

DOE Prototype Commercial Building Models - Impacts of Change in Climate Zone from 3A to 2A

Source EUI - 90.1-2013

2013 Building Type	Tampa	Atlanta
	2A	3A
Large Office	188.3	178.3
Medium Office	105.4	97.1
Small Office	100.8	92.8
Stand-Alone Retail	142.9	127.3
Strip Mall	175.8	157.2
Primary School	150.8	132.7
Secondary School	136.7	118.6
Hospital	313.0	302.7
Outpatient Healthcare	347.6	326.1
Full Service Restaurant	784.6	720.3
Quick Service Restaurant	1019.1	955.2
Large Hotel	229.5	201.0
Small Hotel	147.1	138.7
Warehouse	38.9	40.2
High-Rise Apartment	108.7	102.5
Mid-Rise Apartment	121.7	116.5
Building Type Average	144.2	133.4

Source EUI - 90.1-2016

2016 Building Type	Tampa	Atlanta
	2A	3A
Large Office	181.6	172.2
Medium Office	99.8	91.6
Small Office	89.5	82.0
Stand-Alone Retail	131.7	118.4
Strip Mall	154.3	137.7
Primary School	132.8	116.8
Secondary School	119.6	103.6
Hospital	308.9	298.6
Outpatient Healthcare	330.8	305.5
Full Service Restaurant	764.1	702.3
Quick Service Restaurant	1003.3	939.8
Large Hotel	220.3	193.0
Small Hotel	131.2	123.7
Warehouse	29.6	31.3
High-Rise Apartment	103.0	97.5
Mid-Rise Apartment	117.3	112.5
Building Type Average	133.9	124.0

Source EUI - 90.1-2019

2019 Building Type	Tampa	Atlanta
	2A	3A
Large Office	174.3	164.7
Medium Office	96.1	86.6
Small Office	84.4	77.2
Stand-Alone Retail	120.7	108.9
Strip Mall	145.9	130.4
Primary School	124.1	108.3
Secondary School	114.1	98.2
Hospital	293.8	281.3
Outpatient Healthcare	321.1	287.9
Full Service Restaurant	737.8	678.3
Quick Service Restaurant	949.1	892.0
Large Hotel	198.9	173.3
Small Hotel	121.7	114.8
Warehouse	29.2	30.6
High-Rise Apartment	100.6	91.7
Mid-Rise Apartment	112.0	107.5
Building Type Average	127.2	116.8

Source EUI % Savings

Changing from CZ 3A to 2A Building Type	2013 to 2019	2016 to 2019	Building Type Weighting Factors
	Large Office	2.2%	
Medium Office	1.1%	-4.9%	5.01%
Small Office	9.0%	-2.9%	3.80%
Stand-Alone Retail	5.2%	-2.0%	10.94%
Strip Mall	7.2%	-6.0%	3.71%
Primary School	6.5%	-6.3%	4.83%
Secondary School	3.8%	-10.1%	10.92%
Hospital	2.9%	1.6%	4.52%
Outpatient Healthcare	1.5%	-5.1%	3.42%
Full Service Restaurant	-2.4%	-5.1%	0.97%
Quick Service Restaurant	0.6%	-1.0%	0.33%
Large Hotel	1.1%	-3.0%	4.22%
Small Hotel	12.2%	1.6%	1.59%
Warehouse	27.5%	6.9%	18.56%
High-Rise Apartment	1.9%	-3.2%	9.64%
Mid-Rise Apartment	3.8%	0.4%	13.69%
Building Type Average	4.7%	-2.6%	100.00%

EUI - Energy Use Intensity in kBtu/sf/yr

Source-Site Multiplier

Electricity 3.167

Gas 1.084

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Site EUI - 90.1-2013

	Tampa	Atlanta
2013		
Building Type	2A	3A
Large Office	60.3	58.0
Medium Office	34.1	32.0
Small Office	31.8	29.4
Stand-Alone Retail	47.4	44.1
Strip Mall	55.9	54.1
Primary School	51.8	47.8
Secondary School	46.1	41.6
Hospital	122.3	121.1
Outpatient Healthcare	121.9	115.8
Full Service Restaurant	333.2	333.5
Quick Service Restaurant	484.0	496.2
Large Hotel	93.2	87.0
Small Hotel	59.8	58.2
Warehouse	12.3	14.6
High-Rise Apartment	41.2	42.8
Mid-Rise Apartment	38.6	39.0
Building Type Average	51.0	49.7

Site EUI - 90.1-2016

	Tampa	Atlanta
2016		
Building Type	2A	3A
Large Office	58.1	55.9
Medium Office	32.3	30.2
Small Office	28.3	26.1
Stand-Alone Retail	44.1	43.6
Strip Mall	49.2	48.5
Primary School	46.2	43.2
Secondary School	40.8	37.3
Hospital	120.8	119.6
Outpatient Healthcare	114.9	107.0
Full Service Restaurant	326.8	328.0
Quick Service Restaurant	479.0	491.1
Large Hotel	90.4	84.4
Small Hotel	54.4	53.3
Warehouse	9.4	12.0
High-Rise Apartment	39.4	41.3
Mid-Rise Apartment	37.2	37.8
Building Type Average	47.7	47.1

Site EUI - 90.1-2019

	Tampa	Atlanta
2019		
Building Type	2A	3A
Large Office	55.7	53.1
Medium Office	31.2	28.8
Small Office	26.6	24.6
Stand-Alone Retail	40.7	41.0
Strip Mall	46.6	46.5
Primary School	43.3	40.1
Secondary School	39.0	35.3
Hospital	105.5	103.5
Outpatient Healthcare	111.8	101.4
Full Service Restaurant	318.6	320.5
Quick Service Restaurant	461.8	475.5
Large Hotel	81.8	75.2
Small Hotel	51.5	50.6
Warehouse	9.2	11.7
High-Rise Apartment	38.4	38.0
Mid-Rise Apartment	35.4	34.7
Building Type Average	45.0	43.8

Site EUI % Savings

	2013 to 2019	2016 to 2019
Changing from CZ 3A to 2A		
Building Type		
Large Office	4.0%	0.4%
Medium Office	2.4%	-3.4%
Small Office	9.5%	-2.2%
Stand-Alone Retail	7.7%	6.7%
Strip Mall	13.8%	3.9%
Primary School	9.3%	-0.2%
Secondary School	6.1%	-4.6%
Hospital	12.8%	11.8%
Outpatient Healthcare	3.5%	-4.5%
Full Service Restaurant	4.5%	2.9%
Quick Service Restaurant	6.9%	6.0%
Large Hotel	6.0%	3.1%
Small Hotel	11.6%	3.5%
Warehouse	37.0%	23.1%
High-Rise Apartment	10.3%	7.0%
Mid-Rise Apartment	9.1%	6.3%
Building Type Average	9.5%	4.4%

Building Type Weighting Factors
3.86%
5.01%
3.80%
10.94%
3.71%
4.83%
10.92%
4.52%
3.42%
0.97%
0.33%
4.22%
1.59%
18.56%
9.64%
13.69%
100.00%

EUI - Energy Use Intensity in kBtu/sf/yr

DOE Prototype Commercial Building Models - Impacts of Change in Climate Zone from 3A to 2A

Source EUI - 2015 IECC

2015	Tampa	Atlanta
Building Type	2A	3A
Large Office	192.3	183.6
Medium Office	111.0	102.6
Small Office	100.6	92.7
Stand-Alone Retail	147.8	139.0
Strip Mall	168.2	163.1
Primary School	174.4	156.7
Secondary School	151.7	133.4
Hospital	396.4	395.9
Outpatient Healthcare	382.8	353.9
Full Service Restaurant	1,052.8	1,051.4
Quick Service Restaurant	1,527.7	1,558.6
Large Hotel	289.1	266.3
Small Hotel	188.3	184.0
Warehouse	36.0	41.3
High-Rise Apartment	133.6	137.5
Mid-Rise Apartment	124.3	125.0
Building Type Average	162.3	156.7

Source EUI - 2018 IECC

2018	Tampa	Atlanta
Building Type	2A	3A
Large Office	187.4	178.8
Medium Office	106.5	98.0
Small Office	97.0	89.2
Stand-Alone Retail	134.1	133.9
Strip Mall	152.8	150.7
Primary School	167.0	148.6
Secondary School	144.3	127.2
Hospital	387.3	389.8
Outpatient Healthcare	367.9	340.6
Full Service Restaurant	1,036.0	1,037.7
Quick Service Restaurant	1,516.4	1,547.5
Large Hotel	290.2	268.6
Small Hotel	177.9	173.7
Warehouse	29.8	36.2
High-Rise Apartment	130.5	134.8
Mid-Rise Apartment	122.5	123.2
Building Type Average	155.5	151.7

Source EUI - 90.1-2019

2019	Tampa	Atlanta
Building Type	2A	3A
Large Office	174.3	164.7
Medium Office	96.1	86.6
Small Office	84.4	77.2
Stand-Alone Retail	120.7	108.9
Strip Mall	145.9	130.4
Primary School	124.1	108.3
Secondary School	114.1	98.2
Hospital	293.8	281.3
Outpatient Healthcare	321.1	287.9
Full Service Restaurant	737.8	678.3
Quick Service Restaurant	949.1	892.0
Large Hotel	198.9	173.3
Small Hotel	121.7	114.8
Warehouse	29.2	30.6
High-Rise Apartment	100.6	91.7
Mid-Rise Apartment	112.0	107.5
Building Type Average	127.2	116.8

Source EUI % Savings

Changing from CZ 3A to 2A	2015 IECC to 90.1-2019	2018 IECC to 90.1-2019	Building Type Weighting Factors
Building Type			
Large Office	5.1%	2.5%	3.86%
Medium Office	6.4%	2.0%	5.01%
Small Office	9.0%	5.4%	3.80%
Stand-Alone Retail	13.1%	9.8%	10.94%
Strip Mall	10.6%	3.2%	3.71%
Primary School	20.8%	16.5%	4.83%
Secondary School	14.5%	10.3%	10.92%
Hospital	25.8%	24.6%	4.52%
Outpatient Healthcare	9.3%	5.7%	3.42%
Full Service Restaurant	29.8%	28.9%	0.97%
Quick Service Restaurant	39.1%	38.7%	0.33%
Large Hotel	25.3%	26.0%	4.22%
Small Hotel	33.8%	29.9%	1.59%
Warehouse	29.4%	19.4%	18.56%
High-Rise Apartment	26.9%	25.4%	9.64%
Mid-Rise Apartment	10.3%	9.1%	13.69%
Building Type Average	18.9%	16.1%	100.00%

EUI - Energy Use Intensity in kBtu/sf/yr
 Source-Site Multiplier
 Electricity 3.167
 Gas 1.084

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Site EUI - 2015 IECC

2015	Tampa	Atlanta
Building Type	2A	3A
Large Office	60.7	58.0
Medium Office	35.1	32.4
Small Office	31.8	29.3
Stand-Alone Retail	46.7	43.9
Strip Mall	53.1	51.5
Primary School	55.1	49.5
Secondary School	47.9	42.1
Hospital	125.2	125.0
Outpatient Healthcare	120.9	111.7
Full Service Restaurant	332.4	332.0
Quick Service Restaurant	482.4	492.1
Large Hotel	91.3	84.1
Small Hotel	59.5	58.1
Warehouse	11.4	13.0
High-Rise Apartment	42.2	43.4
Mid-Rise Apartment	39.3	39.5
Building Type Average	51.2	49.5

Site EUI - 2018 IECC

2018	Tampa	Atlanta
Building Type	2A	3A
Large Office	59.2	56.5
Medium Office	33.6	30.9
Small Office	30.6	28.2
Stand-Alone Retail	42.3	42.3
Strip Mall	48.2	47.6
Primary School	52.7	46.9
Secondary School	45.6	40.2
Hospital	122.3	123.1
Outpatient Healthcare	116.2	107.5
Full Service Restaurant	327.1	327.7
Quick Service Restaurant	478.8	488.6
Large Hotel	91.6	84.8
Small Hotel	56.2	54.8
Warehouse	9.4	11.4
High-Rise Apartment	41.2	42.6
Mid-Rise Apartment	38.7	38.9
Building Type Average	49.1	47.9

Site EUI - 90.1-2019

2019	Tampa	Atlanta
Building Type	2A	3A
Large Office	55.7	53.1
Medium Office	31.2	28.8
Small Office	26.6	24.6
Stand-Alone Retail	40.7	41.0
Strip Mall	46.6	46.5
Primary School	43.3	40.1
Secondary School	39.0	35.3
Hospital	105.5	103.5
Outpatient Healthcare	111.8	101.4
Full Service Restaurant	318.6	320.5
Quick Service Restaurant	461.8	475.5
Large Hotel	81.8	75.2
Small Hotel	51.5	50.6
Warehouse	9.2	11.7
High-Rise Apartment	38.4	38.0
Mid-Rise Apartment	35.4	34.7
Building Type Average	45.0	43.8

Site EUI % Savings

Changing from CZ 3A to 2A	2015 IECC to 90.1-2019	2018 IECC to 90.1-2019	Building Type Weighting Factors
Building Type			
Large Office	3.9%	1.3%	3.86%
Medium Office	3.7%	-0.9%	5.01%
Small Office	9.0%	5.4%	3.80%
Stand-Alone Retail	7.4%	3.8%	10.94%
Strip Mall	9.4%	2.0%	3.71%
Primary School	12.4%	7.7%	4.83%
Secondary School	7.4%	2.9%	10.92%
Hospital	15.6%	14.2%	4.52%
Outpatient Healthcare	0.0%	-3.9%	3.42%
Full Service Restaurant	4.0%	2.8%	0.97%
Quick Service Restaurant	6.2%	5.5%	0.33%
Large Hotel	2.8%	3.6%	4.22%
Small Hotel	11.4%	6.1%	1.59%
Warehouse	29.2%	19.2%	18.56%
High-Rise Apartment	11.6%	9.8%	9.64%
Mid-Rise Apartment	10.3%	9.0%	13.69%
Building Type Average	9.0%	6.0%	100.00%

EUI - Energy Use Intensity in kBtu/sf/yr