

Table 1. Target Energy Use Intensities¹ for 30% savings relative to ANSI/ASHRAE/IESNA Standard 90.1-2004² by Subsector and Climate Zone³: IP Units kBtu/ft²·yr

Subsectors	Climate Zones															
	All	1A	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	6A	6B	7	8
All	49	58	47	51	54	40	44	49	39	39	52	45	53	51	52	52
Office/professional	40	39	42	45	37	32	31	42	41	37	42	33	43	43	47	47
Nonrefrigerated warehouse	29	19	21	21	26	21	21	29	35	21	33	35	35	33	32	32
Education	36	36	34	40	29	29	38	42	24	30	37	31	42	45	45	45
Retail (except malls)	47	47	46	46	44	38	38	48	40	40	51	50	53	64	70	70
Public assembly	43	46	46	46	50	37	37	38	33	54	48	35	46	36	49	49
Service	58	58	55	55	42	44	44	55	36	36	64	53	72	60	76	76
Religious worship	31	28	28	28	20	21	21	31	41	41	36	24	40	27	31	31
Lodging	38	45	36	36	37	28	28	40	43	43	39	36	42	45	44	44
Food services	248	248	248	248	266	262	262	257	257	257	235	198	239	239	248	248
Inpatient health care	77	75	75	75	83	69	68	74	74	74	81	74	79	81	81	81
Public order and safety	47	38	38	38	47	47	47	42	42	42	55	54	51	61	61	61
Food sales	127	140	140	140	133	105	105	132	132	132	121	127	146	146	127	127
Outpatient health care	53	53	56	56	45	55	55	46	46	46	63	53	57	55	75	75
Vacant	21	21	16	16	21	14	14	29	29	29	15	15	28	28	28	28
Other	40	51	51	51	40	40	40	40	40	40	43	43	44	44	44	44
Skilled nursing	92	92	92	92	79	72	72	102	102	102	99	74	93	93	93	93
Laboratory	226	226	226	226	226	258	258	191	191	191	219	219	226	226	226	226
Refrigerated warehouse	60	60	60	60	60	60	60	62	60	60	60	60	60	60	60	60

¹ EUIs are site (delivered) energy use for the whole building.

² 30% Targets were developed from modeling results for Standard 90.1-2004 multiplied by 0.7 (listed in Table 2).

³ Climate zones are defined in ANSI/ASHRAE Standard 169-2006.

Table 2. Mean Energy Use Intensities⁴ by Subsector and Climate Zone for buildings that minimally comply with ANSI/ASHRAE/IESNA Standard 90.1-2004: IP Units kBtu/ft²·yr

Subsectors	Climate Zones															
	All	1A	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	6A	6B	7	8
All	71	82	68	73	78	58	62	70	55	56	75	64	76	74	74	74 ^{5a}
Office/professional	57	55	61	65	52	46	44	60	58	53	60	48	62	61	68	68 ^{5a}
Nonrefrigerated warehouse	41	27	31	31 ^{5b}	37	30	30 ^{5c}	42	49	30	47	51	50	47	45	45 ^{5a}
Education	52	52 ^{5d}	49	57	42	41	54	60	34	43	53	44	60	64	64 ^{5e}	64 ^{5e}
Retail (except malls)	68	68 ^{5d}	66	66 ^{5b}	63	54	54 ^{5c}	68	58	58 ^{5f}	73	71	76	91	100	100 ^{5a}
Public assembly	62	66 ^{5b}	66	66 ^{5b}	72	52	52 ^{5c}	54	48	77	68	50	66	51	70	70 ^{5a}
Service	83	83 ^{5d}	78	78 ^{5b}	60	63	63 ^{5c}	79	52	52 ^{5f}	92	76	102	86	108	108 ^{5a}
Religious worship	44	40 ^{5b}	40	40 ^{5b}	29	29	29 ^{5c}	44	59	59 ^{5f}	51	35	57	39	44 ^{5d}	44 ^{5d}
Lodging	55	65	51	51 ^{5b}	52	40	40 ^{5c}	57	61	61 ^{5f}	55	51	60	64	63	63 ^{5a}
Food services	354	354 ^{5d}	354	354 ^{5b}	380	375	375 ^{5c}	368	368 ^{5g}	368 ^{5g}	336	283	341	341 ^{5h}	354 ^{5d}	354 ^{5d}
Inpatient health care	111	108 ^{5b}	108	108 ^{5b}	118	98	97	106	106 ^{5g}	106 ^{5g}	115	106	113	116	116 ^{5e}	116 ^{5e}
Public order and safety	67	54 ^{5b}	54	54 ^{5b}	67 ^{5d}	67 ^{5d}	67 ^{5d}	60	60 ^{5g}	60 ^{5g}	78	78	73	87 ⁵ⁱ	87 ^{5e}	87 ^{5e}
Food sales	181	200 ^{5b}	200	200 ^{5b}	190	151	151 ^{5c}	188	188 ^{5g}	188 ^{5g}	173	182	208	208 ^{5h}	181 ^{5d}	181 ^{5d}
Outpatient health care	76	76 ^{5d}	80	80 ^{5b}	64	79	79 ^{5c}	66	66 ^{5g}	66 ^{5g}	90	76	82	78	107 ^{5j}	107 ^{5a}
Vacant	30	30 ^{5d}	23	23 ^{5b}	30	20	20 ^{5c}	41	41 ^{5g}	41 ^{5g}	21	21 ^{5k}	40	40 ^{5h}	40 ^{5h}	40 ^{5h}
Other	58	73 ^{5b}	73	73 ^{5b}	58 ^{5d}	58 ^{5d}	58 ^{5d}	57	57 ^{5g}	57 ^{5g}	61	61 ^{5k}	63	63 ^{5h}	63 ^{5h}	63 ^{5h}
Skilled nursing	131	132 ^{5b}	132	132 ^{5b}	113	102	103 ^{5c}	145	145 ^{5g}	145 ^{5g}	142	106	132	132 ^{5h}	132 ^{5h}	132 ^{5h}
Laboratory	323	323 ^{5d}	323 ^{5d}	323 ^{5d}	323 ^{5d}	369	369 ^{5c}	272	272 ^{5g}	272 ^{5g}	313	313 ^{5k}	323 ^{5d}	323 ^{5d}	323 ^{5d}	323 ^{5d}
Refrigerated warehouse	86	86 ^{5d}	86 ^{5d}	86 ^{5d}	86 ^{5d}	86 ^{5d}	86 ^{5d}	88	86 ^{5d}	86 ^{5d}	85	86 ^{5d}	86 ^{5d}	86 ^{5d}	86 ^{5d}	86 ^{5d}

⁴ Data source is modeling results from EnergyPlus simulations of 2003 CBECS samples—see Table 4-10 in Griffith et al. 2007 available at <http://www.nrel.gov/docs/fy08osti/41957.pdf>

⁵ Category has less than five samples in 2003 CBECS (see Table 4). Values for this category filled from: (^{5a}) Climate Zone 7, (^{5b}) Climate Zone 2A, (^{5c}) Climate Zone 3B, (^{5d}) All Climate Zones, (^{5e}) Climate Zone 6B, (^{5f}) Climate Zone 4B, (^{5g}) Climate Zone 4A, (^{5h}) Climate Zone 6A, (⁵ⁱ) Climate Zone 6B with 3 samples, (^{5j}) Climate Zone 7 with 2 samples, and (^{5k}) Climate Zone 5A.

Table 3. 2003 CBECS⁶ Weighted Mean Energy Use Intensities by Subsector and Climate Zone: IP Units kBtu/ft².yr

Subsectors	Climate Zones														
	All	1A	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	6A	6B	7
All	90	74	72	114	89	70	62	95	108	99	104	87	89	97	71
Office/professional	93	42	82	72	88	70	58	97	143	95	107	66	110	114	68
Nonrefrigerated warehouse	42	22	16		22	21	20	39	29	37	79	60	37	58	33
Education	83	52	73	160	62	74	105	102	38	58	87	79	90	90	84
Retail (except malls)	74	61	93	129	60	50	31	65	100		88	80	93	97	102
Public assembly	94	75	60		112	48	45	110	44	249	103	97	88	102	97
Service	77	60	53		49	61	27	82	83		80	101	88	99	65
Religious worship	44		31		28	31		47	56		52	39	53	34	
Lodging	94	81	91		98	57		92	264	545	89	65	108	93	68
Food services	258	393	208		423	393	82	234		260	258	228	203	236	192
Inpatient health care	249	200	246	360	205	257	204	248	163		294	245	240	235	256
Public order and safety	116		91		160	79		129			108	94	126	148	
Food sales	200		166		212	183	120	242			203	147	242		199
Outpatient health care	95	19	77		55	106		70	190		111	120	112	91	166
Vacant	21		4	47	4	6	0	40	3	60	21	93	22		55
Other	79		48		100	175		71	26		94	92	69	85	57
Skilled nursing	125		71		84	85		148			148	153	118	134	
Laboratory	305				242	170		600			370		268	115	
Refrigerated warehouse	99							120			68	51	62		

⁶ Data source is 2003 CBECS public use microdata as analyzed by Griffith et. al. (2008) (NREL TP-550-41956)

Table 4. 2003 CBECS Number of Samples by Subsector and Climate Zone

Subsectors	Climate Zones														
	All	1A	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	6A	6B	7
All	4,820	40	542	24	464	452	52	982	64	50	1,152	262	519	120	97
Office/professional	976	6	99	7	73	108	18	211	6	21	253	33	93	26	22
Nonrefrigerated warehouse	473	5	77	0	49	50	2	93	6	6	94	21	50	10	10
Education	649	4	91	5	62	59	8	124	9	8	139	58	61	17	4
Retail (except malls)	355	4	34	2	52	36	4	80	6	0	73	23	27	7	7
Public assembly	279	3	36	0	25	26	3	47	5	5	62	14	37	6	9
Service	370	2	20	0	43	21	2	76	5	0	100	20	54	13	13
Religious worship	311	0	31	0	35	29	0	64	6	0	82	11	45	6	0
Lodging	260	7	31	0	20	22	0	58	7	3	51	15	26	8	10
Food services	242	2	34	0	27	22	2	49	0	2	57	12	28	2	4
Inpatient health care	217	2	25	3	19	22	5	45	2	0	53	12	21	6	2
Public order and safety	85	0	7	0	4	4	0	23	0	0	22	9	9	3	0
Food sales	125	0	13	0	16	8	2	23	0	0	35	8	13	0	4
Outpatient health care	144	3	15	0	10	15	0	28	4	0	35	10	12	7	2
Vacant	134	0	17	2	18	10	2	24	3	2	29	3	20	0	3
Other	64	0	6	0	3	4	0	10	2	0	21	4	8	2	4
Skilled nursing	73	0	5	0	5	7	0	16	0	0	22	6	8	3	0
Laboratory	43	0	0	0	2	8	0	5	0	0	19	0	4	2	0
Refrigerated warehouse	20	0	0	0	0	0	0	6	0	0	5	3	3	0	0