

Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	Sum of major fuels consumption (trillion British thermal units [Btu])			Total floorspace of buildings (million square feet)			Energy intensity for sum of major fuels (thousand Btu/square foot)		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Building floorspace (square feet)									
1,001 to 5,000	40	115	30	716	1,506	455	56.3	76.0	65.8
5,001 to 10,000	47	85	54	1,168	1,431	688	40.3	59.1	78.5
10,001 to 25,000	118	130	48	1,667	2,760	883	70.6	47.2	54.6
25,001 to 50,000	82	158	29	1,234	2,393	651	66.3	66.0	45.3
50,001 to 100,000	84	216	73	1,285	3,245	875	65.8	66.6	83.6
100,001 to 200,000	70	196	64	1,016	2,643	1,022	68.6	74.2	62.5
200,001 to 500,000	65	208	41	611	2,389	550	107.0	87.2	75.3
Over 500,000	49	123	17	674	1,557	Q	73.4	79.3	Q
Principal building activity									
Education	83	150	50	1,402	2,345	822	59.5	64.1	61.0
Food sales	Q	Q	Q	Q	Q	Q	Q	Q	Q
Food service	Q	76	Q	Q	261	Q	Q	292.6	Q
Health care	33	97	28	238	580	238	140.6	166.8	118.6
Inpatient	Q	79	Q	Q	366	Q	Q	217.0	Q
Outpatient	Q	17	Q	Q	214	Q	Q	80.9	Q
Lodging	44	110	Q	589	1,300	323	74.1	84.8	55.9
Mercantile	68	184	54	869	2,159	706	78.0	85.4	76.9
Retail (other than mall)	39	62	32	582	998	493	67.1	62.4	64.7
Enclosed and strip malls	Q	122	Q	Q	1,161	Q	Q	105.1	Q
Office	90	215	48	1,393	3,253	545	64.6	66.2	88.3
Public assembly	41	119	Q	506	1,655	Q	80.8	71.7	Q
Public order and safety	Q	Q	Q	Q	Q	Q	Q	Q	Q
Religious worship	21	43	Q	482	1,322	628	43.8	32.2	24.6
Service	31	40	37	911	755	310	33.9	52.5	Q
Warehouse and storage	56	83	38	1,312	3,034	1,250	42.3	27.5	30.1
Other	Q	66	Q	Q	534	Q	Q	123.5	Q
Vacant	Q	7	Q	Q	371	Q	Q	19.3	Q
Year constructed									
Before 1920	Q	35	Q	Q	487	Q	Q	72.4	Q
1920 to 1945	22	48	Q	451	648	Q	49.1	74.6	Q
1946 to 1959	36	84	25	735	1,344	444	49.1	62.3	56.7
1960 to 1969	50	154	45	687	1,902	755	73.4	80.8	59.5
1970 to 1979	79	135	42	1,288	2,097	751	61.6	64.4	56.4
1980 to 1989	94	179	40	1,291	2,751	592	73.0	65.0	68.1
1990 to 1999	68	212	59	1,495	3,429	776	45.3	61.7	76.5
2000 to 2009	155	244	102	1,517	3,444	1,279	102.0	70.9	79.6
2010 to 2018	41	140	Q	720	1,821	528	57.2	76.8	56.7
Climate zone^a									
Cold or very cold	238	N	N	2,576	N	N	92.4	N	N
Cool	153	N	N	3,214	N	N	47.5	N	N
Mixed mild	165	392	Q	2,582	5,125	Q	64.1	76.5	61.3
Warm	N	626	298	N	9,043	4,484	N	69.2	66.4
Hot or very hot	N	213	Q	N	3,755	Q	N	56.7	Q

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	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Number of floors									
1	255	481	207	3,863	7,812	3,018	66.1	61.5	68.7
2	137	262	58	2,337	4,193	1,222	58.5	62.5	47.3
3	77	134	31	1,202	1,847	525	64.4	72.5	58.6
4 to 9	65	252	46	743	2,825	461	87.9	89.3	99.9
10 or more	21	102	15	226	1,247	178	93.4	82.0	84.2
Elevators and escalators (more than one may apply)									
Any elevators	203	585	111	2,714	7,290	1,360	74.6	80.3	82.0
1 elevator	74	180	40	1,131	2,804	602	65.2	64.1	67.2
2 to 5 elevators	85	223	41	1,135	2,490	488	75.1	89.5	84.5
6 or more elevators	44	183	30	448	1,996	270	97.3	91.6	110.4
Any escalators	Q	67	Q	Q	875	Q	Q	76.3	Q
Number of workers (main shift)									
Fewer than 5	70	136	54	2,035	3,561	1,537	34.5	38.3	35.4
5 to 9	88	116	40	865	2,000	758	101.9	58.2	52.6
10 to 19	74	110	36	1,373	1,908	470	54.3	57.7	76.6
20 to 49	133	208	74	1,760	2,761	1,098	75.7	75.5	67.3
50 to 99	62	219	64	856	2,677	614	72.5	81.9	104.8
100 to 249	66	214	45	844	2,534	514	77.9	84.3	87.6
250 or more	62	227	43	638	2,482	414	96.9	91.6	104.6
Weekly operating hours									
Fewer than 40	34	62	27	1,161	1,903	940	29.6	32.3	29.0
40 to 48	120	156	61	1,599	3,341	1,353	75.2	46.8	45.4
49 to 60	100	258	64	1,900	4,639	1,144	52.6	55.5	56.1
61 to 84	102	202	48	1,377	2,526	528	74.2	79.8	91.3
85 to 167	69	178	60	814	1,808	Q	84.3	98.4	Q
Open continuously	131	376	96	1,520	3,707	945	86.0	101.5	101.6
Ownership and occupancy									
Nongovernment owned	445	891	264	6,610	13,425	4,002	67.3	66.3	65.9
Owner occupied	298	567	178	4,415	8,568	2,675	67.6	66.2	66.6
Leased to tenant or tenants	145	320	85	2,063	4,667	1,264	70.2	68.7	67.6
Unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q
Government owned	111	340	93	1,762	4,498	1,402	63.0	75.7	66.4
Federal	Q	45	Q	Q	554	Q	Q	81.6	Q
State	21	154	44	345	1,605	594	60.7	95.9	74.0
Local	77	141	40	1,282	2,339	629	60.2	60.4	63.6
Party responsible for operation of energy systems									
Building owner	461	1,008	292	7,135	14,726	4,406	64.6	68.4	66.2
Business owner or tenant	65	151	55	777	2,254	816	83.2	67.2	67.7
Property management	Q	36	Q	Q	470	Q	Q	76.7	Q
Other	Q	36	Q	Q	474	Q	Q	75.7	Q

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	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Provider of direct input on energy-related equipment purchases									
Building owner	471	1,040	308	7,320	15,444	4,647	64.3	67.3	66.3
Business owner or tenant	45	100	37	570	1,336	556	79.4	74.7	65.9
Property management	Q	Q	Q	Q	Q	Q	Q	Q	Q
Other	32	73	Q	385	939	Q	84.0	78.2	Q
Number of establishments									
1	414	809	253	6,295	11,769	3,949	65.7	68.8	64.0
2 to 5	69	205	51	1,018	3,055	768	67.3	67.0	66.0
6 to 10	31	76	28	377	1,120	334	81.9	67.6	84.6
11 to 20	Q	73	Q	Q	971	Q	Q	75.6	Q
More than 20	Q	64	Q	Q	808	Q	Q	79.5	Q
Currently unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q
Predominant exterior wall material									
Brick, stone, or stucco	254	731	206	3,564	9,299	3,103	71.3	78.6	66.4
Concrete (block or poured)	104	229	51	1,268	3,302	685	81.7	69.2	74.7
Concrete panels	38	113	52	511	1,779	424	75.1	63.5	Q
Siding or shingles	80	43	12	909	686	224	88.3	62.9	52.4
Metal panels	63	74	27	1,892	2,108	822	33.5	34.9	33.1
Window glass	Q	28	Q	Q	431	Q	Q	63.9	Q
Other	Q	14	Q	Q	317	Q	Q	44.8	Q
Predominant roof material									
Metal surfacing	116	225	73	2,441	4,521	1,571	47.6	49.8	46.3
Synthetic or rubber	204	456	124	2,732	5,873	1,397	74.8	77.6	88.9
Built-up	128	305	68	1,468	3,684	922	87.1	82.8	74.1
Slate or tile shingles	Q	37	Q	Q	716	Q	Q	52.3	Q
Wooden materials (including shingles)	Q	Q	Q	Q	Q	Q	Q	Q	Q
Asphalt, fiberglass, or other shingles	63	129	58	1,239	2,071	985	50.7	62.4	58.7
Concrete	Q	44	Q	Q	575	Q	Q	77.0	Q
Other	Q	28	Q	Q	412	Q	Q	66.8	Q
Roof tilt									
Flat	327	797	215	3,988	9,729	2,456	82.0	81.9	87.4
Shallow pitch	131	290	83	3,132	5,465	1,775	41.7	53.1	46.7
Steeper pitch	98	144	59	1,252	2,729	1,173	78.5	52.9	50.5
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	201	497	137	2,844	6,403	1,791	70.6	77.6	76.7
White or reflective tiles or shingles	Q	51	Q	Q	606	Q	Q	84.8	Q
Aluminum coating	13	78	23	264	1,578	467	51.0	49.2	48.2
Ballasted roof system	42	81	Q	528	1,115	Q	79.5	72.4	Q
Other cool roof property	Q	34	Q	Q	489	Q	Q	68.9	Q

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All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Renovations since 2000 (more than one may apply)									
Any type of renovation	259	602	184	3,685	8,354	2,273	70.2	72.0	81.0
Addition or annex	96	134	69	1,274	1,719	560	75.5	77.9	123.5
Reduction in floorspace	Q	28	Q	Q	332	Q	Q	83.2	Q
Roof replacement	119	285	78	1,627	3,914	1,039	73.3	72.7	75.4
Interior wall reconfiguration	115	280	61	1,679	3,809	871	68.6	73.5	69.9
Window replacement	70	116	31	890	1,810	399	78.1	64.3	78.0
HVAC equipment upgrade	154	379	95	2,009	5,131	1,353	76.9	73.9	70.1
Lighting upgrade	170	395	91	2,406	5,183	1,161	70.8	76.2	78.0
Electrical upgrade	91	221	54	1,160	2,647	737	78.8	83.5	72.9
Plumbing system upgrade	95	219	50	1,234	2,724	663	77.3	80.6	75.5
Insulation upgrade	37	101	24	486	1,270	375	75.7	79.6	64.3
Fire, safety, or security upgrade	125	273	61	1,653	3,509	803	75.8	77.9	75.6
Structural upgrade	20	53	Q	235	556	Q	85.7	95.5	Q
Other	Q	29	Q	Q	312	Q	Q	92.9	Q
No renovations	269	541	151	4,195	8,519	2,706	64.1	63.5	55.7
Buildings constructed 2013 or later	28	88	Q	492	1,050	Q	57.4	83.9	51.4
Energy sources (more than one may apply)									
Electricity	556	1,231	357	8,114	17,732	5,272	68.5	69.4	67.7
Natural gas	446	859	305	5,919	10,285	4,122	75.4	83.5	74.1
Fuel oil	177	380	68	1,672	4,355	803	105.9	87.3	84.2
District heat	31	148	29	303	1,234	294	103.8	119.7	97.8
District chilled water	Q	101	Q	Q	1,027	Q	Q	98.6	89.6
Propane	75	115	15	1,088	2,260	376	68.9	50.8	38.8
Solar	Q	30	Q	Q	378	Q	Q	80.6	Q
Wood, coal, and other	Q	32	Q	Q	404	Q	Q	78.7	Q
Space-heating energy sources (more than one may apply)									
Electricity	271	734	183	3,520	10,606	2,825	76.9	69.2	64.8
Natural gas	403	639	269	5,430	7,888	3,664	74.2	81.0	73.5
Fuel oil	27	34	Q	315	544	Q	86.1	62.5	Q
District heat	31	147	29	300	1,231	294	103.1	119.7	97.8
Propane	17	38	Q	632	887	Q	27.4	43.2	Q
Other sources ^b	Q	Q	Q	Q	Q	Q	Q	Q	Q
Primary space-heating energy source									
Electricity	153	509	96	1,947	7,906	1,604	78.4	64.4	59.5
Natural gas	361	477	227	4,986	6,017	3,131	72.4	79.2	72.5
Fuel oil	N	14	Q	N	261	Q	N	54.7	Q
District heat	25	138	23	255	1,131	216	99.6	121.7	107.9
Propane	9	Q	Q	417	Q	Q	20.9	36.6	Q
Other sources ^b	Q	Q	N	Q	Q	N	Q	Q	N

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All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Cooling energy sources (more than one may apply)									
Electricity	500	1,160	343	7,096	16,474	4,985	70.4	70.4	68.7
Natural gas	Q	Q	Q	Q	Q	Q	Q	Q	Q
District chilled water	Q	101	Q	Q	1,027	Q	Q	98.6	89.6
Water-heating energy sources (more than one may apply)									
Electricity	270	681	192	3,940	10,835	2,833	68.5	62.9	67.9
Natural gas	319	631	192	3,926	6,826	2,546	81.2	92.4	75.5
Fuel oil	Q	Q	Q	Q	Q	Q	Q	Q	Q
District heat	Q	78	Q	Q	668	Q	Q	117.5	Q
Propane	Q	39	Q	Q	608	Q	Q	63.7	Q
Cooking energy sources (more than one may apply)									
Electricity	233	474	126	2,800	5,472	1,480	83.1	86.7	85.0
Natural gas	204	468	131	2,334	4,731	1,366	87.5	98.9	96.1
Propane	Q	58	Q	Q	963	Q	Q	59.8	Q
Energy end uses (more than one may apply)									
Buildings with space heating	549	1,159	351	7,646	15,953	5,076	71.8	72.6	69.2
Buildings with cooling	504	1,216	354	7,130	17,134	5,118	70.6	71.0	69.2
Buildings with water heating	541	1,198	337	7,353	16,554	4,740	73.6	72.4	71.2
Buildings with cooking	323	698	174	3,967	7,981	2,116	81.4	87.4	82.5
Buildings with manufacturing	87	53	18	813	1,006	307	106.7	52.2	59.2
Buildings with electricity generation	195	505	97	1,961	5,854	1,171	99.2	86.2	82.9
Buildings with lighting	555	1,231	350	8,083	17,643	5,078	68.7	69.8	68.9
Percentage of floorspace heated									
Not heated	7	72	Q	726	1,970	328	10.0	36.6	Q
1% to 50%	16	91	35	451	2,296	872	35.9	39.8	39.8
51% to 99%	72	315	101	1,034	4,328	1,378	69.5	72.8	73.0
100%	461	753	216	6,161	9,330	2,826	74.8	80.7	76.4
Percentage of floorspace cooled									
Not cooled	Q	15	3	1,242	790	285	Q	19.5	9.3
1% to 50%	79	117	42	1,731	3,360	1,249	45.6	34.9	34.0
51% to 99%	149	434	129	1,883	5,526	1,415	79.0	78.5	91.4
100%	276	665	182	3,516	8,247	2,455	78.5	80.6	74.3
Percentage lit when open									
0%	Q	Q	Q	Q	Q	Q	Q	Q	Q
1% to 50%	59	77	26	1,656	2,214	880	35.5	34.7	29.4
51% to 99%	289	575	139	3,318	7,431	1,879	87.1	77.4	73.8
100%	202	574	184	2,865	7,804	2,276	70.5	73.6	80.9
Building never open or electricity not used	Q	5	Q	Q	422	Q	Q	12.2	Q

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All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Percentage lit during off hours									
0%	47	107	51	1,383	2,538	1,084	34.1	42.1	46.7
1% to 50%	460	907	253	6,258	13,124	3,677	73.5	69.1	68.9
51% to 100%	45	150	41	432	1,501	389	103.7	100.1	106.0
Building always open with no off hours	Q	67	Q	Q	570	Q	Q	117.5	Q
Electricity not used	N	N	N	Q	Q	Q	N	N	N
Heating equipment (more than one may apply)									
Packaged heating units	300	650	235	4,041	8,609	3,289	74.2	75.5	71.4
Furnaces	127	139	57	2,393	1,651	974	52.9	84.3	58.9
Individual space heaters	114	226	97	1,794	3,560	1,250	63.5	63.5	77.9
Boilers	234	352	96	2,715	4,174	1,100	86.2	84.4	87.2
Heat pumps	85	286	56	1,069	4,265	853	79.7	67.0	66.0
District heat	31	147	29	300	1,231	294	103.1	119.7	97.8
Duct reheat	38	191	Q	484	2,401	Q	78.1	79.5	Q
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	349	766	262	4,501	10,417	3,683	77.6	73.5	71.3
Residential-type central air conditioners	144	231	70	2,283	3,118	936	62.9	74.0	74.4
Individual air conditioners	69	157	39	1,005	2,362	815	68.8	66.5	48.3
Central chillers	106	378	64	1,091	4,097	722	97.4	92.3	88.5
Heat pumps	65	191	38	885	3,046	616	73.8	62.6	62.0
District chilled water	Q	101	Q	Q	1,027	Q	Q	98.6	89.6
Swamp coolers	Q	Q	Q	Q	Q	Q	Q	Q	Q
Other	N	Q	Q	N	Q	Q	N	Q	Q
HVAC features (more than one may apply)									
Economizer cycle	244	473	110	2,885	5,325	1,092	84.5	88.8	100.3
Variable air volume (VAV) system	170	509	78	2,233	5,961	980	75.9	85.4	79.8
Dedicated outside air system (DOAS)	96	186	27	836	2,099	361	114.4	88.4	74.9
Demand controlled ventilation (DCV)	55	149	32	637	1,855	529	86.8	80.4	60.6
Regular HVAC maintenance	434	1,139	303	6,212	15,339	4,049	69.9	74.2	74.9
Building automation system (BAS) controls heating or cooling	287	680	139	2,893	7,931	1,671	99.1	85.8	83.0
Internet-connected or smart thermostat	25	78	22	395	1,235	511	64.2	62.9	43.4
Programmable thermostat	96	163	89	1,824	3,074	1,077	52.8	53.1	83.1
Main equipment replaced since 2000 (more than one may apply)									
Heating	190	352	106	3,197	5,708	1,713	59.5	61.6	61.6
Cooling	116	268	73	1,650	4,113	1,170	70.5	65.2	62.5

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All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Water-heating equipment									
Centralized system	376	799	232	5,182	11,263	3,253	72.5	70.9	71.3
Distributed system	84	179	45	1,088	2,359	591	77.2	76.0	76.9
Combination of centralized and distributed systems	82	220	60	1,083	2,933	896	75.4	74.9	67.0
Generation technologies (more than one may apply)									
Reciprocating engine generators	184	467	86	1,763	5,408	1,034	104.4	86.4	83.5
Solar panels	Q	29	Q	Q	367	Q	Q	80.0	Q
Other generation technology	Q	Q	Q	Q	Q	Q	Q	Q	Q
Lighting equipment types (more than one may apply)									
Incandescent	134	337	95	1,754	4,035	1,159	76.4	83.6	82.1
Standard fluorescent	415	1,013	294	5,957	14,165	3,988	69.6	71.5	73.8
Compact fluorescent	208	547	112	2,537	6,476	1,361	82.2	84.5	82.1
High-intensity discharge (HID)	73	194	71	890	2,597	817	81.7	74.8	86.5
Halogen	74	246	61	1,021	3,011	839	73.0	81.7	73.2
LED	396	867	209	5,115	11,288	2,870	77.3	76.8	72.7
Other	N	Q	N	N	Q	N	N	Q	N
Refrigeration equipment (more than one may apply)									
Any refrigeration	505	1,131	304	6,723	15,032	4,063	75.2	75.2	74.8
Walk-in units	255	606	143	2,549	5,989	1,317	99.9	101.2	108.3
Cases or cabinets	211	533	131	2,276	5,591	1,394	92.7	95.3	93.8
Large cold storage areas	Q	88	Q	Q	829	Q	Q	106.0	Q
Commercial ice makers	238	673	182	2,868	7,530	1,890	83.1	89.3	96.1
Residential-type or compact units	387	904	208	5,776	12,540	2,932	66.9	72.1	70.8
Vending machines	271	718	189	3,292	8,640	2,245	82.3	83.1	84.2
No refrigeration	50	100	53	1,649	2,892	1,340	30.6	34.7	39.5
Office equipment (more than one may apply)									
Desktop computers	504	1,128	327	6,590	15,619	4,480	76.5	72.2	72.9
With multiple monitors	303	771	203	3,995	10,237	2,477	75.7	75.3	82.1
Laptop computers	410	968	254	5,625	13,183	3,635	72.9	73.4	69.8
Dedicated servers	309	711	191	4,024	9,151	2,427	76.8	77.7	78.7
Tablets charged in building	299	745	207	3,901	9,400	2,350	76.5	79.3	88.2
Large floor-standing office devices ^c	291	792	197	4,079	10,729	2,489	71.4	73.8	79.1
Smaller desktop office devices ^c	437	1,002	280	5,821	14,089	3,816	75.1	71.1	73.3
Interactive whiteboards	101	245	67	1,303	3,362	964	77.3	72.8	69.4
Televisions or video displays	384	934	255	5,028	12,207	3,208	76.4	76.5	79.6
Point-of-sale devices or cash registers	226	572	151	2,686	6,059	1,618	84.1	94.4	93.5

Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	Sum of major fuels consumption (trillion British thermal units [Btu])			Total floorspace of buildings (million square feet)			Energy intensity for sum of major fuels (thousand Btu/square foot)		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	556	1,231	357	8,372	17,923	5,404	66.4	68.7	66.0
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	77	189	29	936	2,019	340	81.9	93.7	84.3
Fast food or small restaurant	49	159	39	539	1,810	375	90.5	87.9	103.0
Cafeteria or large restaurant	83	228	44	1,208	2,752	635	68.3	82.9	69.1
Commercial kitchen or food preparation area	132	319	63	1,598	3,515	715	82.6	90.8	88.7
Small kitchen area	135	239	49	1,933	3,462	854	70.0	69.2	56.9
Separate computer areas (more than one may apply)									
Server closet	260	670	184	3,555	9,145	2,417	73.2	73.3	76.1
Data center	65	171	41	733	1,910	422	88.6	89.8	96.8
Computer-based training room	118	232	65	1,421	3,003	736	83.2	77.4	88.7
Student or public computer center	76	165	47	1,043	2,192	618	72.5	75.2	75.4
Window and interior lighting features (more than one may apply)									
Multipaned windows	480	1,007	293	6,862	13,378	4,018	70.0	75.2	72.8
Tinted window glass	257	669	188	3,509	8,707	2,482	73.2	76.8	75.6
Reflective window glass	96	241	55	913	2,697	663	104.7	89.2	82.8
External overhangs or awnings	155	440	135	2,216	5,497	1,878	70.1	80.0	71.6
Skylights or atriums	110	255	45	1,445	3,563	643	76.4	71.5	70.4
Light scheduling	182	523	94	2,136	6,381	1,142	85.4	82.0	82.2
Occupancy sensors	228	655	126	3,056	8,295	1,674	74.6	79.0	75.4
Multilevel lighting or dimming	79	236	38	1,054	2,826	356	74.6	83.4	106.6
Daylight harvesting	23	125	19	270	1,523	239	85.8	81.9	78.4
Plug-load control	Q	28	Q	Q	421	Q	Q	66.0	Q
Demand responsive lighting	Q	26	Q	Q	381	Q	Q	67.2	Q
Building automation system (BAS) for lighting	104	286	54	1,107	3,428	623	94.2	83.5	86.4
Electric vehicle (EV) charging									
Charging stations associated with the building	34	161	22	343	2,399	381	100.4	67.2	58.0

Data source: U.S. Energy Information Administration, Forms EIA-871A, C, D, E, and F of the 2018 Commercial Buildings Energy Consumption Survey
Notes: Because of rounding, data may not sum to totals. The *Guide to the 2018 CBECS Tables* and *CBECS Terminology* contain definitions of terms used in these tables and comparisons between previous CBECS tables. You can access both references from <http://www.eia.gov/consumption/commercial/data/2018/>.

Data are sample survey estimates with relative standard errors published in a tab on the Excel worksheet for this table.

Estimates in the *energy end uses* category represent total consumption in buildings that have the end use but not the consumption specifically for that end use.

HVAC = Heating, ventilation, and air conditioning.

^aClimate zones are based on ASHRAE Standard 169-2021; see <https://www.eia.gov/consumption/commercial/maps.php#defined>.

^bOther sources includes wood, coal, solar, and all other energy sources.

^cOffice devices refers to any combination of printers, copiers, scanners, or FAX machines.

Q = Data withheld either because the relative standard error was greater than 50% or the reporting sample had fewer than 20 buildings.

N = No buildings in reporting sample.

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Building floorspace (square feet)									
1,001 to 5,000	26.3	14.1	22.7	23.5	16.8	12.6	7.6	9.9	20.6
5,001 to 10,000	20.9	12.5	33.6	35.9	14.5	23.2	30.6	14.6	13.8
10,001 to 25,000	37.0	15.3	42.1	14.9	12.8	40.8	29.8	10.1	7.5
25,001 to 50,000	27.0	12.8	35.4	30.1	11.9	23.5	9.9	9.0	15.4
50,001 to 100,000	19.7	17.2	26.8	26.2	12.0	20.6	13.4	7.9	28.3
100,001 to 200,000	17.8	12.0	32.9	13.1	11.6	30.6	9.9	7.3	7.2
200,001 to 500,000	25.8	17.8	17.1	17.8	9.9	16.1	12.3	10.7	16.8
Over 500,000	28.5	21.9	24.3	24.7	21.6	50.4	12.4	7.3	55.4
Principal building activity									
Education	24.5	17.6	25.1	24.2	14.0	24.1	8.4	7.3	8.1
Food sales	94.3	35.5	32.8	73.9	34.6	20.1	61.0	13.2	20.5
Food service	26.6	17.2	34.6	20.4	19.5	30.7	24.0	10.5	15.3
Health care	17.0	14.2	20.9	17.5	13.6	26.6	6.6	4.4	16.7
Inpatient	21.9	15.9	21.6	24.5	15.6	22.1	11.1	3.6	12.8
Outpatient	36.0	22.7	27.3	34.5	20.5	34.2	5.1	6.2	14.1
Lodging	19.0	22.0	54.9	21.4	19.3	41.7	9.8	6.4	20.3
Mercantile	17.9	17.0	20.2	17.2	16.1	21.9	18.7	6.1	16.3
Retail (other than mall)	23.8	14.4	40.8	30.4	16.7	37.1	23.7	12.9	12.2
Enclosed and strip malls	44.3	21.8	35.4	38.1	21.3	26.1	20.8	4.0	21.3
Office	14.2	16.0	20.4	14.3	15.2	19.3	4.1	3.4	8.0
Public assembly	21.3	20.3	53.2	20.7	13.0	52.7	26.1	11.3	20.6
Public order and safety	53.7	40.3	35.0	57.7	42.0	30.3	12.8	9.7	16.7
Religious worship	37.1	18.6	50.6	33.1	17.2	44.2	9.8	12.8	12.9
Service	33.9	25.8	47.5	18.4	23.6	45.7	24.0	11.8	58.4
Warehouse and storage	38.3	21.4	39.9	22.0	17.8	40.1	19.9	10.4	10.2
Other	47.7	40.9	60.1	71.5	35.9	51.3	121.4	22.0	54.6
Vacant	49.4	26.4	64.9	49.4	25.9	45.5	13.2	21.5	88.5
Year constructed									
Before 1920	52.7	26.7	41.4	50.4	19.8	48.1	51.5	21.6	56.7
1920 to 1945	38.9	32.6	40.4	35.7	25.2	25.8	15.9	14.1	38.4
1946 to 1959	33.2	28.5	38.7	35.5	20.9	32.5	14.7	17.9	12.6
1960 to 1969	16.6	20.2	19.2	23.1	10.2	18.9	22.9	16.2	4.1
1970 to 1979	18.0	12.3	23.3	15.6	14.9	6.7	9.8	14.2	19.4
1980 to 1989	21.6	12.3	18.8	16.4	13.5	21.5	9.2	12.9	18.2
1990 to 1999	24.0	9.1	29.5	36.3	9.7	37.8	27.0	3.5	21.3
2000 to 2009	26.9	14.3	37.3	19.7	11.6	41.2	20.8	4.2	21.2
2010 to 2018	25.4	11.0	55.3	34.0	15.2	47.9	16.5	11.9	33.3
Climate zone^a									
Cold or very cold	8.7	0.0	0.0	8.6	0.0	0.0	15.5	0.0	0.0
Cool	20.0	0.0	0.0	19.3	0.0	0.0	1.9	0.0	0.0
Mixed mild	17.5	11.9	56.1	13.5	8.9	54.2	8.7	5.3	6.8
Warm	0.0	16.6	27.4	0.0	12.6	31.5	0.0	6.5	9.6
Hot or very hot	0.0	16.8	71.4	0.0	18.6	70.7	0.0	7.6	2.8

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Number of floors									
1	14.9	12.4	23.0	12.0	12.1	21.6	12.6	4.0	8.1
2	18.7	8.2	27.4	15.6	8.7	32.4	5.3	9.7	8.6
3	18.5	24.6	19.8	19.9	22.6	26.4	13.8	8.3	25.0
4 to 9	16.7	21.2	25.9	29.7	18.2	23.4	22.4	6.9	13.0
10 or more	32.6	30.1	21.4	30.0	30.6	19.3	11.0	11.0	4.4
Elevators and escalators (more than one may apply)									
Any elevators	8.4	16.2	12.7	10.7	13.4	13.3	6.1	5.3	10.1
1 elevator	12.5	23.8	16.6	13.7	18.3	15.5	8.2	8.3	12.1
2 to 5 elevators	10.1	18.9	16.5	15.0	15.7	14.6	9.5	8.6	14.0
6 or more elevators	17.8	20.5	19.8	21.9	23.0	24.3	12.8	7.6	9.1
Any escalators	27.9	35.7	42.6	35.5	32.9	44.3	7.6	9.8	7.8
Number of workers (main shift)									
Fewer than 5	21.4	16.9	35.1	27.9	14.8	28.8	18.5	6.5	9.8
5 to 9	41.7	11.1	36.7	12.8	12.3	32.0	37.7	8.9	12.7
10 to 19	20.2	14.9	16.0	31.3	16.2	23.0	23.8	9.6	18.1
20 to 49	20.6	13.8	23.5	22.3	13.6	26.7	11.2	7.6	11.1
50 to 99	21.5	16.5	35.5	16.3	13.7	25.0	13.0	6.6	22.9
100 to 249	17.4	14.5	19.0	18.1	11.7	21.0	6.8	3.9	11.0
250 or more	15.3	15.1	18.3	18.1	16.5	22.3	10.0	7.2	19.1
Weekly operating hours									
Fewer than 40	22.6	21.8	33.9	11.8	18.0	32.8	16.0	9.7	16.4
40 to 48	35.9	10.0	22.3	20.2	11.8	24.3	31.4	5.3	8.0
49 to 60	13.7	9.4	19.8	8.9	7.4	19.0	9.5	6.4	10.0
61 to 84	16.3	17.2	25.0	12.8	11.0	22.5	8.2	10.0	8.6
85 to 167	18.1	12.3	32.1	22.6	10.1	51.2	14.0	10.9	60.6
Open continuously	12.4	16.0	20.2	13.6	15.4	18.2	12.8	8.3	8.7
Ownership and occupancy									
Nongovernment owned	7.2	4.9	22.0	6.6	6.2	25.9	8.4	3.2	10.0
Owner occupied	8.2	5.6	19.3	9.4	8.0	19.9	13.3	4.7	11.3
Leased to tenant or tenants	14.0	6.9	33.8	13.9	7.6	41.0	5.7	5.1	14.1
Unoccupied	54.1	47.2	112.0	53.3	37.5	60.1	31.4	28.7	106.3
Government owned	18.0	26.6	21.6	22.8	19.4	21.4	9.9	9.5	7.3
Federal	51.1	43.3	44.6	40.7	41.1	52.2	17.4	10.3	23.4
State	15.9	49.0	19.0	15.8	39.3	9.6	10.8	14.5	13.4
Local	24.9	14.1	32.5	28.6	14.1	38.4	11.3	6.5	9.4
Party responsible for operation of energy systems									
Building owner	8.1	10.1	17.7	9.7	7.3	19.6	8.2	4.9	9.2
Business owner or tenant	28.3	14.7	30.2	29.4	14.0	33.6	13.4	8.8	15.0
Property management	39.4	29.3	33.5	28.2	23.9	38.6	12.5	17.0	26.0
Other	33.9	17.0	46.3	39.2	16.6	58.1	15.7	9.1	18.1

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Provider of direct input on energy-related equipment purchases									
Building owner	7.9	10.0	17.1	9.0	6.9	20.5	7.8	5.4	8.9
Business owner or tenant	36.9	17.9	24.1	34.7	20.8	24.5	16.3	13.3	12.3
Property management	62.5	49.0	69.6	59.5	39.8	50.8	3.1	28.6	43.2
Other	25.1	17.0	23.0	27.3	17.5	31.7	10.6	6.9	48.9
Number of establishments									
1	10.4	12.7	17.6	11.2	9.6	19.6	8.5	6.3	9.4
2 to 5	10.6	12.4	37.1	10.5	10.5	39.5	4.0	6.2	12.6
6 to 10	30.2	15.0	27.1	30.5	13.2	24.7	21.8	10.2	9.1
11 to 20	56.2	18.9	51.5	62.7	16.8	31.1	15.5	7.7	30.3
More than 20	29.5	17.2	60.0	33.6	22.7	45.3	12.2	11.0	33.5
Currently unoccupied	52.0	39.4	64.9	52.2	34.6	45.5	31.3	24.7	88.5
Predominant exterior wall material									
Brick, stone, or stucco	10.9	14.5	16.5	11.7	10.2	18.7	4.9	6.8	3.5
Concrete (block or poured)	15.5	8.0	28.3	11.4	7.6	39.9	16.1	5.1	19.6
Concrete panels	27.1	16.5	38.5	26.4	14.7	45.3	4.7	12.8	51.8
Siding or shingles	44.4	22.1	22.7	35.5	19.6	25.9	45.4	13.8	20.5
Metal panels	21.9	18.7	26.2	15.5	11.8	20.4	13.5	15.2	6.5
Window glass	29.5	25.3	53.6	31.9	24.8	58.9	9.0	8.8	12.0
Other	39.6	23.5	53.3	39.5	27.7	37.1	17.0	19.5	47.2
Predominant roof material									
Metal surfacing	30.8	13.7	28.8	12.0	11.9	26.2	30.2	7.3	4.9
Synthetic or rubber	9.0	10.9	26.6	11.0	8.5	30.4	5.6	5.2	17.0
Built-up	22.2	11.4	12.8	18.1	7.9	9.4	12.4	8.1	14.7
Slate or tile shingles	33.5	33.9	30.9	34.7	30.8	23.9	10.2	19.4	24.8
Wooden materials (including shingles)	76.1	34.0	49.8	62.0	33.1	48.1	19.0	11.7	16.2
Asphalt, fiberglass, or other shingles	13.4	13.0	19.2	14.6	11.6	24.2	10.5	7.5	17.7
Concrete	60.1	21.0	76.3	50.9	16.9	76.7	21.2	15.3	21.9
Other	33.6	21.8	53.9	28.2	28.7	43.5	15.3	20.4	24.7
Roof tilt									
Flat	11.1	9.6	13.1	9.8	6.5	10.3	7.6	5.2	9.7
Shallow pitch	12.8	11.3	39.2	6.2	9.9	37.8	12.0	5.4	4.7
Steeper pitch	34.6	11.6	21.4	21.4	11.7	20.8	41.5	8.2	8.8
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	23.4	8.7	20.4	14.0	8.4	19.0	17.0	4.0	12.4
White or reflective tiles or shingles	69.3	32.5	33.7	60.5	25.6	31.4	14.7	16.2	7.0
Aluminum coating	23.0	19.6	29.4	32.2	15.8	27.9	25.2	13.8	18.8
Ballasted roof system	24.0	16.8	57.0	22.1	20.0	59.3	5.8	6.8	55.8
Other cool roof property	64.3	45.4	72.5	39.6	45.4	61.5	36.2	9.2	68.7

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Renovations since 2000 (more than one may apply)									
Any type of renovation	6.9	7.4	18.0	6.7	7.5	21.2	4.6	4.2	9.9
Addition or annex	9.4	15.3	25.7	10.6	14.9	28.7	7.0	11.1	29.5
Reduction in floorspace	44.8	30.5	40.7	48.8	34.8	43.8	42.8	16.3	31.5
Roof replacement	9.6	10.0	14.3	12.0	11.9	14.1	5.0	8.8	10.0
Interior wall reconfiguration	8.3	6.8	12.1	8.5	6.5	12.2	4.8	4.7	10.6
Window replacement	16.7	17.3	17.9	16.2	14.6	10.4	13.0	10.4	20.9
HVAC equipment upgrade	10.8	10.9	14.9	20.6	10.2	18.8	12.1	5.4	7.5
Lighting upgrade	10.3	10.4	13.7	13.4	9.3	18.3	7.1	3.6	6.4
Electrical upgrade	17.4	14.6	18.0	28.6	15.3	26.4	16.1	6.3	12.0
Plumbing system upgrade	10.2	12.7	11.2	15.7	12.7	15.3	8.4	6.7	9.7
Insulation upgrade	19.7	16.4	23.6	24.5	16.2	21.5	14.6	9.9	20.7
Fire, safety, or security upgrade	11.1	9.0	16.7	16.2	9.2	17.5	8.0	5.8	9.5
Structural upgrade	23.0	19.2	51.6	25.4	18.7	52.7	19.9	8.5	18.0
Other	57.4	26.8	38.4	75.1	28.1	35.4	87.1	13.4	5.3
No renovations	13.1	13.0	12.1	8.8	9.6	15.9	11.9	5.4	7.7
Buildings constructed 2013 or later	27.4	11.8	57.1	40.1	20.6	51.8	24.8	15.5	32.6
Energy sources (more than one may apply)									
Electricity	7.7	8.5	16.9	7.7	6.7	20.1	6.2	4.1	7.5
Natural gas	12.0	8.8	17.2	13.6	7.1	22.3	5.9	4.1	10.3
Fuel oil	24.1	9.2	16.3	17.9	10.2	24.2	13.4	4.3	14.1
District heat	17.5	44.4	48.4	17.2	44.2	49.6	7.7	5.1	15.2
District chilled water	36.0	47.7	57.8	41.2	40.5	51.2	16.2	13.5	13.3
Propane	46.7	18.1	31.5	23.0	18.5	26.6	46.9	8.0	14.5
Solar	31.5	25.8	77.3	36.6	32.9	58.9	14.1	15.9	32.8
Wood, coal, and other	62.9	33.5	76.5	65.2	21.0	43.2	33.1	38.4	74.2
Space-heating energy sources (more than one may apply)									
Electricity	18.5	7.9	13.7	13.1	9.0	12.4	10.9	4.0	4.8
Natural gas	12.5	6.9	17.2	13.6	6.4	22.5	5.9	3.6	10.9
Fuel oil	22.0	25.8	31.3	26.8	26.8	41.0	8.5	7.9	42.7
District heat	17.6	44.5	48.4	17.2	44.3	49.6	7.9	5.1	15.2
Propane	27.4	41.6	58.4	28.7	35.2	29.1	12.2	18.5	35.7
Other sources ^b	53.7	69.2	74.7	59.0	64.6	50.9	35.3	10.3	66.6
Primary space-heating energy source									
Electricity	35.4	10.3	33.4	32.6	10.6	23.8	18.8	5.2	11.9
Natural gas	12.3	8.5	15.5	13.0	9.2	23.0	4.4	4.6	13.3
Fuel oil	0.0	29.6	56.1	0.0	33.8	53.6	0.0	10.2	18.4
District heat	16.5	47.0	43.8	16.8	46.4	43.9	8.7	4.6	16.1
Propane	42.9	63.3	92.5	40.9	51.5	52.5	13.9	39.8	73.5
Other sources ^b	73.7	102.9	0.0	67.6	87.2	0.0	76.8	63.9	0.0

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Cooling energy sources (more than one may apply)									
Electricity	9.0	7.7	18.2	9.5	6.3	21.8	5.7	3.9	7.7
Natural gas	44.4	51.0	50.2	44.4	52.9	50.2	0.0	23.5	0.0
District chilled water	36.0	47.7	57.8	41.2	40.5	51.2	16.2	13.5	13.3
Water-heating energy sources (more than one may apply)									
Electricity	16.8	7.1	16.8	11.7	7.0	17.4	11.4	4.2	9.9
Natural gas	15.6	10.3	11.8	15.9	10.0	15.5	6.5	3.1	6.2
Fuel oil	71.2	36.2	50.1	58.1	42.6	50.1	23.4	18.1	0.0
District heat	31.3	43.8	43.9	25.3	45.3	39.9	8.7	7.3	19.2
Propane	98.9	32.1	60.1	41.3	32.3	52.8	90.3	13.8	23.4
Cooking energy sources (more than one may apply)									
Electricity	21.6	10.9	17.7	12.2	10.2	16.9	15.3	4.9	5.1
Natural gas	8.2	7.4	19.9	11.8	7.4	23.1	6.0	3.6	9.9
Propane	45.9	27.4	49.4	41.5	25.3	49.4	23.3	14.0	0.0
Energy end uses (more than one may apply)									
Buildings with space heating	7.9	8.8	17.5	9.7	7.4	20.6	7.6	4.4	7.2
Buildings with cooling	8.8	8.5	17.1	9.4	6.5	21.1	5.6	4.3	7.9
Buildings with water heating	8.2	8.6	15.9	9.4	7.0	17.5	7.5	4.1	6.4
Buildings with cooking	12.5	8.2	17.3	9.5	7.8	18.0	9.8	3.7	4.6
Buildings with manufacturing	46.0	24.5	24.1	26.9	17.9	26.4	45.7	16.0	20.8
Buildings with electricity generation	21.2	9.3	18.5	14.8	9.2	29.3	13.8	5.3	16.3
Buildings with lighting	7.6	8.5	15.7	7.8	6.7	18.4	6.3	4.0	7.0
Percentage of floorspace heated									
Not heated	27.5	20.9	57.7	26.1	13.3	25.8	41.6	15.2	63.4
1% to 50%	39.4	16.0	25.1	43.8	15.4	13.7	44.8	11.9	12.6
51% to 99%	15.2	16.8	15.6	16.2	12.0	30.4	7.7	7.2	23.9
100%	10.7	7.1	19.1	10.5	6.7	19.8	7.7	4.8	10.2
Percentage of floorspace cooled									
Not cooled	69.0	24.4	34.4	13.7	18.0	19.3	68.4	18.8	41.0
1% to 50%	22.9	11.9	19.3	17.9	12.4	21.2	13.2	8.0	6.4
51% to 99%	11.3	16.5	22.2	13.7	12.5	32.8	9.3	6.3	22.7
100%	12.4	7.4	19.0	13.1	7.2	19.4	6.9	4.7	3.0
Percentage lit when open									
0%	50.8	71.5	108.6	50.8	71.5	81.1	0.0	0.0	94.7
1% to 50%	22.5	11.7	43.1	14.4	13.3	30.8	14.7	8.2	17.6
51% to 99%	15.0	10.9	16.9	8.7	8.4	20.3	11.3	5.2	8.0
100%	14.3	9.3	17.9	17.4	8.1	23.9	9.0	5.6	15.8
Building never open or electricity not used	43.3	35.5	64.9	38.0	27.6	51.7	29.3	23.5	106.7

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Percentage lit during off hours									
0%	25.0	16.5	35.2	16.0	17.5	40.1	17.3	6.6	11.9
1% to 50%	8.7	8.5	15.3	8.3	6.3	15.8	7.5	3.8	8.1
51% to 100%	29.6	15.7	17.8	24.5	16.0	21.6	28.8	12.2	16.3
Building always open with no off hours	46.9	20.0	60.8	32.5	22.5	37.0	42.4	16.3	50.5
Electricity not used	0.0	0.0	0.0	56.8	35.9	49.3	0.0	0.0	0.0
Heating equipment (more than one may apply)									
Packaged heating units	11.3	7.5	23.6	12.6	6.9	29.3	4.9	3.6	11.1
Furnaces	19.2	19.7	12.6	13.5	18.1	14.3	8.9	7.5	12.4
Individual space heaters	11.6	11.5	25.4	11.6	9.9	21.5	13.4	4.0	18.5
Boilers	16.2	8.5	12.1	11.0	7.5	12.3	12.1	5.0	8.0
Heat pumps	24.9	12.2	15.6	31.3	10.2	15.2	23.3	8.7	12.5
District heat	17.6	44.5	48.4	17.2	44.3	49.6	7.9	5.1	15.2
Duct reheat	24.5	12.8	16.8	22.1	13.6	17.8	10.6	5.2	7.6
Other	106.1	39.2	50.7	86.4	37.8	50.7	80.8	3.6	0.0
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	11.9	7.6	21.6	9.2	6.2	27.2	6.2	4.5	11.2
Residential-type central air conditioners	13.9	19.5	14.2	12.4	16.2	15.5	8.1	7.9	15.6
Individual air conditioners	20.0	15.9	24.3	18.9	14.5	18.2	6.4	8.1	11.3
Central chillers	9.1	16.2	14.8	9.0	14.4	13.4	5.3	5.1	5.7
Heat pumps	29.7	14.5	19.5	35.3	13.2	16.1	21.2	11.0	15.7
District chilled water	36.0	47.7	57.8	41.2	40.5	51.2	16.2	13.5	13.3
Swamp coolers	49.3	53.2	64.6	52.8	50.6	50.7	21.1	9.9	42.5
Other	0.0	96.3	50.9	0.0	79.3	50.9	0.0	32.4	0.0
HVAC features (more than one may apply)									
Economizer cycle	11.4	9.7	21.4	9.5	10.0	20.0	4.8	3.3	17.5
Variable air volume (VAV) system	10.2	17.1	16.4	13.8	13.7	14.4	7.2	7.0	14.5
Dedicated outside air system (DOAS)	35.3	26.5	20.6	18.0	23.0	20.4	41.0	8.2	7.7
Demand controlled ventilation (DCV)	18.8	13.2	21.0	21.2	11.7	24.8	9.3	9.6	19.6
Regular HVAC maintenance	8.1	9.2	20.6	7.9	6.4	24.7	5.4	5.1	9.4
Building automation system (BAS) controls heating or cooling	17.5	7.6	10.7	8.8	7.0	12.1	11.1	3.8	6.5
Internet-connected or smart thermostat	34.3	25.9	36.7	26.4	19.2	41.2	22.6	15.3	36.9
Programmable thermostat	22.8	12.8	38.8	20.2	14.3	47.7	8.3	8.1	25.2
Main equipment replaced since 2000 (more than one may apply)									
Heating	10.6	11.4	19.1	10.1	11.2	23.9	6.2	6.5	6.9
Cooling	18.2	11.4	4.9	16.0	8.5	9.8	5.1	7.6	8.4

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Water-heating equipment									
Centralized system	11.1	12.8	14.2	11.5	9.9	13.9	8.5	5.7	8.6
Distributed system	16.8	11.7	17.4	13.2	13.1	13.4	12.6	4.3	10.0
Combination of centralized and distributed systems	15.1	11.2	43.6	11.7	10.3	43.7	8.3	7.4	8.5
Generation technologies (more than one may apply)									
Reciprocating engine generators	22.6	9.5	18.0	17.2	9.2	31.2	14.8	5.6	19.7
Solar panels	31.9	27.3	77.3	37.1	34.0	58.9	14.3	16.5	32.8
Other generation technology	2.8	34.8	55.7	2.8	37.8	47.2	0.0	15.0	18.1
Lighting equipment types (more than one may apply)									
Incandescent	14.8	11.7	13.2	21.4	11.1	14.7	13.7	6.0	12.3
Standard fluorescent	9.0	10.5	13.2	7.4	8.4	19.5	4.7	4.1	11.7
Compact fluorescent	11.8	11.8	14.6	9.7	11.8	13.9	6.7	4.3	10.6
High-intensity discharge (HID)	14.1	13.6	30.5	12.7	17.9	33.2	9.3	8.0	30.1
Halogen	19.2	10.3	13.6	22.1	9.5	17.8	21.6	7.8	25.7
LED	10.8	9.5	13.2	9.6	7.3	16.3	9.2	4.8	4.1
Other	0.0	70.9	0.0	0.0	70.9	0.0	0.0	0.0	0.0
Refrigeration equipment (more than one may apply)									
Any refrigeration	9.0	8.5	16.7	9.3	6.3	20.7	7.5	4.9	8.5
Walk-in units	17.5	7.0	20.5	14.2	6.9	22.4	12.8	3.4	8.0
Cases or cabinets	12.8	8.7	15.0	18.5	7.4	15.5	12.3	5.0	7.2
Large cold storage areas	69.6	20.2	46.7	35.9	19.9	28.7	52.8	10.2	29.9
Commercial ice makers	7.2	11.5	22.5	9.1	9.0	22.6	5.0	5.3	10.8
Residential-type or compact units	10.6	8.8	18.4	10.0	6.3	23.2	3.9	6.0	14.0
Vending machines	12.2	11.5	21.2	15.3	7.7	27.9	4.3	5.6	15.2
No refrigeration	19.6	12.7	29.0	13.3	13.4	29.4	16.6	8.5	5.0
Office equipment (more than one may apply)									
Desktop computers	9.1	8.7	16.9	9.2	6.0	19.6	7.4	5.3	7.7
With multiple monitors	7.8	11.7	14.7	7.5	8.6	17.8	4.2	5.3	14.5
Laptop computers	9.5	9.5	13.4	10.8	6.1	17.3	5.3	5.8	11.9
Dedicated servers	9.1	5.3	15.9	7.9	4.4	23.5	5.7	2.7	17.7
Tablets charged in building	8.9	11.9	15.7	10.8	8.0	14.9	8.2	5.4	8.5
Large floor-standing office devices ^c	7.3	9.9	16.4	7.2	6.0	20.6	3.0	6.0	14.4
Smaller desktop office devices ^c	8.5	8.8	17.2	10.8	6.6	22.2	9.0	4.4	9.3
Interactive whiteboards	17.4	13.8	16.0	15.6	12.2	13.0	6.5	5.0	10.1
Televisions or video displays	9.2	9.4	15.6	11.6	7.0	14.9	8.6	5.2	7.1
Point-of-sale devices or cash registers	8.9	8.0	17.0	11.0	6.4	13.4	8.8	3.9	6.0

Relative standard errors (RSEs) for Table C8. Consumption and gross energy intensity by census division (part 2) for sum of major fuels, 2018

	RSEs for sum of major fuels consumption			RSEs for total floorspace of buildings			RSEs for energy intensity for sum of major fuels		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	7.7	8.5	16.9	7.9	6.8	20.3	6.5	4.0	7.7
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	14.6	12.9	40.7	14.6	16.1	45.3	6.0	6.6	16.4
Fast food or small restaurant	18.6	13.3	14.1	19.5	13.5	14.0	12.1	9.2	5.8
Cafeteria or large restaurant	11.5	10.4	13.8	16.5	11.4	9.3	9.5	5.3	10.8
Commercial kitchen or food preparation area	13.2	9.2	19.1	13.8	8.3	17.4	4.7	5.6	7.6
Small kitchen area	11.9	13.0	18.5	11.9	12.6	24.7	4.8	5.0	17.0
Separate computer areas (more than one may apply)									
Server closet	6.1	6.0	16.5	4.9	5.6	19.4	3.5	3.6	14.5
Data center	14.9	13.6	24.1	17.1	12.9	29.4	6.9	7.6	13.8
Computer-based training room	11.6	12.1	21.0	10.1	9.9	16.4	3.3	5.0	13.4
Student or public computer center	19.1	10.8	33.7	15.8	9.6	26.3	7.1	5.5	13.0
Window and interior lighting features (more than one may apply)									
Multipaned windows	8.5	8.4	18.7	9.8	6.9	24.0	7.6	3.9	10.5
Tinted window glass	13.5	6.9	18.5	14.2	6.5	20.8	6.3	5.0	12.3
Reflective window glass	24.0	8.7	14.9	18.0	8.3	14.2	10.3	4.5	4.2
External overhangs or awnings	10.9	10.5	16.9	13.5	10.2	22.5	5.3	3.3	7.8
Skylights or atriums	15.1	8.3	16.6	19.6	9.0	24.2	8.8	6.1	13.2
Light scheduling	14.0	13.1	10.7	10.3	10.0	10.3	8.7	5.8	6.3
Occupancy sensors	9.5	11.7	12.5	10.5	9.1	16.3	5.8	4.8	13.9
Multilevel lighting or dimming	17.8	29.3	25.2	26.2	20.2	18.3	11.7	12.9	13.5
Daylight harvesting	35.0	14.6	24.3	25.5	14.1	23.2	15.6	9.6	19.3
Plug-load control	37.0	26.5	44.7	32.9	28.2	50.5	11.3	16.6	50.1
Demand responsive lighting	43.2	31.1	83.1	42.0	31.0	79.3	10.2	10.5	24.7
Building automation system (BAS) for lighting	15.8	7.9	21.2	13.5	8.5	15.5	6.8	7.3	12.4
Electric vehicle (EV) charging									
Charging stations associated with the building	21.6	18.9	27.4	24.5	15.3	30.8	10.2	7.9	8.0

Data source: U.S. Energy Information Administration, Forms EIA-871A, C, D, E, and F of the 2018 Commercial Buildings Energy Consumption Survey

Note: RSE is 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. *Estimation of Standard Errors* and *What is a Relative Standard Error (RSE)?* contain more information on how RSEs are estimated and used. Both references can be accessed from <https://www.eia.gov/consumption/commercial/survey-background-technical-information.php>.

^aClimate zones are based on ASHRAE Standard 169-2021; see <https://www.eia.gov/consumption/commercial/maps.php#defined>.

^bOther sources includes wood, coal, solar, and all other energy sources.

^cOffice devices refers to any combination of printers, copiers, scanners, or FAX machines.