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**Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)				Electricity energy intensity (kWh/square foot)			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Building floorspace (square feet)</b>												
1,001 to 5,000	11	29	48	20	1,109	2,137	2,699	1,527	10.2	13.5	17.9	13.3
5,001 to 10,000	10	26	47	25	1,120	2,942	3,354	2,228	9.1	8.7	13.9	11.3
10,001 to 25,000	23	52	57	33	2,296	4,269	5,612	3,288	10.2	12.2	10.1	9.9
25,001 to 50,000	32	42	58	36	2,140	4,064	4,694	3,036	14.8	10.2	12.4	11.9
50,001 to 100,000	24	43	84	32	2,195	3,909	6,312	2,853	11.2	11.0	13.3	11.4
100,001 to 200,000	29	33	72	36	2,659	2,759	4,983	2,582	11.0	11.9	14.5	14.1
200,001 to 500,000	33	43	68	31	2,384	3,062	4,201	2,115	13.9	14.0	16.3	14.5
Over 500,000	26	31	43	19	1,908	2,347	2,500	1,562	13.6	13.1	17.1	11.9
<b>Principal building activity</b>												
Education	20	31	57	21	2,545	3,837	4,967	2,275	7.9	8.1	11.4	9.0
Food sales	Q	27	13	Q	Q	404	249	Q	Q	67.3	53.7	Q
Food service	4	12	30	15	138	279	563	405	29.7	43.0	52.7	36.9
Health care	15	27	32	22	779	1,076	1,173	990	19.0	25.0	27.3	22.2
Inpatient	8	20	23	14	367	712	716	463	22.4	28.3	32.2	29.5
Outpatient	7	7	9	8	412	364	457	527	15.9	18.6	19.6	15.9
Lodging	17	25	36	23	1,207	1,661	2,379	1,729	13.7	14.8	15.2	13.2
Mercantile	21	40	80	40	1,389	2,625	4,463	2,300	15.1	15.4	17.8	17.2
Retail (other than mall)	7	19	33	12	601	1,482	2,163	943	11.3	12.7	15.3	13.0
Enclosed and strip malls	14	22	46	27	788	1,143	2,300	1,357	17.9	18.9	20.2	20.1
Office	44	52	88	43	3,196	4,336	5,703	3,427	13.8	12.0	15.4	12.5
Public assembly	11	22	41	14	1,107	1,890	2,711	1,485	9.6	11.6	15.1	9.4
Public order and safety	Q	Q	11	4	Q	Q	673	323	Q	Q	16.7	11.6
Religious worship	3	6	14	4	585	1,444	2,569	873	5.1	4.2	5.4	4.2
Service	9	12	15	8	1,268	2,190	1,684	1,066	7.3	5.7	9.0	7.6
Warehouse and storage	14	23	38	20	2,292	4,391	5,948	3,703	6.0	5.2	6.5	5.5
Other	23	14	20	12	744	598	797	268	31.4	24.0	25.3	45.5
Vacant	Q	2	2	Q	Q	457	474	Q	Q	4.2	4.9	Q
<b>Year constructed</b>												
Before 1920	11	9	9	Q	1,285	1,101	790	391	8.5	7.8	11.3	Q
1920 to 1945	19	19	16	11	1,542	1,914	1,233	891	12.4	9.9	13.1	12.0
1946 to 1959	14	14	28	10	1,539	1,673	2,409	1,202	9.1	8.5	11.7	8.3
1960 to 1969	21	28	50	20	2,045	2,750	3,713	1,750	10.5	10.1	13.5	11.6
1970 to 1979	29	48	56	27	2,257	3,881	4,179	2,584	12.9	12.3	13.3	10.5
1980 to 1989	33	38	70	40	1,981	2,911	5,166	3,240	16.4	13.1	13.6	12.3
1990 to 1999	22	38	80	38	1,948	3,909	5,993	3,216	11.1	9.8	13.3	11.9
2000 to 2009	26	71	108	48	2,097	4,781	6,960	3,416	12.2	14.9	15.5	14.1
2010 to 2018	15	32	60	32	1,117	2,566	3,910	2,501	13.5	12.6	15.3	12.6
<b>Climate zone<sup>a</sup></b>												
Cold or very cold	11	64	N	12	1,087	4,785	N	1,062	10.1	13.3	N	11.4
Cool	76	164	N	58	6,940	14,999	N	4,400	10.9	10.9	N	13.2
Mixed mild	103	70	106	41	7,785	5,704	7,624	3,619	13.2	12.3	13.9	11.2
Warm	N	N	233	87	N	N	16,978	7,627	N	N	13.7	11.4
Hot or very hot	N	N	138	35	N	N	9,751	2,484	N	N	14.2	13.9

**Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

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	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Number of floors</b>												
1	52	132	233	108	4,367	11,266	17,150	9,404	12.0	11.7	13.6	11.5
2	39	68	91	49	3,975	6,887	7,821	4,470	9.8	9.9	11.7	10.9
3	32	38	42	15	2,409	3,487	3,170	1,414	13.4	10.9	13.1	10.4
4 to 9	38	40	78	40	3,309	2,649	4,427	2,642	11.5	15.1	17.6	15.3
10 or more	28	19	33	20	1,751	1,199	1,785	1,262	16.0	15.8	18.5	16.1
<b>Elevators and escalators (more than one may apply)</b>												
Any elevators	105	119	190	97	8,198	9,377	12,018	6,881	12.8	12.7	15.8	14.1
1 elevator	32	40	58	25	3,109	4,062	4,641	2,381	10.2	9.8	12.6	10.3
2 to 5 elevators	41	42	75	42	3,005	3,326	4,455	2,526	13.5	12.8	16.9	16.7
6 or more elevators	33	37	56	30	2,085	1,988	2,922	1,974	15.6	18.5	19.3	15.3
Any escalators	12	11	21	12	890	766	1,292	805	13.0	14.3	16.5	14.5
<b>Number of workers (main shift)</b>												
Fewer than 5	23	47	63	27	2,966	5,825	7,124	3,620	7.6	8.1	8.9	7.6
5 to 9	12	36	53	21	1,285	2,749	4,122	2,129	9.1	12.9	12.9	9.8
10 to 19	15	34	49	30	1,471	3,544	3,909	2,421	10.4	9.6	12.5	12.2
20 to 49	30	59	84	46	2,296	4,507	5,858	3,470	13.1	13.1	14.3	13.3
50 to 99	33	35	74	34	2,347	3,136	4,836	2,642	14.1	11.2	15.2	13.0
100 to 249	34	40	74	33	2,643	3,151	4,425	2,214	12.7	12.5	16.7	15.0
250 or more	43	47	81	41	2,803	2,576	4,078	2,695	15.3	18.3	19.8	15.1
<b>Weekly operating hours</b>												
Fewer than 40	7	21	28	12	1,343	3,126	3,813	1,909	5.4	6.7	7.4	6.5
40 to 48	18	45	72	36	2,318	4,905	7,411	4,110	7.6	9.1	9.7	8.7
49 to 60	34	49	97	47	3,979	5,724	8,352	4,684	8.5	8.5	11.6	10.0
61 to 84	35	46	78	41	2,746	4,062	4,908	2,898	12.9	11.3	15.9	14.2
85 to 167	27	46	65	35	1,822	2,897	3,068	2,017	14.6	15.9	21.1	17.4
Open continuously	69	91	137	61	3,602	4,773	6,803	3,575	19.0	19.2	20.1	17.1
<b>Ownership and occupancy</b>												
Nongovernment owned	159	244	356	182	12,556	20,056	25,716	14,872	12.7	12.2	13.9	12.3
Owner occupied	91	158	222	92	7,638	12,557	16,577	7,845	12.0	12.6	13.4	11.7
Leased to tenant or tenants	67	86	134	91	4,780	7,282	8,934	6,941	14.1	11.8	15.0	13.1
Unoccupied	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Government owned	30	53	121	50	3,255	5,432	8,637	4,320	9.3	9.8	14.0	11.6
Federal	4	6	14	4	288	406	914	337	13.7	14.0	15.2	10.5
State	10	14	50	19	919	1,295	3,215	1,425	10.6	10.5	15.6	13.2
Local	17	34	57	28	2,048	3,730	4,508	2,558	8.1	9.1	12.6	10.8
<b>Party responsible for operation of energy systems</b>												
Building owner	156	250	386	181	13,346	21,419	28,303	15,038	11.7	11.7	13.7	12.1
Business owner or tenant	27	32	66	38	1,996	2,837	4,502	3,222	13.4	11.3	14.6	11.7
Property management	4	6	12	7	265	430	725	528	13.2	13.7	16.4	14.0
Other	4	9	13	6	205	801	823	404	17.2	11.4	15.5	15.0

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	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Provider of direct input on energy-related equipment purchases</b>												
Building owner	160	258	408	188	13,850	22,244	29,810	15,651	11.6	11.6	13.7	12.0
Business owner or tenant	18	20	40	26	1,197	1,724	2,598	1,854	14.7	11.8	15.2	14.0
Property management	Q	Q	6	Q	Q	Q	393	Q	Q	Q	16.0	Q
Other	10	15	23	14	617	1,265	1,552	1,438	15.9	12.2	14.7	9.6
<b>Number of establishments</b>												
1	118	206	310	142	10,153	18,311	23,340	12,458	11.6	11.3	13.3	11.4
2 to 5	30	50	84	49	2,796	3,859	5,919	3,791	10.7	12.9	14.2	12.9
6 to 10	16	16	30	19	1,172	1,311	1,908	1,139	13.3	11.8	15.9	16.3
11 to 20	14	10	26	13	759	736	1,533	867	18.3	14.0	16.7	14.6
More than 20	12	15	25	10	775	967	1,412	835	15.4	15.1	17.9	12.0
Currently unoccupied	Q	Q	1	Q	Q	Q	242	Q	Q	Q	4.4	Q
<b>Predominant exterior wall material</b>												
Brick, stone, or stucco	93	143	264	107	8,007	11,554	18,220	7,937	11.6	12.3	14.5	13.5
Concrete (block or poured)	46	59	98	57	3,567	4,672	6,221	4,705	12.8	12.7	15.8	12.1
Concrete panels	13	19	41	23	883	2,110	3,013	2,323	15.1	9.2	13.5	9.7
Siding or shingles	16	32	14	13	1,284	2,135	1,108	1,279	12.1	15.2	12.5	9.8
Metal panels	9	30	41	13	1,135	4,077	4,602	1,644	8.3	7.3	9.0	7.7
Window glass	6	6	11	11	396	450	685	658	14.6	14.4	16.6	16.2
Other	6	8	8	10	541	489	504	646	11.7	15.4	15.0	14.8
<b>Predominant roof material</b>												
Metal surfacing	12	50	102	29	1,796	5,372	9,301	3,344	6.7	9.4	11.0	8.7
Synthetic or rubber	96	119	158	79	6,991	8,637	9,810	6,030	13.8	13.7	16.1	13.1
Built-up	34	64	109	56	3,081	5,119	6,937	4,150	11.0	12.5	15.8	13.5
Slate or tile shingles	6	11	15	14	710	892	1,315	1,071	8.1	11.8	11.7	12.8
Wooden materials (including shingles)	Q	Q	4	7	Q	Q	227	730	Q	Q	16.9	9.7
Asphalt, fiberglass, or other shingles	29	41	56	28	2,314	4,431	4,556	2,536	12.7	9.3	12.2	11.0
Concrete	2	Q	16	12	249	Q	989	511	9.3	Q	16.3	22.5
Other	Q	7	17	8	386	577	1,219	821	Q	11.8	13.8	9.8
<b>Roof tilt</b>												
Flat	140	181	296	156	10,572	13,353	18,253	11,600	13.3	13.6	16.2	13.4
Shallow pitch	29	72	121	56	2,635	8,043	10,550	5,429	11.0	9.0	11.5	10.3
Steeper pitch	20	44	60	21	2,604	4,092	5,550	2,163	7.7	10.8	10.9	9.5
<b>Cool roof characteristics (more than one may apply)</b>												
White or reflective coating or paint	50	104	187	111	3,761	7,384	12,451	8,820	13.2	14.1	15.1	12.6
White or reflective tiles or shingles	7	7	23	6	452	515	1,195	532	16.4	14.1	18.9	11.2
Aluminum coating	9	9	37	11	1,111	906	3,007	895	8.3	9.4	12.2	12.7
Ballasted roof system	19	31	26	14	1,273	2,295	1,623	1,085	15.1	13.4	16.2	12.5
Other cool roof property	5	Q	11	5	386	Q	698	241	12.4	Q	15.2	20.8

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	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Renovations since 2000 (more than one may apply)</b>												
Any type of renovation	105	153	227	105	8,406	12,578	15,895	8,073	12.5	12.2	14.3	13.0
Addition or annex	22	51	53	22	1,889	4,018	3,410	1,534	11.4	12.7	15.7	14.6
Reduction in floorspace	7	8	9	3	422	538	585	238	15.7	14.9	16.1	11.2
Roof replacement	52	74	102	45	4,381	5,900	7,233	3,253	11.8	12.5	14.1	13.7
Interior wall reconfiguration	57	76	104	46	4,209	6,305	7,074	3,661	13.5	12.1	14.7	12.6
Window replacement	30	45	40	23	2,658	3,264	3,112	1,922	11.3	13.7	12.9	11.9
HVAC equipment upgrade	78	94	137	62	5,880	7,243	9,621	4,739	13.3	13.0	14.2	13.1
Lighting upgrade	75	108	138	75	5,945	8,390	9,301	5,383	12.6	12.8	14.8	14.0
Electrical upgrade	53	58	76	34	3,862	4,485	4,891	2,480	13.8	13.0	15.6	13.7
Plumbing system upgrade	50	56	75	34	3,750	4,158	4,875	2,655	13.3	13.4	15.4	13.0
Insulation upgrade	30	27	34	15	2,257	2,055	2,406	1,263	13.5	13.4	14.3	12.3
Fire, safety, or security upgrade	59	77	96	44	4,389	5,671	6,570	3,343	13.5	13.5	14.6	13.2
Structural upgrade	15	17	18	13	1,045	1,150	1,115	882	14.7	14.6	16.1	14.9
Other	Q	Q	13	3	Q	Q	606	207	Q	Q	21.0	15.0
No renovations	75	121	210	105	6,535	11,043	15,953	9,122	11.5	11.0	13.2	11.5
Buildings constructed 2013 or later	9	23	40	23	870	1,867	2,505	1,997	10.3	12.5	15.8	11.3
<b>Energy sources (more than one may apply)</b>												
Electricity	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
Natural gas	139	234	313	175	11,331	20,410	21,895	14,086	12.3	11.4	14.3	12.5
Fuel oil	83	82	120	67	5,930	4,585	6,794	3,875	13.9	17.9	17.7	17.3
District heat	27	24	38	24	1,823	1,507	2,130	1,284	15.0	16.2	17.9	18.3
District chilled water	9	15	31	19	520	746	2,059	963	16.5	20.5	15.2	19.4
Propane	24	31	41	23	2,465	2,381	3,358	1,948	9.8	13.1	12.2	11.6
Solar	14	7	8	20	1,214	650	531	1,408	11.2	11.0	15.6	14.0
Wood, coal, and other	4	6	10	6	415	617	676	405	9.4	9.0	14.3	14.6
<b>Space-heating energy sources</b>												
Electricity	88	154	300	127	6,375	9,632	19,917	9,679	13.9	16.0	15.1	13.1
Electricity main	38	88	218	74	2,650	4,676	14,237	6,054	14.5	18.9	15.3	12.2
Electricity secondary	50	66	82	53	3,725	4,956	5,679	3,624	13.5	13.2	14.5	14.5
Other excluding electricity	93	137	147	90	9,090	14,463	11,611	7,893	10.2	9.5	12.7	11.4
Buildings without heating	8	7	30	16	346	1,392	2,826	1,620	22.4	4.8	10.6	9.7
<b>Primary space-heating energy source</b>												
Electricity	38	88	218	74	2,650	4,676	14,237	6,054	14.5	18.9	15.3	12.2
Natural gas	100	177	183	117	8,893	17,082	14,158	9,927	11.2	10.4	13.0	11.8
Fuel oil	12	Q	3	Q	1,632	Q	408	Q	7.2	Q	6.7	Q
District heat	25	19	35	22	1,696	1,363	1,873	1,159	14.9	13.7	18.5	18.6
Propane	Q	5	8	Q	508	797	751	Q	11.5	6.0	10.7	Q
Other sources <sup>b</sup>	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Cooling energy sources</b>												
Electricity	175	262	453	209	14,054	22,160	31,905	16,406	12.4	11.8	14.2	12.7
Other excluding electricity	8	Q	19	11	503	417	1,350	711	15.4	24.8	13.7	16.2
Buildings without cooling	7	25	5	12	1,254	2,911	1,099	2,074	5.3	8.8	5.0	5.9



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	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Heating equipment (more than one may apply)</b>												
Packaged heating units	91	161	273	138	6,568	12,471	18,507	10,518	13.8	12.9	14.7	13.1
Furnaces	23	68	63	35	2,562	7,055	4,552	3,103	9.0	9.6	13.8	11.3
Individual space heaters	47	74	89	49	3,794	6,298	6,794	4,236	12.4	11.8	13.0	11.5
Boilers	79	115	112	75	7,386	8,614	7,445	5,385	10.7	13.3	15.0	13.9
Heat pumps	35	49	89	50	2,502	3,025	6,318	3,265	14.1	16.1	14.1	15.3
District heat	27	20	38	23	1,779	1,428	2,092	1,247	15.1	13.9	18.1	18.1
Duct reheat	17	29	66	16	1,069	1,694	3,660	996	15.5	16.9	18.0	16.2
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Cooling equipment (more than one may apply)</b>												
Packaged air-conditioning units	124	178	312	155	9,366	14,019	21,324	11,581	13.2	12.7	14.6	13.4
Residential-type central air conditioners	32	67	86	29	2,790	6,687	6,230	2,563	11.5	10.0	13.8	11.4
Individual air conditioners	43	42	58	32	3,657	3,387	4,428	2,146	11.7	12.3	13.1	15.0
Central chillers	52	64	116	56	3,722	4,575	6,522	3,107	13.9	14.1	17.7	17.9
Heat pumps	32	29	55	37	2,394	2,034	4,170	2,501	13.5	14.1	13.2	14.7
District chilled water	9	15	31	19	520	746	2,059	963	16.5	20.5	15.2	19.4
Swamp coolers	Q	Q	6	17	Q	Q	439	1,311	Q	Q	14.3	12.6
Other	Q	N	Q	Q	Q	N	Q	Q	Q	N	Q	Q
<b>HVAC features (more than one may apply)</b>												
Economizer cycle	95	143	164	109	6,948	10,004	9,425	7,711	13.7	14.3	17.4	14.2
Variable air volume (VAV) system	78	104	169	85	5,195	7,959	10,180	5,934	15.1	13.1	16.6	14.4
Dedicated outside air system (DOAS)	25	41	59	27	1,743	2,202	3,426	1,655	14.6	18.5	17.3	16.5
Demand controlled ventilation (DCV)	38	25	49	29	2,763	2,445	3,399	1,866	13.6	10.2	14.5	15.7
Regular HVAC maintenance	172	250	427	207	13,396	19,821	28,848	15,949	12.9	12.6	14.8	13.0
Building automation system (BAS) controls heating or cooling	114	156	240	122	7,665	10,073	14,346	8,378	14.8	15.4	16.8	14.6
Internet-connected or smart thermostat	7	14	35	16	652	1,229	2,899	1,185	10.6	11.1	12.0	13.2
Programmable thermostat	34	54	76	53	3,733	5,846	6,437	4,865	9.2	9.3	11.8	10.9
<b>Main equipment replaced since 2000 (more than one may apply)</b>												
Heating	76	99	139	65	6,012	9,489	11,249	5,701	12.7	10.4	12.4	11.4
Cooling	56	66	101	46	5,307	6,184	7,636	3,886	10.6	10.7	13.2	11.7
<b>Water-heating equipment</b>												
Centralized system	110	206	295	141	9,881	16,972	21,111	11,316	11.2	12.2	14.0	12.4
Distributed system	43	41	73	35	2,882	3,220	5,109	3,093	14.9	12.6	14.4	11.2
Combination of centralized and distributed systems	31	42	89	43	2,234	3,442	5,561	2,892	13.8	12.1	16.1	14.7
<b>Generation technologies (more than one may apply)</b>												
Reciprocating engine generators	85	105	152	72	5,771	6,335	8,899	4,158	14.7	16.6	17.1	17.2
Solar panels	14	7	8	19	1,211	636	520	1,368	11.2	11.1	15.6	14.0
Other generation technology	10	10	9	9	470	541	548	497	21.2	19.0	15.7	17.7

**Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)				Electricity energy intensity (kWh/square foot)			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Lighting equipment types (more than one may apply)</b>												
Incandescent	53	76	117	65	4,136	5,931	7,274	3,740	12.9	12.8	16.1	17.3
Standard fluorescent	151	220	374	182	12,356	19,199	26,601	14,756	12.2	11.5	14.1	12.3
Compact fluorescent	83	124	187	104	6,318	9,007	11,489	6,876	13.1	13.7	16.3	15.1
High-intensity discharge (HID)	24	45	64	32	2,096	3,054	4,244	1,962	11.5	14.7	15.1	16.2
Halogen	38	45	91	58	2,581	3,297	5,936	3,198	14.6	13.5	15.4	18.1
LED	147	221	319	172	11,641	16,613	20,663	12,931	12.7	13.3	15.4	13.3
Other	N	Q	Q	Q	N	Q	Q	Q	N	Q	Q	Q
<b>Refrigeration equipment (more than one may apply)</b>												
Any refrigeration	160	262	429	197	12,962	21,011	28,694	14,922	12.4	12.5	14.9	13.2
Walk-in units	88	145	211	102	5,493	8,043	10,369	5,479	16.0	18.1	20.3	18.6
Cases or cabinets	80	128	196	95	5,324	7,642	10,221	5,331	15.1	16.8	19.1	17.8
Large cold storage areas	13	24	30	19	540	705	1,343	1,004	24.9	34.0	22.0	19.0
Commercial ice makers	75	140	243	111	5,157	8,764	13,922	6,829	14.5	15.9	17.5	16.2
Residential-type or compact units	133	197	337	157	10,759	17,793	23,691	12,492	12.3	11.0	14.2	12.6
Vending machines	91	149	263	109	7,167	11,359	16,051	7,494	12.6	13.1	16.4	14.5
No refrigeration	29	35	48	35	2,849	4,476	5,660	4,270	10.2	7.9	8.5	8.2
<b>Office equipment (more than one may apply)</b>												
Desktop computers	171	265	436	212	13,897	21,432	30,192	16,492	12.3	12.4	14.5	12.9
With multiple monitors	121	158	279	146	8,928	12,903	18,299	10,714	13.6	12.3	15.2	13.6
Laptop computers	151	223	360	174	11,999	18,798	25,117	13,461	12.6	11.9	14.3	12.9
Dedicated servers	131	175	272	149	9,474	13,726	17,711	10,685	13.8	12.8	15.4	13.9
Tablets charged in building	116	166	277	137	8,447	12,818	17,690	9,823	13.7	13.0	15.7	14.0
Large floor-standing office devices <sup>c</sup>	131	163	284	139	9,853	14,091	19,509	10,636	13.3	11.6	14.6	13.1
Smaller desktop office devices <sup>c</sup>	160	236	393	192	13,145	19,163	27,409	14,750	12.2	12.3	14.3	13.0
Interactive whiteboards	43	55	81	37	3,542	4,667	5,892	2,838	12.0	11.9	13.7	12.9
Televisions or video displays	148	212	356	169	11,323	16,168	23,646	12,481	13.1	13.1	15.1	13.5
Point-of-sale devices or cash registers	88	141	220	113	6,127	9,093	11,564	6,822	14.4	15.5	19.0	16.6
<b>Food preparation or serving areas in non-food service buildings (more than one may apply)</b>												
Snack bar, concession stand, or coffee shop	24	39	59	37	1,614	2,935	3,369	2,443	15.0	13.3	17.6	15.2
Fast food or small restaurant	28	47	60	39	1,657	2,581	3,165	2,356	17.0	18.4	19.0	16.7
Cafeteria or large restaurant	41	51	74	32	3,161	4,250	4,837	2,283	13.0	12.0	15.4	14.1
Commercial kitchen or food preparation area	49	74	113	50	3,289	4,923	6,243	3,244	14.8	15.1	18.0	15.5
Small kitchen area	42	71	86	47	3,784	6,211	6,683	3,840	11.2	11.5	12.9	12.2
<b>Separate computer areas (more than one may apply)</b>												
Server closet	112	161	251	132	8,779	12,544	17,501	9,898	12.8	12.8	14.3	13.3
Data center	40	44	59	41	2,570	3,036	3,409	2,369	15.6	14.5	17.4	17.4
Computer-based training room	36	58	88	49	2,945	4,509	5,745	3,356	12.2	12.9	15.3	14.5
Student or public computer center	24	34	61	34	2,273	3,202	4,635	2,418	10.7	10.6	13.2	14.0

**Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

	Total electricity consumption (billion kilowatthours [kWh])				Total floorspace of buildings using electricity (million square feet)				Electricity energy intensity (kWh/square foot)			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	189	297	477	232	15,811	25,488	34,353	19,192	12.0	11.7	13.9	12.1
<b>Window and interior lighting features (more than one may apply)</b>												
Multipaned windows	161	252	373	179	12,767	20,729	25,070	13,915	12.6	12.1	14.9	12.9
Tinted window glass	87	147	253	135	6,244	10,854	17,035	10,110	13.9	13.6	14.9	13.4
Reflective window glass	44	72	93	69	2,609	4,768	5,450	5,093	16.9	15.2	17.0	13.5
External overhangs or awnings	51	92	166	101	3,445	6,990	11,202	7,042	14.9	13.2	14.8	14.3
Skylights or atriums	39	68	89	61	3,193	5,221	6,385	5,000	12.3	12.9	14.0	12.1
Light scheduling	92	118	195	117	6,304	8,096	11,521	7,630	14.6	14.6	16.9	15.3
Occupancy sensors	122	144	220	125	9,010	11,768	14,044	9,482	13.6	12.2	15.7	13.2
Multilevel lighting or dimming	34	62	76	50	2,189	4,420	4,496	3,318	15.6	14.1	16.9	15.1
Daylight harvesting	19	25	43	31	1,350	1,390	2,488	2,017	14.3	18.2	17.3	15.4
Plug-load control	3	Q	10	12	181	569	764	446	18.1	17.9	13.7	27.2
Demand responsive lighting	4	7	7	7	354	684	538	468	10.4	10.7	13.4	15.1
Building automation system (BAS) for lighting	38	60	109	62	2,713	3,673	6,054	4,205	14.0	16.3	18.0	14.7
<b>Electric vehicle (EV) charging</b>												
Charging stations associated with the building	18	27	47	39	1,658	2,083	3,348	3,075	11.0	12.8	14.2	12.7
<b>Annual consumption (kilowatthours)</b>												
10,000 or less	1	2	1	1	319	1,303	626	433	1.6	1.3	1.6	1.7
10,001 to 50,000	9	16	20	13	1,959	3,836	3,750	2,522	4.4	4.3	5.4	5.0
50,001 to 100,000	10	18	27	16	1,229	2,290	3,222	2,103	7.8	7.9	8.4	7.6
100,001 to 500,000	32	69	111	59	3,554	6,293	8,905	5,375	9.1	11.0	12.4	11.0
500,001 to 1,000,000	19	49	71	38	1,873	3,760	5,150	2,711	10.0	13.1	13.7	13.8
1,000,001 to 5,000,000	70	89	152	62	4,555	5,330	8,603	4,155	15.4	16.6	17.7	14.9
Over 5,000,000	49	54	95	44	2,323	2,676	4,098	1,894	21.2	20.3	23.1	23.5

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 use* 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.

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

<sup>b</sup>Other sources includes wood, coal, solar, and all other energy sources.

<sup>c</sup>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 C15. Electricity consumption and conditional energy intensity by census region, 2018**

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Building floorspace (square feet)</b>												
1,001 to 5,000	17.2	11.2	11.0	10.7	14.7	14.5	10.3	8.2	9.7	12.5	6.3	10.3
5,001 to 10,000	17.9	10.8	11.6	12.6	12.7	15.4	10.2	10.5	13.3	14.0	8.6	10.9
10,001 to 25,000	20.5	27.1	12.7	11.4	15.1	13.7	11.6	12.5	16.6	21.3	6.9	8.6
25,001 to 50,000	22.8	13.2	11.1	11.8	12.8	13.6	9.2	11.8	16.7	7.1	6.1	10.5
50,001 to 100,000	10.4	15.1	9.8	11.6	11.6	14.4	8.6	10.5	7.3	8.8	4.7	6.2
100,001 to 200,000	11.7	10.9	7.9	15.4	11.3	10.6	9.2	13.2	5.9	4.7	5.1	12.4
200,001 to 500,000	18.1	17.2	10.4	13.8	11.2	12.1	7.3	11.1	10.6	13.7	6.1	8.6
Over 500,000	11.6	13.9	13.3	32.9	14.3	14.2	15.7	29.3	8.4	7.7	8.1	13.7
<b>Principal building activity</b>												
Education	9.2	12.6	10.9	10.6	8.9	11.6	10.5	11.5	4.7	4.7	4.1	6.8
Food sales	58.7	44.9	25.6	25.5	59.3	29.8	27.3	26.2	7.1	25.9	11.0	9.6
Food service	26.5	17.2	14.0	20.8	27.4	12.5	13.6	16.9	14.9	10.1	7.2	9.0
Health care	15.2	20.2	9.3	13.4	15.2	11.5	9.7	14.5	5.1	11.9	2.6	9.6
Inpatient	19.2	26.1	10.8	18.0	20.9	14.9	10.6	19.9	5.1	15.0	2.6	14.4
Outpatient	20.6	20.1	16.9	16.8	17.8	19.7	15.6	15.8	10.8	7.0	5.4	9.1
Lodging	20.5	20.9	16.9	24.3	18.3	12.9	13.9	21.9	9.0	14.4	5.9	7.0
Mercantile	22.5	16.6	10.7	10.4	13.7	16.2	10.3	9.7	11.3	9.0	4.1	4.4
Retail (other than mall)	21.0	21.8	12.7	17.3	16.0	22.3	13.2	16.2	15.4	13.2	7.4	8.5
Enclosed and strip malls	30.3	18.3	15.0	14.2	25.5	17.5	14.0	13.0	8.9	6.3	3.2	5.0
Office	11.6	13.2	10.7	10.4	12.1	11.9	10.7	10.2	4.7	6.3	4.1	3.7
Public assembly	15.3	13.1	15.1	13.0	13.5	11.9	10.7	13.2	9.4	9.6	6.9	11.0
Public order and safety	30.4	46.5	33.4	28.6	27.1	38.1	28.3	26.6	9.3	13.6	9.1	13.3
Religious worship	28.1	19.4	11.6	22.0	26.2	18.8	14.4	20.5	25.4	15.3	7.2	10.9
Service	16.4	21.3	16.7	13.0	13.5	15.7	18.1	17.4	14.1	14.8	13.5	8.1
Warehouse and storage	19.9	19.3	14.5	19.0	17.5	13.0	14.3	15.2	8.7	12.3	7.8	14.1
Other	29.8	30.0	26.8	35.5	26.5	34.2	26.9	27.9	22.9	31.0	10.8	27.9
Vacant	29.8	37.1	24.7	66.7	41.5	30.3	23.7	43.0	51.4	20.4	21.7	69.0
<b>Year constructed</b>												
Before 1920	22.9	13.6	20.2	60.6	19.4	16.6	21.6	44.4	15.6	8.5	13.0	55.1
1920 to 1945	17.6	22.1	19.7	22.1	14.0	19.8	17.5	19.6	9.2	11.1	10.6	19.7
1946 to 1959	16.5	18.6	19.6	15.5	17.3	19.6	14.5	14.2	9.4	8.4	13.7	14.7
1960 to 1969	11.0	15.9	11.3	13.3	11.8	12.0	8.2	14.5	11.1	11.8	7.6	10.5
1970 to 1979	19.4	15.9	11.3	15.6	15.9	10.8	10.3	15.9	8.9	9.7	8.0	15.8
1980 to 1989	15.7	14.7	7.5	17.3	10.4	12.8	9.3	14.5	15.4	5.8	6.5	6.1
1990 to 1999	13.9	12.1	8.5	10.8	13.5	16.7	9.3	11.7	9.5	11.6	5.2	7.9
2000 to 2009	15.9	16.8	11.6	12.0	16.1	11.3	11.6	11.1	12.1	14.7	3.9	6.1
2010 to 2018	30.0	19.7	12.0	16.1	17.5	15.9	13.0	16.5	23.9	18.0	6.8	8.4
<b>Climate zone<sup>a</sup></b>												
Cold or very cold	24.2	20.8	0.0	41.2	16.5	22.4	0.0	47.0	23.2	19.1	0.0	14.9
Cool	15.5	12.4	0.0	20.8	13.6	12.2	0.0	16.5	5.3	3.6	0.0	9.6
Mixed mild	10.1	24.7	18.7	39.8	12.4	23.8	20.8	40.0	8.7	5.7	4.9	9.7
Warm	0.0	0.0	13.9	10.0	0.0	0.0	13.9	10.4	0.0	0.0	4.3	7.5
Hot or very hot	0.0	0.0	13.8	26.2	0.0	0.0	14.6	32.2	0.0	0.0	6.2	8.8

Relative standard errors (RSEs) for Table C15. Electricity consumption and conditional energy intensity by census region, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Number of floors</b>												
1	12.1	11.1	9.1	7.4	9.8	9.4	8.8	8.0	14.8	8.0	3.6	4.6
2	11.1	11.5	6.7	9.2	9.6	10.2	8.1	8.9	6.6	5.3	5.7	7.4
3	22.8	13.4	18.1	14.9	16.7	14.3	15.2	19.4	13.4	7.0	7.6	11.2
4 to 9	12.1	16.1	12.9	12.7	10.9	12.4	13.0	13.3	6.6	11.8	4.7	9.7
10 or more	10.0	20.7	21.4	32.4	12.2	25.1	22.5	30.1	7.3	8.3	6.2	17.3
<b>Elevators and escalators (more than one may apply)</b>												
Any elevators	9.0	8.3	10.1	10.5	8.0	7.5	9.5	11.8	5.5	5.0	2.9	6.7
1 elevator	14.1	10.4	16.1	9.8	10.8	9.8	13.9	14.3	7.9	5.9	4.3	8.6
2 to 5 elevators	13.5	12.2	11.8	11.6	11.3	10.7	10.6	9.6	10.4	6.2	5.5	10.2
6 or more elevators	9.9	19.1	12.7	23.5	12.8	13.9	16.0	23.7	6.8	11.1	6.1	9.1
Any escalators	20.8	23.1	19.1	45.9	17.5	20.5	23.6	43.9	9.2	7.8	10.5	8.0
<b>Number of workers (main shift)</b>												
Fewer than 5	19.4	13.3	12.5	9.6	15.2	13.9	10.9	13.0	9.8	8.0	5.8	14.0
5 to 9	18.8	32.6	11.6	13.9	15.5	17.6	10.3	13.8	13.0	31.7	6.0	10.4
10 to 19	10.7	14.5	11.7	11.6	15.2	18.6	11.5	11.5	11.6	14.1	7.2	10.4
20 to 49	15.5	11.1	9.2	11.9	7.9	10.9	9.6	8.6	13.8	8.5	5.6	10.1
50 to 99	18.2	9.4	12.6	15.2	12.6	10.2	11.7	11.8	14.9	6.0	4.4	6.7
100 to 249	14.3	12.4	9.9	14.0	13.7	10.2	8.4	15.4	7.7	7.0	3.5	6.7
250 or more	9.5	14.7	9.4	17.9	10.5	12.2	11.0	16.6	4.4	8.7	5.0	7.2
<b>Weekly operating hours</b>												
Fewer than 40	17.0	21.7	13.7	11.8	19.9	11.1	13.0	15.3	12.1	16.8	8.4	12.1
40 to 48	15.7	28.6	8.3	9.1	13.2	12.1	9.4	9.4	10.7	25.3	5.7	6.7
49 to 60	10.2	11.6	8.4	9.4	9.6	11.7	7.2	8.7	5.4	4.8	4.9	7.2
61 to 84	11.1	11.8	11.0	13.7	12.6	9.3	10.8	10.6	10.7	9.0	5.0	8.3
85 to 167	16.6	11.7	9.8	13.6	11.9	12.4	9.8	16.9	10.0	6.9	8.5	10.2
Open continuously	10.2	10.6	9.2	12.2	9.1	9.4	9.3	13.4	9.3	5.9	4.9	6.4
<b>Ownership and occupancy</b>												
Nongovernment owned	8.4	7.6	5.2	6.7	8.2	7.8	6.0	8.0	6.2	5.4	3.1	5.2
Owner occupied	11.3	7.8	5.8	9.4	10.0	7.0	6.2	9.0	5.1	8.6	3.5	7.0
Leased to tenant or tenants	13.3	13.2	7.7	7.5	10.1	11.9	8.1	8.9	10.9	4.8	4.5	6.4
Unoccupied	34.7	47.4	48.4	40.5	51.8	46.2	39.9	47.3	49.7	41.5	30.7	30.4
Government owned	13.3	12.9	14.9	11.0	11.1	11.8	12.5	11.1	3.9	3.8	4.8	6.3
Federal	29.0	30.8	29.7	31.3	31.7	25.7	28.3	33.5	16.7	14.3	6.9	10.5
State	28.5	20.0	27.3	20.4	25.5	22.4	22.0	17.8	7.1	10.7	7.7	11.7
Local	10.6	13.8	10.6	11.8	10.8	12.0	11.8	13.8	3.7	4.7	5.7	8.2
<b>Party responsible for operation of energy systems</b>												
Building owner	7.7	8.4	6.6	6.8	7.4	8.0	6.5	7.2	4.6	5.8	3.0	5.3
Business owner or tenant	20.2	13.6	9.9	12.5	16.4	16.5	10.6	13.9	15.1	11.2	6.4	8.5
Property management	26.0	36.7	20.2	26.9	24.1	30.3	18.5	24.8	11.3	20.2	9.8	16.6
Other	49.0	23.1	20.9	16.6	28.6	19.6	18.2	18.6	33.5	13.8	12.4	14.9

Relative standard errors (RSEs) for Table C15. Electricity consumption and conditional energy intensity by census region, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Provider of direct input on energy-related equipment purchases</b>												
Building owner	7.6	8.5	6.5	6.4	7.6	8.0	6.3	7.2	4.7	5.3	3.3	5.2
Business owner or tenant	26.8	17.6	11.1	15.5	15.2	16.3	13.1	18.9	17.2	10.2	8.1	8.8
Property management	33.7	43.3	30.5	24.1	30.7	38.2	25.5	35.6	12.8	22.2	17.6	27.7
Other	23.7	19.2	14.6	14.8	20.7	19.0	13.4	13.8	17.4	12.3	8.8	10.9
<b>Number of establishments</b>												
1	8.1	8.5	8.0	6.9	7.5	8.2	7.7	7.4	6.4	6.3	3.5	6.1
2 to 5	12.7	11.5	9.6	16.6	14.8	8.5	8.5	14.9	7.5	7.4	4.1	5.6
6 to 10	18.2	19.1	11.9	16.8	17.6	22.5	10.8	16.3	7.4	11.6	6.6	8.6
11 to 20	24.7	17.4	16.1	13.2	21.3	24.2	13.8	12.0	10.9	16.6	7.3	6.2
More than 20	22.8	35.5	13.1	14.8	18.2	29.1	14.8	16.1	9.5	10.7	9.2	9.8
Currently unoccupied	33.7	48.0	37.2	74.1	47.2	34.2	33.8	43.9	41.8	39.7	23.9	76.7
<b>Predominant exterior wall material</b>												
Brick, stone, or stucco	9.0	8.4	8.8	9.5	8.5	7.6	7.7	9.0	6.2	4.5	4.0	6.1
Concrete (block or poured)	11.4	13.2	6.7	9.0	11.4	13.9	7.5	9.3	13.2	12.9	5.0	9.4
Concrete panels	22.3	18.5	12.7	17.0	22.2	20.3	12.0	15.7	20.4	12.5	8.9	11.4
Siding or shingles	24.5	36.2	17.3	17.5	21.9	17.5	15.0	21.7	17.9	33.1	9.2	17.3
Metal panels	27.6	15.2	11.4	11.7	18.6	13.1	8.2	13.0	24.8	9.8	7.2	15.9
Window glass	27.4	20.2	18.3	25.1	23.8	18.5	18.5	23.6	8.6	9.5	7.0	7.9
Other	33.3	43.4	29.0	18.0	33.3	38.3	22.9	18.3	15.0	21.9	22.7	12.2
<b>Predominant roof material</b>												
Metal surfacing	10.5	22.3	11.5	10.1	9.9	11.5	10.0	11.8	6.1	22.1	4.3	14.0
Synthetic or rubber	10.1	9.5	8.5	8.9	9.2	7.5	7.6	9.8	6.5	4.4	4.2	5.5
Built-up	12.2	12.1	8.0	14.9	10.9	12.5	6.7	12.8	5.4	7.3	5.3	6.1
Slate or tile shingles	20.4	18.7	19.0	20.5	19.1	28.4	17.4	19.4	8.2	17.0	12.5	8.1
Wooden materials (including shingles)	57.1	40.2	21.6	27.2	54.3	48.0	26.3	23.0	15.1	37.8	20.1	14.8
Asphalt, fiberglass, or other shingles	17.7	17.7	9.6	13.6	13.9	12.7	9.6	12.9	14.1	8.9	5.9	12.1
Concrete	23.8	33.4	18.3	33.2	26.3	29.6	19.4	15.8	11.0	14.2	12.5	27.0
Other	56.8	16.4	15.9	17.9	20.1	16.4	15.6	22.0	56.4	14.5	12.3	19.4
<b>Roof tilt</b>												
Flat	8.0	8.6	5.7	8.1	7.8	7.1	5.1	8.6	5.9	4.4	3.6	4.0
Shallow pitch	19.0	11.5	9.6	9.5	11.8	10.3	9.5	9.3	15.6	5.7	3.8	12.5
Steeper pitch	11.6	25.3	9.9	14.3	13.5	12.5	9.9	16.3	9.2	25.5	4.5	8.6
<b>Cool roof characteristics (more than one may apply)</b>												
White or reflective coating or paint	12.2	14.1	6.7	10.7	10.9	9.1	6.6	10.1	6.3	10.7	3.4	4.2
White or reflective tiles or shingles	43.0	26.3	25.9	15.4	22.0	24.7	18.8	15.7	43.0	16.1	11.9	15.8
Aluminum coating	18.0	20.9	15.6	18.3	18.5	23.1	11.8	30.4	14.3	18.6	9.5	27.2
Ballasted roof system	13.4	18.5	12.4	37.8	11.9	19.5	15.4	27.6	7.7	5.6	9.9	17.4
Other cool roof property	36.2	31.7	35.7	32.4	33.4	31.9	34.8	27.6	10.4	21.9	13.4	19.8

Relative standard errors (RSEs) for Table C15. Electricity consumption and conditional energy intensity by census region, 2018

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Renovations since 2000 (more than one may apply)</b>												
Any type of renovation	9.3	6.7	5.2	7.9	7.1	8.1	6.0	8.7	5.5	5.0	2.6	6.9
Addition or annex	12.9	9.6	9.2	10.7	12.2	12.3	9.3	13.9	5.5	6.6	6.9	8.3
Reduction in floorspace	34.1	30.2	22.7	34.3	26.1	25.7	23.8	33.2	20.6	9.7	13.2	10.1
Roof replacement	11.1	9.2	7.5	14.0	10.0	8.6	8.0	13.6	6.0	5.4	4.3	9.0
Interior wall reconfiguration	10.5	7.4	5.9	15.9	10.3	7.3	5.7	13.5	6.8	5.7	3.9	6.8
Window replacement	13.0	11.0	11.9	22.1	9.8	12.3	10.4	18.9	6.9	8.4	7.1	10.3
HVAC equipment upgrade	10.6	8.1	6.8	11.8	9.6	8.9	7.4	12.3	5.8	6.4	3.8	6.8
Lighting upgrade	11.9	7.5	6.2	10.1	8.3	8.7	6.5	10.8	6.5	5.5	2.7	8.0
Electrical upgrade	11.1	7.8	9.9	17.2	9.4	11.6	11.0	15.3	5.8	7.6	5.2	10.7
Plumbing system upgrade	11.6	10.3	9.4	15.7	10.9	11.7	8.6	14.3	6.2	5.5	5.4	6.2
Insulation upgrade	16.4	13.3	11.7	32.2	14.6	16.1	10.8	27.4	8.9	9.2	7.3	13.6
Fire, safety, or security upgrade	12.9	7.4	7.1	15.2	9.8	8.9	7.2	14.0	6.9	6.5	4.6	7.0
Structural upgrade	23.7	15.2	16.2	35.5	15.5	19.3	15.9	32.7	17.5	10.0	7.6	14.4
Other	34.3	48.9	16.2	31.6	28.3	59.9	17.0	30.2	15.0	84.8	6.9	17.4
No renovations	10.0	11.1	9.4	6.7	9.9	8.2	8.2	7.5	9.5	8.7	4.4	5.2
Buildings constructed 2013 or later	20.4	27.1	12.2	16.3	20.9	18.3	15.0	15.3	13.8	23.1	9.5	8.9
<b>Energy sources (more than one may apply)</b>												
Electricity	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
Natural gas	7.7	7.6	5.9	7.2	8.2	7.5	6.3	8.6	6.5	3.4	3.3	4.4
Fuel oil	10.8	17.7	6.7	15.7	10.3	10.3	7.9	17.2	9.5	12.6	4.0	8.7
District heat	8.5	27.4	29.9	22.7	9.5	18.6	30.2	16.5	7.0	18.8	6.7	14.4
District chilled water	17.8	36.9	28.9	26.3	18.4	25.4	26.8	17.1	6.8	24.6	6.7	17.5
Propane	15.4	36.7	15.2	25.9	13.8	14.8	13.9	22.7	12.6	35.4	7.1	12.5
Solar	24.3	18.2	23.0	16.4	24.6	19.0	26.4	16.6	8.4	10.2	14.9	6.6
Wood, coal, and other	39.1	29.1	27.0	32.9	33.3	30.7	18.5	33.9	17.3	22.5	26.1	19.9
<b>Space-heating energy sources</b>												
Electricity	11.0	11.8	6.4	7.2	9.1	9.4	6.3	7.9	6.1	7.8	2.7	5.5
Electricity main	16.5	19.2	8.8	9.4	12.5	16.4	8.5	10.4	8.0	11.2	3.5	6.0
Electricity secondary	11.0	11.2	10.7	13.0	9.3	10.2	9.1	11.9	7.4	7.4	4.8	7.0
Other excluding electricity	6.8	8.4	9.9	10.0	7.3	8.4	9.9	10.2	8.0	3.8	5.0	5.5
Buildings without heating	41.6	27.2	19.5	16.1	25.1	24.6	18.9	15.9	39.8	20.3	12.8	22.9
<b>Primary space-heating energy source</b>												
Electricity	16.5	19.2	8.8	9.4	12.5	16.4	8.5	10.4	8.0	11.2	3.5	6.0
Natural gas	7.6	9.1	6.3	9.3	8.5	8.5	7.6	10.1	7.3	3.5	4.2	5.2
Fuel oil	18.4	50.8	28.1	74.6	18.7	30.9	29.8	74.0	10.0	36.5	15.9	20.4
District heat	10.0	15.9	32.3	23.6	11.8	18.8	33.0	17.9	7.1	7.6	7.6	15.3
Propane	52.6	25.7	48.7	47.9	22.0	26.3	38.9	40.6	40.3	10.8	28.6	32.9
Other sources <sup>b</sup>	36.3	38.2	100.3	35.5	43.6	37.9	85.5	58.7	11.4	30.8	54.9	34.3
<b>Cooling energy sources</b>												
Electricity	7.6	6.6	5.9	6.3	7.7	7.0	5.9	6.7	5.5	3.4	2.7	4.1
Other excluding electricity	21.0	51.7	27.4	26.2	18.9	30.9	28.1	19.7	7.6	35.2	7.5	15.9
Buildings without cooling	22.4	45.3	22.9	22.2	17.3	15.1	21.2	18.4	9.2	41.9	15.0	21.4



**Relative standard errors (RSEs) for Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Heating equipment (more than one may apply)</b>												
Packaged heating units	9.0	8.3	6.8	7.6	7.7	8.0	7.1	8.4	7.9	3.9	3.6	4.2
Furnaces	14.5	11.5	11.2	14.8	15.0	10.0	10.3	11.0	10.4	6.9	4.8	8.9
Individual space heaters	13.2	13.0	9.2	13.0	10.4	10.2	7.9	11.7	7.3	10.2	3.9	9.4
Boilers	8.5	13.8	6.6	12.2	9.3	7.6	5.9	12.7	3.9	10.5	4.1	5.5
Heat pumps	11.6	12.9	8.8	16.2	12.5	13.9	7.9	12.4	6.1	8.9	5.6	6.6
District heat	9.1	15.1	30.1	22.7	10.2	17.7	30.8	16.2	7.1	7.2	6.8	15.1
Duct reheat	21.7	16.0	9.2	19.6	17.4	16.3	9.7	16.8	14.4	4.2	4.1	10.8
Other	69.0	99.6	36.3	29.4	61.9	62.6	34.3	29.9	21.0	81.0	10.5	6.9
<b>Cooling equipment (more than one may apply)</b>												
Packaged air-conditioning units	7.5	7.7	6.8	6.6	8.0	7.7	6.6	7.0	7.3	3.6	3.9	4.1
Residential-type central air conditioners	10.5	7.8	11.9	16.0	11.5	8.1	10.8	13.4	8.4	5.8	5.4	12.5
Individual air conditioners	12.3	14.2	10.9	18.5	11.9	12.0	9.4	13.0	5.6	8.5	5.3	14.1
Central chillers	8.8	9.9	10.5	10.3	9.5	10.0	9.6	9.6	5.3	4.9	3.0	9.3
Heat pumps	15.8	17.5	9.9	17.5	16.2	17.0	10.3	15.5	10.5	10.7	6.3	4.7
District chilled water	17.8	36.9	28.9	26.3	18.4	25.4	26.8	17.1	6.8	24.6	6.7	17.5
Swamp coolers	61.4	28.0	41.5	17.6	71.5	31.2	39.0	13.7	30.9	14.4	9.3	10.7
Other	70.2	0.0	60.3	63.8	70.2	0.0	59.8	50.8	0.0	0.0	24.5	62.4
<b>HVAC features (more than one may apply)</b>												
Economizer cycle	8.0	8.2	7.4	9.8	8.2	6.1	7.9	11.1	6.6	3.9	3.7	5.2
Variable air volume (VAV) system	10.7	7.6	11.1	11.0	10.2	6.7	11.0	11.0	10.8	5.4	4.4	5.1
Dedicated outside air system (DOAS)	14.5	30.3	17.3	23.2	10.9	14.2	14.9	23.1	8.5	29.8	6.7	8.1
Demand controlled ventilation (DCV)	11.9	11.6	8.9	16.7	12.1	11.9	9.3	13.6	8.3	7.8	5.1	15.9
Regular HVAC maintenance	7.4	7.0	6.3	6.7	8.0	6.9	6.2	7.8	5.6	3.0	3.2	4.2
Building automation system (BAS) controls heating or cooling	8.1	9.9	6.3	9.5	7.1	5.1	7.4	9.7	7.6	7.3	3.1	5.6
Internet-connected or smart thermostat	18.4	25.5	18.3	22.9	17.9	26.3	17.6	16.3	13.4	16.3	9.2	10.5
Programmable thermostat	12.7	12.5	11.7	6.8	11.8	11.2	13.3	7.3	8.1	6.5	5.8	5.7
<b>Main equipment replaced since 2000 (more than one may apply)</b>												
Heating	12.5	7.3	7.4	7.4	10.1	8.4	7.8	8.0	8.4	4.9	3.9	7.8
Cooling	13.2	11.8	6.3	14.6	11.8	9.3	5.6	12.6	5.1	6.1	4.6	7.8
<b>Water-heating equipment</b>												
Centralized system	8.4	9.0	7.7	8.1	7.1	7.8	6.5	7.8	4.9	6.7	3.5	5.5
Distributed system	16.7	17.5	12.2	11.1	11.8	13.6	13.7	10.8	16.5	11.6	5.7	6.9
Combination of centralized and distributed systems	14.9	9.9	10.3	10.9	12.6	8.1	10.2	11.2	9.1	4.6	4.8	8.0
<b>Generation technologies (more than one may apply)</b>												
Reciprocating engine generators	9.6	13.1	6.9	14.7	9.3	8.7	7.4	16.1	8.7	10.0	4.1	8.4
Solar panels	24.6	18.5	23.6	15.5	24.7	19.4	27.1	16.3	8.4	10.4	15.3	6.9
Other generation technology	37.8	46.8	23.7	26.9	24.6	31.9	25.6	28.7	29.5	32.3	16.3	16.5

**Relative standard errors (RSEs) for Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Lighting equipment types (more than one may apply)</b>												
Incandescent	11.0	10.8	7.7	12.5	10.7	9.9	7.4	11.4	5.8	7.6	4.6	8.4
Standard fluorescent	7.6	8.1	6.6	6.2	8.5	8.0	6.4	7.7	6.3	4.1	3.3	5.6
Compact fluorescent	8.5	9.8	7.9	9.4	8.7	9.1	8.0	8.4	4.6	4.7	3.3	4.8
High-intensity discharge (HID)	11.1	17.7	10.0	20.1	10.7	12.5	13.1	19.2	6.3	9.1	6.4	13.5
Halogen	11.1	11.1	6.6	13.3	10.2	11.3	6.6	12.0	6.4	8.1	5.3	7.4
LED	6.3	7.8	6.1	7.1	7.4	6.6	5.7	6.9	5.6	6.1	3.1	4.8
Other	0.0	30.1	57.3	51.3	0.0	26.9	53.5	51.3	0.0	5.9	7.5	0.0
<b>Refrigeration equipment (more than one may apply)</b>												
Any refrigeration	6.5	7.5	5.9	6.5	7.8	7.0	5.8	7.4	5.6	5.5	3.0	4.4
Walk-in units	7.5	10.3	5.5	9.1	6.1	6.7	5.6	9.3	6.9	7.9	3.3	5.1
Cases or cabinets	8.6	8.9	6.9	10.2	7.2	8.3	5.8	11.3	7.2	6.0	4.1	5.5
Large cold storage areas	34.5	47.1	15.3	28.8	16.8	21.9	14.7	29.8	31.0	38.2	7.4	11.2
Commercial ice makers	8.0	6.9	7.2	8.9	7.0	6.4	6.4	9.6	4.7	3.8	3.3	5.9
Residential-type or compact units	6.8	7.6	6.1	7.0	8.2	7.3	6.3	7.7	6.9	4.5	3.5	5.0
Vending machines	8.1	7.2	7.1	9.7	7.8	7.3	6.8	10.8	6.4	4.7	3.1	6.1
No refrigeration	14.1	15.2	9.7	16.0	7.8	12.3	9.8	11.2	12.7	9.5	5.1	14.4
<b>Office equipment (more than one may apply)</b>												
Desktop computers	6.9	7.6	5.9	5.9	7.2	6.9	5.6	7.1	5.5	5.1	3.1	4.3
With multiple monitors	8.0	7.2	6.6	9.2	7.9	6.4	6.1	10.3	7.2	4.7	3.4	5.0
Laptop computers	8.1	7.0	5.6	7.0	7.6	7.0	5.4	7.5	6.2	3.4	3.2	5.0
Dedicated servers	8.1	7.4	4.5	7.6	8.9	6.5	5.5	8.9	6.3	4.1	3.1	5.2
Tablets charged in building	8.6	7.9	6.6	7.7	7.7	7.1	5.8	8.5	6.7	4.6	2.8	5.0
Large floor-standing office devices <sup>c</sup>	7.8	6.5	5.9	8.5	7.6	6.0	5.4	9.1	5.8	4.6	3.5	5.7
Smaller desktop office devices <sup>c</sup>	6.9	8.4	5.7	6.6	7.0	7.8	5.8	7.4	6.0	6.1	2.8	4.5
Interactive whiteboards	11.2	13.0	8.7	18.3	8.1	8.0	8.1	15.1	9.9	9.5	3.4	7.8
Televisions or video displays	7.7	7.3	5.7	7.1	8.0	7.1	5.5	8.0	6.4	4.5	2.9	5.2
Point-of-sale devices or cash registers	8.5	8.3	6.3	9.4	7.7	7.4	5.1	10.8	7.8	4.8	3.0	5.6
<b>Food preparation or serving areas in non-food service buildings (more than one may apply)</b>												
Snack bar, concession stand, or coffee shop	14.1	12.0	9.3	17.1	12.7	12.3	11.7	15.9	8.3	4.9	5.3	7.6
Fast food or small restaurant	14.0	10.2	8.7	16.1	11.6	11.5	9.3	15.9	7.3	4.9	4.3	6.4
Cafeteria or large restaurant	8.4	9.5	7.2	20.6	7.0	7.5	7.2	19.1	5.1	4.7	2.7	7.0
Commercial kitchen or food preparation area	11.8	10.4	7.5	13.2	10.7	9.7	6.5	12.6	7.4	5.5	4.3	6.6
Small kitchen area	10.3	11.7	8.6	14.0	9.1	10.5	8.0	12.6	4.5	6.0	4.7	7.5

**Relative standard errors (RSEs) for Table C15. Electricity consumption and conditional energy intensity by census region, 2018**

	RSEs for total electricity consumption				RSEs for total floorspace of buildings using electricity				RSEs for electricity energy intensity			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
<b>All buildings</b>	7.1	7.4	5.9	6.0	7.1	7.3	6.0	7.0	5.1	4.7	2.8	4.8
<b>Separate computer areas (more than one may apply)</b>												
Server closet	7.9	7.7	4.9	8.3	8.3	7.2	5.7	9.6	4.0	3.5	3.0	4.7
Data center	11.6	13.7	9.1	20.5	14.7	10.3	8.9	22.1	16.0	11.1	4.6	7.9
Computer-based training room	8.5	8.9	7.7	16.1	8.3	7.4	7.6	16.1	5.3	5.3	4.3	5.0
Student or public computer center	8.8	9.9	7.5	19.1	9.8	7.3	7.1	17.0	4.9	6.0	3.5	8.6
<b>Window and interior lighting features (more than one may apply)</b>												
Multipaned windows	7.3	7.7	6.5	7.5	7.1	7.2	6.5	8.0	5.7	5.5	3.0	4.7
Tinted window glass	9.9	9.0	6.1	7.7	8.4	7.3	6.1	8.4	5.7	4.3	3.7	5.8
Reflective window glass	14.1	12.5	8.2	12.9	10.0	11.3	9.2	12.2	11.4	7.9	4.5	5.5
External overhangs or awnings	12.7	9.5	8.3	9.9	12.0	9.5	7.6	10.3	9.2	7.0	3.7	5.9
Skylights or atriums	12.3	11.6	5.6	11.7	12.1	9.2	6.1	11.4	3.4	8.2	3.9	5.0
Light scheduling	11.0	9.7	7.5	9.6	9.7	8.8	6.8	9.5	6.3	5.8	3.5	5.9
Occupancy sensors	7.9	8.5	7.4	9.8	7.8	7.4	7.2	9.8	7.0	4.5	3.4	4.4
Multilevel lighting or dimming	11.6	11.7	17.0	16.1	12.0	10.3	13.0	15.2	8.3	8.5	6.8	4.9
Daylight harvesting	17.2	23.1	10.2	15.0	14.3	17.1	10.3	10.2	8.4	15.7	6.4	12.5
Plug-load control	28.0	56.2	18.5	33.9	25.1	26.0	20.5	21.2	12.8	43.7	15.0	26.2
Demand responsive lighting	26.3	26.6	26.3	23.1	28.1	36.6	24.4	24.7	17.1	20.7	9.4	20.0
Building automation system (BAS) for lighting	13.5	9.4	6.5	14.3	13.3	8.9	6.7	13.6	8.2	5.1	5.5	5.8
<b>Electric vehicle (EV) charging</b>												
Charging stations associated with the building	19.7	21.3	13.8	14.3	17.4	16.7	11.9	12.6	9.4	17.0	5.4	4.8
<b>Annual consumption (kilowatthours)</b>												
10,000 or less	23.4	18.7	18.4	21.6	23.3	18.2	21.2	25.5	13.0	12.3	14.5	10.4
10,001 to 50,000	12.7	15.6	11.4	13.5	14.7	13.4	11.2	15.1	7.0	7.9	7.6	5.4
50,001 to 100,000	22.4	16.1	11.3	8.1	24.4	14.6	10.7	8.3	12.4	10.9	8.1	8.9
100,001 to 500,000	9.5	9.7	9.0	8.9	9.7	10.3	9.4	8.9	5.7	3.8	4.8	6.8
500,001 to 1,000,000	18.9	13.3	11.0	11.2	13.8	11.8	11.1	10.0	12.7	4.5	5.6	4.6
1,000,001 to 5,000,000	12.4	15.0	9.3	10.0	11.5	8.7	7.5	10.6	6.6	12.2	3.3	5.2
Over 5,000,000	13.1	15.8	10.2	17.3	9.5	14.2	11.1	21.8	12.4	9.7	5.5	12.5

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>.

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

<sup>b</sup>Other sources includes wood, coal, solar, and all other energy sources.

<sup>c</sup>Office devices refers to any combination of printers, copiers, scanners, or FAX machines.