

### 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
<b>Total Buildings</b> .....	349	326	206	8,548	2,144	340
<b>Department of Defense</b>						
Number of Buildings .....	67	39	16	6,332	1,490	81
Percent of Buildings .....	19	12	8	74	69	24
<b>Non-Department of Defense</b>						
Number of Buildings .....	282	287	190	2,217	654	258
Percent of Buildings .....	81	88	92	26	31	76
<b>Total Floorspace</b> (thousand square feet) .....	9,014	35,395	130,604	188,150	186,186	201,663
<b>Department of Defense</b>						
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
<b>Non-Department of Defense</b>						
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 . . . . .	3 02	(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
<b>Building Floorspace</b>			
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)
<b>Principal Building Activity</b>			
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)
<b>Year Constructed</b>			
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)
<b>Federal Agency</b>			
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)
<b>Energy Sources</b>			
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
<b>Consumption</b> (billion Btu)						
<b>All Major Fuels</b> .....	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)
<b>Expenditures</b> (million dollars)						
<b>All Major Fuels</b> .....	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
<b>Heating Equipment</b>				
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
<b>Cooling Equipment</b>				
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
<b>Lighting Equipment</b>				
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
<b>Building Shell Conservation Features</b>				
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
<b>HVAC Conservation Features</b>				
VAV System .....	25	9	2	14
Economizer Cycle .....	22	5	5	12
HVAC Maintenance .....	3	2	0	1
<b>Lighting Conservation Features</b>				
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
<b>Energy Management Practices</b>				
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
<b>Off-Hours Reduction in Equipment</b>				
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
<b>Heating Equipment</b>				
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
<b>Cooling Equipment</b>				
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
<b>Lighting Equipment</b>				
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
<b>Building Shell Conservation Features</b>				
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
<b>HVAC Conservation Features</b>				
VAV System .....	3,129	1,377	67	1,685
Economizer Cycle .....	2,137	683	170	1,284
HVAC Maintenance .....	186	73	0	113
<b>Lighting Conservation Features</b>				
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
<b>Energy Management Practices</b>				
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
<b>Off-Hours Reduction in Equipment</b>				
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.