

Preliminary release date: September 2022

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Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kWh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Building floorspace (square feet)									
1,001 to 5,000	41	14.5	10.3	4.6	9.6	18.3	\$4.6	\$1.62	\$0.112
5,001 to 10,000	84	11.2	11.6	3.1	7.5	13.0	\$8.9	\$1.19	\$0.107
10,001 to 25,000	174	10.7	13.2	3.2	7.1	12.9	\$18.3	\$1.12	\$0.105
25,001 to 50,000	434	12.0	15.5	4.7	9.5	15.9	\$44.9	\$1.24	\$0.103
50,001 to 100,000	846	12.0	14.2	5.9	10.0	15.8	\$81.0	\$1.15	\$0.096
100,001 to 200,000	1,843	13.1	14.9	6.3	11.0	17.6	\$172.1	\$1.23	\$0.093
200,001 to 500,000	4,373	14.9	16.6	5.8	12.0	19.7	\$413.9	\$1.41	\$0.095
Over 500,000	13,460	14.2	12.8	6.9	11.5	19.2	\$1,210.9	\$1.28	\$0.090
Principal building activity									
Education	293	9.4	12.4	5.8	9.6	13.1	\$28.8	\$0.92	\$0.098
Food sales	329	53.3	58.5	33.1	47.4	69.9	\$32.6	\$5.27	\$0.099
Food service	212	43.8	21.0	22.9	39.3	58.5	\$20.6	\$4.25	\$0.097
Health care	698	23.8	14.4	8.4	14.2	19.8	\$65.0	\$2.22	\$0.093
Inpatient	7,631	28.8	18.1	22.2	30.4	35.3	\$653.8	\$2.47	\$0.086
Outpatient	238	17.4	10.0	8.4	13.8	19.1	\$25.9	\$1.89	\$0.109
Lodging	484	14.4	34.9	8.2	14.5	24.5	\$46.5	\$1.38	\$0.096
Mercantile	352	16.7	20.3	7.3	12.5	20.1	\$32.3	\$1.54	\$0.092
Retail (other than mall)	205	13.7	21.9	5.1	9.0	14.5	\$19.7	\$1.31	\$0.096
Enclosed and strip malls	657	19.6	19.4	16.3	20.1	24.0	\$58.4	\$1.74	\$0.089
Office	234	13.6	6.9	6.1	10.1	15.7	\$24.4	\$1.42	\$0.104
Public assembly	179	12.1	25.5	3.7	8.2	14.9	\$17.5	\$1.18	\$0.098
Public order and safety	263	13.9	13.4	8.2	13.8	15.3	\$25.4	\$1.34	\$0.096
Religious worship	61	4.9	12.9	2.5	4.2	7.5	\$6.8	\$0.55	\$0.112
Service	52	7.2	8.9	3.0	6.3	10.8	\$5.8	\$0.81	\$0.113
Warehouse and storage	120	5.8	13.1	1.6	3.4	7.8	\$12.9	\$0.63	\$0.107
Other	646	29.1	42.1	2.8	12.3	25.3	\$65.2	\$2.94	\$0.101
Vacant	39	3.9	Q	0.8	2.6	7.1	\$4.0	\$0.40	\$0.103
Year constructed									
Before 1920	109	9.9	12.6	2.7	7.1	11.5	\$11.1	\$1.01	\$0.102
1920 to 1945	176	11.6	12.1	4.4	8.8	16.1	\$18.4	\$1.22	\$0.105
1946 to 1959	134	9.7	11.9	3.0	7.1	13.3	\$13.3	\$0.96	\$0.099
1960 to 1969	178	11.7	13.8	3.7	8.2	17.5	\$17.9	\$1.18	\$0.101
1970 to 1979	203	12.4	14.7	4.0	7.4	14.7	\$20.4	\$1.24	\$0.101
1980 to 1989	241	13.6	12.1	4.3	9.6	16.5	\$25.2	\$1.42	\$0.105
1990 to 1999	211	11.8	12.9	4.3	8.8	13.8	\$21.1	\$1.18	\$0.100
2000 to 2009	293	14.6	15.9	4.9	10.5	18.4	\$28.3	\$1.41	\$0.097
2010 to 2018	273	13.7	15.1	4.8	10.3	21.4	\$25.2	\$1.27	\$0.092

Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kwh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Census region and division									
Northeast	246	12.0	12.4	3.6	7.2	12.8	\$28.2	\$1.37	\$0.115
New England	159	11.6	11.7	3.4	7.1	11.6	\$24.8	\$1.82	\$0.156
Middle Atlantic	294	12.1	12.6	3.6	7.6	13.0	\$30.1	\$1.24	\$0.102
Midwest	181	11.7	14.6	2.9	7.1	13.2	\$17.6	\$1.14	\$0.098
East North Central	189	11.7	14.3	2.7	6.6	13.8	\$18.8	\$1.16	\$0.099
West North Central	164	11.6	15.3	3.4	7.4	12.5	\$15.5	\$1.09	\$0.094
South	237	13.9	15.3	5.2	10.4	18.3	\$20.3	\$1.19	\$0.086
South Atlantic	259	14.4	15.4	5.1	10.4	18.4	\$23.5	\$1.31	\$0.091
East South Central	209	12.4	16.5	4.7	9.7	17.9	\$19.7	\$1.17	\$0.094
West South Central	219	13.7	14.7	5.7	10.6	17.5	\$16.1	\$1.01	\$0.073
West	196	12.1	11.5	4.3	8.9	14.8	\$23.2	\$1.43	\$0.118
Mountain	220	12.8	11.5	4.2	8.7	15.6	\$19.0	\$1.10	\$0.086
Pacific	182	11.7	11.4	4.4	8.9	14.7	\$25.6	\$1.64	\$0.140
Climate zone^a									
Cold or very cold	170	12.5	15.5	3.1	7.4	13.2	\$16.8	\$1.24	\$0.099
Cool	181	11.3	12.9	2.7	6.6	12.0	\$18.2	\$1.14	\$0.101
Mixed mild	273	12.9	13.5	4.6	9.0	15.9	\$27.5	\$1.30	\$0.101
Warm	214	13.0	14.8	4.6	9.7	16.9	\$22.1	\$1.34	\$0.103
Hot or very hot	218	14.1	13.0	6.1	10.9	19.3	\$19.3	\$1.26	\$0.089
Number of floors									
1	138	12.5	15.1	4.0	8.6	16.6	\$13.8	\$1.25	\$0.100
2	195	10.7	13.3	4.0	7.8	14.1	\$20.0	\$1.10	\$0.103
3	348	12.1	15.0	5.1	9.6	14.0	\$34.7	\$1.20	\$0.100
4 to 9	1,387	15.1	12.8	4.9	10.4	16.8	\$132.6	\$1.44	\$0.096
10 or more	6,352	16.7	10.1	11.1	14.6	18.7	\$605.0	\$1.59	\$0.095
Elevators and escalators (more than one may apply)									
Any elevators	1,023	14.0	12.5	6.9	10.4	15.2	\$99.3	\$1.36	\$0.097
1 elevator	427	10.9	13.1	6.1	9.3	13.5	\$43.2	\$1.10	\$0.101
2 to 5 elevators	1,657	15.1	12.9	9.3	13.3	18.2	\$161.1	\$1.46	\$0.097
6 or more elevators	9,477	17.4	11.6	10.2	15.2	22.7	\$879.4	\$1.61	\$0.093
Any escalators	4,112	14.8	12.7	11.8	16.6	23.8	\$369.1	\$1.33	\$0.090
Number of workers (main shift)									
Fewer than 5	54	8.2	24.9	2.8	6.6	12.1	\$5.9	\$0.90	\$0.110
5 to 9	109	11.8	16.6	5.5	10.2	18.3	\$11.1	\$1.20	\$0.102
10 to 19	179	11.3	14.1	5.8	10.5	18.3	\$18.2	\$1.14	\$0.102
20 to 49	446	13.6	15.4	7.3	11.9	22.8	\$44.0	\$1.34	\$0.099
50 to 99	878	13.6	13.8	8.0	11.8	17.4	\$86.3	\$1.34	\$0.098
100 to 249	1,997	14.5	13.7	8.8	13.9	20.4	\$191.4	\$1.39	\$0.096
250 or more	5,751	17.4	9.0	10.8	15.6	23.0	\$541.5	\$1.64	\$0.094

Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kwh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Weekly operating hours									
Fewer than 40	56	6.8	10.4	2.5	5.1	9.5	\$6.1	\$0.74	\$0.108
40 to 48	115	9.1	10.1	4.1	7.8	12.8	\$12.0	\$0.94	\$0.104
49 to 60	184	9.9	9.2	4.4	8.6	14.5	\$18.7	\$1.01	\$0.102
61 to 84	324	13.7	13.6	7.3	13.3	27.9	\$32.8	\$1.39	\$0.101
85 to 167	410	17.6	22.5	9.1	23.8	48.2	\$40.1	\$1.72	\$0.098
Open continuously	562	19.1	21.6	5.5	13.4	24.6	\$52.8	\$1.79	\$0.094
Ownership and occupancy									
Nongovernment owned	201	12.9	13.9	3.7	8.4	16.0	\$20.2	\$1.29	\$0.101
Owner occupied	181	12.6	14.9	3.6	8.0	14.5	\$18.0	\$1.25	\$0.099
Leased to tenant or tenants	250	13.5	12.7	4.6	10.2	18.5	\$25.6	\$1.39	\$0.103
Unoccupied	20	2.4	N	0.6	2.6	3.3	\$2.4	\$0.29	\$0.119
Government owned	276	11.7	13.0	5.8	9.6	14.9	\$26.4	\$1.12	\$0.096
Federal	385	13.9	10.3	7.6	12.9	21.4	\$35.1	\$1.26	\$0.091
State	374	13.4	15.9	7.0	10.7	14.7	\$32.7	\$1.18	\$0.087
Local	223	10.5	12.1	5.1	8.9	14.2	\$22.8	\$1.07	\$0.102
Party responsible for operation of energy systems									
Building owner	210	12.5	13.6	4.0	8.4	14.9	\$20.8	\$1.23	\$0.099
Business owner or tenant	207	12.9	15.3	4.3	10.4	21.0	\$21.5	\$1.34	\$0.103
Property management	344	14.7	12.3	8.3	11.5	20.2	\$34.0	\$1.45	\$0.099
Other	285	14.1	12.4	6.8	9.9	19.0	\$28.0	\$1.38	\$0.098
Provider of direct input on energy-related equipment purchases									
Building owner	208	12.4	13.6	3.9	8.3	14.9	\$20.6	\$1.23	\$0.099
Business owner or tenant	227	14.1	16.2	4.7	12.0	24.2	\$23.5	\$1.46	\$0.104
Property management	388	15.6	14.0	3.2	9.2	20.2	\$38.4	\$1.55	\$0.099
Other	247	12.7	12.0	6.0	11.0	19.8	\$26.0	\$1.34	\$0.105
Number of establishments									
1	172	12.1	15.1	4.0	8.4	15.4	\$17.4	\$1.22	\$0.101
2 to 5	264	13.0	13.3	4.6	9.9	17.1	\$25.6	\$1.26	\$0.097
6 to 10	597	14.5	10.9	7.3	13.9	20.9	\$59.6	\$1.44	\$0.100
11 to 20	988	16.0	10.8	8.4	14.9	20.2	\$98.5	\$1.60	\$0.100
More than 20	3,201	15.5	9.5	9.8	14.1	19.5	\$299.8	\$1.45	\$0.094
Currently unoccupied	27	2.9	N	0.6	2.6	5.6	\$2.9	\$0.32	\$0.108

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	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kwh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Predominant exterior wall material									
Brick, stone, or stucco	251	13.3	13.7	5.2	9.8	18.0	\$24.2	\$1.28	\$0.097
Concrete (block or poured)	292	13.6	17.3	4.0	9.1	18.1	\$28.9	\$1.34	\$0.099
Concrete panels	699	11.5	12.0	3.8	7.8	15.3	\$72.8	\$1.20	\$0.104
Siding or shingles	83	12.8	13.8	4.3	8.6	15.8	\$8.9	\$1.37	\$0.107
Metal panels	83	8.1	13.2	2.3	5.7	10.1	\$8.6	\$0.84	\$0.104
Window glass	1,781	15.7	7.6	11.7	19.5	25.2	\$189.4	\$1.67	\$0.106
Other	245	14.2	11.1	4.4	9.2	15.4	\$26.3	\$1.52	\$0.107
Predominant roof material									
Metal surfacing	98	9.8	14.4	3.0	7.1	11.8	\$9.6	\$0.95	\$0.098
Synthetic or rubber	489	14.4	14.2	5.6	10.5	20.3	\$47.7	\$1.40	\$0.098
Built-up	375	13.7	13.4	5.4	10.4	19.0	\$36.8	\$1.34	\$0.098
Slate or tile shingles	122	11.4	11.5	5.4	10.8	18.3	\$13.5	\$1.27	\$0.111
Wooden materials (including shingles)	105	10.8	10.5	6.6	11.4	18.3	\$12.4	\$1.27	\$0.117
Asphalt, fiberglass, or other shingles	122	11.1	13.1	3.7	8.2	14.5	\$12.7	\$1.17	\$0.105
Concrete	400	16.7	16.8	6.5	16.2	20.1	\$37.3	\$1.56	\$0.093
Other	299	13.1	13.3	4.1	9.3	19.1	\$30.3	\$1.32	\$0.101
Roof tilt									
Flat	419	14.4	13.8	5.8	10.6	20.0	\$41.0	\$1.40	\$0.098
Shallow pitch	131	10.4	13.8	3.6	7.7	14.4	\$13.4	\$1.07	\$0.102
Steeper pitch	88	10.1	13.2	3.4	7.7	12.9	\$9.1	\$1.05	\$0.104
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	368	13.9	14.1	4.4	9.5	18.4	\$35.8	\$1.35	\$0.097
White or reflective tiles or shingles	323	16.0	16.9	7.0	10.9	17.9	\$30.9	\$1.53	\$0.096
Aluminum coating	131	11.1	14.4	4.1	8.3	13.9	\$13.0	\$1.10	\$0.099
Ballasted roof system	790	14.3	13.0	4.5	8.9	17.8	\$73.6	\$1.33	\$0.093
Other cool roof property	688	15.2	10.3	11.9	17.9	20.5	\$65.3	\$1.44	\$0.095

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				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Renovations since 2000 (more than one may apply)									
Any type of renovation	297	13.1	13.1	4.6	9.1	16.7	\$29.3	\$1.30	\$0.099
Addition or annex	453	13.7	15.5	5.2	9.7	20.1	\$43.8	\$1.32	\$0.097
Reduction in floorspace	766	15.0	11.3	5.4	14.2	22.0	\$73.6	\$1.44	\$0.096
Roof replacement	327	13.1	13.2	4.2	9.1	17.3	\$32.0	\$1.28	\$0.098
Interior wall reconfiguration	400	13.4	11.0	5.9	9.6	15.2	\$39.4	\$1.32	\$0.098
Window replacement	286	12.6	12.1	4.1	8.7	17.2	\$28.2	\$1.24	\$0.098
HVAC equipment upgrade	374	13.5	12.9	4.9	9.3	17.6	\$37.1	\$1.34	\$0.099
Lighting upgrade	395	13.6	13.0	4.9	9.3	17.8	\$39.2	\$1.36	\$0.099
Electrical upgrade	399	14.1	13.0	5.4	10.2	18.6	\$39.4	\$1.39	\$0.099
Plumbing system upgrade	379	13.9	12.6	5.4	10.4	18.6	\$37.5	\$1.38	\$0.099
Insulation upgrade	351	13.5	12.6	4.3	9.3	16.9	\$33.5	\$1.29	\$0.096
Fire, safety, or security upgrade	484	13.8	13.2	5.5	10.6	19.9	\$48.1	\$1.37	\$0.099
Structural upgrade	439	15.1	12.4	5.8	10.2	20.1	\$43.1	\$1.48	\$0.098
Other	554	17.6	19.4	3.1	11.1	16.1	\$50.9	\$1.61	\$0.092
No renovations	155	12.0	14.4	3.7	8.2	14.7	\$15.8	\$1.22	\$0.102
Buildings constructed 2013 or later	285	13.0	14.9	4.3	9.3	19.8	\$25.7	\$1.18	\$0.090
Energy sources (more than one may apply)									
Electricity	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Natural gas	289	12.7	14.1	4.2	8.5	16.1	\$28.6	\$1.26	\$0.099
Fuel oil	604	16.6	14.5	4.3	9.4	16.3	\$58.4	\$1.61	\$0.097
District heat	1,315	16.8	15.3	7.1	10.3	16.4	\$119.7	\$1.53	\$0.091
District chilled water	1,336	17.2	16.1	8.1	11.4	16.4	\$116.5	\$1.50	\$0.087
Propane	177	11.7	17.0	3.4	7.5	14.2	\$18.3	\$1.21	\$0.103
Solar	503	12.8	12.7	7.9	11.8	16.6	\$57.7	\$1.47	\$0.115
Wood, coal, and other	139	11.8	14.3	2.3	5.4	9.8	\$13.7	\$1.17	\$0.099
Space-heating energy sources									
Electricity	261	14.7	14.5	5.7	11.1	20.0	\$24.9	\$1.40	\$0.095
Electricity main	225	15.2	14.2	6.3	11.8	21.1	\$21.5	\$1.44	\$0.095
Electricity secondary	354	13.9	15.0	4.5	9.0	16.8	\$34.0	\$1.34	\$0.096
Other excluding electricity	200	10.8	12.7	3.3	7.0	11.8	\$20.6	\$1.12	\$0.103
Buildings without heating	85	9.7	14.9	1.9	7.4	12.0	\$9.8	\$1.13	\$0.116
Primary space-heating energy source									
Electricity	225	15.2	14.2	6.3	11.8	21.1	\$21.5	\$1.44	\$0.095
Natural gas	246	11.5	13.4	3.6	7.5	13.5	\$24.7	\$1.16	\$0.100
Fuel oil	76	7.6	10.0	2.8	6.6	10.9	\$9.3	\$0.93	\$0.122
District heat	1,283	16.4	14.9	7.1	10.9	16.4	\$120.2	\$1.54	\$0.094
Propane	61	9.1	11.7	3.1	6.7	10.1	\$7.4	\$1.09	\$0.120
Other sources ^b	35	5.9	9.6	2.1	5.4	7.9	\$3.9	\$0.65	\$0.110

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				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Cooling energy sources									
Electricity	240	13.0	13.6	4.9	9.5	17.5	\$23.8	\$1.29	\$0.099
Other excluding electricity	1,026	16.1	15.7	7.0	10.4	16.4	\$89.0	\$1.40	\$0.087
Buildings without cooling	51	6.8	14.5	1.6	4.0	9.1	\$5.7	\$0.76	\$0.113
Water-heating energy sources									
Electricity	228	13.5	13.6	4.6	9.8	18.1	\$22.3	\$1.32	\$0.098
Other excluding electricity	284	12.6	14.2	4.6	8.7	15.5	\$28.6	\$1.27	\$0.101
Buildings without water heating	46	6.6	10.9	1.9	5.9	10.2	\$5.2	\$0.74	\$0.112
Cooking energy sources									
Electricity	393	15.7	16.1	5.3	10.8	22.9	\$37.6	\$1.50	\$0.096
Other excluding electricity	349	13.9	15.2	6.5	12.8	28.3	\$34.8	\$1.39	\$0.100
Buildings without cooking	138	10.4	11.8	3.6	7.7	13.2	\$14.2	\$1.08	\$0.103
Energy end uses (more than one may apply)									
Buildings with space heating	232	12.8	13.7	4.3	8.9	16.1	\$22.9	\$1.26	\$0.099
Buildings with cooling	248	13.1	13.7	4.9	9.5	17.4	\$24.5	\$1.30	\$0.099
Buildings with water heating	250	13.1	13.9	4.6	9.3	17.3	\$24.8	\$1.30	\$0.099
Buildings with cooking	380	15.2	15.8	5.6	11.2	24.1	\$36.7	\$1.46	\$0.097
Buildings with manufacturing	266	12.5	17.0	2.9	6.6	11.5	\$27.5	\$1.29	\$0.103
Buildings with electricity generation	675	16.1	14.6	5.7	10.5	18.2	\$65.4	\$1.56	\$0.097
Buildings with lighting	217	12.7	13.7	4.2	8.7	16.0	\$21.6	\$1.26	\$0.099
Percentage of floorspace heated									
Not heated	85	9.7	14.9	1.9	7.4	12.0	\$9.8	\$1.13	\$0.116
1% to 50%	136	8.9	14.5	2.6	5.5	11.7	\$13.9	\$0.91	\$0.102
51% to 99%	304	13.6	13.7	4.5	9.6	16.5	\$29.7	\$1.33	\$0.098
100%	232	13.2	13.6	4.9	9.2	16.7	\$22.8	\$1.30	\$0.098
Percentage of floorspace cooled									
Not cooled	51	6.8	14.5	1.6	4.0	9.1	\$5.7	\$0.76	\$0.113
1% to 50%	121	6.8	12.3	2.9	5.5	10.0	\$13.0	\$0.73	\$0.107
51% to 99%	380	14.4	14.3	5.8	10.3	17.8	\$37.2	\$1.41	\$0.098
100%	251	15.3	13.7	6.6	11.5	20.9	\$24.5	\$1.49	\$0.098
Percentage lit when open									
0%	Q	Q	Q	Q	Q	Q	Q	Q	Q
1% to 50%	80	7.2	15.3	2.6	5.4	10.5	\$8.6	\$0.78	\$0.108
51% to 99%	302	13.9	14.1	5.0	10.0	18.1	\$29.4	\$1.35	\$0.097
100%	241	13.7	13.1	5.5	10.1	18.7	\$24.1	\$1.37	\$0.100
Building never open or electricity not used	26	3.8	Q	1.2	2.9	8.1	\$2.8	\$0.41	\$0.108

Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kwh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Percentage lit during off hours									
0%	56	7.4	10.6	2.5	6.3	11.2	\$6.6	\$0.88	\$0.118
1% to 50%	271	12.6	13.0	5.2	10.0	17.5	\$26.7	\$1.24	\$0.098
51% to 100%	644	21.3	23.9	5.3	12.1	29.5	\$60.2	\$1.99	\$0.093
Building always open with no off hours	709	20.5	25.1	11.5	28.7	38.0	\$65.9	\$1.91	\$0.093
Electricity not used	N	N	N	N	N	N	N	N	N
Heating equipment (more than one may apply)									
Packaged heating units	303	13.8	14.8	6.4	11.4	20.6	\$29.6	\$1.35	\$0.098
Furnaces	116	10.9	13.5	3.4	7.3	12.7	\$11.5	\$1.08	\$0.099
Individual space heaters	208	12.3	15.0	3.5	7.1	13.8	\$20.2	\$1.19	\$0.097
Boilers	541	13.2	13.4	4.7	9.3	16.2	\$52.6	\$1.28	\$0.097
Heat pumps	332	14.8	15.0	6.2	11.3	17.8	\$31.6	\$1.41	\$0.095
District heat	1,298	16.4	14.9	7.1	10.5	16.4	\$120.8	\$1.52	\$0.093
Duct reheat	947	17.2	12.9	7.2	15.3	20.9	\$87.2	\$1.58	\$0.092
Other	1,797	36.9	45.0	7.1	34.9	40.2	\$158.2	\$3.25	\$0.088
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	300	13.7	14.3	5.9	11.3	20.9	\$29.9	\$1.36	\$0.100
Residential-type central air conditioners	163	11.7	12.8	4.0	7.8	14.3	\$16.5	\$1.18	\$0.101
Individual air conditioners	238	12.8	17.3	4.0	7.5	14.5	\$23.6	\$1.27	\$0.099
Central chillers	1,424	16.0	13.2	8.0	12.5	21.0	\$136.6	\$1.54	\$0.096
Heat pumps	311	13.8	12.9	5.9	10.6	15.8	\$31.1	\$1.38	\$0.100
District chilled water	1,336	17.2	16.1	8.1	11.4	16.4	\$116.5	\$1.50	\$0.087
Swamp coolers	319	13.0	12.6	3.8	10.1	21.5	\$32.4	\$1.32	\$0.102
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q
HVAC features (more than one may apply)									
Economizer cycle	685	15.0	13.7	6.6	11.4	20.7	\$66.9	\$1.47	\$0.098
Variable air volume (VAV) system	627	14.9	12.6	5.6	11.0	18.2	\$60.6	\$1.44	\$0.097
Dedicated outside air system (DOAS)	614	16.9	16.1	7.4	11.7	23.1	\$57.2	\$1.58	\$0.093
Demand controlled ventilation (DCV)	404	13.5	14.3	4.6	9.9	18.0	\$40.4	\$1.35	\$0.100
Regular HVAC maintenance	297	13.6	13.9	5.3	10.3	18.2	\$29.3	\$1.33	\$0.098
Building automation system (BAS) controls heating or cooling	677	15.6	14.2	6.5	11.3	19.1	\$65.0	\$1.50	\$0.096
Internet-connected or smart thermostat	218	11.9	14.6	5.1	9.4	18.2	\$21.1	\$1.15	\$0.097
Programmable thermostat	141	10.4	12.3	4.7	9.0	16.2	\$14.8	\$1.09	\$0.105

Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kwh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Main equipment replaced since 2000 (more than one may apply)									
Heating	196	11.7	12.7	4.0	8.2	15.4	\$20.2	\$1.21	\$0.103
Cooling	211	11.7	12.2	4.2	7.9	14.3	\$21.4	\$1.18	\$0.101
Water-heating equipment									
Centralized system	213	12.7	14.1	4.6	8.9	16.2	\$21.2	\$1.27	\$0.100
Distributed system	246	13.4	13.5	4.6	10.3	20.2	\$24.2	\$1.32	\$0.098
Combination of centralized and distributed systems	745	14.5	13.2	5.6	10.7	20.9	\$72.3	\$1.40	\$0.097
Generation technologies (more than one may apply)									
Reciprocating engine generators	714	16.4	14.6	5.4	10.0	17.9	\$68.0	\$1.57	\$0.095
Solar panels	520	12.8	12.6	7.6	11.8	17.0	\$59.2	\$1.46	\$0.114
Other generation technology	879	18.3	17.0	8.1	14.6	20.5	\$86.6	\$1.80	\$0.099
Lighting equipment types (more than one may apply)									
Incandescent	283	14.7	15.2	4.2	8.8	16.8	\$27.7	\$1.44	\$0.098
Standard fluorescent	231	12.7	13.6	4.3	8.7	15.8	\$22.9	\$1.26	\$0.099
Compact fluorescent	440	14.8	14.2	5.2	10.4	17.8	\$43.0	\$1.44	\$0.098
High-intensity discharge (HID)	692	14.5	17.3	3.8	7.2	11.7	\$65.1	\$1.37	\$0.094
Halogen	419	15.4	15.3	5.1	10.3	20.0	\$40.5	\$1.49	\$0.097
LED	332	13.9	13.9	5.0	10.1	18.4	\$32.7	\$1.37	\$0.099
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q
Refrigeration equipment (more than one may apply)									
Any refrigeration	272	13.5	14.2	4.9	9.8	18.3	\$26.8	\$1.33	\$0.098
Walk-in units	774	18.6	18.3	12.5	25.4	47.2	\$73.2	\$1.76	\$0.095
Cases or cabinets	596	17.5	16.9	9.9	20.7	35.9	\$57.1	\$1.67	\$0.096
Large cold storage areas	1,247	23.9	31.2	18.3	33.9	69.9	\$114.7	\$2.20	\$0.092
Commercial ice makers	652	16.4	16.2	8.9	17.4	31.2	\$61.4	\$1.54	\$0.094
Residential-type or compact units	248	12.7	13.2	4.5	8.9	15.9	\$24.5	\$1.26	\$0.099
Vending machines	765	14.5	14.4	7.2	12.4	20.4	\$72.1	\$1.37	\$0.094
No refrigeration	84	8.5	10.8	2.6	6.6	11.2	\$9.1	\$0.93	\$0.108

Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kwh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Office equipment (more than one may apply)									
Desktop computers	285	13.2	13.7	5.1	9.7	17.0	\$28.1	\$1.30	\$0.098
With multiple monitors	468	13.9	12.5	5.9	10.1	17.4	\$45.6	\$1.35	\$0.097
Laptop computers	326	13.1	12.9	4.8	9.4	16.3	\$32.1	\$1.29	\$0.098
Dedicated servers	519	14.1	12.8	6.8	11.1	18.5	\$51.1	\$1.39	\$0.098
Tablets charged in building	447	14.3	13.4	5.9	10.9	18.6	\$43.2	\$1.38	\$0.097
Large floor-standing office devices ^c	493	13.3	12.3	5.5	9.9	16.0	\$48.4	\$1.30	\$0.098
Smaller desktop office devices ^c	276	13.2	13.7	4.9	9.6	16.9	\$27.2	\$1.30	\$0.099
Interactive whiteboards	823	12.7	11.7	6.2	10.1	15.3	\$79.1	\$1.22	\$0.096
Televisions or video displays	361	13.9	13.8	5.5	10.6	19.9	\$35.2	\$1.36	\$0.097
Point-of-sale devices or cash registers	395	16.7	15.6	8.7	15.9	29.9	\$38.1	\$1.61	\$0.096
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	1,107	15.4	15.1	7.9	13.5	28.9	\$105.6	\$1.47	\$0.095
Fast food or small restaurant	1,092	17.9	16.2	12.5	21.0	33.1	\$101.5	\$1.67	\$0.093
Cafeteria or large restaurant	1,537	13.7	13.1	5.7	9.3	13.1	\$146.0	\$1.30	\$0.095
Commercial kitchen or food preparation area	1,007	16.2	19.0	6.4	11.2	21.5	\$94.2	\$1.51	\$0.094
Small kitchen area	242	12.0	13.0	4.1	8.1	14.9	\$24.0	\$1.19	\$0.099
Separate computer areas (more than one may apply)									
Server closet	530	13.5	12.6	6.5	10.9	17.8	\$51.9	\$1.32	\$0.098
Data center	1,595	16.2	12.8	7.9	12.2	17.6	\$153.5	\$1.56	\$0.096
Computer-based training room	1,012	13.9	13.5	7.8	11.0	16.0	\$95.7	\$1.32	\$0.095
Student or public computer center	650	12.2	15.8	7.1	11.1	16.4	\$60.4	\$1.14	\$0.093

Table C14. Electricity consumption and expenditure intensities, 2018

	Electricity consumption			Electricity expenditures					
	Per building (thousand kWh)	Per square foot (kWh)	Per worker (thousand kWh)	Distribution of building-level intensities (kilowatthours [kWh] per square foot)			Per building (thousand dollars)	Per square foot (dollars)	Per kWh (dollars)
				25th percentile	Median	75th percentile			
All buildings	213	12.6	13.7	4.1	8.6	15.8	\$21.2	\$1.25	\$0.099
Window and interior lighting features (more than one may apply)									
Multipaned windows	278	13.3	13.9	4.5	9.3	17.3	\$27.1	\$1.30	\$0.098
Tinted window glass	376	14.1	13.2	5.4	10.9	19.2	\$36.6	\$1.37	\$0.097
Reflective window glass	560	15.5	13.3	5.4	11.8	20.9	\$53.9	\$1.50	\$0.096
External overhangs or awnings	274	14.3	15.3	6.1	11.0	19.3	\$26.8	\$1.40	\$0.098
Skylights or atriums	507	13.0	14.1	4.0	8.6	14.6	\$49.4	\$1.26	\$0.097
Light scheduling	573	15.5	14.3	6.3	12.0	20.9	\$55.1	\$1.49	\$0.096
Occupancy sensors	597	13.8	13.1	5.6	10.5	17.6	\$59.3	\$1.37	\$0.099
Multilevel lighting or dimming	670	15.4	14.1	6.0	9.9	16.4	\$63.5	\$1.46	\$0.095
Daylight harvesting	862	16.4	12.4	8.3	12.4	20.3	\$79.4	\$1.51	\$0.092
Plug-load control	626	18.4	16.9	9.2	14.7	37.5	\$57.1	\$1.68	\$0.091
Demand responsive lighting	257	12.4	12.6	4.3	6.0	15.3	\$26.9	\$1.29	\$0.105
Building automation system (BAS) for lighting	846	16.1	14.4	7.4	14.2	22.7	\$80.2	\$1.53	\$0.095
Electric vehicle (EV) charging									
Charging stations associated with the building	998	12.9	11.7	5.7	11.3	15.6	\$98.4	\$1.28	\$0.099
Annual consumption (kilowatthours)									
10,000 or less	6	1.5	2.0	1.0	1.8	3.2	\$0.9	\$0.23	\$0.156
10,001 to 50,000	27	4.8	6.0	3.6	6.7	10.8	\$3.5	\$0.62	\$0.130
50,001 to 100,000	72	8.0	10.3	7.0	10.3	19.0	\$8.2	\$0.92	\$0.115
100,001 to 500,000	212	11.3	12.0	8.8	15.0	28.9	\$22.2	\$1.18	\$0.105
500,001 to 1,000,000	686	13.1	15.1	10.4	15.9	26.4	\$66.7	\$1.27	\$0.097
1,000,001 to 5,000,000	1,978	16.5	17.2	13.0	18.8	30.1	\$185.5	\$1.54	\$0.094
Over 5,000,000	11,160	22.1	17.6	16.0	24.2	34.4	\$1,022.5	\$2.02	\$0.092

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 and expenditures in buildings that have the end use but not the consumption and expenditures 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.

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Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

	RSEs for electricity consumption					RSEs for electricity expenditures			
	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Building floorspace (square feet)									
1,001 to 5,000	4.6	4.9	4.9	—	—	—	4.2	4.5	2.4
5,001 to 10,000	6.3	6.2	5.0	—	—	—	6.2	6.1	2.4
10,001 to 25,000	7.8	7.7	8.9	—	—	—	6.4	6.5	2.9
25,001 to 50,000	4.8	4.9	7.0	—	—	—	5.1	5.1	2.3
50,001 to 100,000	3.5	3.5	4.4	—	—	—	3.3	3.2	1.7
100,001 to 200,000	3.6	3.5	5.8	—	—	—	3.4	3.4	1.6
200,001 to 500,000	5.1	5.0	5.5	—	—	—	4.9	4.9	2.6
Over 500,000	5.5	4.5	7.0	—	—	—	5.0	4.6	2.3
Principal building activity									
Education	7.6	2.7	3.1	—	—	—	7.2	2.5	1.8
Food sales	21.5	14.5	20.9	—	—	—	18.1	9.2	8.0
Food service	6.8	4.7	6.3	—	—	—	6.4	4.4	3.0
Health care	10.8	4.3	5.0	—	—	—	9.8	3.4	3.7
Inpatient	18.9	5.4	5.6	—	—	—	18.0	4.2	4.8
Outpatient	10.0	4.2	6.9	—	—	—	10.0	5.1	3.0
Lodging	10.3	4.6	6.2	—	—	—	9.4	4.1	2.4
Mercantile	8.2	3.1	3.3	—	—	—	8.2	3.4	1.4
Retail (other than mall)	9.5	5.3	5.9	—	—	—	9.8	5.7	2.1
Enclosed and strip malls	8.8	2.5	4.7	—	—	—	8.9	3.4	2.1
Office	7.5	2.4	2.8	—	—	—	7.4	2.4	1.5
Public assembly	8.1	5.2	7.7	—	—	—	8.0	4.4	2.2
Public order and safety	20.3	7.1	12.0	—	—	—	19.0	7.0	7.3
Religious worship	7.6	5.8	9.3	—	—	—	6.9	4.9	2.4
Service	7.6	6.6	7.6	—	—	—	7.7	6.6	2.8
Warehouse and storage	9.4	5.4	6.9	—	—	—	9.2	5.4	2.5
Other	19.3	11.6	19.1	—	—	—	19.5	13.4	5.8
Vacant	16.1	14.2	89.8	—	—	—	14.1	13.7	4.0
Year constructed									
Before 1920	16.3	11.5	12.5	—	—	—	14.4	9.2	4.1
1920 to 1945	10.4	5.8	6.3	—	—	—	9.8	6.0	2.3
1946 to 1959	9.0	6.9	8.4	—	—	—	7.4	5.7	3.2
1960 to 1969	7.8	5.0	5.5	—	—	—	7.3	4.9	2.1
1970 to 1979	6.5	5.2	5.5	—	—	—	6.9	5.2	2.2
1980 to 1989	7.6	4.0	5.1	—	—	—	7.8	4.8	2.1
1990 to 1999	5.5	4.1	5.0	—	—	—	5.8	4.4	1.9
2000 to 2009	7.4	4.8	6.0	—	—	—	7.0	4.4	2.0
2010 to 2018	10.9	6.1	7.0	—	—	—	10.6	5.6	2.8

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Census region and division									
Northeast	8.8	5.1	6.1	—	—	—	8.7	5.8	2.1
New England	10.7	6.5	10.4	—	—	—	10.6	7.0	1.2
Middle Atlantic	11.3	6.4	7.4	—	—	—	11.7	7.2	1.9
Midwest	9.4	4.7	4.7	—	—	—	8.9	4.0	2.3
East North Central	7.7	4.1	4.5	—	—	—	6.9	4.0	2.5
West North Central	26.1	11.8	11.4	—	—	—	25.2	9.5	4.5
South	4.4	2.8	3.0	—	—	—	4.4	2.9	1.4
South Atlantic	7.5	4.0	3.2	—	—	—	7.0	3.9	1.8
East South Central	8.0	6.2	5.8	—	—	—	9.0	5.3	2.3
West South Central	8.3	4.8	6.9	—	—	—	7.4	5.4	3.4
West	8.3	4.8	4.2	—	—	—	7.8	4.7	3.1
Mountain	15.7	6.8	6.5	—	—	—	15.0	5.2	3.7
Pacific	9.0	6.5	5.4	—	—	—	8.7	6.4	3.0
Climate zone^a									
Cold or very cold	25.4	14.0	13.4	—	—	—	21.8	11.2	4.7
Cool	7.7	3.2	4.4	—	—	—	8.2	3.0	2.6
Mixed mild	9.9	3.6	4.2	—	—	—	9.8	4.3	2.1
Warm	5.0	3.8	3.4	—	—	—	5.9	4.3	2.9
Hot or very hot	9.1	5.1	5.1	—	—	—	8.5	5.4	4.0
Number of floors									
1	4.2	3.2	3.6	—	—	—	4.0	3.1	1.6
2	4.9	3.0	4.3	—	—	—	5.2	3.3	1.6
3	9.1	5.1	6.3	—	—	—	8.9	5.0	2.1
4 to 9	8.7	3.9	4.8	—	—	—	8.3	3.8	2.7
10 or more	8.4	4.9	6.7	—	—	—	7.5	4.9	2.5
Elevators and escalators (more than one may apply)									
Any elevators	5.3	2.4	2.7	—	—	—	5.4	2.5	1.6
1 elevator	6.0	3.4	4.7	—	—	—	5.8	3.0	2.0
2 to 5 elevators	5.5	4.0	5.0	—	—	—	5.5	4.1	2.0
6 or more elevators	5.4	4.1	5.2	—	—	—	4.8	4.1	2.7
Any escalators	35.4	4.4	11.3	—	—	—	35.3	5.5	3.2
Number of workers (main shift)									
Fewer than 5	5.2	4.4	5.9	—	—	—	5.4	4.6	1.8
5 to 9	10.4	9.9	10.5	—	—	—	7.8	7.5	3.7
10 to 19	5.3	5.5	5.1	—	—	—	5.3	5.7	2.6
20 to 49	5.9	4.2	5.5	—	—	—	5.6	4.1	1.7
50 to 99	5.1	3.9	4.9	—	—	—	5.4	4.9	2.1
100 to 249	4.2	3.0	4.5	—	—	—	4.2	3.1	2.0
250 or more	5.7	3.1	4.2	—	—	—	5.7	3.4	2.3

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Weekly operating hours									
Fewer than 40	7.9	6.7	8.2	—	—	—	7.5	6.0	1.9
40 to 48	8.8	7.2	7.5	—	—	—	7.4	5.5	2.8
49 to 60	5.0	3.0	3.5	—	—	—	4.7	2.6	1.6
61 to 84	6.7	3.9	3.8	—	—	—	7.1	4.2	2.2
85 to 167	7.2	4.5	4.9	—	—	—	7.1	5.0	2.1
Open continuously	8.4	3.2	4.5	—	—	—	8.3	3.4	1.7
Ownership and occupancy									
Nongovernment owned	3.9	2.4	2.7	—	—	—	3.8	2.3	1.1
Owner occupied	4.9	3.1	3.2	—	—	—	4.8	2.8	1.4
Leased to tenant or tenants	5.3	3.2	4.2	—	—	—	5.1	3.3	1.4
Unoccupied	25.1	23.9	0.0	—	—	—	19.5	20.3	7.8
Government owned	6.3	3.1	3.4	—	—	—	6.3	2.6	2.4
Federal	30.2	5.8	9.7	—	—	—	29.7	6.5	3.9
State	12.2	6.2	6.3	—	—	—	10.6	4.2	4.4
Local	8.2	3.0	4.4	—	—	—	8.2	3.2	2.4
Party responsible for operation of energy systems									
Building owner	4.1	2.3	2.4	—	—	—	4.0	2.3	1.3
Business owner or tenant	6.4	4.6	5.6	—	—	—	6.5	5.0	1.9
Property management	18.1	7.2	10.0	—	—	—	17.0	7.6	3.3
Other	14.8	8.0	12.1	—	—	—	14.7	7.0	3.5
Provider of direct input on energy-related equipment purchases									
Building owner	3.9	2.3	2.3	—	—	—	3.8	2.3	1.2
Business owner or tenant	8.7	5.1	6.3	—	—	—	9.1	5.7	2.4
Property management	28.9	10.5	13.7	—	—	—	27.0	9.6	4.1
Other	9.6	6.3	7.9	—	—	—	9.7	6.6	2.8
Number of establishments									
1	4.1	2.7	3.2	—	—	—	4.0	2.5	1.4
2 to 5	6.5	2.9	4.7	—	—	—	6.4	3.3	1.7
6 to 10	9.8	4.5	7.0	—	—	—	9.2	5.5	3.2
11 to 20	17.3	5.1	6.5	—	—	—	17.1	4.7	2.3
More than 20	13.9	4.8	7.9	—	—	—	14.3	4.6	2.1
Currently unoccupied	22.1	20.1	0.0	—	—	—	17.8	17.4	6.3

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Predominant exterior wall material									
Brick, stone, or stucco	4.4	2.5	2.6	—	—	—	4.3	2.3	1.3
Concrete (block or poured)	6.1	4.7	4.3	—	—	—	6.0	4.9	1.7
Concrete panels	11.9	6.2	6.9	—	—	—	11.9	6.6	2.7
Siding or shingles	16.7	15.2	18.1	—	—	—	13.3	11.7	6.2
Metal panels	8.4	5.7	7.0	—	—	—	8.7	6.1	3.2
Window glass	20.0	4.2	7.3	—	—	—	21.5	7.3	5.1
Other	14.9	8.6	9.4	—	—	—	13.2	8.4	4.3
Predominant roof material									
Metal surfacing	8.2	6.6	7.6	—	—	—	6.6	5.3	2.9
Synthetic or rubber	5.3	2.6	3.2	—	—	—	5.0	3.0	1.6
Built-up	7.8	3.2	3.8	—	—	—	7.5	3.3	1.8
Slate or tile shingles	8.4	6.3	10.2	—	—	—	8.9	6.3	3.1
Wooden materials (including shingles)	14.4	9.7	11.1	—	—	—	14.9	8.9	3.9
Asphalt, fiberglass, or other shingles	5.7	4.6	5.7	—	—	—	6.0	5.0	1.9
Concrete	20.2	11.6	14.6	—	—	—	18.5	8.9	4.3
Other	15.3	13.7	15.7	—	—	—	16.9	16.8	5.3
Roof tilt									
Flat	4.9	2.3	2.4	—	—	—	4.7	2.3	1.2
Shallow pitch	5.0	3.7	3.9	—	—	—	5.2	4.0	2.0
Steeper pitch	9.9	8.1	10.0	—	—	—	7.9	6.1	3.0
Cool roof characteristics (more than one may apply)									
White or reflective coating or paint	5.9	3.1	3.6	—	—	—	5.4	2.7	1.6
White or reflective tiles or shingles	16.1	11.0	12.9	—	—	—	14.5	10.3	5.5
Aluminum coating	9.4	7.4	6.9	—	—	—	8.4	6.3	3.3
Ballasted roof system	14.9	4.2	7.7	—	—	—	14.3	3.7	2.3
Other cool roof property	29.6	8.3	14.3	—	—	—	27.3	9.0	5.4

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Renovations since 2000 (more than one may apply)									
Any type of renovation	4.6	2.3	2.8	—	—	—	4.4	2.5	1.3
Addition or annex	8.0	3.6	4.5	—	—	—	7.4	3.7	1.8
Reduction in floorspace	22.1	7.5	10.6	—	—	—	21.6	7.6	2.3
Roof replacement	5.8	2.7	4.0	—	—	—	5.5	2.9	1.6
Interior wall reconfiguration	5.5	2.7	3.4	—	—	—	5.4	3.2	1.7
Window replacement	9.9	4.0	6.0	—	—	—	9.4	3.8	2.2
HVAC equipment upgrade	6.2	2.7	2.9	—	—	—	6.3	3.4	1.5
Lighting upgrade	5.2	2.7	3.1	—	—	—	5.1	2.8	1.4
Electrical upgrade	7.0	3.6	4.0	—	—	—	7.0	4.2	1.8
Plumbing system upgrade	7.2	3.0	3.7	—	—	—	6.9	3.4	1.8
Insulation upgrade	10.5	4.6	6.3	—	—	—	10.2	5.4	2.5
Fire, safety, or security upgrade	6.0	3.0	3.8	—	—	—	5.8	3.5	1.7
Structural upgrade	14.3	6.1	8.6	—	—	—	14.0	8.4	4.1
Other	29.9	9.7	8.9	—	—	—	28.9	9.7	3.7
No renovations	4.7	3.3	3.6	—	—	—	4.4	3.1	1.5
Buildings constructed 2013 or later	12.5	7.3	7.4	—	—	—	11.4	5.7	3.6
Energy sources (more than one may apply)									
Electricity	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Natural gas	4.2	2.1	2.4	—	—	—	4.1	2.1	1.1
Fuel oil	10.1	4.5	5.0	—	—	—	10.1	4.7	2.1
District heat	14.2	5.6	7.1	—	—	—	13.4	5.1	3.9
District chilled water	18.9	7.3	8.7	—	—	—	18.6	6.7	5.4
Propane	14.3	10.0	10.8	—	—	—	12.0	7.8	4.6
Solar	13.9	4.6	6.5	—	—	—	14.2	5.6	3.5
Wood, coal, and other	18.4	12.5	11.7	—	—	—	18.5	13.5	6.3
Space-heating energy sources									
Electricity	4.2	2.6	3.4	—	—	—	4.0	2.4	1.3
Electricity main	5.1	3.3	5.1	—	—	—	4.9	2.9	1.7
Electricity secondary	6.2	3.4	4.6	—	—	—	5.9	3.6	2.1
Other excluding electricity	5.1	2.7	3.3	—	—	—	5.3	2.9	1.3
Buildings without heating	10.0	10.2	10.7	—	—	—	10.9	11.6	4.0
Primary space-heating energy source									
Electricity	5.1	3.3	5.1	—	—	—	4.9	2.9	1.7
Natural gas	4.6	2.3	3.0	—	—	—	4.6	2.6	1.3
Fuel oil	13.9	8.7	9.2	—	—	—	13.5	10.2	5.0
District heat	15.4	4.8	7.0	—	—	—	14.7	5.3	3.5
Propane	22.7	16.1	18.6	—	—	—	23.5	17.9	6.7
Other sources ^b	26.6	14.2	24.0	—	—	—	21.8	12.5	7.5

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Cooling energy sources									
Electricity	3.1	1.8	2.2	—	—	—	3.2	2.0	1.0
Other excluding electricity	22.4	9.6	10.8	—	—	—	21.0	7.8	6.7
Buildings without cooling	24.5	22.3	30.1	—	—	—	18.3	16.3	9.8
Water-heating energy sources									
Electricity	4.4	3.0	3.7	—	—	—	4.1	2.7	1.5
Other excluding electricity	4.8	2.6	2.6	—	—	—	4.6	2.7	1.5
Buildings without water heating	10.7	8.7	12.0	—	—	—	11.5	10.2	3.8
Cooking energy sources									
Electricity	5.0	3.0	4.0	—	—	—	4.9	2.7	1.4
Other excluding electricity	8.1	3.3	4.9	—	—	—	7.6	3.3	1.9
Buildings without cooking	4.5	3.1	3.3	—	—	—	4.6	3.3	1.5
Energy end uses (more than one may apply)									
Buildings with space heating	3.6	2.1	2.2	—	—	—	3.5	2.0	1.1
Buildings with cooling	3.1	1.8	2.1	—	—	—	3.2	2.0	1.1
Buildings with water heating	3.4	2.1	2.2	—	—	—	3.3	2.0	1.1
Buildings with cooking	4.2	2.5	3.0	—	—	—	4.0	2.3	1.3
Buildings with manufacturing	16.8	13.7	14.1	—	—	—	14.6	11.0	4.9
Buildings with electricity generation	7.9	3.4	4.0	—	—	—	7.9	3.5	1.6
Buildings with lighting	3.6	2.0	2.2	—	—	—	3.6	2.1	1.1
Percentage of floorspace heated									
Not heated	10.0	10.2	10.7	—	—	—	10.9	11.6	4.0
1% to 50%	9.5	6.1	7.0	—	—	—	9.0	5.9	2.8
51% to 99%	6.3	3.0	3.9	—	—	—	6.0	3.2	1.6
100%	4.1	2.6	2.9	—	—	—	3.9	2.4	1.3
Percentage of floorspace cooled									
Not cooled	24.5	22.3	30.1	—	—	—	18.3	16.3	9.8
1% to 50%	5.9	4.6	5.0	—	—	—	6.4	5.3	2.1
51% to 99%	5.7	3.2	3.6	—	—	—	5.6	3.5	1.3
100%	3.8	2.3	2.8	—	—	—	3.7	2.2	1.3
Percentage lit when open									
0%	75.4	62.2	98.7	—	—	—	72.8	59.1	8.4
1% to 50%	6.0	4.9	7.6	—	—	—	6.1	4.9	2.1
51% to 99%	5.3	3.1	3.4	—	—	—	5.1	2.9	1.2
100%	4.6	2.5	3.0	—	—	—	4.5	2.6	1.4
Building never open or electricity not used	13.6	11.4	34.7	—	—	—	12.1	10.4	6.3

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

	RSEs for electricity consumption			RSEs for electricity expenditures					
	Per building	Per square foot	Per worker	RSEs not available for percentiles			Per building	Per square foot	Per kwh
				25th percentile	Median	75th percentile			
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Percentage lit during off hours									
0%	6.1	5.3	6.0	—	—	—	6.1	5.2	2.3
1% to 50%	3.5	2.3	2.4	—	—	—	3.4	2.3	1.1
51% to 100%	12.2	5.8	7.0	—	—	—	11.7	5.7	3.5
Building always open with no off hours	13.3	7.0	12.5	—	—	—	13.0	7.1	3.4
Electricity not used	0.0	0.0	0.0	—	—	—	0.0	0.0	0.0
Heating equipment (more than one may apply)									
Packaged heating units	3.8	2.3	2.8	—	—	—	3.6	2.3	1.3
Furnaces	6.3	3.9	4.2	—	—	—	5.9	3.6	1.6
Individual space heaters	6.4	4.0	4.2	—	—	—	6.3	4.2	2.1
Boilers	6.4	3.7	4.0	—	—	—	5.8	3.0	1.7
Heat pumps	6.7	3.4	4.3	—	—	—	6.9	3.3	2.2
District heat	14.6	4.5	6.8	—	—	—	14.1	5.1	3.2
Duct reheat	12.0	3.2	6.0	—	—	—	12.0	4.1	2.3
Other	47.5	30.2	38.1	—	—	—	34.5	24.2	12.3
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	4.2	2.3	2.8	—	—	—	4.1	2.4	1.2
Residential-type central air conditioners	5.3	3.7	3.9	—	—	—	5.9	3.9	1.9
Individual air conditioners	6.6	4.0	5.3	—	—	—	6.2	3.8	2.1
Central chillers	8.9	2.6	3.9	—	—	—	9.2	2.9	1.6
Heat pumps	10.0	4.0	5.2	—	—	—	10.5	4.6	2.6
District chilled water	18.9	7.3	8.7	—	—	—	18.6	6.7	5.4
Swamp coolers	11.5	7.3	12.2	—	—	—	12.0	6.9	4.6
Other	74.5	41.3	51.5	—	—	—	76.3	46.0	5.5
HVAC features (more than one may apply)									
Economizer cycle	5.8	2.4	3.3	—	—	—	5.8	2.6	1.4
Variable air volume (VAV) system	8.3	3.1	4.1	—	—	—	8.3	3.4	1.8
Dedicated outside air system (DOAS)	13.1	8.4	9.8	—	—	—	11.9	7.3	3.7
Demand controlled ventilation (DCV)	9.0	4.5	5.7	—	—	—	9.0	5.1	2.2
Regular HVAC maintenance	3.4	1.9	2.3	—	—	—	3.3	2.0	1.1
Building automation system (BAS) controls heating or cooling	6.2	2.8	3.6	—	—	—	6.2	3.0	1.4
Internet-connected or smart thermostat	9.5	6.2	9.1	—	—	—	10.2	6.6	3.3
Programmable thermostat	4.5	3.1	3.9	—	—	—	4.6	3.4	2.0

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Main equipment replaced since 2000 (more than one may apply)									
Heating	4.6	2.8	3.2	—	—	—	4.7	3.2	1.3
Cooling	4.6	2.7	3.5	—	—	—	4.4	2.8	1.5
Water-heating equipment									
Centralized system	4.0	2.7	2.8	—	—	—	3.8	2.5	1.5
Distributed system	8.8	5.0	6.0	—	—	—	8.8	5.5	2.2
Combination of centralized and distributed systems	7.5	3.0	4.6	—	—	—	7.3	3.5	1.7
Generation technologies (more than one may apply)									
Reciprocating engine generators	9.6	3.8	4.3	—	—	—	9.6	3.8	1.8
Solar panels	13.8	4.7	6.8	—	—	—	14.1	5.7	3.6
Other generation technology	21.8	12.7	15.8	—	—	—	22.4	13.6	4.8
Lighting equipment types (more than one may apply)									
Incandescent	7.9	3.4	4.4	—	—	—	7.8	3.2	1.5
Standard fluorescent	3.8	2.3	2.4	—	—	—	3.7	2.3	1.2
Compact fluorescent	4.8	2.1	2.7	—	—	—	4.8	2.4	1.3
High-intensity discharge (HID)	10.7	4.5	6.2	—	—	—	10.4	4.4	2.7
Halogen	9.0	3.4	4.2	—	—	—	8.9	3.6	1.6
LED	4.0	2.4	2.7	—	—	—	3.9	2.5	1.2
Other	62.1	7.8	15.9	—	—	—	71.9	4.2	8.8
Refrigeration equipment (more than one may apply)									
Any refrigeration	3.6	2.3	2.3	—	—	—	3.5	2.2	1.1
Walk-in units	4.9	2.9	3.1	—	—	—	4.7	2.8	1.5
Cases or cabinets	4.7	2.8	3.3	—	—	—	4.4	2.8	1.5
Large cold storage areas	16.6	12.5	14.8	—	—	—	16.5	11.9	4.6
Commercial ice makers	4.9	2.2	2.4	—	—	—	4.6	2.1	1.4
Residential-type or compact units	4.0	2.4	2.5	—	—	—	3.9	2.3	1.2
Vending machines	5.5	2.3	2.5	—	—	—	5.4	2.3	1.3
No refrigeration	6.8	5.2	7.6	—	—	—	7.0	5.6	2.1

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

RSEs for electricity consumption

RSEs for electricity expenditures

RSEs not available for percentiles

	Per building	Per square foot	Per worker	25th percentile	Median	75th percentile	Per building	Per square foot	Per kwh
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Office equipment (more than one may apply)									
Desktop computers	3.5	2.2	2.2	—	—	—	3.5	2.1	1.1
With multiple monitors	4.7	2.4	2.4	—	—	—	4.5	2.4	1.3
Laptop computers	3.6	2.1	2.3	—	—	—	3.7	2.2	1.1
Dedicated servers	4.7	2.2	2.6	—	—	—	4.8	2.5	1.2
Tablets charged in building	4.6	2.3	2.5	—	—	—	4.4	2.3	1.2
Large floor-standing office devices ^c	4.5	2.4	2.5	—	—	—	4.5	2.4	1.3
Smaller desktop office devices ^c	3.8	2.3	2.4	—	—	—	3.7	2.3	1.1
Interactive whiteboards	8.9	3.7	4.2	—	—	—	8.7	4.1	2.2
Televisions or video displays	3.9	2.3	2.5	—	—	—	3.9	2.3	1.2
Point-of-sale devices or cash registers	5.0	2.5	3.0	—	—	—	5.0	2.6	1.4
Food preparation or serving areas in non-food service buildings (more than one may apply)									
Snack bar, concession stand, or coffee shop	10.8	3.1	5.7	—	—	—	10.6	3.9	2.1
Fast food or small restaurant	9.4	2.8	5.2	—	—	—	8.9	3.4	2.0
Cafeteria or large restaurant	8.3	2.2	3.7	—	—	—	8.3	2.7	1.8
Commercial kitchen or food preparation area	7.6	2.7	3.4	—	—	—	7.7	3.3	1.7
Small kitchen area	6.4	2.9	4.6	—	—	—	5.9	2.6	1.5
Separate computer areas (more than one may apply)									
Server closet	4.5	1.8	2.3	—	—	—	4.3	2.0	1.2
Data center	14.3	5.2	5.6	—	—	—	14.1	5.7	2.7
Computer-based training room	8.3	2.5	3.7	—	—	—	8.1	2.7	1.6
Student or public computer center	8.7	2.8	3.8	—	—	—	7.8	2.7	1.9

Relative standard errors (RSEs) for Table C14. Electricity consumption and expenditure intensities, 2018

	RSEs for electricity consumption			RSEs for electricity expenditures					
	Per building	Per square foot	Per worker	RSEs not available for percentiles			Per building	Per square foot	Per kwh
				25th percentile	Median	75th percentile			
All buildings	3.5	2.1	2.2	—	—	—	3.5	2.1	1.1
Window and interior lighting features (more than one may apply)									
Multipaned windows	4.0	2.3	2.7	—	—	—	3.9	2.2	1.2
Tinted window glass	4.1	2.4	2.6	—	—	—	4.0	2.3	1.3
Reflective window glass	6.9	3.5	4.0	—	—	—	6.6	3.5	1.8
External overhangs or awnings	4.5	2.9	2.6	—	—	—	4.3	2.8	1.6
Skylights or atriums	7.7	2.8	4.5	—	—	—	7.3	2.6	1.9
Light scheduling	5.3	2.6	3.3	—	—	—	5.1	2.7	1.5
Occupancy sensors	5.8	2.4	2.6	—	—	—	6.0	2.7	1.4
Multilevel lighting or dimming	9.2	3.9	4.5	—	—	—	8.9	3.5	2.3
Daylight harvesting	12.4	5.5	6.9	—	—	—	12.0	4.3	3.2
Plug-load control	26.5	15.7	15.2	—	—	—	22.3	11.3	9.5
Demand responsive lighting	29.6	9.4	11.4	—	—	—	29.5	9.0	2.9
Building automation system (BAS) for lighting	8.3	3.1	5.3	—	—	—	8.2	3.5	1.8
Electric vehicle (EV) charging									
Charging stations associated with the building	11.6	4.5	6.1	—	—	—	11.1	4.3	2.0
Annual consumption (kilowatthours)									
10,000 or less	4.2	6.8	13.1	—	—	—	5.0	7.0	3.7
10,001 to 50,000	1.8	3.6	3.7	—	—	—	3.0	3.9	2.3
50,001 to 100,000	1.3	4.8	5.2	—	—	—	2.8	4.7	2.7
100,001 to 500,000	1.7	2.7	3.7	—	—	—	2.4	2.9	1.5
500,001 to 1,000,000	1.1	3.1	5.6	—	—	—	2.2	3.5	2.0
1,000,001 to 5,000,000	2.1	3.7	4.6	—	—	—	2.6	3.4	1.5
Over 5,000,000	3.5	4.5	6.0	—	—	—	3.6	5.1	2.4

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.