

Table C11. Consumption and gross energy intensity by building size 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)		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Principal building activity									
Education	63	407	384	1,157	6,752	5,714	54.3	60.2	67.2
Food sales	98	116	Q	454	449	Q	216.4	257.6	Q
Food service	315	Q	Q	1,159	Q	Q	272.1	Q	Q
Health care	27	119	435	424	1,195	2,399	62.9	99.6	181.3
Inpatient	N	35	401	N	199	2,060	N	177.5	194.8
Outpatient	27	84	34	424	997	339	62.9	84.1	99.7
Lodging	31	320	247	377	3,706	2,893	83.5	86.3	85.2
Mercantile	86	483	385	1,338	5,669	3,774	64.0	85.2	101.9
Retail (other than mall)	52	134	147	1,056	2,635	1,502	49.2	50.7	97.9
Enclosed and strip malls	Q	349	238	Q	3,034	2,272	Q	115.0	104.5
Office	161	414	518	2,825	6,452	7,385	56.9	64.2	70.2
Public assembly	99	325	159	1,541	4,083	1,568	64.2	79.6	101.6
Public order and safety	Q	58	58	Q	704	615	Q	82.8	95.2
Religious worship	46	140	Q	1,288	4,006	Q	35.8	35.0	Q
Service	143	165	Q	3,072	2,920	Q	46.4	56.5	Q
Warehouse and storage	67	238	224	3,294	7,502	6,687	20.3	31.7	33.4
Other	12	114	203	292	1,015	1,128	40.6	111.9	179.8
Vacant	9	9	8	788	433	390	12.0	21.6	21.1
Year constructed									
Before 1920	71	99	62	1,062	1,795	743	67.1	55.2	84.0
1920 to 1945	75	154	172	1,157	2,335	2,154	65.0	65.9	79.7
1946 to 1959	96	206	143	1,556	3,617	1,764	61.5	57.0	80.9
1960 to 1969	152	314	298	2,207	4,753	3,400	69.1	66.0	87.7
1970 to 1979	146	403	356	2,624	5,910	4,528	55.6	68.2	78.7
1980 to 1989	175	409	378	2,576	6,035	4,854	68.0	67.8	78.0
1990 to 1999	140	439	379	2,725	7,775	5,035	51.2	56.5	75.2
2000 to 2009	186	651	555	2,500	8,652	6,347	74.2	75.2	87.5
2010 to 2018	132	280	316	1,822	4,226	4,271	72.6	66.3	73.9
Census region and division									
Northeast	155	490	581	2,280	6,706	6,965	67.9	73.1	83.4
New England	65	125	87	922	1,805	1,021	70.0	69.3	85.6
Middle Atlantic	90	365	494	1,357	4,901	5,943	66.6	74.5	83.1
Midwest	342	897	691	5,290	12,475	8,167	64.6	71.9	84.6
East North Central	254	613	506	3,406	8,289	5,866	74.7	74.0	86.3
West North Central	87	284	184	1,885	4,186	2,301	46.4	67.8	80.2
South	434	991	922	6,521	16,685	11,701	66.6	59.4	78.8
South Atlantic	199	504	528	2,937	8,397	6,589	67.8	60.0	80.1
East South Central	84	151	122	1,142	2,409	1,853	73.5	62.6	65.9
West South Central	151	336	272	2,441	5,879	3,260	62.1	57.2	83.5
West	242	576	465	4,138	9,231	6,263	58.4	62.4	74.3
Mountain	110	255	206	1,543	3,678	2,460	71.4	69.3	83.6
Pacific	132	322	260	2,596	5,553	3,803	50.7	57.9	68.3

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	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	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Climate zone^a									
Cold or very cold	94	287	159	1,581	3,640	1,824	59.7	79.0	87.1
Cool	356	908	708	5,562	12,992	8,214	63.9	69.9	86.2
Mixed mild	254	718	940	3,425	10,124	11,547	74.1	70.9	81.4
Warm	312	748	566	5,066	12,485	7,534	61.6	59.9	75.1
Hot or very hot	157	293	287	2,594	5,857	3,977	60.6	50.1	72.2
Number of floors									
1	888	1,417	548	13,521	21,586	8,469	65.7	65.7	64.7
2	222	809	406	3,815	13,053	6,432	58.2	62.0	63.2
3	55	406	288	802	6,255	3,459	68.5	64.9	83.3
4 to 9	Q	310	866	Q	4,050	8,890	Q	76.4	97.4
10 or more	N	Q	551	N	Q	5,847	N	Q	94.2
Elevators and escalators (more than one may apply)									
Any elevators	24	964	1,977	376	13,851	22,274	63.0	69.6	88.8
1 elevator	22	620	288	365	9,550	4,300	60.8	64.9	67.0
2 to 5 elevators	Q	344	769	Q	4,299	9,005	Q	80.0	85.4
6 or more elevators	N	Q	920	N	Q	8,969	N	Q	102.6
Any escalators	Q	Q	307	Q	Q	3,585	Q	Q	85.5
Number of workers (main shift)									
Fewer than 5	488	391	10	11,205	9,321	539	43.6	41.9	19.0
5 to 9	314	320	31	4,001	5,504	818	78.5	58.1	37.5
10 to 19	239	495	44	2,101	8,087	1,160	113.9	61.2	37.7
20 to 49	122	879	233	859	11,685	3,588	142.1	75.2	64.8
50 to 99	Q	585	419	Q	7,190	5,708	Q	81.4	73.3
100 to 249	N	247	786	N	2,903	9,540	N	85.1	82.3
250 or more	N	39	1,138	N	407	11,745	N	94.9	96.9
Weekly operating hours									
Fewer than 40	164	196	54	4,476	5,121	1,169	36.5	38.4	46.2
40 to 48	226	533	187	4,877	10,071	3,878	46.4	52.9	48.2
49 to 60	212	642	411	3,622	12,135	7,088	58.6	52.9	58.0
61 to 84	204	514	465	1,995	6,266	6,475	102.4	82.0	71.8
85 to 167	234	419	323	1,397	4,357	4,284	167.9	96.1	75.3
Open continuously	132	651	1,220	1,863	7,146	10,203	70.9	91.1	119.6
Ownership and occupancy									
Nongovernment owned	1,017	2,292	1,910	15,583	35,320	23,824	65.2	64.9	80.2
Owner occupied	659	1,349	1,182	10,471	22,111	12,773	62.9	61.0	92.5
Leased to tenant or tenants	353	939	727	4,558	12,924	10,900	77.5	72.6	66.7
Unoccupied	5	Q	Q	554	Q	Q	8.7	Q	Q
Government owned	156	663	750	2,646	9,777	9,272	59.0	67.8	80.9
Federal	Q	48	98	Q	681	1,103	Q	70.4	88.6
State	41	249	288	723	3,158	3,008	56.9	78.9	95.6
Local	102	366	365	1,761	5,939	5,161	57.9	61.6	70.6

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	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	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Party responsible for operation of energy systems									
Building owner	923	2,334	2,305	15,254	36,525	27,502	60.5	63.9	83.8
Business owner or tenant	214	468	234	2,435	6,543	3,864	87.8	71.6	60.5
Property management	Q	64	64	Q	869	878	Q	73.7	73.0
Other	20	89	56	293	1,161	852	67.8	76.4	65.8
Provider of direct input on energy-related equipment purchases									
Building owner	976	2,462	2,349	15,969	38,478	28,415	61.1	64.0	82.7
Business owner or tenant	134	281	171	1,451	3,624	2,510	92.5	77.7	68.3
Property management	Q	40	36	Q	500	463	Q	79.4	77.3
Other	53	171	103	700	2,496	1,708	75.6	68.5	60.4
Number of establishments									
1	1,007	1,963	1,499	15,062	31,633	18,696	66.8	62.0	80.2
2 to 5	151	548	506	2,358	8,003	6,070	64.0	68.5	83.4
6 to 10	Q	242	190	Q	2,878	2,548	Q	84.1	74.5
11 to 20	Q	168	170	Q	1,743	2,082	Q	96.4	81.5
More than 20	Q	27	292	Q	489	3,509	Q	55.3	83.2
Currently unoccupied	6	Q	2	627	Q	191	10.3	Q	12.2
Predominant exterior wall material									
Brick, stone, or stucco	625	1,597	1,372	7,373	23,634	15,127	84.7	67.6	90.7
Concrete (block or poured)	177	673	586	2,681	9,368	7,308	65.9	71.8	80.1
Concrete panels	Q	181	338	Q	2,676	5,430	Q	67.8	62.3
Siding or shingles	171	186	27	3,030	2,520	443	56.4	73.9	61.9
Metal panels	152	240	107	4,463	5,804	1,931	34.0	41.3	55.4
Window glass	Q	36	144	Q	401	1,755	Q	90.8	82.0
Other	29	41	86	421	695	1,102	68.4	59.1	77.9
Predominant roof material									
Metal surfacing	325	557	123	7,453	10,979	2,504	43.7	50.8	49.2
Synthetic or rubber	231	1,017	1,339	2,201	13,302	16,061	104.8	76.5	83.4
Built-up	160	634	749	1,903	8,443	8,961	84.1	75.1	83.6
Slate or tile shingles	98	134	40	1,164	2,232	600	84.2	60.2	67.4
Wooden materials (including shingles)	38	52	Q	523	947	Q	72.6	55.3	Q
Asphalt, fiberglass, or other shingles	272	434	209	4,305	7,171	2,581	63.1	60.6	81.1
Concrete	17	44	104	217	807	944	78.4	54.4	110.4
Other	32	81	91	461	1,217	1,347	69.3	66.5	67.7
Roof tilt									
Flat	446	1,715	2,236	5,297	23,175	25,781	84.1	74.0	86.7
Shallow pitch	411	825	320	7,473	14,387	5,750	55.0	57.3	55.6
Steeper pitch	316	415	103	5,460	7,536	1,565	57.9	55.1	66.0

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All buildings	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	282	1,035	1,173	3,417	14,741	14,641	82.5	70.2	80.1
White or reflective tiles or shingles	32	104	85	406	1,281	1,027	78.0	81.4	82.6
Aluminum coating	100	166	77	1,812	3,103	1,234	55.3	53.7	62.3
Ballasted roof system	Q	186	350	Q	2,111	3,947	Q	88.1	88.7
Other cool roof property	Q	Q	86	Q	Q	1,083	Q	Q	79.8
Renovations since 2000 (more than one may apply)									
Any type of renovation	448	1,298	1,728	5,908	19,455	19,802	75.8	66.7	87.3
Addition or annex	91	303	540	909	4,182	5,763	99.6	72.5	93.8
Reduction in floorspace	Q	26	114	Q	410	1,222	Q	62.8	93.0
Roof replacement	197	551	871	2,539	8,328	9,995	77.6	66.2	87.2
Interior wall reconfiguration	136	562	972	1,897	8,333	11,052	71.6	67.5	87.9
Window replacement	117	293	455	1,437	4,258	5,282	81.6	68.7	86.1
HVAC equipment upgrade	238	715	1,249	2,955	10,771	13,849	80.5	66.4	90.2
Lighting upgrade	247	782	1,307	2,968	11,336	14,794	83.1	69.0	88.3
Electrical upgrade	161	354	829	1,769	5,054	8,938	91.1	70.1	92.8
Plumbing system upgrade	147	366	779	1,806	5,265	8,466	81.2	69.4	92.1
Insulation upgrade	70	181	413	914	2,451	4,616	76.4	73.7	89.4
Fire, safety, or security upgrade	138	551	968	1,361	7,574	11,051	101.7	72.8	87.6
Structural upgrade	43	101	248	488	1,210	2,505	88.2	83.7	99.1
Other	Q	24	70	Q	366	702	Q	64.6	100.1
No renovations	633	1,463	716	11,037	22,647	10,147	57.4	64.6	70.5
Buildings constructed 2013 or later	92	194	216	1,284	2,995	3,146	71.4	64.7	68.5
Energy sources (more than one may apply)									
Electricity	1,173	2,955	2,659	17,115	44,668	33,062	68.5	66.1	80.4
Natural gas	781	2,356	2,305	8,492	31,978	27,252	92.0	73.7	84.6
Fuel oil	109	583	1,267	1,501	6,494	13,190	72.4	89.8	96.0
District heat	Q	190	581	Q	1,896	4,684	Q	100.3	123.9
District chilled water	Q	122	350	Q	1,310	2,900	Q	93.4	120.6
Propane	98	254	246	2,042	4,362	3,753	47.8	58.3	65.6
Solar	18	100	178	259	1,247	2,314	67.7	80.1	76.8
Wood, coal, and other	42	61	43	724	878	511	57.4	69.7	83.7
Space-heating energy sources (more than one may apply)									
Electricity	544	1,525	1,235	7,208	22,307	16,088	75.5	68.4	76.7
Natural gas	623	2,054	1,872	7,324	28,011	22,708	85.1	73.3	82.4
Fuel oil	61	85	175	868	1,628	1,638	70.5	52.2	106.8
District heat	Q	190	548	Q	1,873	4,527	Q	101.2	121.1
Propane	54	67	Q	1,401	1,794	701	38.4	37.5	87.5
Other sources ^b	16	Q	Q	529	Q	Q	29.5	Q	Q

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All buildings	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Primary space-heating energy source									
Electricity	394	878	472	5,357	14,318	7,943	73.5	61.3	59.4
Natural gas	579	1,724	1,594	6,924	23,871	19,264	83.6	72.2	82.7
Fuel oil	56	49	33	739	970	515	76.4	50.1	64.6
District heat	Q	181	512	Q	1,732	4,211	Q	104.2	121.7
Propane	33	35	Q	1,099	1,025	Q	30.2	34.1	Q
Other sources ^b	Q	Q	Q	Q	Q	Q	Q	Q	Q
Cooling energy sources (more than one may apply)									
Electricity	1,056	2,732	2,413	13,403	40,924	30,199	78.8	66.8	79.9
Natural gas	Q	Q	36	Q	Q	325	Q	Q	110.6
District chilled water	Q	122	350	Q	1,310	2,900	Q	93.4	120.6
Water-heating energy sources (more than one may apply)									
Electricity	577	1,465	1,143	8,312	22,606	16,207	69.5	64.8	70.5
Natural gas	531	1,742	1,711	5,336	22,226	19,089	99.5	78.4	89.6
Fuel oil	25	41	93	222	542	1,042	111.2	75.3	88.8
District heat	Q	92	395	Q	927	3,220	Q	99.7	122.7
Propane	22	100	18	373	1,294	280	59.8	77.3	64.9
Cooking energy sources (more than one may apply)									
Electricity	363	1,038	1,365	3,584	12,725	14,199	101.3	81.6	96.1
Natural gas	349	922	1,570	1,722	10,147	15,837	202.4	90.9	99.1
Propane	35	104	89	441	1,546	1,115	78.4	67.5	79.6
Energy end uses (more than one may apply)									
Buildings with space heating	1,082	2,868	2,618	14,513	42,039	32,108	74.5	68.2	81.5
Buildings with cooling	1,061	2,825	2,629	13,485	41,931	32,091	78.7	67.4	81.9
Buildings with water heating	1,080	2,869	2,641	13,708	41,702	32,307	78.8	68.8	81.8
Buildings with cooking	580	1,446	1,926	4,980	18,097	20,503	116.5	79.9	94.0
Buildings with manufacturing	57	250	177	780	3,592	2,499	72.8	69.5	70.8
Buildings with electricity generation	140	934	1,644	1,769	10,120	17,568	79.3	92.3	93.6
Buildings with lighting	1,167	2,947	2,659	16,596	44,526	32,982	70.3	66.2	80.6
Percentage of floorspace heated									
Not heated	91	87	42	3,716	3,058	988	24.6	28.4	42.4
1% to 50%	86	186	169	2,070	4,929	3,622	41.8	37.7	46.8
51% to 99%	236	623	738	2,755	9,108	8,311	85.6	68.4	88.8
100%	759	2,059	1,710	9,688	28,003	20,175	78.4	73.5	84.8

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All buildings	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
HVAC features (more than one may apply)									
Economizer cycle	167	1,080	1,770	1,423	13,283	19,381	117.1	81.3	91.3
Variable air volume (VAV) system	160	768	1,593	1,741	10,136	17,391	91.6	75.8	91.6
Dedicated outside air system (DOAS)	67	284	531	584	3,302	5,142	114.3	86.2	103.2
Demand controlled ventilation (DCV)	73	315	463	952	4,307	5,215	76.3	73.1	88.8
Regular HVAC maintenance	864	2,574	2,587	10,314	36,330	31,371	83.8	70.8	82.5
Building automation system (BAS) controls heating or cooling	191	1,253	2,133	1,917	15,346	23,199	99.7	81.7	91.9
Internet-connected or smart thermostat	75	189	116	998	3,144	1,823	74.8	60.1	63.5
Programmable thermostat	393	723	181	5,019	12,011	3,851	78.3	60.2	47.0
Main equipment replaced since 2000 (more than one may apply)									
Heating	424	999	768	5,978	15,871	10,602	70.9	62.9	72.4
Cooling	237	651	746	3,664	10,443	8,906	64.7	62.4	83.7
Water-heating equipment									
Centralized system	828	2,076	1,514	10,883	30,235	18,162	76.1	68.7	83.3
Distributed system	198	471	368	2,261	6,886	5,160	87.6	68.5	71.3
Combination of centralized and distributed systems	53	321	760	564	4,581	8,984	94.1	70.1	84.6
Generation technologies (more than one may apply)									
Reciprocating engine generators	120	792	1,458	1,478	8,392	15,293	81.3	94.4	95.3
Solar panels	Q	96	174	Q	1,236	2,277	Q	77.7	76.5
Other generation technology	Q	59	142	Q	666	1,331	Q	89.0	106.5
Lighting equipment types (more than one may apply)									
Incandescent	260	713	865	3,404	9,219	8,458	76.4	77.3	102.3
Standard fluorescent	814	2,297	2,212	11,919	34,473	26,520	68.3	66.6	83.4
Compact fluorescent	245	1,067	1,603	2,948	13,843	16,899	83.2	77.1	94.9
High-intensity discharge (HID)	26	281	683	548	3,978	6,830	48.1	70.5	100.0
Halogen	127	496	742	1,548	6,403	7,062	81.8	77.4	105.0
LED	611	2,024	2,275	6,978	28,200	26,670	87.6	71.8	85.3
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q
Refrigeration equipment (more than one may apply)									
Any refrigeration	944	2,544	2,531	11,186	36,030	30,373	84.4	70.6	83.3
Walk-in units	404	1,016	1,766	1,737	9,779	17,868	232.8	103.9	98.8
Cases or cabinets	376	961	1,562	2,129	10,248	16,140	176.5	93.8	96.8
Large cold storage areas	Q	156	258	Q	1,123	2,364	Q	139.3	109.1
Commercial ice makers	364	1,179	1,811	1,995	13,186	19,492	182.6	89.4	92.9
Residential-type or compact units	651	2,094	2,044	9,520	30,812	24,403	68.4	68.0	83.8
Vending machines	130	1,346	2,074	1,251	16,483	24,337	103.8	81.7	85.2
No refrigeration	229	411	128	7,043	9,068	2,723	32.5	45.3	47.1

Table C11. Consumption and gross energy intensity by building size 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)		
	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	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Office equipment (more than one may apply)									
Desktop computers	890	2,714	2,579	11,231	39,267	31,514	79.2	69.1	81.8
With multiple monitors	255	1,577	2,185	3,661	21,880	25,303	69.6	72.1	86.4
Laptop computers	544	2,213	2,458	7,842	32,105	29,428	69.3	68.9	83.5
Dedicated servers	278	1,687	2,154	3,239	22,847	25,509	85.8	73.8	84.4
Tablets charged in building	364	1,580	2,051	3,995	21,341	23,442	91.1	74.0	87.5
Large floor-standing office devices ^c	236	1,737	2,193	3,288	24,281	26,519	71.7	71.5	82.7
Smaller desktop office devices ^c	775	2,431	2,391	10,093	35,305	29,069	76.8	68.8	82.3
Interactive whiteboards	26	430	834	413	6,337	10,188	61.9	67.9	81.8
Televisions or video displays	577	2,101	2,380	6,645	28,934	28,040	86.8	72.6	84.9
Point-of-sale devices or cash registers	547	1,138	1,553	3,918	13,300	16,388	139.7	85.6	94.8
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	26	239	738	212	2,593	7,556	123.0	92.1	97.7
Fast food or small restaurant	47	260	716	314	2,478	6,966	150.7	104.8	102.8
Cafeteria or large restaurant	Q	247	1,014	Q	3,894	10,534	Q	63.3	96.3
Commercial kitchen or food preparation area	25	574	1,142	316	6,246	11,137	78.4	91.9	102.6
Small kitchen area	188	594	725	3,200	9,076	8,242	58.7	65.4	88.0
Separate computer areas (more than one may apply)									
Server closet	226	1,568	1,982	2,907	21,334	24,481	77.7	73.5	80.9
Data center	Q	178	873	Q	2,076	9,127	Q	85.9	95.6
Computer-based training room	18	387	996	284	5,357	10,915	62.5	72.2	91.2
Student or public computer center	27	363	617	415	4,941	7,171	65.5	73.4	86.1
Window and interior lighting features (more than one may apply)									
Multipaned windows	815	2,406	2,319	10,104	34,762	27,828	80.7	69.2	83.3
Tinted window glass	362	1,470	1,686	4,460	20,015	19,888	81.3	73.5	84.8
Reflective window glass	97	570	886	1,163	7,442	9,324	83.1	76.6	95.0
External overhangs or awnings	385	1,035	947	4,347	14,210	10,162	88.6	72.8	93.2
Skylights or atriums	69	442	975	1,265	6,982	11,569	54.6	63.2	84.3
Light scheduling	229	1,066	1,618	2,143	13,262	18,147	106.7	80.4	89.2
Occupancy sensors	162	1,324	2,040	2,128	17,672	24,505	76.0	74.9	83.2
Multilevel lighting or dimming	100	385	856	843	4,802	8,779	118.7	80.2	97.5
Daylight harvesting	22	166	456	252	1,910	5,082	88.3	86.7	89.6
Plug-load control	Q	42	121	Q	628	1,182	Q	67.3	102.3
Demand responsive lighting	Q	49	85	Q	700	965	Q	69.4	87.8
Building automation system (BAS) for lighting	62	483	916	595	5,460	10,590	104.8	88.5	86.5

Table C11. Consumption and gross energy intensity by building size 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)		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	1,173	2,955	2,659	18,229	45,098	33,096	64.3	65.5	80.4
Electric vehicle (EV) charging									
Charging stations associated with the building	Q	196	532	Q	2,677	7,326	Q	73.2	72.6

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.

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

^b*Other sources* includes wood, coal, solar, and all other energy sources.

^c*Office 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 C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Principal building activity									
Education	18.7	7.0	8.2	15.3	7.1	7.2	9.0	3.8	2.7
Food sales	16.8	38.4	38.0	16.1	30.4	36.8	7.7	20.0	13.7
Food service	9.5	31.0	77.3	9.3	27.4	76.6	5.5	11.9	15.8
Health care	13.5	14.0	7.1	12.9	12.9	6.7	6.5	7.7	2.8
Inpatient	0.0	36.2	7.6	0.0	32.8	7.5	0.0	15.0	2.8
Outpatient	13.5	13.7	15.7	12.9	13.8	14.6	6.5	6.6	6.6
Lodging	18.1	11.5	19.8	19.5	10.4	16.0	11.6	5.0	7.0
Mercantile	15.9	8.8	11.0	14.2	8.8	9.2	11.8	4.3	3.8
Retail (other than mall)	18.1	14.5	11.0	16.8	12.9	10.4	13.6	7.5	2.9
Enclosed and strip malls	26.9	10.1	15.6	23.7	9.6	13.0	8.7	3.5	5.8
Office	8.2	9.1	8.2	7.8	8.9	8.6	4.4	3.7	2.5
Public assembly	15.5	9.3	12.0	11.9	8.5	12.0	8.5	6.0	6.5
Public order and safety	30.8	28.6	28.5	30.4	24.5	22.4	11.6	9.2	9.4
Religious worship	16.7	11.5	27.6	17.2	10.8	29.1	8.7	6.8	16.4
Service	9.6	15.8	44.2	9.7	13.2	45.7	7.2	13.0	49.8
Warehouse and storage	16.0	10.9	12.1	11.3	10.3	10.5	11.1	7.3	6.2
Other	28.5	25.4	20.9	22.4	23.3	22.2	21.9	21.1	13.2
Vacant	29.1	29.9	26.1	21.6	26.2	25.5	20.8	19.2	18.3
Year constructed									
Before 1920	15.1	15.9	29.1	15.9	14.6	23.5	10.3	10.9	19.6
1920 to 1945	17.8	11.5	14.6	13.1	11.9	15.2	12.1	7.8	7.6
1946 to 1959	13.9	11.9	14.7	11.3	11.2	14.5	9.9	8.1	6.0
1960 to 1969	9.5	9.4	12.8	10.1	9.0	8.7	8.8	6.1	7.5
1970 to 1979	12.7	10.4	9.5	10.2	8.7	9.2	9.6	7.6	6.4
1980 to 1989	11.4	8.6	13.8	8.9	7.6	10.2	9.5	6.8	6.3
1990 to 1999	11.7	7.5	6.6	11.0	9.2	6.6	9.5	5.8	3.8
2000 to 2009	11.4	10.5	7.5	11.0	8.2	8.0	8.1	6.8	5.3
2010 to 2018	14.3	8.9	12.6	13.8	9.5	12.3	12.9	5.6	8.5
Census region and division									
Northeast	13.4	8.0	7.4	12.4	8.0	8.8	8.0	5.6	4.5
New England	19.5	13.1	20.7	18.6	15.5	16.2	10.9	6.1	9.0
Middle Atlantic	18.6	9.7	7.9	16.9	9.3	10.0	11.4	7.2	5.0
Midwest	9.8	9.0	7.9	13.6	9.2	7.9	9.8	4.2	4.1
East North Central	11.9	12.3	10.0	14.6	13.4	10.7	10.7	4.1	5.2
West North Central	18.7	11.8	11.8	29.1	9.3	8.3	16.8	10.2	5.8
South	9.0	8.6	6.9	8.6	7.9	5.9	5.8	4.9	3.7
South Atlantic	11.4	10.9	10.2	13.3	8.8	7.9	7.1	5.2	4.4
East South Central	24.6	27.6	14.7	17.9	27.4	17.6	11.3	12.7	13.0
West South Central	17.2	15.9	10.5	15.8	15.2	8.7	11.7	11.4	4.4
West	10.0	6.5	14.3	9.1	7.3	11.9	7.4	6.4	7.7
Mountain	18.3	10.8	28.8	19.8	11.3	23.7	10.8	5.7	10.5
Pacific	10.5	7.7	11.9	8.9	9.4	12.3	9.6	10.2	9.9

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Climate zone^a									
Cold or very cold	24.0	17.2	20.1	20.5	17.0	22.3	10.3	10.8	7.3
Cool	12.1	9.1	10.1	14.7	8.6	10.0	10.0	3.2	3.9
Mixed mild	15.4	14.1	10.8	18.2	13.3	9.9	7.6	5.0	4.1
Warm	14.3	12.1	11.0	12.5	11.0	10.1	6.5	5.3	5.5
Hot or very hot	19.2	13.3	12.9	19.9	17.0	11.4	10.6	9.1	6.2
Number of floors									
1	5.6	5.6	8.7	5.0	5.5	8.2	4.6	3.9	5.3
2	10.1	5.9	8.6	8.4	5.5	7.4	7.8	3.7	5.0
3	18.2	9.4	10.9	18.5	9.5	9.5	11.4	4.2	5.8
4 to 9	30.5	11.0	7.2	29.3	9.4	7.0	24.3	4.9	4.1
10 or more	0.0	21.5	11.7	0.0	22.6	11.3	0.0	6.9	4.9
Elevators and escalators (more than one may apply)									
Any elevators	27.0	7.2	5.4	27.6	6.3	5.0	15.4	2.8	2.5
1 elevator	28.3	8.6	9.8	28.3	7.4	8.7	15.9	3.9	4.2
2 to 5 elevators	73.0	8.6	7.0	73.0	8.5	5.9	0.0	4.0	3.8
6 or more elevators	0.0	98.6	8.2	0.0	98.6	8.4	0.0	0.0	4.0
Any escalators	73.9	37.1	17.0	80.2	32.3	14.3	45.6	15.7	6.6
Number of workers (main shift)									
Fewer than 5	6.2	9.4	22.2	6.6	7.9	24.0	4.5	7.0	20.3
5 to 9	8.8	14.1	26.8	7.7	9.8	20.3	4.8	11.8	16.4
10 to 19	9.1	8.9	17.3	8.0	9.6	19.0	8.1	5.7	14.4
20 to 49	16.4	5.9	11.4	15.6	5.5	8.9	11.9	3.6	9.3
50 to 99	83.0	8.1	9.4	34.6	6.4	8.1	80.0	5.0	4.6
100 to 249	0.0	12.8	6.1	0.0	11.2	5.9	0.0	4.5	3.7
250 or more	0.0	30.2	6.7	0.0	27.4	6.6	0.0	14.5	3.5
Weekly operating hours									
Fewer than 40	9.3	11.4	20.4	8.0	9.8	14.8	6.9	8.2	13.5
40 to 48	8.9	10.2	10.7	8.5	7.0	9.1	5.3	7.3	6.8
49 to 60	10.6	7.2	7.7	8.4	6.2	6.6	6.5	3.9	4.4
61 to 84	10.1	8.6	8.1	11.6	6.8	7.0	10.0	5.0	4.8
85 to 167	11.2	9.1	10.0	13.8	8.8	9.2	13.3	6.4	6.3
Open continuously	11.2	8.9	6.7	12.6	7.8	7.2	13.3	5.0	3.5
Ownership and occupancy									
Nongovernment owned	4.8	4.2	5.4	4.7	4.2	5.1	4.2	2.9	3.1
Owner occupied	5.6	5.3	6.4	5.9	4.5	5.8	4.6	4.4	3.4
Leased to tenant or tenants	7.8	6.7	7.6	7.6	6.7	6.5	7.0	3.5	4.9
Unoccupied	29.7	49.8	59.4	24.2	37.7	29.4	29.9	35.0	54.2
Government owned	13.1	8.9	7.6	12.4	7.7	6.4	8.7	4.1	3.0
Federal	37.4	29.3	22.7	35.7	23.0	23.3	20.8	16.2	7.6
State	27.4	17.1	17.7	17.7	15.2	14.4	20.3	7.4	5.3
Local	14.9	6.4	7.5	14.0	7.3	7.6	9.0	3.9	3.2

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Party responsible for operation of energy systems									
Building owner	5.1	4.5	4.8	5.4	4.2	4.3	4.1	3.1	2.2
Business owner or tenant	10.6	9.3	13.8	9.6	9.7	11.7	8.7	5.2	10.0
Property management	32.7	20.9	20.0	29.3	19.6	15.9	28.7	11.7	10.6
Other	29.8	16.0	16.3	31.3	14.4	18.3	32.9	8.9	8.6
Provider of direct input on energy-related equipment purchases									
Building owner	5.1	4.4	4.7	5.3	4.0	4.2	4.2	3.1	2.2
Business owner or tenant	12.1	10.7	15.2	12.5	11.6	13.2	12.1	8.6	9.2
Property management	49.6	27.6	30.9	38.9	23.7	24.2	49.4	15.3	13.7
Other	16.2	13.0	12.5	13.7	13.4	12.4	13.4	8.4	8.2
Number of establishments									
1	5.0	5.1	5.3	5.6	4.3	5.1	4.4	3.5	3.4
2 to 5	10.2	7.4	11.3	8.4	6.8	9.8	6.5	4.1	4.4
6 to 10	40.1	11.1	10.1	34.9	10.4	10.8	24.6	5.6	6.8
11 to 20	82.6	14.0	14.8	56.6	14.5	11.1	69.6	5.4	7.6
More than 20	71.7	30.6	10.7	71.7	29.3	9.2	0.0	10.3	6.0
Currently unoccupied	29.9	39.1	35.0	22.5	31.0	24.6	28.1	25.4	31.6
Predominant exterior wall material									
Brick, stone, or stucco	6.7	5.5	6.4	6.4	4.6	5.6	5.2	3.3	2.9
Concrete (block or poured)	11.9	7.0	7.0	9.9	6.2	7.8	9.7	5.0	5.2
Concrete panels	34.4	14.7	9.8	28.6	12.8	10.2	21.1	11.7	7.0
Siding or shingles	9.7	23.6	27.0	10.3	15.9	22.2	8.2	20.6	21.0
Metal panels	10.2	11.2	16.3	9.7	8.6	13.7	6.4	9.0	8.2
Window glass	77.4	27.5	12.0	73.5	25.8	11.8	106.3	12.0	4.7
Other	26.1	23.6	20.6	18.4	25.1	19.4	25.3	12.5	9.0
Predominant roof material									
Metal surfacing	7.6	10.2	12.4	7.1	7.3	10.7	5.5	7.7	7.9
Synthetic or rubber	11.2	6.0	4.9	9.3	5.0	4.9	9.0	3.5	2.7
Built-up	13.0	8.1	8.6	12.1	7.1	7.4	11.7	3.9	4.5
Slate or tile shingles	14.8	14.4	21.4	14.6	12.3	20.4	8.4	10.4	13.6
Wooden materials (including shingles)	18.7	25.9	45.9	23.1	25.8	50.1	22.0	12.9	43.4
Asphalt, fiberglass, or other shingles	8.2	9.4	14.1	9.5	7.8	12.9	6.9	6.1	9.4
Concrete	31.0	23.5	19.5	31.9	22.1	13.7	18.5	8.1	12.8
Other	24.9	24.1	11.4	19.2	15.1	12.0	20.0	21.9	8.2
Roof tilt									
Flat	7.5	4.9	4.8	7.7	4.2	4.3	6.7	3.5	2.4
Shallow pitch	6.7	6.6	10.1	6.4	6.4	9.2	5.9	4.7	7.4
Steeper pitch	9.0	10.9	14.2	9.5	6.7	12.8	6.0	9.5	6.5

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	9.6	6.7	6.9	8.6	5.3	6.1	7.8	5.5	3.2
White or reflective tiles or shingles	29.5	18.3	19.6	22.1	14.6	15.8	20.9	10.0	12.9
Aluminum coating	13.6	15.2	16.9	12.6	13.5	12.7	12.2	10.6	11.8
Ballasted roof system	33.5	15.0	14.0	30.7	13.7	11.3	21.4	7.1	6.8
Other cool roof property	51.0	37.2	23.7	40.1	36.8	25.3	30.1	13.7	9.5
Renovations since 2000 (more than one may apply)									
Any type of renovation	6.7	4.9	4.8	6.6	5.2	4.4	5.7	3.1	2.5
Addition or annex	18.5	10.2	5.9	16.0	10.1	7.1	14.2	7.6	4.2
Reduction in floorspace	35.9	31.0	18.9	35.7	24.6	17.1	23.3	18.4	9.2
Roof replacement	9.5	6.8	6.9	10.0	7.4	5.8	10.4	4.7	3.3
Interior wall reconfiguration	12.5	7.2	6.9	9.3	7.4	5.9	7.4	4.5	3.1
Window replacement	12.4	8.7	10.8	12.5	8.1	10.1	10.9	5.5	5.4
HVAC equipment upgrade	10.5	5.7	5.6	9.5	5.7	5.3	9.1	4.0	2.8
Lighting upgrade	9.1	6.0	5.6	9.2	5.4	5.3	8.6	3.7	2.9
Electrical upgrade	11.3	9.5	7.3	10.9	8.4	7.2	11.7	6.1	3.8
Plumbing system upgrade	12.1	8.5	7.3	11.0	7.6	7.4	8.9	4.7	3.7
Insulation upgrade	18.2	11.7	11.7	15.3	10.5	11.2	14.2	7.6	6.1
Fire, safety, or security upgrade	12.2	7.4	6.6	11.4	6.5	6.1	10.7	4.4	3.5
Structural upgrade	24.1	17.9	17.1	25.9	11.8	15.5	13.2	12.2	8.1
Other	48.8	28.9	16.2	42.8	34.4	15.7	57.2	16.8	3.9
No renovations	5.3	5.9	7.9	5.0	4.9	6.8	4.2	3.8	4.9
Buildings constructed 2013 or later	16.0	10.3	14.7	16.7	10.4	13.8	15.0	6.9	10.0
Energy sources (more than one may apply)									
Electricity	4.6	3.9	4.4	4.6	3.8	4.1	3.9	2.5	2.4
Natural gas	5.9	4.2	4.6	6.3	4.1	4.4	5.2	2.3	2.3
Fuel oil	16.5	9.6	6.8	16.9	7.3	6.7	14.4	6.9	3.6
District heat	38.6	19.7	11.9	37.5	16.8	12.0	18.2	7.8	3.8
District chilled water	71.8	30.8	13.7	57.6	23.8	12.0	38.4	11.6	5.0
Propane	13.0	16.7	17.8	12.6	10.5	12.7	9.8	14.0	10.5
Solar	36.0	14.9	14.1	28.9	14.2	14.5	25.1	8.2	5.7
Wood, coal, and other	27.0	26.0	28.4	21.5	21.2	28.2	24.8	17.5	16.0
Space-heating energy sources (more than one may apply)									
Electricity	6.2	5.9	6.4	6.2	5.1	5.3	4.6	3.6	3.6
Natural gas	6.5	4.3	4.9	7.0	4.3	4.7	5.0	2.2	2.5
Fuel oil	21.1	19.3	16.0	17.2	17.4	14.9	14.0	9.9	9.0
District heat	40.1	19.7	11.9	39.9	17.0	12.2	18.0	7.7	3.7
Propane	16.7	23.5	62.3	15.5	17.8	41.2	11.9	14.8	35.4
Other sources ^b	31.5	32.0	45.2	25.8	29.3	40.4	20.1	17.8	26.5

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Primary space-heating energy source									
Electricity	8.2	9.2	6.7	8.3	7.4	7.1	6.0	5.3	4.6
Natural gas	6.8	5.3	5.3	7.3	5.1	5.1	5.2	2.6	2.8
Fuel oil	22.4	24.2	33.9	18.7	24.3	27.6	14.6	11.1	11.3
District heat	40.1	20.3	13.3	39.9	17.3	13.6	18.0	7.9	3.8
Propane	21.4	40.3	51.7	18.7	26.4	43.2	13.1	28.1	49.8
Other sources ^b	34.2	47.6	56.1	33.0	48.3	61.1	16.6	23.4	31.0
Cooling energy sources (more than one may apply)									
Electricity	4.9	3.7	4.3	4.7	3.8	4.1	3.9	2.3	2.4
Natural gas	101.4	54.9	25.6	68.8	46.8	28.8	83.0	28.9	11.7
District chilled water	71.8	30.8	13.7	57.6	23.8	12.0	38.4	11.6	5.0
Water-heating energy sources (more than one may apply)									
Electricity	6.1	5.7	5.4	5.4	5.1	4.8	4.1	3.5	3.5
Natural gas	7.5	4.8	5.0	8.1	4.7	4.9	6.4	2.4	2.4
Fuel oil	35.8	25.4	20.1	30.9	26.7	20.6	19.2	14.2	10.8
District heat	54.6	25.5	12.7	54.2	23.8	13.1	28.8	10.2	5.0
Propane	26.6	43.0	36.0	25.0	18.4	28.3	18.7	34.9	30.8
Cooking energy sources (more than one may apply)									
Electricity	9.2	6.9	5.3	8.1	5.5	4.9	7.2	4.0	2.5
Natural gas	9.0	5.8	4.7	10.5	5.5	4.4	7.2	3.5	2.4
Propane	21.7	18.7	18.3	24.0	16.7	16.7	13.7	12.5	9.3
Energy end uses (more than one may apply)									
Buildings with space heating	4.8	3.9	4.4	5.1	3.7	4.2	4.0	2.4	2.4
Buildings with cooling	4.9	3.8	4.4	4.7	3.7	4.0	3.9	2.3	2.4
Buildings with water heating	4.9	3.9	4.4	4.8	3.5	4.1	4.0	2.3	2.3
Buildings with cooking	6.5	5.3	4.3	6.5	4.4	4.1	5.2	3.3	2.2
Buildings with manufacturing	18.8	18.4	13.5	18.4	12.1	12.1	18.3	16.5	10.2
Buildings with electricity generation	14.1	7.3	5.8	15.8	6.3	5.7	11.9	4.6	3.1
Buildings with lighting	4.6	3.8	4.4	4.6	3.7	4.1	3.9	2.5	2.4
Percentage of floorspace heated									
Not heated	14.0	17.4	30.5	10.0	15.6	20.5	12.1	17.5	32.1
1% to 50%	11.1	12.4	12.8	12.5	10.8	10.6	8.8	7.0	9.9
51% to 99%	11.5	7.0	8.3	9.6	7.4	8.5	8.2	4.0	3.8
100%	5.6	5.0	5.0	5.6	4.2	4.4	4.8	3.1	2.7
Percentage of floorspace cooled									
Not cooled	12.9	34.5	29.0	9.4	14.6	22.7	8.8	31.2	16.4
1% to 50%	8.4	8.4	10.2	9.1	7.1	9.1	6.1	6.2	6.6
51% to 99%	10.5	6.2	7.0	9.5	6.3	7.1	7.1	3.8	3.7
100%	6.4	4.7	5.9	5.8	4.9	5.1	5.1	2.8	2.8

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Percentage lit when open									
0%	41.0	50.4	77.6	37.1	50.4	88.7	25.5	0.0	191.7
1% to 50%	9.5	8.7	14.4	9.7	9.0	13.4	5.9	7.1	10.4
51% to 99%	7.6	5.0	6.7	6.5	4.1	5.7	5.5	3.5	3.3
100%	6.2	5.8	5.6	6.3	5.0	5.5	5.8	3.7	3.2
Building never open or electricity not used	20.2	29.2	20.6	14.9	23.5	19.4	17.6	26.5	19.3
Percentage lit during off hours									
0%	8.6	9.6	17.1	8.0	8.6	16.1	5.7	6.7	10.1
1% to 50%	5.6	3.9	5.0	5.3	3.7	4.5	5.0	2.9	2.5
51% to 100%	17.4	13.7	8.5	15.6	12.1	7.8	15.2	8.3	5.8
no off hours	25.3	19.8	15.0	20.9	16.8	17.3	14.3	9.6	8.7
Electricity not used	0.0	0.0	0.0	20.4	39.5	63.0	0.0	0.0	0.0
Heating equipment (more than one may apply)									
Packaged heating units	7.0	4.6	5.9	6.2	4.5	5.3	5.4	3.0	3.4
Furnaces	8.8	7.5	12.8	9.0	7.1	11.7	5.4	4.1	5.9
Individual space heaters	10.3	7.5	9.9	8.9	6.7	7.0	7.1	4.3	5.2
Boilers	13.2	6.9	5.7	12.8	5.5	5.4	9.6	4.2	2.8
Heat pumps	13.7	8.3	10.6	11.7	8.0	8.2	9.8	5.3	5.4
District heat	40.1	19.7	11.9	39.9	17.0	12.2	18.0	7.7	3.7
Duct reheat	28.0	14.5	8.4	23.9	12.9	8.2	23.5	7.5	3.7
Other	50.1	51.9	28.3	50.1	36.4	27.1	0.0	31.8	7.2
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	6.1	4.6	4.6	6.2	4.5	4.3	4.6	2.7	2.9
Residential-type central air conditioners	9.3	7.9	8.5	9.4	7.1	6.9	5.7	4.3	5.3
Individual air conditioners	11.6	9.5	8.5	9.3	8.4	8.7	8.8	4.6	4.9
Central chillers	45.7	8.9	5.3	34.6	7.3	5.9	31.0	4.2	2.7
Heat pumps	17.1	9.9	11.9	18.2	9.4	9.9	11.7	7.3	5.5
District chilled water	71.8	30.8	13.7	57.6	23.8	12.0	38.4	11.6	5.0
Swamp coolers	30.9	20.6	21.1	21.4	15.7	22.0	21.0	9.0	11.7
Other	50.8	57.8	51.9	50.8	60.3	45.4	0.0	69.6	45.7
HVAC features (more than one may apply)									
Economizer cycle	12.6	5.5	5.6	13.2	4.7	5.4	10.7	3.5	2.9
Variable air volume (VAV) system	14.2	8.8	6.1	15.0	7.1	5.7	10.7	4.9	2.9
Dedicated outside air system (DOAS)	19.2	16.7	11.7	18.7	10.9	10.6	14.1	13.2	4.7
Demand controlled ventilation (DCV)	15.3	8.2	7.5	12.9	9.6	7.4	10.7	6.2	5.5
Regular HVAC maintenance	5.8	4.2	4.5	5.5	4.1	4.3	4.3	2.6	2.4
Building automation system (BAS) controls heating or cooling	12.0	5.9	4.6	11.8	4.9	4.4	9.5	4.0	2.5
Internet-connected or smart thermostat	17.7	14.6	20.0	15.1	14.0	19.0	12.5	8.6	9.7
Programmable thermostat	6.7	7.3	12.8	6.8	7.0	11.3	6.3	4.5	7.6

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Main equipment replaced since 2000 (more than one may apply)									
Heating	6.8	6.0	5.5	7.3	5.7	5.4	5.9	3.9	3.2
Cooling	8.4	6.2	8.3	6.6	5.8	7.7	7.1	3.6	3.7
Water-heating equipment									
Centralized system	5.2	5.0	6.2	5.4	4.2	5.3	4.2	2.6	2.9
Distributed system	11.4	9.4	10.9	12.0	8.9	8.9	8.0	5.6	7.2
Combination of centralized and distributed systems	19.4	9.6	5.7	18.1	8.3	5.6	13.3	6.0	3.7
Generation technologies (more than one may apply)									
Reciprocating engine generators	16.1	8.1	6.1	19.2	7.0	6.1	14.1	5.1	3.4
Solar panels	37.1	14.9	14.3	29.8	14.2	14.7	25.5	8.1	5.8
Other generation technology	56.2	31.2	18.5	36.0	27.6	14.8	37.9	17.0	10.9
Lighting equipment types (more than one may apply)									
Incandescent	9.2	6.5	8.1	9.8	6.5	6.7	6.8	3.6	3.8
Standard fluorescent	5.0	4.6	4.9	4.8	4.6	4.4	3.9	2.6	2.8
Compact fluorescent	9.2	5.8	5.9	8.6	5.6	5.7	6.2	3.0	2.9
High-intensity discharge (HID)	25.5	11.0	9.8	23.9	10.3	9.3	17.7	8.1	4.7
Halogen	14.0	7.8	8.8	15.1	6.5	7.5	14.6	4.7	4.3
LED	6.8	4.0	4.8	5.4	3.7	4.4	4.9	3.1	2.4
Other	51.3	48.4	90.2	51.3	51.4	80.3	0.0	7.8	51.6
Refrigeration equipment (more than one may apply)									
Any refrigeration	5.2	4.1	4.5	5.0	3.9	4.2	4.1	2.8	2.3
Walk-in units	9.6	6.6	4.8	9.5	5.2	4.3	5.2	4.4	2.4
Cases or cabinets	9.6	5.9	5.0	9.0	5.8	4.7	6.1	4.0	2.7
Large cold storage areas	31.3	30.1	18.1	28.2	17.6	15.1	13.4	22.2	5.8
Commercial ice makers	9.6	5.7	5.1	10.4	4.8	4.7	8.1	3.6	2.7
Residential-type or compact units	5.9	4.0	5.3	5.4	4.0	4.8	4.7	2.8	2.9
Vending machines	12.3	6.0	4.9	13.6	5.8	4.7	11.3	3.2	2.5
No refrigeration	8.3	8.5	16.5	7.5	8.0	9.5	6.0	6.3	13.4

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Office equipment (more than one may apply)									
Desktop computers	5.4	3.9	4.5	5.2	3.4	4.2	4.4	2.7	2.4
With multiple monitors	8.7	5.1	5.0	7.5	4.5	4.8	5.4	2.9	2.8
Laptop computers	5.7	4.2	4.5	5.4	3.8	4.1	5.1	2.7	2.5
Dedicated servers	7.8	3.9	4.8	8.1	4.1	4.7	7.1	2.9	2.7
Tablets charged in building	7.6	4.9	5.1	7.6	4.1	4.4	6.6	2.9	2.6
Large floor-standing office devices ^c	9.8	4.4	4.7	8.3	3.9	4.4	6.6	3.1	2.4
Smaller desktop office devices ^c	5.4	3.9	4.7	5.5	3.7	4.4	4.3	2.5	2.4
Interactive whiteboards	30.6	8.5	7.5	29.8	6.7	5.8	19.4	5.3	3.4
Televisions or video displays	6.7	4.1	4.8	6.2	3.6	4.5	5.8	3.1	2.4
Point-of-sale devices or cash registers	7.8	5.5	5.5	7.6	5.3	4.9	6.4	3.6	2.5
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	26.1	10.9	8.9	30.2	9.9	8.5	24.4	5.8	3.8
Fast food or small restaurant	21.4	11.1	8.5	20.2	10.6	7.5	15.5	5.6	3.8
Cafeteria or large restaurant	46.0	8.6	6.4	45.3	8.6	5.6	21.6	4.8	3.1
Commercial kitchen or food preparation area	21.8	8.8	5.9	24.6	7.3	5.7	13.4	4.5	2.5
Small kitchen area	8.6	7.4	8.6	8.3	6.4	7.6	6.2	4.0	3.9
Separate computer areas (more than one may apply)									
Server closet	8.9	4.5	4.6	8.5	4.4	4.4	6.4	2.5	2.5
Data center	46.1	13.0	8.2	35.7	10.9	8.1	26.1	9.6	4.3
Computer-based training room	29.7	7.6	6.8	28.4	6.5	6.0	22.0	4.1	3.2
Student or public computer center	23.5	7.6	8.8	18.5	6.8	7.0	15.7	3.2	4.0
Window and interior lighting features (more than one may apply)									
Multipaned windows	5.9	4.2	4.8	5.7	4.0	4.5	5.3	2.5	2.6
Tinted window glass	8.3	4.6	5.4	6.3	4.1	5.0	6.9	3.0	3.2
Reflective window glass	14.3	8.5	8.3	14.4	7.8	7.4	13.8	5.3	4.1
External overhangs or awnings	8.0	5.4	7.3	6.7	6.0	6.9	6.0	3.3	4.2
Skylights or atriums	16.6	6.3	7.0	13.9	6.8	6.4	15.1	5.0	3.6
Light scheduling	11.5	5.3	6.3	9.6	5.0	5.8	8.4	3.2	3.2
Occupancy sensors	13.3	5.3	5.4	15.3	4.3	5.0	11.8	3.0	2.7
Multilevel lighting or dimming	19.1	11.2	9.5	20.2	8.5	8.6	20.3	6.1	4.0
Daylight harvesting	33.2	12.0	9.1	29.1	10.2	7.8	17.1	7.2	5.6
Plug-load control	29.7	22.6	24.0	27.8	19.5	17.3	21.5	15.6	15.3
Demand responsive lighting	42.9	23.0	16.9	39.6	25.4	18.0	17.5	16.4	7.5
Building automation system (BAS) for lighting	22.4	8.1	7.4	21.4	7.3	6.7	19.2	4.7	3.9

Relative standard errors (RSEs) for Table C11. Consumption and gross energy intensity by building size 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		
	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet	1,001 to 10,000 square feet	10,001 to 100,000 square feet	Over 100,000 feet
All buildings	4.6	3.9	4.4	4.7	3.8	4.1	4.0	2.5	2.4
Electric vehicle (EV) charging									
Charging stations associated with the building	32.2	13.6	10.9	32.5	12.0	9.0	19.2	8.8	5.3

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>.

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

^b*Other sources* includes wood, coal, solar, and all other energy sources.

^c*Office devices* refers to any combination of printers, copiers, scanners, or FAX machines.

