

Table E4. Electricity consumption intensities (in British thermal units [Btu]) by end use, 2018Electricity energy intensity^a (thousand Btu/square foot in buildings using electricity for the end use)

	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Building floorspace (square feet)											
1,001 to 5,000	49.6	8.4	9.9	6.3	2.9	7.1	10.4	13.6	1.1	2.2	11.3
5,001 to 10,000	38.1	7.2	7.8	5.1	2.3	6.2	8.3	8.5	0.6	1.5	8.0
10,001 to 25,000	36.4	5.0	6.2	5.0	1.3	6.1	3.4	4.2	0.6	3.1	9.9
25,001 to 50,000	41.0	5.4	7.1	6.7	1.7	7.8	1.7	4.7	0.4	1.9	9.7
50,001 to 100,000	41.0	5.4	6.7	7.7	1.8	7.6	2.0	4.2	0.4	2.3	9.2
100,001 to 200,000	44.8	4.2	6.4	9.4	1.6	8.4	1.9	3.6	0.6	3.6	10.2
200,001 to 500,000	50.8	4.4	6.8	11.1	1.3	8.6	1.8	2.9	0.5	5.8	13.0
Over 500,000	48.5	3.5	5.6	13.4	1.2	8.6	2.3	2.3	0.4	4.2	11.2
Principal building activity											
Education	32.1	4.6	7.1	4.8	2.3	5.5	1.2	1.8	0.5	2.4	7.6
Food sales	181.8	12.5	7.1	13.1	0.5	13.1	11.2	87.1	0.7	Q	Q
Food service	149.5	18.8	19.1	16.6	18.0	10.8	42.2	40.6	1.2	0.9	19.7
Health care	81.3	4.4	9.5	24.4	2.2	12.2	3.7	3.1	1.1	5.8	22.1
Inpatient	98.3	4.3	13.1	28.6	4.9	11.9	4.0	4.0	1.2	7.2	28.4
Outpatient	59.4	4.4	4.9	19.1	0.5	12.5	2.0	1.9	1.0	3.9	14.0
Lodging	49.0	4.7	6.0	12.5	8.5	7.2	4.0	4.2	0.4	1.2	10.5
Mercantile	57.1	5.9	6.7	10.8	2.8	13.1	1.5	7.5	0.7	2.0	10.5
Retail (other than mall)	46.7	5.2	6.4	11.7	0.3	12.0	1.7	3.7	0.4	1.2	9.8
Enclosed and strip malls	66.8	6.1	7.1	10.1	4.3	14.1	1.4	10.5	0.9	2.7	11.2
Office	46.5	5.0	5.0	12.9	0.6	7.8	0.7	1.6	0.8	5.2	10.6
Public assembly	41.4	9.6	15.8	4.0	0.4	5.1	1.6	3.0	0.4	1.0	10.5
Public order and safety	47.5	6.7	9.2	6.1	6.4	11.5	1.9	2.0	0.6	2.7	10.6
Religious worship	16.6	2.4	4.0	2.9	0.4	3.4	0.9	1.1	0.3	0.3	3.1
Service	24.6	5.7	5.0	3.0	0.2	7.9	0.9	1.1	0.4	0.8	6.9
Warehouse and storage	19.9	3.1	3.9	1.7	0.3	5.1	0.1	3.3	0.1	0.6	6.2
Other	99.3	5.1	13.5	7.3	0.2	12.7	1.9	2.3	0.5	33.2	33.0
Vacant	13.2	3.4	5.4	1.2	0.0	2.6	Q	0.5	Q	0.6	5.8
Year constructed											
Before 1920	33.7	5.3	4.8	6.0	0.8	5.8	3.8	2.8	0.5	Q	8.3
1920 to 1945	39.7	4.6	6.9	8.8	1.0	6.8	2.2	3.9	0.5	4.5	8.5
1946 to 1959	33.1	4.4	5.9	5.3	1.6	6.1	2.0	3.3	0.5	1.9	8.4
1960 to 1969	39.8	4.2	6.9	7.2	1.9	7.4	3.1	4.5	0.6	2.0	9.8
1970 to 1979	42.2	5.2	6.7	7.9	1.9	7.9	3.0	5.0	0.5	2.6	9.7
1980 to 1989	46.4	5.2	6.4	8.9	1.7	7.6	2.5	4.7	0.6	4.6	10.9
1990 to 1999	40.4	5.6	6.8	7.9	1.3	7.4	2.4	4.4	0.5	2.1	9.2
2000 to 2009	49.9	5.8	8.0	8.9	1.8	8.4	3.7	5.7	0.5	3.5	12.0
2010 to 2018	46.9	5.5	7.2	8.2	2.5	7.7	3.6	5.6	0.6	3.2	11.7

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Electricity energy intensity^a (thousand Btu/square foot in buildings using electricity for the end use)

	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Census region and division											
Northeast	40.9	6.0	4.0	8.4	1.4	8.1	2.2	3.8	0.5	3.5	10.4
New England	39.6	6.6	3.1	7.9	1.6	7.3	2.4	5.4	0.5	2.1	11.6
Middle Atlantic	41.2	5.9	4.2	8.6	1.3	8.3	2.1	3.3	0.5	3.9	10.0
Midwest	39.8	8.0	4.5	7.6	1.7	7.1	2.6	4.7	0.5	3.1	9.9
East North Central	39.9	7.3	4.7	7.9	1.9	7.2	2.8	5.5	0.5	2.7	9.5
West North Central	39.5	9.1	4.2	7.0	1.3	6.8	2.1	3.2	0.5	4.0	10.7
South	47.4	4.6	10.8	7.9	1.8	7.7	3.4	4.6	0.6	2.7	10.4
South Atlantic	49.2	4.8	10.9	8.4	1.9	8.0	3.6	4.6	0.6	2.6	11.0
East South Central	42.4	5.0	8.9	7.2	1.7	7.7	2.7	4.5	0.6	2.5	9.0
West South Central	46.8	3.9	11.6	7.5	1.5	7.4	3.4	4.8	0.6	2.8	10.1
West	41.3	3.4	4.9	8.1	1.8	7.3	3.3	5.9	0.6	3.7	10.2
Mountain	43.7	4.3	5.0	8.5	2.2	7.5	3.9	6.1	0.5	4.4	9.0
Pacific	39.8	2.8	4.7	7.8	1.6	7.2	2.7	5.7	0.7	3.2	11.0
Climate zone^b											
Cold or very cold	42.7	8.9	2.3	7.4	1.4	6.6	3.4	6.2	0.5	4.6	12.6
Cool	38.5	6.9	3.5	7.7	1.9	7.4	2.5	4.6	0.5	3.0	9.5
Mixed mild	44.1	6.5	6.0	8.7	1.5	7.9	2.7	3.9	0.5	3.5	10.5
Warm	44.4	4.3	8.6	7.8	1.8	7.6	3.8	5.2	0.6	2.6	10.2
Hot or very hot	48.2	1.5	14.2	7.6	1.6	7.5	3.0	5.3	0.6	2.9	10.0
Number of floors											
1	42.5	6.1	7.8	6.1	1.9	7.6	4.0	7.0	0.5	2.4	9.7
2	36.4	4.2	6.0	6.3	1.6	7.1	2.3	3.8	0.5	2.1	8.3
3	41.2	5.6	6.5	7.9	1.3	7.3	1.9	3.5	0.5	3.4	9.9
4 to 9	51.4	4.3	6.7	12.1	1.5	8.1	2.4	2.6	0.6	5.0	14.3
10 or more	57.0	4.2	5.3	17.6	1.5	7.7	2.7	2.2	0.7	7.0	12.9
Elevators and escalators (more than one may apply)											
Any elevators	47.8	4.6	6.6	11.1	1.5	7.7	2.1	2.6	0.6	4.6	11.8
1 elevator	37.2	5.0	6.0	7.1	1.4	6.6	1.7	2.8	0.5	2.6	9.0
2 to 5 elevators	51.4	4.9	7.1	11.5	1.8	8.3	2.1	2.6	0.6	6.0	12.6
6 or more elevators	59.2	3.6	6.7	17.0	1.5	8.6	2.6	2.4	0.7	5.6	15.2
Any escalators	50.5	4.0	6.3	13.3	1.7	8.5	2.4	2.7	0.5	4.8	11.2
Number of workers (main shift)											
Fewer than 5	28.0	5.7	7.3	3.2	1.0	4.6	2.6	5.3	0.4	1.8	7.8
5 to 9	40.2	6.4	6.9	5.3	1.7	6.6	6.2	5.7	0.5	1.3	10.4
10 to 19	38.4	5.2	6.2	6.3	2.4	6.8	5.5	6.0	0.5	1.6	7.7
20 to 49	46.3	5.8	6.8	7.2	2.2	8.2	3.7	5.7	0.5	4.6	9.1
50 to 99	46.4	4.8	7.1	8.2	1.8	8.4	1.6	4.9	0.5	2.5	11.8
100 to 249	49.4	4.6	7.1	10.9	1.6	10.0	1.8	3.9	0.6	2.7	11.1
250 or more	59.5	4.3	6.5	16.0	1.3	9.1	2.1	2.2	0.8	6.5	15.3
Weekly operating hours											
Fewer than 40	23.1	4.6	5.9	1.7	0.7	3.4	2.2	3.1	0.5	1.8	7.5
40 to 48	30.9	4.7	5.8	4.3	0.9	5.4	1.5	2.2	0.5	2.2	8.9
49 to 60	33.9	4.8	5.6	5.8	1.3	6.5	1.9	2.6	0.5	3.2	7.5
61 to 84	46.8	5.8	7.0	7.9	2.1	9.3	3.1	5.7	0.6	2.5	10.6
85 to 167	60.0	7.0	8.6	9.8	1.9	11.4	5.5	12.1	0.5	1.5	11.8
Open continuously	65.2	5.3	8.9	16.5	3.6	9.7	3.5	5.4	0.5	5.9	15.2

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	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Ownership and occupancy											
Nongovernment owned	43.9	5.2	6.5	8.3	1.7	7.9	3.1	5.4	0.5	3.1	10.2
Owner occupied	43.0	4.9	6.8	8.4	1.6	7.3	3.3	5.3	0.5	2.8	10.4
Leased to tenant or tenants	46.1	5.7	6.0	8.4	1.9	9.0	2.9	5.5	0.6	3.6	10.1
Unoccupied	8.2	Q	6.0	0.0	Q	Q	Q	Q	Q	Q	4.1
Government owned	40.0	5.2	8.3	6.7	1.7	6.4	2.5	2.9	0.5	3.0	10.3
Federal	47.4	4.6	6.6	12.0	0.9	9.6	2.0	1.5	0.5	4.4	11.5
State	45.9	5.1	10.0	7.5	2.1	6.6	4.0	3.6	0.6	3.0	13.5
Local	35.8	5.4	7.7	5.5	1.7	5.9	1.9	2.7	0.5	2.9	8.3
Party responsible for operation of energy systems											
Building owner	42.5	5.1	6.9	8.1	1.6	7.2	3.0	4.4	0.5	3.1	10.4
Business owner or tenant	44.1	5.9	6.3	6.4	1.9	8.8	2.9	7.2	0.5	2.9	9.2
Property management	50.2	6.4	7.3	10.1	1.5	9.0	1.7	5.6	0.7	2.9	10.8
Other	48.0	4.9	7.4	8.5	2.8	9.2	2.6	3.8	0.7	4.2	10.8
Provider of direct input on energy-related equipment purchases											
Building owner	42.4	5.1	6.9	8.1	1.6	7.3	2.9	4.5	0.5	3.1	10.2
Business owner or tenant	48.0	6.0	6.5	6.6	1.9	9.5	3.2	7.9	0.5	3.6	9.9
Property management	53.4	8.0	6.1	9.4	2.4	10.3	Q	7.7	0.7	2.5	10.8
Other	43.3	5.4	6.6	7.9	2.3	7.9	2.4	4.1	0.6	3.2	10.1
Number of establishments											
1	41.2	5.4	7.2	7.0	1.7	6.9	3.5	4.7	0.5	3.0	10.3
2 to 5	44.4	4.7	6.8	8.8	1.5	8.1	2.5	5.0	0.5	2.8	9.9
6 to 10	49.3	5.3	5.3	10.2	1.8	9.7	1.8	5.7	0.7	3.9	10.1
11 to 20	54.7	5.5	6.2	12.0	2.3	11.0	1.4	5.3	0.8	3.5	11.0
More than 20	52.8	5.0	5.5	13.0	2.0	10.4	1.1	3.1	0.9	5.3	9.9
Currently unoccupied	9.9	Q	5.6	Q	Q	Q	Q	Q	Q	Q	5.8
Predominant exterior wall material											
Brick, stone, or stucco	45.3	5.2	7.5	8.6	2.2	7.4	3.3	4.6	0.6	3.0	10.3
Concrete (block or poured)	46.3	5.1	7.2	8.5	1.6	8.5	2.6	6.2	0.5	3.3	10.0
Concrete panels	39.3	4.0	5.2	7.1	0.7	7.7	1.6	3.2	0.5	4.8	9.7
Siding or shingles	43.6	7.8	5.5	6.1	2.7	7.3	3.3	6.3	0.6	1.9	13.3
Metal panels	27.7	4.8	5.7	3.9	0.8	6.2	1.8	3.6	0.3	1.0	8.6
Window glass	53.5	6.7	6.5	12.7	1.1	7.7	2.7	2.5	0.7	6.4	13.1
Other	48.4	5.8	4.9	11.4	1.4	7.6	2.0	5.4	0.5	6.0	10.1
Predominant roof material											
Metal surfacing	33.3	6.1	7.1	4.2	1.3	6.3	3.6	4.9	0.4	1.3	9.3
Synthetic or rubber	49.0	5.3	6.5	9.9	1.6	8.5	2.7	5.4	0.6	3.6	11.1
Built-up	46.6	5.0	7.4	9.4	2.0	7.9	3.4	4.4	0.6	4.1	9.9
Slate or tile shingles	38.8	4.8	7.8	6.4	2.2	6.2	3.4	5.1	0.6	1.8	8.2
Wooden materials (including shingles)	37.0	3.8	7.2	6.9	Q	6.5	3.4	6.1	0.6	1.2	8.3
Asphalt, fiberglass, or other shingles	38.0	5.1	6.1	6.7	2.1	6.9	2.1	3.4	0.6	2.2	9.7
Concrete	56.8	5.4	8.7	10.3	1.9	8.0	3.1	3.3	0.8	Q	13.9
Other	44.6	3.9	6.5	7.0	1.2	7.1	4.6	5.0	0.6	2.7	13.5

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	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Roof tilt											
Flat	49.1	5.3	7.2	9.9	1.8	8.4	3.1	4.8	0.6	3.9	11.2
Shallow pitch	35.6	5.0	6.5	5.3	1.5	6.8	2.9	4.8	0.5	2.3	8.7
Steeper pitch	34.3	5.3	6.3	5.2	1.8	5.6	2.5	4.5	0.5	1.3	9.4
Cool roof characteristics (more than one may apply)											
White or reflective coating or paint	47.6	4.6	7.3	9.2	1.8	8.3	3.5	5.0	0.6	3.1	11.7
White or reflective tiles or shingles	54.7	7.3	8.7	8.6	3.4	7.5	4.5	6.1	0.5	Q	12.1
Aluminum coating	37.9	5.2	7.3	5.8	1.7	7.2	3.6	6.3	0.4	1.7	8.3
Ballasted roof system	48.8	5.9	6.4	10.3	1.3	7.3	2.4	3.1	0.5	5.3	12.5
Other cool roof property	51.8	6.9	6.1	11.5	1.7	8.7	2.1	4.4	0.5	4.6	10.9
Renovations since 2000 (more than one may apply)											
Any type of renovation	44.8	5.2	6.6	9.2	1.6	7.7	2.6	4.3	0.6	3.3	10.2
Addition or annex	46.6	5.4	7.1	9.8	1.9	7.6	2.5	4.4	0.5	2.7	10.6
Reduction in floorspace	51.1	5.3	6.6	11.8	2.4	8.9	2.0	4.3	0.6	3.6	10.6
Roof replacement	44.7	4.7	6.4	9.1	1.9	7.5	2.7	4.2	0.6	3.3	10.4
Interior wall reconfiguration	45.6	4.9	6.1	10.3	1.3	7.8	2.0	3.3	0.6	3.9	10.6
Window replacement	42.9	4.8	5.6	9.2	1.9	7.5	2.8	3.9	0.5	2.9	9.5
HVAC equipment upgrade	46.1	4.8	6.5	9.8	1.7	7.7	2.6	4.1	0.6	3.6	10.5
Lighting upgrade	46.5	5.0	6.2	10.0	1.6	7.8	2.7	4.4	0.6	3.8	10.6
Electrical upgrade	48.1	5.3	6.6	10.3	1.7	7.8	2.9	4.2	0.6	4.2	11.0
Plumbing system upgrade	47.6	5.1	6.5	10.5	1.8	7.6	2.7	3.9	0.6	3.7	10.9
Insulation upgrade	46.0	4.6	6.3	10.1	1.4	7.7	2.7	3.7	0.5	3.6	11.1
Fire, safety, or security upgrade	47.2	5.0	6.5	10.1	2.0	7.8	2.5	3.8	0.6	3.8	10.9
Structural upgrade	51.4	3.7	5.7	11.1	2.5	8.0	3.1	4.3	0.6	5.2	13.1
Other	59.9	7.0	9.0	17.0	1.0	11.5	2.2	3.2	0.5	2.3	13.2
No renovations	40.9	5.3	7.2	6.6	1.6	7.4	3.4	5.1	0.5	3.0	10.1
Buildings constructed 2013 or later	44.5	5.3	7.1	7.8	2.5	7.2	3.9	6.0	0.5	2.2	11.3
Energy sources (more than one may apply)											
Electricity	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Natural gas	43.4	4.7	6.3	8.5	1.8	7.9	2.7	4.8	0.5	2.9	9.8
Fuel oil	56.7	5.2	7.1	11.6	1.5	8.3	3.0	4.1	0.6	6.9	14.8
District heat	57.5	3.6	6.3	14.3	2.2	8.4	2.6	2.9	0.8	5.5	20.0
District chilled water	58.8	4.5	3.2	12.2	1.8	8.3	2.7	3.3	0.8	6.5	24.4
Propane	40.0	4.3	5.5	5.8	1.6	6.7	3.8	6.3	0.4	1.8	10.7
Solar	43.8	3.9	6.1	9.5	1.9	8.1	2.1	5.0	0.5	2.7	9.3
Wood, coal, or other	40.3	5.8	6.0	6.0	1.9	7.8	3.6	5.3	0.5	3.1	8.6
Space-heating energy sources											
Electricity	50.1	5.2	7.3	8.2	2.1	8.3	3.0	5.4	0.6	3.3	10.5
Electricity main	51.7	6.4	8.3	7.7	2.1	7.9	3.7	5.5	0.6	3.8	10.5
Electricity secondary	47.5	3.5	5.9	9.0	2.2	8.9	2.3	5.3	0.6	2.6	10.5
Other excluding electricity	37.0	N	5.8	7.9	0.9	7.0	2.7	3.9	0.5	2.5	9.7
Buildings without heating	33.2	N	14.1	4.5	1.6	5.3	4.3	7.6	0.4	7.7	11.7

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Electricity energy intensity^a (thousand Btu/square foot in buildings using electricity for the end use)

	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Primary space-heating energy source											
Electricity	51.7	6.4	8.3	7.7	2.1	7.9	3.7	5.5	0.6	3.8	10.5
Natural gas	39.4	3.5	5.9	8.0	1.4	7.7	2.6	4.4	0.5	2.3	9.1
Fuel oil	25.8	3.9	3.4	3.9	1.0	5.7	1.3	3.5	0.4	1.4	7.4
District heat	56.1	2.6	6.2	13.9	2.2	8.4	2.6	2.8	0.8	5.7	19.2
Propane	31.0	4.6	5.2	4.2	1.9	5.3	3.4	7.1	0.4	1.1	7.1
Other sources ^c	20.0	Q	Q	2.5	Q	4.4	Q	Q	0.4	0.7	5.8
Cooling energy sources											
Electricity	44.3	5.2	6.9	8.2	1.8	7.9	2.9	4.9	0.6	3.3	9.0
Other excluding electricity	55.1	2.9	N	11.0	1.4	7.6	2.2	3.0	0.8	2.8	28.7
Buildings without cooling	23.1	8.6	N	0.7	0.3	3.4	Q	2.1	0.1	0.3	17.1
Water-heating energy sources											
Electricity	46.0	5.7	6.9	7.5	1.7	8.0	2.7	4.9	0.6	3.4	10.2
Other excluding electricity	43.1	4.4	6.7	9.1	N	7.3	3.2	4.8	0.5	3.0	10.4
Buildings without water heating	22.5	4.3	8.1	2.9	N	5.5	Q	1.8	0.3	1.2	9.3
Cooking energy sources											
Electricity	53.5	5.6	6.8	10.1	2.7	8.4	2.9	6.5	0.6	2.7	11.5
Other excluding electricity	47.5	5.3	8.3	9.7	2.8	7.8	N	6.3	0.6	2.5	9.7
Buildings without cooking	35.7	5.0	6.5	6.1	0.9	6.9	N	2.7	0.5	3.6	9.6
Energy end uses (more than one may apply)											
Buildings with space heating	43.7	5.2	6.6	8.1	1.7	7.7	2.9	4.7	0.5	2.9	10.1
Buildings with cooling	44.7	5.2	6.9	8.3	1.8	7.9	2.9	4.9	0.6	3.2	9.6
Buildings with water heating	44.7	5.3	6.8	8.2	1.7	7.7	2.9	4.8	0.6	3.2	10.3
Buildings with cooking	51.7	5.5	7.2	10.0	2.7	8.2	2.9	6.4	0.6	2.6	11.0
Buildings with manufacturing	42.5	5.1	4.5	6.7	1.0	7.6	2.7	6.6	0.4	1.6	14.0
Buildings with electricity generation	55.1	5.4	7.3	11.2	1.9	8.6	2.5	4.5	0.6	5.7	13.5
Buildings with lighting	43.3	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.3
Percentage of floorspace heated											
Not heated	33.2	N	14.1	4.5	1.6	5.3	4.3	7.6	0.4	7.7	11.7
1% to 50%	30.3	2.3	5.1	4.4	0.7	5.9	2.4	5.1	0.3	2.9	6.6
51% to 99%	46.6	4.7	6.6	9.5	2.0	8.2	2.7	5.7	0.6	2.6	10.0
100%	45.2	6.1	6.9	8.2	1.8	7.8	3.0	4.2	0.6	3.1	10.8
Percentage of floorspace cooled											
Not cooled	23.1	8.6	N	0.7	0.3	3.4	Q	2.1	0.1	0.3	17.1
1% to 50%	23.2	4.0	3.1	3.3	0.6	5.8	1.9	2.7	0.3	0.9	5.5
51% to 99%	49.2	4.8	6.9	9.9	1.9	8.2	2.6	5.6	0.6	4.1	10.2
100%	52.0	5.8	8.7	9.6	2.3	8.6	3.4	5.3	0.7	3.7	11.2
Percentage lit when open											
0%	Q	Q	Q	Q	Q	N	N	Q	Q	Q	Q
1% to 50%	24.6	4.1	6.1	3.9	0.9	3.0	2.0	2.8	0.3	2.2	6.6
51% to 99%	47.4	5.3	6.7	9.1	2.1	8.0	2.6	5.0	0.6	3.3	10.9
100%	46.8	5.5	7.3	8.4	1.6	8.8	3.7	5.1	0.6	3.2	11.0
Building never open or electricity not used	13.0	5.4	5.6	0.1	Q	3.5	Q	Q	Q	Q	5.9

Table E4. Electricity consumption intensities (in British thermal units [Btu]) by end use, 2018

Electricity energy intensity^a (thousand Btu/square foot in buildings using electricity for the end use)

	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Percentage lit during off hours											
0%	25.4	5.1	6.5	3.2	0.9	4.0	2.5	3.6	0.4	1.2	8.0
1% to 50%	43.0	5.0	6.7	8.1	1.7	7.5	2.8	4.5	0.6	2.9	9.9
51% to 100%	72.8	7.1	8.6	14.2	3.1	13.0	3.6	7.0	0.6	8.5	17.3
Building always open with no off hours	70.0	6.1	8.8	13.5	3.8	14.6	5.6	10.0	0.5	4.6	13.2
Electricity not used	N	N	N	N	N	N	N	N	N	N	N
Heating equipment (more than one may apply)											
Packaged heating units	47.0	5.4	7.1	8.4	1.9	8.3	3.4	6.0	0.6	2.4	9.9
Furnaces	37.2	5.7	5.1	6.1	2.1	7.6	2.0	5.7	0.6	2.0	7.3
Individual space heaters	41.8	4.8	5.5	6.8	1.8	7.8	2.4	4.5	0.5	3.5	8.8
Boilers	45.0	4.8	6.5	9.5	1.6	7.6	2.3	3.3	0.5	3.1	11.5
Heat pumps	50.4	4.2	7.2	9.1	2.5	8.8	2.3	4.5	0.7	4.1	10.0
District heat	55.8	3.6	6.1	13.9	2.2	8.3	2.6	2.8	0.7	5.5	18.8
Duct reheat	58.6	6.4	6.9	11.7	1.9	9.4	1.7	4.8	0.7	4.8	12.6
Other	125.9	10.8	5.8	10.8	2.9	15.0	5.0	31.0	0.7	1.0	Q
Cooling equipment (more than one may apply)											
Packaged air-conditioning units	46.6	5.5	6.9	8.5	1.9	8.4	3.3	5.7	0.6	3.2	9.3
Residential-type central air conditioners	40.0	5.2	5.9	7.1	1.9	7.4	2.2	4.7	0.6	2.9	8.0
Individual air conditioners	43.8	5.3	6.2	7.7	3.0	8.3	2.7	4.5	0.5	2.7	8.8
Central chillers	54.7	4.1	8.7	12.8	1.4	8.3	2.3	3.1	0.6	6.0	12.1
Heat pumps	47.0	4.1	6.3	9.2	1.9	7.9	2.5	3.7	0.6	4.5	10.0
District chilled water	58.8	4.5	3.2	12.2	1.8	8.3	2.7	3.3	0.8	6.5	24.4
Swamp coolers	44.4	3.8	6.4	7.4	1.4	8.0	2.1	8.6	0.5	2.4	8.6
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
HVAC features (more than one may apply)											
Economizer cycle	51.2	5.2	6.7	11.0	1.8	8.1	2.8	4.5	0.6	4.8	11.7
Variable air volume (VAV) system	51.0	5.1	7.6	10.5	1.7	7.9	2.7	3.3	0.6	4.7	13.1
Dedicated outside air system (DOAS)	57.7	5.7	7.1	11.3	1.5	8.0	4.6	6.0	0.7	4.1	16.1
Demand controlled ventilation (DCV)	46.0	4.8	6.7	8.4	1.5	8.0	2.1	3.8	0.5	5.6	10.2
Regular HVAC maintenance	46.2	5.2	7.1	8.7	1.8	7.9	3.0	4.9	0.6	3.4	10.4
Building automation system (BAS) controls heating or cooling	53.3	5.4	7.4	10.8	1.8	8.2	2.7	4.4	0.6	5.0	13.2
Internet-connected or smart thermostat	40.6	4.3	7.3	6.7	1.6	7.3	3.2	6.2	0.5	1.5	8.0
Programmable thermostat	35.6	5.0	5.9	5.9	1.7	7.2	3.6	4.4	0.5	1.6	7.1
Main equipment replaced since 2000 (more than one may apply)											
Heating	39.9	4.8	6.1	7.4	1.6	7.4	2.5	4.4	0.6	2.4	8.5
Cooling	39.8	4.6	6.5	7.9	1.6	7.1	2.5	3.5	0.5	3.1	8.1
Water-heating equipment											
Centralized system	43.3	5.6	6.7	7.8	1.6	7.3	3.2	4.9	0.5	2.9	10.2
Distributed system	45.7	5.2	6.9	7.3	2.2	8.2	3.8	5.3	0.5	3.7	10.1
Combination of centralized and distributed systems	49.3	4.1	7.1	10.9	1.4	8.8	1.8	4.2	0.6	3.8	10.8

Table E4. Electricity consumption intensities (in British thermal units [Btu]) by end use, 2018

Electricity energy intensity^a (thousand Btu/square foot in buildings using electricity for the end use)

	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Generation technologies (more than one may apply)											
Reciprocating engine generators	56.1	5.3	7.5	11.4	1.7	8.4	2.6	4.3	0.6	6.3	14.0
Solar panels	43.7	4.0	6.1	9.5	1.9	8.1	1.8	5.0	0.5	2.7	9.3
Other generation technology	62.5	7.9	5.8	12.8	3.9	10.7	2.4	3.8	0.8	Q	14.9
Lighting equipment types (more than one may apply)											
Incandescent	50.3	5.1	6.7	9.0	2.5	10.9	2.7	4.9	0.7	3.5	11.0
Standard fluorescent	43.4	5.2	6.8	8.2	1.8	7.5	2.6	4.5	0.6	3.3	10.1
Compact fluorescent	50.4	5.1	7.0	10.2	2.2	9.0	2.4	4.4	0.6	4.2	11.3
High-intensity discharge (HID)	49.6	3.9	7.1	10.0	1.3	9.8	2.1	3.1	0.5	5.1	12.0
Halogen	52.6	4.3	7.4	9.4	2.5	10.9	3.0	5.5	0.7	3.7	10.6
LED	47.4	5.1	6.8	9.1	1.9	7.9	2.9	5.0	0.6	3.7	11.0
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Refrigeration equipment (more than one may apply)											
Any refrigeration	46.1	5.3	6.8	8.5	1.8	7.9	3.0	4.8	0.6	3.0	10.5
Walk-in units	63.4	6.0	8.2	12.3	3.0	9.5	3.8	9.4	0.6	3.0	14.1
Cases or cabinets	59.7	5.8	7.5	11.4	2.5	9.3	3.6	8.9	0.6	3.7	12.4
Large cold storage areas	81.7	5.2	7.3	10.4	2.3	9.5	4.6	21.0	0.6	2.8	24.0
Commercial ice makers	55.9	5.4	8.0	11.2	2.5	8.8	3.4	7.0	0.6	3.0	11.8
Residential-type or compact units	43.4	5.0	6.6	8.2	1.7	7.7	2.4	3.6	0.6	3.0	9.9
Vending machines	49.6	5.0	7.1	10.3	1.8	8.8	2.2	4.3	0.6	3.4	11.4
No refrigeration	29.1	5.1	7.2	4.8	1.0	5.8	1.9	N	0.5	4.0	8.9
Office equipment (more than one may apply)											
Desktop computers	45.1	5.2	6.7	8.4	1.7	7.9	2.9	4.7	0.6	3.1	10.4
With multiple monitors	47.3	4.9	6.6	9.7	1.5	8.3	2.1	3.7	0.6	4.0	11.3
Laptop computers	44.7	4.9	6.6	8.7	1.7	8.0	2.3	4.0	0.6	3.5	10.2
Dedicated servers	48.1	5.0	6.6	9.4	1.6	8.4	2.2	4.2	0.6	4.7	10.5
Tablets charged in building	48.7	5.2	6.7	9.7	1.9	8.6	2.4	4.4	0.6	4.0	11.0
Large floor-standing office devices ^d	45.3	5.0	6.5	9.1	1.7	8.1	1.9	3.4	0.6	3.7	10.5
Smaller desktop office devices ^d	45.0	5.1	6.7	8.5	1.7	8.0	2.7	4.6	0.6	3.0	10.5
Interactive whiteboards	43.4	5.0	6.5	8.9	1.7	7.1	1.7	2.4	0.6	4.0	10.6
Televisions or video displays	47.5	5.3	6.9	9.3	1.9	8.3	2.5	4.6	0.6	3.5	10.6
Point-of-sale devices or cash registers	57.0	6.1	7.6	10.9	2.4	9.3	3.8	7.9	0.7	3.1	12.0
Food preparation or serving areas in non-food service buildings (more than one may apply)											
Snack bar, concession stand, or coffee shop	52.6	4.5	6.9	11.5	2.2	8.3	2.2	6.1	0.6	3.4	11.3
Fast food or small restaurant	61.2	5.4	6.3	14.5	2.4	10.9	2.2	7.4	0.7	3.0	12.5
Cafeteria or large restaurant	46.7	4.2	7.3	10.8	1.8	7.8	1.9	3.0	0.6	3.4	10.2
Commercial kitchen or food preparation area	55.1	4.6	7.8	12.1	2.6	9.2	2.2	6.2	0.6	2.7	11.9
Small kitchen area	41.0	4.6	5.9	8.3	2.3	7.1	1.7	3.7	0.5	2.8	8.5

Table E4. Electricity consumption intensities (in British thermal units [Btu]) by end use, 2018

Electricity energy intensity^a (thousand Btu/square foot in buildings using electricity for the end use)

	Total	Space heating	Cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Office equipment	Computing	Other
All buildings	43.0	5.2	6.9	8.0	1.7	7.5	2.9	4.8	0.5	3.1	10.2
Separate computer areas (more than one may apply)											
Server closet	45.9	4.9	6.4	9.3	1.7	8.3	2.2	4.2	0.6	3.1	10.3
Data center	55.4	4.2	6.2	13.2	1.2	8.7	2.2	3.3	0.7	5.5	14.7
Computer-based training room	47.5	5.0	6.8	10.1	1.9	8.3	1.9	3.3	0.6	3.8	10.8
Student or public computer center	41.8	4.7	7.3	7.4	2.2	7.0	1.9	3.2	0.6	3.0	9.8
Window and interior lighting features (more than one may apply)											
Multipaned windows	45.4	5.5	6.7	8.5	1.9	7.7	3.0	4.9	0.6	3.4	10.4
Tinted window glass	48.0	5.3	7.4	9.1	1.8	8.2	2.6	4.9	0.6	3.7	10.6
Reflective window glass	53.0	5.2	6.3	10.6	2.2	8.9	2.4	4.7	0.7	5.0	12.6
External overhangs or awnings	48.7	5.2	7.1	8.6	2.2	8.3	3.2	6.3	0.7	3.0	10.4
Skylights or atriums	44.3	4.3	6.3	9.5	1.3	7.7	2.1	3.9	0.5	3.4	10.4
Light scheduling	53.0	5.2	6.9	10.9	2.2	8.4	2.8	5.4	0.6	5.0	11.8
Occupancy sensors	47.1	5.0	6.3	9.8	1.7	7.6	2.2	4.3	0.6	3.9	11.5
Multilevel lighting or dimming	52.7	5.1	7.2	11.6	1.9	7.6	3.0	4.9	0.6	3.8	12.9
Daylight harvesting	55.9	4.4	6.5	12.7	1.6	8.7	1.6	5.0	0.7	6.5	12.4
Plug-load control	62.7	5.5	8.2	11.2	2.7	7.3	3.8	4.6	0.7	Q	18.1
Demand responsive lighting	42.2	4.7	5.5	9.2	2.2	7.2	3.0	4.3	0.6	2.5	10.3
Building automation system (BAS) for lighting	55.0	5.4	7.3	11.6	2.1	8.8	2.8	5.9	0.6	4.0	12.3
Electric vehicle (EV) charging											
Charging stations associated with the building	44.2	3.9	5.6	10.0	1.3	7.9	2.4	3.9	0.5	3.7	10.0
Annual consumption (kilowatthours)											
10,000 or less	5.0	1.4	1.2	0.4	0.1	1.6	Q	0.5	0.2	0.3	2.2
10,001 to 50,000	16.4	3.3	3.5	2.0	0.5	3.9	0.7	1.4	0.4	0.8	4.5
50,001 to 100,000	27.4	4.9	5.3	3.7	1.0	5.7	1.7	3.7	0.5	1.3	6.6
100,001 to 500,000	38.4	5.2	6.9	5.8	1.8	6.9	4.3	5.9	0.6	1.9	7.9
500,001 to 1,000,000	44.6	6.8	7.5	7.5	2.3	7.6	4.6	4.2	0.5	2.7	9.5
1,000,001 to 5,000,000	56.2	5.5	7.9	10.6	2.1	9.7	2.4	6.1	0.5	3.4	13.7
Over 5,000,000	75.3	5.0	8.8	18.1	1.8	10.8	2.5	4.1	0.7	9.1	20.1

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/>.

Estimates for types of equipment represent consumption in buildings that have the equipment, not the consumption by the specific piece of equipment.

HVAC = Heating, ventilation, and air conditioning.

^a The electricity intensity calculation is conditional on the presence of the end use, and therefore the intensities for each end use will not sum to the total electricity intensity. In this table, each column is calculated as electricity consumption for the end use divided by the floorspace in buildings that use electricity for the particular end use.

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

^c *Other sources* includes wood, coal, solar, and all other energy sources.

^d *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.