

**Table E8. Natural gas consumption and conditional energy intensities (in cubic feet) by end use, 2018**

	Total natural gas consumption (billion cubic feet)					Natural gas energy intensity <sup>a</sup> (cubic feet/square foot in buildings using natural gas for the end use)				
	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>Building floorspace (square feet)</b>										
1,001 to 5,000	176	102	17	54	3	53.6	36.1	8.9	87.6	13.4
5,001 to 10,000	201	123	14	55	8	38.6	27.4	4.0	50.4	17.5
10,001 to 25,000	308	244	25	34	5	32.3	27.8	4.2	15.0	6.4
25,001 to 50,000	352	265	39	36	12	33.6	29.2	5.5	11.0	8.0
50,001 to 100,000	371	257	46	46	22	31.0	25.2	5.1	10.1	9.9
100,001 to 200,000	309	213	30	50	17	29.4	22.9	3.8	8.8	7.7
200,001 to 500,000	308	213	28	53	14	31.9	26.1	4.1	9.5	7.6
Over 500,000	190	103	23	50	14	26.9	19.6	5.2	10.9	8.6
<b>Principal building activity</b>										
Education	316	250	28	22	16	30.8	27.4	3.2	3.2	7.1
Food sales	46	24	Q	18	Q	69.2	41.1	Q	41.8	Q
Food service	146	26	14	105	Q	147.6	37.0	18.3	117.0	Q
Health care	199	127	27	33	12	59.1	46.6	9.5	16.4	15.5
Inpatient	164	97	24	32	11	77.9	58.3	13.5	16.9	19.9
Outpatient	35	30	3	1	1	27.8	28.1	3.0	9.2	4.4
Lodging	216	64	80	60	12	37.0	16.5	16.3	16.7	11.9
Mercantile	321	185	35	89	12	35.7	21.4	5.4	18.9	9.6
Retail (other than mall)	83	65	Q	13	Q	23.3	19.0	Q	10.1	Q
Enclosed and strip malls	238	120	32	76	9	44.0	22.9	7.0	22.3	9.2
Office	241	211	8	12	11	21.3	22.7	1.1	4.1	5.9
Public assembly	208	176	4	18	11	39.8	41.1	0.9	6.7	16.1
Public order and safety	45	31	9	3	Q	35.5	28.5	9.4	4.7	Q
Religious worship	91	71	3	16	Q	22.2	19.6	1.1	7.4	Q
Service	140	131	Q	Q	Q	41.9	41.0	Q	Q	Q
Warehouse and storage	192	177	4	Q	10	18.6	19.1	0.9	Q	5.9
Other	47	39	1	Q	Q	29.2	31.9	1.0	Q	7.8
Vacant	10	9	Q	Q	Q	19.2	20.1	Q	Q	Q
<b>Year constructed</b>										
Before 1920	79	61	4	10	3	31.9	28.1	3.1	13.3	6.7
1920 to 1945	119	91	8	19	1	31.0	27.8	3.1	10.9	Q
1946 to 1959	166	127	14	21	5	33.1	28.1	4.2	10.1	7.2
1960 to 1969	278	198	29	37	13	35.6	29.8	5.3	11.3	11.4
1970 to 1979	292	205	29	48	9	32.1	26.1	4.8	15.2	6.7
1980 to 1989	301	180	41	67	12	34.3	24.8	6.7	17.9	12.1
1990 to 1999	300	210	28	47	15	28.9	23.4	4.0	10.9	10.1
2000 to 2009	458	302	44	90	22	35.7	26.6	4.7	15.4	9.2
2010 to 2018	223	146	23	40	14	29.8	24.4	4.5	14.2	8.4

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	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>Census region and division</b>										
Northeast	409	313	27	50	19	36.1	31.3	3.9	9.5	8.3
New England	75	54	6	12	2	40.5	32.7	5.8	15.1	6.4
Middle Atlantic	334	259	21	37	17	35.2	31.0	3.6	8.5	8.7
Midwest	786	617	52	91	26	38.5	32.8	3.7	11.9	7.7
East North Central	580	449	41	72	18	40.1	33.5	4.0	13.5	6.1
West North Central	206	168	11	19	8	34.8	30.9	2.8	8.0	17.7
South	593	347	80	129	38	27.1	19.9	5.4	14.0	10.4
South Atlantic	285	156	40	68	20	27.7	19.8	5.9	14.5	9.9
East South Central	122	84	10	20	8	29.5	22.9	3.8	15.0	13.7
West South Central	187	107	30	40	10	25.0	18.1	5.5	12.7	9.5
West	428	244	62	110	12	30.4	20.7	5.8	19.7	8.2
Mountain	223	139	26	54	4	37.5	26.6	5.7	21.2	6.4
Pacific	204	104	36	57	7	25.1	16.0	5.8	18.4	9.8
<b>Climate zone<sup>b</sup></b>										
Cold or very cold	200	168	10	17	5	40.2	36.2	3.0	9.0	7.4
Cool	791	600	54	110	27	38.6	31.8	3.8	13.5	7.0
Mixed mild	630	450	65	87	29	33.6	29.0	5.1	11.0	9.5
Warm	461	261	67	109	24	26.1	17.5	5.6	16.6	9.3
Hot or very hot	133	41	25	56	11	22.9	10.0	5.7	17.9	14.9
<b>Number of floors</b>										
1	975	676	77	193	29	35.6	26.9	4.3	20.7	7.7
2	510	373	50	64	23	29.6	24.7	4.0	10.4	8.7
3	260	195	25	30	11	31.9	27.6	4.3	8.0	7.4
4 to 9	340	216	49	51	25	32.6	28.4	6.2	9.3	11.6
10 or more	131	61	21	43	7	28.8	19.5	7.7	13.8	9.1
<b>Number of workers (main shift)</b>										
Fewer than 5	285	229	22	26	8	29.0	26.8	3.8	11.2	14.5
5 to 9	215	151	23	30	11	31.2	26.3	5.3	22.8	13.1
10 to 19	301	200	37	56	7	37.7	28.3	6.6	28.1	7.6
20 to 49	422	279	40	85	17	33.5	25.1	4.7	18.5	7.6
50 to 99	336	235	33	50	18	33.5	26.7	4.4	10.3	9.1
100 to 249	354	241	31	66	16	32.5	25.0	3.7	10.4	7.0
250 or more	304	185	35	66	18	31.9	25.9	5.5	10.6	9.1
<b>Weekly operating hours</b>										
Fewer than 40	156	128	7	17	4	25.9	24.2	1.8	9.4	9.9
40 to 48	315	257	20	26	12	25.5	23.4	2.5	6.9	6.7
49 to 60	424	346	26	41	13	26.4	23.7	2.4	8.1	5.0
61 to 84	396	264	28	88	16	35.3	26.7	3.5	17.7	8.9
85 to 167	326	206	22	82	17	44.2	32.4	4.4	23.8	11.4
Open continuously	598	320	119	126	34	40.7	29.1	10.8	14.4	11.8

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	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>Ownership and occupancy</b>										
Nongovernment owned	1,719	1,138	181	334	65	33.2	25.5	5.3	17.8	8.7
Owner occupied	1,049	710	115	182	41	33.2	26.4	5.4	14.8	8.7
Leased to tenant or tenants	666	423	66	152	24	33.4	24.2	5.3	23.3	8.6
Unoccupied	Q	Q	Q	Q	N	Q	Q	Q	Q	N
Government owned	497	382	40	45	30	31.1	28.4	3.1	5.1	9.1
Federal	37	27	2	5	3	28.2	25.1	1.5	8.8	20.6
State	155	110	15	17	13	31.4	28.9	3.9	6.6	12.0
Local	305	245	24	23	13	31.4	28.6	3.0	4.0	6.6
<b>Party responsible for operation of energy systems</b>										
Building owner	1,788	1,256	177	273	83	32.3	26.6	4.6	11.7	9.2
Business owner or tenant	340	218	29	86	7	36.8	25.8	4.8	31.1	5.5
Property management	38	17	8	11	2	26.5	17.0	8.4	16.1	6.7
Other	50	30	7	9	3	30.6	21.7	7.1	10.6	11.4
<b>Provider of direct input on energy-related equipment purchases</b>										
Building owner	1,877	1,316	184	291	86	32.4	26.5	4.6	12.1	9.2
Business owner or tenant	216	130	20	61	5	38.9	25.1	5.4	33.2	6.0
Property management	23	10	5	6	Q	28.4	17.6	8.8	16.1	Q
Other	100	64	13	21	3	29.9	23.8	5.1	14.8	5.6
<b>Number of establishments</b>										
1	1,468	1,026	153	228	61	33.0	27.2	4.9	13.2	8.4
2 to 5	404	279	36	68	21	33.0	25.6	4.5	14.6	11.7
6 to 10	149	100	14	31	4	33.4	24.6	4.4	16.2	8.0
11 to 20	112	67	11	28	6	36.0	24.3	5.3	19.5	10.5
More than 20	76	41	7	24	3	24.8	18.2	3.5	10.2	4.7
Currently unoccupied	6	6	Q	Q	Q	21.0	23.7	Q	Q	Q
<b>Predominant exterior wall material</b>										
Brick, stone, or stucco	1,244	820	136	239	50	35.6	27.3	5.2	14.4	9.2
Concrete (block or poured)	462	318	43	81	21	32.5	25.9	4.5	13.2	8.2
Concrete panels	167	130	13	17	7	25.7	23.3	3.0	9.9	6.1
Siding or shingles	101	61	17	15	8	37.2	26.6	9.2	18.2	14.5
Metal panels	164	145	6	9	4	26.7	26.1	2.0	9.1	6.3
Window glass	40	23	3	10	4	23.8	20.9	3.0	10.3	17.1
Other	38	24	3	10	Q	25.1	19.7	3.6	18.3	5.2

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	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>Predominant roof material</b>										
Metal surfacing	303	240	17	37	9	29.0	26.4	2.8	16.0	8.4
Synthetic or rubber	882	617	75	156	35	34.7	27.5	4.3	13.1	8.0
Built-up	493	328	56	89	20	32.0	25.4	4.9	12.8	7.1
Slate or tile shingles	94	47	13	26	Q	35.8	23.7	6.8	21.3	16.8
Wooden materials (including shingles)	34	18	6	9	Q	40.2	25.6	7.8	33.2	Q
Asphalt, fiberglass, or other shingles	318	216	44	45	13	33.4	25.7	6.3	12.9	9.6
Concrete	34	16	5	7	7	27.8	22.7	6.0	11.2	13.9
Other	57	37	5	10	4	26.3	21.2	3.6	11.6	14.3
<b>Roof tilt</b>										
Flat	1,414	940	144	264	66	34.3	26.9	4.9	13.7	8.5
Shallow pitch	527	386	49	71	21	29.6	24.6	4.2	14.8	9.4
Steeper pitch	275	193	29	44	9	31.7	26.2	4.9	12.4	9.6
<b>Cool roof characteristics (more than one may apply)</b>										
White or reflective coating or paint	798	536	76	156	30	32.7	25.4	4.4	15.3	7.6
White or reflective tiles or shingles	60	39	6	11	4	30.2	24.2	4.4	9.8	11.4
Aluminum coating	103	63	9	26	5	31.2	23.9	4.2	19.7	9.6
Ballasted roof system	195	127	20	39	10	36.8	28.1	5.4	13.7	9.9
Other cool roof property	31	17	4	7	Q	22.4	16.4	4.6	8.8	Q
<b>Renovations since 2000 (more than one may apply)</b>										
Any type of renovation	1,160	799	113	201	47	34.4	27.8	4.8	12.5	8.4
Addition or annex	351	244	34	61	13	40.8	33.0	5.4	10.8	8.4
Reduction in floorspace	44	31	3	8	2	33.5	29.1	3.6	10.7	4.4
Roof replacement	552	368	56	105	23	35.9	28.3	5.2	13.5	8.3
Interior wall reconfiguration	529	375	42	89	22	33.1	27.5	4.0	12.2	8.6
Window replacement	305	206	29	58	12	35.7	28.2	4.7	13.0	6.3
HVAC equipment upgrade	726	493	75	124	34	34.1	27.6	5.0	11.9	8.5
Lighting upgrade	771	522	76	138	35	33.8	27.2	4.8	12.2	8.4
Electrical upgrade	455	294	42	96	23	36.6	28.2	4.9	14.5	8.7
Plumbing system upgrade	427	283	44	82	17	36.0	28.7	5.2	12.5	7.7
Insulation upgrade	230	152	23	44	11	37.4	28.5	5.4	13.4	8.6
Fire, safety, or security upgrade	562	372	59	104	28	36.0	28.4	5.2	12.2	8.8
Structural upgrade	139	87	17	29	6	41.1	29.4	7.3	15.0	7.3
Other	31	22	1	8	Q	31.7	23.1	1.7	11.8	Q
No renovations	898	613	93	152	39	31.3	24.6	4.7	15.2	9.5
Buildings constructed 2013 or later	158	107	15	27	9	29.7	24.9	4.1	15.7	8.2

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	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>Energy sources (more than one may apply)</b>										
Electricity	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
Natural gas	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
Fuel oil	522	342	64	97	19	34.9	29.1	6.0	11.1	10.8
District heat	88	16	16	30	27	20.3	10.6	8.1	13.2	15.5
District chilled water	62	21	10	19	11	21.1	17.7	6.1	14.2	14.0
Propane	149	88	19	37	5	32.7	22.5	6.3	20.4	9.2
Solar	93	55	9	25	4	28.0	19.6	3.7	11.5	8.8
Wood, coal, and other	54	31	3	17	Q	42.4	27.4	4.3	24.3	Q
<b>Space-heating energy sources</b>										
Natural gas	2,010	1,520	160	286	44	34.6	26.2	3.9	12.3	5.4
Natural gas main	1,833	1,471	115	223	24	36.6	29.4	3.2	11.3	3.6
Natural gas secondary	177	49	45	63	20	22.1	6.2	8.7	18.5	14.6
Other excluding natural gas	193	N	57	86	50	21.3	N	11.6	19.7	19.3
Buildings without heating	13	N	4	8	Q	21.8	N	7.8	46.8	Q
<b>Primary space-heating energy source</b>										
Electricity	295	43	87	122	44	22.9	6.3	10.7	21.8	17.9
Natural gas	1,833	1,471	115	223	24	36.6	29.4	3.2	11.3	3.6
Fuel oil	Q	Q	Q	1	Q	13.2	Q	Q	5.8	Q
District heat	68	4	14	25	25	18.0	4.0	8.2	12.6	17.1
Propane	Q	Q	Q	Q	N	Q	Q	Q	Q	N
Other sources <sup>c</sup>	Q	Q	Q	N	Q	Q	Q	Q	N	Q
<b>Cooling energy sources</b>										
Natural gas	22	12	2	3	5	54.2	30.9	6.0	8.9	11.8
Other excluding natural gas	2,120	1,438	218	374	90	32.7	26.0	4.8	13.8	8.7
Buildings without cooling	74	70	1	Q	Q	29.5	29.5	1.1	Q	Q
<b>Water-heating energy sources</b>										
Natural gas	1,708	1,132	221	301	54	36.6	27.5	4.7	13.4	7.4
Other excluding natural gas	477	362	N	78	37	24.4	23.3	N	15.0	11.5
Buildings without water heating	31	26	N	Q	Q	20.3	20.2	N	Q	Q
<b>Cooking energy sources</b>										
Natural gas	1,189	643	125	380	41	42.9	27.8	5.6	13.7	8.9
Other excluding natural gas	241	189	39	N	12	28.4	25.8	6.9	N	7.2
Buildings without cooking	787	688	57	N	42	24.9	25.0	3.1	N	9.3



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	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>HVAC features (more than one may apply)</b>										
Economizer cycle	989	672	100	168	49	35.5	28.2	4.7	10.9	7.8
Variable air volume (VAV) system	758	517	73	131	37	32.9	27.5	4.4	10.9	8.0
Dedicated outside air system (DOAS)	277	169	33	61	14	38.0	27.8	5.8	13.9	9.4
Demand controlled ventilation (DCV)	282	207	21	43	12	33.2	27.5	3.5	9.2	8.4
Regular HVAC maintenance	1,964	1,329	204	341	90	33.3	26.5	4.9	13.3	8.9
Building automation system (BAS) controls heating or cooling	1,082	719	110	198	55	33.7	26.6	4.6	10.9	9.0
Internet-connected or smart thermostat	118	76	13	21	7	26.4	20.4	4.3	15.8	6.6
Programmable thermostat	502	368	42	79	13	33.4	27.3	4.5	21.2	7.6
<b>Main equipment replaced since 2000 (more than one may apply)</b>										
Heating	825	600	82	122	21	33.2	26.7	4.8	12.6	6.2
Cooling	599	432	67	81	18	35.6	29.8	5.6	10.5	7.3
<b>Water-heating equipment</b>										
Centralized system	1,501	1,044	158	241	58	33.8	27.5	4.9	14.0	8.8
Distributed system	323	205	32	71	15	31.8	23.0	5.4	21.4	8.5
Combination of centralized and distributed systems	361	245	31	67	18	31.0	24.8	3.7	9.4	8.2
<b>Generation technologies (more than one may apply)</b>										
Reciprocating engine generators	750	471	82	123	73	36.6	28.9	5.5	10.8	8.5
Solar panels	92	55	9	24	4	27.9	19.6	3.8	11.1	8.8
Other generation technology	64	39	7	10	9	40.0	30.3	5.9	11.8	9.6
<b>Food preparation or serving areas in non-food service buildings (more than one may apply)</b>										
Snack bar, concession stand, or coffee shop	361	212	39	94	16	39.3	28.0	5.5	12.2	9.3
Fast food or small restaurant	354	194	37	111	13	40.6	26.0	5.3	14.5	8.0
Cafeteria or large restaurant	464	295	54	95	20	37.1	28.5	5.4	8.4	7.8
Commercial kitchen or food preparation area	641	369	81	161	29	40.0	27.1	6.5	11.4	9.8
Small kitchen area	553	360	65	106	23	33.5	26.0	5.4	10.1	8.2

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	Total	Space heating	Water heating	Cooking	Other	Total	Space heating	Water heating	Cooking	Other
<b>All buildings</b>	2,216	1,520	221	380	95	32.7	26.2	4.7	13.7	8.8
<b>Annual consumption (hundred cubic feet)</b>										
1,000 or less	48	38	5	2	2	7.9	8.9	1.6	4.0	3.0
1,001 to 5,000	288	227	20	35	7	22.7	20.3	2.6	12.9	6.1
5,001 to 10,000	294	204	27	49	14	28.9	23.1	4.1	16.6	10.1
10,001 to 25,000	457	293	62	85	18	32.8	25.7	6.3	15.7	8.2
25,001 to 50,000	354	247	34	60	13	37.2	29.8	5.0	11.6	7.9
50,001 to 100,000	297	200	24	58	16	43.5	31.4	4.5	12.2	9.5
Over 100,000	478	311	49	92	25	55.5	40.3	6.9	14.7	12.1

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

<sup>a</sup>The natural gas 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 natural gas intensity. In this table, each column is calculated as natural gas consumption for the end use divided by the floorspace in buildings that use natural gas for the particular end use.

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

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

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.