

Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	Total electricity consumption (billion kilowatthours [kWh])					Total floorspace of buildings using electricity (million square feet)					Electricity energy intensity (kWh/square foot)				
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Building floorspace (square feet)															
1,001 to 5,000	9	26	24	29	20	725	2,287	1,495	1,813	1,150	12.4	11.4	16.1	16.2	17.6
5,001 to 10,000	6	26	23	34	19	797	2,878	1,844	2,845	1,280	7.7	9.1	12.2	11.9	14.6
10,001 to 25,000	Q	40	32	45	25	1,567	4,273	2,917	4,502	2,206	14.7	9.3	10.9	10.0	11.4
25,001 to 50,000	12	52	38	45	20	1,036	4,770	3,051	3,579	1,499	11.7	10.9	12.6	12.7	13.1
50,001 to 100,000	11	45	47	55	26	984	3,917	3,893	4,352	2,123	11.5	11.4	12.1	12.6	12.1
100,001 to 200,000	9	43	50	46	24	870	3,162	4,045	3,301	1,605	9.8	13.5	12.3	13.9	14.8
200,001 to 500,000	13	40	55	45	22	701	3,254	3,625	2,863	1,319	18.5	12.3	15.2	15.7	16.6
Over 500,000	Q	26	50	21	18	Q	1,797	3,863	1,351	1,054	Q	14.4	13.0	15.3	17.1
Principal building activity															
Education	10	29	39	31	19	1,279	3,748	3,931	2,947	1,718	7.9	7.8	9.8	10.5	11.1
Food sales	Q	13	Q	8	Q	Q	291	Q	202	Q	Q	44.4	Q	41.9	Q
Food service	4	12	16	19	10	131	337	318	402	197	30.4	36.9	50.3	46.1	49.5
Health care	6	28	25	26	11	246	1,200	1,173	961	438	22.5	23.6	21.0	27.3	25.1
Inpatient	Q	21	15	17	9	Q	725	647	494	268	Q	29.3	23.8	33.4	32.8
Outpatient	Q	7	9	10	2	Q	475	526	467	170	Q	14.9	17.5	20.9	13.1
Lodging	5	29	26	27	13	416	1,944	1,860	1,879	877	11.4	14.8	14.2	14.4	14.9
Mercantile	9	47	33	58	33	742	2,879	2,050	3,295	1,810	12.3	16.2	16.2	17.7	18.3
Retail (other than mall)	5	18	13	20	15	505	1,420	1,017	1,354	892	10.1	12.7	12.9	14.6	16.8
Enclosed and strip malls	Q	29	20	39	18	Q	1,459	1,033	1,941	918	Q	19.6	19.5	19.8	19.7
Office	14	56	75	51	31	1,252	4,442	5,307	3,648	2,013	11.2	12.7	14.2	13.9	15.3
Public assembly	5	19	20	26	17	435	2,046	1,695	1,829	1,187	11.8	9.1	11.7	14.5	14.6
Public order and safety	Q	4	8	7	Q	Q	354	547	421	Q	Q	10.9	14.8	15.7	Q
Religious worship	Q	4	7	9	5	Q	1,453	1,070	1,797	814	Q	3.0	6.3	4.8	6.2
Service	4	16	8	11	6	586	2,729	953	1,418	522	6.0	5.8	8.8	8.1	10.6
Warehouse and storage	5	18	26	30	15	1,130	3,632	4,500	5,015	2,058	4.9	5.1	5.8	6.1	7.2
Other	Q	19	26	15	Q	Q	850	769	613	Q	Q	22.1	33.7	25.2	Q
Vacant	Q	2	1	1	Q	Q	433	388	179	Q	Q	4.7	2.0	4.2	Q
Year constructed															
Before 1920	3	16	11	4	Q	413	1,534	1,162	407	Q	7.1	10.4	9.5	10.7	Q
1920 to 1945	3	22	23	13	5	376	1,972	1,919	1,025	289	7.8	11.0	12.1	12.2	15.7
1946 to 1959	5	15	19	19	8	676	1,632	1,979	1,833	702	7.8	9.0	9.7	10.1	12.0
1960 to 1969	7	28	28	41	16	810	2,833	2,485	3,155	976	8.4	9.8	11.1	13.1	16.3
1970 to 1979	11	46	39	44	20	998	4,082	2,831	3,454	1,536	10.7	11.4	13.8	12.6	12.9
1980 to 1989	10	39	55	46	31	823	2,882	3,553	3,769	2,270	12.4	13.5	15.5	12.2	13.7
1990 to 1999	12	42	46	51	28	1,012	4,177	3,860	3,824	2,193	11.7	10.1	11.9	13.3	12.6
2000 to 2009	29	49	64	71	40	1,295	4,258	4,395	4,599	2,706	22.2	11.6	14.6	15.4	14.6
2010 to 2018	7	40	34	32	25	530	2,969	2,546	2,538	1,511	13.7	13.4	13.3	12.8	16.6

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	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Census region and division															
Northeast	11	76	103	N	N	1,087	6,940	7,785	N	N	10.1	10.9	13.2	N	N
New England	10	30	Q	N	N	872	2,554	Q	N	N	11.1	11.7	12.8	N	N
Middle Atlantic	Q	46	99	N	N	Q	4,386	7,473	N	N	6.4	10.4	13.2	N	N
Midwest	64	164	70	N	N	4,785	14,999	5,704	N	N	13.3	10.9	12.3	N	N
East North Central	20	141	42	N	N	2,222	11,829	3,322	N	N	9.1	11.9	12.8	N	N
West North Central	43	23	28	N	N	2,563	3,170	2,382	N	N	16.9	7.2	11.7	N	N
South	N	N	106	233	138	N	N	7,624	16,978	9,751	N	N	13.9	13.7	14.2
South Atlantic	N	N	75	127	53	N	N	5,123	8,874	3,735	N	N	14.7	14.3	14.3
East South Central	N	N	Q	54	Q	N	N	Q	4,382	Q	N	N	12.5	12.3	Q
West South Central	N	N	Q	52	84	N	N	Q	3,722	5,966	N	N	12.1	13.9	14.1
West	12	58	41	87	35	1,062	4,400	3,619	7,627	2,484	11.4	13.2	11.2	11.4	13.9
Mountain	Q	40	Q	Q	25	Q	3,077	Q	Q	1,614	11.8	12.9	12.3	8.8	15.4
Pacific	Q	Q	25	81	Q	Q	1,323	2,346	6,878	Q	10.6	13.8	10.7	11.7	11.2
Number of floors															
1	45	114	107	166	95	3,004	10,801	8,116	13,333	6,933	15.0	10.5	13.2	12.4	13.6
2	21	66	64	63	32	2,236	6,661	6,158	5,479	2,618	9.5	9.9	10.4	11.6	12.4
3	10	41	35	30	11	1,006	3,622	2,845	2,321	685	9.9	11.3	12.4	12.7	15.6
4 to 9	8	50	65	48	26	515	3,695	4,775	2,629	1,413	15.2	13.6	13.6	18.1	18.1
10 or more	3	26	48	14	10	173	1,559	2,837	843	586	14.9	16.6	17.0	16.2	16.8
Elevators and escalators (more than one may apply)															
Any elevators	25	135	175	113	62	2,095	10,359	12,843	7,122	4,056	11.8	13.0	13.6	15.9	15.4
1 elevator	10	43	48	35	18	1,080	4,278	4,523	2,743	1,569	9.5	10.1	10.6	12.8	11.5
2 to 5 elevators	9	56	62	50	24	687	4,050	4,319	2,938	1,317	12.9	13.8	14.4	16.9	18.2
6 or more elevators	6	36	65	29	20	327	2,030	4,001	1,440	1,170	17.0	17.7	16.3	19.8	17.4
Any escalators	Q	11	25	8	11	Q	732	1,769	439	709	Q	15.0	14.0	17.5	15.4
Number of workers (main shift)															
Fewer than 5	12	47	31	47	23	1,495	6,030	3,857	5,886	2,267	7.8	7.7	8.2	8.0	10.2
5 to 9	Q	20	31	35	17	1,099	2,549	2,585	2,900	1,152	Q	7.8	11.9	12.2	14.7
10 to 19	12	34	28	34	19	1,065	3,775	1,998	2,887	1,621	11.4	9.0	13.9	11.9	11.8
20 to 49	19	61	50	62	28	1,293	4,518	3,796	4,604	1,921	14.5	13.4	13.1	13.5	14.6
50 to 99	10	42	47	50	27	897	3,237	3,628	3,276	1,922	10.6	13.1	12.8	15.4	14.3
100 to 249	8	44	56	46	26	594	3,329	4,150	2,821	1,540	13.8	13.3	13.5	16.2	16.7
250 or more	8	49	77	45	33	490	2,900	4,717	2,232	1,813	17.0	17.0	16.3	20.1	18.0
Weekly operating hours															
Fewer than 40	5	18	15	21	9	718	3,116	2,159	2,990	1,209	7.4	5.8	6.9	7.2	7.7
40 to 48	Q	37	33	52	27	1,503	4,879	3,709	6,076	2,578	Q	7.5	8.8	8.6	10.5
49 to 60	14	53	65	59	35	1,788	6,153	6,400	5,354	3,043	7.9	8.7	10.2	11.0	11.4
61 to 84	11	53	56	51	29	1,022	4,354	4,235	3,149	1,854	11.2	12.1	13.3	16.2	15.5
85 to 167	14	45	41	46	26	721	2,844	2,608	2,331	1,300	18.7	15.9	15.8	19.9	20.2
Open continuously	22	91	109	90	47	1,182	4,992	5,622	4,706	2,251	18.4	18.2	19.5	19.0	20.8

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All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Ownership and occupancy															
Nongovernment owned	71	241	251	246	133	5,328	20,869	18,758	18,975	9,271	13.3	11.6	13.4	12.9	14.3
Owner occupied	53	143	150	147	71	3,615	13,481	10,853	11,570	5,099	14.6	10.6	13.8	12.7	13.8
Leased to tenant or tenants	18	98	101	98	62	1,713	7,174	7,686	7,304	4,060	10.6	13.7	13.1	13.5	15.3
Unoccupied	N	Q	Q	Q	Q	N	Q	Q	Q	Q	N	Q	Q	Q	Q
Government owned	16	56	68	74	40	1,606	5,470	5,973	5,630	2,964	9.7	10.2	11.4	13.2	13.5
Federal	Q	6	11	6	Q	Q	451	715	495	Q	Q	13.2	15.1	12.1	Q
State	5	16	23	34	13	346	1,369	1,920	2,275	946	14.2	12.0	12.1	15.0	14.2
Local	9	33	34	34	24	1,124	3,650	3,338	2,861	1,870	8.0	9.1	10.3	11.9	12.8
Party responsible for operation of energy systems															
Building owner	76	245	268	256	128	5,990	22,476	20,476	19,851	9,311	12.7	10.9	13.1	12.9	13.8
Business owner or tenant	9	35	39	47	33	734	2,720	3,268	3,587	2,249	11.7	12.9	12.0	13.0	14.6
Property management	Q	7	6	9	5	Q	486	459	534	323	Q	15.0	12.4	16.6	16.0
Other	Q	10	6	8	6	Q	656	529	633	352	Q	14.7	11.9	13.4	18.3
Provider of direct input on energy-related equipment purchases															
Building owner	77	252	276	267	142	6,151	23,338	21,159	20,746	10,160	12.5	10.8	13.0	12.9	13.9
Business owner or tenant	6	22	26	29	20	400	1,505	1,957	2,222	1,288	14.7	14.5	13.3	13.2	15.9
Property management	Q	Q	5	Q	Q	Q	Q	365	Q	Q	Q	Q	13.6	Q	Q
Other	3	19	13	18	10	304	1,250	1,250	1,371	697	9.1	14.9	10.2	13.2	13.8
Number of establishments															
1	66	191	200	209	111	5,015	18,226	15,822	16,987	8,211	13.1	10.5	12.7	12.3	13.5
2 to 5	13	54	56	60	31	1,274	4,105	4,598	4,383	2,005	10.1	13.1	12.2	13.6	15.3
6 to 10	Q	18	27	22	9	Q	1,619	1,691	1,339	631	Q	11.2	15.8	16.5	14.3
11 to 20	Q	17	17	16	9	Q	1,086	1,109	1,031	484	Q	15.7	15.8	16.0	18.3
More than 20	Q	16	18	12	13	Q	1,018	1,224	746	791	Q	16.0	14.9	16.6	16.9
Currently unoccupied	N	Q	Q	Q	Q	N	Q	Q	Q	Q	N	Q	Q	Q	Q
Predominant exterior wall material															
Brick, stone, or stucco	27	145	175	174	86	2,565	11,551	12,935	12,799	5,868	10.7	12.6	13.5	13.6	14.6
Concrete (block or poured)	21	67	65	64	42	1,674	5,423	4,879	4,320	2,869	12.8	12.4	13.4	14.8	14.8
Concrete panels	5	18	28	33	13	319	1,957	2,263	2,569	1,220	14.2	9.1	12.3	12.9	10.5
Siding or shingles	Q	27	13	10	4	840	2,565	1,093	933	375	Q	10.4	12.2	10.8	11.7
Metal panels	9	25	19	25	16	1,184	3,664	2,309	3,057	1,244	7.6	6.7	8.1	8.1	12.9
Window glass	Q	7	11	9	6	Q	550	679	482	375	Q	13.0	15.5	18.6	15.2
Other	Q	9	9	5	6	Q	629	573	444	285	Q	13.6	15.2	11.7	20.5
Predominant roof material															
Metal surfacing	26	35	41	57	35	1,836	4,881	4,149	6,000	2,947	13.9	7.2	9.9	9.5	11.8
Synthetic or rubber	30	136	126	105	54	2,285	9,965	9,436	6,557	3,224	13.2	13.7	13.4	16.0	16.7
Built-up	18	55	79	77	34	1,254	4,602	5,656	5,522	2,251	14.4	12.0	14.0	13.9	15.2
Slate or tile shingles	Q	10	9	16	9	Q	1,010	946	1,256	738	Q	10.2	9.8	13.0	12.1
Wooden materials (including shingles)	Q	4	Q	4	5	Q	456	Q	446	335	Q	9.4	Q	8.7	15.8
Asphalt, fiberglass, or other shingles	9	43	41	41	19	1,177	4,690	3,030	3,487	1,452	7.6	9.2	13.7	11.8	13.2
Concrete	Q	Q	8	7	9	Q	269	613	527	496	Q	27.5	13.8	12.9	18.4
Other	Q	5	12	13	8	Q	465	778	808	792	Q	10.6	15.2	16.3	9.9

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All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Roof tilt															
Flat	46	190	226	199	112	3,417	14,022	15,784	13,111	7,445	13.5	13.5	14.3	15.2	15.1
Shallow pitch	16	76	59	84	43	1,924	7,922	5,747	7,706	3,358	8.4	9.6	10.3	10.9	12.8
Steeper pitch	24	32	34	37	17	1,593	4,395	3,200	3,788	1,432	15.4	7.2	10.8	9.8	12.1
Cool roof characteristics (more than one may apply)															
White or reflective coating or paint	31	91	118	132	81	1,506	7,209	8,846	9,416	5,438	20.5	12.6	13.3	14.0	14.9
White or reflective tiles or shingles	Q	6	11	18	5	Q	558	654	925	321	Q	11.5	16.7	19.0	16.9
Aluminum coating	6	12	12	23	13	469	1,293	1,071	2,095	991	12.5	9.2	11.4	11.0	12.8
Ballasted roof system	8	33	31	12	6	747	2,260	2,085	902	283	11.1	14.4	14.9	13.2	21.5
Other cool roof property	Q	8	8	Q	Q	Q	522	583	Q	Q	Q	14.7	14.4	Q	Q
Renovations since 2000 (more than one may apply)															
Any type of renovation	40	161	170	143	77	3,355	13,215	12,530	10,435	5,418	11.8	12.2	13.6	13.7	14.2
Addition or annex	15	42	41	30	20	1,330	3,345	2,817	1,937	1,421	11.5	12.4	14.5	15.6	14.4
Reduction in floorspace	Q	8	11	5	Q	Q	505	677	425	Q	Q	15.9	16.9	11.4	Q
Roof replacement	16	77	82	64	34	1,363	6,303	6,007	4,620	2,475	11.8	12.2	13.6	13.8	13.6
Interior wall reconfiguration	19	77	93	62	33	1,564	6,241	6,875	4,448	2,121	12.0	12.4	13.5	14.0	15.4
Window replacement	11	45	47	22	13	862	3,690	3,520	1,879	1,005	12.2	12.2	13.5	11.7	12.5
HVAC equipment upgrade	25	99	114	85	48	1,916	8,026	7,896	6,357	3,288	13.1	12.4	14.5	13.4	14.5
Lighting upgrade	26	119	117	89	45	2,109	9,260	8,343	6,253	3,054	12.3	12.8	14.0	14.3	14.7
Electrical upgrade	12	67	72	47	24	806	5,266	5,090	3,036	1,519	14.3	12.8	14.2	15.4	15.7
Plumbing system upgrade	13	63	73	45	22	894	5,019	4,847	3,264	1,413	14.1	12.5	15.0	13.9	15.3
Insulation upgrade	7	33	38	18	11	572	2,672	2,555	1,375	806	12.5	12.4	14.8	13.2	14.2
Fire, safety, or security upgrade	18	80	86	57	35	1,358	6,148	6,117	4,003	2,347	13.3	13.0	14.1	14.2	14.9
Structural upgrade	Q	22	22	14	3	Q	1,569	1,433	812	229	Q	13.9	15.3	17.0	12.8
Other	Q	3	6	7	3	Q	300	315	363	151	Q	10.6	19.0	20.5	20.9
No renovations	42	104	132	156	77	3,228	10,813	10,512	12,315	5,784	13.0	9.6	12.5	12.7	13.3
Buildings constructed 2013 or later	5	32	17	21	19	351	2,311	1,689	1,856	1,033	14.3	13.8	10.4	11.3	18.5
Energy sources (more than one may apply)															
Electricity	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Natural gas	57	233	241	236	93	4,971	20,476	18,756	17,686	5,833	11.5	11.4	12.8	13.4	16.0
Fuel oil	37	86	124	64	42	1,624	5,783	7,834	3,526	2,418	22.7	14.9	15.8	18.1	17.2
District heat	4	30	44	29	6	372	1,677	2,747	1,588	360	11.5	18.0	16.0	18.1	17.6
District chilled water	Q	21	19	23	10	Q	838	1,273	1,344	731	Q	24.5	15.0	17.1	13.3
Propane	26	21	34	19	20	1,339	2,720	2,853	1,867	1,374	19.2	7.8	11.8	9.9	14.5
Solar	Q	8	20	13	7	Q	698	1,614	753	578	Q	11.1	12.2	16.9	12.4
Wood, coal, and other	Q	8	3	7	Q	Q	781	406	459	Q	Q	10.6	7.1	16.3	Q
Space-heating energy sources															
Electricity	46	154	168	193	108	2,549	10,464	11,548	13,629	7,412	17.9	14.8	14.6	14.1	14.6
Electricity main	Q	79	91	131	90	1,060	5,143	5,914	9,204	6,297	25.3	15.4	15.4	14.3	14.3
Electricity secondary	19	75	77	62	18	1,490	5,321	5,634	4,426	1,115	12.7	14.1	13.6	13.9	16.3
Other excluding electricity	39	136	142	114	35	4,092	14,678	12,539	9,470	2,278	9.6	9.3	11.3	12.1	15.4
Buildings without heating	Q	7	9	13	30	Q	1,196	643	1,506	2,545	Q	5.5	14.4	8.4	11.7

Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)						Electricity energy intensity (kWh/square foot)				
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Primary space-heating energy source															
Electricity	Q	79	91	131	90	1,060	5,143	5,914	9,204	6,297	25.3	15.4	15.4	14.3	14.3
Natural gas	46	175	164	146	47	4,422	16,654	14,053	11,979	2,952	10.4	10.5	11.7	12.2	15.9
Fuel oil	3	6	6	Q	Q	351	912	728	Q	Q	8.8	6.6	8.9	Q	Q
District heat	4	25	41	26	5	317	1,536	2,587	1,345	305	11.7	16.1	15.8	19.0	17.8
Propane	Q	5	Q	Q	Q	406	800	735	Q	Q	12.5	5.9	9.5	Q	Q
Other sources ^b	Q	Q	Q	Q	N	Q	Q	Q	Q	N	Q	Q	Q	Q	N
Cooling energy sources															
Electricity	68	265	301	299	164	5,656	22,505	22,669	22,393	11,303	12.1	11.8	13.3	13.4	14.5
Other excluding electricity	Q	14	13	13	7	Q	660	935	783	534	Q	21.8	14.1	16.2	12.3
Buildings without cooling	Q	17	5	8	Q	1,209	3,174	1,127	1,430	398	Q	5.4	4.7	5.6	4.9
Water-heating energy sources															
Electricity	42	149	165	176	104	3,072	11,466	12,272	13,163	7,152	13.7	13.0	13.4	13.4	14.5
Other excluding electricity	42	137	150	129	55	3,426	12,960	11,548	9,390	3,263	12.4	10.6	13.0	13.8	16.8
Buildings without water heating	2	11	5	14	15	435	1,913	911	2,053	1,820	5.6	5.7	5.2	7.0	8.0
Cooking energy sources															
Electricity	43	130	129	108	68	2,528	9,718	8,049	6,117	4,097	17.0	13.4	16.1	17.7	16.5
Other excluding electricity	9	43	52	48	30	826	3,368	3,908	3,369	1,601	10.8	12.9	13.2	14.4	18.5
Buildings without cooking	35	123	138	163	76	3,580	13,253	12,775	15,120	6,537	9.7	9.3	10.8	10.8	11.6
Energy end uses (more than one may apply)															
Buildings with space heating	85	290	310	307	143	6,641	25,143	24,088	23,099	9,690	12.8	11.6	12.9	13.3	14.8
Buildings with cooling	69	280	314	312	171	5,725	23,165	23,604	23,176	11,837	12.1	12.1	13.3	13.5	14.4
Buildings with water heating	84	286	315	306	158	6,499	24,425	23,820	22,553	10,415	13.0	11.7	13.2	13.5	15.2
Buildings with cooking	52	174	181	157	97	3,354	13,086	11,957	9,485	5,698	15.5	13.3	15.1	16.5	17.1
Buildings with manufacturing	Q	23	17	17	9	876	2,007	1,420	1,684	884	Q	11.5	12.3	10.3	10.2
Buildings with electricity generation	40	126	152	103	55	1,775	8,415	9,839	6,079	3,334	22.3	15.0	15.4	17.0	16.4
Buildings with lighting	87	297	319	318	173	6,884	26,134	24,577	24,307	12,202	12.6	11.4	13.0	13.1	14.2
Percentage of floorspace heated															
Not heated	Q	7	9	13	30	Q	1,196	643	1,506	2,545	Q	5.5	14.4	8.4	11.7
1% to 50%	5	17	14	33	26	632	1,669	2,031	4,219	2,069	7.8	10.0	6.7	7.8	12.8
51% to 99%	14	64	75	85	38	1,105	5,072	5,211	6,383	2,403	12.8	12.5	14.3	13.4	15.6
100%	66	210	222	189	79	4,903	18,402	16,846	12,498	5,218	13.4	11.4	13.2	15.1	15.2
Percentage of floorspace cooled															
Not cooled	Q	17	5	8	Q	1,209	3,174	1,127	1,430	398	Q	5.4	4.7	5.6	4.9
1% to 50%	13	35	37	31	19	1,822	5,554	5,088	5,026	2,231	7.1	6.2	7.3	6.1	8.3
51% to 99%	22	95	114	96	53	1,488	7,350	7,569	6,684	3,187	14.9	13.0	15.0	14.3	16.5
100%	34	150	163	186	100	2,415	10,260	10,947	11,466	6,419	14.2	14.6	14.9	16.2	15.6
Percentage lit when open															
0%	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
1% to 50%	10	28	23	25	16	1,352	4,248	2,949	3,789	1,834	7.2	6.7	7.7	6.6	9.0
51% to 99%	49	138	135	145	73	3,126	11,162	9,915	9,784	4,860	15.7	12.4	13.6	14.8	15.1
100%	28	128	161	148	83	2,385	10,183	11,360	10,602	5,346	11.6	12.6	14.2	14.0	15.4
Building never open or electricity not used	Q	3	1	Q	Q	Q	597	416	Q	Q	Q	4.3	2.1	Q	Q

Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)						Electricity energy intensity (kWh/square foot)				
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Percentage lit during off hours															
0%	8	27	24	38	19	1,272	4,419	3,119	5,011	1,757	6.0	6.0	7.8	7.7	10.6
1% to 50%	67	217	240	229	127	5,208	19,526	18,918	16,945	9,203	12.9	11.1	12.7	13.5	13.8
51% to 100%	11	45	40	38	20	403	1,925	1,988	1,922	1,004	27.4	23.2	20.1	20.0	20.4
Building always open with no off hours	Q	9	15	14	7	Q	468	705	728	271	Q	19.0	21.4	18.6	25.5
Electricity not used	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Heating equipment (more than one may apply)															
Packaged heating units	40	164	164	198	98	2,789	12,408	11,945	14,469	6,452	14.2	13.2	13.7	13.7	15.1
Furnaces	15	65	41	47	20	1,782	6,991	3,561	3,706	1,232	8.5	9.4	11.5	12.7	15.9
Individual space heaters	26	74	74	63	22	2,096	6,458	5,855	5,354	1,359	12.2	11.5	12.6	11.8	16.2
Boilers	39	115	113	78	35	2,841	9,879	8,892	5,040	2,179	13.9	11.6	12.8	15.4	16.2
Heat pumps	14	56	64	69	20	780	3,663	4,421	4,766	1,479	17.8	15.3	14.5	14.5	13.4
District heat	4	25	44	29	5	372	1,561	2,730	1,579	305	11.5	16.2	16.0	18.1	17.8
Duct reheat	Q	35	36	30	23	Q	1,941	2,347	1,558	1,402	Q	18.1	15.4	19.4	16.3
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Cooling equipment (more than one may apply)															
Packaged air-conditioning units	49	183	198	225	114	3,472	14,245	14,769	16,089	7,714	14.0	12.8	13.4	14.0	14.8
Residential-type central air conditioners	16	61	58	54	25	1,723	6,057	4,709	4,000	1,781	9.3	10.0	12.3	13.5	14.1
Individual air conditioners	10	50	53	43	19	991	3,881	4,178	3,336	1,232	10.0	13.0	12.6	12.9	15.1
Central chillers	18	68	97	69	36	1,270	4,657	6,203	3,778	2,017	13.9	14.6	15.6	18.2	18.0
Heat pumps	10	40	48	40	14	519	2,966	3,690	2,879	1,044	19.8	13.6	13.0	13.8	13.8
District chilled water	Q	21	19	23	10	Q	838	1,273	1,344	731	Q	24.5	15.0	17.1	13.3
Swamp coolers	Q	6	8	8	Q	Q	498	566	673	Q	Q	12.6	14.3	12.2	Q
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
HVAC features (more than one may apply)															
Economizer cycle	41	141	165	115	49	2,788	10,127	11,271	7,061	2,839	14.8	14.0	14.7	16.3	17.2
Variable air volume (VAV) system	23	108	149	97	60	1,977	7,712	9,977	5,664	3,938	11.5	14.1	15.0	17.1	15.2
Dedicated outside air system (DOAS)	24	29	45	39	16	894	1,999	3,165	1,985	984	Q	14.3	14.3	19.9	15.8
Demand controlled ventilation (DCV)	10	32	51	32	16	671	2,662	3,591	2,397	1,152	15.2	11.9	14.2	13.3	14.0
Regular HVAC maintenance	67	260	296	281	152	5,611	20,391	21,878	19,936	10,199	12.0	12.8	13.5	14.1	14.9
Building automation system (BAS) controls heating or cooling	48	158	199	143	84	2,651	10,817	13,056	8,737	5,201	18.1	14.6	15.2	16.4	16.2
Internet-connected or smart thermostat	Q	11	17	25	13	Q	1,171	1,376	1,927	1,112	Q	9.6	12.0	13.2	12.0
Programmable thermostat	15	60	48	64	32	1,504	6,346	4,892	5,638	2,502	9.7	9.4	9.7	11.4	12.7
Main equipment replaced since 2000 (more than one may apply)															
Heating	24	109	98	101	48	2,448	10,206	7,805	8,479	3,512	9.6	10.7	12.5	11.9	13.7
Cooling	17	70	83	58	41	1,889	6,812	6,772	4,723	2,816	8.9	10.2	12.2	12.4	14.5
Water-heating equipment															
Centralized system	64	196	209	196	88	5,168	17,527	15,889	14,838	5,859	12.4	11.2	13.2	13.2	15.1
Distributed system	12	43	51	48	38	685	3,384	3,797	3,767	2,669	17.4	12.7	13.4	12.8	14.2
Combination of centralized and distributed systems	8	47	55	62	32	646	3,514	4,134	3,948	1,886	13.1	13.5	13.2	15.6	17.1

Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)						Electricity energy intensity (kWh/square foot)				
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Generation technologies (more than one may apply)															
Reciprocating engine generators	38	107	135	87	48	1,594	7,230	8,523	5,042	2,774	23.6	14.8	15.8	17.2	17.2
Solar panels	Q	8	19	13	7	Q	694	1,586	741	555	Q	11.0	12.1	17.0	12.5
Other generation technology	Q	16	11	7	Q	Q	822	543	421	Q	Q	19.9	19.8	16.2	Q
Lighting equipment types (more than one may apply)															
Incandescent	17	86	88	83	37	1,561	6,329	5,959	4,882	2,349	10.8	13.6	14.8	17.1	15.6
Standard fluorescent	59	229	257	247	135	5,268	19,321	20,105	18,510	9,709	11.3	11.9	12.8	13.3	13.9
Compact fluorescent	35	127	142	128	66	2,526	9,402	9,579	7,702	4,482	13.8	13.5	14.9	16.6	14.7
High-intensity discharge (HID)	8	44	49	41	23	600	3,260	3,407	2,644	1,445	13.6	13.6	14.5	15.4	15.6
Halogen	12	52	69	59	39	848	3,609	4,310	3,740	2,505	14.5	14.4	16.1	15.8	15.5
LED	65	224	232	226	112	4,406	18,286	16,306	15,653	7,199	14.7	12.3	14.3	14.4	15.6
Other	Q	Q	Q	N	Q	Q	Q	Q	N	Q	Q	Q	Q	N	Q
Refrigeration equipment (more than one may apply)															
Any refrigeration	77	251	288	281	151	5,567	21,218	21,171	19,741	9,892	13.8	11.8	13.6	14.2	15.3
Walk-in units	44	144	151	128	79	2,138	8,523	8,628	6,162	3,933	20.7	16.9	17.5	20.7	20.1
Cases or cabinets	38	127	139	126	69	2,055	8,017	8,345	6,713	3,386	18.3	15.8	16.7	18.8	20.4
Large cold storage areas	Q	15	24	19	14	313	641	1,036	895	707	Q	22.8	23.6	21.0	19.7
Commercial ice makers	30	141	160	151	87	2,223	8,776	10,082	8,685	4,907	13.6	16.1	15.8	17.4	17.6
Residential-type or compact units	49	199	235	223	118	4,571	17,938	17,835	16,301	8,090	10.7	11.1	13.2	13.7	14.5
Vending machines	35	148	171	165	91	2,725	11,216	12,494	10,402	5,234	12.9	13.2	13.7	15.9	17.4
No refrigeration	10	46	31	39	22	1,367	5,121	3,560	4,865	2,343	7.2	9.0	8.7	8.0	9.2
Office equipment (more than one may apply)															
Desktop computers	77	264	295	289	159	5,601	22,212	22,354	20,947	10,897	13.8	11.9	13.2	13.8	14.6
With multiple monitors	42	172	210	187	93	3,674	13,454	15,082	12,516	6,118	11.5	12.8	13.9	14.9	15.3
Laptop computers	58	235	254	233	128	4,839	19,621	19,223	17,086	8,606	11.9	12.0	13.2	13.7	14.9
Dedicated servers	51	184	215	175	102	3,717	14,203	15,283	11,947	6,446	13.8	13.0	14.1	14.6	15.8
Tablets charged in building	47	178	192	183	97	3,645	13,511	13,319	12,072	6,231	12.9	13.2	14.4	15.1	15.6
Large floor-standing office devices ^c	39	178	217	189	95	3,419	14,662	16,048	13,228	6,732	11.4	12.1	13.5	14.3	14.1
Smaller desktop office devices ^c	67	243	271	260	141	5,270	20,321	20,338	19,003	9,534	12.8	12.0	13.3	13.7	14.7
Interactive whiteboards	13	53	75	46	28	1,234	4,771	5,578	3,412	1,944	10.5	11.2	13.4	13.6	14.3
Televisions or video displays	57	219	248	234	128	4,302	17,059	17,956	15,866	8,436	13.2	12.9	13.8	14.7	15.2
Point-of-sale devices or cash registers	40	148	151	139	84	2,655	9,928	9,246	7,405	4,372	14.9	14.9	16.3	18.7	19.2
Food preparation or serving areas in non-food service buildings (more than one may apply)															
Snack bar, concession stand, or coffee shop	11	44	47	36	23	873	3,101	2,904	2,096	1,387	12.2	14.0	16.1	17.0	16.8
Fast food or small restaurant	6	54	53	37	25	475	3,035	2,897	1,951	1,401	13.1	17.7	18.4	19.0	17.7
Cafeteria or large restaurant	13	51	67	41	27	1,198	4,245	4,782	2,564	1,741	10.8	11.9	14.0	16.2	15.3
Commercial kitchen or food preparation area	17	78	77	65	50	1,133	5,251	4,874	3,695	2,745	15.1	14.8	15.7	17.5	18.2
Small kitchen area	18	71	70	53	36	1,598	6,536	5,550	4,245	2,589	11.0	10.9	12.6	12.4	13.8

Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)						Electricity energy intensity (kWh/square foot)				
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	87	297	319	320	173	6,934	26,339	24,731	24,605	12,235	12.5	11.3	12.9	13.0	14.1
Separate computer areas (more than one may apply)															
Server closet	43	171	183	166	93	3,560	12,941	14,239	11,581	6,401	12.0	13.2	12.8	14.3	14.6
Data center	9	47	69	38	21	576	3,036	4,448	2,041	1,283	16.1	15.6	15.4	18.8	16.4
Computer-based training room	16	60	71	48	35	1,332	4,318	5,297	3,287	2,321	11.8	13.9	13.5	14.7	15.1
Student or public computer center	8	40	49	35	21	818	3,499	4,050	2,704	1,457	9.9	11.4	12.0	13.1	14.7
Window and interior lighting features (more than one may apply)															
Multipaned windows	78	252	269	242	123	5,827	21,655	19,589	17,518	7,891	13.4	11.6	13.7	13.8	15.6
Tinted window glass	29	146	171	181	96	2,216	10,222	12,443	12,799	6,565	13.0	14.2	13.8	14.1	14.7
Reflective window glass	20	72	80	66	41	1,206	4,776	4,818	4,530	2,590	16.3	15.1	16.5	14.5	16.0
External overhangs or awnings	26	102	97	127	58	1,695	7,420	6,889	8,971	3,705	15.6	13.8	14.0	14.1	15.5
Skylights or atriums	16	67	79	58	37	1,358	5,015	6,131	4,602	2,692	11.9	13.3	12.9	12.5	13.8
Light scheduling	35	134	145	129	78	2,374	9,406	9,557	7,411	4,804	14.8	14.3	15.1	17.4	16.2
Occupancy sensors	39	158	192	145	77	3,174	12,882	13,547	9,850	4,850	12.4	12.3	14.2	14.7	15.9
Multilevel lighting or dimming	14	67	62	47	33	1,028	4,482	4,056	2,868	1,990	13.4	14.9	15.4	16.5	16.4
Daylight harvesting	5	36	34	23	20	307	1,978	2,273	1,505	1,181	16.9	18.3	15.1	15.2	17.1
Plug-load control	Q	15	10	4	5	Q	519	615	353	354	Q	28.1	16.7	12.2	13.7
Demand responsive lighting	Q	7	10	Q	3	Q	583	915	Q	212	Q	11.9	11.4	Q	13.8
Building automation system (BAS) for lighting	19	66	71	64	48	1,202	4,241	4,595	3,754	2,852	15.9	15.6	15.4	17.2	16.7
Electric vehicle (EV) charging															
Charging stations associated with the building	6	30	42	31	22	486	2,501	3,252	2,433	1,493	13.3	12.0	12.9	12.9	14.5
Annual consumption (kilowatthours)															
10,000 or less	1	1	1	1	0	300	1,127	545	390	319	1.8	1.3	1.5	1.7	1.3
10,001 to 50,000	5	17	12	16	7	1,198	4,152	2,320	3,214	1,182	4.5	4.2	5.0	5.1	6.2
50,001 to 100,000	7	21	13	21	10	782	2,862	1,460	2,568	1,172	8.8	7.2	8.6	8.1	8.7
100,001 to 500,000	21	61	59	80	50	1,995	6,172	5,330	6,952	3,678	10.6	9.8	11.0	11.6	13.7
500,001 to 1,000,000	11	50	44	50	21	934	3,806	3,584	3,651	1,519	11.4	13.2	12.4	13.6	14.1
1,000,001 to 5,000,000	30	96	102	96	49	1,321	5,836	7,028	5,640	2,818	22.5	16.5	14.5	17.0	17.5
Over 5,000,000	12	51	89	56	34	405	2,384	4,464	2,190	1,547	30.5	21.2	20.0	25.8	22.0

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.

^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 C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity						
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Building floorspace (square feet)															
1,001 to 5,000	29.2	14.5	18.6	13.7	19.9	24.3	14.5	17.8	13.4	19.1	14.1	10.6	9.1	5.8	12.6
5,001 to 10,000	22.5	15.1	19.1	17.3	19.9	21.9	17.5	20.5	14.6	20.0	13.7	14.4	10.4	9.8	12.5
10,001 to 25,000	54.4	15.7	19.4	14.5	19.9	21.4	10.9	18.1	12.6	24.4	47.3	11.2	11.0	6.0	16.1
25,001 to 50,000	35.4	14.6	18.9	11.1	20.5	31.6	12.5	14.2	11.8	20.6	22.8	9.1	11.8	9.3	10.4
50,001 to 100,000	22.3	15.8	14.8	17.3	13.5	16.2	14.4	14.9	14.8	15.0	12.0	8.9	5.6	6.8	5.9
100,001 to 200,000	25.4	14.3	11.0	13.8	15.6	24.8	10.8	12.5	16.2	16.1	13.1	9.0	4.4	7.2	9.7
200,001 to 500,000	32.7	17.5	15.8	13.0	16.7	26.2	13.7	10.4	10.3	14.2	22.8	12.4	8.5	7.5	7.0
Over 500,000	38.1	13.9	16.6	20.5	16.1	35.2	15.9	16.0	20.8	14.5	16.3	6.9	6.6	14.2	11.6
Principal building activity															
Education	21.7	14.9	15.5	13.8	19.3	20.9	13.2	15.4	13.0	18.0	7.3	5.2	4.4	5.9	7.2
Food sales	70.5	27.6	30.0	33.2	41.9	52.5	25.3	31.5	36.1	36.4	47.8	6.6	11.3	8.4	21.5
Food service	24.5	23.8	21.8	19.9	23.7	26.0	19.5	23.9	18.2	23.8	19.3	10.2	8.7	10.3	8.4
Health care	17.9	21.1	15.1	13.2	15.4	18.0	13.9	16.6	12.6	12.5	4.2	12.2	5.3	4.5	5.8
Inpatient	22.1	26.6	17.2	16.8	18.6	22.3	18.0	20.1	14.6	19.1	5.1	14.4	7.0	5.0	4.1
Outpatient	38.7	19.0	16.9	17.7	17.2	38.0	17.1	18.0	16.0	13.0	5.7	9.6	6.2	7.8	11.2
Lodging	19.5	23.1	21.9	22.7	17.9	20.6	15.8	21.9	18.9	19.2	8.2	12.7	5.4	7.9	9.3
Mercantile	24.7	14.9	18.4	14.2	18.8	24.7	13.1	16.0	14.5	17.2	14.4	7.5	8.6	3.4	7.0
Retail (other than mall)	24.6	19.4	19.5	20.3	19.3	28.4	18.3	20.3	20.0	20.7	10.3	14.1	9.9	7.3	13.1
Enclosed and strip malls	46.6	16.9	24.7	16.6	24.9	34.3	15.8	22.7	16.3	23.5	22.5	4.5	8.4	3.2	4.7
Office	14.8	14.8	13.6	12.4	15.1	17.2	13.3	13.6	11.4	14.8	6.8	6.1	4.4	3.9	5.0
Public assembly	29.4	13.3	18.0	24.8	16.0	23.7	12.9	15.6	17.3	15.4	12.1	10.2	5.1	11.8	7.7
Public order and safety	63.7	29.5	39.6	40.2	35.4	54.4	23.5	35.0	32.3	33.3	24.1	11.1	11.9	14.6	17.6
Religious worship	25.9	26.3	17.2	17.2	17.3	35.3	22.7	15.1	19.7	18.8	20.9	18.2	11.0	8.1	9.4
Service	33.6	16.6	20.2	19.0	31.4	31.3	12.9	21.0	22.9	22.3	10.8	12.7	9.9	14.7	16.4
Warehouse and storage	35.0	16.6	19.0	16.6	28.4	33.3	15.0	14.2	15.0	30.2	25.8	9.9	9.0	10.2	18.8
Other	54.8	29.7	27.7	30.1	67.0	37.1	29.4	22.4	31.5	59.4	29.5	24.7	19.8	14.5	38.2
Vacant	48.9	35.5	28.7	31.6	43.4	48.9	32.0	26.8	26.7	37.4	0.0	20.8	37.2	33.8	23.5
Year constructed															
Before 1920	35.9	27.2	20.0	27.6	76.5	31.7	16.8	20.3	25.6	72.5	11.6	24.1	10.3	18.3	21.6
1920 to 1945	37.7	18.3	19.9	21.7	28.5	38.9	15.9	18.8	20.7	30.0	24.6	10.8	9.1	15.0	23.9
1946 to 1959	25.9	19.0	16.7	25.1	28.9	27.2	18.3	17.1	18.0	25.5	12.5	10.4	15.3	13.7	23.4
1960 to 1969	20.4	16.1	13.6	13.2	22.1	21.2	14.5	11.8	10.7	20.1	18.7	11.2	7.7	9.1	11.2
1970 to 1979	20.1	17.7	14.7	15.5	22.3	20.6	12.8	12.2	15.2	18.9	14.2	8.4	7.4	13.2	13.4
1980 to 1989	22.7	15.4	16.9	12.0	12.7	18.4	14.5	15.5	13.0	13.4	10.1	8.1	9.4	8.4	8.0
1990 to 1999	26.7	12.5	14.3	13.4	17.0	21.7	16.7	15.0	13.5	21.2	10.2	12.2	6.3	5.5	10.1
2000 to 2009	40.0	12.1	13.0	17.0	17.2	28.8	11.6	13.4	16.6	18.4	36.1	7.2	4.7	5.1	6.1
2010 to 2018	26.9	19.4	21.3	15.6	18.0	23.9	15.8	19.2	15.7	21.0	9.3	15.2	12.2	10.4	10.1

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Census region and division															
Northeast	24.2	15.5	10.1	0.0	0.0	16.5	13.6	12.4	0.0	0.0	23.2	5.3	8.7	0.0	0.0
New England	26.2	17.7	70.5	0.0	0.0	13.2	18.1	70.5	0.0	0.0	26.1	9.3	0.9	0.0	0.0
Middle Atlantic	60.2	23.1	10.1	0.0	0.0	62.2	18.9	12.6	0.0	0.0	4.3	7.2	9.0	0.0	0.0
Midwest	20.8	12.4	24.7	0.0	0.0	22.4	12.2	23.8	0.0	0.0	19.1	3.6	5.7	0.0	0.0
East North Central	47.1	13.9	39.8	0.0	0.0	46.5	14.6	39.7	0.0	0.0	7.1	4.2	10.1	0.0	0.0
West North Central	20.4	25.1	15.3	0.0	0.0	9.0	18.6	13.3	0.0	0.0	28.3	8.7	3.1	0.0	0.0
South	0.0	0.0	18.7	13.9	13.8	0.0	0.0	20.8	13.9	14.6	0.0	0.0	4.9	4.3	6.2
South Atlantic	0.0	0.0	11.2	15.3	16.6	0.0	0.0	8.9	12.5	18.4	0.0	0.0	4.3	6.3	8.7
East South Central	0.0	0.0	55.7	26.5	71.5	0.0	0.0	52.8	31.3	70.7	0.0	0.0	8.5	7.1	2.9
West South Central	0.0	0.0	84.7	41.6	20.2	0.0	0.0	88.1	41.4	21.1	0.0	0.0	16.6	5.1	8.8
West	41.2	20.8	39.8	10.0	26.2	47.0	16.5	40.0	10.4	32.2	14.9	9.6	9.7	7.5	8.8
Mountain	54.5	18.6	78.0	68.9	14.7	64.1	15.2	72.7	69.1	16.6	29.1	11.3	17.3	0.6	4.6
Pacific	54.1	51.7	42.5	9.3	82.9	58.0	41.2	47.6	8.8	85.2	16.3	18.0	10.5	8.1	9.4
Number of floors															
1	24.0	12.7	14.8	12.3	17.7	16.1	11.0	15.2	11.6	17.8	23.3	4.7	7.9	3.8	6.9
2	22.0	13.2	12.0	10.3	11.3	21.7	10.6	12.3	11.0	14.9	9.2	6.8	5.1	6.9	10.1
3	27.4	18.0	16.1	23.8	30.0	26.6	13.6	15.9	18.0	28.2	11.0	9.5	11.6	10.4	10.6
4 to 9	20.7	15.2	14.4	20.6	14.7	23.3	12.0	14.5	19.1	11.8	12.5	9.5	5.8	7.0	10.1
10 or more	23.5	20.6	19.1	14.7	26.7	20.9	22.1	19.8	17.4	21.3	10.3	15.2	5.7	6.5	10.0
Elevators and escalators (more than one may apply)															
Any elevators	17.9	9.1	11.8	14.6	12.1	19.9	9.1	11.4	12.7	10.9	6.1	5.2	4.0	4.4	5.6
1 elevator	24.7	13.6	13.6	22.0	16.7	24.6	11.9	12.2	19.0	17.1	7.3	7.3	5.1	6.5	7.9
2 to 5 elevators	20.5	11.3	13.9	16.8	15.0	21.4	11.3	13.9	13.5	12.7	6.9	8.4	7.5	7.1	5.2
6 or more elevators	19.8	19.8	16.1	13.5	19.4	20.3	15.3	17.1	13.7	15.4	8.4	11.6	5.4	7.5	10.6
Any escalators	19.9	23.5	29.2	22.6	20.2	25.0	21.0	26.9	21.5	15.6	4.5	6.7	5.7	10.7	15.7
Number of workers (main shift)															
Fewer than 5	25.2	14.5	17.8	15.8	20.6	24.6	14.1	15.9	14.4	21.8	6.3	8.2	8.6	9.2	11.7
5 to 9	61.9	15.0	16.3	16.4	24.9	30.6	15.6	15.9	14.8	20.2	62.7	9.5	7.4	7.2	9.4
10 to 19	22.0	13.2	17.0	15.5	20.2	21.8	16.7	20.6	13.0	24.8	7.3	14.7	10.6	7.2	15.7
20 to 49	25.0	14.4	15.2	13.9	15.5	19.1	12.5	15.9	13.5	18.8	19.7	9.3	8.2	5.5	9.9
50 to 99	20.7	12.4	15.9	16.5	20.0	20.1	12.8	14.2	14.1	18.1	11.3	8.6	9.8	5.7	6.5
100 to 249	32.8	14.8	10.5	14.4	16.7	27.2	12.6	11.3	13.0	14.4	10.8	4.8	6.4	5.0	4.3
250 or more	19.9	15.0	14.0	13.1	14.5	19.7	12.6	14.2	12.7	12.4	9.2	8.4	4.3	6.2	7.1
Weekly operating hours															
Fewer than 40	25.6	24.5	21.0	16.4	23.5	25.3	12.0	17.7	16.9	24.4	8.7	20.4	8.7	10.6	14.6
40 to 48	58.2	14.4	15.0	11.1	19.3	18.9	12.9	13.9	12.0	21.4	53.3	6.9	6.2	5.8	10.0
49 to 60	20.0	12.7	12.0	11.4	17.1	24.3	11.3	11.9	11.5	16.5	5.9	6.6	5.3	6.5	7.1
61 to 84	18.4	14.4	13.9	15.0	15.1	18.7	11.0	14.3	11.9	15.7	17.9	9.3	5.3	5.7	8.5
85 to 167	34.9	12.2	15.3	13.9	16.3	29.2	12.3	15.6	13.3	16.3	16.9	6.5	10.9	8.7	12.1
Open continuously	19.5	12.8	11.7	14.9	14.7	18.4	11.1	12.8	14.4	15.8	16.0	4.6	6.8	5.8	6.9

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Ownership and occupancy															
Nongovernment owned	17.2	9.2	10.0	10.1	11.4	18.0	8.5	10.4	10.6	12.6	16.9	3.5	4.5	3.7	6.4
Owner occupied	18.5	10.1	12.1	10.9	12.4	19.4	8.8	12.3	11.6	14.6	23.2	5.1	4.3	4.7	6.8
Leased to tenant or tenants	20.9	12.2	11.8	11.1	14.3	22.6	11.3	10.6	10.8	14.5	9.0	5.9	7.6	4.6	8.3
Unoccupied	0.0	50.7	38.1	66.6	74.3	0.0	45.3	36.4	43.6	62.8	0.0	36.2	45.3	74.9	41.8
Government owned	18.6	12.7	13.8	22.8	20.6	19.8	11.3	13.7	18.4	19.0	8.1	4.5	3.7	8.3	5.4
Federal	38.4	28.6	34.0	29.7	58.8	39.1	23.4	32.8	30.9	45.6	9.4	14.7	7.3	10.9	22.4
State	31.9	22.3	23.1	38.0	31.4	25.6	17.7	21.4	28.9	31.2	15.2	10.0	8.9	13.1	6.1
Local	20.2	15.3	15.8	14.3	17.7	21.8	13.6	15.8	16.0	17.5	6.8	5.9	5.2	8.4	6.6
Party responsible for operation of energy systems															
Building owner	17.4	9.1	10.1	11.4	14.4	17.9	8.5	10.9	10.7	15.6	16.5	3.7	3.5	4.5	5.0
Business owner or tenant	25.9	14.2	18.3	13.0	17.8	23.8	15.9	15.4	12.1	21.1	13.0	12.5	10.5	6.9	10.1
Property management	29.3	32.8	26.6	24.8	29.4	29.3	29.3	22.1	21.1	28.8	5.6	17.0	18.9	12.0	14.2
Other	38.6	27.3	24.0	29.5	16.7	34.3	20.0	28.6	23.1	15.6	35.6	17.1	10.2	15.2	20.6
Provider of direct input on energy-related equipment purchases															
Building owner	17.2	9.1	10.5	11.5	13.4	17.7	8.4	11.3	10.6	14.7	16.1	3.1	3.6	4.6	5.4
Business owner or tenant	32.7	20.4	20.1	13.4	24.3	23.5	16.3	16.5	14.6	29.0	15.7	11.6	11.6	9.2	11.2
Property management	64.9	42.8	15.1	37.4	47.5	72.9	35.6	24.6	30.5	52.3	4.6	20.6	18.4	13.6	33.6
Other	34.6	17.9	17.7	17.5	18.0	46.0	17.4	16.2	14.9	14.3	24.2	12.5	9.6	9.9	15.3
Number of establishments															
1	18.1	10.3	11.2	12.5	14.6	16.9	9.1	12.2	11.1	16.5	18.0	4.6	4.3	5.1	6.2
2 to 5	23.5	11.3	16.6	14.7	16.3	22.3	10.0	15.7	13.1	14.1	8.7	6.5	6.5	4.9	8.2
6 to 10	30.9	19.1	15.3	15.7	24.7	24.1	19.2	15.2	16.1	20.6	22.1	9.1	6.0	9.2	11.0
11 to 20	42.2	17.3	22.5	16.6	26.5	47.9	19.3	17.6	14.6	25.6	12.8	12.9	11.1	5.8	10.7
More than 20	31.5	32.4	18.2	23.1	19.0	36.2	27.7	18.2	20.1	16.5	28.9	7.3	6.7	8.5	12.6
Currently unoccupied	0.0	45.4	35.0	47.5	73.4	0.0	37.0	27.7	37.2	62.0	0.0	37.6	34.8	54.3	41.1
Predominant exterior wall material															
Brick, stone, or stucco	15.2	11.8	10.7	13.6	16.2	17.0	10.2	11.8	11.6	16.3	4.3	5.1	4.2	5.9	5.5
Concrete (block or poured)	21.1	13.1	13.5	14.2	11.6	19.6	11.8	14.6	12.9	11.8	15.4	9.6	11.3	7.1	7.9
Concrete panels	19.6	19.2	19.2	15.3	24.5	22.6	21.0	16.9	14.2	25.1	12.5	14.3	11.2	11.7	12.6
Siding or shingles	55.5	21.4	21.6	20.3	34.2	19.5	17.9	19.8	28.0	34.9	54.0	12.6	11.0	22.1	15.1
Metal panels	30.5	17.5	21.6	17.2	22.0	31.3	13.2	18.9	14.9	23.8	6.6	14.1	9.7	11.3	13.9
Window glass	37.6	21.9	20.4	25.2	26.7	27.5	22.4	18.9	24.1	27.7	24.4	7.5	6.2	10.3	8.7
Other	53.3	39.2	20.9	17.4	37.6	43.0	33.2	22.8	20.4	33.6	17.1	21.0	16.1	11.9	25.8
Predominant roof material															
Metal surfacing	41.8	16.5	17.7	17.6	21.3	27.0	11.2	18.3	14.4	23.4	46.3	11.2	6.4	8.2	7.6
Synthetic or rubber	16.6	10.1	9.9	13.2	13.4	15.7	8.9	10.6	12.5	13.6	8.0	4.6	5.0	5.3	4.7
Built-up	27.0	13.5	15.1	10.8	15.7	22.4	14.3	12.9	10.3	15.4	15.9	7.1	5.6	5.4	8.0
Slate or tile shingles	61.3	19.7	14.5	24.3	26.6	48.4	22.9	21.3	22.3	21.2	37.1	10.7	14.9	7.3	20.8
Wooden materials (including shingles)	43.7	39.6	39.4	23.2	33.4	45.7	40.5	38.4	28.5	32.1	15.0	20.0	30.0	15.2	11.3
Asphalt, fiberglass, or other shingles	19.9	20.8	15.0	14.2	17.6	20.4	14.8	14.4	14.1	18.6	10.7	10.0	10.9	9.4	9.0
Concrete	54.4	50.8	17.9	23.1	28.9	51.9	28.4	18.6	27.8	24.0	16.1	42.5	8.1	12.8	16.9
Other	28.5	18.9	38.6	20.6	31.1	29.9	16.8	19.1	21.4	28.4	15.1	16.9	37.3	16.8	18.9

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Roof tilt															
Flat	14.9	9.3	9.7	9.8	12.3	14.4	8.5	10.0	8.6	13.5	8.4	4.6	4.1	4.2	5.9
Shallow pitch	26.3	15.4	16.1	13.5	15.3	27.9	10.3	15.2	13.9	16.8	15.2	9.0	8.0	7.3	8.1
Steeper pitch	44.1	13.3	16.4	15.5	23.1	19.2	13.5	17.4	14.9	23.9	46.2	7.7	7.4	5.0	12.0
Cool roof characteristics (more than one may apply)															
White or reflective coating or paint	39.8	12.3	13.6	9.8	13.1	21.2	10.4	12.8	10.3	14.4	32.9	4.9	4.6	3.5	5.1
White or reflective tiles or shingles	47.1	22.2	34.7	31.8	30.2	40.9	23.4	21.5	21.6	26.2	17.0	17.0	28.4	14.4	13.3
Aluminum coating	30.3	19.8	22.0	24.6	22.3	39.3	19.7	19.4	19.7	21.9	28.4	14.3	12.6	16.5	11.8
Ballasted roof system	26.5	16.7	20.1	16.2	31.3	27.3	16.9	19.4	17.7	26.4	5.5	6.4	6.1	11.3	27.6
Other cool roof property	56.4	26.8	41.4	34.1	58.4	26.2	28.0	38.7	35.1	49.9	29.1	14.6	13.7	17.9	30.6
Renovations since 2000 (more than one may apply)															
Any type of renovation	18.4	10.0	10.1	11.2	13.2	20.3	8.5	10.5	12.3	13.5	10.1	5.6	3.6	3.3	6.4
Addition or annex	20.7	11.1	14.7	13.2	15.7	25.7	11.4	14.8	15.6	16.4	8.8	5.9	6.8	8.5	11.2
Reduction in floorspace	74.6	28.2	22.3	31.6	42.4	60.4	27.6	18.9	27.4	41.5	46.6	8.1	15.0	12.2	21.7
Roof replacement	19.5	12.4	12.2	12.7	18.4	19.0	9.6	11.5	13.5	21.0	7.1	6.8	5.3	5.1	9.8
Interior wall reconfiguration	19.5	10.2	12.8	13.4	15.7	22.2	10.1	12.7	12.3	12.9	8.3	6.2	3.7	5.6	8.1
Window replacement	21.8	14.5	14.9	23.6	21.5	24.2	11.9	13.3	19.8	23.7	10.5	9.4	6.3	6.6	12.7
HVAC equipment upgrade	19.7	10.6	10.6	12.5	14.5	20.2	10.4	10.6	13.4	15.4	13.5	5.9	3.5	5.1	8.4
Lighting upgrade	21.6	11.3	10.9	11.7	14.1	23.3	9.1	10.2	12.5	12.7	7.1	6.8	2.8	4.0	7.9
Electrical upgrade	22.9	11.4	11.0	16.9	16.2	25.7	11.9	10.2	19.4	14.4	13.0	7.4	4.1	7.3	12.4
Plumbing system upgrade	20.3	12.6	12.3	14.2	19.3	22.2	12.2	11.6	15.3	15.5	9.7	6.1	4.5	4.7	10.2
Insulation upgrade	25.2	15.3	17.8	18.1	22.6	20.7	14.9	17.2	20.1	22.8	25.4	9.1	6.3	8.4	10.6
Fire, safety, or security upgrade	19.5	13.1	11.6	12.5	14.7	22.5	10.9	11.1	14.2	14.2	5.9	8.0	3.8	6.5	9.9
Structural upgrade	36.2	19.4	22.9	22.2	28.7	33.0	16.0	22.8	23.2	28.9	17.7	13.7	6.6	14.3	12.4
Other	94.8	29.2	28.0	27.6	31.4	95.2	37.1	26.1	27.5	38.1	3.0	38.8	8.4	10.7	8.1
No renovations	23.1	10.4	10.8	12.2	15.6	16.4	9.0	11.4	10.1	17.7	24.9	4.0	6.4	5.9	5.9
Buildings constructed 2013 or later	28.7	22.3	20.5	16.9	19.1	28.6	17.1	21.1	17.0	21.6	13.2	17.4	11.7	10.8	11.1
Energy sources (more than one may apply)															
Electricity	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Natural gas	21.1	9.1	10.7	10.7	14.0	23.3	8.9	10.8	11.1	13.3	7.2	3.4	4.1	4.1	4.3
Fuel oil	35.8	12.7	12.2	10.4	14.2	16.4	11.1	12.4	11.1	13.6	23.9	7.4	5.9	6.3	7.6
District heat	24.4	26.5	18.2	32.8	28.7	24.8	20.6	17.9	31.8	25.5	8.3	19.2	6.2	6.8	6.4
District chilled water	41.4	33.0	29.8	34.6	19.4	44.4	21.4	31.8	31.2	17.0	12.6	22.6	4.1	8.3	9.4
Propane	44.4	15.4	22.2	18.0	16.9	15.8	14.2	21.5	17.3	15.5	44.6	9.7	9.5	7.3	11.3
Solar	44.5	24.7	23.7	14.9	29.7	46.2	21.4	23.3	12.7	27.5	11.9	13.2	8.1	10.0	9.3
Wood, coal, and other	29.8	27.1	36.2	33.7	39.6	43.2	26.3	35.6	21.6	39.4	47.4	17.0	17.8	35.9	14.1
Space-heating energy sources															
Electricity	30.7	11.6	10.0	10.6	14.5	21.0	9.6	10.6	9.8	15.6	19.4	5.6	4.4	3.2	5.7
Electricity main	53.0	16.6	11.6	13.0	16.4	42.7	15.3	12.7	11.2	17.1	18.2	7.6	6.3	4.3	6.5
Electricity secondary	23.6	11.1	12.4	15.0	16.6	22.2	9.7	11.5	13.1	15.3	14.6	7.3	4.3	6.4	7.4
Other excluding electricity	19.4	9.6	11.6	14.0	14.6	20.9	9.8	12.0	13.3	12.9	3.7	4.3	5.5	5.9	8.2
Buildings without heating	48.3	21.5	36.7	21.0	19.8	44.8	23.5	29.2	15.2	21.8	18.4	21.4	38.6	25.5	14.1

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Primary space-heating energy source															
Electricity	53.0	16.6	11.6	13.0	16.4	42.7	15.3	12.7	11.2	17.1	18.2	7.6	6.3	4.3	6.5
Natural gas	21.4	8.9	11.6	11.1	15.0	23.6	9.0	11.3	12.2	14.3	4.2	3.8	4.9	4.5	5.9
Fuel oil	21.9	33.9	19.7	45.0	82.8	28.2	29.0	21.8	48.4	83.3	21.9	20.2	9.3	19.0	0.7
District heat	25.0	20.7	19.4	35.6	25.2	25.7	20.7	19.1	35.1	25.0	9.0	15.3	6.6	6.3	6.5
Propane	59.5	26.4	52.7	52.6	67.3	30.6	29.9	38.5	45.8	45.7	46.8	10.1	32.7	30.4	45.2
Other sources ^b	51.1	30.6	49.9	98.4	0.0	47.2	32.5	70.5	72.3	0.0	41.5	15.6	19.2	74.3	0.0
Cooling energy sources															
Electricity	15.7	9.1	9.5	10.6	12.4	16.9	8.5	10.0	10.4	13.2	7.0	3.5	3.6	3.4	4.8
Other excluding electricity	54.2	40.2	32.5	30.3	21.7	56.3	25.7	35.6	27.5	18.6	6.9	26.1	7.3	14.4	12.5
Buildings without cooling	62.9	21.3	28.3	25.3	51.9	27.3	11.7	26.5	16.8	49.7	63.3	16.7	9.3	33.2	15.5
Water-heating energy sources															
Electricity	31.9	12.2	9.3	11.3	13.0	18.0	10.2	9.9	10.8	13.8	26.6	5.0	5.8	3.5	6.4
Other excluding electricity	20.0	9.5	12.8	13.4	14.9	19.6	9.7	12.7	12.3	15.4	10.5	5.1	3.1	5.0	5.4
Buildings without water heating	49.0	26.9	25.0	19.5	26.9	31.5	16.5	21.3	17.1	26.6	39.0	20.8	14.4	19.9	12.9
Cooking energy sources															
Electricity	33.3	10.6	11.5	12.5	14.0	19.3	9.7	12.0	11.9	13.5	25.0	4.0	4.1	4.1	6.9
Other excluding electricity	25.9	11.4	12.3	11.9	16.3	21.8	11.5	12.0	13.5	14.5	10.4	9.1	4.6	5.9	6.9
Buildings without cooking	18.2	11.9	12.2	11.0	16.9	20.8	9.5	12.2	9.9	19.2	12.7	7.0	6.6	5.6	7.3
Energy end uses (more than one may apply)															
Buildings with space heating	17.1	8.9	9.9	10.6	13.4	16.9	8.4	10.6	10.3	14.1	14.3	3.2	3.6	3.4	5.1
Buildings with cooling	16.2	8.9	9.9	10.5	12.3	17.3	8.4	10.4	10.3	13.0	6.8	3.4	3.5	3.5	4.7
Buildings with water heating	17.8	8.9	9.8	10.6	12.2	17.1	8.4	10.4	10.1	13.1	14.6	3.2	3.7	3.3	4.7
Buildings with cooking	27.4	9.2	10.1	11.4	11.6	16.8	8.7	10.2	11.4	11.6	21.7	3.5	3.2	3.6	5.4
Buildings with manufacturing	57.5	18.7	19.1	18.1	26.4	29.1	13.8	18.7	13.3	24.5	60.0	16.4	13.1	12.1	20.0
Buildings with electricity generation	31.0	11.0	11.2	10.7	13.3	19.3	9.6	11.8	10.3	13.2	21.1	5.8	5.2	5.2	6.5
Buildings with lighting	16.7	8.8	9.9	10.4	12.4	17.1	8.1	10.6	9.9	13.5	13.9	3.1	3.7	3.6	5.1
Percentage of floorspace heated															
Not heated	48.3	21.5	36.7	21.0	19.8	44.8	23.5	29.2	15.2	21.8	18.4	21.4	38.6	25.5	14.1
1% to 50%	33.0	23.8	19.8	12.5	17.8	32.9	16.8	17.1	11.9	20.8	37.9	23.7	10.9	8.4	10.9
51% to 99%	30.7	11.3	12.2	12.3	18.5	28.4	10.1	11.5	12.5	18.7	23.6	6.4	4.3	5.5	5.3
100%	20.2	9.7	10.5	11.0	13.5	17.2	8.8	11.6	10.6	14.0	17.9	3.5	4.1	4.7	5.9
Percentage of floorspace cooled															
Not cooled	62.9	21.3	28.3	25.3	51.9	27.3	11.7	26.5	16.8	49.7	63.3	16.7	9.3	33.2	15.5
1% to 50%	20.9	12.5	16.3	10.1	17.8	21.0	10.8	12.5	11.4	24.0	12.9	7.0	14.2	6.4	11.8
51% to 99%	25.5	10.5	11.0	15.1	13.8	21.3	10.8	10.1	14.2	13.4	10.2	6.9	5.7	5.8	5.7
100%	17.8	10.8	12.0	10.2	13.5	21.0	9.1	13.8	10.1	13.6	10.8	5.5	3.9	3.6	5.1
Percentage lit when open															
0%	50.4	70.9	48.8	94.0	49.2	50.4	71.5	50.5	60.6	49.2	0.0	1.9	31.5	71.6	0.0
1% to 50%	28.8	16.6	17.9	12.9	20.8	25.9	13.2	16.0	14.3	23.0	17.2	10.1	10.6	9.0	10.8
51% to 99%	27.1	9.7	12.1	11.0	12.6	18.3	9.2	11.5	10.4	13.3	23.1	3.6	5.6	4.3	6.3
100%	16.9	10.7	10.4	11.8	13.3	15.1	9.2	10.8	11.4	14.1	5.3	6.1	4.4	4.4	6.7
Building never open or electricity not used	46.0	30.3	24.4	47.6	50.3	48.7	26.2	21.3	32.1	47.0	9.5	14.6	21.7	39.7	22.9

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Percentage lit during off hours															
0%	27.8	18.7	19.0	14.2	30.9	25.3	12.1	17.1	15.5	27.6	14.8	15.5	8.4	7.6	9.3
1% to 50%	20.0	9.0	10.3	10.4	11.8	17.5	8.7	10.3	10.1	12.5	17.9	3.0	4.4	3.2	5.1
51% to 100%	32.1	20.2	18.6	15.7	19.7	25.9	15.5	15.1	13.1	20.9	32.9	12.3	11.7	9.3	10.6
Building always open with no off hours	32.4	31.7	21.6	24.3	25.6	28.9	20.2	24.9	21.1	28.4	19.8	16.4	12.9	12.3	22.5
Electricity not used	0.0	0.0	0.0	0.0	0.0	0.0	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	19.7	9.0	10.8	10.4	15.5	18.0	8.3	11.8	11.2	14.2	6.5	4.4	5.2	3.7	6.3
Furnaces	25.7	14.7	17.3	15.5	22.1	26.0	10.5	16.6	14.1	25.4	14.1	7.3	6.4	6.4	9.9
Individual space heaters	20.7	14.3	11.6	14.2	15.3	21.1	10.0	11.1	12.0	17.9	18.7	9.4	4.9	4.8	11.3
Boilers	31.1	10.0	11.1	11.5	15.0	16.4	8.3	11.1	10.8	14.9	27.2	5.3	3.5	5.4	6.8
Heat pumps	29.7	17.5	12.9	11.5	21.6	32.8	15.8	13.0	9.5	24.1	29.2	6.3	4.7	6.7	11.2
District heat	24.4	20.5	18.2	33.0	25.2	24.8	20.5	18.0	32.0	25.0	8.3	15.0	6.3	6.9	6.5
Duct reheat	52.3	16.9	14.8	17.9	17.8	49.7	16.0	14.5	18.2	17.3	6.9	7.3	4.1	7.1	8.2
Other	84.6	35.8	47.2	41.9	72.0	56.8	36.8	45.4	42.5	70.7	64.7	19.8	22.3	4.0	10.4
Cooling equipment (more than one may apply)															
Packaged air-conditioning units	18.7	8.6	9.1	10.3	14.4	17.1	7.9	9.0	10.7	14.2	7.9	4.0	4.8	4.1	6.0
Residential-type central air conditioners	20.4	12.8	14.4	19.2	16.5	23.8	10.4	14.6	16.2	18.4	14.5	6.7	4.8	9.5	7.8
Individual air conditioners	21.4	16.9	11.1	16.2	18.7	22.7	10.7	11.8	14.7	18.6	12.7	10.2	6.6	5.7	10.9
Central chillers	19.1	12.7	11.5	15.2	13.9	20.3	12.8	11.6	13.3	12.0	3.3	7.6	4.0	5.0	5.8
Heat pumps	33.3	19.1	15.2	12.9	26.1	32.4	17.9	15.2	9.5	34.4	31.6	8.1	5.3	7.1	19.5
District chilled water	41.4	33.0	29.8	34.6	19.4	44.4	21.4	31.8	31.2	17.0	12.6	22.6	4.1	8.3	9.4
Swamp coolers	39.9	30.2	36.7	25.7	47.4	57.1	17.2	34.3	23.8	29.5	111.9	22.1	10.2	8.0	25.8
Other	99.9	78.7	68.0	59.9	102.1	99.9	70.1	59.7	57.7	91.2	0.0	5.1	29.6	53.5	57.9
HVAC features (more than one may apply)															
Economizer cycle	18.8	9.7	11.2	10.8	12.9	18.2	8.8	11.8	10.2	12.9	9.0	4.3	4.1	5.3	7.5
Variable air volume (VAV) system	15.9	9.9	11.0	16.7	16.5	18.2	9.7	11.6	13.3	16.9	4.9	6.0	5.7	5.8	6.9
Dedicated outside air system (DOAS)	46.3	22.3	17.6	25.1	19.0	19.9	15.3	15.9	22.6	19.2	51.8	15.6	4.0	8.6	12.3
Demand controlled ventilation (DCV)	17.8	15.9	10.4	14.6	19.0	24.8	14.0	11.4	14.5	19.2	13.7	12.3	7.3	10.2	8.3
Regular HVAC maintenance	15.6	8.9	9.8	11.2	11.9	16.4	8.4	10.6	10.6	13.3	7.2	3.2	3.6	4.2	5.2
Building automation system (BAS) controls heating or cooling	28.3	8.8	11.0	9.4	12.8	16.1	8.0	12.0	8.3	12.8	21.5	4.5	4.8	4.0	4.7
Internet-connected or smart thermostat	44.9	26.6	21.1	19.0	38.4	42.7	23.9	16.3	18.5	36.6	36.0	11.7	11.6	12.0	9.2
Programmable thermostat	25.5	14.0	14.7	14.0	15.7	26.6	11.1	13.4	14.8	20.0	4.5	7.7	5.2	5.4	10.4
Main equipment replaced since 2000 (more than one may apply)															
Heating	20.7	10.5	9.8	10.8	17.3	22.1	10.1	10.4	11.4	17.7	5.2	5.2	6.5	5.5	6.9
Cooling	18.5	13.1	13.4	12.5	12.7	19.8	11.0	12.7	11.8	12.1	7.7	5.5	5.4	4.9	9.0
Water-heating equipment															
Centralized system	21.6	9.4	10.9	12.7	14.0	16.3	8.9	11.5	11.3	13.9	18.9	3.7	4.3	4.6	5.8
Distributed system	24.3	18.0	15.3	12.3	22.9	23.7	14.4	11.3	12.0	25.5	25.8	9.6	13.7	6.9	7.2
Combination of centralized and distributed systems	28.2	12.9	12.7	15.5	15.4	27.0	9.7	12.6	14.7	14.6	8.3	6.4	5.0	6.3	8.1

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Generation technologies (more than one may apply)															
Reciprocating engine generators	32.1	10.8	11.6	11.8	13.7	18.6	10.0	12.3	11.5	13.8	21.5	6.5	5.9	6.2	6.9
Solar panels	45.3	25.1	22.9	15.2	30.5	47.0	21.5	23.1	13.0	28.9	12.2	13.4	7.7	10.1	9.8
Other generation technology	59.8	33.9	36.4	25.5	24.6	46.6	26.6	27.9	27.5	36.0	18.8	18.9	28.6	15.1	45.6
Lighting equipment types (more than one may apply)															
Incandescent	16.3	13.6	12.0	12.0	16.5	18.7	10.6	12.3	11.9	14.8	10.5	7.9	4.7	5.5	7.8
Standard fluorescent	14.8	9.6	9.3	11.3	11.7	17.7	8.8	10.1	10.7	13.6	9.6	4.1	4.4	4.3	5.0
Compact fluorescent	19.6	11.9	11.0	12.2	12.4	18.0	10.6	11.8	11.7	12.7	7.9	4.5	3.7	3.7	6.3
High-intensity discharge (HID)	20.1	18.2	14.9	15.9	12.9	21.5	12.4	14.7	20.6	13.2	18.8	11.9	4.6	10.6	7.9
Halogen	20.2	12.2	12.6	12.8	15.4	17.5	11.8	12.1	13.0	14.0	10.3	9.4	4.9	6.2	7.1
LED	20.5	8.9	9.5	10.5	13.0	15.6	8.6	10.4	9.4	13.0	17.8	3.9	4.3	4.1	5.0
Other	51.8	30.9	70.9	0.0	70.9	51.8	26.0	70.9	0.0	70.9	0.0	11.3	0.0	0.0	0.0
Refrigeration equipment (more than one may apply)															
Any refrigeration	18.6	8.9	10.1	10.7	12.0	17.2	8.8	10.9	10.4	13.0	14.9	3.6	3.9	3.9	5.2
Walk-in units	30.0	10.0	10.2	11.2	12.6	18.3	9.1	10.7	10.9	11.4	22.7	5.2	4.3	4.0	5.4
Cases or cabinets	20.8	8.6	10.3	12.0	13.9	18.7	8.8	10.4	11.8	11.5	7.7	5.9	5.1	5.1	6.5
Large cold storage areas	76.9	18.3	28.9	20.0	25.1	35.7	16.8	30.8	15.1	25.0	65.4	11.0	20.4	8.8	11.7
Commercial ice makers	17.4	9.6	10.9	13.1	11.7	17.6	8.7	10.7	12.1	11.2	4.9	5.0	3.3	3.9	6.2
Residential-type or compact units	15.4	10.1	10.5	10.5	13.4	17.1	9.2	11.2	10.3	14.8	4.0	4.4	4.6	4.3	6.3
Vending machines	18.0	8.7	11.1	12.5	12.3	19.6	9.4	11.1	12.1	12.0	3.7	5.1	4.4	4.2	4.6
No refrigeration	18.8	14.5	12.9	14.6	20.3	21.4	9.9	11.4	12.1	20.1	10.9	11.9	8.8	10.5	8.7
Office equipment (more than one may apply)															
Desktop computers	18.7	9.0	9.7	10.4	12.5	16.6	8.5	10.5	9.8	13.1	14.9	3.5	3.9	4.0	4.8
With multiple monitors	13.6	9.8	10.7	11.6	11.3	15.1	8.8	11.3	10.7	10.0	4.6	5.5	4.7	4.2	4.9
Laptop computers	16.2	9.9	10.2	10.4	11.9	17.9	9.3	10.8	9.8	11.5	5.6	3.7	4.2	4.1	4.9
Dedicated servers	16.5	9.2	10.4	9.4	11.7	16.7	8.8	11.2	10.1	12.4	8.5	4.0	4.7	4.1	4.6
Tablets charged in building	17.3	9.5	11.4	11.6	11.3	17.3	9.0	12.0	10.4	10.6	6.9	4.6	4.7	3.7	4.7
Large floor-standing office devices ^c	15.7	9.6	10.5	10.5	12.4	16.1	9.1	10.9	9.6	11.2	6.6	5.0	4.8	4.2	5.2
Smaller desktop office devices ^c	18.9	8.9	10.0	10.6	12.6	16.5	8.4	10.8	10.1	12.7	18.3	3.7	4.2	3.3	4.7
Interactive whiteboards	18.7	14.1	14.6	12.6	12.7	22.4	10.8	13.6	11.0	12.4	6.8	9.5	6.3	6.4	5.0
Televisions or video displays	15.4	9.6	10.0	10.6	11.3	16.5	8.7	10.8	10.1	12.1	7.6	4.6	4.2	3.4	5.8
Point-of-sale devices or cash registers	18.1	8.7	10.7	12.0	13.3	19.5	8.1	10.6	11.7	11.4	9.2	5.4	4.7	4.2	5.7
Food preparation or serving areas in non-food service buildings (more than one may apply)															
Snack bar, concession stand, or coffee shop	20.4	13.3	16.9	13.6	12.0	21.1	13.9	17.6	14.7	10.9	8.3	6.2	5.8	6.1	8.1
Fast food or small restaurant	22.9	11.3	13.7	14.8	15.0	25.4	11.5	14.0	14.6	13.0	21.0	3.6	5.8	5.0	7.7
Cafeteria or large restaurant	25.1	9.3	13.4	11.6	18.3	23.3	9.5	12.9	11.7	14.4	9.3	4.6	3.7	4.2	6.1
Commercial kitchen or food preparation area	26.2	12.4	11.4	12.4	13.4	19.6	11.6	11.3	11.5	13.4	14.6	6.2	3.9	4.0	7.8
Small kitchen area	23.3	12.6	12.7	14.5	14.4	22.2	10.4	11.9	14.2	14.3	7.3	6.4	4.2	6.9	8.2

Relative standard errors (RSEs) for Table C20. Electricity consumption and conditional energy intensity by climate zone^a, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity					RSEs for electricity energy intensity					
	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot	Cold or very cold	Cool	Mixed mild	Warm	Hot or very hot
All buildings	16.7	8.8	9.9	10.4	12.4	17.3	8.2	10.6	10.0	13.6	14.0	3.2	3.6	3.8	5.1
Separate computer areas (more than one may apply)															
Server closet	15.3	9.3	11.0	9.6	11.6	17.1	8.9	11.5	9.9	11.4	6.4	3.9	3.3	3.8	3.6
Data center	19.6	15.3	14.5	16.1	13.8	22.8	12.2	14.8	17.2	15.0	6.2	9.6	10.1	7.9	9.0
Computer-based training room	12.8	10.0	15.4	10.4	12.7	13.2	8.6	14.8	11.4	11.5	5.0	4.9	5.0	4.6	6.0
Student or public computer center	21.8	12.6	15.0	13.9	19.9	20.1	10.4	14.5	12.6	16.8	7.0	6.2	6.4	4.2	5.4
Window and interior lighting features (more than one may apply)															
Multipaned windows	18.5	8.8	10.1	11.3	13.3	16.8	8.1	11.2	11.1	13.8	16.3	3.5	4.0	3.9	5.2
Tinted window glass	16.7	10.5	10.6	10.6	11.7	16.8	9.6	10.7	10.1	13.2	3.4	5.5	3.9	4.5	5.7
Reflective window glass	25.7	13.3	15.4	10.9	16.3	25.3	12.0	16.6	9.6	16.7	16.7	7.1	7.6	4.6	7.3
External overhangs or awnings	21.2	10.3	13.2	11.6	17.1	20.5	10.2	14.1	12.6	15.2	6.9	7.6	5.4	3.9	5.9
Skylights or atriums	17.2	13.0	12.8	10.9	12.8	15.5	12.1	12.1	9.7	14.0	6.5	8.4	4.0	5.2	8.2
Light scheduling	21.7	10.0	11.6	12.6	13.2	21.9	8.3	11.9	10.6	12.6	13.6	5.4	4.2	4.6	4.9
Occupancy sensors	19.1	9.9	11.2	11.2	12.1	20.3	9.4	11.2	9.7	11.3	8.2	4.5	4.6	4.4	5.7
Multilevel lighting or dimming	17.5	12.0	15.8	26.3	12.9	19.5	11.1	15.5	18.8	12.7	9.7	8.4	4.5	10.4	9.0
Daylight harvesting	28.4	20.2	14.4	14.7	17.3	23.2	14.1	12.9	13.0	15.7	16.8	15.0	5.7	8.3	10.6
Plug-load control	43.0	47.5	22.1	33.7	25.3	53.6	32.4	22.7	29.8	31.3	57.5	34.4	9.8	32.6	14.7
Demand responsive lighting	68.3	18.4	22.3	40.0	31.1	43.8	27.5	25.5	36.8	28.5	47.7	13.9	15.9	19.7	18.7
Building automation system (BAS) for lighting	22.6	10.3	13.7	11.6	13.5	19.5	10.0	15.2	9.8	13.1	13.4	5.1	5.6	6.1	7.0
Electric vehicle (EV) charging															
Charging stations associated with the building	30.2	20.2	20.5	11.6	12.6	25.5	17.3	17.5	10.7	12.8	15.6	13.7	5.9	6.4	6.1
Annual consumption (kilowatthours)															
10,000 or less	34.9	20.1	27.3	19.7	35.0	32.8	20.8	25.7	26.0	34.3	16.2	11.4	17.0	15.4	22.6
10,001 to 50,000	29.0	14.2	15.6	15.4	25.5	26.2	12.2	17.5	14.3	26.4	15.2	6.2	7.4	8.4	8.8
50,001 to 100,000	20.6	15.0	23.0	12.4	18.6	20.7	13.7	23.9	12.6	20.0	11.9	9.8	10.6	9.7	11.4
100,001 to 500,000	16.7	11.4	16.1	12.5	17.5	17.0	9.6	15.0	12.4	18.3	5.6	5.7	5.3	4.7	9.2
500,001 to 1,000,000	23.0	16.4	16.0	13.5	18.7	22.4	14.2	17.5	12.1	21.1	8.2	5.3	6.2	7.1	6.2
1,000,001 to 5,000,000	37.8	11.9	10.2	15.1	12.3	18.4	10.5	10.0	12.9	12.2	32.6	5.2	5.0	4.3	4.0
Over 5,000,000	30.6	16.8	13.8	13.9	15.2	25.2	15.7	14.2	13.3	13.6	24.5	11.2	7.7	5.4	8.0

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.