Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Electricity

Total electricity

	consumption	-		otai noorsp puildings usi	ng electricity				
	(billion kilow			million squa	-	energy intensity (kWh/square foot)			
	West		East	West		East	West		East
	North	South	South	North	South	South	North	South	South
	Central	Atlantic	Central	Central	Atlantic	Central	Central	Atlantic	Central
All buildings	94	256	65	8,114	17,732	5,272	11.6	14.4	12.4
Building floorspace (square feet)									
1,001 to 5,000	8	25	6	688	1,401	365	11.7	18.0	16.0
5,001 to 10,000	9	19	10	1,139	1,385	662	7.6	14.1	15.3
10,001 to 25,000	Q	27	9	1,467	2,722	883	Q	10.0	10.1
25,001 to 50,000	11	35	5	1,234	2,393	651	9.2	14.5	8.0
50,001 to 100,000	13	45	12	1,285	3,245	875	9.8	13.9	13.3
100,001 to 200,000	11	40	12	1,016	2,643	1,006	11.3	15.1	11.8
200,001 to 500,000	13	39	8	611	2,387	550	20.7	16.5	15.3
Over 500,000	8	25	3	674	1,557	Q	12.2	15.9	12.3
Principal building activity									
Education	12	28	10	1,402	2,345	822	8.8	12.1	11.8
Food sales	Q	Q	Q	Q	Q	Q	Q	Q	Q
Food service	Q	15	Q	Q	261	Q	Q	58.8	Q
Health care	5	17	6	238	580	238	21.3	29.1	24.5
Inpatient	Q	12	Q	Q	366	Q	Q	34.1	Q
Outpatient	Q	4	Q	Q	214	Q	Q	20.5	Q
Lodging	6	23	Q	589	1,300	323	11.0	17.5	10.8
Mercantile	12	40	11	869	2,159	706	13.8	18.5	16.0
Retail (other than mall)	7	15	7	582	998	493	12.6	15.1	14.7
Enclosed and strip malls	Q	25	Q	Q	1,161	Q	Q	21.4	Q
Office	16	52	10	1,393	3,253	545	11.6	15.9	18.4
Public assembly	6	24	Q	506	1,655	Q	11.1	14.4	Q
Public order and safety	Q	Q	Q	Q	Q	Q	Q	Q	Q
Religious worship	3	8	2	482	1,322	628	5.3	5.8	3.7
Service	4	7	3	911	755	310	4.3	9.4	Q
Warehouse and storage	9	18	7	1,065	2,909	1,148	8.1	6.1	5.8
Other	Q	13	Q	Q	522	Q	Q	25.4	Q
Vacant	Q	2	Q	Q	317	Q	Q	5.3	Q
Year constructed									
Before 1920	1	6	Q	178	487	Q	6.3	13.2	Q
1920 to 1945	4	9	Q	451	631	Q	8.2	13.8	Q
1946 to 1959	6	16	4	735	1,333	444	8.1	12.0	9.1
1960 to 1969	7	28	8	669	1,890	736	9.9	15.1	10.4
1970 to 1979	13	29	8	1,288	2,085	740	10.1	13.8	10.8
1980 to 1989	15	39	7	1,278	2,708	578	12.0	14.6	12.4
1990 to 1999	11	47	12	1,295	3,380	758	8.2	13.9	16.2
2000 to 2009	31	52	18	1,506	3,397	1,237	20.3	15.3	14.7
2010 to 2018	7	29	Q	715	1,821	502	10.0	16.0	11.7
Climate zone ^a									
Cold or very cold	43	N	N	2,563	N	N	16.9	N	N
Cool	23	N	N	3,170	N	N	7.2	N	N
Mixed mild	28	75	Q	2,382	5,123	Q	11.7	14.7	12.5
Warm	N	127	54	N	8,874	4,382	N	14.3	12.3
Hot or very hot	N	53	Q	N	3,735	Q	N	14.3	Q

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Electricity

Total electricity

consumption buildings using electricity energy intensity (kWh/square foot) (billion kilowatthours [kWh]) (million square feet) West West West **East** East **East** North South South North South South North South South Central **Atlantic** Central Central Atlantic Central Central **Atlantic** Central All buildings 94 256 65 8,114 17,732 5,272 11.6 14.4 12.4 **Number of floors** 48 106 38 3,616 7,634 2,886 13.3 13.9 13.1 2 20 54 11 2,337 4,193 1,222 8.4 12.9 8.6 3 25 5 13 1,191 1,836 525 10.5 13.5 9.6 9 4 to 9 10 49 743 2,825 461 13.7 17.2 18.9 4 22 3 226 1,245 178 15.8 18.0 19.3 10 or more **Elevators and escalators** (more than one may apply) 1,360 33 117 22 2,714 7,277 12.1 16.1 15.8 Any elevators 1 elevator 11 37 7 1,131 2,794 602 9.8 13.1 12.4 14 45 8 1,135 488 12.6 16.2 2 to 5 elevators 2,490 18.2 7 1,994 270 17.7 23.0 6 or more elevators 35 6 448 16.4 Any escalators Q 13 Q Q 875 Q Q 14.5 Q Number of workers (main shift) 7.5 1,777 1,405 7.4 Fewer than 5 13 30 10 3,372 8.9 5 to 9 Q 26 7 865 2,000 758 Q 12.8 9.3 10 to 19 11 22 6 1,373 1,906 470 8.2 11.7 12.8 20 to 49 20 46 14 1,760 2,761 1,098 11.3 16.5 12.3 50 to 99 10 43 9 856 2,677 614 11.7 16.2 15.3 11 100 to 249 43 10 844 2,534 514 12.8 17.0 18.6 250 or more 11 46 9 638 2,482 414 17.7 18.3 22.7 Weekly operating hours 1,814 5.0 5.3 Fewer than 40 6 14 5 1,121 864 7.8 Q 7.9 40 to 48 36 11 1,599 1,353 Q 10.7 3,341 49 to 60 16 55 12 1,887 4,639 1,144 8.5 11.9 10.3 61 to 84 15 41 10 1,377 2,513 511 11.0 16.1 19.2 85 to 167 12 37 9 814 1,776 455 14.8 21.1 20.0 Open continuously 23 73 20 1,316 3,651 945 17.5 19.9 20.7 Ownership and occupancy 77 Nongovernment owned 188 48 6,370 13,234 3,883 12.2 14.2 12.5 55 118 32 4,186 8,501 2,643 13.9 12.0 Owner occupied 13.1 Leased to tenant or tenants 22 70 17 2,063 4,596 1,208 10.9 15.1 13.7 Q Q Q Q Q Unoccupied Q Q Q Q Government owned 17 67 17 1,744 4,498 1,389 9.5 15.0 12.3 Federal Q 9 Q Q 554 Q Q 15.9 Q 4 7 State 27 328 1,605 594 12.5 17.0 12.6 7 Local 11 31 1,282 2,339 615 8.4 13.4 12.1 Party responsible for operation of energy systems 79 208 53 6,877 14,618 4,342 11.5 14.2 12.2 **Building** owner 777 10 32 10 2,170 748 12.9 14.8 13.5 Business owner or tenant Q 8 Q 470 Q Q 17.2 Property management Q Q Other Q 8 Q Q 474 Q Q 16.3 Q

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Electricity

Total electricity

buildings using electricity consumption energy intensity (kWh/square foot) (billion kilowatthours [kWh]) (million square feet) West East West West East **East** North South South North South South North South South Central **Atlantic** Central Central Atlantic Central Central **Atlantic** Central All buildings 94 256 65 8,114 17,732 5,272 11.6 14.4 12.4 Provider of direct input on energyrelated equipment purchases **Building** owner 80 216 7,062 15,302 4,572 11.4 14.1 12.4 57 7 500 15.7 12.7 Business owner or tenant 20 6 570 1,287 12.7 Property management Q Q Q Q Q Q Q Q Q Other 5 15 Q 385 939 Q 13.4 16.5 Q **Number of establishments** 72 164 45 6,049 3,847 11.9 14.1 11.6 11,667 2 to 5 11 44 10 1,018 3,018 10.4 14.4 13.1 768 6 to 10 5 17 6 377 1,120 334 14.3 15.4 16.6 11 to 20 Q 971 Q 16.5 16 Q Q Q Q More than 20 Q 808 Q 16.9 Q 14 Q Q Q Q Currently unoccupied Q Q Q Q Q Q Q Q Predominant exterior wall material 3,087 36 39 9,270 15.5 12.6 Brick, stone, or stucco 144 3,553 10.2 Concrete (block or poured) 18 52 10 1,268 3,258 673 14.1 16.1 14.8 7 Concrete panels 24 8 511 1,777 424 13.8 13.6 17.9 Siding or shingles Q 9 2 880 222 Q 9.7 675 13.4 Metal panels 11 5 1,674 2,016 733 6.8 16 8.2 6.6 Window glass Q 7 Q Q 431 Q 15.6 Q Q Other Q 3 Q Q 305 Q Q 10.8 Q **Predominant roof material** 25 48 2,194 4,386 1,452 11.4 11.0 9.8 Metal surfacing 14 95 Synthetic or rubber 32 22 2,721 5,854 1,397 11.9 16.2 15.9 Built-up 21 61 13 1,468 3,673 922 14.0 16.7 13.9 Slate or tile shingles Q 7 Q Q 716 Q 10.3 Q Q Wooden materials (including Q Q Q Q Q Q Q Q Q shingles) Asphalt, fiberglass, or other shingles 9 27 10 1,239 2,057 972 7.1 13.1 10.4 Q Concrete 9 Q Q 575 Q Q 16.4 Q Other Q 6 Q Q 400 Q Q 14.6 Q **Roof tilt** Flat 52 164 39 3,977 9,660 2,444 13.2 17.0 15.9 Shallow pitch 21 62 17 2,885 5,354 1,689 7.3 11.5 9.8 1,139 Steeper pitch Q 30 10 1,252 2,718 Q 11.1 8.9 Cool roof characteristics (more than one may apply) White or reflective coating or paint 39 105 23 2,608 6,385 1,791 14.8 16.4 13.1 White or reflective tiles or shingles Q 12 Q 606 Q 19.5 Q Q Q Aluminum coating 2 4 246 1,506 9.0 12.1 9.0 18 451 Ballasted roof system 7 16 Q 528 Q 12.6 14.6 Q 1,115 Q 7 Q Other cool roof property Q 489 Q Q 14.9 Q

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Total electricity

consumption buildings using electricity energy intensity (billion kilowatthours [kWh]) (million square feet) (kWh/square foot) West West **East** East West **East** North South South North South South North South South Central **Atlantic** Central Central Atlantic Central Central **Atlantic** Central All buildings 94 256 65 8,114 5,272 11.6 17,732 14.4 12.4 **Renovations since 2000** (more than one may apply) 41 122 3,685 8,319 2,273 11.2 14.7 14.5 Any type of renovation 33 17 27 Addition or annex 11 1,274 1,719 560 15.7 18.9 13.1 Reduction in floorspace Q 6 Q 332 Q Q 18.5 Q Q Roof replacement 18 58 15 1,627 3,902 1,039 11.2 14.9 14.0 Interior wall reconfiguration 19 56 12 1,679 3,809 871 11.5 14.7 13.8 Window replacement 23 1,798 11 5 890 399 12.5 12.9 13.3 26 2,009 HVAC equipment upgrade 76 18 5,117 1,353 13.1 14.8 13.3 Lighting upgrade 28 78 17 2,406 5,173 1,161 11.6 15.1 15.0 Electrical upgrade 15 42 10 1,160 2,613 737 12.9 16.2 13.9 43 2,690 Plumbing system upgrade 16 10 1,234 663 12.8 16.0 14.9 Insulation upgrade 6 20 4 486 1,270 375 12.4 15.7 10.0 Fire, safety, or security upgrade 20 54 12 1,653 3,509 803 12.1 15.3 14.5 Structural upgrade 4 9 Q 235 545 Q 15.7 17.4 Q Q Other 6 Q Q 312 Q Q 18.7 Q 12.0 47 28 3,941 10.8 No renovations 115 8,364 2,601 13.7 Buildings constructed 2013 or later 5 19 487 1,050 398 10.7 17.7 10.9 Q **Energy sources** (more than one may apply) Electricity 94 256 65 8,114 17,732 5,272 11.6 14.4 12.4 65 51 Natural gas 155 5,919 10,285 4,122 11.0 15.1 12.4 78 Fuel oil 35 13 1,672 4,355 803 20.8 17.8 16.2 3 District heat 24 5 303 1,234 294 11.3 19.3 16.8 District chilled water Q Q Q 1,027 Q 14.8 16 Q 15.4 Propane Q 28 3 1,088 2,260 376 Q 12.5 7.6 Q 6 Q Solar Q 378 Q 15.6 Q Q Wood, coal, and other Q 6 Q Q 404 Q Q 15.6 Q Space-heating energy sources Electricity 55 166 37 3,520 10,606 2,825 15.7 15.6 13.0 38 125 21 Electricity main 1,947 7,906 1,604 19.4 15.8 13.1 **Electricity secondary** 17 40 16 1,573 2,700 1,221 11.1 15.0 13.0 Other excluding electricity 37 70 27 4,126 5,347 2,251 8.9 13.1 12.0 **Buildings** without heating Q 20 Q Q 1,779 Q Q 11.4 Q **Primary space-heating** energy source 38 125 21 1,947 7,906 1,604 19.4 13.1 Electricity 15.8 Natural gas 49 80 37 4,986 6,017 3,131 9.8 13.3 11.9 Ν 2 Ν Fuel oil Q Ν 261 Q 8.1 Q District heat 3 22 4 255 1,131 216 10.2 19.6 18.5 3 Q 417 10.7 Propane Q Q Q 6.1 Q Other sources^b Q Q Ν Q Q Q Ν Ν Q **Cooling energy sources** 80 244 12.6 Electricity 63 7,096 16,474 4,985 11.2 14.8 Other excluding electricity Q 9 Q Q 659 Q Q 13.3 Q Q 3 Q **Buildings** without cooling Q 984 598 Q 4.9 Q

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Total electricity

consumption buildings using electricity energy intensity (kWh/square foot) (billion kilowatthours [kWh]) (million square feet) West West West **East** East **East** North South South North South South North South South Central **Atlantic** Central Central Atlantic Central Central **Atlantic** Central All buildings 94 256 65 8,114 17,732 5,272 11.6 14.4 12.4 Water-heating energy sources Electricity 51 158 36 3,940 10,835 2,833 12.8 14.6 12.8 Other excluding electricity 40 25 89 3,413 5,720 1,906 11.7 15.6 13.1 4 8 4 Buildings without water heating 760 1,178 Q 4.7 7.0 7.9 **Cooking energy sources** 2,800 5,472 1,480 15.6 18.0 16.1 Electricity 44 98 24 Other excluding electricity 12 41 8 1,167 2,509 636 10.1 16.4 12.6 39 **Buildings** without cooking 116 34 4,147 9,751 3,156 9.3 11.9 10.6 **Energy end uses** (more than one may apply) Buildings with space heating 92 235 64 7,646 15,953 5,076 12.0 14.8 12.6 **Buildings** with cooling 80 253 65 7,130 17,134 5,118 11.3 14.8 12.7 90 16,554 Buildings with water heating 248 61 7,353 4,740 12.3 15.0 12.9 Buildings with cooking 55 140 32 3,967 7,981 2,116 14.0 17.5 15.1 Q **Buildings with manufacturing** 10 3 813 1,006 307 Q 10.3 10.6 **Buildings** with electricity generation 38 101 18 1,961 5,854 19.5 17.3 1,171 15.7 **Buildings with lighting** 94 256 64 8,083 17,643 5,078 11.6 14.5 12.6 Percentage of floorspace heated Not heated Q 20 Q Q 1,779 Q Q 11.4 Q 1% to 50% Q 22 7 451 2,296 872 6.5 9.4 8.0 51% to 99% 11 62 18 1,034 4,328 1,378 10.6 14.3 13.4 78 38 100% 152 6,161 9,330 2,826 12.7 16.3 13.6 Percentage of floorspace cooled Not cooled Q 3 Q 984 598 Q 4.9 Q Q 1% to 50% 12 26 7 1,731 3,360 1,249 6.9 7.8 5.6 51% to 99% 22 86 22 1,883 5,526 1,415 11.8 15.6 15.3 100% 46 140 36 3,516 8,247 2,455 13.1 17.0 14.8 Percentage lit when open Q Q Q Q Q Q Q Q Q 1% to 50% 10 18 4 1,656 8.3 4.8 2,214 880 6.1 51% to 99% 50 115 26 3,318 7,431 1,879 15.0 15.5 13.9 100% 33 121 34 2,865 7,804 2,276 11.4 15.5 14.8 Building never open or electricity Q Q not used Q Q Q Q Q Q Q Percentage lit during off hours 1,383 1,084 8 9.0 0% 23 9 2,538 5.5 8.8 1% to 50% 76 192 45 6,258 13,124 3,677 12.2 14.6 12.4 9 51% to 100% 29 8 432 1,501 21.9 19.5 20.6 389 Building always open with no off hours Q 570 Q 20.8 Q 12 Q Q Q Ν Ν Ν Electricity not used Ν Ν Ν Ν Ν Ν

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Total electricity

consumption buildings using electricity energy intensity (kWh/square foot) (billion kilowatthours [kWh]) (million square feet) West West West **East** East **East** North South South North South South North South South Central **Atlantic** Central Central Atlantic Central Central **Atlantic** Central All buildings 94 256 65 8,114 17,732 5,272 11.6 14.4 12.4 **Heating equipment** (more than one may apply) Packaged heating units 48 138 43 4,041 8,609 3,289 11.8 16.1 12.9 974 7.8 10.0 **Furnaces** 19 28 10 2,393 1,651 16.8 3,560 Individual space heaters 21 45 15 1,794 1,250 11.7 12.5 12.3 **Boilers** 39 62 18 2,715 4,174 1,100 14.3 14.8 16.3 18 11 4,265 12.8 Heat pumps 61 1,069 853 17.0 14.3 District heat 3 24 5 300 1,231 294 11.3 19.3 16.8 Duct reheat 8 42 484 2,401 15.8 17.6 Q Q Q Other Q Q Q Q Q Q Q Q Q **Cooling equipment** (more than one may apply) Packaged air-conditioning units 56 160 48 4,501 10,417 3,683 12.4 15.4 13.1 Residential-type central air conditioners 20 48 13 2,283 3,118 936 8.9 15.3 13.4 Individual air conditioners 33 7 9.7 8.9 10 1,005 2,362 815 14.0 Central chillers 16 73 13 1,091 4,097 722 14.9 17.8 17.4 40 3,046 Heat pumps 14 7 885 616 16.0 13.0 12.2 District chilled water Q 16 Q Q 1,027 Q Q 15.4 14.8 Swamp coolers Q Q Q Q Q Q Q Q Q Other Ν Q Q Ν Q Q Ν Q Q **HVAC** features (more than one may apply) Economizer cycle 41 94 18 2,885 5,325 1,092 14.2 17.6 16.2 Variable air volume (VAV) system 28 101 16 2,233 5,961 980 12.6 17.0 16.0 Q 5 13.5 Dedicated outside air system (DOAS) 36 836 2,099 361 Q 17.3 Demand controlled ventilation (DCV) 8 27 6 637 1,855 529 12.4 14.8 10.8 Regular HVAC maintenance 72 56 6,212 4,049 15.3 234 15,339 11.5 13.8 Building automation system (BAS) controls heating or cooling 53 137 28 2,893 7,931 1,671 18.3 17.3 16.5 Internet-connected or smart thermostat 4 17 5 395 1,235 511 10.6 13.5 8.9 14 13 Programmable thermostat 35 3,074 1,077 7.5 12.4 1,824 11.4 Main equipment replaced since 2000 (more than one may apply) Heating 31 73 19 3,197 5,708 1,713 9.6 12.9 11.0 Cooling 18 54 14 1,650 4,113 1,170 11.2 13.2 11.9 Water-heating equipment Centralized system 64 165 40 5,182 11,263 3,253 12.3 14.7 12.3 9 Distributed system 15 37 1,088 2,359 15.8 15.4 591 13.4 Combination of centralized and distributed systems 12 45 12 1,083 2,933 896 11.3 15.4 13.4

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Electricity

Total electricity

	consumption buildings using electricity energy intensity							city	
	(billion kilow			million squa			kWh/square	=	
	West North	South	East South	West North	South	East South	West North	South	East South
	Central	Atlantic	Central	Central	Atlantic	Central	Central	Atlantic	Central
All buildings	94	256	65	8,114	17,732	5,272	11.6	14.4	12.4
Generation technologies									
(more than one may apply)									
Reciprocating engine generators	36	93	17	1,763	5,408	1,034	20.5	17.3	16.3
Solar panels	Q	6	Q	Q	367	Q	Q	15.6	Q
Other generation technology	Q	Q	Q	Q	Q	Q	Q	Q	Q
Lighting equipment types (more than one may apply)									
Incandescent	20	67	17	1,754	4,035	1,159	11.6	16.7	15.1
Standard fluorescent	66	207	54	5,957	14,165	3,988	11.1	14.6	13.4
Compact fluorescent	35	111	23	2,537	6,476	1,361	13.7	17.1	17.0
High-intensity discharge (HID)	12	40	10	890	2,597	817	13.1	15.4	12.5
Halogen	11	48	12	1,021	3,011	839	11.0	15.8	13.8
LED	70	177	40	5,115	11,288	2,870	13.7	15.7	14.0
Other	N	Q	N	N	Q	N	N	Q	N
Refrigeration equipment									
(more than one may apply)									
Any refrigeration	86	234	55	6,723	15,032	4,063	12.7	15.6	13.6
Walk-in units	45	119	27	2,549	5,989	1,317	17.6	19.9	20.7
Cases or cabinets	36	107	25	2,276	5,591	1,394	15.8	19.2	17.6
Large cold storage areas	Q	18	Q	Q	829	Q	Q	21.2	Q
Commercial ice makers	38	133	32	2,868	7,530	1,890	13.4	17.6	16.9
Residential-type or compact units	59	187	37	5,776	12,540	2,932	10.2	14.9	12.6
Vending machines	42	146	35	3,292	8,640	2,245	12.8	16.9	15.6
No refrigeration	8	22	10	1,391	2,700	1,209	6.0	8.0	8.3
Office equipment									
(more than one may apply)									
Desktop computers	84	234	60	6,590	15,619	4,480	12.8	15.0	13.4
With multiple monitors	47	156	37	3,995	10,237	2,477	11.8	15.2	15.0
Laptop computers	66	199	47	5,625	13,183	3,635	11.6	15.1	13.0
Dedicated servers	52	147	34	4,024	9,151	2,427	12.9	16.1	14.0
Tablets charged in building	50	151	38	3,901	9,400	2,350	12.7	16.0	16.1
Large floor-standing office devices ^c	45	161	35	4,079	10,729	2,489	11.0	15.0	14.2
Smaller desktop office devices ^c	72	206	52	5,821	14,089	3,816	12.4	14.6	13.6
Interactive whiteboards	17	48	13	1,303	3,362	964	12.7	14.3	13.7
Televisions or video displays	63	191	47	5,028	12,207	3,208	12.4	15.7	14.6
Point-of-sale devices or cash									
registers	36	116	29	2,686	6,059	1,618	13.5	19.2	18.1
Food preparation or serving areas									
in non-food service buildings									
(more than one may apply)									
Snack bar, concession stand, or coffee									
shop	12	36	5	936	2,019	340	12.3	18.0	14.7
Fast food or small restaurant	8	32	8	539	1,810	375	14.9	17.7	21.0
Cafeteria or large restaurant	13	42	9	1,208	2,752	635	10.9	15.3	14.0
Commercial kitchen or				4 =	0 = 4 =	-	46.5	4==	4= -
food preparation area	20	62	12	1,598	3,515	715	12.3	17.7	17.1
Small kitchen area	21	48	9	1,933	3,462	854	11.1	13.9	10.3

Table C18. Electricity consumption and conditional energy intensity by census division (part 2), 2018

Total electricity Total floorspace of consumption buildings using electricity energy intensity (billion kilowatthours [kWh]) (million square feet) (kWh/square foot) West **East** West East West **East** North South South North South South North South South Central **Atlantic** Central Central Atlantic Central Central **Atlantic** Central All buildings 94 256 65 8,114 5,272 11.6 17,732 14.4 12.4 Separate computer areas (more than one may apply) 42 138 3,555 9,145 2,417 15.0 13.5 Server closet 33 11.9 Data center 12 32 8 733 1,910 422 15.7 16.8 19.2 Computer-based training room 19 46 13 1,421 3,003 736 13.3 15.2 17.5 Student or public computer center 10 30 9 1,043 2,192 618 9.6 13.6 14.1 Window and interior lighting features (more than one may apply) 82 207 53 6,862 13,353 12.0 15.5 13.3 Multipaned windows 3,993 Tinted window glass 42 135 34 3,509 8,696 2,482 12.1 15.6 13.5 Reflective window glass 18 50 2,697 11 913 663 19.7 18.4 17.3 External overhangs or awnings 24 88 25 2.216 5,485 1.867 10.9 16.1 13.3 Skylights or atriums 18 49 8 1,445 3,563 643 12.4 13.8 12.8 Light scheduling 32 109 18 2,136 6,381 1,142 15.1 17.1 15.7 Occupancy sensors 36 133 24 3,056 8,295 1,674 11.9 16.0 14.6 7 Multilevel lighting or dimming 12 46 1,054 2,826 356 11.6 16.1 19.6 Daylight harvesting 4 25 4 270 1,523 239 16.6 14.7 16.1 Q Plug-load control 6 Q Q 421 Q Q 13.8 Q 5 Q Demand responsive lighting Q Q Q 381 Q Q 13.8 Building automation system (BAS) for 18 62 11 1,107 3,428 623 16.7 18.2 lighting 18.4 Electric vehicle (EV) charging Charging stations associated with the building 5 34 4 343 2,399 381 15.3 14.2 11.4 **Annual consumption** (kilowatthours) 10,000 or less 1 0 Q 476 249 1.1 2.0 Q 0 10,001 to 50,000 6 10 4 846 5.5 4.6 1,318 1,766 4.7 50,001 to 100,000 6 13 5 653 1,505 549 9.4 8.5 8.3 100,001 to 500,000 2,469 4,038 11.2 24 51 16 1,426 9.8 12.5 500,001 to 1,000,000 10 35 888 2,499 776 13.9 14.5 11 11.8 1,000,001 to 5,000,000 30 92 20 1,573 5,071 1,235 19.1 18.2 16.5

Data source: U.S. Energy Information Administration, Forms EIA-871A and E of the 2018 Commercial Buildings Energy Consumption Survey

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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.

9

736

2,604

22.2

318

21.2

29.1

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.

16

Over 5,000,000

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

^bOther sources includes wood, coal, solar, and all other energy sources.

^cOffice devices refers to any combination of printers, copiers, scanners, or FAX machines.

Q = Data withheld either because the relative standard error was greater than 50% or the reporting sample had fewer than 20 buildings.

N = No buildings in reporting sample.

	RSEs for tota consumption	-			I floorspace ng electricity		RSEs for electricity energy intensity			
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2	
Building floorspace (square feet)										
1,001 to 5,000	26.8	15.9	23.7	25.0	16.8	22.2	7.4	7.8	12.3	
5,001 to 10,000	19.8	14.5	30.8	34.2	14.7	21.2	30.4	14.9	16.0	
10,001 to 25,000	59.0	15.5	45.4	13.8	12.8	40.8	50.8	9.0	10.3	
25,001 to 50,000	27.4	14.4	35.5	30.1	11.9	23.5	13.8	8.7	16.4	
50,001 to 100,000	25.8	15.5	19.1	26.2	12.0	20.6	6.4	6.3	17.4	
100,001 to 200,000	16.9	10.8	26.0	13.1	11.6	30.6	8.6	6.9	12.5	
200,001 to 500,000	31.8	15.7	19.7	17.8	9.9	16.1	20.2	8.9	17.4	
Over 500,000	34.1	21.7	27.6	24.7	21.6	50.4	14.6	6.4	43.0	
Principal building activity	27.0	45.7	22.2	24.2	110	24.4	7.7	4.0	42.5	
Education	27.9	15.7	22.3	24.2	14.0	24.1	7.7	4.9	12.5	
Food sales	97.9	31.5	30.0	73.9	34.6	20.1	70.0	15.6	14.2	
Food service	24.5	21.1	30.3	20.4	19.5	30.7	14.2	11.8	14.9	
Health care	15.2	13.1	23.2	17.5	13.6	26.6	5.4	3.1	7.5	
Inpatient	20.7 29.2	16.0 23.2	21.5 30.6	24.5 34.5	15.6 20.5	22.1 34.2	12.2 16.7	3.5 8.2	2.3	
Outpatient	26.6	23.2	63.6	21.4	19.3	41.7	13.2	7.6	11.0 33.9	
Lodging Mercantile	15.7	16.9	20.2	17.2	16.1					
Retail (other than mall)	23.2	14.8	40.1	30.4	16.1	21.9 37.1	18.2 24.5	6.7 14.5	13.4	
									10.0	
Enclosed and strip malls	44.2	22.6	39.1	38.1	21.3	26.1	17.7	3.2	24.0	
Office	8.8	15.8	20.9	14.3	15.2	19.3	10.7	4.0	7.8	
Public assembly	20.0	20.7	61.4	20.7	13.0	52.7	23.9	11.3	44.9	
Public order and safety	78.7	48.3	33.8	57.7	42.0	30.3	47.7	14.6	9.8	
Religious worship	26.1	16.1	40.1	33.1	17.2	44.2	21.0	8.8	9.2	
Service	32.9	21.3	39.4	18.4	23.6	45.7	31.6	10.0	52.0	
Warehouse and storage	42.4	19.4	46.3	26.3	17.8	39.1	17.0	7.9	17.9	
Other	51.8	38.4	59.7	71.5	37.3	51.3	146.6	15.8	52.6	
Vacant	58.9	30.2	81.5	52.7	29.1	67.6	8.3	27.7	146.3	
Year constructed										
Before 1920	40.2	21.4	43.0	47.2	19.8	48.1	37.8	11.4	80.7	
1920 to 1945	37.2	30.1	37.3	35.7	27.2	25.3	11.5	14.0	34.8	
1946 to 1959	31.0	30.0	38.3	35.5	20.7	32.5	10.0	23.0	12.8	
1960 to 1969	18.7	16.2	23.0	21.1	10.4	18.9	19.5	11.4	12.3	
1970 to 1979	22.8	13.5	26.5	15.6	14.6	7.7	14.7	13.7	21.2	
1980 to 1989	20.4	11.1	19.6	16.7	12.8	21.3	8.4	11.5	16.9	
1990 to 1999	21.3	10.3	30.5	39.8	9.2	36.2	37.2	5.2	17.9	
2000 to 2009	36.0	13.4	39.2	20.0	11.5	42.8	31.8	4.0	12.1	
2010 to 2018	30.6	12.7	53.3	33.6	15.2	46.0	10.1	11.5	36.3	
Climate zone ^a										
Cold or very cold	20.4	0.0	0.0	9.0	0.0	0.0	28.3	0.0	0.0	
Cool	25.1	0.0	0.0	18.6	0.0	0.0	8.7	0.0	0.0	
Mixed mild	15.3	11.2	55.7	13.3	8.9	52.8	3.1	4.3	8.5	
Warm	0.0	15.3	26.5	0.0	12.5	31.3	0.0	6.3	7.1	
Hot or very hot	0.0	16.6	71.5	0.0	18.4	70.7	0.0	8.7	2.9	

	RSEs for tota consumption	-			I floorspace ng electricity		RSEs for electricity energy intensity			
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2	
Number of floors										
1	21.6	13.0	22.3	11.3	12.1	21.9	20.3	5.4	5.5	
2	16.9	8.2	23.8	15.6	8.7	32.4	6.5	8.5	13.2	
3	20.9	27.4	22.7	19.3	22.8	26.4	13.9	10.0	21.8	
4 to 9	19.9	19.7	24.0	29.7	18.2	23.4	16.7	4.8	14.9	
10 or more	36.9	29.4	25.4	30.0	30.6	19.3	12.5	8.1	8.0	
Elevators and escalators (more than one may apply)										
Any elevators	9.8	15.5	13.6	10.7	13.4	13.3	6.4	3.3	7.8	
1 elevator	14.0	21.4	15.3	13.7	18.3	15.5	7.4	5.8	8.8	
2 to 5 elevators	13.1	18.4	17.4	15.0	15.7	14.6	7.3	6.7	15.8	
6 or more elevators	17.6	20.8	22.4	21.9	23.0	24.3	13.0	5.4	6.7	
Any escalators	31.6	35.1	51.4	35.5	32.9	44.3	4.9	8.5	23.8	
Number of workers (main shift)										
Fewer than 5	20.9	17.9	34.5	29.2	15.1	28.1	16.5	7.1	11.5	
5 to 9	62.7	15.3	34.1	12.8	12.3	32.0	59.6	9.7	12.8	
10 to 19	14.5	18.4	12.4	31.3	16.3	23.0	33.2	12.1	22.0	
20 to 49	21.0	13.2	25.2	22.3	13.6	26.7	14.6	7.8	10.4	
50 to 99	19.1	16.3	28.9	16.3	13.7	25.0	10.5	6.3	12.6	
100 to 249	15.5	14.2	19.5	18.1	11.7	21.0	7.0	4.1	10.2	
250 or more	15.1	15.4	21.4	18.1	16.5	22.3	8.5	5.0	16.6	
Weekly operating hours										
Fewer than 40	18.6	20.8	30.1	13.2	17.9	35.8	9.0	6.8	37.0	
40 to 48	54.2	10.8	17.8	20.2	11.8	24.3	50.0	7.3	13.9	
49 to 60	7.8	10.0	20.7	9.3	7.4	19.0	6.9	7.8	11.4	
61 to 84	13.6	15.3	22.1	12.8	11.3	22.2	9.1	6.8	9.9	
85 to 167	19.5	12.0	27.8	22.6	9.6	46.6	10.7	10.6	39.6	
Open continuously	17.3	14.9	25.2	10.2	15.4	18.2	14.6	6.3	11.9	
Ownership and occupancy										
Nongovernment owned	11.4	5.8	22.2	6.6	6.2	25.4	14.0	4.4	5.9	
Owner occupied	14.0	7.8	18.6	9.9	8.0	19.2	20.5	5.5	4.6	
Leased to tenant or tenants	12.9	6.5	34.2	13.9	8.2	40.8	5.8	5.6	14.6	
Unoccupied	56.3	52.6	50.4	60.8	48.1	50.4	5.8	16.2	0.0	
Government owned	22.5	24.1	16.4	22.0	19.4	21.4	4.4	6.7	10.2	
Federal	39.8	41.9	47.9	40.7	41.1	52.2	8.0	4.3	18.8	
State	21.7	47.1	15.9	15.4	39.3	9.6	12.1	12.1	8.2	
Local	32.6	14.2	21.1	28.6	14.1	39.3	6.1	6.7	28.9	
Party responsible for operation										
of energy systems										
Building owner	12.8	9.5	15.4	9.5	7.2	19.5	14.4	4.6	6.9	
Business owner or tenant	29.5	13.9	32.2	29.4	15.0	32.1	10.1	9.5	18.5	
Property management	27.3	26.3	32.3	28.2	23.9	38.6	9.2	12.9	22.1	
Other	32.6	18.2	44.4	39.2	16.6	58.1	17.8	14.0	25.3	

	RSEs for tota consumption	•			I floorspace ng electricity		RSEs for elec energy inten		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Provider of direct input on energy- related equipment purchases									
Building owner	12.6	9.5	15.6	8.9	6.9	20.3	14.1	5.0	6.8
Business owner or tenant	36.5	18.1	19.8	34.7	20.3	28.4	13.8	12.1	15.7
Property management	54.8	45.1	72.0	59.5	39.8	50.8	3.8	29.7	46.3
Other	23.1	16.6	27.4	27.3	17.5	31.7	7.9	7.4	56.0
Number of establishments									
1	15.8	11.7	15.8	11.3	9.6	19.2	15.3	5.5	6.1
2 to 5	14.0	12.9	42.2	10.5	10.3	39.5	10.4	6.0	16.1
6 to 10	29.7	15.1	25.2	30.5	13.2	24.7	17.1	10.3	11.8
11 to 20	42.3	18.7	53.3	62.7	16.8	31.1	53.2	7.1	32.5
More than 20	31.9	19.4	58.5	33.6	22.7	45.3	6.3	7.2	29.3
Currently unoccupied	56.3	43.5	81.5	59.4	43.4	67.6	6.0	14.2	146.3
Predominant exterior wall material									
Brick, stone, or stucco	10.7	13.7	15.0	11.4	10.3	19.1	2.8	6.1	7.3
Concrete (block or poured)	17.2	8.0	24.4	11.4	7.7	38.9	17.8	5.5	22.8
Concrete panels	31.7	18.0	29.2	26.4	14.7	45.3	8.6	12.7	43.0
Siding or shingles	59.1	23.7	20.9	34.6	20.3	26.1	60.7	13.6	9.4
Metal panels	21.9	20.1	29.0	16.8	10.6	17.7	16.9	14.4	11.0
Window glass	37.5	25.6	52.9	31.9	24.8	58.9	16.3	9.1	31.0
Other	39.5	20.6	45.6	39.5	30.3	39.0	12.2	20.7	36.9
Predominant roof material									
Metal surfacing	42.0	14.2	24.5	11.8	10.8	24.7	43.7	7.1	5.5
Synthetic or rubber	9.0	11.7	25.1	10.8	8.7	30.4	3.4	5.5	12.8
Built-up	21.8	10.1	19.9	18.1	7.8	9.4	17.0	6.7	22.6
Slate or tile shingles	30.8	32.0	33.9	34.7	30.8	23.9	12.6	17.3	27.8
Wooden materials (including									
shingles)	72.1	38.6	55.3	62.0	33.1	48.1	14.4	9.1	23.7
Asphalt, fiberglass, or									
other shingles	17.5	12.9	18.8	14.6	11.6	24.9	11.5	6.5	20.1
Concrete	56.5	20.3	74.6	50.9	16.9	76.7	13.8	12.1	22.2
Other	29.0	22.0	56.8	28.2	30.0	43.5	9.2	21.5	28.7
Roof tilt									
Flat	10.7	9.0	10.2	9.6	6.5	10.2	7.7	4.7	9.6
Shallow pitch	15.1	11.5	39.3	5.6	10.0	37.5	14.3	5.6	5.3
Steeper pitch	51.1	11.3	19.8	21.4	11.5	21.7	57.5	6.4	10.1
Cool roof characteristics (more than one	2								
may apply)									
White or reflective coating or paint	31.1	9.1	18.0	14.8	8.5	19.0	26.7	5.0	7.4
White or reflective tiles or shingles	68.2	32.8	34.3	60.5	25.6	31.4	16.9	16.3	15.7
Aluminum coating	33.4	17.8	29.4	27.7	15.3	30.3	26.5	11.9	27.4
Ballasted roof system	23.6	18.1	56.7	22.1	20.0	59.3	4.1	6.1	61.7
Other cool roof property	74.1	46.4	78.7	39.6	45.4	61.5	36.1	9.8	72.0

	RSEs for tota consumption	=			l floorspace ng electricity		RSEs for electricity energy intensity		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Renovations since 2000 (more than one may apply)									
Any type of renovation	6.1	7.2	17.1	6.7	7.5	21.2	3.4	4.2	6.2
Addition or annex	13.1	15.1	17.3	10.6	14.9	28.7	7.1	10.7	26.3
Reduction in floorspace	41.9	29.2	46.6	48.8	34.8	43.8	24.1	19.4	30.9
Roof replacement	14.5	10.8	12.3	12.0	11.9	14.1	7.1	7.4	10.4
Interior wall reconfiguration	10.5	5.6	17.6	8.5	6.5	12.2	8.6	4.2	15.9
Window replacement	16.7	14.6	23.6	16.2	14.9	10.4	10.1	8.8	27.8
HVAC equipment upgrade	12.8	10.1	12.8	20.6	10.4	18.8	10.5	4.1	11.5
Lighting upgrade	10.4	8.8	12.8	13.4	9.3	18.3	5.5	3.0	8.1
Electrical upgrade	16.2	12.7	18.8	28.6	15.4	26.4	17.7	5.3	11.9
Plumbing system upgrade	14.4	11.6	12.9	15.7	12.7	15.3	5.3	7.0	12.0
Insulation upgrade	18.7	16.9	21.0	24.5	16.2	21.5	20.5	9.1	23.9
Fire, safety, or security upgrade	14.2	7.5	18.9	16.2	9.2	17.5	5.7	5.3	10.5
Structural upgrade	23.0	18.9	51.5	25.4	19.3	52.7	18.4	9.2	29.4
Other	67.3	27.0	38.2	75.1	28.1	35.4	139.5	12.6	4.5
No renovations	20.3	12.9	11.1	8.8	9.4	16.0	21.0	6.0	11.2
Buildings constructed 2013 or later	31.8	13.8	54.8	39.5	20.6	48.9	17.1	16.4	36.1
Energy sources (more than one may apply) Electricity	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Natural gas	13.2	8.8	15.8	13.6	7.1	22.3	6.8	4.4	9.7
Fuel oil	37.3	10.7	14.6	17.9	10.2	24.2	25.7	3.8	15.2
District heat	19.2	44.0	45.4	17.2	44.2	49.6	14.6	6.3	17.0
District chilled water	35.4	47.0	54.6	41.2	40.5	51.2	12.6	13.6	7.0
Propane	58.4	18.9	42.9	23.0	18.5	26.6	61.1	8.5	27.2
Solar	30.9	27.9	81.4	36.6	32.9	58.9	18.2	20.4	42.8
Wood, coal, and other	58.8	34.8	70.7	65.2	21.0	43.2	35.1	38.5	65.7
Space-heating energy sources									
Electricity	24.6	8.7	15.3	13.1	9.0	12.4	16.1	4.6	6.0
Electricity main	39.3	10.3	32.1	32.6	10.6	23.8	23.5	5.5	10.7
Electricity secondary	17.4	18.0	14.5	16.3	14.5	13.2	10.8	8.2	10.9
Other excluding electricity	13.8	16.5	24.4	15.8	12.9	32.6	5.3	7.1	16.3
Buildings without heating	27.5	21.0	57.7	34.6	13.5	31.1	54.4	15.1	46.8
Primary space-heating energy source									
Electricity	39.3	10.3	32.1	32.6	10.6	23.8	23.5	5.5	10.7
Natural gas	13.0	9.0	14.0	13.0	9.2	23.0	5.1	6.1	13.3
Fuel oil	0.0	31.5	53.5	0.0	33.8	53.6	0.0	14.8	4.1
District heat	13.9	46.4	40.3	16.8	46.4	43.9	15.2	6.2	19.1
Propane	42.9	63.3	92.5	40.9	51.5	52.5	13.9	39.8	73.5
Other sources ^b	73.7	103.5	0.0	67.6	87.2	0.0	76.8	66.4	0.0
Cooling energy sources									
Electricity	8.9	7.9	17.5	9.5	6.3	21.8	5.1	4.0	6.3
Other excluding electricity	29.9	38.4	73.8	40.8	35.6	53.7	26.5	10.7	37.5
Buildings without cooling	77.6	24.8	37.8	9.9	19.7	42.2	77.7	22.5	54.5
Dandings without cooming	//.0	24.0	37.0	J.J	13.1	44.4		۷۷.۵	J4.3

	RSEs for tota consumption	=			Il floorspace ng electricity		RSEs for electricity energy intensity		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Water-heating energy sources									
Electricity	25.8	7.9	14.5	11.7	7.0	17.4	21.7	5.0	6.7
Other excluding electricity	16.2	16.6	14.9	16.1	14.6	19.4	9.0	4.3	6.3
Buildings without water heating	36.7	20.4	42.0	15.0	18.8	50.5	32.0	14.1	16.5
Cooking energy sources									
Electricity	31.0	11.1	16.4	12.2	10.2	16.9	24.6	5.3	9.0
Other excluding electricity	26.8	9.0	17.5	23.8	8.1	23.6	11.0	4.4	12.4
Buildings without cooking	15.2	10.6	17.1	12.6	7.7	22.8	9.8	7.1	11.1
Energy end uses									
(more than one may apply)			(
Buildings with space heating	12.0	8.7	16.8	9.7	7.4	20.6	12.7	4.2	5.7
Buildings with cooling	8.7	8.1	16.0	9.4	6.5	21.1	5.1	4.0	6.7
Buildings with water heating	12.8	8.3	14.4	9.4	7.0	17.5	13.1	3.9	5.3
Buildings with cooking	23.2	8.5	15.9	9.5	7.8	18.0	20.1	4.2	9.0
Buildings with manufacturing	60.0	22.6	20.3	26.9	17.9	26.4	64.3	14.3	24.7
Buildings with electricity									
generation	30.2	9.7	17.6	14.8	9.2	29.3	22.9	4.4	17.6
Buildings with lighting	11.5	8.2	14.4	7.8	6.7	18.4	11.8	3.9	5.8
Percentage of floorspace heated									
Not heated	27.5	21.0	57.7	34.6	13.5	31.1	54.4	15.1	46.8
1% to 50%	50.9	14.6	28.7	43.8	15.4	13.7	44.6	9.7	17.3
51% to 99%	17.9	14.4	16.3	16.2	12.0	30.4	11.2	4.4	26.1
100%	16.4	7.7	18.5	10.5	6.7	19.8	14.7	5.1	10.6
Percentage of floorspace cooled									
Not cooled	77.6	24.8	37.8	9.9	19.7	42.2	77.7	22.5	54.5
1% to 50%	23.0	12.2	13.6	17.9	12.4	21.2	9.9	9.0	11.8
51% to 99%	8.1	14.6	19.3	13.7	12.5	32.8	9.1	4.7	20.7
100%	13.0	8.1	18.3	13.1	7.2	19.4	8.1	4.6	5.7
Percentage lit when open									
0%	50.8	71.5	106.3	50.8	71.5	81.1	0.0	0.0	88.3
1% to 50%	25.7	13.1	39.3	14.4	13.3	30.8	19.1	8.6	13.1
51% to 99%	24.4	10.1	17.5	8.7	8.4	20.3	21.8	4.9	6.5
100%	16.4	9.4	15.0	17.4	8.1	23.9	5.4	5.6	16.1
Building never open or electricity									
not used	49.1	40.0	81.5	51.4	35.9	67.6	7.9	18.8	146.3
Percentage lit during off hours									
0%	27.5	18.9	30.2	16.0	17.5	40.1	22.7	9.2	17.2
1% to 50%	14.5	8.3	13.0	8.3	6.3	15.8	14.8	4.2	5.8
51% to 100%	34.5	16.1	26.4	24.5	16.0	21.6	35.9	9.3	18.8
Building always open with									
no off hours	41.3	20.8	61.2	32.5	22.5	37.0	30.2	14.3	48.8
Electricity not used	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	RSEs for tota consumption	•			I floorspace ng electricity		RSEs for elec energy inten		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Heating equipment									
(more than one may apply)									
Packaged heating units	10.8	8.2	23.8	12.6	6.9	29.3	3.1	4.3	7.8
Furnaces	20.6	19.0	17.2	13.5	18.1	14.3	11.9	5.9	18.8
Individual space heaters	11.8	12.6	25.9	11.6	9.9	21.5	16.5	5.9	8.5
Boilers	30.7	10.2	11.2	11.0	7.5	12.3	27.5	6.0	11.8
Heat pumps	27.0	11.4	13.7	31.3	10.2	15.2	21.3	7.6	14.1
District heat	18.7	44.1	45.4	17.2	44.3	49.6	14.4	6.3	17.0
Duct reheat	22.8	13.7	16.7	22.1	13.6	17.8	9.9	4.5	5.2
Other	109.8	39.7	50.7	86.4	37.8	50.7		6.8	0.0
Cooling equipment (more than one may apply)									
Packaged air-conditioning units	11.9	8.5	21.1	9.2	6.2	27.2	6.2	5.2	9.3
Residential-type central air									
conditioners	15.7	18.5	17.1	12.4	16.2	15.5	12.5	7.0	17.7
Individual air conditioners	20.6	16.0	25.1	18.9	14.5	18.2	8.7	8.1	13.3
Central chillers	9.0	16.3	14.4	9.0	14.4	13.4	4.2	4.3	6.7
Heat pumps	32.8	13.0	14.7	35.3	13.2	16.1	21.6	8.1	13.1
District chilled water	35.4	47.0	54.6	41.2	40.5	51.2	12.6	13.6	7.0
Swamp coolers	49.6	52.0	72.7	52.8	50.6	50.7	14.2	9.0	58.3
Other	0.0	96.1	50.9	0.0	79.3	50.9	0.0	32.0	0.0
HVAC features									
(more than one may apply)									
Economizer cycle	12.8	9.7	16.2	9.5	10.0	20.0	6.5	3.4	17.7
Variable air volume (VAV) system	11.8	15.9	14.0	13.8	13.7	14.4		5.1	10.1
Dedicated outside air system (DOAS)	54.3	27.4	14.0	18.0	23.0	20.4		9.3	10.4
Demand controlled ventilation (DCV)	18.4	11.6	20.7	21.2	11.7	24.8		7.2	19.7
Regular HVAC maintenance	8.3	8.7	19.3	7.9	6.4	24.7		4.6	7.6
Building automation system (BAS)									
controls heating or cooling	24.5	8.1	11.4	8.8	7.0	12.1	18.6	3.8	7.7
Internet-connected or smart									
thermostat	39.4	23.0	35.5	26.4	19.2	41.2	24.0	12.8	42.7
Programmable thermostat	23.2	12.7	40.2	20.2	14.3	47.7	8.9	7.8	13.5
Main equipment replaced since 2000 (more than one may apply)									
Heating	11.3	11.6	14.9	10.1	11.2	23.9	4.3	4.7	11.2
Cooling	16.2	9.5	3.7	16.0	8.5	9.8	5.4	6.8	9.0
Water-heating equipment									
Centralized system	18.9	12.2	12.5	11.5	9.9	13.9	18.8	5.3	7.4
Distributed system	21.5	12.4	20.4	13.2	13.1	13.4	19.4	6.8	13.0
Combination of centralized and									
distributed systems	13.2	11.7	42.3	11.7	10.3	43.7	7.4	5.3	10.9

	RSEs for total electricity RSEs for total floorspace of consumption buildings using electricity energy intensity						-		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Generation technologies (more than one may apply)									
Reciprocating engine generators	32.1	10.4	17.9	17.2	9.2	31.2	24.2	4.5	21.1
Solar panels	31.2	29.0	81.4	37.1	34.0	58.9	18.5	21.1	42.8
Other generation technology	2.8	34.4	49.1	2.8	37.8	47.2	0.0	17.3	3.9
Lighting equipment types (more than one may apply)									
Incandescent	16.2	11.4	13.8	21.4	11.1	14.7	10.5	6.0	15.0
Standard fluorescent	8.3	10.6	10.5	7.4	8.4	19.5	5.8	4.5	12.5
Compact fluorescent	14.9	11.7	15.9	9.7	11.8	13.9	7.4	4.1	12.3
High-intensity discharge (HID)	16.8	14.0	23.6	12.7	17.9	33.2	10.0	7.3	25.6
Halogen	18.1	9.8	16.6	22.1	9.5	17.8	20.7	6.0	30.5
LED	16.5	8.9	12.6	9.6	7.3	16.3	16.1	4.3	5.6
Other	0.0	70.9	0.0	0.0	70.9	0.0	0.0	0.0	0.0
Other	0.0	70.9	0.0	0.0	70.9	0.0	0.0	0.0	0.0
Refrigeration equipment (more than one may apply)									
Any refrigeration	13.3	8.2	15.6	9.3	6.3	20.7	13.0	4.7	7.9
Walk-in units	27.5	6.6	18.9	14.2	6.9	22.4	23.2	4.2	9.3
Cases or cabinets	16.5	9.6	12.6	18.5	7.4	15.5	10.4	5.4	11.0
Large cold storage areas	76.7	19.4	49.1	35.9	19.9	28.7	62.6	10.2	29.8
Commercial ice makers	70.7	11.0	22.8	9.1	9.0	22.6	4.3	5.0	10.0
Residential-type or compact units	10.2	7.9	17.5	10.0	6.3	23.2	4.0	4.9	13.1
Vending machines	11.2	10.2	21.7	15.3	7.7	27.9	5.2	4.3	12.0
No refrigeration	21.4	12.7	27.9	11.2	13.0	27.9	12.9	6.7	7.0
Notelligeration	21.4	12.7	27.3	11.2	13.0	27.3	12.9	0.7	7.0
Office equipment (more than one may apply)									
Desktop computers	14.0	8.1	15.6	9.2	6.0	19.6	13.4	4.9	6.5
With multiple monitors	6.4	10.6	10.8	7.5	8.6	17.8	3.3	5.0	12.2
Laptop computers	9.7	8.2	11.9	10.8	6.1	17.3	5.1	4.4	8.5
Dedicated servers	10.2	5.7	13.6	7.9	4.4	23.5	6.1	3.1	16.5
Tablets charged in building	9.5	10.7	14.8	10.8	8.0	14.9	9.2	4.2	5.6
Large floor-standing office devices ^c	7.7	8.8	13.9	7.2	6.0	20.6	5.2	5.2	12.9
Smaller desktop office devices ^c	15.0	8.3	16.7	10.8	6.6	22.2	16.6	4.2	8.0
Interactive whiteboards	15.6	13.2	16.8	15.6	12.2	13.0	5.1	3.9	10.6
Televisions or video displays	9.3	8.5	14.7	11.6	7.0	14.9	6.8	4.3	4.1
Point-of-sale devices or cash									
registers	9.1	8.6	15.4	11.0	6.4	13.4	6.3	4.5	4.5
Food preparation or serving areas									
in non-food service buildings									
(more than one may apply)									
Snack bar, concession stand, or coffee									
shop	13.1	11.8	41.2	14.6	16.1	45.3	6.0	6.9	30.1
Fast food or small restaurant	19.7	12.9	18.2	19.5	13.5	14.0	14.2	7.3	6.5
Cafeteria or large restaurant	18.4	11.1	8.2	16.5	11.4	9.3	9.5	3.4	8.5
Commercial kitchen or									
food preparation area	13.9	9.3	21.9	13.8	8.3	17.4	7.0	6.4	14.2
Small kitchen area	16.7	12.8	20.5	11.9	12.6	24.7	7.6	4.3	22.6

	RSEs for tota consumption	-			I floorspace ong electricity		RSEs for electricity energy intensity		
	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central	West North Central	South Atlantic	East South Central
All buildings	11.5	8.2	15.8	7.7	6.7	20.1	11.8	4.0	6.2
Separate computer areas (more than one may apply)									
Server closet	5.8	5.9	14.3	4.9	5.6	19.4	4.1	3.8	12.4
Data center	16.5	13.2	23.1	17.1	12.9	29.4	7.1	6.1	11.4
Computer-based training room	10.9	11.6	21.1	10.1	9.9	16.4	5.1	4.8	15.9
Student or public computer center	23.1	10.2	27.2	15.8	9.6	26.3	14.4	4.3	10.6
Window and interior lighting features (more than one may apply)									
Multipaned windows	14.3	8.3	17.3	9.8	7.0	23.9	14.9	3.9	9.0
Tinted window glass	13.0	7.0	17.1	14.2	6.5	20.8	4.7	5.2	8.1
Reflective window glass	24.8	9.3	20.0	18.0	8.3	14.2	14.5	3.9	8.8
External overhangs or awnings	10.8	12.2	14.3	13.5	10.3	22.2	11.9	4.6	12.1
Skylights or atriums	16.4	6.9	23.0	19.6	9.0	24.2	7.0	5.4	9.1
Light scheduling	15.4	11.7	10.4	10.3	10.0	10.3	10.8	4.7	9.9
Occupancy sensors	11.8	10.9	11.7	10.5	9.1	16.3	3.1	4.7	13.8
Multilevel lighting or dimming	19.1	28.0	28.0	26.2	20.2	18.3	12.0	11.8	19.8
Daylight harvesting	32.9	15.0	23.1	25.5	14.1	23.2	17.2	8.2	17.5
Plug-load control	37.8	26.5	49.2	32.9	28.2	50.5	11.0	17.2	67.0
Demand responsive lighting	57.0	32.0	63.8	42.0	31.0	79.3	24.3	7.5	53.5
Building automation system (BAS) for									
lighting	15.5	8.7	22.7	13.5	8.5	15.5	6.9	6.8	15.6
Electric vehicle (EV) charging									
Charging stations associated with the									
building	30.8	18.0	37.1	24.5	15.3	30.8	12.9	7.2	13.6
Annual consumption (kilowatthours)									
10,000 or less	40.5	26.4	33.0	28.6	29.9	50.1	37.0	10.7	43.7
10,001 to 50,000	27.2	18.7	13.0	20.1	17.0	18.6	9.5	13.0	16.2
50,001 to 100,000	26.4	16.3	17.8	15.8	15.6	28.1	14.3	12.4	21.8
100,001 to 500,000	12.5	10.8	34.9	11.8	11.3	35.4	6.1	6.8	8.1
500,001 to 1,000,000	16.3	14.2	28.1	14.0	12.8	22.2	5.6	9.5	11.2
1,000,001 to 5,000,000	35.9	13.9	19.2	17.3	11.1	19.2	32.4	4.5	9.0
Over 5,000,000	25.1	16.1	21.9	25.2	16.6	14.4	20.9	5.8	13.2

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.