	155	51	1	33	(*)
Mercantile and Service	49	6,236	486	7	1,378	456	7	29	(*)
Office	76	10,799	1,208	16	2,712	898	14	159	1
All Others	32	2,247	495	5	1,051	348	4	79	(*)
Year Constructed									
1959 or Before	103	13,258	2,360	25	4,032	1,336	18	451	1
1960 to 1969	38	6,386	849	12	1,852	613	10	130	1
1970 to 1979	34	6,175	879	10	1,941	643	9	180	1
1980 to 1989	57	6,903	1,003	15	1,848	612	13	198	1
1990 to 1993	11	3,095	227	3	373	124	2	43	(*)
Federal Agency									
Department of Defense	22	1,668	302	3	421	140	2	148	(*)
General Services Administration	35	7,888	556	9	1,256	416	8	94	(*)
United States Postal Service	61	7,027	528	8	1,493	495	8	33	(*)
Veterans Administration	36	11,375	1,425	15	1,919	636	10	501	2
All Others	89	7,858	2,507	31	4,956	1,642	23	226	1
Energy Sources (more than one may apply)									
Electricity	243	35,816	5,318	65	10,046	3,328	51	1,002	3
Natural Gas	168	24,827	3,212	36	5,992	1,985	31	1,002	3
Fuel Oil	18	4,740	531	7	929	308	6	155	1
District Heat	68	13,437	2,563	34	4,482	1,485	23	93	(*)
District Chilled Water	30	7,980	911	12	1,423	471	8	95	(*)
Propane	5	200	57	(*)	62	21	(*)	29	(*)
Any Other	8	2,850	449	5	792	262	4	127	(*)
Energy End Uses (more than one may apply)									
Heating	242	35,734	5,317	65	10,045	3,327	51	1,002	3
Air Conditioning	241	35,273	5,256	64	9,861	3,266	50	1,002	3
Water Heating	238	35,221	5,254	64	9,857	3,265	50	1,001	3
Cooking	63	19,213	2,207	26	3,940	1,305	22	634	2
Manufacturing	28	5,335	425	6	1,025	339	6	73	(*)
Workers (main shift)									
Less than 50	70	2,548	569	6	1,143	379	5	93	(*)
50 to 99	44	2,026	257	3	475	157	2	73	(*)
100 to 499	80	9,029	1,911	24	3,251	1,077	17	335	1
500 or More	49	22,213	2,580	33	5,177	1,715	27	501	2
Weekly Operating Hours									
48 or Fewer	39	2,740	385	5	596	197	3	81	(*)
49 to 60	46	6,460	636	8	957	317	6	88	(*)
61 to 167	78	8,051	1,770	22	4,022	1,332	18	113	(*)
Open Continuously	80	18,565	2,526	30	4,471	1,481	24	720	2

See footnotes at end of table.

Table 3.44. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Multibuilding Facility									
Yes	148	24,441	4,151	50	7,527	2,493	37	677	2
No	95	11,375	1,167	15	2,519	834	14	325	1
Percent of Floorspace Heated									
Not Heated	1	82	(*)	(*)	1	(*)	(*)	NC	NC
1 to 50	11	1,288	104	1	228	76	1	24	(*)
51 to 100	231	34,446	5,213	64	9,817	3,252	50	978	3
Percent of Floorspace Cooled									
Not Cooled	3	554	70	1	186	62	1	8	(*)
1 to 50	26	1,951	373	4	769	255	3	41	(*)
51 to 100	214	33,312	4,875	60	9,091	3,011	47	953	3
Percent Lit When Open									
1 to 50	15	1,062	83	1	190	63	1	13	(*)
51 to 100	227	34,672	5,234	64	9,855	3,264	50	989	3
No Operating Hours	1	82	(*)	(*)	1	(*)	(*)	NC	NC
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC
Percent Lit When Closed									
Not Lit	33	2,691	192	2	348	115	2	59	(*)
1 to 50	165	20,495	3,709	46	7,142	2,366	36	588	2
51 to 100	25	8,029	797	9	1,400	464	7	192	1
No Off Hours	20	4,601	619	7	1,156	383	6	163	1
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)									
Heat Pumps	10	964	149	2	330	109	2	33	(*)
Furnaces	18	791	90	1	113	37	1	53	(*)
Individual Space Heaters	30	5,408	700	12	1,274	422	10	165	1
District Heat	82	15,205	2,831	36	4,707	1,559	24	293	1
Boilers	102	16,718	2,121	24	4,329	1,434	22	644	2
Packaged-Heating Units	59	7,574	1,099	13	2,049	679	11	338	1
Cooling Equipment (more than one may apply)									
Residential-Type Central A/C	29	4,706	454	6	984	326	6	92	(*)
Heat Pumps	11	1,549	204	2	407	135	2	62	(*)
Individual A/C	50	6,950	1,246	13	2,482	822	10	226	1
District Chilled Water	44	10,856	1,404	19	1,971	653	14	268	1
Central Chillers	122	21,596	3,059	36	6,266	2,076	30	638	2
Packaged-A/C Units	97	14,104	1,852	22	3,478	1,152	19	502	2
Swamp Coolers	12	2,015	234	3	398	132	2	28	(*)
Lighting Equipment (more than one may apply)									
Incandescent	135	20,248	3,539	44	7,068	2,341	34	556	2
Standard Fluorescent	235	35,057	5,283	65	9,966	3,301	51	994	3
Compact Fluorescent	29	7,942	741	11	1,467	486	9	173	1
High-Intensity Discharge	64	16,188	2,515	27	5,332	1,766	23	480	2
Electronic Ballast	59	15,861	1,649	20	2,873	952	16	505	2
Water-Heating Equipment (more than one may apply)									
Centralized System	163	23,206	3,448	41	5,924	1,962	31	801	3
Distributed System	71	11,827	1,744	22	3,864	1,280	19	164	1
Don't Know/ Not Ascertained	4	188	63	1	69	23	(*)	37	(*)

See footnotes at end of table.

Table 3.44. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Commercial Refrigeration Equipment (more than one may apply)									
Any Equipment	70	17,917	2,529	33	4,198	1,390	26	648	2
Walk-in Units	40	12,381	1,783	19	2,808	930	15	591	2
Cases and Cabinets	44	14,125	1,782	19	2,828	937	15	596	2
None	173	17,899	2,789	32	5,848	1,937	25	354	1
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)									
Retrofit and/or Purchase	162	29,015	3,517	43	6,462	2,140	34	832	3
Retrofit	63	15,029	1,542	20	2,772	918	16	307	1
Purchase	126	21,409	2,732	32	5,039	1,669	27	725	2
No Retrofit or Purchase	81	6,801	1,801	22	3,584	1,187	17	170	1
Energy Conservation Features (more than one may apply)									
Any Conservation Feature	242	35,734	5,317	65	10,045	3,327	51	1,002	3
Building Shell	228	33,946	5,092	62	9,688	3,209	49	997	3
HVAC	236	35,425	5,287	65	9,973	3,303	51	996	3
Lighting	136	25,654	2,997	38	5,341	1,769	30	729	2
HVAC Conservation Features (more than one may apply)									
VAV System	65	18,518	2,319	29	4,292	1,422	23	500	2
Economizer Cycle	123	23,542	3,459	38	6,629	2,196	30	704	2
HVAC Maintenance	234	35,341	5,274	65	9,955	3,297	51	992	3
Lighting Conservation Features (more than one may apply)									
Specular Reflectors	92	18,017	2,263	29	4,064	1,346	23	533	2
Natural Lighting Control Sensors	27	6,740	652	8	1,075	356	6	227	1
Occupancy Sensors	58	16,435	1,639	21	3,246	1,075	18	397	1
Time Clock	36	9,037	861	11	1,559	516	9	172	1
Manual Dimmer Switches	44	13,454	1,475	19	2,532	839	15	366	1
Energy Management Practices (more than one may apply)									
Energy Management and Control System	96	23,099	2,889	35	4,727	1,566	26	708	2
Energy Conservation Programs ¹	48	13,513	1,481	18	2,670	884	15	401	1
Energy Audit	64	11,690	1,177	17	2,496	827	15	281	1
HVAC Maintenance Staff ²	57	15,538	1,542	20	3,002	994	17	351	1
Off-Hours Reduction in Equipment (more than one may apply)									
Heating	123	13,162	1,356	22	2,326	770	17	197	1
Cooling	124	13,864	1,413	23	2,436	807	18	197	1
Hot Water	33	4,554	401	6	856	284	5	40	(*)
Lighting	120	12,847	1,383	22	2,391	792	17	228	1
Sponsor of Program (more than one may apply)									
FEMP	4	1,286	77	2	148	49	1	29	(*)
Electric Utility	4	1,257	63	1	111	37	1	14	(*)
Natural Gas Utility	NC	NC	NC	NC	NC	NC	NC	NC	NC
In-house	19	6,915	741	9	1,277	423	8	181	1
Third Party	2	340	27	(*)	62	20	(*)	6	(*)

See footnotes at end of table.

Table 3.44. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Type of Assistance (more than one may apply)									
Federal Energy Efficiency									
Fund	4	1,564	90	2	177	59	2	32	(*)
General Information	3	100	13	(*)	27	9	(*)	4	(*)
Site-Specific Information	5	423	64	1	108	36	1	24	(*)
Incentives	4	296	35	(*)	59	19	(*)	4	(*)
Alternate Rates	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fuel Switching	1	772	104	1	186	61	1	5	(*)
Building Generates Electricity									
Yes	32	10,295	1,086	12	1,668	553	9	377	1
No	211	25,521	4,232	53	8,378	2,775	42	625	2
Natural Gas Transported for the Account of Others									
Used in Building	5	631	160	1	160	53	1	69	(*)
Not Used in Building	140	22,202	2,377	28	4,230	1,401	24	853	3
Don't Know/									
Not Ascertained	23	1,994	675	7	1,602	530	6	80	(*)

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity is site electricity plus the conversion losses in the electric generation process at the utility plant. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.45. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 9, 1993

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
All Buildings	326	44,316	4,687	76	8,281	2,743	62	1,082	5
Building Floorspace (square feet)									
10,000 to 50,000	148	3,858	475	8	807	267	6	113	1
50,001 to 200,000	123	12,680	1,713	26	2,775	919	20	423	2
Over 200,000	55	27,778	2,499	42	4,700	1,557	35	546	2
Principal Building Activity									
Education	12	628	58	1	63	21	(*)	19	(*)
Health Care	48	9,903	1,500	18	1,723	571	12	412	2
Laboratory	31	2,601	518	9	971	322	7	99	(*)
Lodging	22	1,220	115	2	145	48	1	23	(*)
Mercantile and Service	63	8,194	499	10	1,316	436	10	56	(*)
Office	92	16,380	1,217	25	2,574	852	23	308	1
All Others	58	5,390	781	12	1,490	494	9	165	1
Year Constructed									
1959 or Before	130	13,553	1,586	26	2,888	957	22	395	1
1960 to 1969	55	9,082	913	14	1,471	487	11	281	1
1970 to 1979	62	12,041	1,246	22	2,069	685	17	224	1
1980 to 1989	65	7,955	834	13	1,596	529	11	160	1
1990 to 1993	14	1,684	108	2	257	85	2	22	(*)
Federal Agency									
Department of Defense	78	8,489	979	17	1,924	637	14	167	1
General Services Administration ..	39	12,505	757	15	1,485	492	13	231	1
United States Postal Service	63	8,387	533	11	1,429	473	11	60	(*)
Veterans Administration	56	8,824	1,397	18	1,547	512	11	355	1
All Others	90	6,111	1,021	16	1,896	628	13	269	1
Energy Sources (more than one may apply)									
Electricity	325	44,296	4,681	76	8,281	2,743	62	1,082	5
Natural Gas	225	34,703	3,624	56	6,117	2,026	46	1,082	5
Fuel Oil	54	11,127	1,459	21	2,283	756	17	513	2
District Heat	74	11,757	1,743	25	1,998	662	14	246	1
District Chilled Water	27	6,362	862	11	1,093	362	7	151	1
Propane	10	1,117	179	3	271	90	2	74	(*)
Any Other	5	2,606	279	4	379	125	3	75	(*)
Energy End Uses (more than one may apply)									
Heating	304	41,921	4,505	73	7,744	2,565	59	1,079	5
Air Conditioning	292	41,907	4,458	71	7,963	2,638	59	1,046	4
Water Heating	315	42,984	4,548	73	8,016	2,655	59	1,079	5
Cooking	70	20,045	2,148	32	3,581	1,186	24	481	2
Manufacturing	30	7,693	802	13	1,621	537	11	98	(*)
Workers (main shift)									
Less than 50	93	3,684	341	6	592	196	5	80	(*)
50 to 99	49	2,161	279	5	530	176	4	74	(*)
100 to 499	134	14,017	1,799	27	2,691	891	20	450	2
500 or More	50	24,454	2,268	39	4,468	1,480	34	477	2
Weekly Operating Hours									
48 or Fewer	80	4,822	491	7	764	253	5	154	1
49 to 60	65	13,424	1,058	19	1,848	612	16	268	1
61 to 167	68	5,706	542	10	1,053	349	8	154	1
Open Continuously	113	20,364	2,595	40	4,616	1,529	32	506	2

See footnotes at end of table.

Table 3.45. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Multibuilding Facility									
Yes	200	26,821	3,165	47	5,002	1,657	36	744	3
No	126	17,495	1,522	29	3,280	1,086	26	338	1
Percent of Floorspace Heated									
Not Heated	22	2,394	182	3	538	178	3	3	(*)
1 to 50	28	3,751	462	9	1,119	371	8	78	(*)
51 to 100	276	38,170	4,043	64	6,625	2,194	51	1,000	4
Percent of Floorspace Cooled									
Not Cooled	40	2,956	283	5	415	137	4	43	(*)
1 to 50	55	7,304	920	13	1,396	462	9	240	1
51 to 100	231	34,056	3,484	58	6,471	2,143	49	798	3
Percent Lit When Open									
1 to 50	20	1,847	157	2	221	73	2	56	(*)
51 to 100	304	42,375	4,523	74	8,050	2,667	60	1,023	4
No Operating Hours	1	29	(*)	(*)	(*)	(*)	(*)	NC	NC
Don't Know	1	64	7	(*)	10	3	(*)	3	(*)
Percent Lit When Closed									
Not Lit	35	1,664	189	3	337	112	3	47	(*)
1 to 50	205	25,288	2,222	37	3,854	1,276	31	643	3
51 to 100	44	8,109	929	15	1,652	547	12	168	1
No Off Hours	41	9,190	1,340	21	2,429	804	17	220	1
Don't Know	1	64	7	(*)	10	3	(*)	3	(*)
Heating Equipment (more than one may apply)									
Heat Pumps	40	3,081	364	6	703	233	5	78	(*)
Furnaces	25	1,204	76	1	161	53	1	23	(*)
Individual Space Heaters	33	4,933	418	7	843	279	7	137	1
District Heat	71	12,712	1,861	26	2,437	807	16	265	1
Boilers	146	24,010	2,203	38	4,338	1,437	34	637	3
Packaged-Heating Units	67	5,997	675	9	1,054	349	7	273	1
Cooling Equipment (more than one may apply)									
Residential-Type Central A/C	24	1,900	231	3	347	115	3	63	(*)
Heat Pumps	32	2,724	345	6	645	214	5	72	(*)
Individual A/C	52	5,723	629	10	1,035	343	8	165	1
District Chilled Water	31	7,647	1,044	14	1,751	580	10	157	1
Central Chillers	139	27,723	2,710	45	5,139	1,702	39	675	3
Packaged-A/C Units	151	23,989	2,436	39	4,287	1,420	32	629	3
Swamp Coolers	30	3,165	299	4	442	146	3	107	(*)
Lighting Equipment (more than one may apply)									
Incandescent	161	20,475	2,093	33	3,650	1,209	27	593	3
Standard Fluorescent	309	42,850	4,520	71	7,862	2,604	58	1,063	5
Compact Fluorescent	73	17,339	1,609	29	3,054	1,012	25	432	2
High-Intensity Discharge	75	18,736	1,699	28	3,392	1,123	23	319	1
Electronic Ballast	105	23,307	2,308	37	4,041	1,339	31	585	2
Water-Heating Equipment (more than one may apply)									
Centralized System	225	31,069	3,304	51	5,220	1,729	40	847	4
Distributed System	80	10,750	1,098	19	2,468	817	17	196	1
Don't Know/ Not Ascertained	10	1,165	145	2	328	109	2	37	(*)

See footnotes at end of table.

Table 3.45. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Commercial Refrigeration Equipment (more than one may apply)									
Any Equipment	63	18,781	2,016	31	3,565	1,181	24	397	2
Walk-in Units	44	12,536	1,506	22	2,397	794	16	315	1
Cases and Cabinets	50	14,928	1,589	25	2,558	847	19	345	2
None	263	25,535	2,670	45	4,716	1,562	38	685	3
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)									
Retrofit and/or Purchase	213	34,547	3,592	59	6,291	2,084	49	905	4
Retrofit	103	22,610	2,298	35	3,560	1,179	28	665	3
Purchase	148	19,642	2,263	39	4,276	1,416	33	511	2
No Retrofit or Purchase	113	9,769	1,094	17	1,991	659	13	177	1
Energy Conservation Features (more than one may apply)									
Any Conservation Feature	319	44,023	4,676	76	8,262	2,737	62	1,080	5
Building Shell	248	34,105	3,858	60	6,537	2,165	48	921	4
HVAC	307	43,116	4,610	74	8,112	2,687	61	1,063	5
Lighting	217	34,825	3,665	57	6,250	2,070	47	940	4
HVAC Conservation Features (more than one may apply)									
VAV System	75	15,577	1,690	27	3,013	998	22	403	2
Economizer Cycle	140	26,367	2,642	42	4,438	1,470	34	696	3
HVAC Maintenance	306	43,098	4,607	74	8,108	2,686	61	1,062	5
Lighting Conservation Features (more than one may apply)									
Specular Reflectors	124	21,850	2,085	32	3,417	1,132	26	555	2
Natural Lighting Control									
Sensors	58	13,760	1,174	19	1,919	636	16	298	1
Occupancy Sensors	109	25,245	2,618	42	4,594	1,522	35	568	3
Time Clock	41	10,539	953	14	1,450	480	11	278	1
Manual Dimmer Switches	78	14,455	1,808	26	2,766	916	21	586	2
Energy Management Practices (more than one may apply)									
Energy Management and Control System	71	18,231	1,942	30	3,827	1,268	25	372	2
Energy Conservation Programs ¹	124	24,699	2,623	41	4,616	1,529	33	677	3
Energy Audit	99	17,444	1,737	29	3,377	1,118	24	356	2
HVAC Maintenance Staff ²	52	14,570	1,473	22	2,509	831	16	383	2
Off-Hours Reduction in Equipment (more than one may apply)									
Heating	151	19,631	1,547	26	2,777	920	22	468	2
Cooling	157	19,219	1,484	25	2,698	894	22	447	2
Hot Water	68	13,614	922	17	1,796	595	15	279	1
Lighting	172	21,155	1,692	28	3,022	1,001	24	528	2
Sponsor of Program (more than one may apply)									
FEMP	1	317	20	(*)	54	18	(*)	2	(*)
Electric Utility	21	6,670	657	10	1,074	356	8	247	1
Natural Gas Utility	2	482	19	(*)	44	14	(*)	5	(*)
In-house	35	6,695	841	12	1,341	444	9	194	1
Third Party	3	136	18	(*)	19	6	(*)	(*)	(*)

See footnotes at end of table.

Table 3.45. Consumption and Expenditures for Sum of Major Fuels, Electricity, and Natural Gas in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Number of Buildings	Floorspace (thousand square feet)	Sum of Major Fuel Consumption (billion Btu)	Sum of Major Fuel Expenditures (million dollars)	Electricity Consumption (billion Btu)		Electricity Expenditures (million dollars)	Natural Gas Consumption (billion Btu)	Natural Gas Expenditures (million dollars)
					Primary	Site			
Type of Assistance (more than one may apply)									
Federal Energy Efficiency									
Fund	3	1,725	236	4	695	230	4	6	(*)
General Information	3	2,013	227	4	429	142	3	32	(*)
Site-Specific Information	15	2,099	350	6	598	198	4	107	1
Incentives	14	3,131	269	5	499	165	4	103	(*)
Alternate Rates	13	3,071	273	3	408	135	2	76	(*)
Fuel Switching	1	164	6	(*)	10	3	(*)	2	(*)
Building Generates Electricity									
Yes	52	14,283	1,884	31	3,613	1,197	27	438	2
No	274	30,032	2,802	44	4,669	1,546	35	644	3
Natural Gas Transported for the Account of Others									
Used in Building	24	5,201	659	9	821	272	6	230	1
Not Used in Building	174	26,787	2,595	42	4,706	1,559	35	760	3
Don't Know/									
Not Ascertained	25	2,631	353	6	575	190	4	88	(*)

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • Site electricity is the amount of electricity delivered to commercial buildings. Primary electricity is site electricity plus the conversion losses in the electric generation process at the utility plant. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

**Table 3.46. Electricity Consumption and Expenditure Intensities in
FBSS Buildings in Federal Region 3, 1993**

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
All Buildings	1,985	6,382	21.1	6.4	11.8	17.3	27.4	387.5	1.28	0.06
Building Floorspace (square feet)										
10,000 to 50,000	59	625	22.9	9.5	12.0	17.1	25.5	37.0	1.36	.06
50,001 to 200,000	337	2,879	25.6	11.3	11.4	18.1	31.7	156.5	1.39	.05
Over 200,000	1,589	15,892	20.3	5.8	12.4	17.0	23.4	987.3	1.26	.06
Principal Building Activity										
Education	8	1,026	13.7	7.8	6.7	12.2	28.3	51.8	.69	.05
Health Care	215	5,255	14.8	9.2	11.8	13.2	18.1	280.4	.79	.05
Laboratory	218	5,897	42.2	22.5	31.7	39.2	49.7	321.5	2.30	.05
Lodging	38	2,933	14.9	31.4	12.0	18.5	22.0	152.7	.78	.05
Mercantile and Service	130	2,889	17.9	2.5	7.7	12.8	18.3	174.7	1.08	.06
Office	1,169	9,429	20.6	5.7	12.1	16.9	25.7	608.0	1.33	.06
All Others	206	4,781	28.7	12.0	13.2	18.8	28.0	267.0	1.61	.06
Year Constructed										
1959 or Before	849	5,981	19.4	4.4	11.4	14.4	20.9	403.7	1.31	.07
1960 to 1969	454	6,483	23.2	10.0	17.3	24.2	38.4	383.8	1.37	.06
1970 to 1979	438	9,532	25.8	10.0	12.0	19.1	28.0	497.2	1.34	.05
1980 to 1989	168	4,425	18.7	7.0	13.1	18.1	23.4	241.8	1.02	.05
1990 to 1993	75	5,003	15.7	11.2	12.5	14.3	18.5	284.4	.89	.06
Federal Agency										
Department of Defense	282	12,797	20.1	6.5	11.2	13.9	22.0	636.9	1.00	.05
General Services Administration	979	11,792	21.2	5.9	10.5	15.8	23.2	803.6	1.44	.07
United States Postal Service	166	2,970	19.2	3.0	7.8	14.5	21.5	176.0	1.14	.06
Veterans Administration	202	3,600	15.2	10.4	11.5	13.4	18.6	190.9	.80	.05
All Others	357	3,793	29.7	14.2	16.9	31.1	40.2	205.0	1.61	.05
Energy Sources (more than one may apply)										
Electricity	1,985	6,382	21.1	6.4	11.8	17.3	27.4	387.5	1.28	.06
Natural Gas	1,205	8,732	20.8	5.2	11.2	16.5	22.9	544.3	1.30	.06
Fuel Oil	885	9,938	22.5	9.1	11.7	18.2	23.9	521.7	1.18	.05
District Heat	1,361	8,840	21.3	5.6	12.5	18.3	31.7	564.8	1.36	.06
District Chilled Water	480	8,413	20.9	7.4	13.2	22.4	38.4	447.9	1.11	.05
Propane	17	3,483	18.5	19.1	12.7	21.0	22.3	298.3	1.58	.09
Any Other	75	9,346	16.7	6.3	11.7	16.3	24.8	539.9	.97	.06
Energy End Uses (more than one may apply)										
Heating	1,979	6,469	21.2	6.4	12.0	17.5	27.5	392.5	1.29	.06
Air Conditioning	1,981	6,495	21.2	6.4	12.3	17.6	27.5	394.3	1.29	.06
Water Heating	1,965	6,508	21.3	6.4	12.0	17.6	27.5	394.6	1.29	.06
Cooking	1,498	13,870	21.4	5.9	12.8	17.9	27.1	857.7	1.32	.06
Manufacturing	651	13,010	24.1	6.5	12.7	18.9	28.5	686.3	1.27	.05
Workers (main shift)										
Less than 50	53	749	13.0	33.6	10.0	13.2	19.6	44.7	.77	.06
50 to 99	33	837	17.2	12.4	11.4	18.0	31.7	48.3	.99	.06
100 to 499	336	3,140	24.6	12.8	12.3	19.8	34.7	171.7	1.35	.05
500 or More	1,563	16,628	21.0	5.6	13.1	17.7	26.2	1,033.0	1.30	.06
Weekly Operating Hours										
48 or Fewer	127	2,493	13.1	6.2	11.3	14.3	21.0	323.4	1.70	.13
49 to 60	479	6,304	18.8	7.1	12.3	16.4	27.5	391.8	1.17	.06
61 to 167	257	4,287	21.4	9.3	9.4	17.4	25.2	244.6	1.22	.06
Open Continuously	1,121	9,043	23.9	5.7	12.6	18.5	34.0	480.5	1.27	.05

See footnotes at end of table.

Table 3.46. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Multibuilding Facility										
Yes	910	5,203	21.1	7.5	12.5	18.6	33.4	283.5	1.15	0.05
No	1,074	7,899	21.1	5.7	10.1	15.8	22.0	521.4	1.39	.07
Space-Heating Energy Source										
Electricity	403	5,757	21.8	7.5	13.4	17.8	25.4	351.1	1.33	.06
Electricity Main	158	4,380	23.2	7.1	13.8	19.1	29.2	262.3	1.39	.06
Electricity Secondary	245	7,214	21.0	7.8	11.5	17.0	22.0	445.1	1.30	.06
Other Excluding Electricity	1,577	6,680	21.1	6.1	11.8	17.3	28.0	404.7	1.28	.06
Building Not Heated	5	1,063	6.5	13.9	1.2	3.6	10.2	86.9	.53	.08
Cooling Energy Source										
Electricity	1,738	6,788	21.5	6.2	11.9	17.2	24.5	415.3	1.31	.06
Other Excluding Electricity	243	4,969	19.3	8.0	13.1	22.4	38.9	284.8	1.11	.06
A/C Not Performed	4	618	5.2	18.6	1.2	5.8	10.2	41.7	.35	.07
Water-Heating Energy Source										
Electricity	403	4,287	21.2	9.1	13.3	18.2	28.0	238.3	1.18	.06
Other Excluding Electricity	1,562	7,512	21.3	5.9	11.4	17.0	27.1	465.2	1.32	.06
Water Heating Not Performed	19	2,150	11.1	6.8	3.6	10.2	13.4	152.0	.79	.07
Cooking Energy Source										
Electricity	914	13,440	22.1	5.2	12.9	17.5	27.5	862.9	1.42	.06
Other Excluding Electricity	584	14,600	20.5	7.6	12.8	18.8	26.0	848.9	1.19	.06
Cooking Not Performed	487	2,398	20.1	8.6	11.4	16.8	28.0	137.4	1.15	.06
Manufacturing Energy Source										
Electricity	513	11,933	25.0	5.8	12.7	19.0	28.5	643.7	1.35	.05
Other Excluding Electricity	137	19,627	21.1	11.8	12.5	15.8	31.7	947.7	1.02	.05
Manufacturing Not Performed	1,334	5,112	19.9	6.3	11.5	16.9	26.1	330.3	1.28	.06
Percent of Floorspace Heated										
Not Heated	5	1,063	6.5	13.9	1.2	3.6	10.2	86.9	.53	.08
1 to 50	70	5,845	12.1	9.0	3.1	13.0	16.8	324.4	.67	.06
51 to 100	1,909	6,494	21.8	6.3	12.2	17.9	27.9	395.2	1.33	.06
Percent of Floorspace Cooled										
Not Cooled	32	2,702	11.3	19.4	4.7	11.5	19.7	154.6	.65	.06
1 to 50	157	5,234	15.9	9.7	11.3	13.6	24.4	308.5	.94	.06
51 to 100	1,795	6,674	22.0	6.1	12.4	18.0	27.5	406.8	1.34	.06
Percent Lit When Open										
1 to 50	7	680	11.3	12.7	5.2	13.2	21.0	50.4	.84	.07
51 to 100	1,975	6,604	21.2	6.4	11.9	17.3	27.9	400.8	1.28	.06
No Operating Hours	3	2,739	18.6	6.8	18.6	18.6	18.6	135.9	.92	.05
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Percent Lit When Closed										
Not Lit	85	2,188	16.6	2.1	10.8	14.4	23.3	135.5	1.03	.06
1 to 50	1,143	5,890	19.7	6.0	11.8	17.5	28.3	401.5	1.34	.07
51 to 100	401	9,789	24.0	8.2	12.8	18.5	28.5	497.4	1.22	.05
No Off Hours	356	9,609	24.7	11.6	12.8	17.5	22.4	458.5	1.18	.05
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)										
Heat Pumps	210	6,378	20.6	7.9	13.2	16.3	23.0	337.2	1.09	.05
Furnaces	12	779	7.4	6.3	5.6	11.2	17.1	49.2	.46	.06
Individual Space Heaters	671	9,065	19.6	6.9	13.4	18.6	23.0	521.7	1.13	.06
District Heat	1,446	8,661	21.4	5.9	12.5	18.5	31.7	546.7	1.35	.06
Boilers	383	4,168	19.8	7.7	9.9	13.7	21.7	216.9	1.03	.05
Packaged-Heating Units	117	4,681	19.5	6.8	14.8	16.9	21.7	287.1	1.20	.06

See footnotes at end of table.

Table 3.46. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	417	13,890	21.8	3.2	10.5	15.1	17.6	1,031.4	1.62	0.07
Heat Pumps	217	5,862	19.0	7.7	10.6	15.1	23.0	339.2	1.10	.06
Individual A/C	494	6,169	17.6	3.5	11.4	15.6	21.0	393.6	1.12	.06
District Chilled Water	613	8,520	21.8	7.8	13.2	19.0	38.3	444.0	1.13	.05
Central Chillers	1,346	8,520	21.1	5.7	12.0	16.9	25.8	546.3	1.35	.06
Packaged-A/C Units	1,099	8,654	19.4	4.9	12.0	17.6	22.7	567.0	1.27	.07
Swamp Coolers	19	6,319	50.2	22.2	41.0	49.7	51.8	431.9	3.43	.07
Lighting Equipment (more than one may apply)										
Incandescent	1,400	7,607	21.5	6.7	11.8	17.2	31.6	460.6	1.30	.06
Standard Fluorescent	1,928	6,448	21.1	6.9	11.8	16.9	27.5	389.7	1.28	.06
Compact Fluorescent	1,000	12,501	20.2	5.5	11.5	16.5	23.2	787.1	1.27	.06
High-Intensity Discharge	1,135	10,321	21.9	5.2	13.4	18.6	28.3	564.6	1.20	.05
Electronic Ballast	1,288	9,610	19.9	5.9	12.4	16.8	23.4	612.7	1.27	.06
Water-Heating Equipment (more than one may apply)										
Centralized System	1,389	6,230	21.9	6.0	11.7	16.9	27.4	356.7	1.25	.06
Distributed System	452	6,453	18.8	6.9	12.8	18.7	27.5	491.9	1.44	.08
Don't Know/										
Not Ascertained	125	13,834	25.1	12.0	12.8	21.8	42.7	576.2	1.04	.04
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	1,370	12,689	22.5	5.8	12.9	19.4	33.0	780.3	1.38	.06
Walk-in Units	1,195	15,526	22.3	5.6	13.5	20.4	32.0	969.7	1.40	.06
Cases and Cabinets	1,217	14,149	23.1	8.9	13.1	20.3	33.4	885.4	1.44	.06
None	614	3,027	18.5	8.2	11.4	16.3	24.4	178.6	1.09	.06
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	1,613	7,074	20.0	5.6	11.9	16.7	24.1	447.9	1.27	.06
Retrofit	820	10,516	19.3	6.8	11.9	16.6	26.1	610.5	1.12	.06
Purchase	1,270	6,791	20.4	5.5	11.4	16.8	23.3	434.0	1.30	.06
No Retrofit or Purchase	372	4,482	27.4	14.5	11.5	18.8	38.2	221.8	1.35	.05
HVAC Conservation Features (more than one may apply)										
VAV System	791	9,536	21.5	5.9	12.8	18.1	28.3	518.0	1.17	.05
Economizer Cycle	1,382	8,862	22.6	5.8	12.4	18.1	25.5	506.3	1.29	.06
HVAC Maintenance	1,972	6,574	21.3	6.4	12.2	17.5	27.8	399.6	1.29	.06
Lighting Conservation Features (more than one may apply)										
Specular Reflectors	919	7,470	20.9	5.6	11.4	14.8	22.0	413.2	1.15	.06
Natural Lighting Control										
Sensors	322	11,087	18.1	6.6	10.6	15.8	18.8	882.7	1.44	.08
Occupancy Sensors	1,236	13,145	20.1	5.9	10.8	15.3	22.5	836.2	1.28	.06
Time Clock	947	12,791	20.3	5.7	11.9	16.3	23.4	808.3	1.28	.06
Manual Dimmer Switches	957	10,400	19.5	5.4	12.6	18.7	24.6	671.5	1.26	.06

See footnotes at end of table.

Table 3.46. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Energy Management Practices (more than one may apply)										
Energy Management and Control System	1,325	10,112	21.7	5.6	12.2	17.6	26.2	615.5	1.32	0.06
Energy Conservation Programs ¹	1,177	12,015	20.1	5.6	11.8	15.7	21.7	790.7	1.32	.07
Energy Audit	776	7,835	20.6	8.4	11.4	15.1	23.4	439.4	1.16	.03
HVAC Maintenance Staff ²	1,092	11,262	20.6	5.0	13.5	18.8	28.6	741.3	1.36	.07
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	785	5,451	17.9	7.2	11.3	15.8	22.4	390.8	1.28	.07
Cooling	785	5,412	17.9	7.2	11.4	15.9	22.7	389.1	1.29	.07
Hot Water	442	5,738	17.0	7.1	10.1	14.8	22.9	459.0	1.36	.08
Lighting	806	4,975	18.0	7.5	11.3	15.6	23.1	356.2	1.29	.07
Building Generates Electricity										
Yes	724	13,170	22.6	5.8	11.3	16.4	22.4	677.7	1.17	.05
No	1,260	4,924	20.3	6.8	11.9	17.9	27.8	325.2	1.34	.07

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • KWH = Kilowatthour. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.47. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
All Buildings	975	4,013	27.2	12.0	11.1	16.8	35.3	210.4	1.43	0.05
Building Floorspace (square feet)										
10,000 to 50,000	79	738	30.5	13.3	11.0	15.3	31.9	36.6	1.51	.05
50,001 to 200,000	302	3,509	31.6	16.4	10.9	18.7	38.9	186.9	1.68	.05
Over 200,000	594	11,889	25.1	10.4	11.2	18.1	29.4	622.7	1.32	.05
Principal Building Activity										
Education	2	386	13.8	9.1	11.0	13.6	14.8	17.6	.63	.05
Health Care	219	6,255	18.1	10.5	13.0	17.7	25.0	346.2	1.00	.06
Laboratory	240	8,273	72.0	55.6	38.9	52.0	112.6	450.5	3.92	.05
Lodging	15	941	16.0	24.2	11.3	16.4	19.5	61.0	1.04	.06
Mercantile and Service	134	2,729	21.4	6.8	9.7	13.4	15.8	144.1	1.13	.05
Office	263	3,464	24.4	8.1	10.2	18.2	31.9	184.7	1.30	.05
All Others	102	3,189	45.4	32.4	9.3	20.4	98.9	117.5	1.67	.04
Year Constructed										
1959 or Before	391	3,801	29.5	15.6	10.9	15.4	31.5	170.2	1.32	.04
1960 to 1969	180	4,731	28.2	7.6	9.5	20.9	40.2	275.2	1.64	.06
1970 to 1979	188	5,542	30.5	12.7	12.8	18.8	42.8	252.5	1.39	.05
1980 to 1989	179	3,147	26.0	12.5	11.4	15.2	25.1	223.4	1.84	.07
1990 to 1993	36	3,295	11.7	9.6	9.6	13.4	34.6	165.0	.59	.05
Federal Agency										
Department of Defense	41	1,859	24.5	12.6	7.7	15.0	23.6	108.6	1.43	.06
General Services Administration	122	3,484	15.5	5.1	8.5	12.6	19.1	226.0	1.00	.06
United States Postal Service	145	2,377	20.6	6.9	9.7	13.5	16.3	127.4	1.11	.05
Veterans Administration	186	5,175	16.4	9.9	12.4	14.6	23.9	287.7	.91	.06
All Others	481	5,406	61.2	33.3	19.1	36.8	110.8	255.0	2.89	.05
Energy Sources (more than one may apply)										
Electricity	975	4,013	27.2	12.0	11.1	16.8	35.3	210.4	1.43	.05
Natural Gas	582	3,462	23.4	10.3	10.2	15.0	24.2	182.6	1.24	.05
Fuel Oil	90	5,009	19.0	6.0	13.0	20.5	32.5	311.4	1.18	.06
District Heat	435	6,399	32.4	17.7	12.8	29.4	42.4	337.2	1.71	.05
District Chilled Water	138	4,603	17.3	8.1	7.7	13.0	23.3	261.1	.98	.06
Propane	6	1,209	30.2	11.9	3.7	32.5	37.2	74.1	1.85	.06
Any Other	77	9,606	27.0	13.0	24.0	34.1	58.3	470.6	1.32	.05
Energy End Uses (more than one may apply)										
Heating	975	4,030	27.3	11.9	11.2	16.9	35.3	211.2	1.43	.05
Air Conditioning	957	3,972	27.1	11.9	11.2	16.8	34.9	208.9	1.43	.05
Water Heating	957	4,021	27.2	11.9	11.2	17.2	35.3	211.4	1.43	.05
Cooking	383	6,072	19.9	8.3	11.3	19.1	29.4	345.0	1.13	.06
Manufacturing	99	3,552	18.6	6.2	10.5	14.0	24.0	213.0	1.12	.06
Workers (main shift)										
Less than 50	111	1,585	43.5	75.9	9.7	15.7	36.2	65.6	1.80	.04
50 to 99	46	1,047	22.7	14.2	11.1	13.9	23.6	47.2	1.03	.05
100 to 499	316	3,945	35.0	19.2	10.7	20.0	36.6	216.2	1.92	.05
500 or More	503	10,257	22.6	8.3	12.5	18.9	34.9	554.2	1.22	.05
Weekly Operating Hours										
48 or Fewer	58	1,484	21.1	12.3	11.0	17.7	27.5	78.5	1.12	.05
49 to 60	93	2,019	14.4	6.5	8.6	15.2	30.5	124.9	.89	.06
61 to 167	390	5,006	48.5	20.0	10.6	16.8	110.8	232.1	2.25	.05
Open Continuously	434	5,426	23.4	10.1	12.4	17.7	29.4	302.7	1.30	.06

See footnotes at end of table.

Table 3.47. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Multibuilding Facility										
Yes	731	4,937	29.9	13.9	13.1	23.0	41.8	252.9	1.53	0.05
No	245	2,574	21.5	8.5	9.6	13.2	20.1	144.2	1.20	.06
Space-Heating Energy Source										
Electricity	360	5,450	36.5	13.6	12.5	16.8	38.8	227.9	1.53	.04
Electricity Main	121	3,896	26.0	8.6	13.3	16.8	32.4	202.3	1.35	.05
Electricity Secondary	239	6,826	45.8	19.2	9.7	16.9	108.5	250.6	1.68	.04
Other Excluding Electricity	615	3,497	23.8	11.2	10.8	17.6	33.1	205.0	1.39	.06
Building Not Heated	(*)	81	1.0	(¹)	1.0	1.0	1.0	5.9	.07	.07
Cooling Energy Source										
Electricity	850	3,880	30.3	12.7	11.4	17.4	35.8	202.0	1.58	.05
Other Excluding Electricity	108	4,893	14.9	8.1	7.7	12.8	20.4	276.9	.84	.06
A/C Not Performed	18	8,987	33.1	15.0	1.0	19.9	38.8	395.2	1.46	.04
Water-Heating Energy Source										
Electricity	285	4,595	23.2	9.2	9.5	14.6	31.9	244.7	1.24	.05
Other Excluding Electricity	672	3,819	29.3	13.6	12.4	19.0	35.6	199.7	1.53	.05
Water Heating Not Performed	18	3,659	30.7	14.3	1.9	5.0	13.9	162.7	1.37	.04
Cooking Energy Source										
Electricity	182	4,916	17.9	6.5	11.2	16.7	25.1	279.4	1.02	.06
Other Excluding Electricity	201	7,718	22.2	11.0	17.7	23.6	32.5	438.2	1.26	.06
Cooking Not Performed	593	3,293	35.7	16.8	10.3	15.2	36.7	163.3	1.77	.05
Manufacturing Energy Source										
Electricity	80	3,096	16.6	5.4	10.3	13.6	20.8	197.1	1.06	.06
Other Excluding Electricity	19	9,489	38.1	15.3	29.4	34.1	38.8	419.3	1.69	.04
Manufacturing Not Performed	876	4,073	28.7	13.4	11.2	17.4	35.8	210.0	1.48	.05
Percent of Floorspace Heated										
Not Heated	(*)	81	1.0	(¹)	1.0	1.0	1.0	5.9	.07	.07
1 to 50	22	2,013	17.2	10.1	8.2	13.5	21.0	119.9	1.02	.06
51 to 100	953	4,126	27.7	12.0	11.2	17.6	35.3	215.6	1.45	.05
Percent of Floorspace Cooled										
Not Cooled	18	6,021	32.6	13.4	1.0	8.2	38.8	265.6	1.44	.04
1 to 50	75	2,870	38.3	22.9	10.9	22.3	111.0	110.4	1.47	.04
51 to 100	883	4,124	26.5	11.5	11.2	16.1	32.4	221.8	1.42	.05
Percent Lit When Open										
1 to 50	18	1,228	17.4	14.4	8.7	11.4	21.0	71.4	1.01	.06
51 to 100	957	4,215	27.6	11.9	11.4	17.6	35.7	220.5	1.44	.06
No Operating Hours	(*)	81	1.0	(¹)	1.0	1.0	1.0	5.9	.07	.07
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Percent Lit When Closed										
Not Lit	34	1,025	12.6	5.6	7.5	13.9	16.9	64.8	.79	.06
1 to 50	693	4,202	33.8	15.5	12.0	19.1	38.9	218.1	1.76	.05
51 to 100	136	5,435	16.9	6.8	11.4	15.4	23.9	288.6	.90	.05
No Off Hours	112	5,611	24.4	10.3	11.6	19.4	30.4	289.2	1.26	.05
Don't Know	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Heating Equipment (more than one may apply)										
Heat Pumps	32	3,205	33.2	8.8	14.2	25.5	32.4	164.3	1.70	.05
Furnaces	11	610	13.9	7.9	6.8	14.9	19.1	35.0	.80	.06
Individual Space Heaters	124	4,121	22.9	6.9	8.7	12.8	29.4	349.3	1.94	.08
District Heat	457	5,572	30.1	16.0	13.0	21.0	38.9	295.2	1.59	.05
Boilers	420	4,120	25.1	10.0	10.8	18.2	36.1	213.7	1.30	.05
Packaged-Heating Units	199	3,371	26.3	10.1	9.8	14.8	25.0	194.3	1.51	.06

See footnotes at end of table.

Table 3.47. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	96	3,294	20.3	6.4	9.7	13.0	20.3	193.4	1.19	0.06
Heat Pumps	39	3,588	25.5	8.2	13.0	23.6	32.5	187.3	1.33	.05
Individual A/C	241	4,819	34.7	15.4	12.5	20.2	57.3	206.5	1.49	.04
District Chilled Water	191	4,349	17.6	8.7	9.7	14.6	28.6	315.8	1.28	.07
Central Chillers	608	4,986	28.2	11.0	12.4	18.8	38.9	247.2	1.40	.05
Packaged-A/C Units	338	3,481	23.9	9.0	10.9	15.2	24.2	191.6	1.32	.06
Swamp Coolers	39	3,221	19.2	10.6	11.2	16.1	31.0	162.6	.97	.05
Lighting Equipment (more than one may apply)										
Incandescent	686	5,083	33.9	13.3	11.4	20.1	42.8	255.5	1.70	.05
Standard Fluorescent	967	4,117	27.6	11.9	11.4	17.6	35.7	215.6	1.45	.05
Compact Fluorescent	142	4,910	17.9	7.2	10.6	14.8	20.4	320.5	1.17	.07
High-Intensity Discharge	518	8,088	32.0	12.6	12.3	20.3	107.6	356.5	1.41	.04
Electronic Ballast	279	4,727	17.6	7.1	9.9	15.0	23.9	272.3	1.01	.06
Water-Heating Equipment (more than one may apply)										
Centralized System	575	3,528	24.8	12.0	11.1	17.4	31.5	192.9	1.35	.05
Distributed System	375	5,283	31.7	11.8	11.9	16.8	46.4	261.0	1.57	.05
Don't Know/ Not Ascertained	7	1,687	35.9	9.7	9.4	22.9	93.0	86.1	1.83	.05
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	408	5,821	22.7	10.2	13.0	23.9	36.1	372.7	1.46	.06
Walk-in Units	273	6,815	22.0	11.2	13.5	23.9	35.9	370.3	1.20	.05
Cases and Cabinets	275	6,240	19.4	8.8	12.6	19.7	29.4	345.7	1.08	.06
None	568	3,282	31.7	13.6	10.3	15.0	33.3	144.7	1.40	.04
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	627	3,872	21.6	9.0	10.8	15.2	24.0	211.3	1.18	.05
Retrofit	269	4,271	17.9	7.5	10.4	15.2	23.8	247.0	1.04	.06
Purchase	489	3,883	22.9	9.1	11.1	15.1	24.0	213.0	1.25	.05
No Retrofit or Purchase	348	4,295	51.2	29.0	11.9	26.7	108.5	208.6	2.48	.05
HVAC Conservation Features (more than one may apply)										
VAV System	417	6,410	22.5	10.5	12.2	17.7	32.5	353.2	1.24	.06
Economizer Cycle	644	5,232	27.3	12.0	12.3	18.9	38.1	243.6	1.27	.05
HVAC Maintenance	966	4,130	27.3	12.0	11.2	16.9	35.7	217.0	1.44	.05
Lighting Conservation Features (more than one may apply)										
Specular Reflectors	395	4,289	21.9	8.6	10.0	18.4	33.1	247.9	1.27	.06
Natural Lighting Control Sensors	104	3,865	15.5	9.2	10.6	16.7	21.7	223.6	.90	.06
Occupancy Sensors	315	5,433	19.2	7.2	10.1	14.5	23.9	306.1	1.08	.06
Time Clock	151	4,204	16.7	8.2	10.2	15.1	21.5	245.8	.98	.06
Manual Dimmer Switches	246	5,586	18.3	8.2	10.0	15.7	29.1	340.3	1.11	.06

See footnotes at end of table.

Table 3.47. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Energy Management Practices (more than one may apply)										
Energy Management and Control System	459	4,780	19.9	9.2	10.4	15.1	25.0	273.9	1.14	0.06
Energy Conservation Programs ¹	259	5,399	19.2	7.1	12.7	17.9	28.9	307.7	1.09	.06
Energy Audit	242	3,785	20.7	7.1	11.2	15.0	23.9	232.6	1.27	.06
HVAC Maintenance Staff ²	291	5,112	18.8	8.5	9.5	13.3	21.7	298.3	1.09	.06
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	226	1,836	17.2	7.3	9.5	13.7	23.6	138.5	1.29	.08
Cooling	236	1,907	17.1	7.1	9.5	13.8	23.4	142.0	1.27	.07
Hot Water	83	2,518	18.2	7.2	9.5	12.8	30.5	152.9	1.11	.06
Lighting	232	1,934	18.1	7.2	9.6	14.7	23.4	144.3	1.35	.07
Building Generates Electricity										
Yes	162	5,061	15.7	7.6	10.9	17.5	25.9	281.5	.87	.06
No	813	3,855	31.9	13.5	11.2	16.8	35.8	199.6	1.65	.05

¹ Data or computation error.

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • KWH = Kilowatthour. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

**Table 3.48. Electricity Consumption and Expenditure Intensities in
FBSS Buildings in Federal Region 9, 1993**

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
All Buildings	804	2,474	18.1	8.2	9.5	15.9	23.0	190.9	1.40	0.08
Building Floorspace (square feet)										
10,000 to 50,000	78	533	20.4	8.5	9.2	15.3	22.9	42.7	1.63	.08
50,001 to 200,000	269	2,190	21.2	10.4	9.8	19.1	24.4	165.7	1.61	.08
Over 200,000	456	8,296	16.4	7.3	8.5	13.0	18.0	643.1	1.27	.08
Principal Building Activity										
Education	6	512	9.8	9.6	1.4	3.8	8.8	31.0	.59	.06
Health Care	167	3,484	16.9	7.7	12.3	17.1	20.8	243.5	1.18	.07
Laboratory	94	3,041	36.2	24.8	20.2	26.6	47.6	229.5	2.74	.08
Lodging	14	640	11.5	21.6	2.9	13.7	18.7	53.6	.97	.08
Mercantile and Service	128	2,027	15.6	5.2	9.4	13.9	19.3	153.3	1.18	.08
Office	250	2,716	15.3	6.4	8.7	15.1	21.9	246.0	1.38	.09
All Others	145	2,538	26.9	19.5	10.1	18.5	25.3	164.7	1.75	.06
Year Constructed										
1959 or Before	280	2,173	20.7	11.6	8.3	17.1	24.4	167.8	1.60	.08
1960 to 1969	143	2,597	15.7	7.0	8.3	15.9	23.9	197.7	1.20	.08
1970 to 1979	201	3,240	16.7	6.9	9.5	15.0	20.4	268.7	1.38	.08
1980 to 1989	155	2,384	19.5	7.5	10.8	16.2	22.9	166.1	1.36	.07
1990 to 1993	25	1,784	14.8	8.0	13.7	17.0	24.1	147.1	1.22	.08
Federal Agency										
Department of Defense	187	2,426	22.1	13.5	6.6	13.0	18.7	186.2	1.69	.08
General Services Administration	144	3,698	11.5	5.0	7.2	10.6	16.2	339.5	1.06	.09
United States Postal Service	139	2,203	16.5	5.7	9.2	15.2	19.6	168.6	1.27	.08
Veterans Administration	150	2,682	17.0	7.7	14.4	18.3	21.8	193.7	1.23	.07
All Others	184	2,045	30.1	17.0	12.7	23.6	32.1	144.3	2.12	.07
Energy Sources (more than one may apply)										
Electricity	804	2,474	18.1	8.2	9.5	15.9	23.0	190.9	1.40	.08
Natural Gas	594	2,639	17.1	7.9	9.6	15.9	23.9	203.9	1.32	.08
Fuel Oil	222	4,103	19.9	9.7	12.0	17.1	31.4	321.5	1.56	.08
District Heat	194	2,657	16.5	8.4	12.3	17.2	20.7	198.0	1.23	.07
District Chilled Water	106	3,929	16.7	8.3	15.3	20.3	25.0	262.4	1.11	.07
Propane	26	2,633	23.6	12.2	.7	4.8	16.3	212.5	1.90	.08
Any Other	37	7,350	14.1	6.8	.8	14.2	14.4	526.8	1.01	.07
Energy End Uses (more than one may apply)										
Heating	752	2,481	17.9	8.5	9.5	16.0	23.4	193.9	1.40	.08
Air Conditioning	773	2,647	18.4	8.3	10.7	16.8	23.9	201.7	1.41	.08
Water Heating	778	2,478	18.1	8.3	9.4	16.0	23.4	189.3	1.38	.08
Cooking	348	4,967	17.3	7.5	9.1	14.6	19.8	349.3	1.22	.07
Manufacturing	157	5,245	20.5	8.9	12.3	15.8	23.0	372.5	1.45	.07
Workers (main shift)										
Less than 50	57	624	15.7	37.2	5.2	13.3	23.0	50.1	1.26	.08
50 to 99	51	1,051	23.8	14.1	9.5	16.2	24.3	80.9	1.83	.08
100 to 499	261	1,950	18.6	9.8	11.1	16.9	23.4	148.5	1.42	.08
500 or More	434	8,676	17.7	6.6	10.4	15.8	20.7	671.1	1.37	.08
Weekly Operating Hours										
48 or Fewer	74	927	15.4	9.8	7.8	14.8	24.4	66.5	1.10	.07
49 to 60	179	2,760	13.4	5.6	7.7	13.0	18.7	246.0	1.19	.09
61 to 167	102	1,504	17.9	9.6	9.3	15.7	23.4	123.8	1.48	.08
Open Continuously	448	4,001	22.0	9.5	12.0	18.5	24.3	288.4	1.59	.07

See footnotes at end of table.

Table 3.48. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Multibuilding Facility										
Yes	486	2,440	18.1	8.6	9.7	15.9	22.9	179.2	1.33	0.07
No	318	2,527	18.2	7.8	9.1	16.0	24.2	209.2	1.51	.08
Space-Heating Energy Source										
Electricity	212	2,824	22.5	10.6	9.6	16.6	24.1	232.6	1.85	.08
Electricity Main	141	3,208	32.6	14.9	10.3	19.7	25.1	246.2	2.50	.08
Electricity Secondary	71	2,279	13.8	6.7	7.5	13.8	20.1	213.3	1.30	.09
Other Excluding Electricity	540	2,368	16.6	7.9	9.4	16.0	23.0	181.2	1.27	.08
Building Not Heated	52	2,373	21.8	5.9	8.3	12.7	19.5	148.3	1.36	.06
Cooling Energy Source										
Electricity	683	2,578	18.7	8.2	10.6	16.5	23.6	199.0	1.44	.08
Other Excluding Electricity	90	3,333	16.8	8.5	12.3	20.3	25.0	227.7	1.15	.07
A/C Not Performed	31	937	12.9	7.9	2.0	9.0	10.2	95.1	1.31	.10
Water-Heating Energy Source										
Electricity	189	2,911	26.2	10.3	8.0	13.1	21.1	214.5	1.93	.07
Other Excluding Electricity	589	2,365	16.5	7.8	10.1	16.5	23.8	182.7	1.27	.08
Water Heating Not Performed	26	2,345	19.4	7.6	9.7	10.6	20.8	235.3	1.94	.10
Cooking Energy Source										
Electricity	239	5,569	17.6	8.0	10.1	15.3	19.5	390.2	1.23	.07
Other Excluding Electricity	108	4,008	16.8	6.5	7.6	12.3	21.5	284.1	1.19	.07
Cooking Not Performed	456	1,789	18.8	8.9	9.6	16.6	23.9	147.4	1.55	.08
Manufacturing Energy Source										
Electricity	136	5,433	21.9	9.5	12.7	18.0	23.0	386.8	1.56	.07
Other Excluding Electricity	22	4,307	14.5	6.2	12.3	15.6	16.0	301.0	1.01	.07
Manufacturing Not Performed	647	2,192	17.7	8.1	9.2	15.9	23.2	172.4	1.39	.08
Percent of Floorspace Heated										
Not Heated	52	2,373	21.8	5.9	8.3	12.7	19.5	148.3	1.36	.06
1 to 50	109	3,879	29.0	20.9	3.8	19.8	25.6	295.1	2.20	.08
51 to 100	643	2,339	16.9	7.7	9.6	15.9	22.9	183.6	1.32	.08
Percent of Floorspace Cooled										
Not Cooled	40	1,032	13.7	9.7	2.0	9.0	13.5	96.2	1.28	.09
1 to 50	136	2,464	18.6	9.4	10.2	15.3	19.2	168.2	1.27	.07
51 to 100	628	2,719	18.4	8.0	11.1	17.6	24.3	212.2	1.44	.08
Percent Lit When Open										
1 to 50	21	1,072	11.6	11.7	1.1	11.2	17.2	78.0	.84	.07
51 to 100	782	2,579	18.5	8.2	9.8	16.2	23.4	199.3	1.43	.08
No Operating Hours	(*)	3	.1	NC	.1	.1	.1	.1	(*)	.03
Don't Know	1	982	15.3	31.7	15.3	15.3	15.3	83.7	1.30	.09
Percent Lit When Closed										
Not Lit	33	935	19.7	15.8	6.6	13.4	24.3	72.3	1.52	.08
1 to 50	374	1,834	14.8	6.9	9.2	15.2	20.9	149.7	1.21	.08
51 to 100	160	3,645	19.8	9.0	12.6	21.6	41.6	275.3	1.49	.08
No Off Hours	236	5,751	25.7	10.2	10.6	17.3	22.1	408.8	1.82	.07
Don't Know	1	982	15.3	31.7	15.3	15.3	15.3	83.7	1.30	.09
Heating Equipment (more than one may apply)										
Heat Pumps	68	1,705	22.1	9.4	11.4	19.4	24.1	134.2	1.74	.08
Furnaces	16	624	13.0	5.6	8.2	12.7	17.8	51.8	1.07	.08
Individual Space Heaters	82	2,480	16.6	7.5	9.1	13.0	19.8	203.5	1.36	.08
District Heat	237	3,380	18.6	9.8	12.0	16.3	20.3	227.5	1.25	.07
Boilers	421	2,884	17.5	7.8	10.1	17.5	24.4	232.8	1.42	.08
Packaged-Heating Units	102	1,528	17.1	7.6	9.5	15.3	24.4	108.5	1.21	.07

See footnotes at end of table.

Table 3.48. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Cooling Equipment (more than one may apply)										
Residential-Type Central A/C	34	1,404	17.7	6.9	9.1	14.3	20.6	104.4	1.32	0.07
Heat Pumps	63	1,958	23.0	11.1	12.9	20.5	30.2	156.5	1.84	.08
Individual A/C	100	1,932	17.6	8.4	10.1	17.0	19.7	153.7	1.40	.08
District Chilled Water	170	5,484	22.2	11.6	15.3	19.5	22.5	332.5	1.35	.06
Central Chillers	499	3,589	18.0	7.4	11.5	17.8	24.4	278.4	1.40	.08
Packaged-A/C Units	416	2,756	17.3	6.9	11.4	17.0	24.4	214.3	1.35	.08
Swamp Coolers	43	1,430	13.6	5.0	6.6	11.4	18.7	111.0	1.05	.08
Lighting Equipment (more than one may apply)										
Incandescent	354	2,201	17.3	8.4	9.0	16.9	24.4	170.1	1.34	.08
Standard Fluorescent	763	2,478	17.8	8.0	9.4	15.9	22.9	187.1	1.35	.08
Compact Fluorescent	296	4,118	17.1	8.1	9.4	17.5	23.9	344.1	1.43	.08
High-Intensity Discharge	329	4,390	17.6	7.6	8.5	14.4	21.5	312.0	1.25	.07
Electronic Ballast	392	3,736	16.8	7.2	10.6	16.2	23.4	291.0	1.31	.08
Water-Heating Equipment (more than one may apply)										
Centralized System	507	2,262	16.3	7.6	9.1	15.9	22.8	178.1	1.28	.08
Distributed System	240	2,994	22.3	9.7	9.9	15.2	24.4	217.4	1.62	.07
Don't Know/ Not Ascertained	32	3,182	27.3	11.2	16.6	22.2	32.3	216.0	1.85	.07
Commercial Refrigeration Equipment (more than one may apply)										
Any Equipment	346	5,494	18.4	7.9	10.5	16.2	21.8	381.7	1.28	.07
Walk-in Units	233	5,289	18.6	8.2	12.4	17.2	24.2	367.5	1.29	.07
Cases and Cabinets	248	4,967	16.6	7.1	12.0	16.2	22.0	385.0	1.29	.08
None	458	1,747	17.9	8.5	9.2	15.9	23.4	145.0	1.49	.08
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	611	2,881	17.7	7.6	9.9	16.1	22.4	229.7	1.41	.08
Retrofit	346	3,356	15.3	6.3	9.7	14.4	20.9	267.9	1.22	.08
Purchase	415	2,824	21.2	9.3	11.4	16.5	23.4	224.1	1.68	.08
No Retrofit or Purchase	193	1,710	19.8	11.1	8.3	15.9	24.4	117.9	1.36	.07
HVAC Conservation Features (more than one may apply)										
VAV System	292	3,900	18.8	8.6	12.6	17.3	24.4	296.9	1.43	.08
Economizer Cycle	431	3,078	16.3	7.2	10.4	16.1	23.9	241.0	1.28	.08
HVAC Maintenance	787	2,581	18.3	8.2	9.7	16.3	23.4	198.9	1.41	.08
Lighting Conservation Features (more than one may apply)										
Specular Reflectors	332	2,697	15.2	6.6	10.6	16.2	23.0	210.3	1.19	.08
Natural Lighting Control Sensors	186	3,213	13.5	5.4	9.8	15.6	19.8	268.1	1.13	.08
Occupancy Sensors	446	4,092	17.7	7.6	11.1	17.8	24.0	316.8	1.37	.08
Time Clock	141	3,433	13.4	5.8	8.6	14.4	17.8	261.0	1.02	.08
Manual Dimmer Switches	269	3,443	18.6	8.7	12.0	18.1	25.0	264.1	1.43	.08

See footnotes at end of table.

Table 3.48. Electricity Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Electricity Consumption							Electricity Expenditures		
	Total (million kWh)	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			
Energy Management Practices (more than one may apply)										
Energy Management and Control System	372	5,232	20.4	8.9	12.6	19.6	29.9	359.1	1.40	0.07
Energy Conservation Programs ¹	448	3,643	18.2	8.1	10.4	16.2	23.9	272.1	1.36	.07
Energy Audit	328	3,345	18.8	8.6	9.8	15.6	25.0	249.0	1.40	.07
HVAC Maintenance Staff ²	244	4,685	16.7	6.9	9.8	17.7	23.3	348.6	1.24	.07
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	270	1,785	13.7	6.5	8.2	13.8	20.9	148.3	1.14	.08
Cooling	262	1,668	13.6	6.3	8.3	14.4	20.8	137.6	1.12	.08
Hot Water	174	2,564	12.8	5.6	7.4	13.3	24.1	223.9	1.12	.09
Lighting	293	1,706	13.9	6.5	8.2	14.4	22.5	141.8	1.15	.08
Building Generates Electricity										
Yes	351	6,745	24.6	12.7	13.4	20.4	39.8	511.7	1.86	.08
No	453	1,660	15.1	6.5	9.0	15.3	22.1	129.7	1.18	.08

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • KWH = Kilowatthour. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.49. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
All Buildings	1,906	13,709	32.5	8.2	4.5	23.0	65.5	60.7	0.14	4.43
Building Floorspace (square feet)										
10,000 to 50,000	61	1,635	59.1	24.6	25.3	54.7	100.6	8.9	.32	5.45
50,001 to 200,000	295	6,403	54.7	22.1	13.3	31.7	88.0	28.2	.24	4.40
Over 200,000	1,550	27,687	29.7	7.2	.5	5.8	31.4	121.7	.13	4.40
Principal Building Activity										
Education	6	1,894	26.9	10.1	10.4	13.7	159.5	10.0	.14	5.27
Health Care	580	23,192	49.6	29.2	7.0	103.8	134.9	91.6	.20	3.95
Laboratory	56	6,960	24.2	11.5	3.1	27.4	87.3	39.4	.14	5.66
Lodging	34	3,730	16.5	34.7	20.6	48.6	71.0	19.6	.09	5.26
Mercantile and Service	615	22,767	99.9	12.6	3.9	18.0	36.0	114.6	.50	5.03
Office	579	10,339	18.0	4.0	1.1	16.0	41.3	41.9	.07	4.06
All Others	37	3,374	9.2	2.8	6.3	41.4	100.6	17.3	.05	5.14
Year Constructed										
1959 or Before	919	14,580	37.4	6.2	4.1	40.3	103.8	60.8	.16	4.17
1960 to 1969	157	6,533	12.1	5.1	2.3	14.2	38.4	27.3	.05	4.17
1970 to 1979	100	3,865	7.8	3.0	3.5	17.2	41.7	18.5	.04	4.79
1980 to 1989	694	38,580	126.0	44.5	4.8	24.1	53.4	183.0	.60	4.74
1990 to 1993	35	4,411	13.2	9.1	5.0	40.9	76.4	23.0	.07	5.22
Federal Agency										
Department of Defense	434	48,224	34.8	10.6	10.4	20.6	48.5	180.6	.13	3.75
General Services Administration	178	4,458	7.2	1.6	.4	10.9	31.3	20.6	.03	4.62
United States Postal Service	629	17,962	87.4	12.4	4.5	19.9	36.0	90.7	.44	5.05
Veterans Administration	573	18,497	56.8	34.6	6.6	103.8	132.3	73.8	.23	3.99
All Others	91	3,797	21.7	7.7	13.2	58.3	96.8	22.1	.13	5.83
Energy Sources (more than one may apply)										
Electricity	1,887	13,671	32.6	8.2	4.5	22.3	65.5	60.6	.14	4.43
Natural Gas	1,906	13,709	32.5	8.2	4.5	23.0	65.5	60.7	.14	4.43
Fuel Oil	955	18,722	27.6	11.0	3.9	20.1	103.8	73.4	.11	3.92
District Heat	411	10,548	11.7	2.3	.3	1.8	6.3	41.6	.05	3.94
District Chilled Water	372	74,370	30.0	8.6	.3	.5	53.5	275.1	.11	3.70
Propane	3	3,118	6.0	6.2	6.0	6.0	6.0	3.2	.01	1.03
Any Other	19	4,837	6.4	2.5	3.4	13.0	27.4	26.0	.03	5.37
Energy End Uses (more than one may apply)										
Heating	1,906	13,709	32.5	8.2	4.5	23.0	65.5	60.7	.14	4.43
Air Conditioning	1,884	13,755	32.5	8.2	4.5	21.6	61.9	60.9	.14	4.43
Water Heating	1,901	13,874	32.5	8.3	4.5	21.6	65.5	61.5	.14	4.43
Cooking	1,583	25,531	32.3	7.7	.6	10.4	48.6	113.4	.14	4.44
Manufacturing	564	20,147	26.6	6.3	3.8	11.5	26.3	84.9	.11	4.21
Workers (main shift)										
Less than 50	59	2,583	68.1	120.0	20.6	61.9	103.8	12.5	.33	4.85
50 to 99	51	3,634	78.7	55.8	19.9	51.6	85.3	9.9	.21	2.73
100 to 499	347	7,538	61.1	28.7	9.1	29.5	99.1	35.5	.29	4.71
500 or More	1,449	25,866	28.1	6.6	.5	5.9	32.8	114.0	.12	4.41
Weekly Operating Hours										
48 or Fewer	39	2,963	12.9	6.8	6.3	21.6	99.1	15.8	.07	5.33
49 to 60	73	2,616	6.3	2.1	2.2	13.0	39.0	14.1	.03	5.41
61 to 167	127	4,544	17.7	7.8	2.3	20.0	40.1	14.8	.06	3.25
Open Continuously	1,667	23,808	45.2	9.5	6.3	38.4	103.8	106.1	.20	4.46

See footnotes at end of table.

Table 3.49. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
Multibuilding Facility										
Yes	761	10,431	31.5	9.0	10.4	41.7	103.8	46.4	0.14	4.45
No	1,144	17,335	33.1	7.8	.9	13.0	36.0	76.6	.15	4.42
Space-Heating Energy Source										
Natural Gas	1,480	15,421	66.9	29.6	15.5	40.8	103.1	70.4	.31	4.57
Natural Gas Main	1,456	16,172	72.4	32.5	16.9	41.0	103.8	73.7	.33	4.56
Natural Gas Secondary	25	4,154	12.3	4.7	6.3	23.8	41.7	21.0	.06	5.05
Other Excluding Natural Gas	425	9,887	11.6	2.3	.3	1.8	7.1	39.1	.05	3.96
Building Not Heated	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Cooling Energy Source										
Natural Gas	1	563	25.3	6.3	25.3	25.3	25.3	4.4	.20	7.76
Other Excluding Natural Gas	1,884	13,852	32.5	8.2	4.2	21.3	64.6	61.3	.14	4.43
A/C Not Performed	21	10,538	28.2	11.7	26.4	48.7	71.0	48.6	.13	4.61
Water-Heating Energy Source										
Natural Gas	1,428	18,310	78.9	29.2	20.0	44.1	103.8	82.7	.36	4.51
Other Excluding Natural Gas	472	8,008	11.7	2.6	.5	5.3	19.2	33.4	.05	4.17
Water Heating Not Performed	5	2,434	42.9	3.7	40.3	51.1	61.9	12.2	.21	5.01
Cooking Energy Source										
Natural Gas	1,393	30,286	35.6	7.7	.6	6.8	53.5	138.2	.16	4.56
Other Excluding Natural Gas	190	11,860	19.0	7.4	.5	22.3	46.4	42.0	.07	3.54
Cooking Not Performed	323	4,190	33.6	12.7	10.4	35.1	81.2	18.4	.15	4.38
Manufacturing Energy Source										
Natural Gas	47	9,346	8.8	3.6	3.8	12.7	12.8	51.6	.05	5.52
Other Excluding Natural Gas	517	22,495	32.5	6.8	3.9	10.3	26.4	92.1	.13	4.09
Manufacturing Not Performed	1,341	12,085	35.8	9.4	4.8	33.0	81.2	54.7	.16	4.52
Percent of Floorspace Heated										
Not Heated	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
1 to 50	16	3,292	3.7	2.5	.5	31.4	41.4	16.4	.02	4.98
51 to 100	1,889	14,098	34.8	8.4	4.5	22.3	65.5	62.4	.15	4.43
Heating Equipment (more than one may apply)										
Heat Pumps	33	2,722	6.1	2.2	1.6	17.8	46.8	14.6	.03	5.36
Furnaces	33	4,681	92.7	56.0	16.8	39.7	100.6	6.6	.13	1.41
Individual Space Heaters	1,127	32,207	54.0	18.1	3.9	26.4	88.0	145.2	.24	4.51
District Heat	725	12,952	18.5	4.0	.7	6.8	86.3	52.3	.07	4.04
Boilers	1,076	15,587	60.0	24.0	12.7	26.4	57.9	73.7	.28	4.73
Packaged-Heating Units	638	39,857	158.8	50.0	2.5	19.9	78.1	205.3	.82	5.15
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	1,784	16,076	34.4	8.3	3.5	20.1	61.9	70.8	.15	4.40
Retrofit	695	15,794	27.1	9.0	2.2	13.5	42.0	65.6	.11	4.15
Purchase	1,667	18,732	40.8	9.1	4.8	26.0	77.3	82.4	.18	4.40
No Retrofit or Purchase	121	4,327	17.8	7.8	11.0	35.6	95.0	21.1	.09	4.87
HVAC Conservation Features (more than one may apply)										
VAV System	1,094	22,331	48.0	10.7	3.2	12.7	42.0	105.8	.23	4.74
Economizer Cycle	1,531	19,634	38.3	8.2	3.4	14.2	47.0	88.1	.17	4.49
HVAC Maintenance	1,888	13,988	32.3	8.2	4.5	23.0	61.9	62.0	.14	4.43

See footnotes at end of table.

Table 3.49. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 3, 1993 (Continued)

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
Energy Management Practices (more than one may apply)										
Energy Management and Control System	1,638	24,081	36.5	8.5	3.2	18.6	89.6	107.6	0.16	4.47
Energy Conservation Programs ¹	1,331	27,171	34.9	8.4	1.2	13.7	41.7	122.3	.16	4.50
Energy Audit	566	14,152	27.5	9.7	5.8	34.0	66.9	58.4	.11	4.13
HVAC Maintenance Staff ²	900	17,312	27.8	5.5	1.9	13.0	47.7	70.2	.11	4.06
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	192	3,496	9.2	3.6	1.8	13.3	41.7	16.3	.04	4.66
Cooling	191	3,480	9.3	3.6	1.8	16.9	41.7	16.2	.04	4.66
Hot Water	111	3,181	8.0	3.0	1.1	7.1	26.4	14.5	.04	4.55
Lighting	223	3,772	10.6	4.2	1.7	18.0	40.2	15.6	.04	4.13
Natural Gas Transported for the Account of Others										
Used in Building	138	12,502	32.2	20.9	4.5	19.9	81.2	47.7	.12	3.82
Not Used in Building	1,748	14,095	33.2	8.0	4.0	25.7	67.8	63.0	.15	4.47
Don't Know/Not Ascertained	20	5,066	11.5	3.2	5.1	9.3	23.9	26.9	.06	5.30

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.50. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
All Buildings	970	5,775	39.1	17.2	7.8	28.1	67.9	19.6	0.13	3.39
Building Floorspace (square feet)										
10,000 to 50,000	145	1,887	78.6	34.0	16.2	38.4	80.4	6.3	.26	3.33
50,001 to 200,000	343	6,017	56.4	30.2	7.6	28.0	59.4	19.6	.18	3.27
Over 200,000	482	14,172	28.5	11.8	2.9	9.9	23.7	49.6	.10	3.50
Principal Building Activity										
Education	7	1,826	55.1	34.9	38.1	74.3	76.6	7.9	.24	4.35
Health Care	615	24,619	64.4	35.7	47.7	68.0	111.1	79.0	.21	3.21
Laboratory	56	4,014	38.3	38.7	5.8	53.6	101.7	13.8	.13	3.44
Lodging	32	2,928	48.4	86.8	19.0	54.7	105.4	8.4	.14	2.86
Mercantile and Service	28	727	6.6	2.2	2.2	8.4	27.1	3.6	.03	4.96
Office	154	2,851	20.3	7.1	7.6	20.8	39.8	10.9	.08	3.81
All Others	77	3,649	67.4	34.7	14.2	42.9	96.4	12.8	.24	3.50
Year Constructed										
1959 or Before	437	6,937	51.9	26.8	11.8	37.2	74.5	21.6	.16	3.11
1960 to 1969	126	4,184	25.7	6.7	3.3	16.0	44.1	16.8	.10	4.01
1970 to 1979	174	6,707	36.0	17.8	8.5	24.1	65.9	23.9	.13	3.56
1980 to 1989	191	4,670	51.9	23.4	6.3	31.0	76.7	16.0	.18	3.42
1990 to 1993	42	5,212	14.0	12.7	2.8	15.2	61.0	18.4	.05	3.54
Federal Agency										
Department of Defense	143	7,943	100.9	55.7	26.0	68.1	117.8	26.1	.33	3.29
General Services Administration	91	3,131	14.4	4.8	4.6	16.3	23.7	12.7	.06	4.06
United States Postal Service	32	660	6.4	2.3	1.5	6.4	25.7	3.5	.03	5.28
Veterans Administration	485	20,207	55.6	31.8	38.7	67.3	101.6	62.7	.17	3.10
All Others	219	4,563	64.9	39.9	28.5	60.2	102.2	16.2	.23	3.54
Energy Sources (more than one may apply)										
Electricity	970	5,775	39.1	17.2	7.8	28.1	67.9	19.6	.13	3.39
Natural Gas	970	5,775	39.1	17.2	7.8	28.1	67.9	19.6	.13	3.39
Fuel Oil	150	12,474	40.8	13.0	6.5	24.5	55.4	44.7	.15	3.58
District Heat	90	6,020	16.9	9.9	5.7	11.2	47.7	21.1	.06	3.51
District Chilled Water	92	7,071	17.7	9.4	5.8	16.3	44.1	24.5	.06	3.46
Propane	28	27,978	207.2	68.6	207.2	207.2	207.2	96.5	.71	3.45
Any Other	123	30,715	105.7	42.7	28.7	169.4	292.7	106.2	.37	3.46
Energy End Uses (more than one may apply)										
Heating	970	5,775	39.1	17.2	7.8	28.1	67.9	19.6	.13	3.39
Air Conditioning	970	5,775	39.1	17.2	7.8	28.1	67.9	19.6	.13	3.39
Water Heating	969	5,839	39.1	17.2	7.6	28.4	68.0	19.8	.13	3.39
Cooking	614	12,793	38.9	16.2	9.6	29.5	75.8	45.8	.14	3.58
Manufacturing	70	3,198	16.3	5.2	2.2	8.4	17.5	11.7	.06	3.65
Workers (main shift)										
Less than 50	90	1,962	58.0	94.6	16.3	33.3	86.6	6.5	.19	3.32
50 to 99	70	2,012	40.4	27.4	3.5	29.3	65.9	7.7	.15	3.81
100 to 499	325	5,799	56.4	29.4	5.8	31.1	65.2	18.1	.18	3.13
500 or More	485	15,636	30.7	11.6	5.4	12.3	44.1	55.0	.11	3.52
Weekly Operating Hours										
48 or Fewer	78	2,615	51.0	28.7	26.2	41.3	86.6	9.3	.18	3.54
49 to 60	85	3,259	22.2	9.3	5.6	19.8	37.2	11.7	.08	3.60
61 to 167	110	2,030	23.2	10.0	6.3	18.9	42.4	8.3	.10	4.10
Open Continuously	697	12,022	47.3	20.8	5.8	43.4	86.6	38.9	.15	3.24

See footnotes at end of table.

Table 3.50. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
Multibuilding Facility										
Yes	655	7,446	42.0	18.9	11.4	51.2	94.0	23.9	0.13	3.21
No	315	3,936	34.2	14.5	5.4	18.9	37.0	14.9	.13	3.77
Space-Heating Energy Source										
Natural Gas	891	5,822	45.0	18.3	8.5	30.1	72.2	19.7	.15	3.38
Natural Gas Main	881	6,116	48.9	20.0	9.9	31.5	74.4	20.6	.16	3.36
Natural Gas Secondary	10	1,103	5.6	2.2	1.5	8.6	10.4	5.2	.03	4.71
Other Excluding Natural Gas	79	5,295	15.8	10.1	3.3	11.2	57.7	18.7	.06	3.53
Building Not Heated	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Cooling Energy Source										
Natural Gas	(*)	147	3.1	2.0	3.1	3.1	3.1	.8	.02	5.64
Other Excluding Natural Gas	970	5,808	39.1	17.2	8.4	28.2	68.0	19.7	.13	3.39
A/C Not Performed	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Water-Heating Energy Source										
Natural Gas	817	6,539	52.2	20.8	12.3	38.4	76.4	22.0	.18	3.37
Other Excluding Natural Gas	152	3,706	16.6	8.9	3.5	8.5	25.8	12.9	.06	3.49
Water Heating Not Performed	1	399	20.2	36.3	14.2	20.1	26.0	3.7	.19	9.29
Cooking Energy Source										
Natural Gas	538	17,343	48.9	23.2	11.2	47.7	101.4	60.6	.17	3.50
Other Excluding Natural Gas	76	4,496	15.9	5.2	8.5	16.3	40.1	18.8	.07	4.18
Cooking Not Performed	356	2,967	39.5	19.2	6.0	27.6	67.5	9.1	.12	3.06
Manufacturing Energy Source										
Natural Gas	7	6,927	187.5	164.9	187.5	187.5	187.5	22.2	.60	3.20
Other Excluding Natural Gas	63	3,020	14.8	4.7	2.2	7.5	16.3	11.2	.05	3.70
Manufacturing Not Performed	900	6,163	43.9	21.0	9.4	31.2	71.0	20.8	.15	3.37
Percent of Floorspace Heated										
Not Heated	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
1 to 50	23	2,923	26.0	11.3	4.7	19.8	84.1	11.8	.11	4.04
51 to 100	947	5,917	39.6	17.4	8.4	28.4	67.9	20.0	.13	3.37
Heating Equipment (more than one may apply)										
Heat Pumps	32	5,290	36.7	10.3	3.4	31.1	59.4	16.7	.12	3.15
Furnaces	51	3,402	68.6	39.3	4.7	37.5	128.2	10.2	.21	2.99
Individual Space Heaters	160	6,650	39.5	11.4	9.4	16.1	55.7	24.1	.14	3.62
District Heat	283	9,771	39.9	21.7	15.1	54.7	74.3	27.2	.11	2.79
Boilers	623	6,424	38.7	15.8	8.4	27.1	61.7	23.4	.14	3.65
Packaged-Heating Units	327	7,119	58.1	23.8	6.3	16.8	71.0	25.4	.21	3.57
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	805	6,655	37.8	16.0	7.5	25.7	65.8	22.5	.13	3.38
Retrofit	297	6,598	25.9	11.4	12.4	26.0	72.2	25.1	.10	3.81
Purchase	701	6,944	41.6	16.0	5.6	22.2	58.8	23.1	.14	3.32
No Retrofit or Purchase	165	3,508	46.4	27.0	10.4	31.0	83.5	12.0	.16	3.42
HVAC Conservation Features (more than one may apply)										
VAV System	484	10,084	34.5	16.3	5.6	19.6	69.7	35.4	.12	3.52
Economizer Cycle	681	7,828	39.9	17.1	11.8	31.0	59.4	28.3	.14	3.61
HVAC Maintenance	960	5,963	39.3	17.3	7.6	28.2	71.0	20.2	.13	3.38

See footnotes at end of table.

Table 3.50. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 6, 1993 (Continued)

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
Energy Management Practices (more than one may apply)										
Energy Management and Control System	686	10,549	39.9	18.8	4.6	19.0	65.8	34.7	0.13	3.29
Energy Conservation Programs ¹	388	11,405	34.4	13.4	8.4	22.5	57.7	37.4	.11	3.28
Energy Audit	272	4,945	25.5	8.9	5.7	15.6	49.9	18.6	.10	3.77
HVAC Maintenance Staff ²	340	7,552	28.5	13.7	3.5	11.8	31.8	27.2	.10	3.60
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	191	2,171	22.4	9.1	5.9	19.5	38.3	8.3	.09	3.81
Cooling	191	2,194	22.4	9.1	5.7	19.8	38.4	8.4	.09	3.81
Hot Water	39	1,768	13.4	6.2	8.4	18.2	31.0	7.9	.06	4.45
Lighting	220	2,591	25.8	10.4	5.7	18.5	40.1	9.5	.09	3.67
Natural Gas Transported for the Account of Others										
Used in Building	66	13,266	105.1	29.7	57.7	157.4	187.5	40.2	.32	3.03
Not Used in Building	826	5,901	37.2	15.9	5.9	25.8	59.3	20.1	.13	3.41
Don't Know/Not Ascertained	78	3,377	38.9	34.9	10.8	52.6	101.7	11.9	.14	3.52

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.51. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
All Buildings	1,047	4,655	30.2	14.0	11.4	26.6	57.2	20.6	0.13	4.42
Building Floorspace (square feet)										
10,000 to 50,000	109	1,177	47.5	18.4	12.5	31.6	82.9	5.9	.24	4.97
50,001 to 200,000	409	4,705	44.4	21.3	16.7	30.4	51.8	21.8	.21	4.64
Over 200,000	529	11,747	22.8	10.6	5.9	12.0	24.4	48.6	.09	4.14
Principal Building Activity										
Education	18	2,573	66.3	67.0	30.4	52.3	63.1	8.3	.21	3.22
Health Care	399	15,353	58.4	26.9	19.8	57.2	111.6	65.6	.25	4.27
Laboratory	96	3,306	37.6	25.3	29.2	42.4	67.9	16.4	.19	4.95
Lodging	23	2,519	43.6	87.2	24.4	54.5	69.6	12.0	.21	4.77
Mercantile and Service	54	1,156	8.2	3.3	6.0	11.2	18.0	6.9	.05	5.94
Office	298	4,197	20.4	8.8	7.1	20.4	39.5	17.5	.09	4.17
All Others	159	4,425	48.0	29.3	20.7	48.7	96.5	19.9	.22	4.50
Year Constructed										
1959 or Before	382	4,897	41.7	24.0	20.0	38.4	60.8	18.3	.16	3.74
1960 to 1969	272	5,672	33.2	14.1	13.0	28.9	53.9	25.3	.15	4.46
1970 to 1979	217	4,812	22.0	9.9	7.5	16.1	30.0	25.7	.12	5.34
1980 to 1989	155	3,693	26.0	10.7	8.6	21.4	69.9	16.0	.11	4.34
1990 to 1993	22	1,796	14.1	6.9	4.5	10.9	43.3	13.2	.10	7.35
Federal Agency										
Department of Defense	162	4,371	34.0	20.4	18.5	40.2	62.0	18.6	.14	4.25
General Services Administration	224	5,884	18.3	8.0	6.6	16.6	26.5	23.1	.07	3.93
United States Postal Service	58	1,088	8.2	3.3	5.2	9.2	16.1	6.5	.05	5.98
Veterans Administration	344	11,861	64.0	28.8	19.1	57.2	111.6	50.2	.27	4.23
All Others	260	3,830	49.5	26.9	26.7	45.2	80.4	18.6	.24	4.86
Energy Sources (more than one may apply)										
Electricity	1,047	4,655	30.2	14.0	11.4	26.6	57.2	20.6	.13	4.42
Natural Gas	1,047	4,655	30.2	14.0	11.4	26.6	57.2	20.6	.13	4.42
Fuel Oil	496	12,409	47.1	23.1	24.0	43.8	98.3	54.3	.21	4.37
District Heat	238	8,814	35.7	18.3	9.7	22.8	83.2	37.8	.15	4.29
District Chilled Water	146	18,262	38.2	20.3	12.9	41.8	157.0	70.9	.15	3.88
Propane	72	71,563	95.2	47.7	95.2	95.2	392.3	392.3	.52	5.48
Any Other	72	24,129	42.7	21.3	11.4	121.6	161.0	83.8	.15	3.47
Energy End Uses (more than one may apply)										
Heating	1,044	4,683	30.7	14.4	11.6	26.7	57.3	20.7	.14	4.42
Air Conditioning	1,012	4,844	30.2	13.8	11.2	26.3	54.2	21.1	.13	4.36
Water Heating	1,044	4,683	30.4	14.0	11.4	26.7	57.3	20.6	.13	4.40
Cooking	465	9,126	29.4	12.5	11.4	29.6	83.2	42.5	.14	4.66
Manufacturing	95	4,531	17.5	7.9	7.6	9.7	22.6	18.5	.07	4.08
Workers (main shift)										
Less than 50	77	1,408	38.2	69.8	14.3	48.2	83.6	7.7	.21	5.45
50 to 99	72	1,997	45.7	26.4	13.3	27.9	42.2	7.9	.18	3.98
100 to 499	436	4,637	39.9	23.0	12.5	26.6	51.8	21.6	.19	4.66
500 or More	462	11,556	22.9	8.9	4.8	14.1	31.0	47.3	.09	4.09
Weekly Operating Hours										
48 or Fewer	149	3,465	49.6	34.9	20.0	32.8	82.9	14.1	.20	4.07
49 to 60	260	4,640	20.5	8.6	7.2	17.3	38.3	18.3	.08	3.95
61 to 167	149	2,608	27.9	15.3	9.3	18.5	42.4	12.4	.13	4.76
Open Continuously	490	7,100	35.8	16.0	17.7	39.0	83.6	33.2	.17	4.67

See footnotes at end of table.

Table 3.51. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
Multibuilding Facility										
Yes	720	6,053	38.1	17.6	19.8	40.9	69.6	27.4	0.17	4.52
No	327	3,086	20.7	9.7	7.1	16.8	30.0	13.0	.09	4.20
Space-Heating Energy Source										
Natural Gas	904	4,611	31.3	14.4	13.2	28.9	60.4	20.4	.14	4.43
Natural Gas Main	836	4,521	30.8	14.5	14.3	28.6	59.3	20.1	.14	4.45
Natural Gas Secondary	67	6,131	40.6	14.0	5.2	31.0	60.8	25.3	.17	4.13
Other Excluding Natural Gas	141	5,205	26.9	14.0	7.2	12.4	32.8	22.6	.12	4.34
Building Not Heated	3	1,558	4.7	1.5	2.0	4.6	7.1	9.1	.03	5.97
Cooling Energy Source										
Natural Gas	2	309	9.6	3.2	5.2	11.2	15.7	2.3	.07	7.51
Other Excluding Natural Gas	1,011	4,978	30.3	13.9	11.4	26.6	57.2	21.7	.13	4.36
A/C Not Performed	35	2,189	30.7	20.4	21.4	53.4	61.8	13.3	.19	6.07
Water-Heating Energy Source										
Natural Gas	813	4,566	30.0	13.9	15.7	30.0	60.8	20.5	.13	4.48
Other Excluding Natural Gas	231	5,144	31.7	14.5	6.9	12.9	39.5	21.2	.13	4.13
Water Heating Not Performed	3	1,572	9.7	9.1	9.0	14.6	20.2	15.6	.10	9.94
Cooking Energy Source										
Natural Gas	329	9,690	33.4	13.0	7.1	26.3	67.8	45.8	.16	4.73
Other Excluding Natural Gas	136	7,997	22.8	11.4	12.2	30.8	83.2	35.8	.10	4.48
Cooking Not Performed	582	3,345	30.8	15.5	11.4	26.5	52.3	14.1	.13	4.23
Manufacturing Energy Source										
Natural Gas	27	3,355	14.6	7.0	8.0	10.8	20.4	16.1	.07	4.81
Other Excluding Natural Gas	68	5,256	19.0	8.4	7.1	9.3	46.7	20.0	.07	3.80
Manufacturing Not Performed	952	4,668	32.5	15.2	12.5	28.4	57.6	20.8	.14	4.45
Percent of Floorspace Heated										
Not Heated	3	1,558	4.7	1.5	2.0	4.6	7.1	9.1	.03	5.87
1 to 50	76	6,321	46.1	73.9	5.7	35.3	57.9	25.3	.18	4.00
51 to 100	968	4,590	29.9	13.5	11.6	26.6	57.3	20.4	.13	4.45
Heating Equipment (more than one may apply)										
Heat Pumps	76	2,613	29.6	12.4	7.2	36.2	49.1	10.8	.12	4.12
Furnaces	22	1,018	19.3	8.4	8.6	18.2	49.1	6.0	.11	5.94
Individual Space Heaters	132	5,753	28.9	12.7	9.2	30.4	67.8	24.7	.12	4.30
District Heat	257	7,550	34.7	18.5	12.0	31.2	101.3	32.4	.15	4.29
Boilers	617	4,639	26.5	11.6	14.1	27.0	51.8	22.6	.13	4.87
Packaged-Heating Units	264	4,549	47.6	22.5	12.9	26.6	63.1	16.3	.17	3.58
Retrofit or Purchase of any Equipment Within Last Ten Years (more than one may apply)										
Retrofit and/or Purchase	876	5,409	29.4	13.4	11.2	27.6	57.2	24.2	.13	4.47
Retrofit	643	8,464	33.2	14.5	15.9	31.5	70.0	35.5	.14	4.19
Purchase	495	4,340	29.9	13.6	9.6	26.4	54.2	21.4	.15	4.94
No Retrofit or Purchase	171	2,717	34.8	18.4	12.0	26.5	60.8	11.3	.14	4.16
HVAC Conservation Features (more than one may apply)										
VAV System	390	6,614	29.8	13.9	11.2	22.5	50.9	29.8	.13	4.51
Economizer Cycle	674	5,911	29.6	13.5	9.7	22.0	51.8	24.9	.12	4.21
HVAC Maintenance	1,028	4,780	30.1	13.9	11.2	26.5	57.1	21.1	.13	4.40

See footnotes at end of table.

Table 3.51. Natural Gas Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993 (Continued)

Building Characteristics	Natural Gas Consumption							Natural Gas Expenditures		
	Total (million cubic feet)	per Building (thousand cubic feet)	per Square Foot (cubic feet)	per Worker (thousand cubic feet)	Distribution of Building-Level Intensities (cubic feet/square foot)			per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Cubic Feet (dollars)
					25th Percentile	Median	75th Percentile			
Energy Management Practices (more than one may apply)										
Energy Management and Control System	360	6,319	24.9	10.9	8.2	24.4	59.3	29.1	0.11	4.61
Energy Conservation Programs ¹	655	6,684	29.9	13.3	11.6	26.6	57.3	28.2	.13	4.22
Energy Audit	344	5,139	25.8	11.0	9.7	22.6	56.2	23.9	.12	4.65
HVAC Maintenance Staff ²	371	9,509	29.5	12.3	6.5	21.5	57.3	41.1	.13	4.33
Off-Hours Reduction in Equipment (more than one may apply)										
Heating	453	3,571	24.6	11.5	9.6	20.9	39.7	15.0	.10	4.19
Cooling	432	3,515	24.6	11.5	9.2	20.0	39.3	14.5	.10	4.11
Hot Water	270	4,580	20.7	9.2	9.6	20.9	30.8	17.9	.08	3.91
Lighting	511	3,902	26.8	12.5	10.5	22.5	47.6	16.1	.11	4.14
Natural Gas Transported for the Account of Others										
Used in Building	223	9,286	42.8	17.4	12.9	42.8	57.3	39.1	.18	4.21
Not Used in Building	736	4,231	27.5	13.2	10.6	22.9	51.8	18.7	.12	4.43
Don't Know/Not Ascertained	85	3,397	32.3	13.7	20.2	37.6	69.9	16.4	.16	4.82

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey.

• HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

**Table 3.52. District Heat Consumption and Expenditure Intensities
in FBSS Buildings in Federal Region 3, 1993**

Building Characteristics	District Heat Consumption				District Heat Expenditures		
	Total (million pounds)	per Building (thousand pounds)	per Square foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)
All Buildings	3,015	19,577	47.11	12.5	241.6	0.58	12.34
Building Floorspace (square feet)							
10,000 to 50,000	187	6,034	195.10	119.6	56.2	1.82	9.32
50,001 to 200,000	805	12,766	115.92	60.9	138.1	1.25	10.80
Over 200,000	2,022	33,707	36.06	8.9	446.2	.48	13.24
Principal Building Activity							
Education	19	4,754	72.05	48.5	55.7	.84	11.72
Health Care	422	20,091	50.04	31.7	208.0	.52	10.35
Laboratory	765	26,372	217.10	130.6	292.3	2.41	11.08
Lodging	37	5,326	76.24	83.8	64.3	.92	12.07
Mercantile and Service	69	23,105	33.16	2.1	283.6	.41	12.27
Office	1,372	19,883	31.08	7.9	275.0	.43	13.83
All Others	331	15,747	65.43	23.4	184.2	.77	11.70
Year Constructed							
1959 or Before	1,500	18,992	43.45	8.6	228.9	.52	12.05
1960 to 1969	954	19,865	63.78	26.5	250.6	.80	12.62
1970 to 1979	244	22,214	27.09	10.2	355.4	.43	16.00
1980 to 1989	197	19,678	78.56	44.4	170.4	.68	8.66
1990 to 1993	120	19,987	40.21	32.3	247.6	.50	12.39
Federal Agency							
Department of Defense	462	35,532	39.22	11.3	558.3	.62	15.71
General Services Administration ..	1,009	21,476	29.05	7.1	294.9	.40	13.73
United States Postal Service	42	20,837	32.06	1.4	261.9	.40	12.57
Veterans Administration	407	14,520	68.33	49.6	146.5	.69	10.09
All Others	1,095	17,115	107.26	53.3	179.2	1.12	10.47
Energy Sources (more than one may apply)							
Electricity	3,015	19,577	47.11	12.5	241.6	.58	12.34
Natural Gas	1,337	34,290	37.97	7.6	476.7	.53	13.90
Fuel Oil	749	39,431	32.81	11.7	599.0	.50	15.19
District Heat	3,015	19,577	47.11	12.5	241.6	.58	12.34
District Chilled Water	1,273	22,731	55.62	19.8	289.3	.71	12.73
Propane	40	19,769	59.28	52.7	173.6	.52	8.78
Any Other	70	23,281	22.00	8.1	174.9	.17	7.51
Energy End Uses (more than one may apply)							
Heating	3,015	19,577	47.11	12.5	241.6	.58	12.34
Air Conditioning	3,011	19,683	47.08	12.5	242.9	.58	12.34
Water Heating	3,001	19,742	47.33	12.5	243.5	.58	12.33
Cooking	1,834	32,757	36.26	8.7	431.1	.48	13.16
Manufacturing	845	42,260	43.59	10.5	536.9	.55	12.70
Workers (main shift)							
Less than 50	190	6,118	97.49	242.8	58.6	.93	9.57
50 to 99	130	7,240	138.75	106.3	70.1	1.34	9.68
100 to 499	791	15,818	118.23	66.5	176.2	1.32	11.14
500 or More	1,904	34,620	34.99	8.4	460.4	.47	13.30
Weekly Operating Hours							
48 or Fewer	354	11,798	51.57	22.1	123.3	.54	10.45
49 to 60	754	15,718	35.71	13.5	224.1	.51	14.26
61 to 167	249	13,816	38.52	16.6	146.3	.41	10.59
Open Continuously	1,658	28,583	56.12	10.7	347.0	.68	12.14

See footnotes at end of table.

**Table 3.52. District Heat Consumption and Expenditure Intensities
in FBSS Buildings in Federal Region 3, 1993 (Continued)**

Building Characteristics	District Heat Consumption				District Heat Expenditures		
	Total (million pounds)	per Building (thousand pounds)	per Square foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)
HVAC Conservation Features (more than one may apply)							
VAV System	814	21,434	38.85	8.8	277.7	0.50	12.96
Economizer Cycle	1,819	23,326	43.17	9.5	300.8	.56	12.89
HVAC Maintenance	2,983	19,755	47.09	12.4	244.1	.58	12.35
Energy Management Practices (more than one may apply)							
Energy Management and Control System	1,583	22,609	38.59	8.5	284.6	.49	12.59
Energy Conservation Programs ¹	1,533	26,898	32.90	8.5	366.2	.45	13.62
Energy Audit	1,071	19,836	41.50	15.3	257.4	.54	12.98
HVAC Maintenance Staff ²	1,491	27,101	40.07	8.0	383.7	.57	14.16
Off-Hours Reduction in Equipment (more than one may apply)							
Heating	1,160	15,468	35.82	13.8	198.6	.46	12.84
Cooling	1,162	15,284	35.84	13.8	196.1	.46	12.83
Hot Water	718	17,090	39.04	15.6	215.0	.49	12.58
Lighting	1,235	15,063	37.98	15.6	191.6	.48	12.72
Building Generates Electricity							
Yes	1,017	29,044	41.37	9.1	364.2	.52	12.54
No	1,998	16,793	50.70	15.4	205.6	.62	12.24

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

**Table 3.53. District Heat Consumption and Expenditure Intensities
in FBSS Buildings in Federal Region 6, 1993**

Building Characteristics	District Heat Consumption				District Heat Expenditures		
	Total (million pounds)	per Building (thousand pounds)	per Square foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)
All Buildings	982	14,439	73.07	40.0	156.2	0.79	10.82
Building Floorspace (square feet)							
10,000 to 50,000	95	4,525	164.13	117.6	46.9	1.70	10.36
50,001 to 200,000	392	12,639	105.24	50.4	138.9	1.16	10.99
Over 200,000	495	30,938	54.19	31.0	333.4	.58	10.78
Principal Building Activity							
Education	5	2,676	152.90	118.9	18.8	1.08	7.04
Health Care	271	18,077	40.07	24.9	175.7	.39	9.72
Laboratory	463	27,242	194.80	140.6	318.7	2.28	11.70
Lodging	24	4,892	85.13	95.9	58.4	1.02	11.94
Mercantile and Service	(*)	2	.01	(*)	(*)	(*)	12.50
Office	151	8,362	55.54	17.5	92.3	.61	11.04
All Others	67	6,723	62.15	70.5	57.9	.54	8.61
Year Constructed							
1959 or Before	570	12,950	98.54	50.2	140.9	1.07	10.88
1960 to 1969	105	15,026	102.66	36.4	169.0	1.15	11.25
1970 to 1979	56	14,012	57.43	15.8	116.6	.48	8.32
1980 to 1989	191	17,362	65.95	45.9	188.1	.71	10.83
1990 to 1993	60	29,909	21.69	23.1	352.5	.26	11.78
Federal Agency							
Department of Defense	14	4,687	57.04	27.6	28.4	.35	6.05
General Services Administration	44	8,724	38.67	14.3	103.6	.46	11.87
United States Postal Service	(*)	2	.01	(*)	(*)	(*)	12.50
Veterans Administration	286	15,053	41.14	25.9	146.1	.40	9.71
All Others	638	15,953	129.38	67.6	181.1	1.47	11.35
Energy Sources (more than one may apply)							
Electricity	982	14,439	73.07	40.0	156.2	.79	10.82
Natural Gas	222	14,786	41.55	24.4	142.6	.40	9.64
Fuel Oil	63	8,971	59.38	24.8	88.7	.59	9.89
District Heat	982	14,439	73.07	40.0	156.2	.79	10.82
District Chilled Water	343	12,688	46.70	21.9	133.2	.49	10.50
Propane	7	3,659	308.31	122.0	13.9	1.17	3.81
Any Other	58	19,307	47.21	31.3	181.1	.44	9.38
Energy End Uses (more than one may apply)							
Heating	982	14,439	73.07	40.0	156.2	.79	10.82
Air Conditioning	982	14,439	73.07	40.0	156.2	.79	10.82
Water Heating	982	14,439	73.07	40.0	156.2	.79	10.82
Cooking	264	15,551	39.46	23.2	145.9	.37	9.38
Manufacturing	13	3,210	53.79	40.8	21.5	.36	6.71
Workers (main shift)							
Less than 50	97	4,633	91.20	204.8	50.3	.99	10.86
50 to 99	27	5,471	146.86	70.0	65.3	1.75	11.93
100 to 499	494	18,310	121.45	75.8	202.2	1.34	11.04
500 or More	363	24,188	44.72	21.2	252.1	.47	10.42
Weekly Operating Hours							
48 or Fewer	106	10,583	103.08	132.1	117.2	1.14	11.08
49 to 60	232	11,579	82.25	41.6	113.1	.80	9.77
61 to 167	325	17,103	104.44	47.6	202.2	1.23	11.82
Open Continuously	319	16,815	49.28	28.2	176.2	.52	10.48

See footnotes at end of table.

**Table 3.53. District Heat Consumption and Expenditure Intensities
in FBSS Buildings in Federal Region 6, 1993 (Continued)**

Building Characteristics	District Heat Consumption				District Heat Expenditures		
	Total (million pounds)	per Building (thousand pounds)	per Square foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)
HVAC Conservation Features (more than one may apply)							
VAV System	393	16,388	47.64	28.4	167.9	0.49	10.24
Economizer Cycle	555	15,409	58.61	34.1	157.7	.60	10.23
HVAC Maintenance	979	14,612	72.98	39.9	158.0	.79	10.82
Energy Management Practices (more than one may apply)							
Energy Management and Control System	610	16,955	64.26	35.6	176.4	.67	10.40
Energy Conservation Programs ¹	194	17,672	38.63	18.9	168.7	.37	9.55
Energy Audit	69	13,806	50.17	16.7	125.7	.46	9.10
HVAC Maintenance Staff ²	195	16,235	33.38	19.8	171.2	.35	10.54
Off-Hours Reduction in Equipment (more than one may apply)							
Heating	387	13,361	88.47	46.6	140.6	.93	10.52
Cooling	408	13,613	85.40	43.1	144.2	.90	10.59
Hot Water	77	8,526	52.16	17.6	84.5	.52	9.91
Lighting	363	11,706	93.25	42.4	134.0	1.07	11.45
Building Generates Electricity							
Yes	154	19,291	32.86	25.4	199.8	.34	10.36
No	828	13,792	94.68	44.8	150.4	1.03	10.91

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.

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

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Table 3.54. District Heat Consumption and Expenditure Intensities in FBSS Buildings in Federal Region 9, 1993

Building Characteristics	District Heat Consumption				District Heat Expenditures		
	Total (million pounds)	per Building (thousand pounds)	per Square foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)
All Buildings	834	11,269	70.93	36.0	122.5	0.77	10.87
Building Floorspace (square feet)							
10,000 to 50,000	88	3,376	109.56	49.5	38.6	1.25	11.43
50,001 to 200,000	353	10,092	96.22	49.2	113.6	1.08	11.25
Over 200,000	393	30,226	53.94	27.6	314.2	.56	10.40
Principal Building Activity							
Education	14	7,224	85.32	85.0	70.3	.83	9.73
Health Care	503	13,963	64.92	30.7	138.9	.65	9.95
Laboratory	97	24,275	253.76	178.2	286.9	3.00	11.82
Lodging	43	3,587	63.25	120.6	46.9	.83	13.07
Mercantile and Service	5	2,455	84.17	25.8	29.5	1.01	12.01
Office	52	6,499	26.83	11.6	80.6	.33	12.40
All Others	120	11,979	152.30	109.7	151.0	1.92	12.61
Year Constructed							
1959 or Before	230	6,377	76.08	38.7	76.9	.92	12.05
1960 to 1969	138	12,511	85.08	48.5	127.1	.86	10.16
1970 to 1979	323	17,955	66.77	28.5	200.2	.74	11.15
1980 to 1989	144	15,950	62.91	46.9	143.8	.57	9.02
1990 to 1993	NC	NC	NC	NC	NC	NC	NC
Federal Agency							
Department of Defense	169	7,327	51.06	40.4	93.6	.65	12.78
General Services Administration ..	34	17,050	29.46	11.7	201.4	.35	11.81
United States Postal Service	NC	NC	NC	NC	NC	NC	NC
Veterans Administration	526	11,692	76.78	34.0	117.0	.77	10.01
All Others	105	26,299	235.43	171.1	310.3	2.78	11.80
Energy Sources (more than one may apply)							
Electricity	828	11,346	70.57	35.8	123.0	.77	10.84
Natural Gas	509	18,859	76.28	39.1	204.6	.83	10.85
Fuel Oil	163	18,081	54.54	27.4	188.3	.57	10.41
District Heat	834	11,269	70.93	36.0	122.5	.77	10.87
District Chilled Water	349	13,941	61.01	35.5	137.2	.60	9.84
Propane	NC	NC	NC	NC	NC	NC	NC
Any Other	78	39,199	60.17	33.5	461.9	.71	11.78
Energy End Uses (more than one may apply)							
Heating	834	11,582	71.26	36.0	125.9	.77	10.87
Air Conditioning	751	11,919	70.01	35.7	125.8	.74	10.55
Water Heating	786	10,919	68.76	34.4	116.3	.73	10.65
Cooking	462	23,080	64.64	32.5	238.7	.67	10.34
Manufacturing	161	20,132	105.63	52.0	203.9	1.07	10.13
Workers (main shift)							
Less than 50	61	3,412	70.49	404.0	41.9	.87	12.28
50 to 99	22	3,583	57.02	46.0	42.9	.68	11.98
100 to 499	445	11,416	104.29	52.6	127.7	1.17	11.18
500 or More	306	27,799	49.01	21.7	279.3	.49	10.05
Weekly Operating Hours							
48 or Fewer	75	3,566	60.41	33.8	38.4	.65	10.77
49 to 60	177	13,594	80.07	36.4	161.0	.95	11.84
61 to 167	39	39,376	129.21	116.5	590.6	1.94	15.00
Open Continuously	543	13,922	67.82	34.4	142.9	.70	10.27

See footnotes at end of table.

**Table 3.54. District Heat Consumption and Expenditure Intensities
in FBSS Buildings in Federal Region 9, 1993 (Continued)**

Building Characteristics	District Heat Consumption				District Heat Expenditures		
	Total (million pounds)	per Building (thousand pounds)	per Square foot (pounds)	per Worker (thousand pounds)	per Building (thousand dollars)	per Square Foot (dollars)	per Thousand Pound (dollars)
HVAC Conservation Features (more than one may apply)							
VAV System	274	21,070	56.85	30.5	196.6	0.53	9.33
Economizer Cycle	472	16,281	82.92	42.0	172.5	.88	10.59
HVAC Maintenance	832	11,721	71.28	36.0	127.4	.77	10.87
Energy Management Practices (more than one may apply)							
Energy Management and Control System	298	22,919	54.91	30.0	245.9	.59	10.73
Energy Conservation Programs ¹	402	19,142	69.66	31.9	209.1	.76	10.92
Energy Audit	248	10,343	61.46	31.5	110.1	.65	10.64
HVAC Maintenance Staff ²	255	17,031	60.77	33.6	180.0	.64	10.57
Off-Hours Reduction in Equipment (more than one may apply)							
Heating	153	10,204	70.48	35.2	117.7	.81	11.53
Cooling	139	7,709	60.63	27.6	86.6	.68	11.24
Hot Water	48	7,956	34.19	14.5	94.3	.41	11.85
Lighting	160	6,953	57.61	27.8	81.4	.67	11.71
Building Generates Electricity							
Yes	242	24,229	65.80	35.6	285.6	.78	11.79
No	592	9,244	73.27	36.1	97.0	.77	10.49

¹ Building participates in any programs sponsored by the Federal Energy Management Program, in-house, utility, or third party.

² HVAC maintenance staff means at least one person spends at least half their working hours maintaining the heating/cooling equipment.
NC = No cases in responding sample.

Notes: • 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. • These data are from 881 federally owned buildings having the following criteria: (1) located in Federal Regions 3, 6, or 9; (2) larger than 10,000 square feet; and (3) used for a commercial purpose, other than warehouse and storage. In addition, 9 out of 10 selected buildings were from agencies other than the Department of Defense. • 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. • FBSS = Federal Buildings Supplemental Survey. • HVAC = Heating, Ventilation, and Air Conditioning. • VAV = Variable-Air Volume. • Data are for Fiscal Year 1993 (October 1, 1992 through September 30, 1993). • Because of rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.



Appendix A

How the Survey Was Conducted



Appendix A

How the Survey Was Conducted

Introduction

The Federal Buildings Supplemental Survey (FBSS) conducted by the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE), in conjunction with the Office of Federal Energy Management Programs (OFEMP) of DOE was a supplement to the Commercial Buildings Energy Consumption Survey (CBECS). The FBSS was conducted to assist in the implementation of the Energy Policy Act of 1992 (EPACT) by focusing a modified version of the CBECS exclusively on Federally owned and operated buildings. The CBECS, a triennial commercial buildings survey conducted by EIA, is the only source of national-level data on both commercial buildings' characteristics and related energy consumption and expenditures. Federally owned commercial buildings are one of three types of government-owned commercial buildings that are included in the CBECS sample. However, because the CBECS sample size is relatively small (6,500 sample commercial buildings of an estimated 4.8 million commercial buildings) and yields an even smaller number of federally owned government buildings, in-depth examination of energy use and characteristics of these buildings was not possible using the CBECS data. To obtain energy-related building characteristics and consumption and expenditures data for Federal commercial buildings, a sample survey of approximately 900 Federally owned and operated buildings was conducted in Federal Regions 3, 6, and 9 (See Appendix C for the Federal regions map). The FBSS sample selection procedures are described in the "Sample Design" section of this appendix. As with the CBECS, the "building" was the basic unit for the FBSS since the building is the energy-consuming unit. FBSS data are at the building level and data presented in this report represent the 881 responding buildings and cannot be used to generalize about Federal buildings in each region.

EIA used a computer-assisted telephone interview (CATI) to conduct voluntary interviews with the Federal building energy manager or designated person. CATI was used as a test as opposed to the usual in-person data collection method to see if building owners/managers could provide the technical information over the telephone. Under EIA's direction, a survey research firm conducted the FBSS CATI at their telephone center.

At a Glance - Differences Between 1992 CBECS and 1993 FBSS

The CBECS consists of two major data collection stages--a building characteristics survey, which is an in-person interview with the building respondent, and an energy suppliers survey which is mailed to the energy suppliers. The FBSS survey design included only one major data collection stage -- collecting both building characteristics and consumption data from the building respondent, because the Federal building respondent was thought to have consumption data available to them. Respondents were asked to provide consumption and expenditures data for electricity, natural gas, fuel oil, and district sources (steam, hot water, and chilled water). For these major fuels, the following data were requested: (1) quantity consumed or delivered; (2) cost; and (3) unit of measure. The units of measure were as follows: electricity--kilowatt (kW) demand; natural gas including transportation gas--therms, cubic feet or 1,000 cubic feet; fuel oil--fuel-tank data; and district heating and cooling--the entire district or system. Respondents could Fax completed worksheets that were mailed to them in advance. If building respondents could not obtain these data, they were asked to provide the name, address, telephone and Fax number of the person who would most likely be able to provide the data. The data were requested for the Federal Fiscal Year 1993; that is, from October 1992 to September 1993.

These data were collected on the Building Questionnaire, a modified version of the CBECS form tailored to include specific questions relating to the Federal Energy Management Program (FEMP); such as, questions on motors, retrofitting equipment, energy conservation program sponsorship, and availability of energy audits. Additionally, wording and structural changes to the 1992 CBECS questionnaire were incorporated into the 1993 FBSS questionnaire to facilitate the CATI mode of data collection.

Questions Asked in 1993 FBSS and Not 1992 CBECS

- Equipment Age for: heating (each type present), central chillers, refrigeration, water heating, motors 10 or more horsepower (each type present)
- Sponsorship of Retrofit/Purchase and Type of Assistance (included FEMP and Federal Energy Efficiency Fund (FEEF)) for: special energy technologies, heating equipment (each type present), central chillers, refrigeration, water-heating equipment, lighting
- FBSS asked if Electronic Ballasts were present in the building
- Motors - 10 or more horsepower: number, age, approximate number of energy-efficient motors, approximate number of motors rewound, age when rewound, general behavior when motor fails -- rewind or replace. Specifically asked for the following equipment:

Chillers	Heat Pumps
Fans	Air Compressors
Water Pumps	Elevators
Escalators	Refrigeration

- Questions asked of the interviewer to assess the respondents ability to answer the motor questions and the questionnaire in general

1992 CBECS Questions Not Asked in 1993 FBSS

- Physical Characteristics: Number of below-ground-level floors, building shape, ground-level length/width of square and rectangular buildings, attachment to other structures, renovations and demolitions
- Ownership and Occupancy Characteristics: Building owner and occupant of building, number businesses and organizations that occupy buildings, percent vacant three consecutive months, additional operating hours when equipment in use
- Conservation and Energy Management: Special space functions, opening and closing windows

This appendix has three sections: "Sample Design," "Survey of Building Characteristics and Consumption Data," and "Public-Use Data Preparation." These sections focus on components of the sample, the procedures for data collection and processing, data difficulties encountered, and procedures for handling unit and item nonresponse.

Target Population

The OFEMP requested that the FBSS provide building-level energy-related characteristics for a special sample of commercial buildings owned by the Federal Government. To meet OFEMP's requests, the FBSS target population consisted of federally owned commercial buildings: (1) operated by either GSA, some agency other than GSA, or a contract facility; and (2) in Federal Regions 3, 6, or 9 that:

- Met the CBECS definition of a building--a structure intended for human access and totally enclosed by walls extending from the foundation to the roof
- Were primarily used for some commercial purpose--more than 50 percent of the floorspace devoted to activities that are neither residential, industrial, agricultural nor warehouse/storage
- Measured 10,000 square feet or larger -- this was increased from the CBECS 1,001 square feet size criterion because smaller buildings form a large, inherently ill-defined, group of marginal structures.

All agencies in Federal Regions 3, 6, and 9 were in the FBSS target population.³

Determining Building Eligibility

During the development of the facility and building sample lists for the FBSS frame, somewhat looser criteria were applied to prevent inaccurate exclusion of eligible buildings based on inaccurate list information. During the interview with the building owner or manager, building eligibility was determined according to the criteria listed above to allow a knowledgeable respondent to ultimately screen eligible buildings. Once the interview began, initial screening questions instructed the interviewer to terminate the interview if the respondent indicated that the building size was less than 10,000 square feet or if 50 percent or more of the square footage was used for residential, industrial, agricultural, or warehouse/storage purposes.

Sample Design

Although a comprehensive list of all Federal buildings in the target population (3 Federal regions) does not exist, there is a list of most Federal facilities. Under the direction of the OFEMP, a data base was developed, which contained energy management information on all Federally owned facilities in the United States. As of June 1994, 19,237 Federal facilities were represented in the data base. Therefore, the FBSS sample design was based upon sampling from a national list of Federal facilities created from the data base.

Two-Stage Systematic Probability-Proportional-to-Size (PPS) Sample

The sample design of the FBSS was a two-stage systematic probability-proportional-to-size (PPS) design and the two-stages of the design were: (1) Selecting Facilities and (2) Selecting Buildings. Facility selection was conducted using the FEMP data base. For each facility selected in stage one, a list of buildings on the selected facility was obtained from the facility energy manager. For stage two, buildings were selected. 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 certain measures of size (MOS's), estimates based on PPS sampling have lower variances than estimates based on equal-probability sampling. The total square footage of a facility or building was used as a MOS since building size is well correlated with commercial activity and energy consumption, which indicates size is a good choice not only for PPS sampling, but also for ordering in the systematic selection.

³For a detailed discussion of CBECS criteria, see Appendix A, "How the Survey was Conducted" in the *Commercial Buildings Energy Consumption and Expenditures 1992*, DOE/EIA-0318(92), Energy Information Administration (Washington, D.C., Government Printing Office, April 1995).

First Stage -- Selecting Facilities

To prepare for the first-stage of the PPS sample, all Federal facilities listed in Regions 3, 6, and 9 were divided into Department of Defense (DOD) and non-DOD facilities based on agency designation, to ensure appropriate selection of DOD facilities. Next, within the DOD facilities, eight strata were formed by grouping adjacent States. Adjacent States were assumed to be similar in average temperatures and main fuel used; and, therefore, similar in energy-related characteristics. Similarly, the non-DOD facilities were grouped into eight strata by the same grouping of adjacent States. From the 15 States in Regions 3, 6, and 9 the States were grouped as follows: (1) West Virginia and Virginia, (2) Delaware and Pennsylvania, (3) Maryland and District of Columbia, (4) Oklahoma and Texas, (5) New Mexico, (6) Louisiana and Arkansas, (7) Hawaii and California, and (8) Arizona and Nevada. These groupings resulted in the listed Federal facilities being divided in a total of 16 strata--8 DOD strata and 8 non-DOD strata. From each of the 16 strata an independent systematic PPS sample of facilities was conducted; such that N_i buildings were selected (with replacement). N_i represents the number of buildings assigned to stratum I based on the ratio of the square feet of stratum I to the square feet of all facilities. A modified proportional allocation of the sample to stratum was used; 10 percent from the 8 DOD strata, 90 percent from the 8 non-DOD strata, resulting in separate proportional allocation within each of these two sets of strata. Table A1 below lists the adjacent States contained in each stratum along with square footage and sample sizes for each stratum.

Table A1. Stratum Sample Size

Strata #	Strata Type	Federal Region	States	Square Feet	Number of Facilities	Number of Buildings	N_i	R_i
1	DOD	3	WV, VA	62,361,720	85	7,070	28	2,227,204
2	DOD	3	DE, PA	29,160,956	109	2,702	13	2,243,150
3	DOD	3	MD, DC	53,219,624	53	5,164	24	2,217,484
7	DOD	6	OK, TX	85,299,041	138	10,876	38	2,244,712
8	DOD	6	NM	12,952,851	12	2,165	6	2,158,809
9	DOD	6	LA, AR	18,895,368	49	3,408	9	2,099,485
13	DOD	9	HI, CA	164,757,998	186	19,659	74	2,226,459
14	DOD	9	AZ, NV	18,348,119	29	3,230	8	2,293,515
4	Non-DOD	3	WV, VA	31,238,568	172	1,681	218	143,296
5	Non-DOD	3	DE, PA	23,271,681	199	1,099	162	143,653
6	Non-DOD	3	MD, DC	74,381,176	167	1,759	518	143,593
10	Non-DOD	6	OK, TX	35,509,436	460	1,815	247	143,763
11	Non-DOD	6	NM	14,218,734	64	1,646	99	143,624
12	Non-DOD	6	LA, AR	13,621,885	134	463	95	143,388
15	non-DOD	9	HI, CA	56,847,625	429	4,368	396	143,555
16	non-DOD	9	AZ, NV	9,348,882	134	959	65	143,829

N_i = Stratum sample size or the number of buildings assigned to stratum I.

R_i = Ratio of stratum square feet to stratum sample size.

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Second Stage -- Selecting Buildings

In the second stage, the selected multibuilding facilities were screened for eligible buildings. Each facility was sampled independently. Once the frame of buildings for each facility was verified for accuracy, it provided the correct MOS for each eligible building and, consequently, an update for the facility MOS. The frame of buildings for each facility was then ordered by building square footage and sampled systematically with PPS.

Projected Sampling Results

The core sample size was 1,000 buildings, since 90 percent of 1,000 would provide the targeted sample size of 900 buildings. An additional sample of 1,000 buildings was selected for reserve use for ineligible buildings, nonresponse, and any replication that may have been needed. The 2,000 buildings were randomly divided into the core and reserve samples, Panel I and Panel II, respectively.

Actual Sample Selected

To achieve the FBSS sampling goal, the actual sample selected included the core (Panel I) and reserve (Panel II) buildings of which 963 buildings were from Region 3, 494 buildings were from Region 6, and 543 were from Region 9.

Actual Sampling Results

These procedures resulted in 881 completed interviews, only 19 short of the targeted goal of 900. Of the 881 completed interviews; 310 (35.2 percent) were from Region 3; 245 (27.8 percent) were from Region 6; and 326 (37.0 percent) were from Region 9 (See Table A2). The overall response rate for this survey was 75 percent. The regional response rates are provided below.

Table A2. Regional Response Rates in Panel I and Panel II

	Panel I Selection			Panel II Selection			Total		
	Eligible	Completed Interviews	Percent	Eligible	Completed Interviews	Percent	Eligible	Completed Interviews	Percent
Region 3 . . .	383	283	73.89	40	27	67.50	423	310	73.29
Region 6 . . .	228	207	90.79	43	38	88.37	271	245	90.41
Region 9 . . .	288	210	72.92	195	116	59.49	483	326	67.49
Total	899	700	77.86	278	181	65.11	1,177	881	74.85

Source: Energy Information Administration, Office of Energy Markets and End Use, 1993 Federal Buildings Supplemental Survey.

Survey of Building Characteristics and Consumption Data

Data Collection

FBSS data collection involved many phases and began with the redesign of the 1992 CBECS Building Questionnaire to not only assist in the implementation of the 1992 EPACT but also to accommodate the CATI system. After the questionnaire redesign, the data collection phases continued with minimizing nonresponse to ensure quality data, training supervisors and interviewers, interviewing building respondents, and concluded with processing the FBSS data. Survey interviewing began July 1994 (pretests were conducted) and ended December 31, 1994. A survey contractor performed the data collection under the direction of EIA. The data were collected by the survey contractor's telephone center staff.

Minimizing Nonresponse

Prior to and throughout data collection, EIA worked closely with the three Federal regions employing several approaches to increase cooperation and participation and to ensure that respondent burden and nonresponse was minimized. There were telephone callbacks; establishment of an 800 number to address respondents' concerns or questions; and direct EIA response to customer concerns. Respondents were encouraged to call either EIA or the 800 number if they had any questions. Additionally, letters of notification and/or FBSS materials were sent to the following:

- Federal Interagency Management Task Force
- General Services Administration (GSA) and Department of Energy (DOE) regional offices
- Facility managers of facilities selected to participate in FBSS
- Building managers of the buildings selected to participate in the FBSS.

For more discussion on the efforts taken to minimize nonresponse and respondent burden as well as examples of letters sent and addressees receiving those respective letters, see Appendix E, "Outreach Efforts."

Training Supervisors and Interviewers

Because the 1993 FBSS was a CATI-administered, shortened version of the 1992 CBECS Building Questionnaire, only a shortened version of training was needed. The survey contractor conducted both the half-day supervisor training session and the one-day interviewer training session at the survey contractor's telephone center. The supervisor training session covered the in-depth FBSS subject-matter information, which included a component on monitoring the interview and providing feedback. The interviewer training session conducted on August 11, 1994, included FBSS background, key concepts related to energy use, several hours of interviewer self-study, several hours of practice interview, and administrative information. EIA personnel observed the interviewer training session and were available for assistance. From August 12 through August 15, 1994, interviewers received intense monitoring. On August 16, an interviewer debriefing was held. Monitoring also continued throughout the data collection process.

Interviewing the Building Respondent

Each interview began with a series of screening questions designed to verify the building's address and eligibility for the survey. The completed building interview lasted an average of 39 minutes. This included the time for the interviewer to ask all questions on energy-related building characteristics as well as the consumption and expenditure data.

Data Preparation for Report

EIA data analysts reviewed and processed the data for the final data tape. Crosstabulations were run to check for internal consistency of the data. Because commercial building consumption and expenditure data are complex and interrelated, the EIA review was extensive. EIA performed data imputations and in July 1995, prepared a final data tape. 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 Chapter 3, of this report.

Processing the FBSS Data

Because FBSS used CATI as the mode of data collection, most data editing occurred during the interview. The CATI system checked for completeness, inconsistencies or ambiguities in the data, accuracy of questionnaire skip patterns, and checked that only allowable values or codes were entered. After the interviews, data editing occurred during review of data frequencies and crosstabulations. These were reviewed to search for outlying values and inconsistencies that the CATI edits may not have identified. When CATI edits failed to resolve data problems, especially when the energy sources or heating and cooling equipment were involved, EIA personnel provided technical guidance, and when necessary, the survey contractor contacted the respondent by telephone for clarification. Telephone data retrieval was conducted for edit failures involving nonprogrammed-CATI edits. After having inconsistencies corrected by the contractor, EIA began the data preparation for the report. Any changes made to any questionnaire response as a result of data editing were documented.

Data Editing/Data Adjustments

Adjustments for unit nonresponse were performed. Cases missing all or part of calendar year 1993 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 the "Nonsampling and Sampling Errors" section. For cases where the consumption data covered more than the one sampled building, the EIA implemented a special adjustment procedure--disaggregation to compute building-specific annualized consumption and expenditures.

Disaggregation. Disaggregation was generally necessary when either 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 building respondent had not. A disaggregation "factor" was calculated based on the square footage of the buildings involved.

Imputations

Nonresponse to several items in otherwise completed questionnaires was 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. The characteristics 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 Federal region. 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. For the FBSS, only data items considered critical for predicting energy consumption were imputed. These data items were: square footage, year constructed, principal building activity, energy sources used, end uses performed, major and minor fuel end uses, percent of floorspace heated and cooled, presence of refrigeration equipment, months the building was in use, operating hours, and number of workers.

The general approach taken for imputing annual consumption or expenditures for a particular fuel was to use respondent cases to develop multiple linear regression equations, and then use these equations to provide imputed values for cases in which the data were missing.

Public-Use Data Preparation

In addition to the publication of this 1993 FBSS service report, the basic survey data at the microlevel were provided to the public on public-use data diskettes. These 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 F for ordering information.)

Appendix B

Types of Buildings



Appendix B

Types of Buildings

EXAMPLES OF ACTIVITIES THAT MAY TAKE PLACE WITHIN A BUILDING

- a. **Vacant.** Refers to unused or unoccupied space.
- b. **Office/Professional.** Refers to activities requiring general office space, professional offices, and administrative offices.
- Data processing:
Computer center
Data entry, Key punch
- Financial:
Bank
Brokerage Firm
Insurance
Real Estate
Securities
- Professional:
Administration of an institution
Consulting
Corporate
Engineering
Law
Management
Medical
Mixed professional
- c. **Shopping Center/Mall/Retail/Service.** Involves sales and displays of goods or services (excluding food).
- Automotive sales and service:
Automobile dealers
Gasoline stations
Motor vehicle repair/service
- Retail Sales:
Apparel stores
Building materials, Garden supply stores,
Hardware
Department stores
Drugstores
Furniture, Home equipment stores and
Home furnishings
Liquor stores
- Services (except food):
Dry cleaner/Car wash/Laundry
Multiservice establishments
Personal service
Post office
- Shopping mall/Covered shopping center
Strip shopping center
Wholesale goods (except food)
- d. **Laboratory.** Activities utilize equipment for experimental testing or for analysis.
- Agricultural laboratory
Electrical/Mechanical laboratory
Dental/Medical laboratory
- e. **Nonrefrigerated Warehouse or Storage.** Activities include the storage of goods, merchandise, raw materials or manufactured products. Does not include space in the building that is used for storage associated with another main activity in the building, such as retail or office activity.
- f. **Food Sales.** Involves retail or wholesale sale of food.
- Convenience store or market
Farmer's market, Fruit/Vegetable market
Grocery store/Supermarket
Meat/Seafood store
Retail bakery
Specialty food store
- g. **Public Order and Safety.** Activities related to the preservation of law and order or in public safety.
- Courthouse
Fire station
Jail
Penitentiary/Prison
Police station
Reformatory
Sheriff's office
- h. **Outpatient Health Services/Clinic.** Services may be medical, dental, psychiatric or veterinary.
- Dental clinic
- Medical clinic:
Abortion/Birth control
Ear, Eye, Nose and Throat
Emergency walk-in clinics
General
Mental health/Psychiatric clinic
- Veterinary clinic

EXAMPLES OF ACTIVITIES THAT MAY TAKE PLACE WITHIN A BUILDING

- i. **Industrial Processing and Manufacturing.** Activities involve the processing or procurement of goods, merchandise, raw materials or food.
- Assembly factory:
 Apparel and other goods made from purchased material
 Electrical or electronic instruments and fabricated metal tools
 Leather goods
 Machinery and other heavy equipment
 Measuring devices and light equipment
 Transportation vehicles
- Construction/Natural resource procurement:
 Construction site building
 Mining
- Food processing:
 Bakery
 Beverage
 Cannery
 Confectionery
 Dairy
 Grain mill
 Meat-packing plant
 Poultry-dressing plant
- Foundry:
 Glassworks
 Metalworks
 Rolling or Finishing mill
 Steel works
- Manufacturing plants:
 Buildings for smelting, refining, drawing, rolling, or extruding of nonferrous metals, stone, clay, glass and concrete products
- Mills:
 Leather
 Textile
- Paper, chemical, rubber or petroleum processing
- Printing, publishing
- Utility or sanitary services:
 Generation of electricity
 Collection or disposal of refuse
 Irrigation
 Pumping stations
 Storage, transmission or distribution
 Steam supply
 Sewage disposal/Treatment
 Water supply/treatment
- j. **Agricultural purposes.**
 Greenhouse
 Livestock housing
 Nursery
 Produce storage
- k. **Refrigerated warehouse or storage.** Activities include the storage of goods, merchandise, raw materials or manufactured products in buildings (or portions of buildings) specifically designed to store perishable goods or merchandise under refrigeration. Includes "cold storage" facilities, which store products at temperatures between 0°F and 50°F and "freezer facilities" which store products at between 0°F and -20°F. The refrigeration equipment consists of either a central station or individual wall hung or rooftop units. A storage space with individual freezers or refrigerators in it is not considered refrigerated warehouse or storage. Do not include space in the building that is used for storage associated with another main activity in the building, such as retail or office activity.
- Cheese warehouse
 Cold storage
 Fur storage
- l. **Religious Worship.**
 Church
 Synagogue
 Mosque
- m. **Public Assembly.** Refers to the gathering of people for social, recreational, or religious activities whether in private or nonprivate meeting halls.
- Entertainment building:
 Artgallery/Archive/Exhibithall/Library/Museum
 Concert hall
 Coliseum/Arena (enclosed)
 Nightclub
 Observatory/Planetarium
 Radio/TV studio or station
 Theater/Movie/Cinema
- Recreational facility:
 Amusement arcade
 Athletic facility/Gymnasium/Health club or spa/Indoor racket sports/Recreation center/YMCA or YWCA
 Bowling alley
 Indoor pool
 Poolroom
 Skating rink

EXAMPLES OF ACTIVITIES THAT MAY TAKE PLACE WITHIN A BUILDING

m. **Public Assembly (cont'd)**

Religious assembly:

Chapel
Church
Mosque
Synagogue

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

n. **Education.** Refers to where academic or technical classroom instruction is provided.

College or university classrooms/Laboratories

Elementary school
Junior high school
Preschool
Senior high school
Vocational school

Other activities that occur on school campuses should be reported separately:

Administration (see Office/Professional)
Auditorium (see Public Assembly)
Dormitory (see Hotel/Motel/Dorm)
Gymnasium (see Public Assembly)
Infirmary (see Hospital/Inpatient Health Services)
Library (see Public Assembly)
School for mentally retarded (see Hospital/Inpatient Health Services)
Student Union (see Public Assembly)

o. **Food Services.** Activities involve preparation and sale of food and beverages for consumption.

Prepared meal services:

Cafeteria

Carry-out service:

Caterer
Fast food establishment
Pizza parlor
Sandwich shop

Full-service restaurant:

Bar
Bar and grill
Coffee shop
Diner
Full menu

p. **Hospital/Inpatient Services.** Refers to services involving overnight care.

Medical care hospital:

Chronic disease
Ear, Eye, Nose and Throat, etc.
General medical and surgical
Maternity
Medical infirmary (connected with institution)
Orthopedic
Tuberculosis/Other respiratory disease

Mental Facility:

Mental retardation/Schools for mentally retarded
Psychiatric

Rehabilitation:

Alcoholism
Substance abuse/Narcotic/Drug addiction
Physical therapy

Veterinary:

Hospital for animals
Kennel

EXAMPLES OF ACTIVITIES THAT MAY TAKE PLACE WITHIN A BUILDING

- q. **Skilled Nursing/Other Residential Care.** Refers to 24-hour nursing care for extended periods of time.

Homes for the aged
Nursing homes

- r. **Hotel/Motel/Dorm.** Refers to short- or long-term accommodations for several persons.

Short-term residence:

Convention hotel
Hotel
Inn
Motel
Shelter home
Tourist home

Long-term residence:

Boarding house
Convent/Monastery
Dormitory/Sorority/Fraternity
Orphanage

- s. **Residential Living Quarters.** Activities involve living quarters that have individual kitchen facilities.

Multi-Family:

High-rise apartments
Low-rise apartments

Single-Family:

Detached
Duplex
Townhouse/Rowhouse
Triplex
Quadriplex

- t. **Indoor/Enclosed Parking Garage**

- u. **Other activities** are those that do not fit into any of the previous categories. Included are:

Crematorium
Hangar
Public restrooms/showers
Telephone exchange

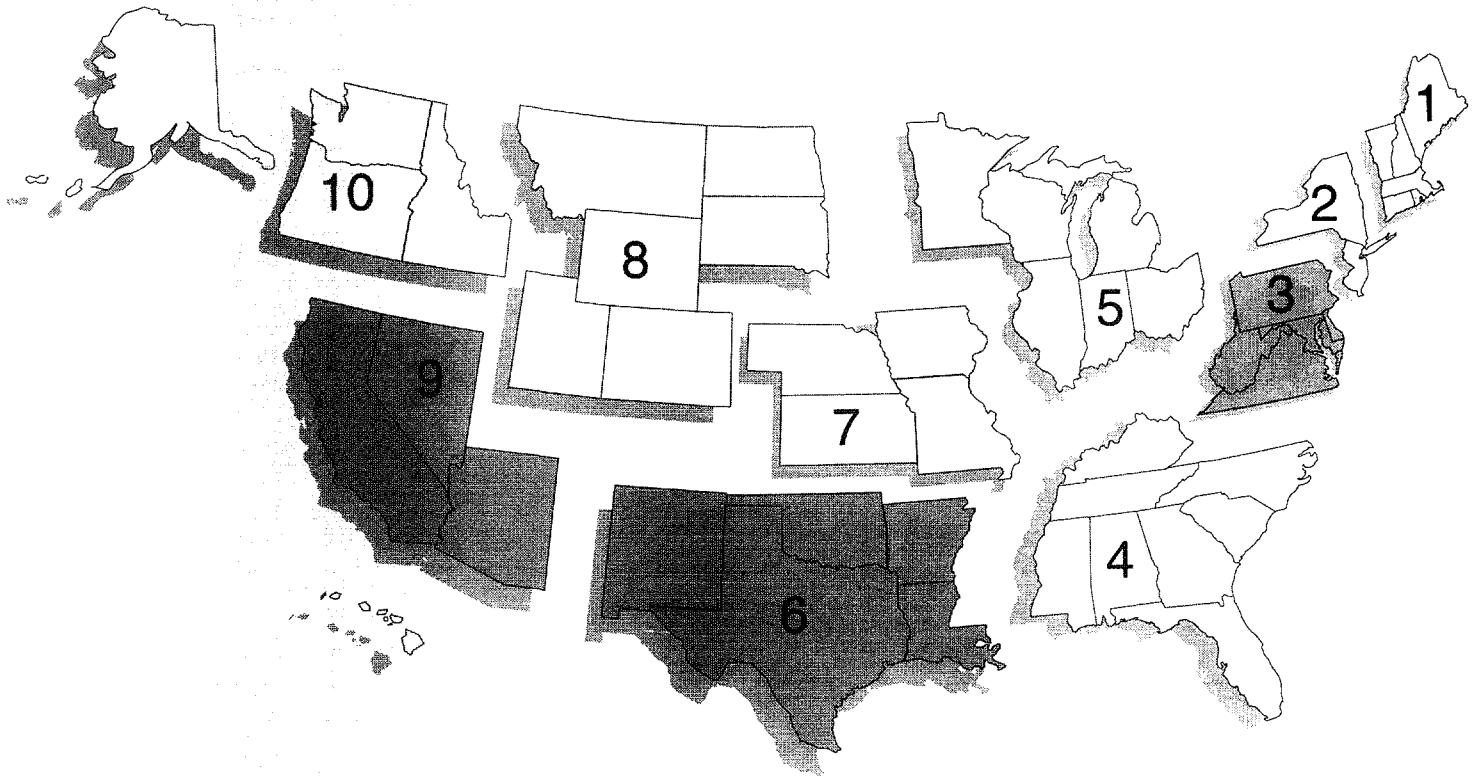
Appendix C

Federal Regions Map



Appendix C

Federal Regions Map



Region 3

Mid Atlantic

- Delaware (DE)
- District of Columbia (DC)
- Maryland (MD)
- Pennsylvania (PA)
- Virginia (VA)
- West Virginia (WV)

Region 6

Southwest

- Arkansas (AR)
- Louisiana (LA)
- New Mexico (NM)
- Oklahoma (OK)
- Texas (TX)

Region 9

West

- Arizona (AZ)
- California (CA)
- Hawaii (HI)
- Nevada (NV)



Appendix D

Metric Conversion Factors



Appendix D

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 D1 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 D1. 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 O 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 ₃ O ₈)	X 0.384 645 ^b	= Kilograms (Kg)
	Ounces, Avoirdupois(oz)	X 28. 349 52	= Grams(g)
Volume	Barrels of Oil(bbl)	X 0.158 987 3	= Cubic Meters (m ³)
	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 (°F)	X 5/9 (after subtracting 32) ^a	= Degrees Celsius (°C)
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)

^aExact Conversion.

^bCalculated by the Energy Information Administration.

^cTo convert degrees Celsius (°C) to degrees Fahrenheit (°F) 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/IEEE Std.268-1982*, pp 28 and 29. ●Energy Information Administration, *Monthly Energy Review August 1993*, Appendix B, p 161.



Appendix E

Outreach Efforts



Appendix E

Outreach Efforts

This appendix contains examples of the letters of notification and FBSS materials that were sent prior to and throughout the FBSS data collection process to minimize nonresponse and respondent burden. This appendix also contains the names and addresses of the Federal Interagency Management Task Force and GSA and DOE regional offices contacts to whom their respective letters were sent. Also included is the thank you letter sent to FBSS respondents (Letter 5). The FBSS letters of notification and other FBSS materials were sent to the following:

Letter 1. Federal Interagency Management Task Force:

Some agencies (those without Cabinet appointees) are not represented in the Federal Interagency Management Task Force. The following nonmember agencies did not receive an advance FBSS notification letter:

- Federal Energy Management Agency
- Government Printing Office
- Interstate Commerce Commission
- National Science Foundation

Although members of the Federal Interagency Management Task Force, some agencies did not have facilities chosen to participate in the FBSS. The following member agencies did not receive an advance FBSS notification letter:

- Department of Housing and Urban Development
- General Accounting Office
- Office of Management and Budget
- Department of State

Letter 2. General Services Administration and DOE regional offices and enclosures

Letter 3. Facility Managers of facilities selected to participate in FBSS and enclosures

Letter 4. Building Managers of the buildings selected to participate in the FBSS and enclosures.



Department of Energy
Washington, DC 20585

JUL 13 1994

Letter 1

Mr. Victor P. Petrolati
Chief, In-House Energy Management Branch
U.S. Department of Energy
Forrestal Building, Room GF-209
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Petrolati:

Per our agreement at the June Interagency Federal Management Task Force meeting, enclosed is the list of your agency's facilities included as possible respondents for the Federal Buildings Supplemental Survey (FBSS). During the survey, a sample of buildings will be selected from this and similar listings for other Federal agencies.

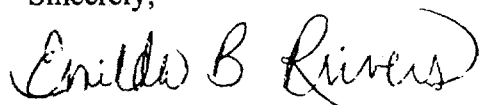
The Energy Information Administration (EIA) of the U.S. Department of Energy (DOE, in conjunction with the Office of Federal Energy Management Programs (FEMP) of DOE, will conduct the FBSS in Federal Regions 3 (Philadelphia, PA), 6 (Dallas, TX), and 9 (San Francisco, CA). A total of 900 Federal buildings (across the 3 regions and all agencies) will be selected for the short telephone survey. Starting in late July and continuing through August, 1994, the energy managers for the selected buildings will be asked to provide energy consumption information and energy-related building characteristics. The telephone calls will be made by Response analysis Corporation, an EIA survey contractor.

To minimize additional contacts with the buildings, calls will be made to the survey buildings prior to the actual telephone survey in order to obtain building identification information and the names and addresses of the building energy manager or other respondent. FEMP's updated building contacts information will be used, wherever available. EIA will then send advance letters to the energy managers concerning the FBSS and notifying them of the information that will be requested during the telephone survey.

Your support of the FBSS and your assistance in notifying your regional offices about the FBSS is appreciated. EIA would like to work closely with the Federal Regions to ensure that respondent burden is minimized during the FBSS. We will keep you informed of the progress of the survey.

If you have any questions about the Federal Buildings Supplemental Survey (FBSS), please contact Rick Klimkos of FEMP at (202) 586-8287 or me at (202) 586-5744.

Sincerely,

A handwritten signature in cursive script that reads "Emilda B. Rivers". The signature is written in black ink and is positioned to the right of the word "Sincerely,".

Emilda B. Rivers
Federal Buildings Supplemental Survey Project Manager
Energy Information Administration

ADDRESS LIST FOR LETTER 1

Mr. Walter D. Aughenbaugh, P.E.
Chief, Engineering Branch
Facilities Management Division
Office of Operations, Room S-313
U.S. Department of Agriculture
14th and Independence Avenue, SW
Washington, DC 20250

Mr. Ron Cyr, Energy Conservation Officer
Office of Federal Property Programs
U.S. Department of Commerce
Herbert C. Hoover Building, Room 139
14th and Constitution Avenue, NW
Washington, DC 20230

Mr. Millard Carr, Acting Director
Energy Management Policy Office
ODUSD ES
U.S. Department of Defense
400 Army Navy Drive, Room 206
Arlington, VA 22204-2884

Mr. Victor P. Petrolati
Chief, In-House Energy Management Branch
U.S. Department of Energy
Forrestal Building, Room GF-209
1000 Independence Avenue, SW
Washington, DC 20585

Mr. Phillip Wirdzek, Program Analyst
Environmental Protection Agency
PM-215, Room NEB 022
401 M Street, SW
Washington, DC 20460

Mr. Eric Dunham, Chief
Energy Branch, General Services Administration
Room 4327, PMFE
18th and F Streets, NW
Washington, DC 20405

Ms. Elaine Robinson, Deputy, Director
Facilities Operations Division
Department of Housing and Urban Development
Room 5180
451 7th Street, SW
Washington, DC 20410-3000

Mr. Paul Denett
Director, Office of Acquisition and Property
Management
U.S. Department of the Interior
Main Interior Building, Room 5512
1849 C Street, NW
Washington, DC 20240

Mr. Charles B. Pittinger, Jr.
Head, Maintenance Management Branch
Operations and Maintenance Office
National Aeronautics and Space Administration
Mail Stop JXG, Room 3S13
300 E Street, SW
Washington, DC 20024-3210

Mr. Paul Fennewald
Maintenance Policies and Programs
U.S. Postal Service
Room 6631, 475 L'Enfant Plaza, SW
Washington, DC 20260-7311

Ms. Janet Judd, Chief
Safety, Health and Environment Division (M-46)
U.S. Department of Transportation
Room 2310, 400 7th Street, SW
Washington, DC 20590

Mr. Rajinder P. Garg, Chief
Energy Management Division (138C1)
U.S. Department of Veterans Affairs
Room 436-LAF, 810 Vermont Avenue, NW
Washington, DC 20420

Mr. Charles B. Hessler, Senior Evaluator
Energy Issues
U.S. General Accounting Office
111 Massachusetts Avenue, NW, Suite 201
Washington, DC 20001

Mr. Randy Steer, Budget Examiner
Office of Management and Budget
Energy Branch
New Executive Office Building, Room 8013
725 17th Street, NW
Washington, D.C. 20503

Mr. Victor Ayala
Director of Facilities Management
Department of Education
Room 165
400 Maryland Avenue, SW
Washington, DC 20202

Mr. Scott Waldman
Department Wide Energy Manager
U.S. Department of Health and Human Services
HHS Cohen Building, Room 4700
330 Independence Avenue, SW
Washington, DC 20201

Mr. Jim Shivar
Federal Energy Program Manager
U.S. Department of Justice
Aerial Rios Building, Room 2211
12th and Pennsylvania Avenue, NW
Washington, DC 20530

Ms. Maggie Carson, Director
Office of Facility Management
U.S. Department of Labor
Room S-1521
200 Constitution Avenue, NW
Washington, DC 20210

Mr. Richard Iselin
Director of Facilities Management and
Support Services
Department of State
FMSS/B, Room 1480
2201 C Street, NW
Washington, DC 20520

Mr. Joseph Maty
Assistant Director of Energy Programs
Office of Management Support Systems
U.S. Department of the Treasury
Main Treasury Annex, Room 6140
1500 Pennsylvania Avenue, NW
Washington, DC 20220



Department of Energy

Washington, DC 20585

JUL 26 1994

Letter 2

Mr. Don Stitler
Wanamaker Building
3PMFM, Room 3319
100 E. Penn Square
Philadelphia, PA 19107

Dear Mr. Stitler:

This letter is to inform you that the Energy Information Administration (EIA) of the Department of Energy (DOE), in conjunction with the Office of Federal Energy Management Programs (FEMP) of DOE, is conducting the Federal Buildings Supplemental Survey (FBSS) and that some of the sampled buildings may be in your region. Starting in late July and continuing through mid-September, 1994, the energy managers for the selected Federally-owned buildings will be asked to provide energy consumption information and energy-related building characteristics.

The major purpose of the FBSS is to assist in the implementation of the Energy Policy Act of 1992 which requires extensive energy-related information on Federal buildings. The FBSS will be conducted in Federal Regions 3 (Philadelphia, PA), 6 (Dallas, TX), and 9 (San Francisco, CA). The Federal regions differ from the General Services Administration (GSA) regions as follows: Federal region 3 excludes all of New Jersey and includes GSA's Region NCR - Washington, DC; and Federal region 6 is GSA region 7. A total of 900 Federal buildings (across the 3 regions and several government agencies) have been selected for a telephone survey.

Information about the building size, building use, energy sources, energy end uses, conservation features and practices, and types of heating, cooling and lighting equipment is being collected through voluntary telephone interviews with the energy manager, or another individual designated by the energy manager. To minimize additional contacts with the buildings, calls will be made to the survey buildings prior to the actual telephone survey to obtain building identification information and the names and addresses of the building energy manager or other respondent. EIA will then send advance letters to the energy managers concerning the FBSS and notifying them of the information that will be requested during the telephone survey. Enclosed is a copy of the advance letter and worksheet.

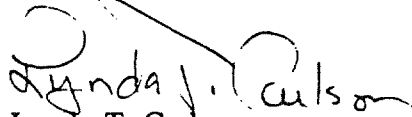
We ask that you encourage your facilities to respond, if they are contacted for this survey.

Please see the reverse side of the enclosed example letter to the building managers for the authorizing legislation and public reporting burden.

For more information concerning this survey, please contact Emilda B. Rivers, EIA's Federal Buildings Supplemental Survey Manager at (202) 586-5744; FAX (202) 586-0018, or Internet Address ERIVERS@EIA.DOE.GOV.

Your cooperation in this important Federal buildings survey is appreciated.

Sincerely,



Lynda T. Carlson
Director
Energy End Use & Integrated Statistics Division
Energy Information Administration

Enclosures

EXAMPLE OF ADVANCE LETTER TO BUILDING MANAGER

Dear Building Manager:

The Energy Information Administration (EIA) of the U.S. Department of Energy (DOE), in conjunction with the Office of Federal Energy Management Programs (FEMP) of DOE, is conducting a telephone survey of 900 Federal Buildings in Federal Regions 3 (Philadelphia, PA), 6 (Dallas, TX), and 9 (San Francisco, CA). This building has been statistically selected to participate in the Federal Buildings Supplemental Survey (FBSS).

The major purpose of the FBSS is to obtain more information on energy usage and characteristics of Federal buildings, to assist in the implementation of the Energy Policy Act of 1992. Starting in late July and throughout August 1994, the building energy managers for the 900 sampled Federal buildings will be contacted by telephone. The data collection will be conducted by Response Analysis Corporation under contract to EIA.

For each of the Federal regions, a survey of the sampled buildings in that region will provide basic data on the Federally-owned buildings. Two types of data will be collected: (1) building characteristics data, which includes information on how energy is managed in Federal buildings; and (2) energy consumption data. Data collected will represent other Federal commercial buildings within those three Federal regions.

Enclosed is a FBSS worksheet with several questions that may require research prior to the telephone interview. You, or another individual designated by you to answer the FBSS worksheet, may need to contact several persons to gather the required information. For instance, the building engineer may need to provide you with information on the costs and amounts of energy used. Having the FBSS worksheet completed and available when you are contacted by telephone will expedite the interview with minimum additional burden to you.

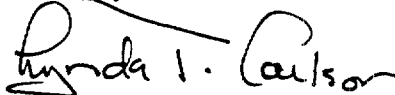
We realize that the building interviews may be time consuming for you and we would like to thank you in advance for your participation in this important survey. Without your cooperation, we could not obtain information about how energy is used in Federal buildings. We will be happy to provide you with a profile of your building's characteristics and energy usage after all the survey data are analyzed.

Please see the reverse side of this letter for the authorizing legislation and public reporting burden.

If you have any general questions about the purpose of the Federal Buildings Supplemental Survey, please contact Emilda Rivers of EIA at (202) 586-5744.

Thank you for your time and effort.

Sincerely,



Lynda T. Carlson

Director

Energy End Use & Integrated Statistics Division
Energy Information Administration

Enclosures

Federal Buildings Supplemental Survey Worksheet

Please have the information available for the telephone survey.

Thank you for your help!

- A. Building Square Footage? _____ sq ft.
 B. Year major portion of construction completed? _____ year
 C. Number of workers (all shifts)? _____ workers

D. Energy Consumption

For fiscal year 1993 (October 1, 1992 through September 30, 1993), provide the amount of usage, units, and costs for each fuel used in the building.

	<u>Amount</u>	<u>Units (circle one)</u>	<u>Cost</u>
Electricity	_____	Btu's or Kwh	\$ _____
Natural Gas	_____	Btu's or Cu ft.	\$ _____
Fuel Oil/ Kerosene/Diesel	_____	Btu's or Gallons	\$ _____
District Steam	_____	Btu's	\$ _____
District Hot Water	_____	Btu's	\$ _____
District Chilled Water	_____	Ton-hours	\$ _____

E. Motors

1. Number and age of Motors (10 horsepower or more) that are in each of the following equipment:

	<u>Number of Motors</u>	<u>Number Less than 10 years old</u>	<u>Number 10 years or older</u>
Chillers	_____	_____	_____
Heat Pumps	_____	_____	_____
Fans	_____	_____	_____
Compressors	_____	_____	_____
Elevators	_____	_____	_____
Escalators	_____	_____	_____
Refrigeration	_____	_____	_____
Water Pumps	_____	_____	_____

2. Number of energy-efficient motors (10 horsepower or more) less than 10 years old. _____

3. Number of motors (10 horsepower or more) less than 10 years old that have been rewound: _____

3a. Average age of these motors that were rewound? _____

ADDRESS LIST FOR LETTER 2

General Services Administration

Mr. Steve Williford
General Services Administration
WPMOE, Room 7709
7th and D Street, S.W.
Washington, D.C. 20407

Mr. Mark Trimarchi
General Services Administration
7PMR, Room 12A26
819 Taylor Street
Fort Worth, TX 76102

Mr. Peter Gaddy
General Services Administration
9PMFM, 30th Floor
525 Market Street
San Francisco, CA 94105

Department of Energy Offices

Curtis Carlson Jr.,
Dallas Support Office
1420 W. Mockingbird Lane, Suite 400
Dallas, TX 75247

Christopher G. McGowan
Philadelphia Support Office
1880 John F. Kennedy Blvd.
Suite 501
Philadelphia, PA 19103-7483

Martha D. Dixon
San Francisco Support Office
1301 Clay Street
Room 1060 North
Oakland, CA 94612-5219



Department of Energy

Washington, DC 20585

Letter 3

JUL 01 1994

Dear Facility Manager:

To assist in the implementation of the Energy Policy Act of 1992 which requires extensive information on Federal buildings, a joint effort is being undertaken by the Energy Information Administration (EIA) and the Office of Federal Energy Management Programs (FEMP) of the Department of Energy (DOE). EIA will conduct a Federal Buildings Supplemental Survey (FBSS) in August 1994, to collect building characteristics and energy consumption information.

This survey will be conducted in Region 3 (Philadelphia, PA), Region 6 (Dallas, TX), and Region 9 (San Francisco, CA). Across these regions, a total of 900 Federal buildings have been selected for a brief telephone survey. Using scientific sampling methods, your facility was selected randomly.

The Response Analysis Corporation (RAC), under contract to EIA, will collect this information. In the next few days, someone from RAC will contact you to:

- (1) verify the eligibility of the one or more buildings selected from this facility,
- (2) obtain an accurate mailing address and the name of the building manager, or another individual designated by you to answer the FBSS, and
- (3) schedule an appointment with the designated individual.

You are encouraged to respond. Participation in the survey is voluntary, however, your cooperation will contribute greatly to its success. The sampled buildings represent similar Federal buildings across your region. You will be asked to provide information about one or more buildings on the facility. The enclosed excerpt from the *Commercial Buildings Characteristics 1992* report provides a profile of government-owned buildings as of 1992. The RAC caller will be pleased to provide you with more information about FBSS.

For more information concerning this survey, please contact Emilda B. Rivers, EIA's Federal Buildings Supplemental Survey Manager at (202) 586-5744, FAX (202) 586-0018, or Internet Address ERIVERS@EIA.DOE.GOV.

Please see the reverse side of this letter for the authorizing legislation and public reporting burden. Your cooperation in this important Federal building survey is appreciated.

Sincerely,

A handwritten signature in black ink that reads "Lynda T. Carlson".

Lynda T. Carlson, Director
Energy End Use & Integrated Statistics Division
Energy Information Administration

Authorizing Legislation:

Authorization for collecting energy consumption data in the Commercial sector is set forth in the Federal Energy Administration Act of 1974; Public Law 93-275, as amended. The Commercial Buildings Energy Consumption Survey, Buildings Questionnaire (Federal Supplement) conducted by the Energy Information Administration collects information about energy usage in U.S. buildings.

Public Reporting Burden:

Public reporting burden for this collection of information via telephone is estimated to average 30 minutes.

Send comments regarding public reporting burden or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Energy Information Administration
Office of Statistical Standards
EI-73
1000 Independence Avenue, S.W.
Washington, DC 20585

and

Office of Information and Regulatory Affairs
Office of Management and Budget
Washington, DC 20503

Letter 3 Enclosures

DOE/EIA-0246(92)
Distribution Category UC-950

Commercial Buildings Characteristics 1992

April 1994

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

Conservation in Office Buildings and Government-Owned Buildings

Profile of Office Buildings

The characteristics of office buildings are of increasing interest to energy analysts since office buildings consume slightly over one-fifth of all energy used in commercial buildings. An oversample of office buildings was included in the 1992 CBECS to better understand the potential for energy savings in these buildings. In 1992, office buildings comprised 16 percent (749 thousand buildings) of the building stock and 18 percent of the commercial floorspace (12,319 million square feet). Of these, 57 thousand (7.6 percent) were buildings constructed after 1986. Below is a profile of selected energy-related characteristics for office buildings in the 1992 commercial building stock.

Box 3. Conservation in Office Buildings

Office Buildings	- 749 thousand	
Office Buildings Constructed after 1986	- 57 thousand	
Floorspace: Of the 57 thousand office buildings constructed after 1986, 47 percent were over 10,000 square feet compared to 24 percent of the 692 thousand office buildings constructed in 1986 or earlier.		
Lighting: Newer office buildings were more likely to use energy-saving lighting equipment.		
	Percent of Office Buildings Constructed after 1986	Percent of Office Buildings Constructed 1986 or Earlier
Compact Fluorescent Bulbs	19	6
High-Intensity Discharge Lights	11	5
Specular Reflectors	26	13
Manual Dimmer Switches	21	8
HVAC: Newer office buildings had more HVAC conservation features.		
	Percent of Office Buildings Constructed After 1986	Percent of Office Buildings Constructed 1986 or Earlier
Variable Air-Volume System	40	8
Economizer Cycle	35	11
Regular HVAC Maintenance	74	69

Profile of Government-Owned Buildings

With the signing of the Energy Policy Act of 1992 (EPACT),¹⁰ the CBECS is uniquely placed to determine and illustrate this legislation's impact on the commercial buildings market. This section highlights some findings for government-owned (Federal, State, and local) commercial buildings (Tables A21, A22 and A23).

Box 4. Effects of EPACT on Government-Owned Buildings

EPACT affects federally owned commercial buildings:

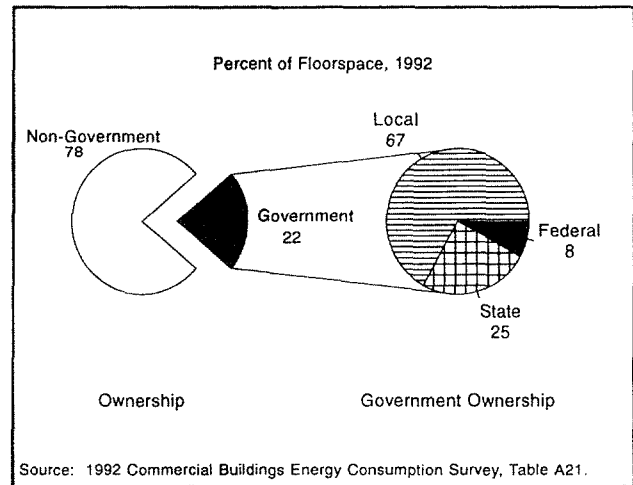
- By mandating a 20 percent reduction, by the year 2000, of energy consumption per square foot in federal buildings;
- By requiring that by the year 2005 federal buildings install energy conservation features that will pay for themselves from energy savings within 10 years (i.e., a 10-year payback); and,
- By introducing financial incentives to federal buildings for energy improvement programs.

EPACT also creates, for local-owned and State-owned commercial buildings, an Energy Incentive Fund which provides up to \$1 million to States that demonstrate a commitment to improving the energy-efficiency of buildings.

¹⁰The Energy Policy Act of 1992, Title I - Energy Efficiency, Subtitle E - State and Local Assistance, Section 141 and Subtitle F - Federal Agency Energy Management, Section 152.

Government-owned buildings represented approximately 22 percent of the commercial floorspace in 1992, or 15.1 billion square feet in approximately 0.6 million government-owned buildings. Of these government-owned buildings, 8 percent of the floorspace was in buildings owned by the Federal government, 25 percent was in State-owned buildings, and 67 percent was in buildings owned by local governments (Figure 10). Education was the primary activity of government-owned buildings, representing 46 percent of all government buildings.

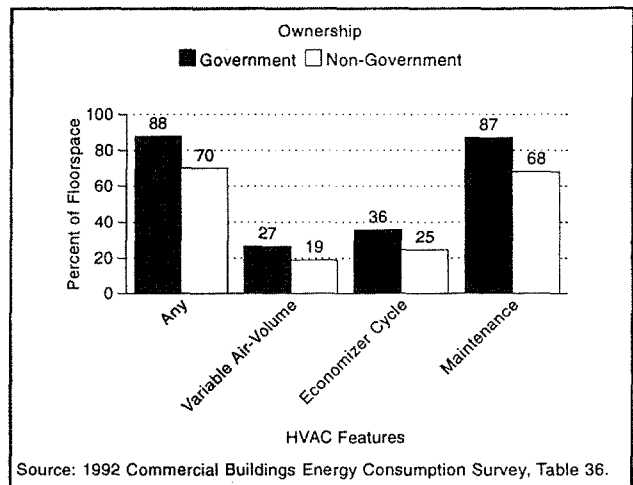
Figure 10. Ownership of Commercial Buildings, 1992



Government-Owned Buildings Take Advantage of Energy-Efficient Technologies and Energy Management Practices

Commercial buildings consume large amounts of energy for HVAC purposes.¹¹ In 1992, as measured in floorspace, approximately 88 percent of all government buildings contained HVAC conservation features compared to 70 percent of non government buildings (Figure 11).

Figure 11. HVAC Conservation Features by Building Ownership, 1992



In 1992, government-owned buildings indicated a higher usage of energy management practices than non-government buildings. The 1992 CBECS included four energy management practices: EMCS, DSM, energy audits, and building energy managers. According to the CBECS, in 59 percent of government-owned floorspace energy management practices were used, compared to 36 percent of non government-owned floorspace.¹² Of the 15.1 billion square feet of government-owned floorspace: EMCS controlled 32 percent; 28 percent of the floorspace showed DSM activity; and 30 percent indicated the performance of energy audits. Although 5 percent of government-owned floorspace had a building energy manager, there was not a statistically significant difference between government-owned and non government-owned buildings.

Although 5 percent of government-owned floorspace had a building energy manager, there was not a statistically significant difference between government-owned and non government-owned buildings.

¹¹End-use consumption estimates are not currently available. End-use intensities (EUI) will be published at a later date.

¹²Estimates of any energy management practices were calculated from public use diskettes of Commercial Buildings Energy Consumption Survey.

Table A21. Occupancy of Government-Owned Buildings, Number of Buildings and Floorspace, 1992

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
	All Buildings	Government-Owned Buildings				All Buildings	Government-Owned Buildings				
		All Government-Owned Buildings	Federal	State	Local		All Government-Owned Buildings	Federal	State	Local	
All Buildings	4,806	599	51	117	431	67,876	15,124	1,189	3,766	10,170	9.2
Building Floorspace (Square Feet)											
1,001 to 5,000	2,681	258	25	47	186	7,327	689	65	116	508	13.0
5,001 to 10,000	975	114	Q	Q	87	7,199	848	Q	Q	662	13.8
10,001 to 25,000	647	108	7	24	76	10,375	1,735	114	391	1,230	14.3
25,001 to 50,000	280	53	Q	14	36	10,069	1,953	Q	508	1,344	16.5
50,001 to 100,000	116	34	Q	7	25	8,062	2,241	Q	508	1,653	12.1
100,001 to 200,000	71	21	Q	5	13	9,678	2,858	Q	613	1,859	16.7
200,001 to 500,000	26	10	Q	3	6	7,889	2,932	Q	885	1,866	20.7
Over 500,000	9	2	0	Q	1	7,278	1,869	189	632	1,047	30.3
Principal Building Activity											
Education	301	201	Q	35	163	8,470	6,961	Q	1,198	5,727	12.3
Food Sales	130	NC	NC	NC	NC	757	NC	NC	NC	NC	34.3
Food Service	260	10	NC	Q	Q	1,491	157	NC	Q	Q	31.6
Health Care	63	13	Q	4	8	1,763	521	Q	158	326	34.6
Lodging	154	15	Q	8	Q	2,891	370	Q	269	Q	28.0
Mercantile and Service	1,272	63	14	Q	35	12,402	1,082	278	Q	Q	21.3
Office	749	69	11	17	41	12,319	1,654	448	528	679	18.5
Parking Garage	24	6	Q	Q	6	1,652	729	Q	Q	Q	56.1
Public Assembly	278	65	Q	12	50	4,556	1,353	Q	461	861	21.3
Public Order and Safety	60	49	Q	Q	40	820	767	Q	Q	537	31.2
Religious Worship	366	Q	Q	Q	NC	3,747	Q	Q	Q	NC	26.1
Warehouse and Storage	761	59	3	Q	47	11,484	599	177	Q	362	20.4
Other	69	16	Q	Q	Q	1,130	242	Q	Q	Q	39.7
Vacant	319	34	Q	Q	22	4,396	683	Q	Q	Q	30.3
Year Constructed											
1899 or Before	169	Q	Q	Q	Q	1,721	Q	Q	Q	Q	29.1
1900 to 1919	255	29	Q	Q	18	3,608	904	Q	Q	548	31.0
1920 to 1945	724	80	9	17	55	8,712	2,059	218	676	1,165	18.8
1946 to 1959	880	129	Q	37	83	10,421	2,365	Q	516	1,713	16.4
1960 to 1969	783	125	Q	21	100	12,612	4,041	Q	816	2,917	16.0
1970 to 1979	982	117	9	16	93	14,014	3,237	163	796	2,279	16.3
1980 to 1989	884	87	9	18	59	14,287	1,681	166	408	1,107	16.6
1990 to 1992	128	26	Q	5	20	2,502	704	Q	206	390	25.0
Census Region											
Northeast	771	88	12	18	58	13,400	3,422	107	747	2,568	16.4
Midwest	1,202	132	6	Q	98	17,280	4,153	268	1,231	2,654	18.9
South	1,963	234	22	34	179	24,577	5,097	547	955	3,595	14.2
West	870	146	11	37	97	12,619	2,452	Q	832	1,354	17.9
Energy Sources (more than one may apply)											
Electricity	4,616	578	43	116	419	66,549	14,948	1,139	3,748	10,060	9.3
Natural Gas	2,665	356	18	74	264	45,097	10,945	671	2,800	7,474	11.3
Fuel Oil	559	75	Q	13	52	13,218	3,798	288	940	2,570	15.3
District Heat	95	51	Q	24	21	5,339	2,446	375	1,153	918	19.8
District Chilled Water	28	18	Q	7	9	2,066	992	Q	449	446	31.4
Propane	337	32	Q	Q	23	3,393	699	Q	Q	624	26.7
Any Other	163	19	Q	Q	12	1,551	469	Q	Q	334	32.4

See footnotes at end of table.

Table A21. Occupancy of Government-Owned Buildings, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
	All Buildings	Government-Owned Buildings			All Buildings	Government-Owned Buildings					
		All Government-Owned Buildings	Federal	State		Local	All Government-Owned Buildings	Federal	State	Local	
RSE Column Factor:	0.4	0.8	2.1	1.5	0.9	0.4	0.9	2.0	1.5	1.0	
Energy End Uses (more than one may apply)											
Heated Buildings	4,178	537	42	109	386	61,996	14,478	1,134	3,650	9,694	9.4
Air-Conditioned Buildings	3,502	422	31	90	301	57,041	13,128	1,059	3,328	8,742	10.3
Buildings with Water Heating	3,502	449	40	89	320	58,479	13,852	1,093	3,575	9,184	9.6
Buildings with Cooking	734	117	Q	20	94	23,065	8,064	437	1,813	5,814	14.4
Buildings with Manufacturing	121	12	Q	Q	Q	3,174	330	Q	Q	Q	31.9
Climate Zone: 45-Year Average											
Fewer than 2,000 CDD and -- More than 7,000 HDD	399	46	Q	8	29	5,623	1,349	Q	524	763	27.9
5,500-7,000 HDD	1,134	133	9	32	91	18,024	4,053	431	981	2,641	20.0
4,000-5,499 HDD	1,077	114	13	20	82	16,162	4,066	336	968	2,762	21.9
Fewer than 4,000 HDD	1,101	162	10	26	127	15,251	3,296	213	909	2,175	24.1
More than 2,000 CDD and -- Fewer than 4,000 HDD	1,095	144	11	32	102	12,816	2,360	148	384	1,828	19.3
Predominant Exterior Wall Material											
Masonry	3,115	408	32	84	292	48,585	11,929	746	3,203	7,980	9.9
Siding or Shingles	764	90	Q	Q	63	3,873	354	Q	Q	246	19.5
Metal Panels	745	75	Q	12	60	7,392	801	Q	134	616	20.5
Concrete Panels	87	13	Q	3	7	4,961	1,726	Q	314	1,092	28.9
Window Glass	46	9	Q	Q	Q	2,028	292	Q	Q	Q	42.8
Other	47	Q	Q	Q	Q	1,037	Q	Q	Q	Q	50.1
Predominant Roof Material											
Built-Up	1,642	216	14	36	166	30,257	6,329	728	1,155	4,447	12.3
Shingles (Not Wood)	1,381	118	Q	21	82	10,570	1,404	Q	554	747	16.7
Metal Surfacing	1,037	116	Q	26	86	9,019	1,203	Q	257	895	18.2
Synthetic or Rubber	386	88	9	24	55	11,702	4,431	225	1,315	2,891	17.6
Slate or Tile	155	24	Q	6	13	1,998	452	Q	87	322	28.8
Concrete	37	7	Q	2	Q	2,544	906	Q	Q	Q	47.9
Other	167	30	Q	Q	24	1,786	399	Q	Q	278	32.6
Floors											
One	3,007	380	27	68	285	25,424	4,357	429	615	3,313	12.1
Two	1,154	132	11	26	96	18,025	3,697	183	899	2,616	14.9
Three	446	53	Q	12	32	9,877	3,039	Q	711	2,195	15.5
Four to Nine	186	32	5	10	17	10,377	3,309	Q	1,356	1,629	20.4
Ten or More	13	2	0	1	Q	4,173	722	121	185	Q	27.2
Percent Window Glass											
25 or Less	4,193	491	41	96	354	51,356	10,497	891	2,870	6,736	10.5
26 to 50	490	83	8	15	60	11,815	3,553	232	725	2,595	15.9
51 to 75	94	19	Q	Q	15	3,206	891	Q	Q	723	23.2
76 to 100	29	7	Q	Q	Q	1,499	184	Q	Q	Q	42.5
Workers (main shift)											
Less than 5	2,718	253	23	47	184	17,944	1,968	195	301	1,472	14.8
5 to 9	895	103	13	19	71	7,524	1,000	102	271	628	16.8
10 to 19	561	93	Q	17	72	8,077	1,665	Q	556	1,045	18.5
20 to 49	405	92	Q	19	68	10,556	3,056	Q	653	2,251	14.7
50 to 99	130	32	Q	9	21	7,763	2,631	Q	768	1,729	15.8
100 to 249	64	18	Q	3	13	7,378	2,785	Q	639	2,002	19.8
250 or More	31	7	Q	2	2	8,633	2,019	398	577	1,044	26.0

See footnotes at end of table.

Table A21. Occupancy of Government-Owned Buildings, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
	All Buildings	Government-Owned Buildings			All Buildings	Government-Owned Buildings					
		All Government-Owned Buildings	Federal	State		Local	All Government-Owned Buildings	Federal	State	Local	
RSE Column Factor:	0.4	0.8	2.1	1.5	0.9	0.4	0.9	2.0	1.5	1.0	
Weekly Operating Hours											
39 or Fewer	1,039	122	Q	12	99	8,246	2,085	Q	Q	1,636	17.2
40 to 48	1,278	242	14	48	179	14,998	3,968	324	555	3,089	12.7
49 to 60	1,004	69	10	10	50	14,046	2,027	Q	402	1,296	17.4
61 to 84	645	68	Q	20	43	12,062	2,042	Q	548	1,407	15.4
85 to 167	478	28	Q	8	17	8,467	2,229	Q	729	1,392	22.7
Open Continuously	362	70	Q	19	43	10,057	2,773	253	1,169	1,351	20.5
Additional Operating Hours for Equipment Use											
Heating and/or Cooling	1,223	154	15	24	114	20,300	4,733	408	1,160	3,165	15.9
Lighting	633	58	Q	10	42	12,886	2,970	233	615	2,122	18.0
Heating and/or Cooling and Lighting	371	39	Q	6	28	8,717	2,376	Q	549	1,687	21.7
No Additional Hours	3,320	427	35	90	302	43,407	9,798	688	2,541	6,570	11.1
Percent Vacant for at Least Three Months											
1-50 Percent	362	18	Q	4	12	12,420	1,504	Q	351	966	27.8
51-99 Percent	97	7	Q	Q	Q	2,263	Q	Q	Q	Q	41.9
100 Percent	398	81	Q	10	63	4,109	1,025	Q	177	769	24.3
None	3,948	493	40	100	352	49,085	12,075	912	2,887	8,277	9.8
Number of Establishments											
One	3,886	527	36	109	382	47,997	12,441	778	2,970	8,694	9.9
2 to 5	517	32	Q	5	21	7,882	1,139	Q	485	431	24.0
6 to 10	89	Q	Q	Q	Q	2,562	Q	Q	Q	Q	25.4
11 to 20	49	Q	Q	Q	Q	2,039	Q	Q	Q	Q	38.3
More than 20	36	Q	Q	Q	Q	4,938	Q	Q	Q	Q	38.8
Currently Unoccupied	229	32	Q	Q	Q	2,457	381	Q	Q	Q	33.0
Energy-Related Space Functions (more than one may apply)											
Commercial Food Preparation	735	119	Q	20	95	22,166	8,068	437	1,813	5,819	14.1
Computer Room	223	47	5	13	29	14,199	3,847	450	1,004	2,392	16.8
Rooms with Special Ventilation	236	53	Q	11	36	8,042	3,277	155	796	2,327	16.7
Activities with Large Amounts of Hot Water	203	25	Q	5	20	6,862	1,807	Q	229	1,493	20.4
Multibuilding Facility											
Part of Multibuilding Facility	1,667	386	28	102	256	31,564	9,755	685	3,145	5,925	12.1
with Central Physical Plant	223	111	13	43	55	8,395	4,275	376	1,755	2,143	20.1
No Central Physical Plant	1,444	275	15	60	201	23,170	5,480	308	1,390	3,782	14.1
Not on Multibuilding Facility	3,139	213	23	15	175	36,312	5,369	504	621	4,244	12.2

See footnotes at end of table.

U.S. GOVERNMENT PRINTING OFFICE: 1992 O-345-000
 GPO : 1992 O-345-000

Table A21. Occupancy of Government-Owned Buildings, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
	All Buildings	Government-Owned Buildings				All Buildings	Government-Owned Buildings				
		All Government-Owned Buildings	Federal	State	Local		All Government-Owned Buildings	Federal	State	Local	
Percent of Floorspace Heated											
Not Heated	653	66	Q	10	46	6,211	746	Q	198	480	25.0
1 to 50	688	39	Q	5	32	11,195	1,944	Q	Q	1,307	26.1
51 to 99	618	64	6	11	47	10,211	1,896	Q	347	1,285	19.0
100	2,846	430	32	92	306	40,260	10,538	718	2,722	7,099	9.6
Percent of Floorspace Cooled											
Not Cooled	1,304	177	20	27	130	10,835	1,996	130	438	1,428	14.5
1 to 50	1,176	136	11	27	98	21,715	5,301	233	1,270	3,798	16.2
51 to 99	658	78	9	18	51	13,872	3,663	486	882	2,295	17.0
100	1,668	209	11	46	152	21,454	4,164	340	1,175	2,649	13.9
Percent Lit when Open											
Not Lit	413	36	Q	Q	20	3,280	469	Q	Q	345	31.8
1 to 50	881	77	Q	18	55	9,980	1,112	167	Q	489	18.9
51 to 99	813	110	14	23	73	14,224	2,976	248	767	1,961	14.9
100	2,699	377	24	70	283	40,393	10,566	691	2,500	7,375	11.0
Heating Equipment (more than one may apply)											
Heat Pumps	449	51	Q	12	37	8,269	1,158	Q	236	884	22.3
Furnaces	1,692	150	12	29	108	16,909	2,315	197	606	1,513	18.7
Individual Space Heaters	1,464	175	Q	38	131	22,380	4,556	175	1,313	3,068	13.6
District Heat	93	50	Q	23	20	5,225	2,384	360	1,138	886	20.5
Boilers	624	147	14	25	108	20,664	7,356	403	1,665	5,287	12.4
Packaged Heating Units	870	93	5	11	77	16,000	2,574	Q	232	2,170	19.8
Other	42	Q	Q	NC	Q	903	Q	Q	NC	Q	50.0
Heating Distribution Equipment (more than one may apply)											
Radiators or Baseboards	473	116	12	21	82	13,263	5,546	375	1,348	3,822	14.6
Ducts for Heating	2,955	346	28	68	250	45,422	9,887	902	2,388	6,597	10.9
Heating Only	577	90	Q	13	68	5,950	2,194	Q	449	1,698	22.3
Heating and Cooling	2,378	257	19	55	183	39,472	7,693	855	1,940	4,899	11.4
Variable Air-Volume System Used	210	48	5	10	33	11,528	3,388	255	839	2,295	19.3
Fan Coil Units for Heating	99	34	Q	12	19	5,474	2,021	178	712	1,131	19.0
Heating Only	78	23	Q	Q	13	3,569	1,224	Q	301	807	22.8
Heating and Cooling	21	11	Q	5	6	1,906	797	Q	411	324	30.0
Individual Space Heaters	1,464	175	Q	38	131	22,380	4,556	175	1,313	3,068	13.6
Other	181	25	Q	Q	18	3,310	739	Q	Q	557	29.9
Cooling Equipment (more than one may apply)											
Residential-Type Central Air											
Conditioners	816	76	Q	17	56	9,021	1,593	Q	490	991	18.7
Heat Pumps	454	50	Q	12	36	8,406	1,035	Q	238	741	21.5
Individual Air											
Conditioners	1,023	134	12	28	94	17,979	5,232	212	1,262	3,758	14.8
District Chilled Water	28	18	Q	7	9	2,066	992	Q	449	446	31.7
Central Chillers	142	52	5	14	33	12,991	4,200	542	1,177	2,481	18.1
Packaged Air-Conditioning											
Units	1,459	153	11	24	117	27,830	5,375	417	1,365	3,593	13.8
Swamp Coolers	179	25	Q	Q	14	2,085	434	Q	Q	139	45.1
Other	8	Q	Q	Q	Q	268	Q	Q	Q	Q	97.6

See footnotes at end of table.

Table A21. Occupancy of Government-Owned Buildings, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
	All Buildings	Government-Owned Buildings			All Buildings	Government-Owned Buildings					
		All Government-Owned Buildings	Federal	State		Local	All Government-Owned Buildings	Federal	State	Local	
RSE Column Factor:	0.4	0.8	2.4	1.5	0.9	0.4	0.8	1.9	1.5	1.0	
Cooling Distribution Equipment (more than one may apply)											
Ducts for Cooling	2,733	313	23	71	220	47,755	10,014	990	2,632	6,392	10.9
Cooling Only	355	56	Q	16	37	8,283	2,321	Q	692	1,493	21.0
Heating and Cooling	2,378	257	19	55	183	39,472	7,693	855	1,940	4,899	11.4
Variable Air-Volume System Used	221	40	6	11	23	12,430	3,133	306	1,187	1,640	17.1
Fan Coil Units for Cooling	56	19	Q	7	12	3,875	1,449	Q	582	788	24.3
Cooling Only	35	8	Q	Q	6	1,969	652	Q	Q	464	41.7
Heating and Cooling	21	11	Q	5	6	1,906	797	Q	411	324	30.0
Individual Air Conditioners	1,023	134	12	28	94	17,979	5,232	212	1,262	3,758	14.8
Other	111	19	Q	Q	17	2,919	599	Q	Q	499	36.7
Lighting Equipment Types (more than one may apply)											
Incandescent	2,509	267	20	59	189	39,221	8,765	548	2,059	6,157	11.0
Standard Fluorescent	4,065	530	41	105	384	62,074	14,583	1,059	3,677	9,847	9.3
Compact Fluorescent	206	32	Q	5	23	8,336	2,230	143	524	1,564	21.6
High-Intensity Discharge	354	78	Q	15	57	17,570	6,195	414	1,555	4,227	13.7
Other	78	Q	Q	Q	Q	1,612	Q	Q	Q	Q	40.4
Personal Computers and/or Computer Terminals											
1 to 4	1,269	136	12	30	95	13,355	1,559	243	435	881	15.3
5 to 9	336	44	Q	6	33	5,970	813	Q	195	545	21.0
10 to 19	216	55	Q	8	41	6,236	1,720	Q	317	1,265	18.2
20 to 49	164	57	Q	13	42	7,439	2,494	Q	517	1,917	16.7
50 to 99	59	24	Q	4	18	4,908	2,309	Q	441	1,572	19.4
100 to 249	34	13	Q	5	7	4,220	1,967	Q	709	1,206	23.7
250 or More	19	4	*	1	2	5,569	1,446	181	278	987	26.6
Building Shell Conservation Features (more than one may apply)											
Roof or Ceiling Insulation	3,343	422	40	77	306	50,311	12,023	979	2,986	8,058	9.7
Wall Insulation	2,320	259	26	48	185	33,240	5,768	509	1,381	3,879	11.4
Storm or Multiple Glazing	1,680	184	22	32	130	29,684	5,988	628	1,429	3,931	11.6
Tinted, Reflective or Shading Glass	1,068	122	12	19	91	25,396	5,250	510	1,198	3,542	14.8
Exterior or Interior Shading or Awnings	1,853	263	22	52	189	34,071	7,749	652	2,125	4,973	11.4
Windows that Open	2,119	378	32	67	280	28,937	9,030	474	1,802	6,754	10.8
HVAC Conservation Features (more than one may apply)											
Variable Air-Volume System	250	54	6	12	36	13,970	4,009	307	1,256	2,446	17.5
Economizer Cycle	414	77	11	18	47	18,313	5,393	719	1,556	3,118	15.3
HVAC Maintenance	2,503	425	34	93	298	49,173	13,179	1,006	3,366	8,807	10.2

See footnotes at end of table.

Table A21. Occupancy of Government-Owned Buildings, Number of Buildings and Floorspace, 1992 (Continued)

Building Characteristics	Number of Buildings (thousand)					Total Floorspace (million square feet)					RSE Row Factor
	All Buildings	Government-Owned Buildings				All Buildings	Government-Owned Buildings				
		All Government-Owned Buildings	Federal	State	Local		All Government-Owned Buildings	Federal	State	Local	
RSE Column Factor:	0.4	0.8	2.4	1.5	0.9	0.4	0.8	1.9	1.5	1.0	
Lighting Conservation Features (more than one may apply)											
Specular Reflectors	574	92	14	17	61	15,241	4,008	423	1,226	2,359	16.8
Natural Lighting Control Sensors	74	11	Q	1	9	3,072	681	Q	Q	290	31.1
Occupancy Sensors	59	14	Q	4	8	3,629	1,076	350	Q	370	27.8
Time Clock	339	37	Q	6	28	12,104	1,915	143	355	1,418	24.8
Manual Dimmer Switches	413	33	Q	9	21	12,329	2,605	Q	756	1,737	21.8
Other	78	24	Q	Q	15	2,596	989	Q	Q	532	29.6
Energy Conservation Features (more than one may apply)											
Any Conservation Features	4,357	565	49	113	404	64,403	14,773	1,106	3,731	9,936	9.3
Building Shell	4,223	539	48	102	389	62,056	14,168	1,083	3,390	9,695	9.3
HVAC	2,604	432	34	94	304	50,281	13,276	1,015	3,376	8,885	10.1
Lighting	1,178	156	18	33	105	29,453	6,593	701	1,836	4,057	13.0
Other	264	44	Q	7	33	5,952	1,554	225	284	1,046	16.4
Off-Hour Equipment Reduction (more than one may apply)											
Heating	3,400	408	29	74	305	46,248	10,572	765	2,218	7,589	9.8
Cooling	2,872	321	24	58	239	42,768	9,727	758	2,083	6,886	10.8
Hot Water	578	73	5	10	58	9,966	2,914	180	429	2,306	15.7
Lighting	4,089	494	33	95	366	54,944	11,908	870	2,546	8,492	9.4
Other	547	52	Q	10	36	7,996	1,767	Q	Q	1,092	19.9
Energy Management Practices (more than one may apply)											
Energy Management and Control System	236	75	7	14	54	14,320	4,873	505	1,413	2,955	16.5
Demand-Side Management Participation	315	86	11	16	59	11,310	4,279	407	923	2,949	17.2
Energy Audit	521	122	Q	30	80	14,779	4,505	423	1,328	2,755	13.9
Building Energy Manager	49	18	Q	Q	13	2,311	777	Q	Q	561	36.5
Demand-Side Management Programs (more than one may apply)											
Building Shell Program	36	13	Q	Q	Q	1,079	367	Q	Q	Q	37.7
HVAC Program	154	49	Q	6	39	6,370	2,250	Q	570	1,495	21.8
Lighting Program	228	62	Q	14	39	8,805	3,313	376	730	2,207	20.8
Other DSM Programs	110	38	Q	6	23	6,176	2,494	245	551	1,698	24.0

NC = No cases in sample.

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

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

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



Department of Energy

Washington, DC 20585

JUL 01 1994

Letter 4

Dear Building Manager:

The Energy Information Administration (EIA) of the U.S. Department of Energy (DOE), in conjunction with the Office of Federal Energy Management Programs (FEMP) of DOE, is conducting a telephone survey of 900 Federal Buildings in Federal Regions 3 (Philadelphia, PA), 6 (Dallas, TX), and 9 (San Francisco, CA). This building has been statistically selected to participate in the Federal Buildings Supplemental Survey (FBSS).

The major purpose of the FBSS is to obtain more information on energy usage and characteristics of Federal buildings, to assist in the implementation of the Energy Policy Act of 1992. Starting in late July and throughout August 1994, the building energy managers for the 900 sampled Federal buildings will be contacted by telephone. The data collection will be conducted by Response Analysis Corporation under contract to EIA.

For each of the Federal regions, a survey of the sampled buildings in that region will provide basic data on the Federally-owned buildings. Two types of data will be collected: (1) building characteristics data, which includes information on how energy is managed in Federal buildings; and (2) energy consumption data. Data collected will represent other Federal commercial buildings within those three Federal regions.

Enclosed is a FBSS worksheet with several questions that may require research prior to the telephone interview. You, or another individual designated by you to answer the FBSS worksheet, may need to contact several persons to gather the required information. For instance, the building engineer may need to provide you with information on the costs and amounts of energy used. Having the FBSS worksheet completed and available when you are contacted by telephone will expedite the interview with minimum additional burden to you. Also enclosed is an exhibit booklet. You will be asked to refer to it throughout the interview; it lists response categories and items for several of the interview questions.

We realize that the building interviews may be time consuming for you and we would like to thank you in advance for your participation in this important survey. Without your cooperation, we could not obtain information about how energy is used in Federal buildings. We will be happy to provide you with a profile of your building's characteristics and energy usage after all the survey data are analyzed.

If you have any general questions about the purpose of the Federal Buildings Supplemental Survey, please contact Emilda Rivers of EIA at (202) 586-5744.

Please see the reverse side of this letter for the authorizing legislation and public reporting burden. Thank you for your time and effort.

Sincerely,

A handwritten signature in black ink that reads "Lynda T. Carlson".

Lynda T. Carlson, Director
Energy End Use & Integrated Statistics Division
Energy Information Administration

Enclosures

Authorizing Legislation:

Authorization for collecting energy consumption data in the Commercial sector is set forth in the Federal Energy Administration Act of 1974; Public Law 93-275, as amended. The Commercial Buildings Energy Consumption Survey, Buildings Questionnaire (Federal Supplement) conducted by the Energy Information Administration collects information about energy usage in U.S. buildings.

Public Reporting Burden:

Public reporting burden for this collection of information via telephone is estimated to average 30 minutes.

Send comments regarding public reporting burden or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Energy Information Administration
Office of Statistical Standards
EI-73
1000 Independence Avenue, S.W.
Washington, DC 20585

and

Office of Information and Regulatory Affairs
Office of Management and Budget
Washington, DC 20503

FEDERAL BUILDINGS SUPPLEMENTAL SURVEY WORKSHEET

Please have the following information available for the telephone survey. Thank you for your help!

- A. Building square footage? _____ sq. ft.
- B. Year major portion of construction completed? _____ year
- C. Number of workers (all shifts)? _____ workers

D. Energy Consumption
 For fiscal year 1993 (October 1, 1992 through September 30, 1993), provide the amount of usage, units and costs for each fuel used in the building. Complete last column only for those energy sources, if any, where your building shares a meter with other buildings.

	<u>Cost</u>	<u>Amount</u>	<u>Units</u> <u>(circle one</u> <u>in each row)</u>	<u>*Total</u> <u>square ft.</u> <u>of all buildings</u> <u>sharing</u> <u>same meter</u>
Electricity	\$ _____	_____	Btu's or Kwh	_____
Natural Gas	\$ _____	_____	Btu's or Cu ft.	_____
Fuel Oil/ Kerosene/Diesel	\$ _____	_____	Btu's or Gallons	_____
District Steam	\$ _____	_____	Btu's	_____
District Hot Water	\$ _____	_____	Btu's	_____
District Chilled Water	\$ _____	_____	Ton-hours	_____

***If your building shares a meter with other buildings, please try to obtain the total square footage, usage, units, and cost information (section D) for all the buildings served by the shared meter.**

- E. Motors
- 1. Number and age of motors (10 horsepower or more) that are in each of the following equipment.:

	<u>Number of Motors</u>	<u>Number Less</u> <u>than 10 years old</u>	<u>Number</u> <u>10 years or older</u>
Chillers	_____	_____	_____
Heat Pumps	_____	_____	_____
Fans	_____	_____	_____
Compressors	_____	_____	_____
Elevators	_____	_____	_____
Escalators	_____	_____	_____
Refrigeration	_____	_____	_____
Water Pumps	_____	_____	_____

- 2. Number of energy-efficient motors (10 horsepower or more) less than 10 years old. _____
- 3. Number of motors (10 horsepower or more) less than 10 years old that have been rewound. _____
- 3a. (IF NON-ZERO NUMBER IN QUESTION 3): Average age of these motors that were rewound? _____



Department of Energy
Washington, DC 20585

August 26, 1994

Dear FBSS Respondent:

Thank you for participating in the Federal Buildings Supplemental Survey (FBSS) that was conducted by the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE), in conjunction with the Office of Federal Energy Management Programs (FEMP) of DOE. The information that you supplied will provide a baseline in Federal regions 3, 6, and 9 to measure future energy use in Federal buildings in those regions. Response Analysis Corporation, under contract to EIA, collected the information for DOE.

We really appreciate your time taken to help us in the Federal buildings survey.

Sincerely,

A handwritten signature in cursive script that reads "Lynda T. Carlson".

Lynda T. Carlson, Director
Energy End Use and Integrated
Statistics Division
Energy Information Administration



Appendix F

Related EIA Energy Consumption Publications



Appendix F

Related EIA Energy Consumption Publications

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; A Supplemental Reference, DOE/EIA-M008, \$22.95. Available from the NTIS, Order No. DE-85015581.

Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings, 1983; July 1985, DOE/EIA-0246(83), GPO Stock No. 061-003-00439-3, \$7.50.

Nonresidential Buildings Energy Consumption Survey: Fuel Characteristics and Conservation Practices; June 1981, DOE/EIA-0278, GPO Stock No. 061-00300200-5, \$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 1992; April 1995, DOE/EIA-0318(92), GPO Stock No. 061-003-00904-2, \$31.00.

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.

Industrial Sector

Changes in Energy Intensity in the Manufacturing Sector 1985-1991, October 1995, DOE/EIA-0552(85-91), GPO Stock No. 061-003-00925-5, \$9.00

Manufacturing Consumption of Energy 1991, December 1994, DOE/EIA-0512(91), GPO Stock No. 061-003-008709, \$34.00.

"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 Industrial 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.

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 1993; June 1995, DOE/EIA-0314(93), GPO Stock No. 061-003-00912-3, \$23.00.

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 1993, October 1995, DOE/EIA-0321(93), GPO Stock No. 061-003-00932-8, \$21.00.

"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; February 1993, 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-0321/1(82), GPO Stock No. 061-003-00411-3, \$7.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1982 Through March 1983, Part 2: Regional Data; December 1984, DOE/EIA-0321/2(82), GPO Stock No. 061-003-00414-8, \$9.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, Part 1: National Data; September 1983, DOE/EIA-0321/1(81), GPO Stock No. 061-003-00340-1, \$6.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, Part 2: Regional Data; October 1983, DOE/EIA-0321/2(81), GPO Stock No. 061-003-00357-5, \$8.00.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, Part I: National Data; September 1982, DOE/EIA-0321/1(80), GPO Stock No. 061-003-00278-1, \$7.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, Part 2: Regional Data; June 1983, DOE/EIA-0321/2(80), GPO Stock No. 061-003-00319-2, \$7.00.

Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures, Part I: National Data (Including Conservation); April 1981, DOE/EIA-0262/1, GPO Stock No. 061-003-00191-2, \$6.50.

Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures, Part II: Regional Data; May 1981, DOE/EIA-0262/2, GPO Stock No. 061-003-00189-1, \$8.50.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 Through March 1979; July 1980, DOE/EIA-0207/5, GPO Stock No. 061-003-00131-9, \$7.50.

Single-Family Households: Fuel Oil Inventories and Expenditures: National Interim Energy Consumption Survey; December 1979, DOE/EIA-0207/1, GPO Stock No. 061-003-00075-4, \$3.50.

Other Publications on the Residential Sector

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. 061-003-00205-6, \$5.00.

National Interim Energy Consumption Survey: Exploring the Variability in Energy Consumption--A Supplement; October 1981, DOE/EIA-0272/S, GPO Stock No. 061-003-00217-0, \$4.50.

Energy Use by U.S. Households; November 1980, DOE/EIA-0248 (brochure, no GPO Stock No.).

Residential Transportation Sector

Note: The survey name was dropped from the beginning of the report title starting with the 1988 data report, and the report title was 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.).

Cross-Sector

Energy Consumption Series--Measuring Energy Efficiency in the United States' Economy: A Beginning; October 1995, DOE/EIA-0555(95)/2, GPO Stock No. 061-003-00935-2, \$6.50.

Energy Consumption Series--Buildings and Energy In the 1980's; June 1995, DOE/EIA-0555(95)/1, GPO Stock No. 061-003-00914-0, \$6.50.

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. PB84-120476, \$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 Energy Consumption and Expenditures 1992, 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, **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.

Residential Energy Consumption Survey 1993 Data, **OSTI** - ASCII or dBase format, Order by title; \$10 per diskette. **NTIS** - ASCII format: No. Stock No. Assigned yet, Order by title.

Residential Energy Consumption Survey 1990 Data, **OSTI** - ASCII (3 diskettes) or dBASE (2 diskettes) format, order by title, \$10 per diskette. **NTIS** - ASCII format: Order No. PB-93-506103 and dBASE format: Order No. PB-93-506095.

Residential Energy Consumption Survey 1987 Data, **OSTI** - ASCII or dBASE format, order by title, \$45 for each set. **NTIS** - ASCII format: Order No. PB-91-505115, \$130, and DBASE format: Order No. PB-91-505107, \$130.

Commercial Buildings Energy Consumption Survey 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 Energy Consumption Survey 1989 Data, **OSTI** - ASCII format, order by title, \$10 per diskette, \$40 set of four. **NTIS** - ASCII or dBASE format: Order No. PB92-504232, \$140.

Nonresidential Buildings Energy Consumption Survey 1986 Data, **NTIS** - ASCII format: Order No. PB91-506808, \$130.

Residential Transportation Energy Consumption Survey 1991 Data, **OSTI** - ASCII or dBASE format, order by title, call for prices. **NTIS** - ASCII format: Order No. PB94-500824. dBASE format: Order No. PB94-500816, call for prices.

Residential Transportation Energy Consumption Survey 1988 Data, **GPO** - ASCII or dBASE format, order by title, \$15 for each set. **NTIS** - ASCII format: Order No. PB91-507269, dBASE format: Order No. PB91-507277, \$50 each.

Planned Publications

EPACT Section 407 Data System: Results from Atlanta Clean City Fleet Vehicle Survey, planned for November 1995.

EPACT Section 407 Data Program: The Vehicle Stock and New Survey Findings, planned for December 1995.

Note: The Energy Information Administration also publishes annually the *State Energy Data Report, Consumption Estimates*, DOE/EIA-0214, 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

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 "Ducts for Heating" in the "Heating Distribution Equipment" stub and in "Ducts for Cooling" in the "Cooling Distribution Equipment" stub. (See **Cooling, Duct, and Space Heating**.)

Alternative Rate Program Assistance: A type of assistance that offers special rate structures or discounts on the consumer's monthly electric bill in exchange for participation in 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 **Energy Conservation Program Assistance, Energy Conservation Programs, and Retrofit or Purchase of Any Equipment**.)

Asphalt or Fiberglass Shingles: See **Shingles**.

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	1,028	cubic foot
Distillate Fuel Oils (Nos. 1,2, and 4)	5.825 million	per Barrel
Residual Fuel Oils (Nos. 5 and 6)	6.287 million	per Barrel
Kerosene	5.670 million	per Barrel
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, *Monthly Energy Review* (August 1995), pp. 145, 147, 149 for electricity, natural gas, 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 10,000 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 Envelope or Shell Energy Conservation Program: An energy conservation program that promotes reduction of energy consumption through improvements to the building envelope. Includes installation of insulation, weatherstripping, caulking, window film, and window replacement. (See **Building Shell (Envelope)**.)

Building Floorspace: See **Floorspace**.

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; and exterior or interior shadings or awnings. This category does not include participation in a building envelope or shell energy conservation program. (See **Roof or Ceiling Insulation, Wall Insulation, Storm Windows, Storm Doors, Storm or Multiple Glazing, Tinted or Reflective Glass or Shading Film, and Exterior or Interior Shadings or Awnings**.)

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.

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**.)

CATI: See **Computer-Assisted Telephone Interviewing (CATI)**.

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.**

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.**)

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. Agricultural buildings, residences, and manufacturing buildings were excluded from the survey. For a more complete list of buildings in the survey, see Appendix B, "Types of Buildings."

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-Assisted Telephone Interviewing (CATI): A computer-assisted survey process that uses the telephone for voice communications between the interviewer and the respondent. This mode of data collection was used for the 1993 Federal Buildings Supplemental Survey (FBSS).

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.

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 fiscal year 1993 (October 1, 1992 through September 30, 1993). 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**, and **Expenditures**.)

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. (See **Consumption** and **Workers**.)

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 Distribution Equipment: The part of a cooling system that distributes conditioned water and/or air 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 FBSS: **Residential-Type Central Air-Conditioner, Heat Pump, Individual Room Air-Conditioners in Walls or Windows, Central Chillers, and Packaged Units.**)

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.**)

Daylighting Controls: See **Natural Lighting Control Sensors.**

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 the "Detailed Tables," decorative or construction glass is included in "Other" in the "Predominant Wall Materials" stub. (See **Window or Vision Glass.**)

Direct Electricity Load Control Program: A conservation program in which the utility system operator has direct control of the power supply to individual equipment on consumer premises and is able to interrupt consumer load at the time of peak load.

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.**)

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. (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**.)

Electric Utility Energy Conservation Program Sponsor: An energy conservation program sponsored by an electric utility that suggests ways to increase the energy efficiency of buildings, to reduce energy costs, to change usage patterns, or to promote the use of a different energy source. (See **Energy Conservation Program Sponsor, Utility-Sponsored Energy Conservation Program, and Retrofit or Purchase of Any Equipment**.)

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, and Multibuilding Facility**.)

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. (See **Energy Management Practices**.)

Energy Conservation Features: In the "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 participation in energy conservation programs. (See **Building Shell Conservation Features, HVAC Conservation Features, and Lighting Conservation Features**.)

Energy Conservation Programs: 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. This covers the complete range of load-shape objectives, including strategic conservation and load management, as well as strategic load growth.

The FBSS collected information on a variety of conservation strategies. This information included whether the building's electric or natural gas utility had sponsored any programs; whether the building had participated in, or planned to participate in, any programs sponsored by FEMP, in-house, by a utility, or by a third-party; which specific program areas the building had participated in, such as: the building envelope or direct electricity load control; identification of specific program sponsors; and what type of assistance was received through the program, such as: the Federal Energy Efficiency Fund (FEEF), general information, incentives, or alternative rates. (See **Energy Management Practices**.)

Energy Conservation Program Assistance: In this report, energy conservation program assistance consists of: the Federal Energy Efficiency Fund (FEEF), general information, site-specific information, incentives, alternative-rate programs, fuel-switching programs, and other programs. This assistance can be provided by FEMP, utilities, an in-house group, or third parties, such as an energy service company or contractor. Assistance for energy conservation programs may be monetary or nonmonetary 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.

Energy Conservation Program Sponsor: An energy conservation program can be sponsored by FEMP, an electric or natural gas utility, 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 energy conservation programs.

Energy-Efficient Motors: These are also known as "high-efficiency motors" and "premium motors." They are virtually interchangeable with standard motors, but differences in construction make them more energy efficient.

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. The energy intensity can also be computed for individual buildings. (See **Consumption, Conditional 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. Not included as EMCS are time-clock thermostats. (See **Energy Management Practices.**)

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 the "Detailed Tables," this includes the following: Energy Management and Control System, Energy Conservation Programs, Energy Audit, and HVAC Maintenance Staff. (See **Energy Management and Control System (EMCS), Energy Conservation Program, Energy Audit, and HVAC Maintenance Staff.**)

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 (PVC's) and Solar Thermal Panels.**)

Energy Source-Specific Floorspace: Total floorspace of those buildings that use a particular fuel. (See **Conditional Energy Intensity.**)

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."

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. (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 fiscal year 1993. 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**.)

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. 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 and Multibuilding Facility**.)

Fan-Coil Unit: A type of heating or 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**.)

Federal Energy Efficiency Fund (FEEF): A fund established by the Energy Policy Act of 1992 to improve energy efficiency in Federal facilities by providing grants to Federal agencies to implement energy efficiency and water conservation projects. (See **Energy Conservation Program Assistance and Retrofit or Purchase of Any Equipment**.)

Federal Energy Management Program (FEMP): A Department of Energy program aiming to reduce the cost of government and make it work better through energy efficiency, use of renewable energy, and water conservation. (See **Energy Conservation Program Assistance and Retrofit or Purchase of Any Equipment**.)

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 Federal Region 3). (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 the "Detailed Tables," these bulbs are included in the "Standard Fluorescent" category in the "Lighting Equipment" stub. (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 Program Assistance: A type of 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 **Energy Conservation Program Assistance**, **Energy Conservation Program**, and **Retrofit or Purchase of Any Equipment**.)

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)**.)

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 Energy Conservation Program Assistance: This type of program assistance refers to efforts of an energy conservation sponsor to inform consumers about program options through such mechanisms as brochures, bill stuffers, and workshops. (See **Energy Conservation Program Assistance** and **Energy Conservation Programs**.)

Heating: See **Space Heating** or **Water Heating**.

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**, **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**.)

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 the "Detailed Tables," this category includes the presence of variable air-volume (VAV) systems, an economizer cycle, and preventive maintenance programs for the heating and cooling equipment. (See **Variable Air-Volume (VAV) System**, **Economizer Cycle**, and **Preventive Maintenance Program for the Heating and/or Cooling Equipment**.)

HVAC Maintenance: See **Preventive Maintenance Program for Heating and/or Cooling Equipment**.

HVAC Maintenance Staff: The building employs at least one person who spends at least half of their working hours maintaining the heating and/or cooling equipment. (See **Energy Management Practices**.)

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, Regression**)

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**.)

Incentives: A type of program assistance that provides cash or non-cash awards to customers to encourage the purchase or sales of conservation programs. Appliance rebate programs are the most common example on incentive programs. Incentives can also include zero or low-interest loans. (See **Energy Conservation Program Assistance**, **Energy Conservation Programs**, and **Retrofit or Purchase of Any Equipment**.)

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 the "Detailed Tables," these are 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 FBSS, and, therefore, included in the population covered by the survey. These eligibility requirements were (a) that the structure be a Federal building in Region 3, 6, or 9; (b) that the building be larger than 10,000 square feet; and (c) that more than 50 percent of the floorspace be used for commercial activities excluding buildings used for warehouse and storage. (See **Building, Commercial, and Floorspace.**)

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, and Expenditures per Square Foot.**)

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.**

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 FBSS collected 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 the "Detailed Tables," Lighting Conservation Features include natural lighting control sensors, manual dimmer switches, occupancy sensors, specular reflectors, and time clocks or timed switches. (See **Natural Lighting Control Sensors, Manual Dimmer Switches, Occupancy Sensors, Specular Reflectors, and Time Clocks or Timed Switches.**)

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, High-Intensity Discharge (HID) Light Bulbs, and Electronic Ballasts.**)

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.**)

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 FBSS. 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** and Appendix B, "Types of Buildings.")

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 included in the "Other" category. (See **Precast 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**.)

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. These are included in the "Other" category in the "Predominant Exterior Wall Material" stub.

Metal Surfacing: Light-gauge metal sheets used for roofing. These are included in the "Other" category in the "Predominant Roof Material" stub.

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 (10⁹ joules) is approximately 278 kilowatthours (kWh.) (For additional metric conversions, see Appendix D, "Metric Conversion Factors.")

More than One May Apply: In the "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.

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 and Facility**.)

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 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."

Natural Gas Utility Energy Conservation Program Sponsor: An energy conservation 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 **Energy Conservation Program Sponsor and Utility-Sponsored Energy Conservation 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; a 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**.)

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. Additionally, the FBSS excluded buildings that were used for warehouse and storage. (See **Commercial Building, Manufacturing/Industrial, Building, Residential, Principal Building Activity, Out of Scope**, and Appendix B, "Types of Buildings.")

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-Hour 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**.

Out of Scope: Violating one or more of the requirements for eligibility in the survey, therefore not included in the population covered by the FBSS. (See **In Scope**.)

Packaged A/C 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**.)

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**.)

Photovoltaic Cells (PVC's): A device that produces electrical current by converting light or similar radiation. In the "Detailed Tables," PVC's are included in the "Any Other" category in the "Energy Sources," "Space-Heating Energy Sources," and "Main Space-Heating Energy Sources" stubs.

Plastic, Rubber, or Synthetic Roofing: A layer of heavy gauge plastic or rubber used for roofing. In the "Detailed Tables," plastic, rubber or synthetic roofing are included in the "Synthetic or Rubber" category in the "Predominant Roof Material" stub.

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. 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 the "Detailed Tables," pre-cast concrete panels are included in the "Other" category in the "Predominant Wall Material" stub. (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. (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**.

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 B, "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 Energy Conservation Program: An energy conservation program designed to promote increased electric energy efficiency applications in industrial process heating or cooling. (See **Energy Conservation 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)**.)

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**.)

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**.)

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**.

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, and Commercial Building**.)

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."

Retrofit or Purchase of Any Equipment: The FBSS determined whether the building had retrofitted or purchased any of the heating equipment, central chillers, water heating equipment, lighting equipment, or refrigeration equipment in the past ten years. The survey also collected the sponsor and type of assistance received for these retrofits or purchases. The sponsors included an electric utility, in-house, a third party, and FEMP. The type of assistance included the Federal Energy Efficiency Fund, incentives, alternative rates, and fuel switching.

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**.)

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.

Sampling: The procedure used to select cases (in this survey, buildings) for interview from the population (Federal buildings in Regions 3, 6, or 9). (See Appendix A, "How the Survey Was Conducted.")

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.

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. These are included in the "Other" category in the "Predominant Wall Material" and "Predominant Roof Material" stubs (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. These are included in the "Other" category in the "Predominant Wall Material" stub. (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. All types of shingles are included in the "Other" category in the "Predominant Roof Material" and "Predominant Wall Material" stubs. (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. This is included in the "Other" category in the "Predominant Wall Material" stub. (See **Wooden Materials**.)

Site Electricity: The amount of electricity delivered to commercial buildings. (See **Consumption**, **Conversion Losses**, **Electricity** and **Primary Electricity**.)

Site-Specific Energy Conservation Program Assistance: A type of assistance 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 energy conservation 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 **Energy Conservation Program Assistance** and **Energy Conservation Programs**.)

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. These are included in the "Other" category in the "Predominant Roof Material" stub. (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 in "Any Other" in the "Energy Sources" stub. (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**.)

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** and **RSE or Relative Standard Error**.)

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 Energy Conservation Program: An energy conservation program that encourages consumers to use generators during times of high electricity demand to avoid "peak-demand" charges. In the "Detailed Tables," this is included in "Energy Conservation Program" category in the "Energy Management Practices" stub. (See **Energy Conservation 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.**)

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.

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 Energy Conservation 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 **Energy Conservation Programs and Energy Conservation Program Sponsor and Retrofit or Purchase of Any Equipment.**)

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 **Natural Gas Transported for the Account of Others.**

Trillion Btu: Equivalent to 1,000,000,000,000 (10^{12}) Btu. (See **Btu.**)

Utility-Sponsored Energy Conservation Program: In this report, this is any energy conservation 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 **Energy Conservation 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 FBSS 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 B, "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 FBSS 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**.)

VAV: See **Variable Air-Volume (VAV) System**.

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. (See **Process Heating or Cooling Energy Conservation 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 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 a certain Federal region that a particular sample building represents. To estimate the total value of an attribute (such as square footage) in the entire Federal region, each sample building's value is multiplied by the building's weight. Summing (aggregating) the weighted sample values provides an estimate of the Federal region total.

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. In the "Detailed Tables," window or vision glass is included in "Other" in the "Predominant Wall Materials" stub. (See **Decorative or Construction Glass**.)

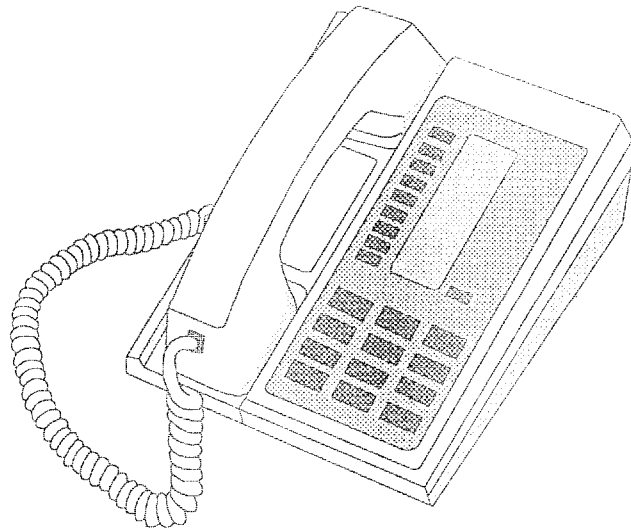
Wood: As an energy source, wood logs, chips, or wood products that are used as fuel. In this survey, information about the use of wood as fuel in commercial buildings was obtained from the building respondent. Wood is included in the "Any Other" category in the "Energy Sources" stub. (See **Energy Source**.)

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: The number of people working in a building across all shifts 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.

Call
for
your
copy
of



EIA New Releases

.... A concise and timely review of new statistical publications and energy news

Offered from the National Energy Information Center, Energy Information Administration

For a complimentary copy of this bimonthly bulletin, or a complimentary subscription, call (202)586-8800

You can also view (or print) the newsletter from EIA's World Wide Web site at <http://www.eia.doe.gov>

Energy Information Administration
U.S. Department of Energy
Forrestal Building, EI-231
Washington, DC 20585

Do Not Forward, Do Not Return
Address Correction Requested

