

Table C7. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1999

	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/square foot)		
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet
All Buildings	1,381	2,300	2,053	15,013	30,575	21,750	92.0	75.2	94.4
Principal Building Activity									
Education	53	366	230	782	4,831	3,038	68.0	75.7	75.8
Food Sales	Q	88	Q	441	485	Q	Q	180.6	Q
Food Service	364	Q	Q	1,296	483	Q	281.0	Q	Q
Health Care	24	92	398	407	672	1,838	59.8	136.6	216.8
Inpatient	N	Q	379	N	Q	1,683	N	Q	225.1
Outpatient	24	44	Q	407	490	155	59.8	89.2	Q
Lodging	Q	243	145	405	2,336	1,780	152.4	104.2	81.2
Mercantile	171	328	225	1,971	4,630	3,797	86.5	70.9	59.3
Retail (Other Than Mall)	134	137	73	1,649	2,375	742	81.4	57.5	98.4
Enclosed and Strip Malls	Q	191	152	322	2,255	3,055	Q	84.9	49.8
Office	170	384	535	2,276	4,628	5,140	74.7	83.1	104.1
Public Assembly	65	176	118	983	2,267	1,143	66.5	77.5	103.2
Public Order and Safety	Q	57	Q	220	695	Q	Q	81.5	Q
Religious Worship	33	75	Q	1,003	2,353	Q	32.7	31.8	Q
Service	206	Q	Q	1,786	1,265	Q	115.4	140.7	Q
Warehouse and Storage	76	150	235	2,032	4,865	3,579	37.4	30.9	65.6
Other	Q	79	Q	386	445	390	Q	178.2	Q
Vacant	Q	Q	Q	1,024	619	265	Q	Q	Q
Year Constructed									
1919 or Before	104	114	Q	1,446	1,944	645	71.6	58.5	Q
1920 to 1945	142	168	150	1,574	2,815	2,056	90.4	59.8	73.0
1946 to 1959	153	314	207	2,802	4,175	2,150	54.7	75.3	96.1
1960 to 1969	266	358	351	2,093	4,951	3,822	127.1	72.4	91.7
1970 to 1979	249	398	397	2,448	5,447	3,945	101.9	73.1	100.6
1980 to 1989	219	542	453	2,303	6,634	4,994	95.3	81.7	90.6
1990 to 1999	247	405	439	2,347	4,610	4,137	105.2	87.8	106.1
Floors									
One	913	781	309	9,624	12,194	4,982	94.8	64.0	62.1
Two	329	721	281	3,791	9,410	3,785	86.7	76.6	74.1
Three	94	391	248	1,220	5,157	2,551	77.2	75.9	97.2
Four to Nine	45	384	788	378	3,661	6,141	119.1	105.0	128.3
Ten or More	N	Q	427	N	Q	4,291	N	Q	99.5
Census Region and Division									
Northeast	220	418	478	2,203	5,132	5,026	99.8	81.5	95.1
New England	41	120	118	575	1,784	1,376	70.7	67.4	85.7
Middle Atlantic	179	298	360	1,628	3,348	3,649	110.0	89.0	98.7
Midwest	338	532	639	3,880	7,090	5,792	87.2	75.0	110.3
East North Central	253	342	414	2,666	4,580	3,959	95.1	74.6	104.6
West North Central	85	190	225	1,214	2,510	1,832	70.0	75.6	122.7
South	523	829	609	5,594	11,028	6,864	93.5	75.2	88.7
South Atlantic	236	347	333	2,436	4,983	3,581	96.7	69.6	93.1
East South Central	106	268	98	1,159	2,872	1,190	91.7	93.4	82.2
West South Central	181	214	178	1,999	3,173	2,093	90.7	67.5	84.9
West	299	521	327	3,337	7,326	4,069	89.7	71.1	80.3
Mountain	104	153	100	1,105	2,314	1,160	93.7	66.2	85.9
Pacific	196	368	227	2,231	5,012	2,908	87.8	73.4	78.1
Climate Zone: 45-Year Average									
Under 2,000 CDD and --									
More than 7,000 HDD	147	194	168	1,643	2,819	1,428	89.5	69.0	117.9
5,500-7,000 HDD	291	571	673	2,955	7,433	6,695	98.3	76.8	100.5
4,000-5,499 HDD	392	567	585	3,826	6,365	6,053	102.5	89.1	96.7
Fewer than 4,000 HDD	290	599	402	3,377	8,355	4,601	85.9	71.7	87.5
2,000 CDD or More and --									
Fewer than 4,000 HDD	261	368	224	3,211	5,604	2,972	81.2	65.7	75.3

Table C7. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1999

	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/square foot)		
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet
Workers (main shift)									
Fewer than 5	495	174	Q	7,978	5,713	630	62.0	30.4	Q
5 to 9	278	170	Q	2,833	3,099	393	98.2	54.8	Q
10 to 19	302	362	Q	2,582	4,708	737	116.9	76.9	Q
20 to 49	269	657	90	1,409	7,706	1,699	190.8	85.3	52.8
50 to 99	Q	490	210	Q	5,681	3,074	Q	86.3	68.2
100 to 249	Q	335	523	Q	2,832	5,457	Q	118.2	95.9
250 or More	N	112	1,177	N	837	9,759	N	133.7	120.6
Weekly Operating Hours									
39 or Fewer	81	64	Q	3,502	2,472	622	23.1	26.0	Q
40 to 48	265	378	104	4,216	6,969	1,920	62.8	54.2	54.0
49 to 60	253	510	305	3,017	7,423	3,759	83.8	68.8	81.0
61 to 84	270	415	365	2,072	5,376	5,009	130.5	77.1	72.9
85 to 167	361	393	303	1,320	3,943	3,853	273.3	99.8	78.6
Open Continuously	151	539	958	886	4,392	6,586	170.5	122.8	145.4
Ownership and Occupancy									
Nongovernment Owned	1,252	1,780	1,533	13,655	24,490	16,850	91.7	72.7	91.0
Owner Occupied	864	1,253	1,223	9,219	16,036	12,531	93.7	78.1	97.6
Nonowner Occupied	382	515	309	3,513	7,926	4,156	108.8	65.0	74.4
Unoccupied	Q	Q	Q	923	527	Q	Q	Q	Q
Government Owned	129	520	520	1,357	6,086	4,900	95.0	85.5	106.1
Federal	Q	61	139	Q	614	1,007	Q	99.7	137.7
State	Q	186	164	Q	1,697	1,488	Q	109.5	110.2
Local	84	273	217	977	3,775	2,405	86.2	72.4	90.2
Vacancy Status									
Completely Vacant	Q	Q	Q	574	290	Q	Q	Q	Q
Mostly Vacant	Q	Q	Q	451	329	Q	Q	Q	Q
Partially Vacant	108	379	563	2,214	5,983	7,323	48.6	63.3	76.8
Not At All Vacant	1,259	1,911	1,484	11,775	23,974	14,161	106.9	79.7	104.8
Number of Establishments									
One	1,151	1,634	1,262	11,310	20,595	11,437	101.8	79.3	110.4
2 to 5	192	319	250	2,488	5,035	3,059	77.0	63.4	81.9
6 to 10	Q	185	97	176	2,179	1,219	Q	84.8	79.7
11 to 20	Q	108	141	Q	1,591	1,661	Q	67.9	85.1
More than 20	Q	42	301	Q	590	4,163	Q	71.0	72.2
Currently Unoccupied	Q	Q	Q	972	586	Q	Q	Q	Q
Energy Sources (more than one may apply)									
Electricity	1,380	2,300	2,053	14,001	30,052	21,663	98.6	76.5	94.8
Natural Gas	1,073	1,760	1,622	8,654	20,570	16,301	124.0	85.6	99.5
Fuel Oil	80	362	1,045	1,203	3,579	8,503	66.4	101.1	122.9
District Heat	Q	347	505	Q	2,007	3,613	Q	172.9	139.9
District Chilled Water	Q	150	259	Q	927	1,730	Q	162.0	149.6
Propane	105	134	191	1,621	2,637	2,032	64.7	50.9	93.8
Other	Q	65	98	469	890	963	Q	73.3	101.5
Space-Heating Energy Sources (more than one may apply)									
Electricity	542	1,074	1,018	5,459	15,069	11,763	99.3	71.3	86.5
Natural Gas	874	1,433	1,247	7,863	17,494	12,546	111.2	81.9	99.4
Fuel Oil	78	148	294	1,171	2,095	2,345	67.0	70.8	125.4
District Heat	Q	311	498	Q	1,828	3,545	Q	170.1	140.6
Propane	57	45	Q	1,157	1,295	Q	49.1	35.0	Q
Other	Q	26	Q	285	452	Q	Q	57.4	Q

Table C7. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1999

	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/square foot)		
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet
Primary Space-Heating									
Energy Source									
Electricity	312	627	407	3,062	8,667	5,898	101.7	72.3	69.1
Natural Gas	821	1,184	1,058	7,373	14,997	10,360	111.3	79.0	102.1
Fuel Oil	67	108	96	1,038	1,567	1,113	64.9	69.0	86.1
District Heat	Q	277	458	Q	1,645	3,301	Q	168.4	138.8
Propane	Q	20	Q	1,084	980	Q	Q	20.1	Q
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q
Cooling Energy Sources (more than one may apply)									
Electricity	1,136	1,997	1,805	10,723	25,930	18,893	106.0	77.0	95.5
Natural Gas	Q	61	68	537	907	469	Q	67.1	145.1
District Chilled Water	Q	150	259	Q	927	1,730	Q	162.0	149.6
Water-Heating Energy Sources (more than one may apply)									
Electricity	442	721	672	4,593	10,985	8,593	96.2	65.6	78.3
Natural Gas	729	1,180	1,052	4,923	13,747	10,526	148.1	85.9	99.9
Fuel Oil	Q	90	112	333	880	1,005	Q	102.6	111.1
District Heat	Q	239	404	Q	1,249	2,786	Q	191.3	144.9
Propane	Q	29	Q	436	777	Q	Q	37.6	Q
Cooking Energy Sources (more than one may apply)									
Electricity	280	434	806	1,148	4,838	7,747	244.1	89.7	104.0
Natural Gas	351	554	1,023	1,479	5,412	9,893	237.0	102.3	103.4
Propane	Q	54	50	371	735	648	Q	72.9	77.7
Energy End Uses (more than one may apply)									
Buildings with Space Heating	1,277	2,227	2,024	12,774	28,026	20,803	100.0	79.5	97.3
Buildings with Cooling	1,201	2,150	1,994	11,092	27,047	20,335	108.3	79.5	98.0
Buildings with Water Heating	1,214	2,088	1,960	10,028	25,974	20,112	121.0	80.4	97.5
Buildings with Cooking	499	834	1,346	2,367	8,947	13,367	210.6	93.2	100.7
Buildings with Manufacturing	26	100	151	553	1,509	1,064	46.8	66.5	142.1
Buildings with Electricity Generation	Q	401	1,021	378	3,166	8,339	Q	126.7	122.4
Percent of Floorspace Heated									
Not Heated	Q	73	28	2,239	2,550	947	Q	28.5	29.9
1 to 50	82	149	102	2,210	3,567	1,816	37.1	41.8	56.2
51 to 99	245	398	336	1,927	5,033	3,785	127.3	79.1	88.7
100	950	1,680	1,587	8,636	19,426	15,202	109.9	86.5	104.4
Percent of Floorspace Cooled									
Not Cooled	180	150	Q	3,921	3,528	1,415	45.8	42.6	41.9
1 to 50	243	522	356	3,318	8,920	4,608	73.3	58.6	77.3
51 to 99	312	606	825	2,273	7,021	7,673	137.3	86.3	107.6
100	646	1,022	812	5,501	11,106	8,054	117.4	92.0	100.8
Percent Lit When Open									
Zero	Q	Q	Q	Q	Q	Q	Q	Q	Q
1 to 50	204	208	40	3,075	4,719	1,392	66.5	44.0	28.4
51 to 99	500	765	728	4,113	9,755	6,797	121.6	78.4	107.0
100	660	1,311	1,284	6,092	14,839	13,302	108.4	88.4	96.5
Building Never Open/ Electricity Not Used.....	Q	Q	Q	1,660	1,182	Q	Q	Q	Q

Table C7. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1999

	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/square foot)		
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet
Percent Lit When Closed									
Zero	451	563	156	7,199	10,435	3,137	62.6	53.9	49.8
1 to 50	641	1,100	863	5,406	14,482	11,062	118.6	76.0	78.0
51 to 100	Q	97	76	532	750	878	Q	130.0	86.4
Building Never Closed/ Electricity Not Used.....									
	151	540	958	1,876	4,909	6,672	80.7	109.9	143.5
Heating Equipment (more than one may apply)									
Heat Pumps	145	357	360	1,424	4,158	3,341	101.8	85.8	107.9
Furnaces	388	423	271	5,118	6,438	2,892	75.8	65.7	93.7
Individual Space Heaters	218	538	618	2,533	7,732	7,084	86.1	69.6	87.2
District Heat	Q	311	498	Q	1,828	3,545	Q	170.1	140.6
Boilers	175	702	1,033	1,504	8,336	9,683	116.1	84.3	106.7
Packaged Heating Units	529	927	913	4,080	11,951	9,713	129.6	77.5	94.0
Other	Q	105	246	515	1,422	2,135	Q	73.7	115.2
Cooling Equipment (more than one may apply)									
Residential-Type Central									
Air Conditioners	186	222	263	2,496	3,501	2,333	74.7	63.4	112.8
Heat Pumps	Q	358	367	1,406	4,167	3,574	103.6	85.9	102.8
Individual Air Conditioners	208	474	515	2,358	6,679	5,239	88.0	70.9	98.2
District Chilled Water	Q	150	259	Q	927	1,730	Q	162.0	149.6
Central Chillers	Q	385	1,176	Q	3,215	9,517	Q	119.7	123.5
Packaged Air Conditioning									
Units	739	1,356	1,295	5,810	17,315	13,402	127.2	78.3	96.6
Swamp Coolers	Q	80	77	435	1,009	775	Q	79.3	99.6
Other	Q	41	Q	Q	452	707	Q	90.8	Q
Main Equipment Replaced Since 1995 (more than one may apply)									
Heating	326	514	245	3,082	6,831	3,307	105.8	75.2	74.1
Cooling	351	659	525	3,037	8,726	5,628	115.6	75.5	93.3
Lighting Equipment Types (more than one may apply)									
Incandescent	752	1,305	1,384	6,993	16,939	14,223	107.5	77.1	97.3
Standard Fluorescent	1,195	2,201	2,005	11,876	27,684	20,784	100.6	79.5	96.5
Compact Fluorescent	262	699	1,201	1,846	7,480	11,340	141.9	93.4	105.9
High Intensity Discharge	113	632	1,158	908	7,026	11,290	124.5	89.9	102.6
Halogen	250	596	959	1,590	6,536	9,800	157.3	91.2	97.8
Other	Q	Q	Q	Q	394	464	Q	Q	Q
Water Heating Equipment									
Centralized System	980	1,414	974	7,891	17,503	10,186	124.2	80.8	95.6
Distributed System	153	329	390	1,781	4,667	4,450	86.1	70.4	87.6
Combination of Centralized and Distributed System	Q	345	597	356	3,805	5,476	Q	90.7	109.0
Commercial Refrigeration Equipment (more than one may apply)									
Any Equipment	544	867	1,463	2,505	9,110	14,036	217.0	95.2	104.2
Walk-In Units	486	643	1,278	1,794	5,926	11,992	270.6	108.4	106.6
Cases or Cabinets	506	715	1,260	2,290	7,409	12,302	221.0	96.5	102.4
None	837	1,433	590	12,507	21,465	7,714	66.9	66.7	76.4

Table C7. Consumption and Gross Energy Intensity by Building Size for Sum of Major Fuels, 1999

	Sum of Major Fuel Consumption (trillion Btu)			Total Floorspace of Buildings (million square feet)			Energy Intensity for Sum of Major Fuels (thousand Btu/square foot)		
	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet	1,001 to 10,000 Square Feet	10,001 to 100,000 Square Feet	Over 100,000 Square Feet
Personal Computers									
None	363	89	6	5,970	2,974	640	60.7	30.0	Q
1 to 4	580	446	52	5,315	7,464	1,074	109.1	59.7	48.5
5 to 9	198	345	41	1,688	4,200	641	117.5	82.1	64.3
10 to 19	182	347	96	1,534	4,084	1,896	118.9	85.0	50.7
20 to 49	Q	370	233	476	4,721	2,890	Q	78.3	80.6
50 to 99	Q	291	238	Q	3,514	2,327	Q	82.8	102.1
100 to 249	Q	309	377	Q	2,878	3,936	Q	107.2	95.8
250 or More	N	103	1,010	N	741	8,347	N	139.7	120.9
Photocopiers									
None	882	556	83	9,913	9,692	2,025	89.0	57.4	41.1
One	375	558	104	3,724	7,537	1,667	100.7	74.1	62.4
2 to 4	110	760	434	1,165	8,936	5,519	94.5	85.0	78.6
5 to 9	Q	206	311	Q	2,236	2,937	Q	92.0	105.9
10 or More	N	220	1,121	N	2,173	9,601	N	101.2	116.7
Other Electronic Equipment (more than one may apply)									
Laser Printers	595	1,797	1,964	5,396	21,598	19,573	110.2	83.2	100.3
FAX Machines	973	2,047	2,024	8,525	25,429	20,810	114.1	80.5	97.2
Medical Diagnostic Equipment	Q	70	384	265	527	1,700	Q	133.2	225.5
Energy-Related Space Functions (more than one may apply)									
Commercial Food Preparation	464	766	1,317	2,134	8,202	12,992	217.5	93.4	101.4
Activities with Large Amounts of Hot Water	456	898	1,185	1,823	8,834	11,136	250.3	101.6	106.4
Building Shell Conservation Features (more than one may apply)									
Multipaned Windows	741	1,364	1,479	6,858	16,743	14,593	108.0	81.5	101.3
Tinted, Reflective, or Shading Glass	467	1,023	1,346	3,954	12,244	13,717	118.1	83.5	98.1
HVAC Conservation Features (more than one may apply)									
Variable Air-Volume System	211	699	1,205	1,691	6,854	10,841	124.8	102.0	111.2
Economizer Cycle	238	746	1,403	1,438	7,290	12,528	165.4	102.4	112.0
HVAC Maintenance	966	2,096	2,002	8,361	24,704	20,330	115.6	84.8	98.5
Energy Management and Control System (EMCS)	123	791	1,477	987	7,643	12,983	124.3	103.5	113.8
Lighting Conservation Features (more than one may apply)									
Specular Reflectors	298	657	963	2,560	7,640	9,794	116.4	85.9	98.3
Electronic Ballasts	696	1,451	1,754	6,780	17,991	17,264	102.7	80.6	101.6
Skylights or Atriums	133	537	948	1,533	6,945	9,808	86.8	77.4	96.7

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

N=No responding cases in sample.

Notes: * Statistics for the "energy end uses" represent consumption in buildings that have the end use, not consumption for a particular fuel for a particular end use. * HVAC=Heating, Ventilation, and Air Conditioning. * Due to rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Form EIA-871A of the 1999 Commercial Buildings Energy Consumption Survey.