

Table C26. Natural gas expenditures by Census region, 2018

	Total natural gas expenditures (million dollars)				Natural gas expenditures (dollars)							
					Per thousand cubic feet				Per square foot			
	North- east	Mid- west	South	West	North- east	Mid- west	South	West	North- east	Mid- west	South	West
All buildings	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Building floorspace (square feet)												
1,001 to 5,000	\$231	\$562	\$594	\$325	\$10.93	\$8.84	\$10.87	\$8.76	\$0.66	\$0.50	\$0.59	\$0.40
5,001 to 10,000	\$249	\$661	\$477	\$348	\$10.25	\$7.71	\$10.00	\$8.06	\$0.40	\$0.36	\$0.31	\$0.29
10,001 to 25,000	\$440	\$974	\$668	\$536	\$9.33	\$7.89	\$9.26	\$8.22	\$0.34	\$0.32	\$0.23	\$0.23
25,001 to 50,000	\$485	\$950	\$644	\$542	\$8.13	\$6.76	\$8.33	\$7.26	\$0.31	\$0.27	\$0.22	\$0.23
50,001 to 100,000	\$467	\$767	\$923	\$432	\$7.09	\$6.22	\$7.58	\$7.13	\$0.28	\$0.23	\$0.20	\$0.19
100,001 to 200,000	\$521	\$508	\$645	\$343	\$6.52	\$5.71	\$7.34	\$6.54	\$0.24	\$0.20	\$0.17	\$0.16
200,001 to 500,000	\$474	\$551	\$611	\$289	\$6.77	\$5.45	\$6.60	\$6.54	\$0.24	\$0.20	\$0.19	\$0.17
Over 500,000	\$260	\$321	\$257	\$235	\$6.37	\$5.38	\$6.51	\$4.68	\$0.16	\$0.15	\$0.13	\$0.18
Principal building activity												
Education	\$549	\$768	\$601	\$235	\$6.99	\$5.91	\$8.11	\$7.12	\$0.29	\$0.23	\$0.17	\$0.16
Food sales	Q	\$147	Q	Q	Q	\$7.13	Q	Q	Q	\$0.54	Q	Q
Food service	Q	\$310	\$436	\$281	Q	\$6.69	\$8.79	\$7.45	Q	\$1.42	\$1.34	\$0.79
Health care	\$253	\$339	\$450	\$263	\$6.51	\$5.66	\$7.73	\$6.21	\$0.38	\$0.34	\$0.49	\$0.34
Inpatient	\$159	\$265	\$405	\$192	\$5.70	\$5.40	\$7.60	\$5.67	\$0.51	\$0.38	\$0.58	\$0.48
Outpatient	\$94	\$74	\$45	\$71	\$8.56	\$6.87	\$9.21	\$8.37	\$0.26	\$0.23	\$0.21	\$0.19
Lodging	\$228	\$411	\$412	\$403	\$6.48	\$6.51	\$7.73	\$6.26	\$0.30	\$0.29	\$0.21	\$0.24
Mercantile	\$309	\$686	\$715	\$483	\$6.54	\$6.68	\$7.22	\$6.70	\$0.27	\$0.28	\$0.21	\$0.25
Retail (other than mall)	\$74	\$240	\$220	\$95	\$8.75	\$6.78	\$8.58	\$6.78	\$0.22	\$0.18	\$0.17	\$0.15
Enclosed and strip malls	\$235	\$446	\$495	\$389	\$6.05	\$6.62	\$6.74	\$6.68	\$0.30	\$0.39	\$0.23	\$0.29
Office	\$425	\$708	\$498	\$396	\$8.88	\$7.97	\$8.98	\$8.14	\$0.18	\$0.21	\$0.17	\$0.15
Public assembly	\$327	\$541	\$330	\$276	\$7.46	\$6.86	\$7.29	\$6.88	\$0.39	\$0.33	\$0.21	\$0.23
Public order and safety	Q	Q	\$142	\$75	Q	Q	\$7.17	\$7.66	Q	Q	\$0.29	\$0.27
Religious worship	\$165	\$247	\$254	\$122	\$10.72	\$7.33	\$9.07	\$9.03	\$0.36	\$0.21	\$0.15	\$0.16
Service	\$214	\$355	\$428	\$203	\$9.56	\$7.48	\$9.39	\$8.27	\$0.36	\$0.29	\$0.48	\$0.32
Warehouse and storage	\$289	\$643	\$366	\$163	\$8.64	\$6.78	\$8.41	\$8.08	\$0.17	\$0.19	\$0.11	\$0.08
Other	\$143	Q	\$102	Q	\$8.25	Q	\$8.14	Q	\$0.32	Q	\$0.17	Q
Vacant	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Year constructed												
Before 1920	\$229	\$232	\$114	\$61	\$8.21	\$8.04	\$8.34	\$7.48	\$0.27	\$0.27	\$0.27	\$0.19
1920 to 1945	\$308	\$303	\$119	\$135	\$7.23	\$6.91	\$9.26	\$6.67	\$0.26	\$0.21	\$0.21	\$0.21
1946 to 1959	\$386	\$357	\$398	\$157	\$8.09	\$6.63	\$8.96	\$7.73	\$0.33	\$0.27	\$0.24	\$0.18
1960 to 1969	\$466	\$679	\$642	\$281	\$7.65	\$6.56	\$8.06	\$8.24	\$0.32	\$0.27	\$0.24	\$0.25
1970 to 1979	\$423	\$773	\$500	\$409	\$6.87	\$6.95	\$8.16	\$7.13	\$0.26	\$0.25	\$0.19	\$0.23
1980 to 1989	\$399	\$636	\$658	\$542	\$7.97	\$6.87	\$8.24	\$6.91	\$0.28	\$0.28	\$0.24	\$0.23
1990 to 1999	\$344	\$745	\$704	\$423	\$7.60	\$6.76	\$8.13	\$7.30	\$0.28	\$0.24	\$0.19	\$0.18
2000 to 2009	\$396	\$1,095	\$1,147	\$676	\$8.14	\$6.56	\$7.97	\$6.86	\$0.25	\$0.29	\$0.24	\$0.25
2010 to 2018	\$178	\$474	\$537	\$366	\$7.26	\$6.31	\$7.54	\$6.99	\$0.23	\$0.23	\$0.20	\$0.18
Climate zone^a												
Cold or very cold	\$76	\$1,003	N	\$317	\$7.70	\$6.81	N	\$7.41	\$0.38	\$0.26	N	\$0.36
Cool	\$1,391	\$3,181	N	\$855	\$7.73	\$6.65	N	\$6.42	\$0.29	\$0.26	N	\$0.25
Mixed mild	\$1,661	\$1,110	\$1,207	\$610	\$7.58	\$6.90	\$7.72	\$6.49	\$0.26	\$0.26	\$0.23	\$0.21
Warm	N	N	\$2,761	\$1,042	N	N	\$8.21	\$8.35	N	N	\$0.23	\$0.19
Hot or very hot	N	N	\$850	\$227	N	N	\$8.46	\$6.90	N	N	\$0.19	\$0.18

Table C26. Natural gas expenditures by Census region, 2018

	Natural gas expenditures (dollars)											
	Total natural gas expenditures (million dollars)				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Predominant exterior wall material												
Brick, stone, or stucco	\$1,775	\$2,910	\$2,856	\$1,542	\$7.55	\$6.65	\$8.16	\$6.97	\$0.28	\$0.29	\$0.23	\$0.24
Concrete (block or poured)	\$794	\$979	\$825	\$703	\$7.44	\$6.50	\$7.86	\$7.03	\$0.28	\$0.24	\$0.21	\$0.21
Concrete panels	\$123	\$354	\$451	\$237	\$7.54	\$6.19	\$7.30	\$7.37	\$0.19	\$0.18	\$0.21	\$0.14
Siding or shingles	\$138	\$383	\$164	\$173	\$9.27	\$8.06	\$9.76	\$7.98	\$0.38	\$0.30	\$0.42	\$0.26
Metal panels	\$159	\$547	\$415	\$188	\$8.82	\$7.35	\$8.67	\$8.07	\$0.28	\$0.23	\$0.18	\$0.20
Window glass	\$95	\$55	\$61	\$88	\$8.74	\$5.72	\$8.73	\$7.16	\$0.29	\$0.15	\$0.15	\$0.16
Other	Q	\$67	\$44	\$120	Q	\$7.26	\$9.58	\$7.14	Q	\$0.20	\$0.13	\$0.24
Predominant roof material												
Metal surfacing	\$237	\$805	\$1,015	\$403	\$9.07	\$7.35	\$8.82	\$7.66	\$0.30	\$0.25	\$0.21	\$0.23
Synthetic or rubber	\$1,577	\$1,929	\$1,642	\$1,009	\$7.27	\$6.32	\$7.87	\$6.64	\$0.28	\$0.25	\$0.23	\$0.20
Built-up	\$580	\$1,147	\$976	\$747	\$7.40	\$6.43	\$7.54	\$7.02	\$0.22	\$0.25	\$0.20	\$0.22
Slate or tile shingles	\$156	\$258	\$164	\$191	\$8.63	\$7.31	\$9.11	\$8.31	\$0.34	\$0.39	\$0.22	\$0.24
Wooden materials (including shingles)	Q	Q	Q	\$113	Q	Q	Q	\$8.49	Q	Q	Q	\$0.34
Asphalt, fiberglass, or other shingles	\$376	\$940	\$723	\$452	\$8.66	\$7.43	\$8.54	\$7.11	\$0.34	\$0.27	\$0.25	\$0.22
Concrete	Q	Q	\$112	\$37	Q	Q	\$7.30	\$7.94	Q	Q	\$0.17	\$0.14
Other	\$99	\$107	\$105	\$98	\$7.35	\$6.46	\$7.28	\$8.09	\$0.28	\$0.24	\$0.14	\$0.17
Roof tilt												
Flat	\$2,159	\$2,998	\$2,837	\$1,853	\$7.26	\$6.35	\$7.65	\$6.77	\$0.26	\$0.26	\$0.22	\$0.21
Shallow pitch	\$536	\$1,557	\$1,233	\$821	\$8.32	\$7.13	\$8.76	\$7.94	\$0.32	\$0.25	\$0.20	\$0.21
Steeper pitch	\$434	\$739	\$748	\$376	\$9.18	\$7.70	\$9.17	\$7.47	\$0.36	\$0.27	\$0.23	\$0.25
Cool roof characteristics (more than one may apply)												
White or reflective coating or paint	\$877	\$1,537	\$1,863	\$1,358	\$7.22	\$6.44	\$7.78	\$6.83	\$0.28	\$0.27	\$0.21	\$0.20
White or reflective tiles or shingles	\$87	\$130	\$160	\$78	\$6.29	\$7.42	\$8.37	\$8.08	\$0.24	\$0.27	\$0.21	\$0.20
Aluminum coating	\$116	\$234	\$307	\$132	\$7.07	\$7.77	\$8.23	\$7.00	\$0.24	\$0.31	\$0.20	\$0.25
Ballasted roof system	\$305	\$431	\$240	\$268	\$7.64	\$5.87	\$7.10	\$5.59	\$0.27	\$0.22	\$0.20	\$0.27
Other cool roof property	Q	Q	\$95	\$37	Q	Q	\$7.45	\$6.42	Q	Q	\$0.15	\$0.18
Renovations since 2000 (more than one may apply)												
Any type of renovation	\$1,754	\$2,663	\$2,481	\$1,417	\$7.44	\$6.51	\$8.11	\$6.76	\$0.29	\$0.25	\$0.23	\$0.23
Addition or annex	\$483	\$863	\$707	\$319	\$6.90	\$6.12	\$7.89	\$6.32	\$0.38	\$0.24	\$0.28	\$0.25
Reduction in floorspace	\$84	\$87	\$73	Q	\$6.62	\$5.69	\$7.83	Q	\$0.30	\$0.18	\$0.19	Q
Roof replacement	\$898	\$1,285	\$1,025	\$581	\$6.98	\$6.34	\$8.00	\$6.30	\$0.29	\$0.25	\$0.22	\$0.24
Interior wall reconfiguration	\$777	\$1,194	\$1,009	\$654	\$7.29	\$6.33	\$7.66	\$6.37	\$0.25	\$0.22	\$0.22	\$0.23
Window replacement	\$552	\$651	\$485	\$436	\$6.82	\$6.54	\$9.24	\$6.06	\$0.28	\$0.23	\$0.24	\$0.25
HVAC equipment upgrade	\$1,300	\$1,512	\$1,383	\$864	\$7.30	\$6.22	\$7.90	\$6.63	\$0.28	\$0.24	\$0.21	\$0.23
Lighting upgrade	\$1,225	\$1,697	\$1,440	\$1,017	\$7.40	\$6.33	\$7.90	\$6.56	\$0.28	\$0.23	\$0.21	\$0.23
Electrical upgrade	\$819	\$944	\$855	\$489	\$6.91	\$6.22	\$8.08	\$6.22	\$0.28	\$0.23	\$0.25	\$0.24
Plumbing system upgrade	\$802	\$815	\$805	\$496	\$7.23	\$6.03	\$7.97	\$6.20	\$0.28	\$0.23	\$0.24	\$0.24
Insulation upgrade	\$422	\$406	\$395	\$299	\$6.94	\$6.10	\$7.76	\$5.74	\$0.26	\$0.22	\$0.24	\$0.28
Fire, safety, or security upgrade	\$982	\$1,170	\$1,005	\$600	\$6.89	\$6.02	\$7.64	\$6.42	\$0.29	\$0.23	\$0.22	\$0.23
Structural upgrade	\$261	\$185	\$218	\$233	\$7.02	\$5.57	\$7.96	\$5.63	\$0.31	\$0.18	\$0.26	\$0.33
Other	Q	Q	\$106	Q	Q	Q	\$7.12	Q	Q	Q	\$0.21	Q
No renovations	\$1,242	\$2,309	\$1,999	\$1,343	\$7.99	\$7.11	\$8.26	\$7.65	\$0.26	\$0.28	\$0.21	\$0.21
Buildings constructed 2013 or later	\$133	\$323	\$339	\$291	\$7.38	\$6.17	\$7.42	\$6.87	\$0.23	\$0.22	\$0.20	\$0.18

Table C26. Natural gas expenditures by Census region, 2018

	Total natural gas expenditures (million dollars)				Natural gas expenditures (dollars)							
					Per thousand cubic feet				Per square foot			
	North- east	Mid- west	South	West	North- east	Mid- west	South	West	North- east	Mid- west	South	West
All buildings	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Energy sources (more than one may apply)												
Electricity	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Natural gas	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Fuel oil	\$893	\$839	\$1,011	\$750	\$7.43	\$6.10	\$7.02	\$6.24	\$0.25	\$0.23	\$0.22	\$0.24
District heat	\$169	\$93	\$179	\$134	\$6.76	\$5.67	\$6.72	\$6.72	\$0.17	\$0.08	\$0.13	\$0.17
District chilled water	\$55	\$56	\$205	\$68	\$6.28	\$5.47	\$6.30	\$6.72	\$0.19	\$0.09	\$0.14	\$0.11
Propane	\$256	\$250	\$201	\$254	\$6.60	\$6.54	\$7.42	\$5.60	\$0.27	\$0.21	\$0.17	\$0.20
Solar	\$225	\$96	\$75	\$232	\$7.92	\$5.44	\$7.08	\$6.34	\$0.20	\$0.16	\$0.19	\$0.19
Wood, coal, and other	Q	\$123	Q	Q	Q	\$6.56	Q	Q	Q	\$0.26	Q	Q
Space-heating energy sources												
Natural gas	\$2,886	\$5,018	\$4,046	\$2,693	\$7.64	\$6.73	\$8.06	\$7.00	\$0.29	\$0.27	\$0.23	\$0.23
Natural gas main	\$2,677	\$4,754	\$3,453	\$2,417	\$7.63	\$6.73	\$8.03	\$6.99	\$0.30	\$0.28	\$0.24	\$0.24
Natural gas secondary	\$209	\$264	\$593	\$276	\$7.79	\$6.68	\$8.27	\$7.14	\$0.19	\$0.15	\$0.18	\$0.15
Other excluding natural gas	\$241	\$276	\$717	\$286	\$7.71	\$6.80	\$8.36	\$8.05	\$0.18	\$0.17	\$0.17	\$0.14
Buildings without heating	Q	Q	\$55	\$72	Q	Q	\$9.81	\$9.58	Q	Q	\$0.23	\$0.21
Primary space-heating energy source												
Electricity	\$288	\$460	\$1,157	\$452	\$8.22	\$6.96	\$8.59	\$7.67	\$0.22	\$0.20	\$0.19	\$0.15
Natural gas	\$2,677	\$4,754	\$3,453	\$2,417	\$7.63	\$6.73	\$8.03	\$6.99	\$0.30	\$0.28	\$0.24	\$0.24
Fuel oil	Q	N	Q	Q	\$8.91	N	Q	Q	Q	N	Q	Q
District heat	\$126	\$77	\$148	\$101	\$6.62	\$5.65	\$6.74	\$7.41	\$0.14	\$0.08	\$0.12	\$0.15
Propane	N	N	N	Q	N	N	N	Q	N	N	N	Q
Other sources ^b	N	Q	N	Q	N	Q	N	Q	N	Q	N	Q
Cooling energy sources												
Natural gas	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Other excluding natural gas	\$2,972	\$5,014	\$4,741	\$2,842	\$7.68	\$6.71	\$8.11	\$7.09	\$0.28	\$0.26	\$0.22	\$0.22
Buildings without cooling	\$90	\$240	Q	\$195	\$8.53	\$7.65	Q	\$7.78	\$0.22	\$0.26	Q	\$0.20
Water-heating energy sources												
Natural gas	\$2,156	\$3,959	\$3,496	\$2,500	\$7.34	\$6.52	\$7.78	\$6.98	\$0.31	\$0.28	\$0.24	\$0.23
Other excluding natural gas	\$920	\$1,273	\$1,228	\$484	\$8.44	\$7.40	\$9.13	\$7.87	\$0.22	\$0.21	\$0.19	\$0.16
Buildings without water heating	Q	\$63	\$94	\$67	Q	\$8.41	\$9.89	\$8.61	Q	\$0.25	\$0.16	\$0.16
Cooking energy sources												
Natural gas	\$1,626	\$2,317	\$2,421	\$1,676	\$6.80	\$6.12	\$7.57	\$6.66	\$0.31	\$0.30	\$0.26	\$0.30
Other excluding natural gas	\$344	\$742	\$509	\$252	\$9.37	\$7.08	\$8.10	\$7.01	\$0.27	\$0.24	\$0.18	\$0.19
Buildings without cooking	\$1,158	\$2,236	\$1,888	\$1,123	\$8.68	\$7.39	\$8.97	\$8.01	\$0.24	\$0.23	\$0.19	\$0.16
Energy end uses (more than one may apply)												
Buildings with space heating	\$3,127	\$5,294	\$4,763	\$2,978	\$7.65	\$6.73	\$8.11	\$7.09	\$0.28	\$0.26	\$0.22	\$0.22
Buildings with cooling	\$3,039	\$5,054	\$4,748	\$2,855	\$7.62	\$6.70	\$8.10	\$7.09	\$0.28	\$0.26	\$0.22	\$0.22
Buildings with water heating	\$3,075	\$5,232	\$4,725	\$2,984	\$7.63	\$6.72	\$8.09	\$7.11	\$0.28	\$0.26	\$0.22	\$0.22
Buildings with cooking	\$1,970	\$3,059	\$2,931	\$1,928	\$7.15	\$6.32	\$7.66	\$6.71	\$0.30	\$0.28	\$0.24	\$0.28
Buildings with manufacturing	\$226	\$528	\$214	\$231	\$7.79	\$6.41	\$7.79	\$8.10	\$0.27	\$0.27	\$0.16	\$0.21
Buildings with electricity generation	\$1,430	\$1,561	\$1,633	\$1,137	\$7.12	\$6.01	\$7.43	\$6.25	\$0.27	\$0.25	\$0.22	\$0.23
Buildings with lighting	\$3,123	\$5,281	\$4,796	\$3,044	\$7.64	\$6.73	\$8.12	\$7.13	\$0.28	\$0.26	\$0.22	\$0.22

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	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Percentage of floorspace heated												
Not heated	Q	Q	\$55	\$72	Q	Q	\$9.81	\$9.58	Q	Q	\$0.23	\$0.21
1% to 50%	\$121	\$210	\$361	\$223	\$7.63	\$7.48	\$9.23	\$8.31	\$0.17	\$0.17	\$0.15	\$0.11
51% to 99%	\$628	\$979	\$1,270	\$857	\$7.25	\$6.80	\$7.58	\$7.19	\$0.26	\$0.28	\$0.20	\$0.21
100%	\$2,378	\$4,105	\$3,132	\$1,898	\$7.76	\$6.68	\$8.22	\$6.93	\$0.29	\$0.26	\$0.24	\$0.25
Percentage of floorspace cooled												
Not cooled	\$90	\$240	Q	\$195	\$8.53	\$7.65	Q	\$7.78	\$0.22	\$0.26	Q	\$0.20
1% to 50%	\$731	\$937	\$534	\$456	\$8.15	\$6.91	\$8.76	\$7.96	\$0.29	\$0.20	\$0.16	\$0.17
51% to 99%	\$1,100	\$1,565	\$1,584	\$765	\$7.24	\$6.57	\$7.73	\$6.78	\$0.27	\$0.26	\$0.22	\$0.20
100%	\$1,207	\$2,552	\$2,630	\$1,634	\$7.70	\$6.70	\$8.22	\$7.04	\$0.28	\$0.29	\$0.24	\$0.25
Heating equipment (more than one may apply)												
Packaged heating units	\$1,592	\$3,004	\$2,913	\$1,829	\$7.64	\$6.46	\$7.94	\$6.95	\$0.29	\$0.26	\$0.22	\$0.22
Furnaces	\$560	\$1,731	\$892	\$642	\$7.34	\$7.67	\$8.10	\$7.17	\$0.31	\$0.29	\$0.26	\$0.24
Individual space heaters	\$773	\$1,250	\$1,186	\$839	\$7.37	\$6.88	\$7.81	\$6.66	\$0.28	\$0.24	\$0.24	\$0.24
Boilers	\$1,749	\$2,152	\$1,675	\$1,288	\$7.26	\$6.13	\$7.61	\$6.41	\$0.30	\$0.27	\$0.25	\$0.25
Heat pumps	\$526	\$577	\$827	\$542	\$7.02	\$6.25	\$7.65	\$6.38	\$0.26	\$0.25	\$0.20	\$0.21
District heat	\$150	\$84	\$179	\$124	\$6.84	\$5.73	\$6.73	\$7.10	\$0.16	\$0.08	\$0.13	\$0.16
Duct reheat	\$183	\$307	\$437	\$142	\$6.83	\$6.16	\$7.01	\$5.73	\$0.25	\$0.25	\$0.18	\$0.19
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Cooling equipment (more than one may apply)												
Packaged air-conditioning units	\$2,205	\$3,533	\$3,309	\$1,956	\$7.66	\$6.53	\$7.99	\$7.31	\$0.29	\$0.28	\$0.22	\$0.22
Residential-type central air conditioners	\$713	\$1,567	\$998	\$507	\$7.62	\$7.18	\$8.00	\$7.53	\$0.33	\$0.27	\$0.25	\$0.25
Individual air conditioners	\$809	\$860	\$627	\$428	\$6.90	\$6.59	\$7.95	\$7.07	\$0.31	\$0.28	\$0.21	\$0.26
Central chillers	\$768	\$895	\$1,159	\$720	\$6.77	\$5.63	\$7.64	\$6.42	\$0.25	\$0.22	\$0.23	\$0.26
Heat pumps	\$428	\$306	\$448	\$523	\$7.46	\$6.09	\$7.41	\$6.33	\$0.24	\$0.21	\$0.17	\$0.24
District chilled water	\$55	\$56	\$205	\$68	\$6.28	\$5.47	\$6.30	\$6.72	\$0.19	\$0.09	\$0.14	\$0.11
Swamp coolers	Q	Q	Q	\$290	Q	Q	\$6.96	\$7.10	Q	Q	\$0.22	\$0.31
Other	N	N	Q	Q	N	N	Q	Q	N	N	Q	Q
HVAC features (more than one may apply)												
Economizer cycle	\$1,483	\$2,121	\$1,617	\$1,415	\$7.18	\$6.05	\$7.40	\$6.64	\$0.26	\$0.24	\$0.23	\$0.22
Variable air volume (VAV) system	\$1,054	\$1,588	\$1,366	\$1,107	\$7.12	\$6.08	\$7.66	\$6.51	\$0.24	\$0.23	\$0.20	\$0.22
Dedicated outside air system (DOAS)	\$420	\$482	\$534	\$361	\$6.50	\$6.13	\$7.08	\$6.24	\$0.31	\$0.26	\$0.20	\$0.26
Demand controlled ventilation (DCV)	\$575	\$502	\$558	\$302	\$7.35	\$6.08	\$7.38	\$6.57	\$0.26	\$0.22	\$0.22	\$0.20
Regular HVAC maintenance	\$2,730	\$4,389	\$4,279	\$2,725	\$7.46	\$6.52	\$7.98	\$7.00	\$0.27	\$0.26	\$0.22	\$0.22
Building automation system (BAS) controls heating or cooling	\$1,510	\$2,116	\$2,082	\$1,501	\$7.04	\$5.95	\$7.34	\$6.58	\$0.25	\$0.24	\$0.21	\$0.21
Internet-connected or smart thermostat	\$174	\$217	\$289	\$235	\$9.34	\$6.88	\$7.88	\$7.51	\$0.36	\$0.19	\$0.16	\$0.24
Programmable thermostat	\$866	\$1,349	\$1,061	\$731	\$8.25	\$7.14	\$9.09	\$7.95	\$0.32	\$0.28	\$0.25	\$0.22
Main equipment replaced since 2000 (more than one may apply)												
Heating	\$1,454	\$2,071	\$1,657	\$948	\$7.66	\$6.74	\$8.27	\$7.42	\$0.31	\$0.25	\$0.22	\$0.21
Cooling	\$1,199	\$1,400	\$1,048	\$716	\$7.62	\$6.84	\$8.24	\$6.55	\$0.29	\$0.27	\$0.23	\$0.24

Table C26. Natural gas expenditures by Census region, 2018

	Total natural gas expenditures (million dollars)				Natural gas expenditures (dollars)							
					Per thousand cubic feet				Per square foot			
	North- east	Mid- west	South	West	North- east	Mid- west	South	West	North- east	Mid- west	South	West
All buildings	\$3,129	\$5,294	\$4,818	\$3,050	\$7.65	\$6.73	\$8.12	\$7.14	\$0.28	\$0.26	\$0.22	\$0.22
Water-heating equipment												
Centralized system	\$2,116	\$3,773	\$3,264	\$2,081	\$7.66	\$6.91	\$8.45	\$7.13	\$0.30	\$0.26	\$0.23	\$0.24
Distributed system	\$526	\$721	\$691	\$417	\$7.74	\$6.54	\$7.85	\$7.33	\$0.24	\$0.27	\$0.23	\$0.19
Combination of centralized and distributed systems	\$434	\$738	\$770	\$486	\$7.40	\$6.03	\$7.04	\$6.83	\$0.26	\$0.23	\$0.18	\$0.19
Generation technologies (more than one may apply)												
Reciprocating engine generators	\$1,221	\$1,389	\$1,526	\$877	\$7.06	\$6.01	\$7.45	\$6.22	\$0.27	\$0.25	\$0.22	\$0.25
Solar panels	\$225	\$95	\$72	\$224	\$7.92	\$5.44	\$7.17	\$6.27	\$0.20	\$0.16	\$0.19	\$0.19
Other generation technology	\$103	Q	\$66	\$83	\$5.80	Q	\$7.04	\$5.62	\$0.29	Q	\$0.19	\$0.19
Food preparation or serving areas in non-food service buildings (more than one may apply)												
Snack bar, concession stand, or coffee shop	\$420	\$700	\$565	\$542	\$6.55	\$6.04	\$6.39	\$5.83	\$0.30	\$0.26	\$0.19	\$0.25
Fast food or small restaurant	\$420	\$692	\$515	\$552	\$5.86	\$6.35	\$6.34	\$5.98	\$0.29	\$0.29	\$0.19	\$0.26
Cafeteria or large restaurant	\$669	\$815	\$875	\$541	\$6.67	\$5.54	\$7.06	\$5.82	\$0.26	\$0.21	\$0.22	\$0.26
Commercial kitchen or food preparation area	\$918	\$1,249	\$1,245	\$774	\$6.62	\$5.89	\$7.57	\$6.16	\$0.32	\$0.27	\$0.23	\$0.26
Small kitchen area	\$820	\$1,357	\$966	\$688	\$7.25	\$6.62	\$7.52	\$6.46	\$0.28	\$0.25	\$0.19	\$0.22
Annual consumption (hundred cubic feet)												
1,000 or less	\$45	\$152	\$233	\$175	\$12.69	\$10.33	\$15.20	\$12.31	\$0.12	\$0.15	\$0.10	\$0.08
1,001 to 5,000	\$451	\$955	\$797	\$462	\$10.44	\$8.71	\$9.87	\$8.45	\$0.29	\$0.24	\$0.19	\$0.16
5,001 to 10,000	\$404	\$830	\$658	\$509	\$9.12	\$7.50	\$8.87	\$7.87	\$0.27	\$0.26	\$0.19	\$0.25
10,001 to 25,000	\$597	\$1,130	\$1,154	\$793	\$9.29	\$7.22	\$8.78	\$7.53	\$0.29	\$0.28	\$0.24	\$0.26
25,001 to 50,000	\$464	\$882	\$595	\$311	\$6.73	\$5.85	\$6.96	\$6.43	\$0.21	\$0.29	\$0.21	\$0.23
50,001 to 100,000	\$502	\$502	\$528	\$280	\$6.38	\$5.71	\$6.41	\$5.79	\$0.31	\$0.25	\$0.26	\$0.24
Over 100,000	\$666	\$843	\$853	\$521	\$6.27	\$5.40	\$6.90	\$5.67	\$0.34	\$0.27	\$0.40	\$0.37

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/>.

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 expenditures in buildings that have the end use but not the expenditures specifically for that end use.

HVAC = Heating, ventilation, and air conditioning.

^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.

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

N = No buildings in reporting sample.

Relative standard errors (RSEs) for Table C26. Natural gas expenditures by Census region, 2018

	RSEs for natural gas expenditures											
	RSEs for total natural gas expenditures				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Building floorspace (square feet)												
1,001 to 5,000	21.1	19.8	15.8	16.3	5.1	4.7	5.0	5.0	12.9	6.3	11.8	8.1
5,001 to 10,000	18.3	14.9	19.8	17.9	5.5	2.6	3.7	4.2	10.3	12.9	13.8	10.7
10,001 to 25,000	16.6	15.4	17.7	16.3	5.0	2.0	2.4	4.6	7.3	5.8	8.3	8.0
25,001 to 50,000	13.5	12.6	12.8	12.5	5.8	2.3	4.4	4.3	7.7	6.4	8.8	8.6
50,001 to 100,000	10.9	15.0	14.4	15.3	3.5	2.9	2.7	4.9	5.4	9.8	13.1	9.3
100,001 to 200,000	15.2	13.7	14.2	16.0	2.6	2.4	5.2	5.3	7.6	6.8	9.0	11.4
200,001 to 500,000	15.2	11.5	10.0	23.1	9.9	1.4	6.1	3.3	10.9	5.6	9.3	14.0
Over 500,000	16.8	12.9	14.0	47.6	10.1	3.2	6.7	10.6	14.1	10.1	13.5	24.9
Principal building activity												
Education	12.9	15.5	16.4	15.0	3.6	4.0	4.4	4.3	5.9	8.7	9.4	5.4
Food sales	44.0	31.1	38.9	47.8	2.6	3.9	10.2	16.3	4.2	9.2	41.5	31.3
Food service	39.3	19.3	16.3	19.3	3.5	4.7	6.6	4.1	30.7	11.4	14.6	13.8
Health care	14.0	13.1	16.0	14.1	8.5	3.4	9.3	7.9	10.6	8.1	12.0	13.1
Inpatient	18.3	13.6	16.8	15.8	11.6	3.7	10.4	10.3	13.0	11.5	12.8	16.5
Outpatient	18.7	27.6	26.0	22.1	6.2	6.3	7.2	6.3	15.9	9.5	13.7	23.4
Lodging	15.3	13.4	14.1	26.6	5.7	2.7	5.9	18.0	10.4	7.8	9.0	9.2
Mercantile	24.1	16.8	13.5	14.2	5.8	2.9	3.1	3.4	11.3	9.7	5.4	7.9
Retail (other than mall)	20.3	21.4	18.8	37.5	9.2	5.8	5.9	12.9	14.3	10.6	5.8	20.8
Enclosed and strip malls	29.8	20.9	16.6	17.5	4.0	4.2	3.0	3.9	11.6	10.8	6.3	10.1
Office	16.6	15.9	16.1	14.1	5.9	3.3	5.2	3.7	11.9	9.9	11.5	8.6
Public assembly	15.2	15.6	14.9	19.1	6.0	2.6	9.5	4.2	11.8	7.9	10.0	14.0
Public order and safety	38.8	39.5	34.4	31.0	6.5	6.2	12.7	7.7	19.3	35.1	12.9	10.8
Religious worship	32.8	20.8	22.6	32.2	5.3	4.1	3.4	7.4	10.0	7.6	8.1	19.9
Service	20.8	21.0	30.4	28.1	4.9	5.9	5.0	9.9	14.2	10.7	30.8	7.8
Warehouse and storage	19.1	15.6	18.9	30.5	3.4	2.7	3.3	4.6	8.1	7.7	8.2	21.2
Other	33.2	43.6	48.3	55.7	13.1	4.6	14.6	7.9	18.2	13.1	39.9	35.2
Vacant	50.4	32.4	33.5	48.1	14.2	4.7	12.0	6.1	18.8	19.1	20.1	59.1
Year constructed												
Before 1920	22.1	23.4	19.6	37.4	6.4	6.1	7.8	8.1	10.9	18.0	16.3	31.8
1920 to 1945	18.0	20.6	24.5	24.2	6.3	7.2	4.8	11.5	16.1	17.2	13.4	14.4
1946 to 1959	20.3	19.9	19.2	24.3	6.2	2.8	4.1	8.2	9.9	12.2	8.5	14.0
1960 to 1969	13.5	12.7	12.4	20.0	7.7	3.2	5.1	3.8	8.8	7.1	7.8	14.0
1970 to 1979	16.6	13.3	14.4	19.0	5.7	3.5	3.8	5.6	10.6	7.5	7.5	10.2
1980 to 1989	14.9	14.0	12.8	24.1	5.9	2.8	4.0	18.2	11.6	7.0	11.3	8.8
1990 to 1999	17.1	16.4	11.3	15.6	5.2	3.0	4.9	3.7	10.5	9.3	9.8	6.3
2000 to 2009	9.0	11.8	15.1	14.3	4.3	3.1	3.7	3.0	11.3	4.7	10.4	9.3
2010 to 2018	20.6	15.7	16.3	15.9	4.7	3.8	6.0	4.0	11.4	7.2	10.9	12.4
Climate zone^a												
Cold or very cold	48.3	25.8	0.0	45.6	15.3	5.3	0.0	10.3	13.8	5.7	0.0	18.1
Cool	17.3	13.1	0.0	18.0	4.2	2.2	0.0	3.8	8.2	4.2	0.0	4.6
Mixed mild	11.0	27.2	25.1	47.0	1.6	2.8	5.1	20.3	6.3	6.0	9.7	12.6
Warm	0.0	0.0	15.2	15.4	0.0	0.0	2.2	2.0	0.0	0.0	5.2	7.5
Hot or very hot	0.0	0.0	14.5	34.2	0.0	0.0	5.3	5.7	0.0	0.0	9.8	10.8

Relative standard errors (RSEs) for Table C26. Natural gas expenditures by Census region, 2018

	RSEs for natural gas expenditures											
	RSEs for total natural gas expenditures				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Number of floors												
1	10.1	8.9	10.5	10.6	3.0	1.8	2.0	3.4	9.6	5.1	6.3	5.4
2	11.9	15.0	10.0	14.3	4.9	2.9	3.3	4.1	5.2	6.0	6.6	9.0
3	15.2	17.0	15.4	26.5	3.4	3.2	7.7	7.9	9.1	8.5	9.9	13.9
4 to 9	13.9	11.9	9.7	19.7	3.9	2.2	5.5	3.4	6.9	5.3	11.0	16.3
10 or more	20.3	11.1	26.2	47.1	11.1	5.2	6.2	20.2	18.8	28.6	25.0	17.3
Number of workers (main shift)												
Fewer than 5	18.8	14.3	16.5	20.9	3.5	3.4	4.0	5.5	7.1	10.0	10.6	10.5
5 to 9	17.9	17.9	17.2	14.9	9.2	2.2	6.4	3.3	12.7	7.7	10.6	7.5
10 to 19	22.4	17.0	11.6	14.0	6.6	2.4	4.3	3.8	13.1	7.8	6.9	8.9
20 to 49	10.7	13.1	11.8	11.9	3.3	2.8	4.6	3.3	7.3	6.3	8.1	8.7
50 to 99	14.6	14.5	17.2	13.5	5.6	2.2	2.8	3.3	7.4	6.0	15.5	9.6
100 to 249	13.6	14.0	11.7	18.5	2.9	2.5	2.6	5.1	8.2	7.7	5.8	9.8
250 or more	14.8	9.0	14.1	28.3	8.4	3.1	9.3	12.1	11.6	12.0	14.9	14.8
Weekly operating hours												
Fewer than 40	27.1	17.3	23.5	22.3	5.8	5.0	3.1	3.7	6.0	8.6	9.2	13.5
40 to 48	17.8	11.5	12.7	13.9	8.0	2.7	2.5	4.7	8.5	7.6	7.8	10.0
49 to 60	10.2	16.8	9.5	15.5	3.0	2.9	2.9	3.5	5.2	7.6	5.5	7.6
61 to 84	14.5	12.7	12.4	13.3	3.4	3.9	4.0	4.3	9.3	7.1	10.3	6.4
85 to 167	11.6	14.2	17.2	15.4	4.6	2.2	3.8	2.7	7.2	8.7	14.9	14.4
Open continuously	8.8	9.9	9.0	15.7	4.2	1.8	4.5	8.8	8.0	4.5	8.2	6.4
Ownership and occupancy												
Nongovernment owned	8.0	7.8	7.2	10.4	2.6	1.6	2.1	4.7	5.5	3.1	4.9	4.5
Owner occupied	10.8	7.8	7.9	12.8	2.8	1.5	2.9	7.2	6.4	4.1	6.7	5.7
Leased to tenant or tenants	10.4	11.6	10.4	11.2	4.3	2.5	3.0	3.2	7.3	4.2	5.4	5.9
Unoccupied	70.5	60.6	51.2	54.9	41.3	4.1	3.6	5.3	15.1	23.8	53.9	90.8
Government owned	10.3	14.0	13.7	15.9	4.6	4.5	3.3	3.8	5.7	7.1	7.6	8.5
Federal	39.5	41.8	33.1	36.4	13.9	3.5	16.8	65.2	12.5	25.1	30.8	27.6
State	20.6	29.0	21.5	23.5	11.7	7.8	5.5	4.9	12.7	10.6	13.2	13.0
Local	14.4	13.4	18.6	18.9	5.8	4.5	3.7	5.6	6.7	8.9	7.9	9.1
Party responsible for operation of energy systems												
Building owner	7.9	8.9	7.4	11.9	2.1	2.0	2.5	4.7	5.2	3.1	5.3	4.8
Business owner or tenant	19.3	18.4	13.0	11.6	7.3	2.3	4.3	4.5	8.1	7.5	7.6	11.1
Property management	35.7	38.2	33.7	26.4	7.1	6.4	6.6	6.2	16.6	27.8	18.6	20.1
Other	33.2	24.6	28.0	24.8	33.7	3.8	7.0	6.9	12.8	17.0	13.1	16.1
Provider of direct input on energy-related equipment purchases												
Building owner	8.3	9.1	7.4	11.4	2.1	1.9	2.3	4.6	5.1	2.9	4.9	4.6
Business owner or tenant	22.0	17.2	15.2	11.9	9.6	2.9	3.4	4.0	16.6	10.8	13.4	12.1
Property management	45.1	48.5	45.1	36.9	9.2	6.5	10.8	15.2	23.8	25.0	23.2	27.6
Other	23.1	17.7	19.3	24.6	11.0	3.2	5.3	8.0	13.5	12.4	12.2	13.5
Number of establishments												
1	7.0	8.6	8.4	10.5	2.1	2.2	2.5	3.1	5.2	4.4	5.1	5.5
2 to 5	18.7	13.3	11.6	20.4	7.2	2.3	5.8	10.4	10.7	7.4	7.8	11.0
6 to 10	18.7	23.6	14.8	18.3	6.9	3.3	6.1	5.4	15.0	11.0	9.1	8.5
11 to 20	28.4	34.7	20.4	15.2	4.6	10.5	8.1	5.4	13.9	13.2	12.8	8.9
More than 20	18.7	39.4	20.5	22.4	3.8	3.7	2.7	6.1	17.0	25.7	22.3	15.9
Currently unoccupied	57.7	43.3	39.0	54.9	20.3	6.4	5.6	5.3	25.3	26.1	25.1	90.8

Relative standard errors (RSEs) for Table C26. Natural gas expenditures by Census region, 2018

	RSEs for natural gas expenditures											
	RSEs for total natural gas expenditures				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Predominant exterior wall material												
Brick, stone, or stucco	10.0	8.9	8.0	12.2	3.0	2.1	2.6	6.0	6.5	3.3	4.1	6.4
Concrete (block or poured)	10.8	14.8	11.7	13.9	3.8	2.2	2.7	3.6	7.6	8.6	9.4	10.3
Concrete panels	26.4	22.7	25.7	22.7	6.3	4.5	8.0	7.0	12.1	7.1	25.2	19.3
Siding or shingles	23.3	20.3	22.2	23.0	10.9	4.6	6.0	6.4	16.1	17.8	13.3	10.1
Metal panels	20.5	15.9	14.7	27.4	9.0	3.0	6.4	6.3	14.4	9.0	9.1	14.6
Window glass	36.9	36.0	32.0	28.6	5.5	3.9	11.3	8.0	26.4	21.6	20.5	12.0
Other	55.1	41.5	31.6	25.5	21.9	10.4	14.1	8.4	27.4	10.9	20.9	17.3
Predominant roof material												
Metal surfacing	23.3	12.9	12.9	24.0	5.6	3.5	3.6	6.0	10.7	7.5	8.6	8.8
Synthetic or rubber	10.9	7.2	11.3	11.3	3.4	1.5	4.1	3.2	7.6	4.8	9.7	3.9
Built-up	10.1	15.8	9.1	20.2	2.1	3.3	3.3	11.9	8.1	6.5	5.9	11.3
Slate or tile shingles	26.3	32.2	16.7	26.7	11.6	4.8	5.1	3.3	13.9	11.6	15.1	10.9
Wooden materials (including shingles)	51.1	55.5	37.8	25.0	16.5	21.0	10.4	3.6	41.7	11.8	27.4	27.7
Asphalt, fiberglass, or other shingles	11.7	13.6	13.8	21.0	4.9	2.9	4.6	5.2	11.4	5.3	8.8	11.5
Concrete	29.6	39.0	29.9	33.9	13.9	15.3	9.7	7.4	20.3	22.5	11.0	16.8
Other	29.4	34.0	23.8	18.3	12.6	12.9	4.8	8.9	18.2	29.2	17.3	16.8
Roof tilt												
Flat	8.4	9.2	7.3	12.1	2.8	1.7	2.7	5.2	6.2	4.4	6.6	5.9
Shallow pitch	12.9	11.3	10.9	15.0	4.2	2.8	3.2	4.2	9.4	5.3	4.6	7.6
Steeper pitch	19.4	11.3	12.9	19.0	3.7	3.5	3.6	5.0	6.2	5.8	8.9	9.1
Cool roof characteristics (more than one may apply)												
White or reflective coating or paint	10.5	9.9	9.1	14.1	3.2	2.7	3.3	6.9	7.2	4.7	7.0	6.0
White or reflective tiles or shingles	30.0	33.5	21.9	21.1	8.3	10.1	7.9	8.2	19.9	19.0	16.5	14.4
Aluminum coating	25.7	23.0	18.0	23.1	5.3	5.5	8.8	7.5	18.2	11.1	12.9	23.4
Ballasted roof system	16.3	22.4	19.1	38.9	7.7	3.6	5.3	19.7	10.3	7.8	13.9	18.4
Other cool roof property	41.1	54.8	32.4	36.6	17.0	3.0	9.4	10.1	24.9	20.6	21.7	21.5
Renovations since 2000 (more than one may apply)												
Any type of renovation	9.5	7.7	8.2	13.5	3.0	2.0	2.4	5.7	6.1	3.1	6.7	6.2
Addition or annex	14.0	12.6	18.8	17.6	6.7	3.6	4.0	7.0	9.3	6.4	17.5	16.6
Reduction in floorspace	43.7	31.0	26.6	37.0	8.7	3.4	11.2	48.2	29.8	18.5	22.9	16.0
Roof replacement	14.8	8.5	9.0	19.4	4.7	2.2	3.9	11.0	8.6	5.3	8.3	9.6
Interior wall reconfiguration	17.0	9.7	10.4	22.8	5.8	3.1	4.1	11.6	9.4	5.0	8.1	8.8
Window replacement	12.8	11.3	16.0	25.2	4.7	3.9	4.7	13.2	7.8	9.2	11.4	11.9
HVAC equipment upgrade	12.7	7.1	9.5	17.0	4.0	1.9	3.8	8.5	7.9	4.5	8.0	8.9
Lighting upgrade	11.8	9.6	8.9	15.2	3.8	2.2	3.2	7.0	7.5	4.3	6.5	7.0
Electrical upgrade	13.4	12.0	11.9	25.0	5.0	1.9	5.3	12.6	9.6	7.2	10.4	11.2
Plumbing system upgrade	16.1	9.5	11.2	23.4	5.6	2.8	3.5	12.4	9.8	8.4	9.2	9.5
Insulation upgrade	21.4	13.5	13.7	37.4	8.8	3.7	5.1	18.6	16.0	13.3	14.6	15.1
Fire, safety, or security upgrade	11.6	11.0	10.0	21.5	3.9	2.3	4.1	11.3	8.3	6.9	7.9	11.0
Structural upgrade	23.3	12.9	18.0	43.5	9.3	3.5	6.5	24.7	18.3	28.2	10.4	14.5
Other	33.2	51.9	27.6	40.4	11.0	5.7	9.9	10.5	16.7	34.0	23.6	29.2
No renovations	8.9	11.2	8.1	9.5	3.0	2.1	3.0	3.4	5.9	4.2	6.1	4.9
Buildings constructed 2013 or later	27.0	19.6	18.0	16.0	5.7	4.1	9.1	4.3	13.5	10.0	11.4	12.4

Relative standard errors (RSEs) for Table C26. Natural gas expenditures by Census region, 2018

	RSEs for natural gas expenditures											
	RSEs for total natural gas expenditures				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Energy sources (more than one may apply)												
Electricity	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Natural gas	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Fuel oil	12.9	11.8	7.4	22.0	4.9	3.1	4.2	10.3	8.3	8.2	7.0	9.0
District heat	22.1	20.4	25.2	28.1	9.6	3.8	7.0	13.0	22.4	24.3	17.8	20.4
District chilled water	26.6	42.6	27.3	26.3	4.3	3.0	13.1	9.7	23.3	32.2	14.3	18.1
Propane	23.9	24.9	15.8	39.9	13.3	7.6	6.2	20.5	15.9	8.0	11.5	22.5
Solar	28.4	25.9	22.9	18.2	5.3	4.3	13.0	6.4	12.0	17.0	30.3	9.4
Wood, coal, and other	44.1	35.8	37.5	30.1	19.4	5.6	27.9	8.6	50.8	23.8	28.5	24.0
Space-heating energy sources												
Natural gas	7.4	8.3	7.1	11.5	2.1	1.7	2.1	4.4	5.1	2.7	4.6	4.3
Natural gas main	7.7	8.7	7.5	12.5	2.2	1.8	2.2	4.6	5.0	2.5	4.9	4.5
Natural gas secondary	15.5	20.4	13.9	16.3	5.7	4.4	5.8	4.8	9.6	16.9	10.5	13.2
Other excluding natural gas	19.0	22.6	11.3	16.3	5.4	5.4	4.2	5.8	18.3	16.0	11.1	18.5
Buildings without heating	51.2	70.5	41.8	36.7	0.0	0.0	12.0	10.2	0.0	0.0	35.8	44.0
Primary space-heating energy source												
Electricity	16.8	14.4	11.9	12.1	4.6	3.7	3.6	3.9	10.8	12.2	7.7	13.1
Natural gas	7.7	8.7	7.5	12.5	2.2	1.8	2.2	4.6	5.0	2.5	4.9	4.5
Fuel oil	66.4	0.0	66.6	99.7	19.4	0.0	26.7	0.0	52.5	0.0	141.3	0.0
District heat	27.3	21.5	24.5	28.7	9.7	4.0	8.0	12.0	23.8	28.9	19.8	26.0
Propane	0.0	0.0	0.0	48.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other sources ^b	0.0	42.2	0.0	49.5	0.0	11.2	0.0	0.0	0.0	9.7	0.0	0.0
Cooling energy sources												
Natural gas	34.5	54.0	51.9	81.1	4.7	2.8	9.3	5.1	17.9	12.9	40.4	81.1
Other excluding natural gas	7.3	8.0	6.5	9.8	2.2	1.7	2.0	4.2	5.3	2.7	4.2	4.4
Buildings without cooling	25.2	22.9	37.5	30.7	5.1	6.1	7.5	9.8	13.4	10.5	17.0	12.8
Water-heating energy sources												
Natural gas	7.3	9.8	6.0	10.5	2.1	1.7	2.2	4.3	6.3	3.7	3.5	5.3
Other excluding natural gas	11.5	10.3	13.0	20.6	4.5	2.4	2.7	5.9	6.1	6.4	9.7	10.5
Buildings without water heating	47.8	31.3	31.8	30.1	13.6	6.4	9.4	7.3	18.7	10.8	12.4	19.9
Cooking energy sources												
Natural gas	9.3	8.6	5.6	11.1	2.7	1.9	2.8	4.9	5.7	4.1	4.4	4.1
Other excluding natural gas	16.0	14.5	13.5	20.8	7.7	3.9	4.6	6.0	13.4	8.9	8.9	11.9
Buildings without cooking	9.0	10.0	10.3	15.3	1.9	2.3	2.4	4.1	5.8	4.0	6.8	8.2
Energy end uses (more than one may apply)												
Buildings with space heating	7.2	8.2	6.7	10.6	2.1	1.7	2.0	4.2	5.0	2.7	4.2	4.6
Buildings with cooling	7.1	8.1	6.5	9.9	2.1	1.7	2.0	4.2	5.2	2.7	4.2	4.4
Buildings with water heating	6.9	8.2	6.5	10.3	2.1	1.7	2.1	4.2	5.3	2.8	4.3	4.3
Buildings with cooking	8.3	8.8	6.1	11.0	3.2	2.1	2.3	4.9	6.3	4.2	4.0	4.0
Buildings with manufacturing	20.1	17.3	18.0	26.6	7.0	3.6	5.3	3.9	16.8	9.6	11.9	15.6
Buildings with electricity generation	8.1	8.5	7.5	16.1	3.7	1.9	4.0	6.6	7.2	5.5	6.3	7.9
Buildings with lighting	7.2	8.2	6.4	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3

Relative standard errors (RSEs) for Table C26. Natural gas expenditures by Census region, 2018

	RSEs for natural gas expenditures											
	RSEs for total natural gas expenditures				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Percentage of floorspace heated												
Not heated	51.2	70.5	41.8	36.7	0.0	0.0	12.0	10.2	0.0	0.0	35.8	44.0
1% to 50%	30.6	16.1	23.7	19.0	7.8	5.6	9.8	4.3	19.1	12.1	17.3	13.5
51% to 99%	14.1	12.8	9.3	10.2	3.0	3.5	2.5	3.4	7.1	6.3	5.6	6.5
100%	8.5	8.9	8.7	13.9	2.5	1.7	2.1	5.4	5.8	3.5	5.7	5.6
Percentage of floorspace cooled												
Not cooled	25.2	22.9	37.5	30.7	5.1	6.1	7.5	9.8	13.4	10.5	17.0	12.8
1% to 50%	13.7	13.6	15.2	22.0	3.4	2.9	7.2	6.5	10.4	5.9	7.4	12.9
51% to 99%	8.1	12.9	11.5	14.9	3.3	2.9	2.6	3.2	5.3	5.7	7.6	7.9
100%	9.9	8.5	7.7	11.5	3.4	2.0	2.4	6.1	6.8	4.9	4.6	6.0
Heating equipment (more than one may apply)												
Packaged heating units	8.8	8.6	8.4	10.8	2.9	1.5	2.0	5.1	6.2	4.5	4.9	6.0
Furnaces	17.3	10.3	11.5	14.5	5.2	3.2	3.4	4.3	6.8	6.6	7.4	7.2
Individual space heaters	12.0	13.1	13.8	19.0	2.1	2.0	3.6	8.4	7.3	5.9	10.9	7.8
Boilers	9.4	9.9	7.9	14.8	2.4	2.7	3.9	6.4	6.5	4.1	7.5	5.3
Heat pumps	10.6	13.2	9.1	22.3	4.0	2.8	3.5	12.1	8.7	11.7	5.0	9.7
District heat	25.1	20.3	25.3	27.9	10.5	4.0	7.0	11.3	23.9	26.4	17.9	21.9
Duct reheat	28.4	18.1	13.7	23.2	15.7	3.4	7.7	11.4	18.4	10.6	12.5	18.8
Other	68.0	45.2	35.0	40.0	3.0	1.4	5.7	14.3	7.8	22.8	5.6	29.8
Cooling equipment (more than one may apply)												
Packaged air-conditioning units	7.0	8.2	7.8	8.4	3.0	1.8	2.3	2.6	6.0	3.3	4.2	4.9
Residential-type central air conditioners	13.7	8.8	10.2	21.0	5.1	2.5	3.2	5.0	4.9	5.4	6.8	10.4
Individual air conditioners	14.2	13.9	11.3	20.4	3.0	3.3	3.8	3.2	6.2	6.2	6.5	9.9
Central chillers	10.1	11.7	9.6	12.0	5.7	3.2	4.3	3.5	8.3	8.1	9.3	7.3
Heat pumps	16.7	16.6	15.0	23.1	5.8	3.2	7.7	12.3	11.3	11.2	11.9	8.5
District chilled water	26.6	42.6	27.3	26.3	4.3	3.0	13.1	9.7	23.3	32.2	14.3	18.1
Swamp coolers	48.2	34.3	50.0	23.3	17.7	5.1	13.8	7.3	92.0	14.6	14.0	15.9
Other	0.0	0.0	80.0	63.5	0.0	0.0	38.3	3.9	0.0	0.0	73.7	42.5
HVAC features (more than one may apply)												
Economizer cycle	9.5	7.9	10.3	13.1	3.9	2.1	3.4	6.2	7.0	4.1	8.8	6.7
Variable air volume (VAV) system	9.2	8.8	12.4	16.3	3.8	2.7	5.0	7.7	8.7	6.3	9.7	7.6
Dedicated outside air system (DOAS)	13.0	17.2	14.5	32.2	4.4	3.5	4.7	19.7	9.2	7.5	11.2	10.8
Demand controlled ventilation (DCV)	13.9	12.8	11.2	18.8	6.1	3.9	6.9	5.6	7.9	8.6	11.7	13.9
Regular HVAC maintenance	6.9	8.5	7.4	10.7	2.3	1.8	2.2	4.3	5.6	3.6	4.5	4.6
Building automation system (BAS) controls heating or cooling	7.4	7.0	8.0	13.1	4.3	2.2	2.9	6.4	7.3	4.1	5.5	6.7
Internet-connected or smart thermostat	23.5	31.6	16.0	28.9	9.2	4.3	4.8	4.7	14.4	24.5	11.1	15.9
Programmable thermostat	12.3	12.8	19.2	13.4	4.2	2.2	3.6	2.9	6.0	5.8	11.7	9.8
Main equipment replaced since 2000 (more than one may apply)												
Heating	11.6	8.2	10.6	11.8	3.3	1.9	2.2	3.7	8.2	4.5	6.9	7.4
Cooling	14.1	11.1	9.6	19.6	4.0	2.5	3.7	9.5	6.6	5.8	6.8	8.7

Relative standard errors (RSEs) for Table C26. Natural gas expenditures by Census region, 2018

	RSEs for natural gas expenditures											
	RSEs for total natural gas expenditures				Per thousand cubic feet				Per square foot			
	North-east	Mid-west	South	West	North-east	Mid-west	South	West	North-east	Mid-west	South	West
All buildings	7.2	8.2	6.6	10.3	2.1	1.7	2.0	4.1	5.1	2.7	4.2	4.3
Water-heating equipment												
Centralized system	7.6	10.0	7.0	11.5	2.0	1.8	2.3	5.8	5.2	3.4	5.2	4.4
Distributed system	13.0	16.0	12.5	14.8	4.1	2.8	3.4	3.4	13.1	8.0	7.5	11.7
Combination of centralized and distributed systems	15.3	11.0	14.7	17.3	5.4	2.7	5.0	4.8	7.9	6.7	9.0	12.0
Generation technologies (more than one may apply)												
Reciprocating engine generators	7.3	10.9	7.6	20.2	4.0	2.0	4.1	8.3	7.9	6.9	6.4	9.9
Solar panels	28.4	26.0	24.4	17.2	5.3	4.3	13.7	7.4	12.1	17.1	31.4	9.7
Other generation technology	30.7	41.2	27.6	28.8	19.1	7.1	8.5	18.9	15.0	22.2	15.0	12.0
Food preparation or serving areas in non-food service buildings (more than one may apply)												
Snack bar, concession stand, or coffee shop	17.7	14.2	9.9	23.9	11.2	4.2	5.8	11.0	13.8	9.8	7.6	10.6
Fast food or small restaurant	16.0	10.6	9.7	23.0	3.8	3.2	5.9	9.5	10.2	7.3	10.4	8.7
Cafeteria or large restaurant	10.6	8.7	10.6	23.7	4.0	2.7	5.4	11.5	8.6	7.1	9.6	7.7
Commercial kitchen or food preparation area	12.8	10.4	8.3	15.3	4.7	2.7	4.3	7.8	7.1	6.9	6.9	5.7
Small kitchen area	9.7	12.6	9.4	19.8	3.4	3.2	2.8	11.1	8.0	6.2	6.6	8.5
Annual consumption (hundred cubic feet)												
1,000 or less	24.9	22.6	14.9	17.9	4.1	4.6	8.8	4.2	15.9	9.9	12.0	11.9
1,001 to 5,000	11.5	18.2	11.6	11.8	3.3	2.9	2.0	2.7	9.1	11.6	6.2	6.4
5,001 to 10,000	19.0	15.9	17.7	19.3	2.7	2.3	2.8	3.8	8.9	7.5	8.2	7.8
10,001 to 25,000	13.6	11.5	10.6	12.6	2.7	2.3	2.4	3.9	7.5	6.2	8.0	6.9
25,001 to 50,000	11.9	14.5	14.7	13.4	4.3	2.3	4.7	6.0	10.6	5.5	8.0	7.5
50,001 to 100,000	14.2	13.9	13.9	15.4	3.0	4.0	2.4	4.2	7.2	9.0	8.4	9.3
Over 100,000	13.6	10.1	16.0	26.1	6.7	1.4	6.4	10.7	9.8	7.3	16.5	11.5

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