

Preliminary release date: September 2022

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Table C3. Sum of major fuels consumption and expenditures, 2018

			All buildings	Sum of major fuels consumption	Sum of major fuels expenditures
	Number of buildings (thousand)	Total floorspace (million square feet)	Mean floorspace per building (thousand square feet)	Total (trillion British thermal units [Btu])	Total (million dollars)
All buildings	5,918	96,423	16.3	6,787	\$141,238
Building floorspace (square feet)					
1,001 to 5,000	2,833	8,025	2.8	576	\$14,232
5,001 to 10,000	1,359	10,204	7.5	597	\$13,605
10,001 to 25,000	981	15,838	16.1	921	\$20,492
25,001 to 50,000	386	13,957	36.2	960	\$20,228
50,001 to 100,000	218	15,302	70.3	1,075	\$20,973
100,001 to 200,000	93	13,003	140.2	959	\$18,687
200,001 to 500,000	40	11,776	293.9	1,004	\$19,622
Over 500,000	9	8,317	947.6	696	\$13,399
Principal building activity					
Education	437	13,623	31.1	854	\$15,875
Food sales	163	1,006	6.2	233	\$5,691
Food service	286	1,385	4.8	365	\$7,114
Health care	137	4,018	29.3	581	\$10,852
Inpatient	9	2,259	264.8	436	\$7,182
Outpatient	129	1,760	13.7	144	\$3,670
Lodging	207	6,976	33.7	598	\$11,513
Mercantile	517	10,781	20.9	953	\$18,814
Retail (other than mall)	350	5,193	14.8	333	\$7,515
Enclosed and strip malls	167	5,588	33.5	620	\$11,299
Office	970	16,662	17.2	1,093	\$27,203
Public assembly	488	7,192	14.7	583	\$10,837
Public order and safety	81	1,538	18.9	133	\$2,564
Religious worship	439	5,471	12.5	193	\$3,942
Service	867	6,240	7.2	318	\$6,566
Warehouse and storage	1,004	17,483	17.4	528	\$11,751
Other	113	2,435	21.5	328	\$7,934
Vacant	208	1,612	7.8	27	\$581

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Year constructed					
Before 1920	329	3,600	10.9	233	\$4,761
1920 to 1945	379	5,646	14.9	401	\$8,734
1946 to 1959	517	6,937	13.4	445	\$8,434
1960 to 1969	685	10,360	15.1	764	\$15,057
1970 to 1979	831	13,061	15.7	905	\$18,973
1980 to 1989	794	13,465	17.0	962	\$21,649
1990 to 1999	921	15,535	16.9	958	\$20,511
2000 to 2009	924	17,500	18.9	1,392	\$28,433
2010 to 2018	537	10,319	19.2	728	\$14,685
Census region and division					
Northeast	793	15,951	20.1	1,226	\$27,427
New England	275	3,749	13.6	277	\$8,198
Middle Atlantic	518	12,202	23.6	949	\$19,229
Midwest	1,719	25,932	15.1	1,930	\$35,506
East North Central	1,110	17,561	15.8	1,374	\$24,902
West North Central	609	8,372	13.7	556	\$10,604
South	2,143	34,907	16.3	2,348	\$47,198
South Atlantic	1,034	17,923	17.3	1,231	\$26,437
East South Central	347	5,404	15.6	357	\$7,329
West South Central	762	11,580	15.2	760	\$13,432
West	1,264	19,633	15.5	1,284	\$31,106
Mountain	484	7,680	15.9	570	\$9,762
Pacific	780	11,952	15.3	713	\$21,344
Climate zone^a					
Cold or very cold	539	7,044	13.1	541	\$10,461
Cool	1,727	26,768	15.5	1,971	\$37,166
Mixed mild	1,216	25,096	20.6	1,911	\$39,643
Warm	1,606	25,085	15.6	1,626	\$37,402
Hot or very hot	831	12,429	15.0	738	\$16,566
Number of floors					
1	4,106	43,576	10.6	2,853	\$60,857
2	1,286	23,300	18.1	1,438	\$30,240
3	370	10,516	28.5	749	\$15,112
4 to 9	142	13,031	92.1	1,184	\$22,998
10 or more	16	6,000	379.9	563	\$12,031

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Elevators and escalators (more than one may apply)					
Any elevators	503	36,501	72.6	2,965	\$59,914
1 elevator	366	14,215	38.9	930	\$18,838
2 to 5 elevators	121	13,316	110.1	1,114	\$23,034
6 or more elevators	16	8,970	545.7	920	\$18,041
Any escalators	14	3,753	277.8	324	\$6,370
Number of workers (main shift)					
Fewer than 5	3,270	21,065	6.4	889	\$20,859
5 to 9	1,116	10,323	9.2	664	\$14,526
10 to 19	713	11,348	15.9	778	\$15,749
20 to 49	492	16,132	32.8	1,233	\$25,366
50 to 99	201	12,961	64.5	1,013	\$20,431
100 to 249	90	12,442	138.0	1,032	\$20,162
250 or more	37	12,152	329.9	1,177	\$24,145
Weekly operating hours					
Fewer than 40	1,370	10,766	7.9	414	\$9,071
40 to 48	1,483	18,826	12.7	946	\$20,736
49 to 60	1,250	22,845	18.3	1,265	\$27,109
61 to 84	645	14,736	22.8	1,183	\$24,478
85 to 167	465	10,038	21.6	976	\$19,749
Open continuously	705	19,213	27.2	2,003	\$40,096
Ownership and occupancy					
Nongovernment owned	4,982	74,728	15.0	5,218	\$111,023
Owner occupied	3,249	45,355	14.0	3,190	\$66,488
Leased to tenant or tenants	1,581	28,382	18.0	2,019	\$44,308
Unoccupied	152	990	6.5	10	\$227
Government owned	937	21,695	23.2	1,569	\$30,215
Federal	70	1,946	27.7	159	\$3,285
State	256	6,888	26.9	578	\$10,266
Local	610	12,861	21.1	832	\$16,663

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Party responsible for operation of energy systems					
Building owner	4,872	79,282	16.3	5,563	\$114,970
Business owner or tenant	831	12,842	15.4	916	\$19,517
Property management	97	1,994	20.7	144	\$3,213
Other	118	2,306	19.5	165	\$3,538
Provider of direct input on energy-related equipment purchases					
Building owner	5,127	82,862	16.2	5,788	\$119,473
Business owner or tenant	483	7,585	15.7	587	\$12,472
Property management	49	1,072	22.0	85	\$1,853
Other	260	4,904	18.8	327	\$7,439
Number of establishments					
1	4,719	65,391	13.9	4,468	\$93,412
2 to 5	811	16,431	20.3	1,206	\$24,293
6 to 10	135	5,539	41.0	438	\$9,238
11 to 20	63	3,894	61.6	341	\$7,157
More than 20	19	3,999	207.0	319	\$6,825
Currently unoccupied	170	1,168	6.9	15	\$313
Predominant exterior wall material					
Brick, stone, or stucco	2,490	46,134	18.5	3,593	\$71,070
Concrete (block or poured)	935	19,357	20.7	1,435	\$30,008
Concrete panels	137	8,331	60.6	534	\$11,607
Siding or shingles	948	5,992	6.3	384	\$9,252
Metal panels	1,250	12,198	9.8	498	\$11,172
Window glass	19	2,192	113.5	186	\$4,355
Other	139	2,219	16.0	156	\$3,774

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Predominant roof material					
Metal surfacing	2,198	20,936	9.5	1,006	\$21,880
Synthetic or rubber	940	31,563	33.6	2,587	\$51,946
Built-up	708	19,308	27.3	1,544	\$31,405
Slate or tile shingles	376	3,997	10.6	273	\$6,105
Wooden materials (including shingles)	166	1,568	9.5	93	\$2,233
Asphalt, fiberglass, or other shingles	1,311	14,058	10.7	915	\$19,527
Concrete	83	1,968	23.6	165	\$3,545
Other	136	3,026	22.2	204	\$4,595
Roof tilt					
Flat	1,914	54,253	28.3	4,397	\$89,516
Shallow pitch	2,313	27,609	11.9	1,556	\$33,446
Steeper pitch	1,691	14,561	8.6	834	\$18,275
Cool roof characteristics (more than one may apply)					
White or reflective coating or paint	1,285	32,799	25.5	2,490	\$51,177
White or reflective tiles or shingles	140	2,713	19.3	221	\$4,734
Aluminum coating	528	6,149	11.7	344	\$7,474
Ballasted roof system	114	6,277	55.2	548	\$10,177
Other cool roof property	35	1,603	45.3	128	\$2,686

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Renovations since 2000 (more than one may apply)					
Any type of renovation	2,032	45,165	22.2	3,474	\$70,443
Addition or annex	327	10,854	33.1	934	\$17,575
Reduction in floorspace	35	1,784	51.1	154	\$3,100
Roof replacement	847	20,862	24.6	1,619	\$32,159
Interior wall reconfiguration	709	21,283	30.0	1,670	\$33,879
Window replacement	484	10,977	22.7	865	\$16,923
HVAC equipment upgrade	1,006	27,575	27.4	2,202	\$44,655
Lighting upgrade	1,012	29,098	28.7	2,336	\$47,487
Electrical upgrade	565	15,761	27.9	1,345	\$26,710
Plumbing system upgrade	584	15,537	26.6	1,292	\$25,968
Insulation upgrade	307	7,980	26.0	663	\$12,733
Fire, safety, or security upgrade	570	19,985	35.0	1,657	\$33,190
Structural upgrade	147	4,203	28.6	393	\$7,589
Other	43	1,168	27.3	101	\$2,084
No renovations	3,530	43,832	12.4	2,812	\$60,969
Buildings constructed 2013 or later	357	7,426	20.8	501	\$9,826
Energy sources (more than one may apply)					
Electricity	5,613	94,844	16.9	6,787	\$141,238
Natural gas	2,974	67,722	22.8	5,442	\$104,268
Fuel oil	583	21,185	36.3	1,958	\$41,029
District heat	86	6,745	78.1	786	\$15,256
District chilled water	55	4,288	77.5	477	\$8,908
Propane	676	10,157	15.0	598	\$13,808
Solar	99	3,820	38.6	295	\$6,682
Wood, coal, and other	180	2,113	11.8	145	\$2,890
Space-heating energy sources (more than one may apply)					
Electricity	2,563	45,603	17.8	3,304	\$71,662
Natural gas	2,587	58,042	22.4	4,549	\$85,699
Fuel oil	266	4,134	15.6	321	\$6,456
District heat	83	6,547	79.3	752	\$14,811
Propane	431	3,896	9.0	182	\$4,531
Other sources ^b	127	927	7.3	34	\$795

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Primary space-heating energy source					
Electricity	1,856	27,618	14.9	1,744	\$42,389
Natural gas	2,344	50,060	21.4	3,896	\$71,621
Fuel oil	222	2,223	10.0	138	\$3,335
District heat	78	6,090	78.0	707	\$14,020
Propane	338	2,290	6.8	73	\$2,512
Other sources ^b	63	380	6.0	8	\$254
Cooling energy sources (more than one may apply)					
Electricity	4,584	84,526	18.4	6,201	\$128,769
Natural gas	4	400	90.9	43	\$736
District chilled water	55	4,288	77.5	477	\$8,908
Water-heating energy sources (more than one may apply)					
Electricity	2,785	47,125	16.9	3,186	\$70,365
Natural gas	1,885	46,652	24.8	3,984	\$74,602
Fuel oil	72	1,807	25.1	158	\$3,342
District heat	38	4,206	109.6	493	\$9,777
Propane	145	1,947	13.4	140	\$3,791
Cooking energy sources (more than one may apply)					
Electricity	1,216	30,509	25.1	2,765	\$54,136
Natural gas	727	27,705	38.1	2,841	\$51,703
Propane	159	3,101	19.5	228	\$5,543
Energy end uses (more than one may apply)					
Buildings with space heating	4,901	88,661	18.1	6,567	\$134,131
Buildings with cooling	4,631	87,506	18.9	6,515	\$134,681
Buildings with water heating	4,595	87,717	19.1	6,590	\$135,611
Buildings with cooking	1,738	43,580	25.1	3,953	\$76,849
Buildings with manufacturing	322	6,871	21.4	483	\$10,440
Buildings with electricity generation	706	29,457	41.7	2,719	\$54,876
Buildings with lighting	5,503	94,103	17.1	6,773	\$140,890

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Percentage of floorspace heated					
Not heated	1,017	7,762	7.6	220	\$7,107
1% to 50%	693	10,620	15.3	442	\$10,668
51% to 99%	905	20,174	22.3	1,597	\$32,397
100%	3,303	57,867	17.5	4,529	\$91,066
Percentage of floorspace cooled					
Not cooled	1,288	8,917	6.9	272	\$6,557
1% to 50%	1,111	19,722	17.8	858	\$17,684
51% to 99%	998	26,277	26.3	2,199	\$44,748
100%	2,522	41,507	16.5	3,458	\$72,249
Percentage lit when open					
0%	Q	Q	Q	Q	Q
1% to 50%	1,280	14,172	11.1	601	\$13,297
51% to 99%	1,784	38,847	21.8	3,116	\$62,495
100%	2,272	39,877	17.6	3,029	\$64,520
Building never open or electricity not used	513	2,998	5.8	32	\$691
Percentage lit during off hours					
0%	2,062	15,578	7.6	658	\$16,129
1% to 50%	3,246	69,800	21.5	5,050	\$103,176
51% to 100%	240	7,243	30.2	826	\$16,926
Building always open with no off hours	64	2,223	34.6	254	\$5,007
Electricity not used	305	1,579	5.2	N	N
Heating equipment (more than one may apply)					
Packaged heating units	2,187	48,064	22.0	3,666	\$74,931
Furnaces	1,621	17,272	10.7	1,186	\$22,818
Individual space heaters	1,246	21,122	16.9	1,521	\$30,020
Boilers	703	28,831	41.0	2,447	\$45,321
Heat pumps	673	15,110	22.4	1,159	\$24,118
District heat	83	6,547	79.3	752	\$14,811
Duct reheat	134	7,418	55.2	630	\$13,177
Other	17	821	48.7	143	\$2,903

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Cooling equipment (more than one may apply)					
Packaged air-conditioning units	2,565	56,290	21.9	4,315	\$89,535
Residential-type central air conditioners	1,309	18,270	14.0	1,325	\$26,425
Individual air conditioners	735	13,619	18.5	1,065	\$21,061
Central chillers	202	17,926	88.8	1,678	\$33,343
Heat pumps	492	11,098	22.5	820	\$17,576
District chilled water	55	4,288	77.5	477	\$8,908
Swamp coolers	85	2,070	24.5	163	\$3,233
Other	Q	Q	Q	Q	Q
HVAC features (more than one may apply)					
Economizer cycle	747	34,087	45.6	3,016	\$60,212
Variable air volume (VAV) system	698	29,268	42.0	2,521	\$50,917
Dedicated outside air system (DOAS)	249	9,027	36.3	882	\$17,023
Demand controlled ventilation (DCV)	349	10,474	30.0	851	\$17,092
Regular HVAC maintenance	3,554	78,015	22.0	6,025	\$123,757
Building automation system (BAS) controls heating or cooling	933	40,462	43.3	3,577	\$72,192
Internet-connected or smart thermostat	325	5,966	18.3	379	\$7,987
Programmable thermostat	1,545	20,882	13.5	1,297	\$27,372
Main equipment replaced since 2000 (more than one may apply)					
Heating	1,937	32,451	16.8	2,191	\$46,025
Cooling	1,269	23,013	18.1	1,634	\$33,197
Water-heating equipment					
Centralized system	3,538	59,280	16.8	4,418	\$90,487
Distributed system	782	14,307	18.3	1,037	\$21,951
Combination of centralized and distributed systems	274	14,129	51.5	1,134	\$23,174
Generation technologies (more than one may apply)					
Reciprocating engine generators	580	25,163	43.4	2,370	\$47,189
Solar panels	94	3,750	39.9	287	\$6,491
Other generation technology	43	2,055	48.0	205	\$4,258

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Lighting equipment types (more than one may apply)					
Incandescent	1,100	21,081	19.2	1,838	\$36,703
Standard fluorescent	4,012	72,912	18.2	5,322	\$109,551
Compact fluorescent	1,130	33,691	29.8	2,916	\$58,553
High-intensity discharge (HID)	238	11,356	47.6	990	\$18,790
Halogen	552	15,012	27.2	1,364	\$26,740
LED	2,593	61,849	23.8	4,910	\$100,687
Other	Q	Q	Q	Q	Q
Refrigeration equipment (more than one may apply)					
Any refrigeration	3,850	77,589	20.2	6,020	\$122,759
Walk-in units	706	29,384	41.6	3,186	\$61,726
Cases or cabinets	837	28,517	34.1	2,899	\$56,746
Large cold storage areas	69	3,592	52.1	441	\$9,001
Commercial ice makers	872	34,672	39.8	3,354	\$64,416
Residential-type or compact units	3,321	64,735	19.5	4,790	\$97,433
Vending machines	800	42,071	52.6	3,550	\$69,023
No refrigeration	2,068	18,834	9.1	767	\$18,479
Office equipment (more than one may apply)					
Desktop computers	3,804	82,012	21.6	6,183	\$127,099
With multiple monitors	1,504	50,844	33.8	4,017	\$81,701
Laptop computers	2,786	69,375	24.9	5,215	\$106,537
Dedicated servers	1,400	51,595	36.8	4,119	\$84,675
Tablets charged in building	1,556	48,778	31.3	3,995	\$80,153
Large floor-standing office devices ^c	1,456	54,088	37.2	4,166	\$84,302
Smaller desktop office devices ^c	3,560	74,467	20.9	5,597	\$115,215
Interactive whiteboards	262	16,939	64.7	1,289	\$25,062
Televisions or video displays	2,451	63,618	26.0	5,058	\$102,428
Point-of-sale devices or cash registers	1,420	33,606	23.7	3,239	\$64,137

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All buildings	5,918	96,423	16.3	6,787	\$141,238
Food preparation or serving areas in non-food service buildings (more than one may apply)					
Snack bar, concession stand, or coffee shop	144	10,361	71.7	1,003	\$18,601
Fast food or small restaurant	160	9,759	60.9	1,023	\$19,245
Cafeteria or large restaurant	129	14,531	112.4	1,270	\$23,415
Commercial kitchen or food preparation area	284	17,698	62.3	1,741	\$32,437
Small kitchen area	1,018	20,519	20.2	1,507	\$29,584
Separate computer areas (more than one may apply)					
Server closet	1,237	48,722	39.4	3,775	\$76,371
Data center	116	11,383	98.3	1,061	\$21,346
Computer-based training room	228	16,556	72.7	1,400	\$26,611
Student or public computer center	236	12,527	53.1	1,007	\$17,820
Window and interior lighting features (more than one may apply)					
Multipaned windows	3,527	72,694	20.6	5,540	\$112,161
Tinted window glass	1,679	44,363	26.4	3,519	\$71,656
Reflective window glass	497	17,929	36.1	1,553	\$31,359
External overhangs or awnings	1,513	28,718	19.0	2,367	\$47,178
Skylights or atriums	509	19,815	38.9	1,486	\$29,661
Light scheduling	910	33,552	36.9	2,913	\$58,979
Occupancy sensors	1,025	44,304	43.2	3,525	\$72,422
Multilevel lighting or dimming	332	14,424	43.4	1,341	\$25,535
Daylight harvesting	138	7,244	52.6	643	\$12,817
Plug-load control	58	1,961	34.1	179	\$3,733
Demand responsive lighting	98	2,045	20.8	160	\$3,347
Building automation system (BAS) for lighting	317	16,645	52.5	1,462	\$29,423

Table C3. Sum of major fuels consumption and expenditures, 2018

	All buildings			Sum of major fuels consumption	Sum of major fuels expenditures
	Number of buildings (thousand)	Total floorspace (million square feet)	Mean floorspace per building (thousand square feet)	Total (trillion British thermal units [Btu])	Total (million dollars)
All buildings	5,918	96,423	16.3	6,787	\$141,238
Electric vehicle (EV) charging					
Charging stations associated with the building	132	10,165	77.1	735	\$15,272

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

Notes: Because of rounding, data may not sum to totals. The *Guide to the 2018 CBECS Tables* and *CBECS Terminology* contain definitions of terms used in these tables and comparisons between previous CBECS tables. You can access both references from <http://www.eia.gov/consumption/commercial/data/2018/>.

Data are sample survey estimates with relative standard errors published in a tab on the Excel worksheet for this table.

Estimates in the *energy end uses* category represent total consumption and expenditures in buildings that have the end use but not the consumption and expenditures specifically for that end use.

HVAC = Heating, ventilation, and air conditioning.

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

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

^c*Office devices* refers to any combination of printers, copiers, scanners, or FAX machines.

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

N = No buildings in reporting sample.

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Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Building floorspace (square feet)					
1,001 to 5,000	4.9	5.3	1.9	5.6	5.9
5,001 to 10,000	5.9	5.8	1.3	6.0	5.8
10,001 to 25,000	5.6	6.1	1.6	7.6	7.8
25,001 to 50,000	5.6	5.6	0.9	6.0	6.5
50,001 to 100,000	5.3	5.3	1.0	5.7	5.5
100,001 to 200,000	5.6	5.5	0.9	5.8	5.8
200,001 to 500,000	5.0	5.0	1.0	6.6	6.9
Over 500,000	7.8	8.6	4.0	8.9	7.7
Principal building activity					
Education	7.8	5.3	6.8	6.1	5.9
Food sales	14.3	17.0	12.9	21.4	21.3
Food service	7.7	8.5	5.7	9.1	8.8
Health care	9.8	5.5	8.5	5.9	5.4
Inpatient	19.4	7.2	18.5	7.3	7.1
Outpatient	10.3	8.0	8.4	8.2	8.5
Lodging	9.4	8.3	9.6	10.1	8.7
Mercantile	7.3	6.0	6.6	6.8	6.4
Retail (other than mall)	10.1	8.6	7.5	8.9	8.5
Enclosed and strip malls	7.6	7.6	8.4	8.6	8.0
Office	7.2	5.5	6.9	5.5	5.4
Public assembly	9.1	5.8	6.9	7.3	7.1
Public order and safety	20.2	15.9	17.4	19.5	18.8
Religious worship	9.5	9.3	6.4	9.7	8.9
Service	7.4	8.1	6.5	9.4	8.5
Warehouse and storage	7.4	7.2	7.0	8.3	8.4
Other	17.1	15.1	15.2	15.3	16.0
Vacant	17.2	14.1	12.3	15.3	17.0

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Year constructed					
Before 1920	12.8	10.8	10.4	12.3	12.1
1920 to 1945	10.7	8.8	9.8	8.9	9.8
1946 to 1959	8.1	7.6	6.6	8.7	8.2
1960 to 1969	6.4	5.2	5.4	6.8	6.2
1970 to 1979	7.4	6.0	5.6	6.3	6.6
1980 to 1989	7.0	5.9	6.3	7.2	5.9
1990 to 1999	7.5	6.6	4.7	5.2	5.5
2000 to 2009	8.0	6.3	5.5	6.5	6.9
2010 to 2018	11.0	7.6	9.2	7.7	7.9
Census region and division					
Northeast	9.9	7.2	7.1	5.8	6.6
New England	17.8	10.8	9.6	12.0	13.8
Middle Atlantic	12.0	8.8	8.6	6.6	7.4
Midwest	10.9	7.4	6.6	6.5	7.1
East North Central	13.1	10.4	6.4	8.7	9.8
West North Central	21.0	7.9	16.2	7.7	6.4
South	7.7	6.1	4.1	6.1	6.3
South Atlantic	11.0	6.8	6.9	8.5	8.1
East South Central	18.0	20.3	3.6	16.9	17.5
West South Central	14.7	11.5	8.3	10.5	12.1
West	8.1	7.1	5.8	7.7	5.9
Mountain	15.9	13.1	12.3	15.6	12.5
Pacific	9.0	8.1	5.1	6.1	6.4
Climate zone^a					
Cold or very cold	18.8	17.0	12.4	15.8	14.6
Cool	11.8	8.3	7.1	8.3	8.0
Mixed mild	15.1	10.5	8.4	10.8	10.0
Warm	11.4	10.0	4.2	10.8	9.2
Hot or very hot	18.8	14.1	8.1	12.1	13.5
Number of floors					
1	4.3	4.5	2.7	4.2	4.5
2	5.8	4.4	3.9	5.0	4.9
3	10.5	7.6	6.8	7.6	7.9
4 to 9	9.4	6.3	7.3	7.0	6.8
10 or more	9.8	11.0	7.7	11.4	10.1

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Elevators and escalators (more than one may apply)					
Any elevators	6.5	4.5	4.3	4.9	4.6
1 elevator	7.7	6.0	4.5	7.0	6.4
2 to 5 elevators	6.7	5.2	3.5	6.0	6.0
6 or more elevators	7.8	8.4	4.7	8.1	7.2
Any escalators	28.9	13.7	35.6	16.1	13.8
Number of workers (main shift)					
Fewer than 5	5.5	5.9	3.1	5.9	6.0
5 to 9	6.1	6.9	4.4	8.4	8.4
10 to 19	6.5	7.4	5.3	6.0	6.1
20 to 49	6.3	4.8	4.3	4.8	5.0
50 to 99	6.7	5.9	4.4	7.0	7.3
100 to 249	7.1	5.6	4.2	6.1	6.1
250 or more	7.2	6.4	5.7	6.5	6.0
Weekly operating hours					
Fewer than 40	6.1	6.6	4.9	8.1	8.3
40 to 48	6.2	5.1	4.4	6.4	6.3
49 to 60	5.2	4.3	4.1	5.0	4.5
61 to 84	7.6	5.3	5.8	6.1	5.8
85 to 167	8.6	6.2	7.5	5.8	6.3
Open continuously	8.1	5.0	7.2	5.0	4.8
Ownership and occupancy					
Nongovernment owned	3.8	3.3	2.9	3.1	3.0
Owner occupied	4.3	3.3	3.5	3.5	3.4
Leased to tenant or tenants	5.5	4.8	4.4	4.6	4.6
Unoccupied	20.3	19.2	15.1	26.8	24.7
Government owned	9.5	6.0	6.0	7.0	6.7
Federal	26.0	16.1	29.1	17.6	19.6
State	12.9	11.8	9.4	15.1	13.4
Local	10.1	6.0	8.1	5.3	5.5

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Party responsible for operation of energy systems					
Building owner	4.4	3.2	2.9	3.3	3.2
Business owner or tenant	6.5	7.2	5.6	6.6	6.5
Property management	20.7	11.7	18.3	13.3	13.2
Other	18.8	11.1	15.8	11.4	10.9
Provider of direct input on energy-related equipment purchases					
Building owner	4.4	3.1	2.8	3.3	3.3
Business owner or tenant	8.9	8.8	6.9	8.1	8.9
Property management	25.5	16.2	25.3	18.4	16.7
Other	10.5	8.1	8.9	8.8	7.7
Number of establishments					
1	4.6	3.6	2.7	3.6	3.7
2 to 5	6.0	5.5	5.5	6.4	5.6
6 to 10	11.5	7.9	8.8	7.6	7.9
11 to 20	18.0	8.9	14.6	10.4	10.1
More than 20	18.6	10.1	14.3	11.5	10.9
Currently unoccupied	18.7	16.5	13.6	21.2	21.1
Predominant exterior wall material					
Brick, stone, or stucco	5.3	3.9	3.4	4.6	4.3
Concrete (block or poured)	5.3	4.8	5.1	4.1	4.2
Concrete panels	12.1	8.4	11.5	8.5	8.7
Siding or shingles	7.3	9.3	6.5	12.2	12.5
Metal panels	7.6	6.0	5.5	7.0	7.3
Window glass	21.3	11.4	20.7	11.5	12.5
Other	14.7	13.7	12.3	14.2	14.5

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Predominant roof material					
Metal surfacing	6.2	5.6	3.5	6.6	6.7
Synthetic or rubber	6.0	4.1	4.7	4.2	4.5
Built-up	7.7	4.8	6.4	5.9	5.3
Slate or tile shingles	10.1	10.1	7.3	10.7	10.1
Wooden materials (including shingles)	12.9	17.8	12.6	15.8	16.9
Asphalt, fiberglass, or other shingles	6.2	5.6	4.1	6.0	6.6
Concrete	20.6	11.9	17.5	14.1	13.0
Other	15.6	9.8	12.0	10.0	14.4
Roof tilt					
Flat	4.9	3.3	4.1	3.6	3.4
Shallow pitch	5.0	4.8	3.8	4.7	5.1
Steeper pitch	7.5	5.7	4.1	6.7	6.8
Cool roof characteristics (more than one may apply)					
White or reflective coating or paint	5.8	4.4	5.1	5.1	4.6
White or reflective tiles or shingles	15.4	10.4	13.0	12.5	12.7
Aluminum coating	8.8	9.2	6.8	9.8	8.8
Ballasted roof system	14.8	9.5	13.9	10.7	9.4
Other cool roof property	29.3	19.2	28.7	18.5	18.2

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Renovations since 2000 (more than one may apply)					
Any type of renovation	5.0	3.4	3.7	3.2	3.4
Addition or annex	9.4	6.0	7.6	5.2	5.3
Reduction in floorspace	22.2	13.2	20.4	15.1	14.7
Roof replacement	6.8	4.3	5.2	4.5	4.4
Interior wall reconfiguration	6.0	4.2	4.9	4.9	4.6
Window replacement	9.5	5.8	8.6	6.5	5.9
HVAC equipment upgrade	7.0	4.2	5.4	4.2	4.3
Lighting upgrade	5.9	3.9	4.5	4.0	3.8
Electrical upgrade	7.1	5.6	6.1	5.5	5.1
Plumbing system upgrade	7.8	5.2	6.9	5.5	5.3
Insulation upgrade	9.2	7.8	9.7	8.5	8.2
Fire, safety, or security upgrade	6.2	4.4	5.3	4.9	4.7
Structural upgrade	13.9	10.2	14.0	12.2	11.3
Other	29.5	14.9	27.3	13.2	13.8
No renovations	4.3	3.9	2.8	4.3	4.3
Buildings constructed 2013 or later	11.9	8.3	10.1	8.4	7.8
Energy sources (more than one may apply)					
Electricity	3.9	3.0	2.6	3.0	2.9
Natural gas	4.8	3.4	3.2	3.2	3.0
Fuel oil	9.7	5.4	9.1	5.6	5.8
District heat	14.7	11.4	12.3	12.0	11.0
District chilled water	20.1	13.7	15.7	15.7	14.2
Propane	10.0	7.6	8.4	10.7	9.5
Solar	15.5	11.5	13.9	11.5	10.9
Wood, coal, and other	17.3	14.0	13.3	14.9	14.9
Space-heating energy sources (more than one may apply)					
Electricity	4.7	3.7	3.5	3.9	3.8
Natural gas	5.2	3.6	3.5	3.4	3.1
Fuel oil	13.9	11.6	12.2	12.6	12.8
District heat	15.4	11.6	12.9	11.9	11.0
Propane	13.5	13.1	11.2	23.8	17.0
Other sources ^b	21.3	19.6	14.1	22.7	23.6

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Primary space-heating energy source					
Electricity	6.4	5.5	4.2	5.9	5.6
Natural gas	5.5	4.1	3.7	3.9	3.8
Fuel oil	16.1	15.3	13.2	18.3	17.8
District heat	15.8	12.6	13.9	13.0	12.0
Propane	17.5	16.9	11.4	24.8	25.1
Other sources ^b	22.4	30.3	20.3	28.5	26.7
Cooling energy sources (more than one may apply)					
Electricity	3.9	3.0	2.7	2.9	2.9
Natural gas	37.3	24.2	46.6	21.4	17.8
District chilled water	20.1	13.7	15.7	15.7	14.2
Water-heating energy sources (more than one may apply)					
Electricity	4.0	3.6	3.2	3.8	3.7
Natural gas	5.5	3.7	3.8	3.6	3.3
Fuel oil	24.0	15.4	22.1	14.7	14.5
District heat	17.4	12.8	13.9	12.9	12.2
Propane	15.8	14.7	12.1	31.6	27.9
Cooking energy sources (more than one may apply)					
Electricity	5.7	3.9	4.2	4.5	4.3
Natural gas	5.4	3.4	4.8	3.6	3.4
Propane	14.8	11.7	12.1	12.3	13.9
Energy end uses (more than one may apply)					
Buildings with space heating	4.1	3.0	2.8	3.0	3.0
Buildings with cooling	3.9	3.0	2.6	3.0	2.9
Buildings with water heating	3.9	2.9	2.6	3.0	2.9
Buildings with cooking	5.0	3.1	3.7	3.4	3.4
Buildings with manufacturing	11.3	7.9	10.6	11.2	11.7
Buildings with electricity generation	7.4	4.4	6.7	4.4	4.5
Buildings with lighting	3.9	3.0	2.7	3.0	2.9

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Percentage of floorspace heated					
Not heated	8.2	10.0	5.8	11.1	10.4
1% to 50%	8.5	7.1	7.2	7.4	7.7
51% to 99%	6.7	5.3	5.6	5.4	5.3
100%	4.1	3.2	2.9	3.4	3.3
Percentage of floorspace cooled					
Not cooled	7.1	8.0	5.9	17.0	16.8
1% to 50%	5.9	5.2	5.2	5.2	5.3
51% to 99%	6.6	5.1	5.1	5.3	5.3
100%	4.3	3.5	3.2	3.5	3.3
Percentage lit when open					
0%	35.1	38.5	25.5	87.3	77.3
1% to 50%	6.7	6.0	5.1	6.1	6.3
51% to 99%	4.8	3.6	3.8	4.2	4.0
100%	4.7	3.8	3.8	3.8	3.7
Building never open or electricity not used	11.6	12.1	7.1	14.5	16.1
Percentage lit during off hours					
0%	6.5	6.7	3.9	7.2	7.3
1% to 50%	3.8	3.0	2.8	3.2	3.0
51% to 100%	10.6	6.7	10.4	7.1	8.0
Building always open with no off hours	15.2	11.6	14.5	11.4	12.5
Electricity not used	16.0	17.6	10.1	0.0	0.0
Heating equipment (more than one may apply)					
Packaged heating units	4.0	3.6	3.2	3.5	3.4
Furnaces	7.2	5.7	5.2	5.9	5.8
Individual space heaters	5.9	4.8	4.2	5.6	5.4
Boilers	6.2	4.0	5.2	4.3	4.2
Heat pumps	7.7	5.4	6.3	6.4	5.4
District heat	15.4	11.6	12.9	11.9	11.0
Duct reheat	12.6	7.0	11.4	7.0	7.6
Other	46.4	24.1	41.4	32.3	36.5

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Cooling equipment (more than one may apply)					
Packaged air-conditioning units	4.3	3.4	3.4	3.1	3.4
Residential-type central air conditioners	7.6	5.2	4.9	5.5	5.7
Individual air conditioners	6.6	5.3	5.4	5.8	5.8
Central chillers	9.0	5.0	8.4	5.0	4.9
Heat pumps	11.0	6.8	9.6	7.8	7.1
District chilled water	20.1	13.7	15.7	15.7	14.2
Swamp coolers	12.8	13.1	11.3	14.9	13.7
Other	53.2	36.4	67.0	38.3	42.4
HVAC features (more than one may apply)					
Economizer cycle	5.6	3.9	5.2	4.1	3.9
Variable air volume (VAV) system	8.4	4.9	7.1	5.5	5.1
Dedicated outside air system (DOAS)	11.0	7.8	10.1	9.6	8.9
Demand controlled ventilation (DCV)	8.8	5.5	7.7	5.3	5.8
Regular HVAC maintenance	4.2	3.2	2.9	3.3	3.2
Building automation system (BAS) controls heating or cooling	6.4	3.7	5.0	4.0	4.0
Internet-connected or smart thermostat	12.2	10.5	8.6	11.0	10.3
Programmable thermostat	4.7	5.4	3.8	5.5	5.4
Main equipment replaced since 2000 (more than one may apply)					
Heating	4.9	3.8	3.7	3.5	3.7
Cooling	4.8	4.3	4.4	5.1	4.6
Water-heating equipment					
Centralized system	4.4	3.4	2.7	4.0	3.8
Distributed system	8.9	6.4	6.7	6.1	6.3
Combination of centralized and distributed systems	8.8	5.2	7.2	5.6	5.8
Generation technologies (more than one may apply)					
Reciprocating engine generators	8.8	4.8	8.1	4.8	4.9
Solar panels	15.4	11.5	13.6	11.1	11.0
Other generation technology	21.4	14.4	16.9	16.6	17.7

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Lighting equipment types (more than one may apply)					
Incandescent	7.8	4.5	6.2	4.9	4.4
Standard fluorescent	4.2	3.4	2.8	3.3	3.3
Compact fluorescent	5.2	4.2	4.5	4.5	4.5
High-intensity discharge (HID)	9.8	7.1	9.1	7.6	6.5
Halogen	8.0	4.2	7.6	5.2	4.4
LED	3.6	2.9	3.0	3.2	3.0
Other	57.3	24.1	71.8	29.0	26.2
Refrigeration equipment (more than one may apply)					
Any refrigeration	4.1	3.0	2.8	3.1	2.9
Walk-in units	5.4	3.4	4.8	3.8	3.8
Cases or cabinets	5.8	3.7	4.6	3.8	3.9
Large cold storage areas	17.2	11.3	16.6	15.0	14.9
Commercial ice makers	5.5	3.5	4.7	3.9	3.8
Residential-type or compact units	4.3	3.2	3.1	3.1	2.9
Vending machines	6.1	3.8	5.0	3.8	3.7
No refrigeration	5.3	5.3	4.6	5.9	6.5
Office equipment (more than one may apply)					
Desktop computers	4.0	2.9	2.7	3.0	2.9
With multiple monitors	5.0	3.5	3.9	3.9	3.7
Laptop computers	4.0	3.0	2.9	3.3	3.1
Dedicated servers	4.9	3.3	4.1	3.0	3.0
Tablets charged in building	4.4	3.3	3.7	4.0	3.7
Large floor-standing office devices ^c	4.4	3.0	3.7	3.4	3.3
Smaller desktop office devices ^c	4.1	3.1	2.7	3.1	3.1
Interactive whiteboards	8.7	4.5	7.5	5.8	5.3
Televisions or video displays	3.8	3.0	3.0	3.2	3.0
Point-of-sale devices or cash registers	5.2	3.4	4.4	3.8	3.7

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Food preparation or serving areas in non-food service buildings (more than one may apply)					
Snack bar, concession stand, or coffee shop	11.0	6.7	11.3	6.9	6.0
Fast food or small restaurant	9.4	5.9	9.9	6.3	5.6
Cafeteria or large restaurant	7.7	4.6	7.2	5.5	4.9
Commercial kitchen or food preparation area	8.5	4.4	7.3	4.7	4.7
Small kitchen area	6.5	4.7	5.1	5.7	5.1
Separate computer areas (more than one may apply)					
Server closet	5.3	3.4	4.4	3.4	3.3
Data center	13.1	6.7	13.4	7.0	6.5
Computer-based training room	8.4	4.6	7.6	5.6	5.2
Student or public computer center	8.0	4.6	8.4	6.2	5.1
Window and interior lighting features (more than one may apply)					
Multipaned windows	4.2	3.2	2.9	3.2	3.2
Tinted window glass	4.2	3.4	3.5	3.6	3.4
Reflective window glass	7.0	5.6	5.6	6.3	5.6
External overhangs or awnings	5.0	4.5	3.6	4.4	4.2
Skylights or atriums	7.1	4.5	7.1	5.0	4.2
Light scheduling	5.2	4.1	4.6	4.6	4.3
Occupancy sensors	6.5	3.8	5.3	4.2	3.8
Multilevel lighting or dimming	10.0	6.6	7.9	8.2	7.2
Daylight harvesting	12.0	6.3	11.2	7.4	7.1
Plug-load control	18.4	12.2	19.6	16.9	14.5
Demand responsive lighting	30.7	15.2	23.2	13.3	12.6
Building automation system (BAS) for lighting	9.3	5.2	8.0	5.6	5.2

Relative standard errors (RSEs) for Table C3. Sum of major fuels consumption and expenditures, 2018

	RSEs for all buildings			RSEs for sum of major fuels consumption	RSEs for sum of major fuels expenditures
	Number of buildings	Total floorspace	Mean floorspace per building	Total	Total
All buildings	3.9	3.1	2.6	3.0	2.9
Electric vehicle (EV) charging					
Charging stations associated with the building	11.5	7.2	11.1	8.7	7.8

Data source: U.S. Energy Information Administration, Forms EIA-871A, C, D, E, and F 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>.

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

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

^c*Office devices* refers to any combination of printers, copiers, scanners, or FAX machines.