

Table E9. Fuel oil consumption and energy intensities (Btu) by end use, 2012

	Total fuel oil consumption (trillion Btu)				Fuel oil energy intensity ¹ (thousand Btu/square foot in buildings using fuel oil for the end use)			
	Total	Space heating	Water heating	Other	Total	Space heating	Water heating	Other
All buildings	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Building floorspace (square feet)								
1,001 to 5,000	20.8	19.3	Q	Q	34.4	46.8	Q	Q
5,001 to 10,000	10.2	9.7	Q	0.6	18.3	26.4	Q	2.8
10,001 to 25,000	20.2	17.6	Q	2.5	18.0	24.7	Q	6.4
25,001 to 50,000	14.0	9.7	Q	4.2	9.4	17.1	Q	4.2
50,001 to 100,000	23.5	16.4	Q	6.9	8.3	23.6	Q	3.0
100,001 to 200,000	20.1	14.1	0.1	5.9	7.1	25.8	0.4	2.5
200,001 to 500,000	13.5	2.8	(*)	10.7	2.5	4.6	Q	2.2
Over 500,000	11.6	2.9	(*)	8.7	2.2	7.6	0.1	1.7
Principal building activity								
Education	28.2	22.6	0.1	5.5	12.9	21.5	0.2	4.0
Food sales	Q	Q	Q	Q	Q	Q	Q	Q
Food service	Q	Q	Q	Q	Q	Q	Q	Q
Health care	19.6	11.0	0.1	8.5	7.0	22.9	0.3	3.3
Inpatient	16.1	9.5	0.1	6.5	7.1	23.4	0.5	3.1
Outpatient	Q	Q	Q	Q	6.7	Q	Q	Q
Lodging	8.4	Q	Q	3.6	4.1	Q	Q	2.0
Mercantile	9.4	8.0	Q	1.4	8.4	27.4	Q	1.9
Retail (other than mall)	7.3	6.9	Q	Q	16.0	28.3	Q	Q
Enclosed and strip malls	Q	Q	Q	1.0	Q	Q	Q	1.8
Office	18.1	9.0	Q	9.1	3.4	16.1	Q	1.9
Public assembly	6.6	Q	Q	2.4	3.9	Q	Q	1.6
Public order and safety	2.3	Q	Q	1.7	2.5	Q	Q	1.9
Religious worship	5.3	Q	Q	Q	13.7	Q	Q	Q
Service	16.3	15.4	Q	0.9	22.2	39.3	Q	2.3
Warehouse and storage	5.3	Q	Q	2.5	3.0	Q	Q	2.0
Other	9.8	Q	Q	3.3	13.2	Q	Q	6.8
Vacant	Q	Q	Q	Q	Q	Q	Q	Q
Year constructed								
Before 1920	16.4	15.5	Q	0.5	14.9	24.9	Q	1.3
1920 to 1945	14.4	10.7	Q	3.6	9.9	19.4	Q	3.6
1946 to 1959	18.3	15.3	0.1	2.9	11.9	25.8	0.2	2.9
1960 to 1969	19.7	15.5	0.1	4.1	8.2	22.3	0.3	2.3
1970 to 1979	16.3	9.8	Q	6.4	6.2	16.7	Q	2.9
1980 to 1989	15.7	7.5	Q	8.0	4.1	17.9	Q	2.4
1990 to 1999	13.5	7.4	Q	6.0	4.2	20.3	Q	2.1
2000 to 2003	10.3	Q	Q	2.9	7.0	Q	Q	2.3
2004 to 2007	3.0	Q	Q	2.3	2.0	Q	Q	1.7
2008 to 2012	6.3	Q	Q	3.7	5.6	Q	Q	3.8

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All buildings	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Census region and division								
Northeast	89.6	73.2	0.4	16.0	14.7	25.9	0.3	4.3
New England	47.3	41.9	0.2	5.2	25.3	33.0	0.3	6.1
Middle Atlantic	42.3	31.3	0.2	10.8	10.1	20.1	0.3	3.7
Midwest	14.8	9.1	Q	5.7	3.8	13.6	Q	1.7
East North Central	9.6	Q	Q	3.7	3.7	Q	Q	1.6
West North Central	5.3	3.2	Q	2.0	4.0	Q	Q	2.0
South	22.9	8.8	Q	13.8	3.2	12.1	Q	2.2
South Atlantic	16.2	6.8	Q	9.0	3.7	15.8	Q	2.3
East South Central	2.9	Q	Q	1.3	3.7	Q	Q	1.8
West South Central	3.8	Q	Q	3.5	2.1	Q	Q	2.1
West	6.6	Q	Q	5.1	2.1	Q	Q	1.7
Mountain	Q	Q	Q	Q	1.8	Q	Q	1.7
Pacific	4.7	Q	Q	3.4	2.3	Q	Q	1.7
Climate region²								
Very cold/Cold	81.4	63.1	0.3	18.0	10.2	26.6	0.3	3.0
Mixed-humid	43.2	29.3	0.5	13.4	5.9	17.6	0.7	2.3
Mixed-dry/Hot-dry	2.5	Q	Q	2.5	1.5	Q	Q	1.6
Hot-humid	5.8	Q	Q	5.8	2.3	Q	Q	2.5
Marine	1.0	Q	Q	1.0	1.5	Q	Q	1.5
Number of floors								
One	42.1	31.3	Q	10.6	10.2	22.9	0.5	3.6
Two	32.0	24.5	0.1	7.4	9.5	25.4	0.2	2.9
Three	22.9	19.2	0.1	3.6	11.0	26.6	0.3	2.6
Four to nine	28.5	15.2	Q	12.9	4.6	15.9	Q	2.4
Ten or more	8.5	Q	Q	6.2	2.0	8.2	Q	1.6
Number of workers (main shift)								
Fewer than 5	31.2	29.3	Q	1.8	21.0	29.4	0.1	3.8
5 to 9	8.9	8.1	Q	0.4	12.5	23.3	Q	1.3
10 to 19	11.4	9.1	Q	Q	14.9	29.4	Q	4.5
20 to 49	16.8	11.3	Q	5.4	9.2	20.9	Q	3.9
50 to 99	21.1	13.9	Q	7.0	6.7	17.8	Q	2.8
100 to 249	22.2	12.3	0.1	9.9	5.5	17.8	0.2	2.8
250 or more	22.3	8.4	0.1	13.8	2.7	13.5	0.3	1.8
Weekly operating hours								
Fewer than 40	9.6	8.6	Q	Q	17.9	25.5	Q	Q
40 to 48	26.6	21.3	(*)	5.3	10.0	21.2	0.1	3.0
49 to 60	24.9	18.5	Q	6.3	6.4	19.9	Q	2.2
61 to 84	19.6	14.2	Q	5.4	6.3	17.5	Q	2.3
85 to 167	8.8	Q	Q	4.5	4.7	Q	Q	2.7
Open continuously	44.3	25.5	0.6	18.2	5.5	26.4	1.1	2.4

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	Total	Space heating	Water heating	Other	Total	Space heating	Water heating	Other
All buildings	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Predominant roof material								
Metal surfacing	23.0	20.2	Q	2.7	11.3	25.9	Q	2.1
Synthetic or rubber	39.6	24.3	0.1	15.2	5.0	18.2	0.1	2.3
Built-up	31.5	18.6	0.4	12.5	5.4	18.1	Q	2.5
Slate or tile shingles	4.5	Q	Q	1.5	6.2	Q	Q	2.4
Wooden materials (including shingles)	Q	Q	Q	Q	Q	Q	Q	Q
Asphalt, fiberglass, or other shingles	26.8	20.8	0.2	5.8	10.4	26.2	0.5	3.2
Concrete	3.1	Q	Q	Q	4.9	Q	Q	Q
Other	Q	Q	Q	Q	Q	Q	Q	Q
No one major type	Q	Q	Q	Q	Q	Q	Q	Q
Roof characteristics								
Roof tilt								
Flat	68.2	38.7	0.6	28.9	4.7	15.3	0.5	2.4
Shallow pitch	34.0	26.0	Q	8.0	8.7	27.1	0.5	2.7
Steeper pitch	31.7	27.8	Q	3.7	16.4	34.4	Q	3.2
Cool roof	32.6	21.0	0.1	11.5	5.4	23.2	0.2	2.2
Renovations in buildings constructed before 2008 (more than one may apply)								
Any type of renovation	80.3	54.3	0.7	25.3	6.4	20.4	0.5	2.5
Addition or annex	34.1	22.4	0.2	11.6	7.4	20.5	0.3	2.9
Reduction in floorspace	Q	Q	Q	1.0	Q	Q	Q	2.6
Roof replacement	54.7	39.8	0.2	14.7	7.4	21.3	0.2	2.6
Exterior wall replacement	11.2	8.4	Q	2.8	6.9	19.2	Q	2.2
Interior wall reconfiguration	38.9	22.1	0.5	16.4	5.1	17.0	0.6	2.5
Window replacement	35.0	26.2	0.5	8.4	8.3	23.7	0.6	2.6
HVAC equipment upgrade	48.1	27.4	0.6	20.1	5.5	17.7	0.6	2.7
Lighting upgrade	52.0	31.9	0.5	19.6	6.0	21.2	0.5	2.6
Electrical upgrade	38.1	23.9	0.4	13.8	6.8	19.8	0.6	2.9
Plumbing system upgrade	33.4	22.7	0.4	10.3	6.8	22.2	0.7	2.6
Insulation upgrade	13.2	7.5	Q	5.4	5.3	14.0	Q	2.5
Fire, safety, or security upgrade	39.0	23.5	0.5	15.0	5.8	19.0	0.7	2.6
Structural upgrade	9.3	5.1	Q	4.2	5.3	13.8	Q	2.7
Other	Q	Q	Q	Q	Q	Q	Q	Q
No renovations	47.3	35.5	0.1	11.7	7.3	23.2	0.2	2.3
Buildings constructed 2008 or later	6.3	Q	Q	3.7	5.6	Q	Q	3.8

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	Total	Space heating	Water heating	Other	Total	Space heating	Water heating	Other
All buildings	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Energy sources (more than one may apply)								
Electricity	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Natural gas	41.0	17.5	0.1	23.4	3.0	9.4	0.2	2.0
Fuel oil	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
District heat	6.4	Q	Q	6.1	2.1	Q	Q	2.0
District chilled water	4.4	Q	Q	4.3	2.0	Q	Q	2.1
Propane	43.1	32.0	0.6	10.5	14.0	25.5	0.7	4.8
Other	8.1	4.1	Q	3.9	7.2	13.3	Q	4.3
Space-heating energy sources								
Fuel oil	103.6	92.5	0.4	10.7	23.8	21.5	0.2	8.3
Fuel oil main	98.3	88.6	0.4	9.3	38.7	34.8	0.3	16.3
Fuel oil secondary	5.3	3.9	Q	1.4	2.9	2.2	Q	1.9
Other excluding fuel oil	28.5	N	Q	28.1	1.9	N	Q	1.9
Buildings without heating	1.8	N	Q	1.8	3.5	N	Q	4.3
Primary space-heating energy source								
Electricity	9.7	0.4	Q	8.9	2.1	1.0	Q	2.1
Natural gas	16.0	2.1	(*)	13.9	1.8	2.0	0.1	1.8
Fuel oil	98.3	88.6	0.4	9.3	38.7	34.8	0.3	16.3
District heat	5.2	Q	Q	5.2	1.7	Q	Q	1.8
Propane	Q	Q	N	Q	Q	Q	N	Q
Other	Q	Q	Q	Q	Q	Q	Q	Q
Cooling energy sources								
Fuel oil	Q	Q	Q	Q	Q	Q	Q	Q
Other excluding fuel oil	109.2	69.8	0.7	38.7	5.7	19.7	0.4	2.4
Buildings without cooling	22.2	21.6	Q	Q	24.9	31.2	Q	Q
Water-heating energy sources								
Fuel oil	59.6	48.5	0.8	10.3	31.2	30.0	0.4	11.5
Other excluding fuel oil	65.6	36.8	N	28.8	3.7	15.0	N	1.9
Buildings without water heating	8.7	7.2	N	Q	17.7	33.8	N	Q
Cooking energy sources								
Fuel oil	Q	Q	Q	Q	Q	Q	Q	Q
Other excluding fuel oil	74.3	49.6	0.7	23.9	5.9	20.9	0.5	2.3
Buildings without cooking	58.2	42.3	Q	15.8	7.8	22.3	Q	2.8
Energy end uses (more than one may apply)								
Buildings with space heating	132.1	92.5	0.8	38.8	6.7	21.5	0.4	2.4
Buildings with cooling	111.7	70.9	0.7	40.1	5.8	19.7	0.4	2.5
Buildings with water heating	125.2	85.3	0.8	39.1	6.4	20.9	0.4	2.4
Buildings with cooking	75.7	50.2	0.7	24.8	6.0	21.0	0.5	2.3
Buildings with manufacturing	6.4	Q	Q	3.4	7.4	Q	Q	6.5
Buildings with electricity generation	67.6	28.9	0.3	38.4	4.0	18.1	0.3	2.4

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	Total	Space heating	Water heating	Other	Total	Space heating	Water heating	Other
All buildings	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Percent of floorspace heated								
Not heated	1.8	N	Q	1.8	3.5	N	Q	4.3
1 to 50	9.5	6.1	Q	3.4	4.7	8.1	Q	2.7
51 to 99	18.2	11.3	(*)	6.9	4.8	18.8	0.1	2.2
100	104.4	75.1	0.7	28.5	7.5	25.5	0.6	2.5
Heating equipment (more than one may apply)								
Heat pumps	12.1	4.4	Q	7.4	4.0	8.6	Q	2.7
Furnaces	7.4	5.9	Q	1.5	8.5	32.2	Q	2.1
Individual space heaters	37.8	27.1	0.1	10.6	6.4	16.6	0.3	2.3
District heat	6.1	Q	Q	5.8	2.0	Q	Q	1.9
Boilers	80.1	57.3	0.4	22.4	8.6	22.8	0.3	3.1
Packaged heating units	46.1	29.3	0.1	16.8	4.8	16.9	0.2	2.1
Other	Q	Q	Q	Q	Q	Q	Q	Q
Water-heating equipment								
Centralized system	84.6	63.3	0.7	20.6	7.7	22.3	0.5	2.5
Distributed system	13.5	7.4	Q	6.0	5.4	14.4	Q	3.0
Combination of centralized and distributed system	27.1	14.6	0.1	12.4	4.4	20.2	0.3	2.2
Food preparation or serving areas in non-food service buildings (more than one may apply)								
Snack bar or concession stand	15.7	7.3	0.1	8.3	3.2	13.9	0.2	1.9
Fast food or small restaurant	8.2	Q	Q	5.8	2.3	Q	Q	1.7
Cafeteria or large restaurant	42.1	26.6	0.3	15.2	5.9	20.1	0.3	2.5
Commercial kitchen/ food preparation area	32.5	18.4	0.5	13.6	4.9	16.5	0.8	2.3
Small kitchen area	30.9	22.5	0.1	8.4	6.6	24.7	0.2	2.2
HVAC conservation features (more than one may apply)								
Economizer cycle	43.1	19.9	0.1	23.0	3.8	13.9	0.2	2.3
Regular HVAC maintenance	111.2	70.9	0.8	39.5	5.9	20.5	0.4	2.5
Building automation system (BAS) ³	58.1	28.8	0.2	29.1	4.2	18.3	0.3	2.3
Equipment usage reduced when building not in full use (more than one may apply)								
Heating	92.5	66.9	0.6	25.1	6.5	20.9	0.4	2.3
Cooling	77.9	51.7	0.5	25.6	5.6	19.5	0.4	2.2
Lighting	123.3	85.0	0.7	37.6	6.5	21.0	0.4	2.5

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All buildings	133.9	92.5	0.8	40.6	6.6	21.5	0.4	2.5
Annual consumption (gallons)								
1,000 or less	13.5	8.1	Q	5.3	1.5	5.5	Q	0.8
1,001 to 5,000	32.8	23.8	Q	8.7	6.8	22.8	Q	2.2
5,001 to 10,000	26.1	17.8	Q	8.2	10.3	38.8	Q	3.7
10,001 to 25,000	21.5	13.7	(*)	7.7	9.3	26.8	0.1	3.9
Over 25,000	40.0	29.0	0.2	10.8	26.7	36.6	0.4	8.9

¹The fuel oil intensity calculation (fuel oil consumption for the end use divided by the floorspace in buildings that use fuel oil for the particular end use) differs from the calculation used in the 2003 CBECS tables, in which the intensities were not conditional on the presence of the end use; the 2003 CBECS denominator was total floorspace in all buildings that used fuel oil. In this table, the intensities for each end use do not sum to the total fuel oil intensity, whereas they did in the 2003 CBECS table.

²These climate regions were created by the Building America program, sponsored by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE).

³In earlier CBECS publications, BAS was referred to as *Energy Management and Control System (EMCS)*.

Q = Data withheld either because the Relative Standard Error (RSE) was greater than 50 percent or fewer than 20 buildings were sampled.

N = No cases in reporting sample.

(*) = Value round to zero in the units displayed.

Notes: ● Because of rounding, data may not sum to totals. ● See the *Guide to the 2012 CBECS Detailed Tables* or *CBECS Terminology* for definitions of terms used in these tables and/or comparison of differences with prior CBECS tables. Both references can be accessed from <http://www.eia.gov/consumption/commercial/data/2012/> ● Statistics for the *Energy end uses* category represent total consumption in buildings that have the end use, not consumption specifically for that particular end use. ● HVAC = Heating, ventilation, and air conditioning.

Source: U.S. Energy Information Administration, Office of Energy Consumption and Efficiency Statistics, Forms EIA-871A and F of the 2012 Commercial Buildings Energy Consumption Survey.