

Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	Total electricity consumption (billion kilowatthours [kWh])			Total floorspace of buildings using electricity (million square feet)			Electricity energy intensity (kWh/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	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Principal building activity									
Education	13	63	52	1,157	6,752	5,714	11.2	9.3	9.1
Food sales	23	27	Q	454	449	Q	50.6	60.6	Q
Food service	52	Q	Q	1,159	Q	Q	44.8	Q	Q
Health care	6	23	67	424	1,195	2,399	14.9	19.1	27.7
Inpatient	N	5	60	N	199	2,060	N	26.4	29.1
Outpatient	6	18	7	424	997	339	14.9	17.7	19.7
Lodging	6	55	39	377	3,706	2,893	16.8	14.7	13.6
Mercantile	18	88	75	1,333	5,669	3,774	13.3	15.5	19.8
Retail (other than mall)	11	28	32	1,051	2,635	1,502	10.6	10.7	21.0
Enclosed and strip malls	Q	60	43	Q	3,034	2,272	Q	19.7	18.9
Office	32	85	110	2,825	6,452	7,385	11.4	13.2	14.9
Public assembly	16	50	22	1,541	4,083	1,568	10.4	12.1	13.9
Public order and safety	Q	10	9	Q	704	615	Q	14.2	14.3
Religious worship	7	19	Q	1,288	4,006	Q	5.1	4.7	Q
Service	23	20	Q	3,072	2,887	Q	7.5	6.9	Q
Warehouse and storage	13	40	42	2,519	7,138	6,678	5.1	5.6	6.3
Other	3	27	41	265	1,015	1,128	9.5	26.5	36.0
Vacant	2	1	2	480	400	365	4.3	2.8	4.4
Year constructed									
Before 1920	10	16	9	1,030	1,795	743	9.9	8.6	12.8
1920 to 1945	13	24	27	1,139	2,298	2,145	11.8	10.6	12.7
1946 to 1959	15	31	20	1,442	3,617	1,764	10.7	8.6	11.3
1960 to 1969	27	49	44	2,161	4,713	3,384	12.6	10.3	12.9
1970 to 1979	26	73	61	2,464	5,910	4,528	10.5	12.3	13.4
1980 to 1989	32	77	72	2,449	5,999	4,851	12.9	12.8	14.9
1990 to 1999	28	80	70	2,496	7,537	5,033	11.1	10.6	14.0
2000 to 2009	37	116	100	2,258	8,652	6,343	16.2	13.4	15.8
2010 to 2018	28	51	60	1,675	4,148	4,271	16.9	12.2	14.0
Census region and division									
Northeast	21	80	88	2,228	6,631	6,952	9.6	12.0	12.7
New England	9	22	13	922	1,793	1,021	9.5	12.1	12.7
Middle Atlantic	13	58	75	1,306	4,838	5,931	9.8	12.0	12.7
Midwest	54	137	106	5,079	12,242	8,167	10.7	11.2	13.0
East North Central	38	92	74	3,252	8,256	5,866	11.6	11.1	12.6
West North Central	17	45	32	1,827	3,986	2,301	9.1	11.3	14.1
South	95	199	183	6,052	16,618	11,683	15.7	12.0	15.7
South Atlantic	45	107	104	2,786	8,360	6,587	16.0	12.8	15.8
East South Central	16	26	24	1,027	2,409	1,837	15.6	10.7	12.9
West South Central	34	66	56	2,240	5,849	3,260	15.3	11.3	17.0
West	45	101	86	3,755	9,177	6,260	12.1	11.0	13.7
Mountain	18	41	36	1,314	3,638	2,460	13.8	11.3	14.5
Pacific	27	60	50	2,442	5,539	3,800	11.2	10.9	13.1

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All buildings	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Climate zone^a									
Cold or very cold	15	47	25	1,523	3,588	1,824	9.9	13.0	13.7
Cool	52	136	108	5,166	12,959	8,214	10.1	10.5	13.2
Mixed mild	47	118	155	3,339	9,860	11,532	14.0	11.9	13.4
Warm	63	145	112	4,657	12,433	7,515	13.6	11.7	14.9
Hot or very hot	39	70	64	2,430	5,828	3,977	16.0	12.1	16.0
Number of floors									
1	168	254	104	12,541	21,204	8,443	13.4	12.0	12.3
2	38	139	70	3,711	13,013	6,429	10.3	10.7	10.9
3	9	70	48	773	6,248	3,459	11.4	11.2	13.8
4 to 9	Q	51	144	Q	4,050	8,886	Q	12.6	16.2
10 or more	N	Q	98	N	Q	5,844	N	Q	16.7
Elevators and escalators (more than one may apply)									
Any elevators	5	171	335	365	13,844	22,265	12.8	12.3	15.1
1 elevator	4	107	43	354	9,543	4,297	12.7	11.2	10.1
2 to 5 elevators	Q	64	136	Q	4,299	9,001	Q	14.9	15.1
6 or more elevators	N	Q	156	N	Q	8,967	N	Q	17.4
Any escalators	Q	Q	53	Q	Q	3,585	Q	Q	14.7
Number of workers (main shift)									
Fewer than 5	93	65	2	10,091	8,929	515	9.2	7.3	4.3
5 to 9	59	56	5	4,001	5,466	818	14.9	10.3	6.5
10 to 19	41	80	7	2,101	8,087	1,158	19.4	9.9	6.1
20 to 49	22	153	45	859	11,685	3,588	25.5	13.1	12.4
50 to 99	Q	107	68	Q	7,190	5,708	Q	14.8	12.0
100 to 249	N	47	133	N	2,903	9,530	N	16.3	13.9
250 or more	N	8	204	N	407	11,745	N	19.9	17.3
Weekly operating hours									
Fewer than 40	29	31	10	4,017	5,028	1,146	7.2	6.1	8.6
40 to 48	43	96	31	4,795	10,071	3,878	9.0	9.5	8.0
49 to 60	40	111	76	3,566	12,086	7,088	11.2	9.1	10.7
61 to 84	35	86	80	1,886	6,252	6,475	18.5	13.7	12.3
85 to 167	43	73	57	1,202	4,317	4,284	35.7	16.8	13.3
Open continuously	27	121	211	1,649	6,913	10,192	16.2	17.5	20.7
Ownership and occupancy									
Nongovernment owned	185	404	353	14,520	34,890	23,790	12.7	11.6	14.8
Owner occupied	120	235	208	10,051	21,804	12,762	11.9	10.8	16.3
Leased to tenant or tenants	64	169	145	4,203	12,835	10,900	15.2	13.2	13.3
Unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q
Government owned	32	112	111	2,594	9,777	9,272	12.2	11.4	11.9
Federal	Q	8	16	Q	681	1,103	Q	11.5	14.8
State	9	41	42	689	3,158	3,008	12.5	13.1	14.0
Local	20	62	52	1,744	5,939	5,161	11.5	10.5	10.1

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All buildings	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Party responsible for operation of energy systems									
Building owner	171	408	395	14,453	36,184	27,468	11.8	11.3	14.4
Business owner or tenant	37	80	46	2,226	6,468	3,864	16.6	12.4	11.8
Property management	Q	12	13	Q	869	878	Q	13.8	14.7
Other	4	16	11	234	1,147	852	19.1	14.3	12.4
Provider of direct input on energy-related equipment purchases									
Building owner	180	429	405	15,052	38,123	28,381	12.0	11.2	14.3
Business owner or tenant	24	48	32	1,314	3,549	2,510	18.1	13.5	12.8
Property management	Q	7	7	Q	500	463	Q	14.1	15.9
Other	10	32	19	668	2,496	1,708	15.4	12.9	11.3
Number of establishments									
1	183	342	252	14,279	31,288	18,694	12.8	10.9	13.5
2 to 5	30	96	87	2,343	7,952	6,070	12.9	12.1	14.3
6 to 10	Q	42	37	Q	2,878	2,548	Q	14.5	14.5
11 to 20	Q	29	33	Q	1,743	2,082	Q	16.5	15.8
More than 20	Q	6	55	Q	489	3,500	Q	13.3	15.8
Currently unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q
Predominant exterior wall material									
Brick, stone, or stucco	113	270	224	7,046	23,570	15,102	16.1	11.4	14.8
Concrete (block or poured)	32	119	109	2,550	9,307	7,308	12.7	12.8	14.9
Concrete panels	Q	31	62	Q	2,676	5,428	Q	11.7	11.4
Siding or shingles	31	39	5	2,843	2,520	443	10.9	15.3	10.3
Metal panels	30	42	20	4,028	5,499	1,931	7.5	7.7	10.5
Window glass	Q	7	27	Q	401	1,752	Q	17.1	15.2
Other	5	8	18	387	695	1,098	13.7	11.3	16.2
Predominant roof material									
Metal surfacing	66	104	23	6,706	10,619	2,488	9.9	9.8	9.1
Synthetic or rubber	38	177	236	2,146	13,276	16,046	17.8	13.3	14.7
Built-up	32	107	125	1,888	8,436	8,961	16.7	12.7	13.9
Slate or tile shingles	17	22	7	1,156	2,232	600	14.7	9.7	11.1
Wooden materials (including shingles)	7	9	Q	440	947	Q	15.0	9.4	Q
Asphalt, fiberglass, or other shingles	45	73	37	4,122	7,134	2,581	10.9	10.2	14.3
Concrete	4	9	20	215	807	944	20.3	10.9	20.8
Other	8	16	16	442	1,217	1,344	17.2	12.8	12.0
Roof tilt									
Flat	83	302	388	4,912	23,104	25,763	17.0	13.1	15.1
Shallow pitch	76	143	59	6,896	14,028	5,734	11.0	10.2	10.3
Steeper pitch	57	72	16	5,307	7,536	1,565	10.7	9.5	10.5

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All buildings	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	54	186	212	3,280	14,501	14,636	16.6	12.8	14.5
White or reflective tiles or shingles	8	19	17	386	1,281	1,027	19.6	14.8	16.2
Aluminum coating	19	33	13	1,673	3,033	1,214	11.3	11.0	11.1
Ballasted roof system	Q	33	55	Q	2,111	3,947	Q	15.6	14.0
Other cool roof property	Q	Q	15	Q	Q	1,083	Q	Q	14.2
Renovations since 2000 (more than one may apply)									
Any type of renovation	81	220	290	5,746	19,422	19,784	14.1	11.3	14.7
Addition or annex	18	46	85	909	4,182	5,759	19.8	10.9	14.7
Reduction in floorspace	Q	4	20	Q	410	1,222	Q	9.4	16.2
Roof replacement	36	95	140	2,490	8,295	9,982	14.5	11.5	14.1
Interior wall reconfiguration	25	97	162	1,897	8,300	11,052	13.0	11.7	14.6
Window replacement	21	46	71	1,425	4,258	5,273	14.4	10.8	13.5
HVAC equipment upgrade	43	123	206	2,879	10,771	13,834	14.8	11.4	14.9
Lighting upgrade	44	133	219	2,901	11,336	14,781	15.3	11.7	14.8
Electrical upgrade	28	59	134	1,735	5,054	8,929	16.3	11.7	15.0
Plumbing system upgrade	28	63	125	1,717	5,265	8,457	16.3	11.9	14.7
Insulation upgrade	12	32	64	914	2,451	4,616	12.9	12.9	13.9
Fire, safety, or security upgrade	25	94	157	1,361	7,574	11,038	18.5	12.4	14.3
Structural upgrade	9	16	38	477	1,210	2,505	18.5	13.4	15.2
Other	Q	4	15	Q	366	702	Q	10.7	21.3
No renovations	117	261	133	10,193	22,328	10,131	11.4	11.7	13.2
Buildings constructed 2013 or later	19	36	40	1,175	2,918	3,146	15.9	12.2	12.7
Energy sources (more than one may apply)									
Electricity	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Natural gas	113	362	386	8,492	31,978	27,252	13.3	11.3	14.2
Fuel oil	17	113	222	1,501	6,494	13,190	11.1	17.4	16.9
District heat	Q	24	87	Q	1,896	4,684	Q	12.9	18.6
District chilled water	Q	19	54	Q	1,310	2,900	Q	14.5	18.6
Propane	24	55	40	2,037	4,362	3,753	11.6	12.6	10.8
Solar	Q	17	28	Q	1,247	2,314	Q	14.0	12.2
Wood, coal, and other	7	12	7	724	878	511	9.0	13.6	12.8
Space-heating energy sources									
Electricity	118	309	242	7,208	22,307	16,088	16.4	13.9	15.0
Electricity main	93	209	116	5,357	14,318	7,943	17.4	14.6	14.6
Electricity secondary	25	100	126	1,851	7,989	8,146	13.3	12.5	15.5
Other excluding electricity	74	182	210	7,305	19,733	16,020	10.2	9.2	13.1
Buildings without heating	24	24	12	2,601	2,628	954	9.2	9.3	12.3

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All buildings	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Primary space-heating energy source									
Electricity	93	209	116	5,357	14,318	7,943	17.4	14.6	14.6
Natural gas	79	244	254	6,924	23,871	19,264	11.5	10.2	13.2
Fuel oil	7	6	4	739	970	515	9.0	6.3	7.9
District heat	Q	23	76	Q	1,732	4,211	Q	13.1	18.0
Propane	10	10	Q	1,099	1,025	Q	8.9	9.4	Q
Other sources ^b	Q	Q	Q	Q	Q	Q	Q	Q	Q
Cooling energy sources									
Electricity	196	476	426	13,403	40,924	30,199	14.6	11.6	14.1
Other excluding electricity	Q	14	33	Q	1,007	1,892	Q	13.7	17.6
Buildings without cooling	20	26	4	3,630	2,737	971	5.4	9.5	4.2
Water-heating energy sources									
Electricity	123	286	227	8,312	22,606	16,207	14.8	12.7	14.0
Other excluding electricity	71	209	233	5,391	19,095	16,100	13.2	10.9	14.5
Buildings without water heating	22	21	4	3,411	2,966	755	6.5	7.1	5.2
Cooking energy sources									
Electricity	70	179	230	3,584	12,725	14,199	19.5	14.0	16.2
Other excluding electricity	32	61	88	1,396	5,372	6,304	23.3	11.4	14.0
Buildings without cooking	114	276	146	12,135	26,570	12,559	9.4	10.4	11.6
Energy end uses (more than one may apply)									
Buildings with space heating	192	492	452	14,513	42,039	32,108	13.2	11.7	14.1
Buildings with cooling	197	490	460	13,485	41,931	32,091	14.6	11.7	14.3
Buildings with water heating	194	495	460	13,704	41,702	32,307	14.2	11.9	14.2
Buildings with cooking	102	240	318	4,980	18,097	20,503	20.5	13.3	15.5
Buildings with manufacturing	11	44	31	780	3,592	2,499	14.3	12.2	12.2
Buildings with electricity generation	24	170	281	1,753	10,120	17,568	13.8	16.8	16.0
Buildings with lighting	215	515	464	16,596	44,526	32,982	13.0	11.6	14.1
Percentage of floorspace heated									
Not heated	24	24	12	2,601	2,628	954	9.2	9.3	12.3
1% to 50%	17	40	37	2,070	4,929	3,622	8.4	8.0	10.3
51% to 99%	41	108	126	2,755	9,108	8,311	15.0	11.9	15.2
100%	134	344	289	9,688	28,003	20,175	13.8	12.3	14.3
Percentage of floorspace cooled									
Not cooled	20	26	4	3,630	2,737	971	5.4	9.5	4.2
1% to 50%	28	66	40	3,528	9,730	6,463	8.0	6.8	6.2
51% to 99%	46	145	188	2,792	11,562	11,924	16.4	12.6	15.7
100%	123	278	232	7,165	20,639	13,704	17.1	13.5	16.9

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All buildings	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
HVAC features (more than one may apply)									
Economizer cycle	33	178	300	1,423	13,283	19,381	23.4	13.4	15.5
Variable air volume (VAV) system	28	136	273	1,741	10,136	17,391	16.2	13.4	15.7
Dedicated outside air system (DOAS)	13	51	88	584	3,302	5,142	22.5	15.6	17.1
Demand controlled ventilation (DCV)	12	52	77	952	4,307	5,215	13.1	12.0	14.8
Regular HVAC maintenance	158	448	451	10,314	36,330	31,371	15.3	12.3	14.4
Building automation system (BAS) controls heating or cooling	35	226	371	1,917	15,346	23,199	18.3	14.7	16.0
Internet-connected or smart thermostat	15	33	22	998	3,144	1,823	15.3	10.6	12.3
Programmable thermostat	69	117	32	5,019	12,011	3,851	13.7	9.8	8.3
Main equipment replaced since 2000 (more than one may apply)									
Heating	72	171	136	5,978	15,871	10,602	12.1	10.8	12.8
Cooling	41	103	124	3,664	10,443	8,906	11.3	9.8	13.9
Water-heating equipment									
Centralized system	148	353	252	10,883	30,235	18,162	13.6	11.7	13.9
Distributed system	37	86	70	2,257	6,886	5,160	16.2	12.4	13.5
Combination of centralized and distributed systems	9	56	139	564	4,581	8,984	16.4	12.3	15.4
Generation technologies (more than one may apply)									
Reciprocating engine generators	20	143	250	1,478	8,392	15,293	13.9	17.0	16.4
Solar panels	Q	17	28	Q	1,236	2,277	Q	13.9	12.2
Other generation technology	Q	12	25	Q	666	1,331	Q	18.1	18.5
Lighting equipment types (more than one may apply)									
Incandescent	47	121	144	3,404	9,219	8,458	13.7	13.1	17.0
Standard fluorescent	149	396	382	11,919	34,473	26,520	12.5	11.5	14.4
Compact fluorescent	42	184	271	2,948	13,843	16,899	14.3	13.3	16.0
High-intensity discharge (HID)	4	44	117	548	3,978	6,830	6.7	11.1	17.2
Halogen	23	87	121	1,548	6,403	7,062	15.1	13.5	17.2
LED	113	350	397	6,978	28,200	26,670	16.2	12.4	14.9
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q
Refrigeration equipment (more than one may apply)									
Any refrigeration	171	439	439	11,186	36,030	30,373	15.3	12.2	14.5
Walk-in units	72	183	291	1,737	9,779	17,868	41.5	18.7	16.3
Cases or cabinets	68	166	264	2,129	10,248	16,140	32.1	16.2	16.4
Large cold storage areas	Q	36	43	Q	1,123	2,364	Q	32.5	18.3
Commercial ice makers	63	199	306	1,995	13,186	19,492	31.8	15.1	15.7
Residential-type or compact units	121	354	349	9,520	30,812	24,403	12.7	11.5	14.3
Vending machines	23	232	356	1,251	16,483	24,337	18.6	14.1	14.6
No refrigeration	45	77	25	5,929	8,638	2,688	7.6	8.9	9.2

Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	Total electricity consumption (billion kilowatthours [kWh])			Total floorspace of buildings using electricity (million square feet)			Electricity energy intensity (kWh/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	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Office equipment (more than one may apply)									
Desktop computers	164	473	448	11,231	39,267	31,514	14.6	12.0	14.2
With multiple monitors	48	276	380	3,661	21,880	25,303	13.2	12.6	15.0
Laptop computers	104	378	426	7,842	32,105	29,428	13.3	11.8	14.5
Dedicated servers	52	302	373	3,239	22,847	25,509	16.0	13.2	14.6
Tablets charged in building	64	273	359	3,995	21,341	23,442	16.1	12.8	15.3
Large floor-standing office devices ^c	42	301	375	3,288	24,281	26,519	12.6	12.4	14.1
Smaller desktop office devices ^c	142	423	416	10,093	35,305	29,069	14.1	12.0	14.3
Interactive whiteboards	6	74	136	413	6,337	10,188	13.8	11.6	13.4
Televisions or video displays	106	361	417	6,645	28,934	28,040	16.0	12.5	14.9
Point-of-sale devices or cash registers	101	198	263	3,918	13,300	16,388	25.7	14.9	16.1
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	6	37	117	212	2,593	7,556	30.0	14.1	15.5
Fast food or small restaurant	10	41	125	314	2,478	6,966	31.7	16.4	17.9
Cafeteria or large restaurant	Q	39	158	Q	3,894	10,534	Q	10.1	15.0
Commercial kitchen or food preparation area	4	98	184	316	6,246	11,137	13.7	15.7	16.5
Small kitchen area	35	93	118	3,200	9,076	8,242	11.1	10.3	14.3
Separate computer areas (more than one may apply)									
Server closet	43	277	336	2,907	21,334	24,481	14.7	13.0	13.7
Data center	Q	36	147	Q	2,076	9,127	Q	17.2	16.1
Computer-based training room	4	67	160	284	5,357	10,915	15.4	12.4	14.6
Student or public computer center	6	57	90	415	4,941	7,171	13.9	11.6	12.6
Window and interior lighting features (more than one may apply)									
Multipaned windows	148	418	399	9,931	34,736	27,813	14.9	12.0	14.3
Tinted window glass	69	260	293	4,374	19,989	19,881	15.8	13.0	14.8
Reflective window glass	20	103	155	1,163	7,442	9,314	17.0	13.9	16.7
External overhangs or awnings	71	179	160	4,308	14,210	10,162	16.4	12.6	15.7
Skylights or atriums	13	79	164	1,252	6,982	11,565	10.7	11.3	14.2
Light scheduling	41	186	294	2,143	13,262	18,147	19.1	14.0	16.2
Occupancy sensors	32	231	349	2,128	17,672	24,505	14.8	13.1	14.2
Multilevel lighting or dimming	14	63	145	843	4,802	8,779	17.0	13.1	16.5
Daylight harvesting	4	28	86	252	1,910	5,082	17.1	14.8	16.9
Plug-load control	Q	7	25	Q	628	1,182	Q	11.6	21.4
Demand responsive lighting	Q	8	14	Q	700	965	Q	11.0	14.5
Building automation system (BAS) for lighting	15	86	167	595	5,460	10,590	25.1	15.8	15.8

Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	Total electricity consumption (billion kilowatthours [kWh])			Total floorspace of buildings using electricity (million square feet)			Electricity energy intensity (kWh/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	216	516	464	17,115	44,668	33,062	12.6	11.6	14.0
Electric vehicle (EV) charging									
Charging stations associated with the building	Q	37	93	Q	2,677	7,326	Q	13.8	12.7
Annual consumption (kilowatthours)									
10,000 or less	4	Q	Q	2,320	Q	Q	1.6	Q	Q
10,001 to 50,000	49	9	Q	7,527	4,407	Q	6.6	1.9	Q
50,001 to 100,000	53	18	Q	4,073	4,675	Q	13.1	3.8	Q
100,001 to 500,000	96	172	4	3,030	19,269	1,828	31.6	8.9	2.0
500,001 to 1,000,000	Q	146	17	Q	9,781	3,553	Q	14.9	4.8
1,000,001 to 5,000,000	Q	166	206	Q	6,162	16,476	Q	27.0	12.5
Over 5,000,000	N	Q	237	N	Q	10,943	N	Q	21.7

Data source: U.S. Energy Information Administration, Forms EIA-871A and E 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 C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Principal building activity									
Education	16.0	7.6	7.9	15.3	7.1	7.2	10.6	3.5	3.2
Food sales	16.7	45.1	35.9	16.1	30.4	36.8	8.1	27.8	15.6
Food service	10.4	25.2	76.6	9.3	27.4	76.6	5.1	11.4	2.8
Health care	13.5	13.5	9.2	12.9	12.9	6.7	7.2	6.1	5.3
Inpatient	0.0	37.7	10.0	0.0	32.8	7.5	0.0	15.7	5.8
Outpatient	13.5	14.6	15.2	12.9	13.8	14.6	7.2	6.7	8.8
Lodging	25.5	14.6	16.6	19.5	10.4	16.0	16.6	8.0	4.0
Mercantile	15.4	9.1	10.0	14.2	8.8	9.2	11.9	4.4	2.8
Retail (other than mall)	19.2	14.8	10.7	16.8	12.9	10.4	15.5	9.4	2.8
Enclosed and strip malls	25.5	10.0	14.6	23.7	9.6	13.0	7.8	3.0	4.5
Office	8.8	9.2	8.7	7.8	8.9	8.6	5.9	4.6	3.0
Public assembly	15.8	11.8	11.3	11.9	8.5	12.0	8.6	7.6	6.2
Public order and safety	30.9	30.5	25.8	30.4	24.5	22.4	13.1	10.9	7.2
Religious worship	14.5	10.2	26.1	17.2	10.8	29.1	10.2	7.2	18.4
Service	9.6	14.3	41.7	9.7	12.9	45.7	6.9	12.2	46.8
Warehouse and storage	18.3	12.2	12.0	12.4	10.4	10.4	12.4	8.1	7.1
Other	32.2	26.8	22.3	22.8	23.3	22.2	25.4	24.2	16.0
Vacant	35.5	35.9	27.4	28.9	27.1	28.1	16.4	30.4	24.7
Year constructed									
Before 1920	14.5	18.0	39.0	15.9	14.6	23.5	9.3	12.4	35.9
1920 to 1945	17.3	13.5	16.4	13.6	12.0	15.3	11.0	9.8	9.6
1946 to 1959	15.2	13.7	16.6	11.3	11.2	14.5	11.8	10.9	8.5
1960 to 1969	11.1	10.7	11.8	9.7	8.9	8.7	9.9	7.7	6.4
1970 to 1979	13.3	11.7	9.8	10.2	8.7	9.2	11.3	9.5	6.1
1980 to 1989	11.6	9.9	10.6	8.9	7.7	10.2	8.7	8.1	4.6
1990 to 1999	11.4	7.9	6.8	11.0	9.2	6.6	9.5	6.4	4.2
2000 to 2009	12.3	13.5	8.0	11.4	8.2	8.0	7.0	9.9	5.1
2010 to 2018	15.0	9.2	15.3	14.6	9.6	12.3	12.3	6.4	11.1
Census region and division									
Northeast	13.6	11.0	9.6	12.1	8.2	8.8	8.1	8.8	5.5
New England	21.3	19.2	19.1	18.6	15.7	16.2	13.6	13.7	5.9
Middle Atlantic	18.1	13.3	10.9	16.1	9.5	9.9	10.2	11.0	6.4
Midwest	9.1	12.3	9.5	13.2	9.3	7.9	9.8	8.5	6.1
East North Central	10.9	13.8	12.1	13.9	13.4	10.7	11.2	3.5	7.8
West North Central	17.7	25.0	14.2	28.4	8.9	8.3	18.3	25.3	7.9
South	9.8	8.5	5.9	8.7	7.8	6.0	6.2	3.8	3.8
South Atlantic	14.2	11.0	8.9	13.4	8.6	7.9	8.7	5.3	4.0
East South Central	23.4	28.3	11.8	17.8	27.4	18.1	12.4	7.1	14.7
West South Central	17.8	15.0	9.0	15.8	15.2	8.7	12.0	6.9	6.6
West	9.7	5.9	11.7	8.5	7.4	11.9	9.0	6.7	7.2
Mountain	18.4	10.8	23.5	19.6	11.2	23.7	12.6	6.8	10.8
Pacific	10.6	6.3	11.0	8.4	9.5	12.3	12.1	10.3	9.5

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Climate zone^a									
Cold or very cold	22.4	26.7	21.8	21.6	17.2	22.3	6.5	24.9	11.9
Cool	13.4	10.4	11.0	14.7	8.5	10.0	10.1	5.0	6.1
Mixed mild	16.6	13.3	10.4	18.3	13.6	9.9	7.9	5.6	4.2
Warm	14.3	11.8	10.0	12.7	10.9	10.1	7.0	5.2	5.5
Hot or very hot	18.5	13.8	12.7	18.1	16.9	11.4	10.7	7.3	6.1
Number of floors									
1	6.3	7.6	8.5	4.9	5.5	8.3	5.3	5.4	6.1
2	10.1	6.0	8.2	8.4	5.5	7.4	7.5	3.9	4.4
3	17.4	11.8	12.7	19.0	9.5	9.5	10.1	6.4	8.0
4 to 9	34.1	11.2	7.8	29.3	9.4	7.0	34.0	5.3	5.1
10 or more	0.0	18.8	11.2	0.0	22.6	11.3	0.0	14.1	5.0
Elevators and escalators (more than one may apply)									
Any elevators	28.7	7.7	5.5	28.2	6.3	5.0	11.6	3.6	2.9
1 elevator	29.6	8.8	10.0	29.0	7.4	8.7	12.0	4.4	4.4
2 to 5 elevators	73.0	9.2	7.1	73.0	8.5	5.9	0.0	4.2	4.9
6 or more elevators	0.0	98.6	8.1	0.0	98.6	8.4	0.0	0.0	4.1
Any escalators	73.4	44.7	14.2	80.2	32.3	14.3	68.6	29.2	4.5
Number of workers (main shift)									
Fewer than 5	6.6	11.0	25.6	6.8	8.0	25.5	4.9	8.1	22.5
5 to 9	9.2	21.6	31.3	7.7	9.8	20.3	6.3	19.7	19.1
10 to 19	9.8	8.9	19.9	8.0	9.6	19.0	8.1	7.1	17.2
20 to 49	16.0	6.5	14.5	15.6	5.5	8.9	10.0	4.5	12.7
50 to 99	66.1	8.5	10.1	34.6	6.4	8.1	57.0	5.1	5.5
100 to 249	0.0	11.6	6.3	0.0	11.2	5.9	0.0	4.7	3.8
250 or more	0.0	29.1	6.6	0.0	27.4	6.6	0.0	10.9	3.2
Weekly operating hours									
Fewer than 40	10.3	13.7	21.7	7.9	9.8	15.7	6.3	12.0	14.9
40 to 48	9.5	14.4	10.8	8.5	7.0	9.1	6.7	11.8	8.1
49 to 60	10.6	7.1	8.4	8.5	6.2	6.6	7.2	4.1	5.5
61 to 84	11.4	9.5	7.6	10.9	6.8	7.0	10.0	6.1	5.2
85 to 167	11.1	9.6	9.5	12.8	8.8	9.2	10.2	6.2	6.0
Open continuously	12.5	10.2	6.7	13.3	7.5	7.2	14.6	5.9	4.2
Ownership and occupancy									
Nongovernment owned	4.9	5.3	5.4	4.7	4.2	5.1	4.7	4.0	3.5
Owner occupied	5.9	6.9	6.3	6.1	4.6	5.8	5.7	6.1	3.6
Leased to tenant or tenants	7.5	7.6	8.1	7.2	6.8	6.5	6.7	4.4	5.6
Unoccupied	35.1	56.7	66.7	32.1	40.6	39.7	23.5	50.6	69.8
Government owned	13.2	9.8	8.2	12.4	7.7	6.4	9.6	3.9	3.7
Federal	40.4	27.1	24.7	35.7	23.0	23.3	20.2	12.5	5.9
State	25.6	18.8	18.3	17.9	15.2	14.4	18.9	7.7	6.2
Local	15.6	7.4	8.0	14.2	7.3	7.6	11.2	4.0	4.2

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Party responsible for operation of energy systems									
Building owner	5.5	5.5	4.7	5.4	4.2	4.3	5.0	4.0	2.6
Business owner or tenant	10.4	9.1	14.5	8.9	9.9	11.7	6.8	6.8	10.9
Property management	34.4	21.3	20.4	28.2	19.6	15.9	17.8	11.6	10.6
Other	34.3	16.8	17.8	22.3	14.6	18.3	29.4	11.6	9.8
Provider of direct input on energy-related equipment purchases									
Building owner	5.5	5.4	4.6	5.2	4.0	4.2	5.0	3.9	2.6
Business owner or tenant	11.9	11.8	16.7	11.7	11.3	13.2	9.5	8.5	11.4
Property management	52.2	28.9	29.9	39.6	23.7	24.2	44.0	16.8	16.6
Other	18.9	12.8	12.4	14.3	13.4	12.4	14.3	8.3	8.1
Number of establishments									
1	5.4	6.4	5.7	5.6	4.3	5.1	5.1	4.7	4.0
2 to 5	10.4	8.2	10.0	8.5	6.8	9.8	7.2	4.7	3.9
6 to 10	41.5	10.8	10.5	37.5	10.4	10.8	24.0	6.6	6.8
11 to 20	81.4	13.2	14.2	56.6	14.5	11.1	67.4	7.3	6.9
More than 20	71.7	34.2	10.0	71.7	29.3	9.3	0.0	12.0	5.3
Currently unoccupied	37.3	52.8	32.8	30.1	32.5	31.9	25.2	44.5	37.1
Predominant exterior wall material									
Brick, stone, or stucco	7.5	5.9	6.5	6.3	4.6	5.5	5.6	3.3	3.8
Concrete (block or poured)	11.4	8.1	6.9	10.0	6.2	7.8	10.7	6.2	5.8
Concrete panels	36.6	13.6	9.5	28.6	12.8	10.2	26.1	12.0	7.4
Siding or shingles	9.7	32.4	27.1	10.1	15.9	22.2	7.2	29.6	20.2
Metal panels	10.5	12.5	17.1	9.7	8.4	13.7	7.2	10.1	9.7
Window glass	69.2	27.6	12.5	73.5	25.8	11.8	25.4	10.6	4.7
Other	24.5	22.8	22.7	20.9	25.1	19.4	25.3	15.5	10.1
Predominant roof material									
Metal surfacing	8.3	13.8	12.4	7.1	7.2	10.8	6.4	11.2	8.7
Synthetic or rubber	10.9	6.6	5.7	9.4	5.1	4.9	9.5	4.3	3.3
Built-up	13.8	8.0	8.0	12.1	7.1	7.4	12.6	3.9	4.7
Slate or tile shingles	14.0	13.8	20.0	14.7	12.3	20.4	10.2	9.7	12.6
Wooden materials (including shingles)	20.1	28.9	48.8	23.4	25.8	50.1	15.1	18.1	38.4
Asphalt, fiberglass, or other shingles	8.6	11.0	15.5	10.1	7.9	12.9	7.4	8.1	12.4
Concrete	32.5	21.8	22.2	32.1	22.1	13.7	17.7	7.6	17.6
Other	27.2	30.5	12.7	20.4	15.1	12.1	24.8	28.1	10.9
Roof tilt									
Flat	7.6	5.2	4.8	7.1	4.2	4.3	6.8	3.8	2.6
Shallow pitch	7.2	7.9	11.4	6.3	6.3	9.3	6.7	5.8	9.7
Steeper pitch	10.0	16.8	13.6	9.5	6.7	12.8	5.6	16.0	6.4

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	9.9	8.3	6.6	8.5	5.3	6.1	7.7	7.0	3.7
White or reflective tiles or shingles	31.3	22.1	24.3	22.0	14.6	15.8	19.7	14.4	18.8
Aluminum coating	14.2	15.0	17.8	12.6	13.1	13.2	11.4	11.3	13.4
Ballasted roof system	32.3	15.8	11.7	30.7	13.7	11.3	21.3	6.8	5.7
Other cool roof property	52.8	38.9	26.2	40.1	36.8	25.3	30.8	16.5	10.3
Renovations since 2000 (more than one may apply)									
Any type of renovation	7.5	5.8	4.7	6.7	5.1	4.4	6.8	4.1	2.7
Addition or annex	19.4	9.6	5.9	16.0	10.1	7.1	15.0	6.8	3.9
Reduction in floorspace	41.2	27.9	19.2	35.7	24.6	17.1	27.9	15.4	9.0
Roof replacement	9.6	8.6	6.5	9.8	7.4	5.8	10.7	6.3	3.2
Interior wall reconfiguration	12.3	7.6	6.1	9.3	7.2	5.9	8.0	5.5	2.9
Window replacement	14.3	11.5	10.1	12.6	8.1	10.1	12.9	8.5	4.3
HVAC equipment upgrade	12.0	6.8	5.4	10.0	5.7	5.3	10.1	4.6	2.8
Lighting upgrade	10.6	7.3	5.3	9.2	5.4	5.3	10.1	5.3	3.1
Electrical upgrade	12.9	10.3	6.8	11.1	8.4	7.2	13.9	7.5	3.7
Plumbing system upgrade	13.6	9.2	6.8	11.1	7.6	7.4	10.3	5.3	3.7
Insulation upgrade	19.7	13.1	11.0	15.3	10.5	11.2	17.7	9.6	4.7
Fire, safety, or security upgrade	12.7	9.3	6.2	11.4	6.5	6.1	10.7	6.4	3.5
Structural upgrade	27.0	21.7	15.0	26.2	11.8	15.5	18.1	17.5	6.4
Other	42.3	29.9	15.8	39.5	34.4	15.7	33.6	30.8	3.6
No renovations	5.7	7.3	8.5	5.1	4.9	6.8	4.4	5.3	5.5
Buildings constructed 2013 or later	16.3	11.4	17.7	17.5	10.4	13.8	14.9	8.6	13.6
Energy sources (more than one may apply)									
Electricity	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Natural gas	6.5	4.4	4.7	6.3	4.1	4.4	6.6	2.7	2.7
Fuel oil	16.9	14.0	6.8	16.9	7.3	6.7	15.3	11.5	4.4
District heat	40.6	20.3	13.3	37.5	16.8	12.0	15.3	6.9	6.9
District chilled water	64.2	28.7	15.5	57.6	23.8	12.0	21.5	8.7	9.8
Propane	14.3	22.7	14.0	12.6	10.5	12.7	9.8	20.3	7.4
Solar	33.9	15.8	14.6	30.8	14.2	14.5	18.9	8.2	6.2
Wood, coal, and other	23.8	24.8	30.2	21.5	21.2	28.2	22.5	15.6	17.7
Space-heating energy sources									
Electricity	7.1	7.1	6.1	6.2	5.1	5.3	4.3	4.6	3.6
Electricity main	8.5	10.3	6.9	8.3	7.4	7.1	5.2	6.2	5.1
Electricity secondary	13.2	8.5	8.8	10.6	7.9	7.2	9.8	4.8	4.7
Other excluding electricity	7.3	6.6	4.6	7.8	5.3	5.0	6.2	4.2	3.5
Buildings without heating	13.1	17.4	31.1	10.5	16.5	21.4	10.7	17.7	33.9

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Primary space-heating energy source									
Electricity	8.5	10.3	6.9	8.3	7.4	7.1	5.2	6.2	5.1
Natural gas	7.2	5.8	5.2	7.3	5.1	5.1	6.8	3.3	3.2
Fuel oil	20.7	23.6	27.4	18.7	24.3	27.6	13.2	16.8	12.3
District heat	43.5	21.1	13.8	39.9	17.3	13.6	17.1	7.5	6.3
Propane	21.4	40.4	51.7	18.7	26.4	43.2	13.1	27.5	50.1
Other sources ^b	35.5	49.6	56.4	33.0	48.3	61.1	16.6	25.8	33.4
Cooling energy sources									
Electricity	5.5	4.3	4.3	4.7	3.8	4.1	4.3	2.5	2.5
Other excluding electricity	72.2	23.5	19.5	56.2	23.1	13.6	37.6	6.1	13.1
Buildings without cooling	10.9	47.2	22.6	10.2	15.3	23.4	7.0	43.7	15.3
Water-heating energy sources									
Electricity	6.9	7.4	5.5	5.4	5.1	4.8	4.6	5.2	3.8
Other excluding electricity	8.1	6.0	6.4	8.4	5.4	6.0	7.8	3.6	3.4
Buildings without water heating	11.4	21.0	22.4	9.0	16.6	24.6	8.7	15.6	21.8
Cooking energy sources									
Electricity	9.5	9.4	5.2	8.1	5.5	4.9	8.1	6.9	2.4
Other excluding electricity	11.8	9.8	7.4	12.4	8.2	7.6	7.6	6.6	3.7
Buildings without cooking	5.8	6.0	8.7	5.3	5.3	6.6	4.6	4.0	7.0
Energy end uses (more than one may apply)									
Buildings with space heating	5.3	4.8	4.4	5.1	3.7	4.2	4.6	3.2	2.6
Buildings with cooling	5.4	4.2	4.5	4.7	3.7	4.0	4.3	2.5	2.6
Buildings with water heating	5.4	4.6	4.5	4.8	3.5	4.1	4.6	3.2	2.7
Buildings with cooking	7.3	7.4	4.0	6.5	4.4	4.1	6.1	5.6	2.1
Buildings with manufacturing	21.1	26.3	13.5	18.4	12.1	12.1	21.1	26.0	9.9
Buildings with electricity generation	13.8	10.0	6.0	15.8	6.3	5.7	13.9	7.6	3.6
Buildings with lighting	5.0	4.7	4.4	4.6	3.7	4.1	4.4	3.3	2.7
Percentage of floorspace heated									
Not heated	13.1	17.4	31.1	10.5	16.5	21.4	10.7	17.7	33.9
1% to 50%	12.7	14.0	14.2	12.5	10.8	10.6	9.7	8.7	11.8
51% to 99%	11.3	7.2	8.0	9.6	7.4	8.5	8.0	4.8	3.2
100%	6.0	6.0	5.1	5.6	4.2	4.4	5.1	4.4	3.2
Percentage of floorspace cooled									
Not cooled	10.9	47.2	22.6	10.2	15.3	23.4	7.0	43.7	15.3
1% to 50%	9.7	10.5	10.7	9.1	7.1	9.1	6.4	8.2	6.9
51% to 99%	10.8	6.3	6.9	9.5	6.3	7.1	6.5	4.7	4.2
100%	6.7	5.1	5.7	5.8	4.9	5.1	5.4	3.0	3.2

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
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%	10.0	9.7	15.0	9.7	9.0	13.4	6.9	8.1	12.1
51% to 99%	8.0	6.5	6.4	6.5	4.1	5.7	6.4	5.5	3.3
100%	6.8	6.5	6.1	6.3	5.0	5.5	6.2	4.0	4.0
Building never open or electricity not used	26.0	40.4	28.2	19.8	25.8	25.5	13.3	30.8	30.2
Percentage lit during off hours									
0%	8.9	12.4	14.9	8.0	8.6	16.1	6.3	9.9	11.4
1% to 50%	6.0	4.7	4.7	5.3	3.7	4.5	5.2	3.8	2.4
51% to 100%	19.0	15.7	10.8	15.6	12.1	7.8	15.7	9.3	7.9
Building always open with no off hours	26.5	21.7	17.2	20.9	16.8	17.3	15.5	10.9	9.1
Electricity not used	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heating equipment (more than one may apply)									
Packaged heating units	7.6	4.9	5.7	6.2	4.5	5.3	5.9	3.2	3.5
Furnaces	9.6	9.2	12.6	9.0	7.1	11.7	6.8	6.2	5.8
Individual space heaters	10.5	8.7	9.8	8.9	6.7	7.0	7.1	5.4	6.0
Boilers	14.8	9.7	6.0	12.8	5.5	5.4	13.2	7.8	3.2
Heat pumps	14.9	8.8	9.3	11.7	8.0	8.2	9.6	4.8	5.0
District heat	43.5	20.4	12.5	39.9	17.0	12.2	17.1	6.9	5.8
Duct reheat	24.8	15.0	8.2	23.9	12.9	8.2	19.3	7.2	3.3
Other	50.1	59.9	28.0	50.1	36.4	27.1	0.0	41.8	10.6
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	6.6	5.1	4.9	6.2	4.5	4.3	5.1	3.0	3.2
Residential-type central air conditioners	11.2	9.3	9.2	9.4	7.1	6.9	7.4	5.7	6.3
Individual air conditioners	11.3	11.5	8.8	9.3	8.4	8.7	8.6	6.3	6.3
Central chillers	43.6	9.1	5.6	34.6	7.3	5.9	26.7	5.1	3.2
Heat pumps	19.4	10.0	10.1	18.2	9.4	9.9	10.0	7.1	4.7
District chilled water	64.2	28.7	15.5	57.6	23.8	12.0	21.5	8.7	9.8
Swamp coolers	28.9	20.6	20.3	21.4	15.7	22.0	19.6	10.1	10.5
Other	50.8	59.2	57.1	50.8	60.3	45.4	0.0	70.6	52.5

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
HVAC features (more than one may apply)									
Economizer cycle	15.0	5.8	5.8	13.2	4.7	5.4	12.0	3.8	3.2
Variable air volume (VAV) system	14.3	9.6	6.3	15.0	7.1	5.7	11.4	5.7	3.3
Dedicated outside air system (DOAS)	21.2	24.1	11.9	18.7	10.9	10.6	15.4	22.6	5.6
Demand controlled ventilation (DCV)	16.9	9.4	8.3	12.9	9.6	7.4	12.6	7.9	6.3
Regular HVAC maintenance	6.3	4.5	4.5	5.5	4.1	4.3	4.5	2.8	2.7
Building automation system (BAS) controls heating or cooling	12.3	7.5	4.9	11.8	4.9	4.4	9.6	6.1	3.0
Internet-connected or smart thermostat	17.3	15.1	19.4	15.1	14.0	19.0	11.6	9.9	8.6
Programmable thermostat	6.8	7.5	12.6	6.8	7.0	11.3	6.6	4.9	8.7
Main equipment replaced since 2000 (more than one may apply)									
Heating	7.1	6.6	5.6	7.3	5.7	5.4	7.2	4.9	3.3
Cooling	8.8	6.9	7.4	6.6	5.8	7.7	7.9	4.3	3.6
Water-heating equipment									
Centralized system	6.0	5.9	6.2	5.4	4.2	5.3	5.2	4.0	3.6
Distributed system	12.4	11.2	11.8	12.1	8.9	8.9	9.1	7.2	8.2
Combination of centralized and distributed systems	18.8	11.1	6.0	18.1	8.3	5.6	11.9	7.1	3.6
Generation technologies (more than one may apply)									
Reciprocating engine generators	15.7	11.2	6.4	19.2	7.0	6.1	16.4	8.5	4.0
Solar panels	35.3	16.3	14.8	32.0	14.2	14.7	19.7	8.8	6.3
Other generation technology	57.2	38.1	19.9	36.0	27.6	14.8	39.9	26.9	14.5
Lighting equipment types (more than one may apply)									
Incandescent	10.1	7.6	7.4	9.8	6.5	6.7	7.5	5.1	3.8
Standard fluorescent	5.3	5.2	5.0	4.8	4.6	4.4	4.8	3.0	3.1
Compact fluorescent	10.1	6.3	5.5	8.6	5.6	5.7	6.0	3.2	3.0
High-intensity discharge (HID)	21.0	10.2	9.8	23.9	10.3	9.3	16.3	7.2	5.7
Halogen	13.5	7.7	7.9	15.1	6.5	7.5	13.2	4.4	4.5
LED	6.8	5.3	4.8	5.4	3.7	4.4	5.0	4.4	2.8
Other	51.3	49.2	80.5	51.3	51.4	80.3	0.0	6.7	1.0
Refrigeration equipment (more than one may apply)									
Any refrigeration	5.7	4.9	4.5	5.0	3.9	4.2	4.8	3.7	2.5
Walk-in units	10.1	9.1	4.8	9.5	5.2	4.3	5.4	7.1	2.4
Cases or cabinets	10.3	6.7	5.0	9.0	5.8	4.7	6.6	4.8	2.9
Large cold storage areas	32.5	35.6	14.8	28.2	17.6	15.1	14.0	28.2	5.1
Commercial ice makers	10.2	6.2	4.9	10.4	4.8	4.7	8.0	3.9	2.5
Residential-type or compact units	6.6	4.4	5.3	5.4	4.0	4.8	5.8	3.0	3.1
Vending machines	14.4	6.0	4.8	13.6	5.8	4.7	12.7	3.1	2.7
No refrigeration	9.1	9.4	18.3	7.4	8.0	9.6	7.0	7.3	16.4

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Office equipment (more than one may apply)									
Desktop computers	5.8	4.7	4.5	5.2	3.4	4.2	5.0	3.4	2.7
With multiple monitors	8.9	5.4	5.0	7.5	4.5	4.8	6.6	3.5	3.2
Laptop computers	6.1	4.7	4.6	5.4	3.8	4.1	5.5	3.0	2.8
Dedicated servers	7.6	4.3	5.0	8.1	4.1	4.7	7.2	3.4	3.1
Tablets charged in building	7.6	5.3	5.1	7.6	4.1	4.4	6.5	3.4	3.0
Large floor-standing office devices ^c	8.9	4.8	4.9	8.3	3.9	4.4	6.9	3.5	2.9
Smaller desktop office devices ^c	5.8	4.9	4.7	5.5	3.7	4.4	4.8	3.8	2.7
Interactive whiteboards	33.5	10.0	7.6	29.8	6.7	5.8	28.6	7.2	4.0
Televisions or video displays	6.5	4.5	4.8	6.2	3.6	4.5	5.6	3.3	2.7
Point-of-sale devices or cash registers	7.8	5.8	5.3	7.6	5.3	4.9	6.9	4.3	2.5
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	28.3	10.7	8.1	30.2	9.9	8.5	28.2	6.0	3.2
Fast food or small restaurant	22.3	11.7	7.6	20.2	10.6	7.5	15.6	6.5	3.1
Cafeteria or large restaurant	52.1	9.6	6.1	45.3	8.6	5.6	28.6	5.0	2.2
Commercial kitchen or food preparation area	23.0	10.1	5.3	24.6	7.3	5.7	16.5	6.0	2.6
Small kitchen area	9.0	9.0	7.7	8.3	6.4	7.6	7.8	5.5	3.4
Separate computer areas (more than one may apply)									
Server closet	9.0	4.4	4.5	8.5	4.4	4.4	6.3	2.7	2.7
Data center	42.9	15.5	7.9	35.7	10.9	8.1	26.2	12.6	4.6
Computer-based training room	30.7	7.5	6.0	28.4	6.5	6.0	21.7	3.8	3.1
Student or public computer center	20.8	7.9	8.1	18.5	6.8	7.0	13.8	4.2	3.3
Window and interior lighting features (more than one may apply)									
Multipaned windows	6.3	5.2	4.9	5.8	4.0	4.5	5.9	3.7	3.0
Tinted window glass	8.0	5.0	5.4	6.3	4.1	5.0	6.8	3.5	3.3
Reflective window glass	14.5	9.0	7.7	14.4	7.8	7.4	14.6	6.1	4.7
External overhangs or awnings	8.3	6.2	7.3	6.6	6.0	6.9	6.1	4.1	4.9
Skylights or atriums	15.9	7.3	6.8	14.0	6.8	6.4	13.3	5.4	3.9
Light scheduling	12.0	5.3	6.2	9.6	5.0	5.8	9.0	3.5	3.6
Occupancy sensors	13.3	5.6	5.4	15.3	4.3	5.0	10.7	3.8	2.9
Multilevel lighting or dimming	17.9	12.6	9.0	20.2	8.5	8.6	19.4	7.3	4.3
Daylight harvesting	30.7	12.0	9.8	29.1	10.2	7.8	20.0	7.0	6.8
Plug-load control	28.9	21.3	28.7	27.8	19.5	17.3	21.8	14.9	20.6
Demand responsive lighting	37.4	22.9	18.0	39.6	25.4	18.0	29.0	16.9	8.2
Building automation system (BAS) for lighting	23.5	8.4	6.4	21.4	7.3	6.7	20.3	5.4	3.3

Relative standard errors (RSEs) for Table C21. Electricity consumption and conditional energy intensity by building size, 2018

	RSEs for total electricity consumption			RSEs for total floorspace of buildings using electricity			RSEs for electricity energy intensity		
	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	5.0	4.7	4.4	4.6	3.8	4.1	4.5	3.2	2.7
Electric vehicle (EV) charging									
Charging stations associated with the building	33.0	16.3	9.6	32.5	12.0	9.0	18.6	11.1	4.5
Annual consumption (kilowatthours)									
10,000 or less	10.4	70.5	50.4	13.4	60.1	50.4	7.3	25.4	0.0
10,001 to 50,000	6.9	9.5	43.8	6.9	9.0	45.4	3.4	4.1	29.7
50,001 to 100,000	7.8	9.7	51.4	8.5	9.6	53.3	4.0	5.7	6.5
100,001 to 500,000	7.9	5.3	15.5	7.7	4.9	14.2	3.8	2.4	5.3
500,001 to 1,000,000	29.3	6.6	10.0	27.9	5.7	10.3	7.6	3.0	3.4
1,000,001 to 5,000,000	52.1	11.1	4.7	52.1	8.2	4.7	0.0	6.5	2.3
Over 5,000,000	0.0	83.8	6.9	0.0	64.4	6.8	0.0	51.6	4.1

Data source: U.S. Energy Information Administration, Forms EIA-871A and E 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.