

DOE Commercial Reference Buildings  
Version 1.3\_5.0  
New Construction, ANSI/ASHRAE/IESNA 90.1-2004  
Energy Use Intensities (EUIs) [kBtu/ft<sup>2</sup>/yr]  
September 2010

	Miami	Houston	Phoenix	Atlanta	Los Angeles	Las Vegas	San Francisco	Baltimore	Albuquerque	Seattle	Chicago	Denver	Minneapolis	Helena	Duluth	Fairbanks	Weighted Average
Climate Zone	1A	2A	2B	3A	3B	3B	3C	4A	4B	4C	5A	5B	6A	6B	7	8	
Large Office	56	55	53	50	44	45	44	52	43	44	51	44	55	48	55	67	50
Medium Office	51	51	51	47	41	47	43	50	46	45	52	47	57	51	59	75	49
Small Office	52	51	53	47	41	46	41	51	47	47	54	49	59	54	61	83	50
Warehouse	29	23	24	26	19	24	23	32	29	28	38	34	46	41	53	78	31
Stand-alone Retail	60	63	62	63	46	58	53	74	64	68	84	72	96	87	107	150	71
Strip Mall	57	61	60	65	48	61	57	78	68	73	89	76	103	93	115	163	74
Primary School	58	57	57	56	46	54	52	62	56	55	66	59	75	67	80	102	60
Secondary School	91	85	86	76	55	73	59	84	68	67	89	72	100	83	104	136	81
Supermarket	158	169	161	173	156	162	169	186	172	184	197	183	211	200	225	271	182
Quick Service Restaurant	536	553	546	566	507	551	535	614	576	584	660	612	711	666	760	929	603
Full Service Restaurant	406	429	419	447	387	430	428	496	458	478	534	492	576	541	622	758	481
Hospital	193	201	192	197	186	183	191	203	168	188	197	170	196	176	195	203	195
Outpatient facility	184	187	192	187	175	186	177	191	187	179	189	185	195	189	195	208	187
Small Hotel	67	66	65	65	59	63	60	67	64	62	70	66	75	70	78	94	67
Large Hotel	155	152	139	153	136	135	135	160	141	145	167	151	176	162	184	205	156
Mid-rise Apartment	37	38	37	37	31	36	32	42	37	38	47	41	54	48	59	78	41

**DOE Commercial Reference Buildings**  
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**Post-1980 Construction**  
**Energy Use Intensities (EUIs) [kBtu/ft<sup>2</sup>/yr]**  
**September 2010**

	Miami	Houston	Phoenix	Atlanta	Los Angeles	Las Vegas	San Francisco	Baltimore	Albuquerque	Seattle	Chicago	Denver	Minneapolis	Helena	Duluth	Fairbanks
Climate Zone	1A	2A	2B	3A	3B	3B	3C	4A	4B	4C	5A	5B	6A	6B	7	8
Large Office	65	65	62	63	57	57	51	64	54	55	63	55	67	58	69	89
Medium Office	66	63	65	60	55	62	51	63	58	57	66	59	71	64	74	98
Small Office	70	67	69	66	57	65	55	67	64	60	72	66	78	72	82	109
Warehouse	14	24	23	32	18	27	25	45	37	35	59	48	78	64	92	150
Stand-alone Retail	89	93	91	100	75	91	85	113	100	101	130	113	150	134	166	235
Strip Mall	104	101	100	108	84	100	92	124	109	113	143	123	164	147	183	256
Primary School	72	69	68	70	60	67	63	74	68	68	81	71	88	79	93	136
Secondary School	115	99	100	89	70	85	67	94	75	76	100	79	111	91	115	165
Supermarket	179	195	182	205	174	188	195	223	203	213	240	218	259	241	279	347
Quick Service Restaurant	546	560	555	579	516	562	546	630	588	600	683	628	742	691	799	1,004
Full Service Restaurant	449	448	439	467	414	448	444	514	482	496	554	510	597	561	646	796
Hospital	229	237	234	236	225	223	217	237	203	219	229	203	225	204	221	233
Outpatient facility	232	223	236	224	222	231	203	222	218	211	223	216	227	218	226	255
Small Hotel	88	82	82	80	73	79	72	82	78	75	85	80	90	84	93	112
Large Hotel	250	228	215	213	188	189	170	218	179	183	220	188	229	199	229	249
Mid-rise Apartment	49	51	52	57	40	53	50	69	59	65	79	67	90	80	102	140

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**Pre-1980 Construction**  
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**September 2010**

	Miami	Houston	Phoenix	Atlanta	Los Angeles	Las Vegas	San Francisco	Baltimore	Albuquerque	Seattle	Chicago	Denver	Minneapolis	Helena	Duluth	Fairbanks
Climate Zone	1A	2A	2B	3A	3B	3B	3C	4A	4B	4C	5A	5B	6A	6B	7	8
Large Office	69	69	65	69	58	60	54	73	58	61	64	55	69	60	71	90
Medium Office	73	70	76	70	56	72	53	71	67	61	71	66	78	72	83	112
Small Office	77	79	83	82	64	83	66	92	85	80	99	90	112	101	126	180
Warehouse	14	25	24	35	18	29	26	49	40	38	64	53	84	69	101	166
Stand-alone Retail	93	99	100	106	77	101	87	122	108	108	138	121	159	142	178	255
Strip Mall	100	107	107	114	84	108	95	132	116	118	150	131	172	154	194	277
Primary School	73	76	76	78	61	75	65	88	77	78	88	78	97	85	103	151
Secondary School	68	71	72	74	52	72	59	86	73	79	92	77	107	92	118	175
Supermarket	179	197	186	206	174	191	193	227	206	216	245	223	265	246	287	364
Quick Service Restaurant	586	610	603	634	548	613	582	700	646	654	756	692	826	762	894	1,128
Full Service Restaurant	453	478	470	499	419	480	461	553	508	522	596	546	646	603	708	889
Hospital	232	242	240	245	222	233	219	250	211	231	229	202	227	206	221	232
Outpatient facility	218	227	237	235	219	238	214	237	230	224	227	219	232	224	229	257
Small Hotel	79	75	75	72	68	72	65	71	70	66	72	69	76	71	77	92
Large Hotel	237	222	211	202	183	189	166	196	175	164	193	172	196	174	187	188
Mid-rise Apartment	47	54	54	62	40	57	53	77	64	73	86	73	99	88	115	161