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2014 COMMERCIAL BUILDING STOCK ASSESSMENT: APPENDIX A / BUILDING CHARACTERISTIC SUMMARY TABLES

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Appendix A Detailed Summary Tables and Graphs

This appendix presents detailed summary tables and graphs of many characteristics of interest. All data has been extrapolated to the region level using the regional case weights, and statistical error bands (at the 90% confidence level) have been presented where applicable. Unless otherwise noted, all numbers represent the total and percent of *known* values – unknown or missing data was removed for clarity.

A.1 Comparisons to the 2009 CBSA

Comparisons to 2009 data required the project team to “re-map” 2014 CBSA building categories to the 2009 categories resulting in a reduction of buildings examined.

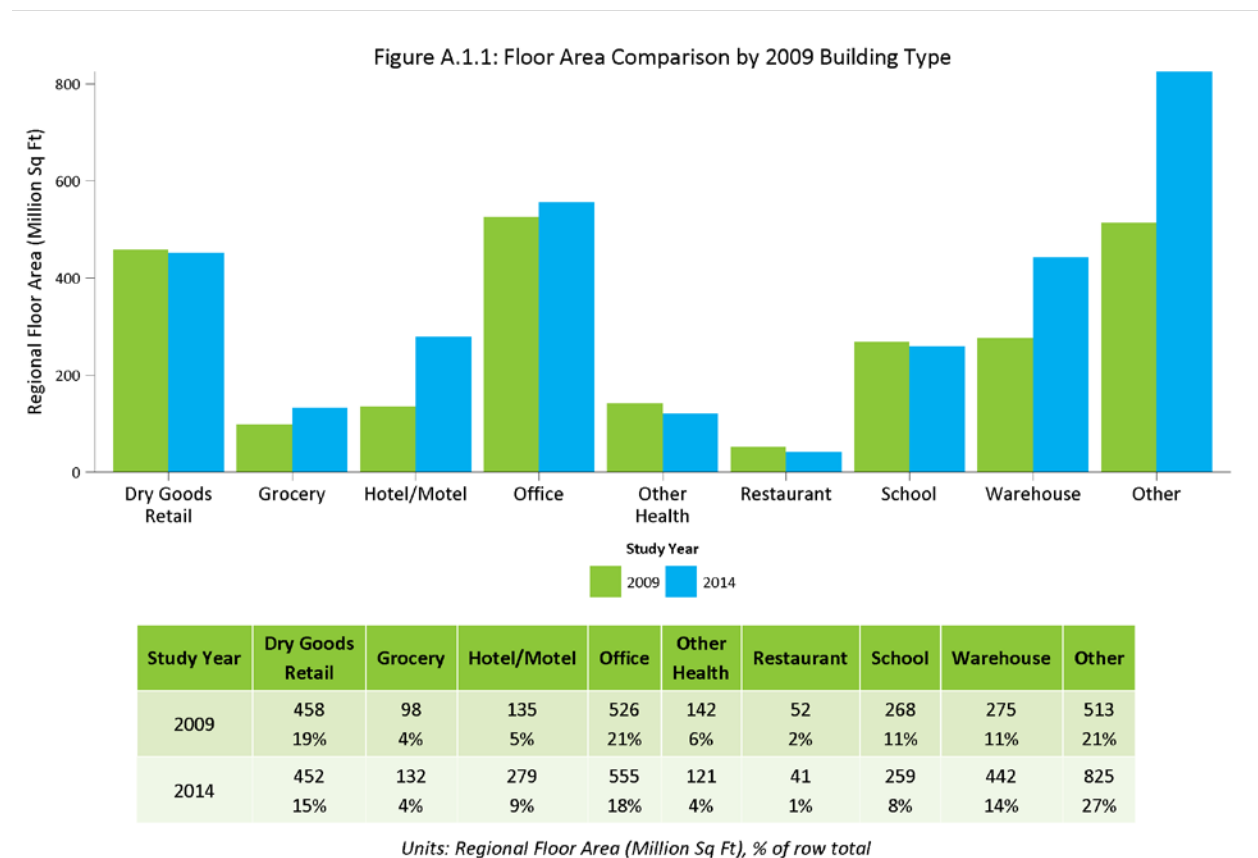
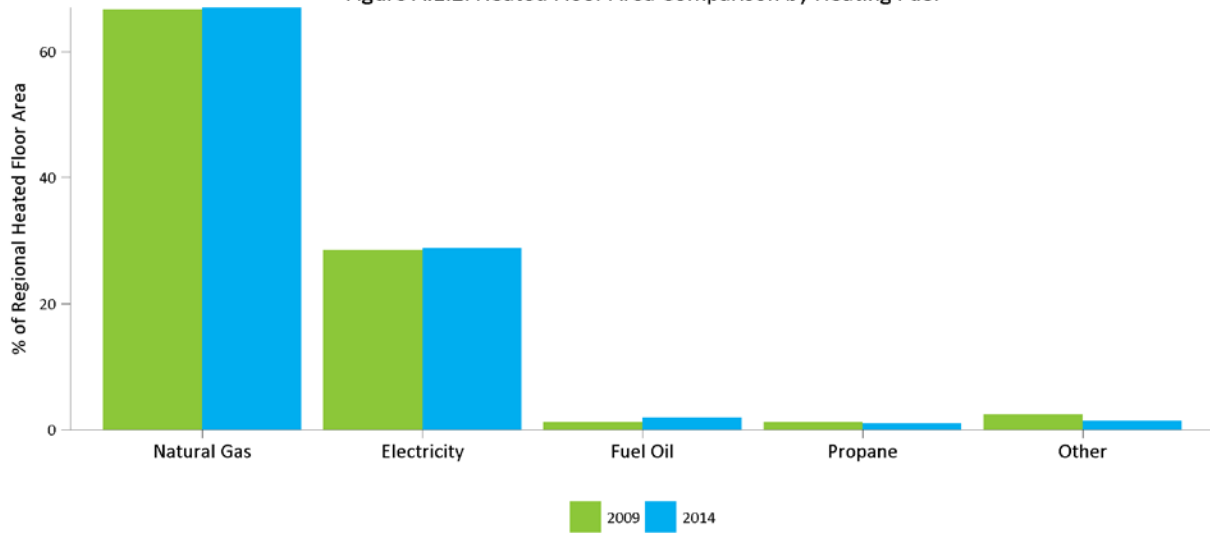


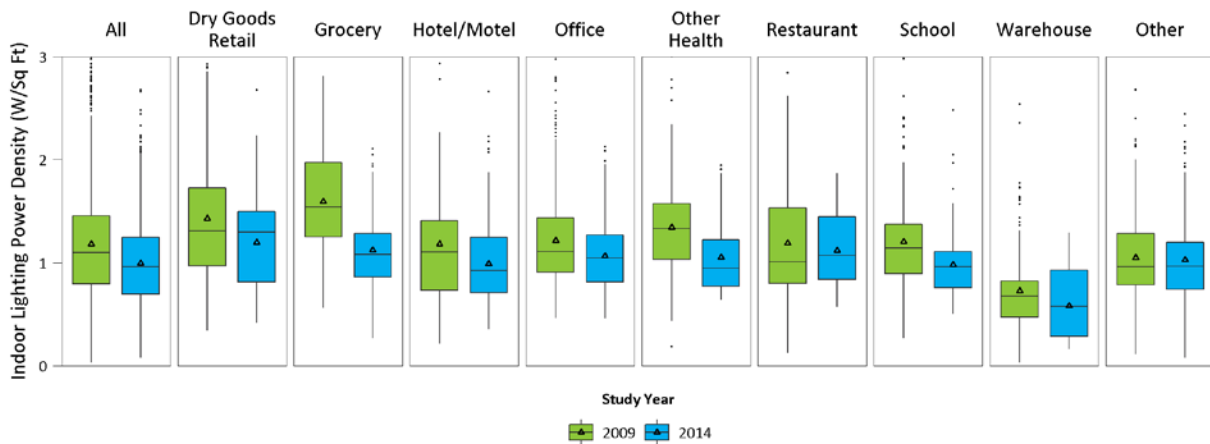
Figure A.1.2: Heated Floor Area Comparison by Heating Fuel



Study Year	Natural Gas	Electricity	Fuel Oil	Propane	Other
2009	1,383 67%	591 29%	24 1%	24 1%	50 2%
2014	1,782 67%	767 29%	49 2%	27 1%	36 1%

Units: Regional Floor Area (Million Sq Ft), % of row total

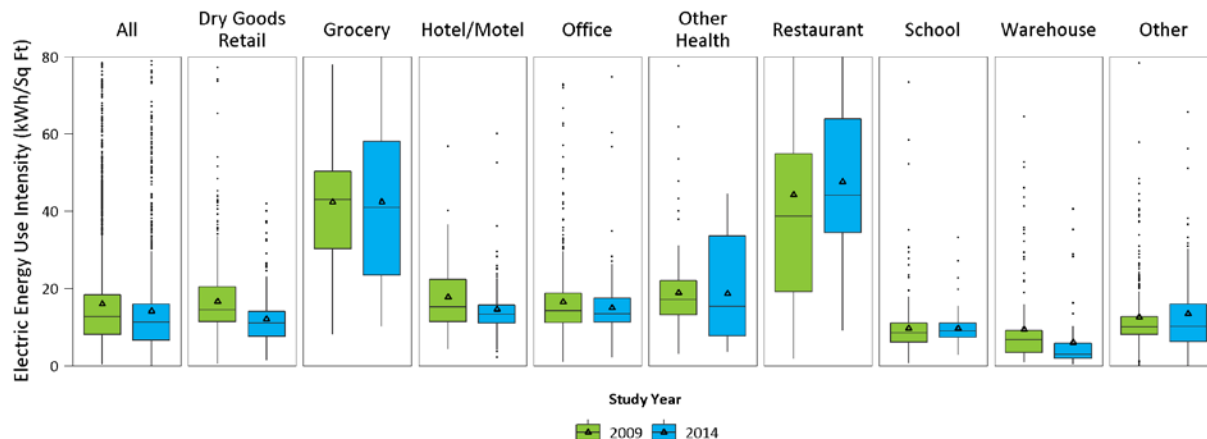
Figure A.1.3: Indoor LPD Comparison by 2009 Building Type



Study Year	Statistic	All	Dry Goods Retail	Grocery	Hotel/Motel	Office	Other Health	Restaurant	School	Warehouse	Other
2009	Mean	1.18	1.43	1.59	1.18	1.22	1.34	1.19	1.2	0.73	1.05
	Median	1.1	1.31	1.54	1.1	1.11	1.33	1.01	1.14	0.67	0.96
	1st/3rd Q	0.79/1.5	0.97/1.7	1.3/2	0.73/1.4	0.91/1.4	1/1.6	0.8/1.5	0.89/1.4	0.47/0.82	0.79/1.3
	n	1509	310	135	54	291	67	113	192	140	207
2014	Mean	0.99	1.2	1.12	0.99	1.07	1.05	1.12	0.98	0.58	1.03
	Median	0.96	1.3	1.08	0.92	1.04	0.95	1.07	0.96	0.58	0.96
	1st/3rd Q	0.69/1.2	0.81/1.5	0.86/1.3	0.71/1.2	0.81/1.3	0.77/1.2	0.84/1.4	0.76/1.1	0.29/0.93	0.74/1.2
	n	806	100	88	135	92	19	37	80	43	212

Units: Indoor Lighting Power Density (W/Sq Ft)

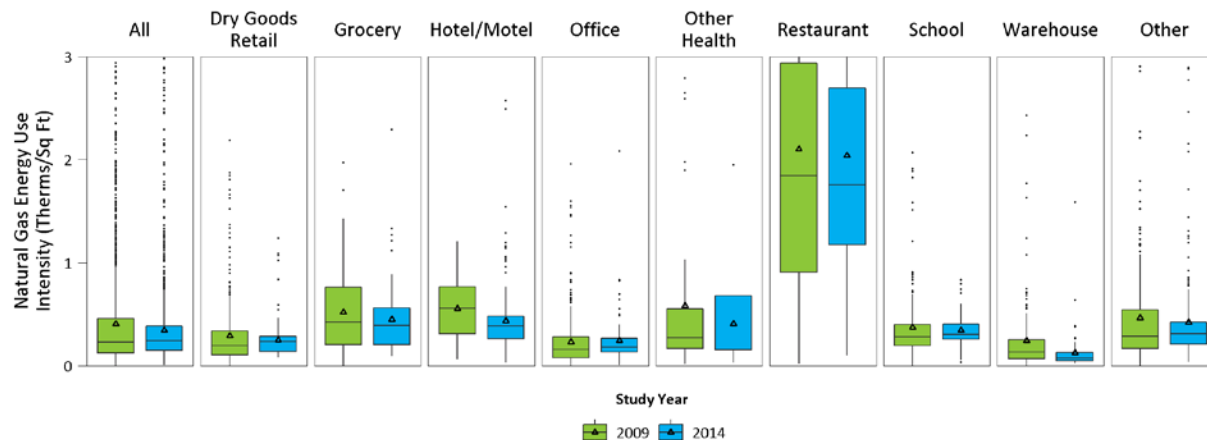
Figure A.1.4: Electric EUI Comparison by 2009 Building Type



Study Year	Statistic	All	Dry Goods Retail	Grocery	Hotel/Motel	Office	Other Health	Restaurant	School	Warehouse	Other
2009	Mean	16	16.6	42.4	17.7	16.5	18.9	44.2	9.66	9.4	12.6
	Median	12.6	14.5	43	15.2	14.2	17.1	38.6	8.45	6.72	10
	1st/3rd Q	8.1/18	11/20	30/50	11/22	11/19	13/22	19/55	6.1/11	3.5/9.1	8.1/13
	n	1869	366	151	70	400	94	130	211	182	265
2014	Mean	14.1	12.1	42.4	14.6	15	18.6	47.6	9.66	6.05	13.4
	Median	11.2	11	40.9	13.3	13.4	15.3	44.1	9.04	2.88	10.1
	1st/3rd Q	6.6/16	7.6/14	23/58	11/16	11/18	7.8/34	34/64	7.3/11	1.9/5.8	6.2/16
	n	806	100	88	135	92	19	37	80	43	212

Units: Electric Energy Use Intensity (kWh/Sq Ft)

Figure A.1.5: Natural Gas EUI Comparison by 2009 Building Type

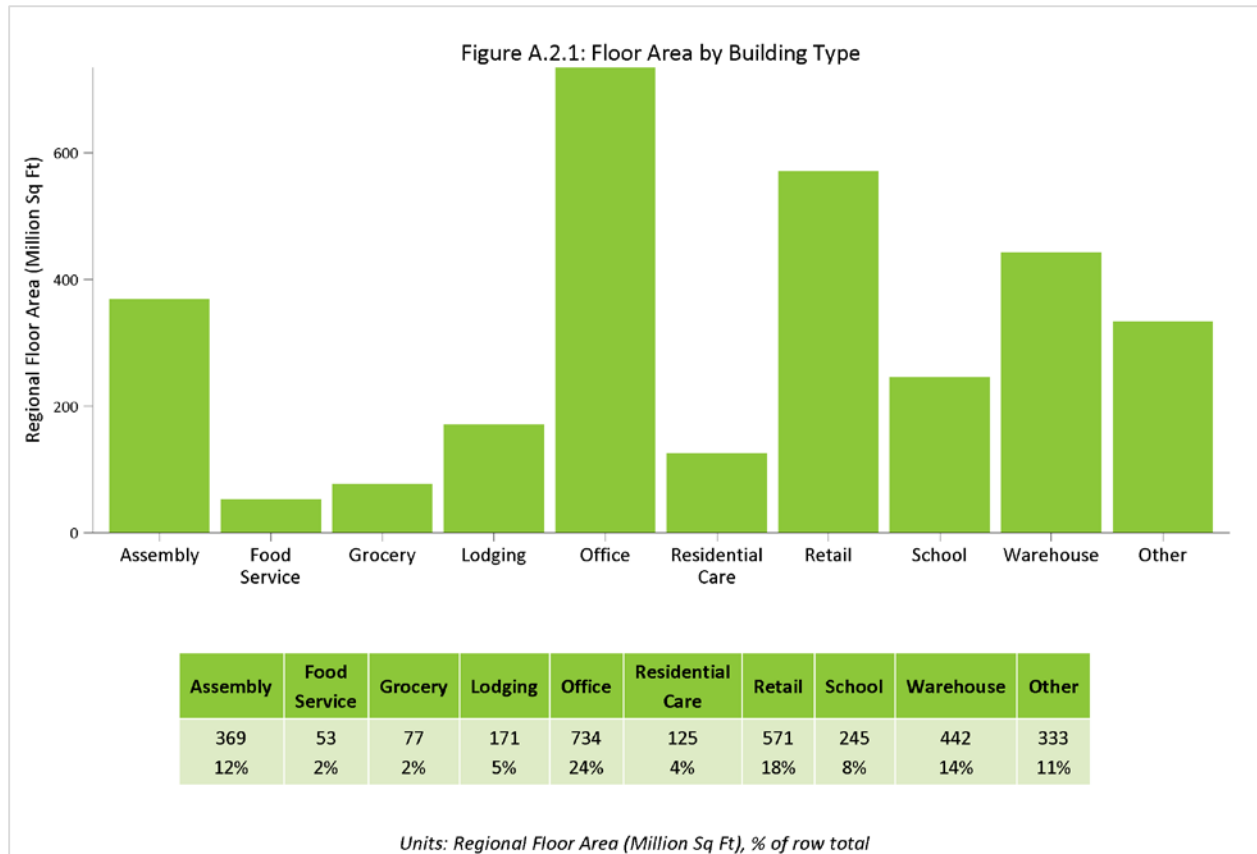


Study Year	Statistic	All	Dry Goods Retail	Grocery	Hotel/Motel	Office	Other Health	Restaurant	School	Warehouse	Other
2009	Mean	0.41	0.29	0.52	0.56	0.23	0.58	2.1	0.37	0.24	0.46
	Median	0.23	0.19	0.42	0.56	0.16	0.27	1.85	0.28	0.13	0.28
	1st/3rd Q	0.12/0.46	0.1/0.34	0.21/0.76	0.31/0.76	0.077/0.28	0.16/0.55	0.91/2.9	0.2/0.4	0.067/0.25	0.17/0.54
	n	1511	313	119	63	292	76	121	186	144	197
2014	Mean	0.34	0.25	0.45	0.44	0.24	0.41	2.04	0.34	0.13	0.42
	Median	0.24	0.23	0.39	0.39	0.18	0.16	1.75	0.3	0.07	0.31
	1st/3rd Q	0.15/0.38	0.14/0.28	0.21/0.56	0.26/0.48	0.13/0.26	0.15/0.68	1.2/2.7	0.26/0.4	0.049/0.13	0.21/0.42
	n	663	85	64	126	62	13	35	73	36	169

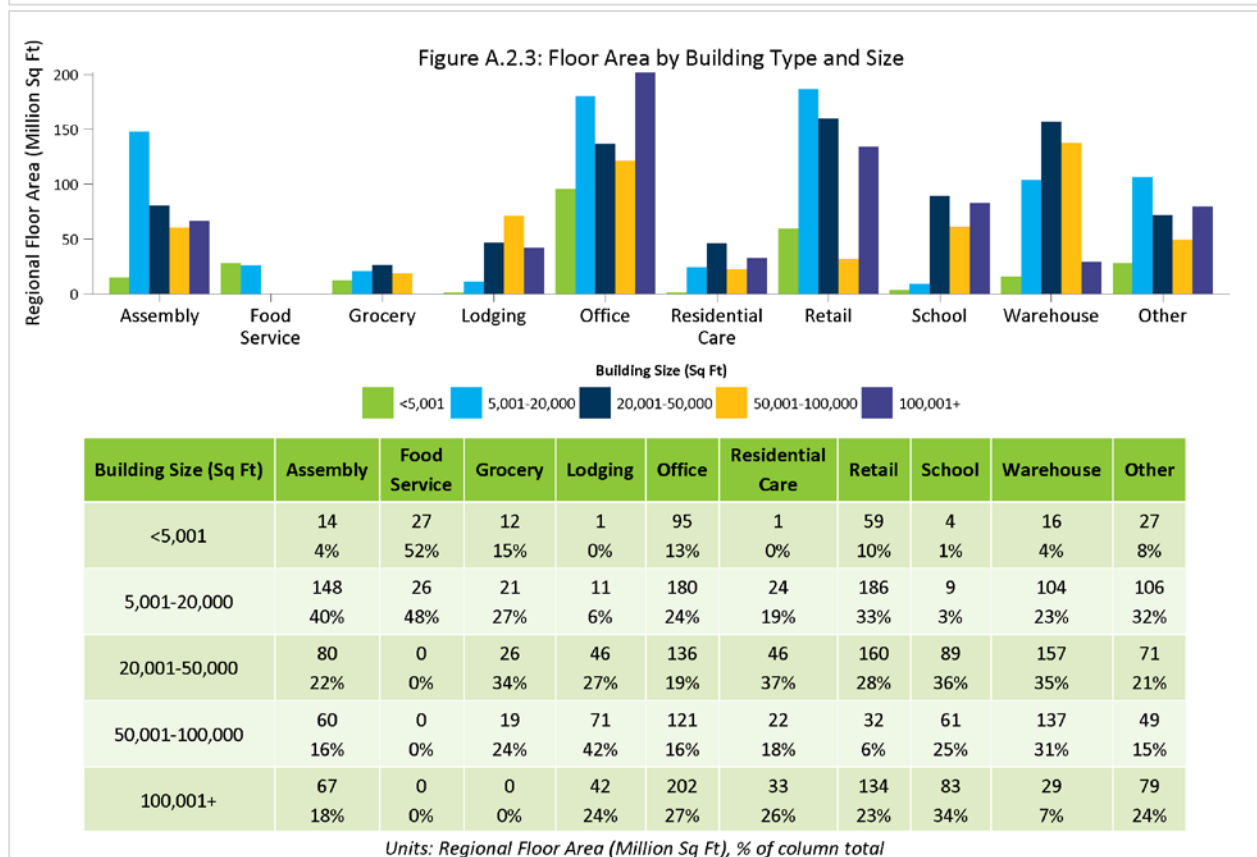
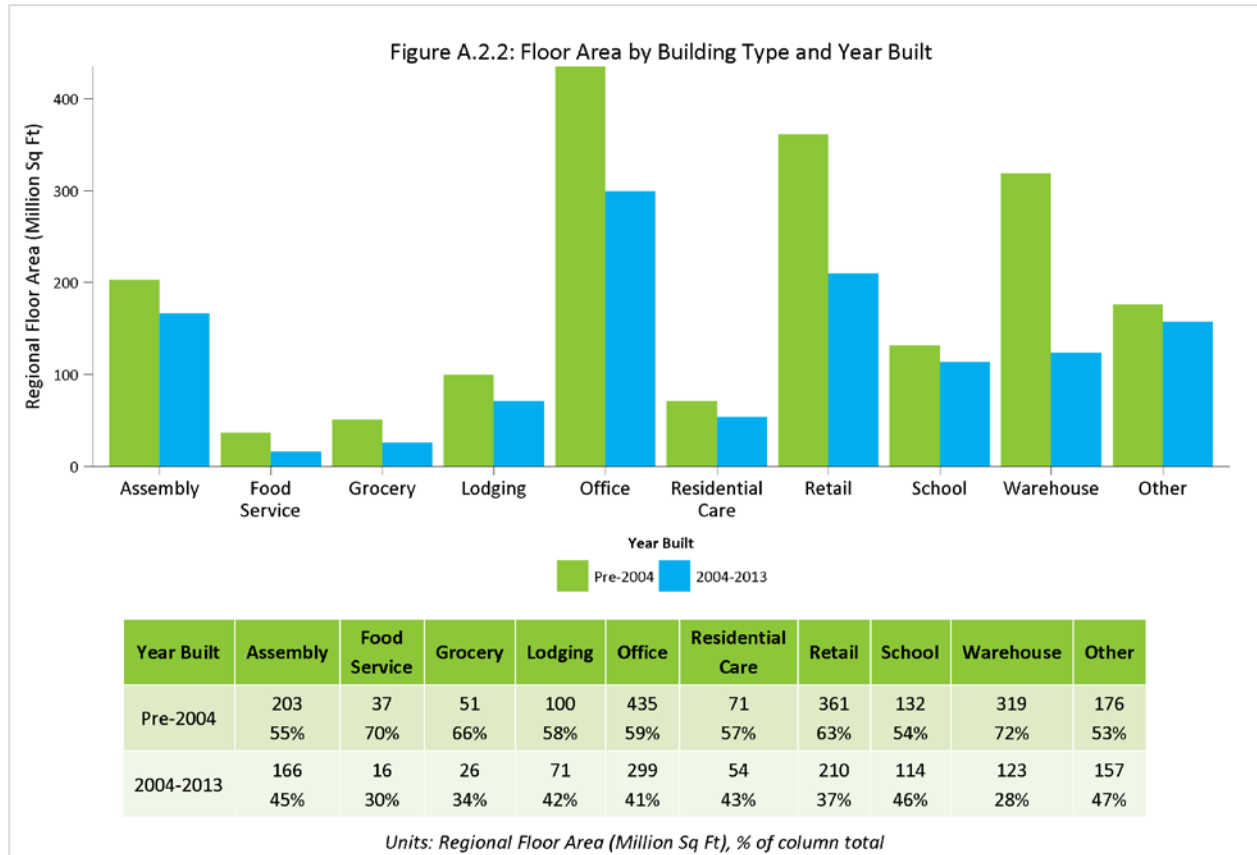
Units: Natural Gas Energy Use Intensity (Therms/Sq Ft)

A.2 2014 CBSA General Building Information

All summary tables below use the current 2014 CBSA building type mappings.



2014 Northwest Commercial Building Stock Assessment



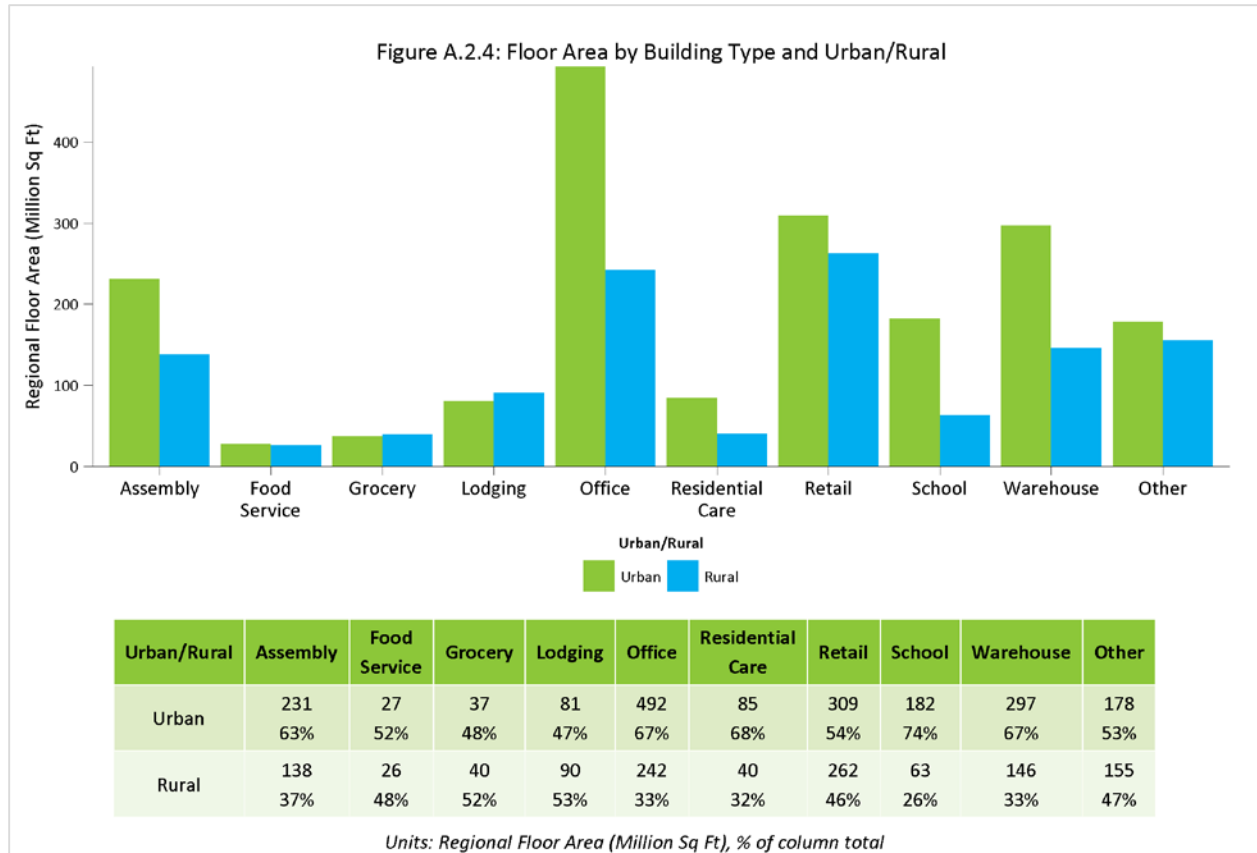
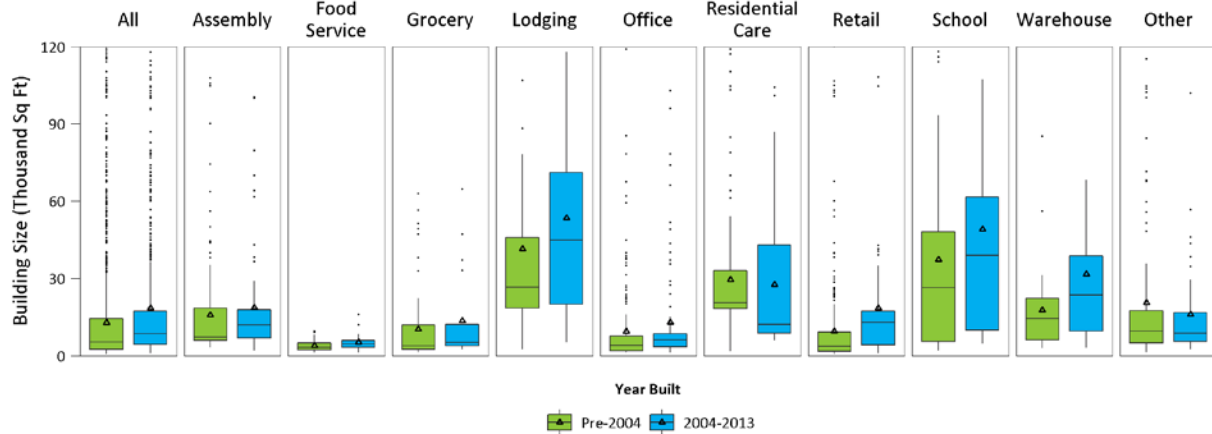


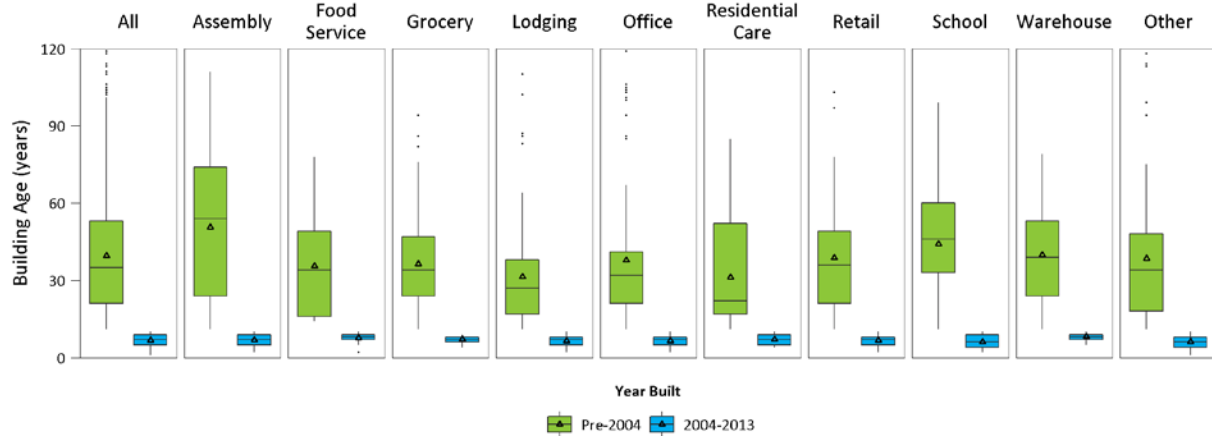
Figure A.2.6: Building Size by Building Type and Year Built



Year Built	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Pre-2004	Mean	12.9 ± 2	15.8 ± 5	3.89 ± 0.8	10.4 ± 3	41.5 ± 16	9.44 ± 6	29.5 ± 7	9.55 ± 4	37.3 ± 11	17.7 ± 6	20.6 ± 8
	Median	5.24	7.23	3.25	3.79	26.6	4.01	20.6	3.6	26.5	14.4	9.56
	1st/3rd Q	2.4/14	5.9/19	2.3/4.9	2.4/12	18/46	1.9/7.6	18/33	1.7/9.2	5.6/48	6.1/22	5/17
	n	517	67	24	53	47	70	46	82	52	23	53
2004-2013	Mean	18.5 ± 3	18.6 ± 7	5.28 ± 1	13.6 ± 6	53.4 ± 14	13 ± 9	27.6 ± 18	18.5 ± 8	49.1 ± 18	31.7 ± 13	16 ± 9
	Median	8.45	12	4.48	5.07	44.8	6.05	12.2	13	39	23.5	8.73
	1st/3rd Q	4.4/17	6.8/18	3.2/5.9	3.7/12	20/71	3.4/8.4	8.7/43	4.1/17	9.9/62	9.4/39	5.5/17
	n	295	38	19	21	25	47	24	50	23	20	28

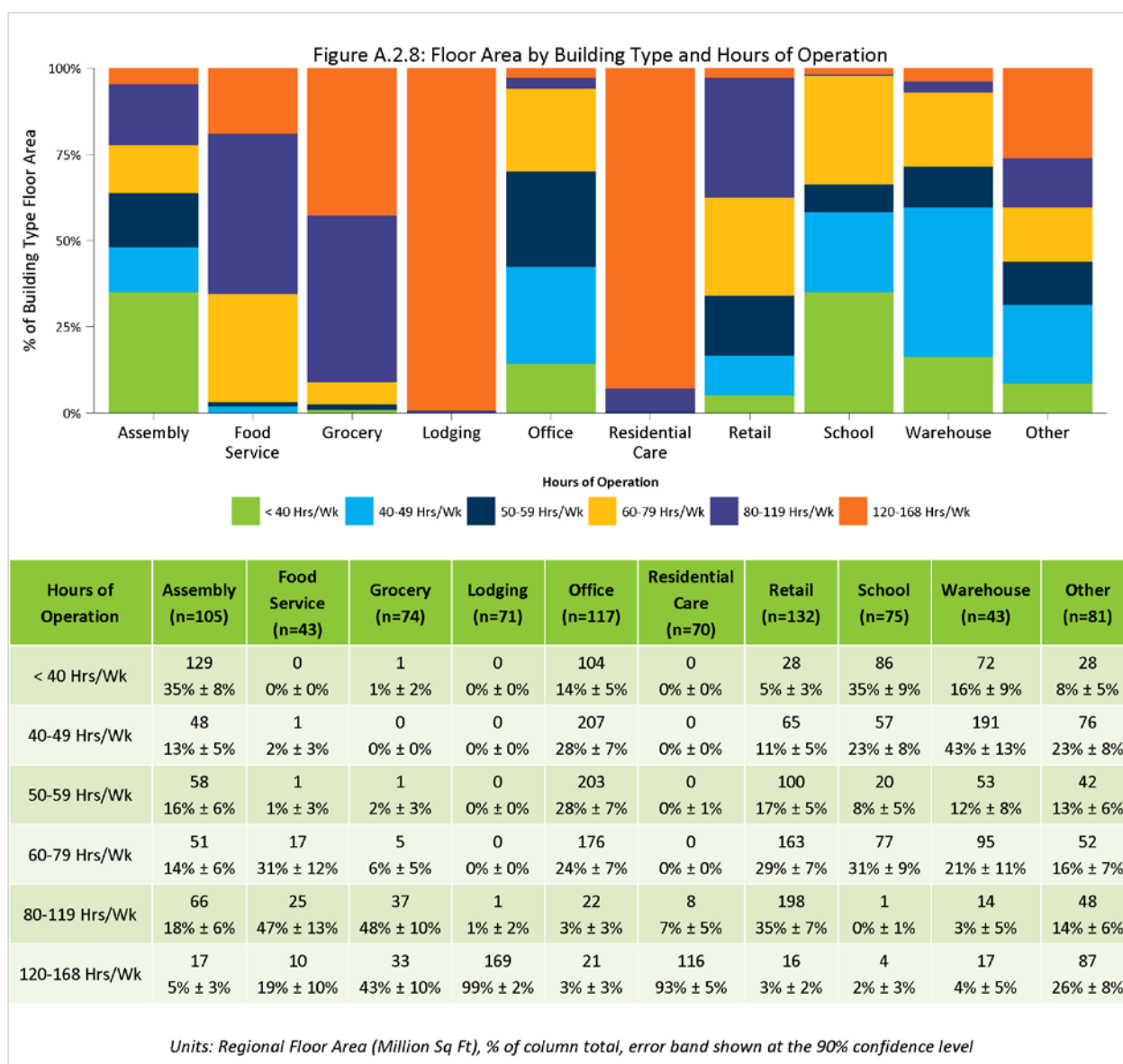
Units: Building Size (Thousand Sq Ft), error band shown at the 90% confidence level

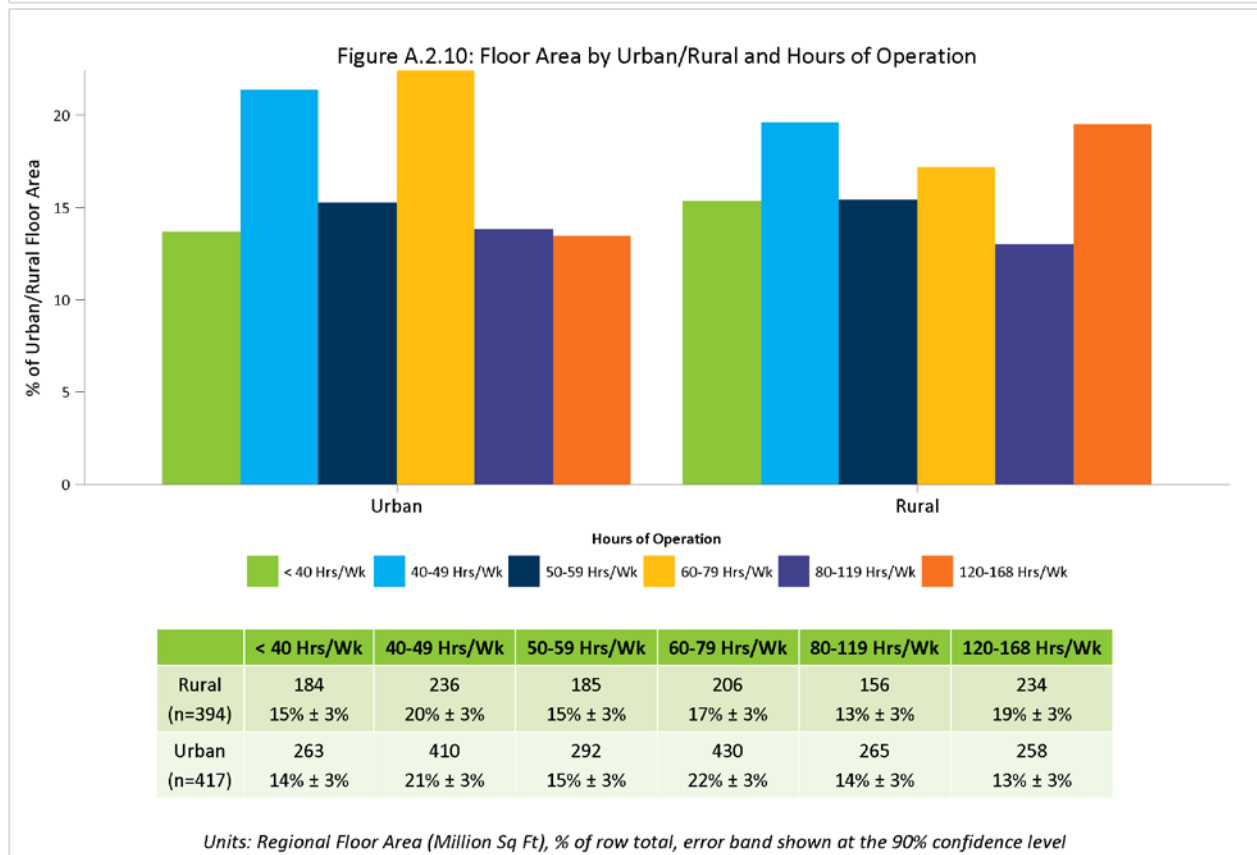
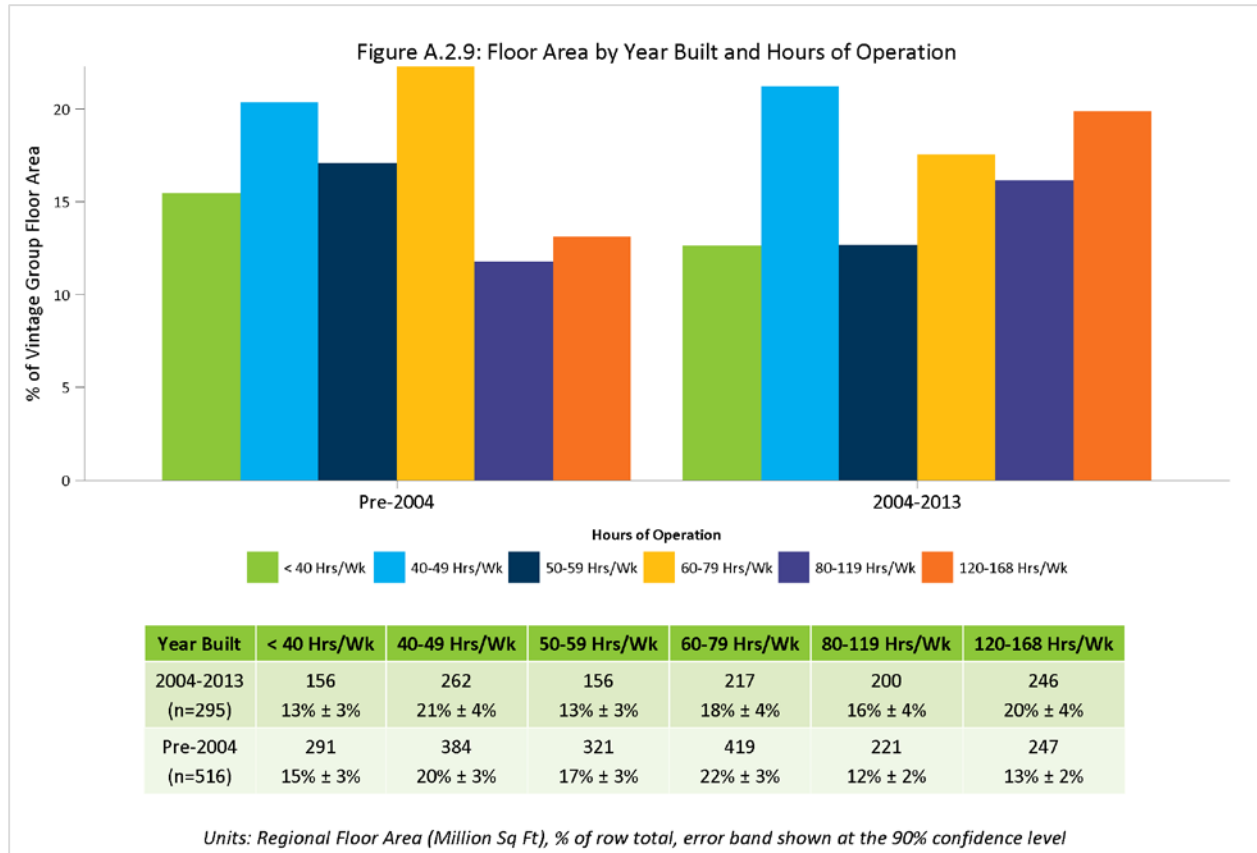
Figure A.2.7: Building Age by Building Type and Year Built

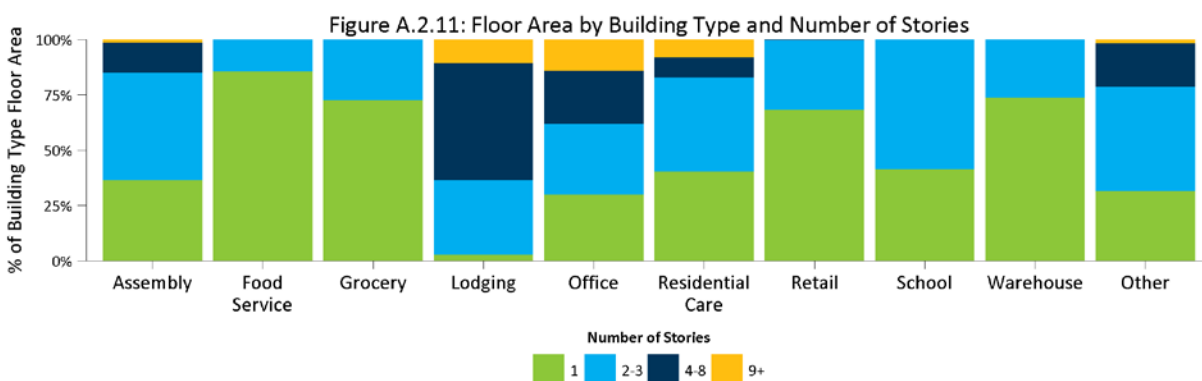


Year Built	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Pre-2004	Mean	39.6 ± 2	50.7 ± 5	35.6 ± 6	36.4 ± 5	31.4 ± 5	37.8 ± 5	31.3 ± 4	38.8 ± 4	44.2 ± 4	39.9 ± 6	38.5 ± 6
	Median	35	54	34	34	27	32	22	36	46	39	34
	1st/3rd Q	21/53	24/74	16/49	24/47	17/38	21/41	17/52	21/49	33/60	24/53	18/48
	n	517	67	24	53	47	70	46	82	52	23	53
2004-2013	Mean	6.78 ± 0.2	6.84 ± 0.7	7.74 ± 0.8	7.17 ± 0.5	6.54 ± 0.6	6.63 ± 0.5	7.01 ± 0.8	6.77 ± 0.5	6.14 ± 1	8.16 ± 0.5	6.21 ± 0.9
	Median	7	7	8	7	7	7	7	7	6	8	6
	1st/3rd Q	5/9	5/9	7/9	6/8	5/8	5/8	5/9	5/8	4/9	7/9	4/8
	n	295	38	19	21	25	47	24	50	23	20	28

Units: Building Age (years), error band shown at the 90% confidence level

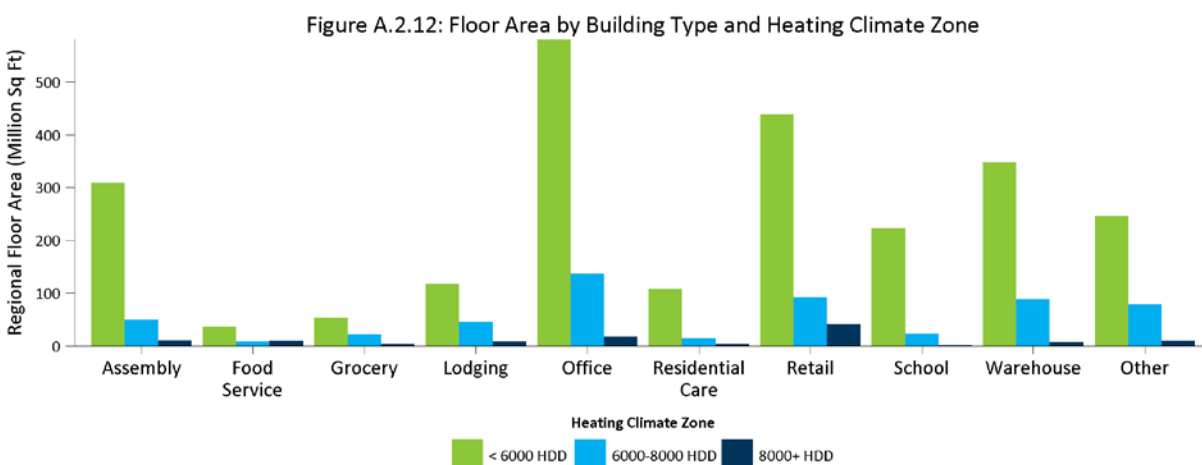






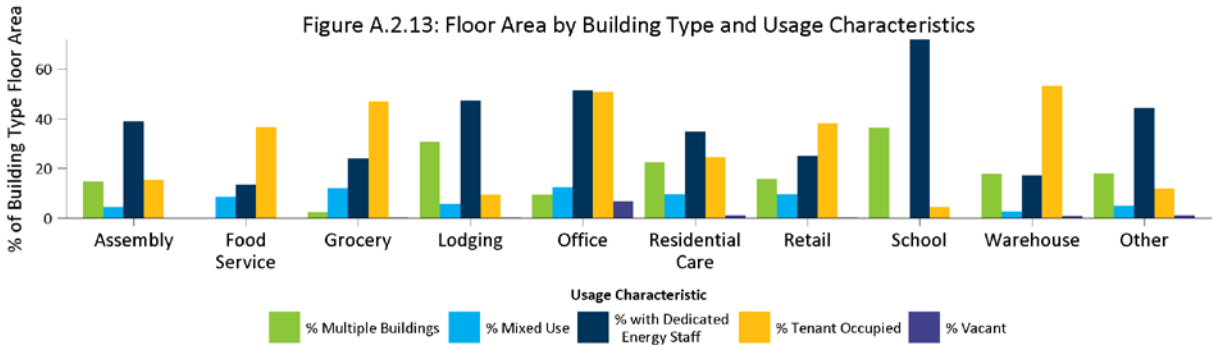
Number of Stories	Assembly (n=105)	Food Service (n=43)	Grocery (n=74)	Lodging (n=72)	Office (n=117)	Residential Care (n=70)	Retail (n=132)	School (n=75)	Warehouse (n=43)	Other (n=81)
1	134 36% ± 8%	45 86% ± 9%	56 73% ± 9%	5 3% ± 3%	219 30% ± 7%	50 40% ± 10%	390 68% ± 7%	102 41% ± 9%	326 74% ± 11%	104 31% ± 9%
2-3	180 49% ± 8%	8 14% ± 9%	21 27% ± 9%	58 34% ± 9%	236 32% ± 7%	53 43% ± 10%	180 32% ± 7%	144 59% ± 9%	117 26% ± 11%	157 47% ± 9%
4-8	50 14% ± 6%	0 0% ± 0%	0 0% ± 0%	90 53% ± 10%	176 24% ± 7%	11 9% ± 6%	1 0% ± 1%	0 0% ± 0%	0 0% ± 0%	66 20% ± 7%
9+	5 1% ± 2%	0 0% ± 0%	0 0% ± 0%	18 11% ± 6%	104 14% ± 5%	10 8% ± 5%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	6 2% ± 2%

Units: Regional Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level



Heating Climate Zone	Assembly (n=105)	Food Service (n=43)	Grocery (n=74)	Lodging (n=72)	Office (n=117)	Residential Care (n=70)	Retail (n=132)	School (n=75)	Warehouse (n=43)	Other (n=81)
< 6000 HDD	309 84% ± 6%	36 67% ± 12%	53 68% ± 9%	118 69% ± 9%	580 79% ± 6%	108 86% ± 7%	439 77% ± 6%	222 91% ± 6%	348 79% ± 11%	246 74% ± 8%
6000-8000 HDD	50 13% ± 6%	8 16% ± 9%	21 28% ± 9%	45 26% ± 9%	137 19% ± 6%	15 12% ± 6%	91 16% ± 5%	23 9% ± 6%	88 20% ± 10%	78 24% ± 8%
8000+ HDD	10 3% ± 3%	9 17% ± 10%	3 4% ± 4%	8 5% ± 4%	17 2% ± 2%	3 2% ± 3%	41 7% ± 4%	1 0% ± 1%	7 2% ± 3%	9 3% ± 3%

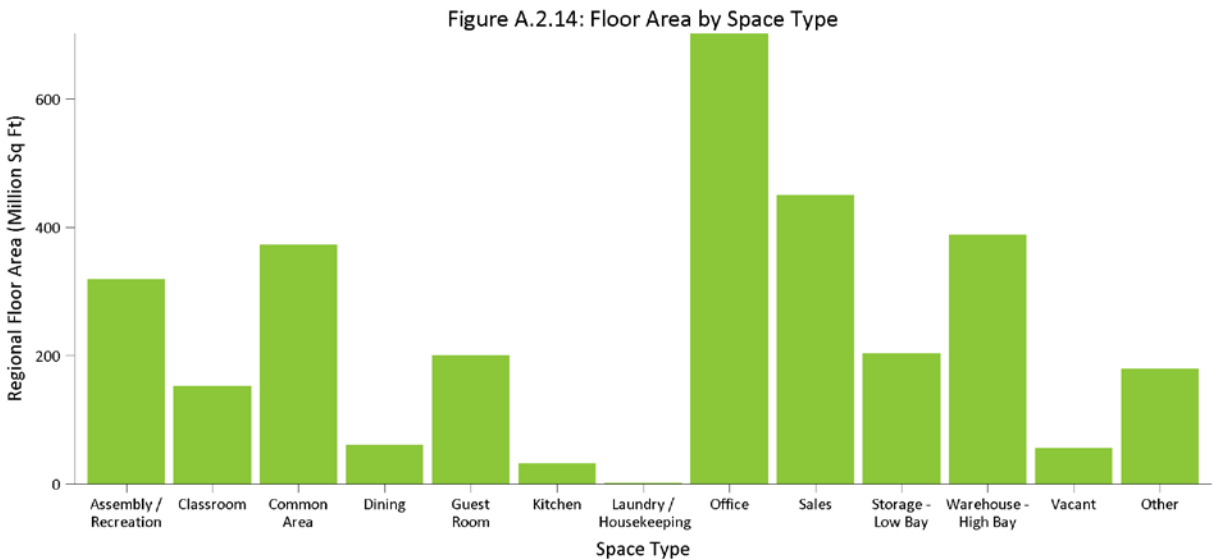
Units: Regional Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level



Usage Characteristic	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
% Multiple Buildings	54 15%	0 0%	2 2%	52 31%	68 9%	28 22%	90 16%	89 36%	78 18%	60 18%
% Mixed Use	15 4%	4 8%	9 12%	10 6%	91 12%	12 10%	54 9%	0 0%	11 3%	16 5%
% with Dedicated Energy Staff	144 39%	7 13%	18 24%	81 47%	377 51%	44 35%	143 25%	176 72%	76 17%	148 44%
% Tenant Occupied	56 15%	19 37%	36 47%	16 9%	373 51%	30 24%	218 38%	10 4%	235 53%	39 12%
% Vacant	0 0%	0 0%	0 0%	0 0%	48 7%	1 1%	1 0%	0 0%	3 1%	3 1%

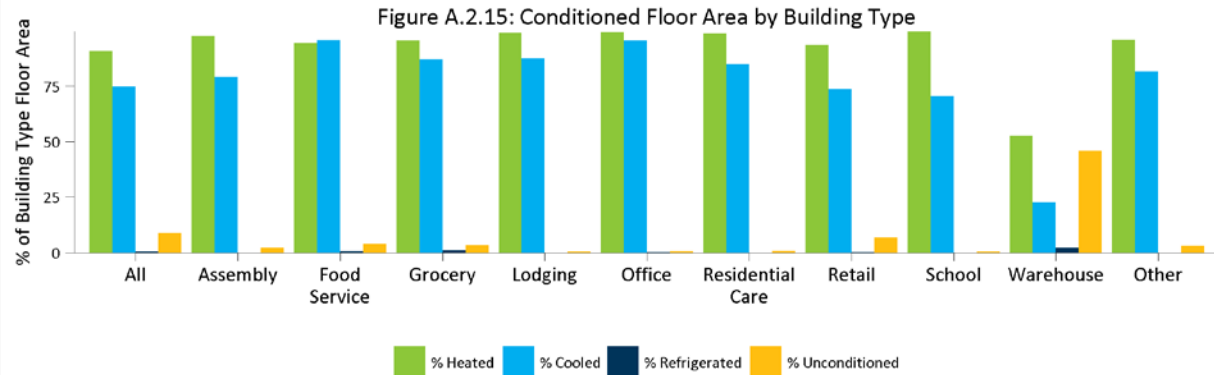
Units: Regional Floor Area (Million Sq Ft), % of Building Type Floor Area

Note: "Mixed Use" indicates buildings where spaces with different businesses and economic use types occupy the same building/complex, such as strip malls, enclosed malls, and office buildings with first floor retail/restaurant/grocery



Assembly / Recreation	Classroom	Common Area	Dining	Guest Room	Kitchen	Laundry / Housekeeping	Office	Sales	Storage - Low Bay	Warehouse - High Bay	Vacant	Other
319 10%	153 5%	374 12%	61 2%	201 6%	32 1%	2 0%	702 22%	451 14%	204 7%	389 12%	56 2%	180 6%

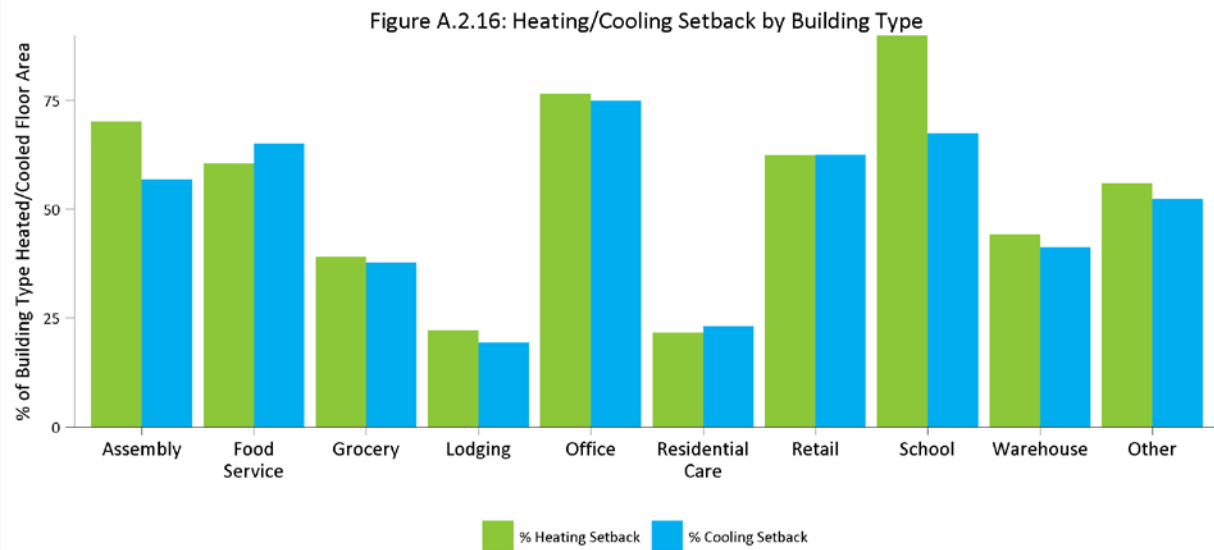
Units: Regional Floor Area (Million Sq Ft), % of row total



	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
% Heated	2,839 91%	361 98%	50 95%	74 96%	170 99%	730 99%	124 99%	534 94%	245 100%	233 53%	320 96%
% Cooled	2,335 75%	293 79%	51 96%	67 87%	150 88%	702 96%	106 85%	421 74%	173 71%	100 23%	272 82%
% Refrigerated	11 0%	0 0%	0 1%	1 1%	0 0%	0 0%	0 0%	0 0%	0 0%	9 2%	0 0%
% Unconditioned	271 9%	8 2%	2 4%	3 3%	1 0%	4 1%	1 1%	38 7%	1 0%	203 46%	10 3%

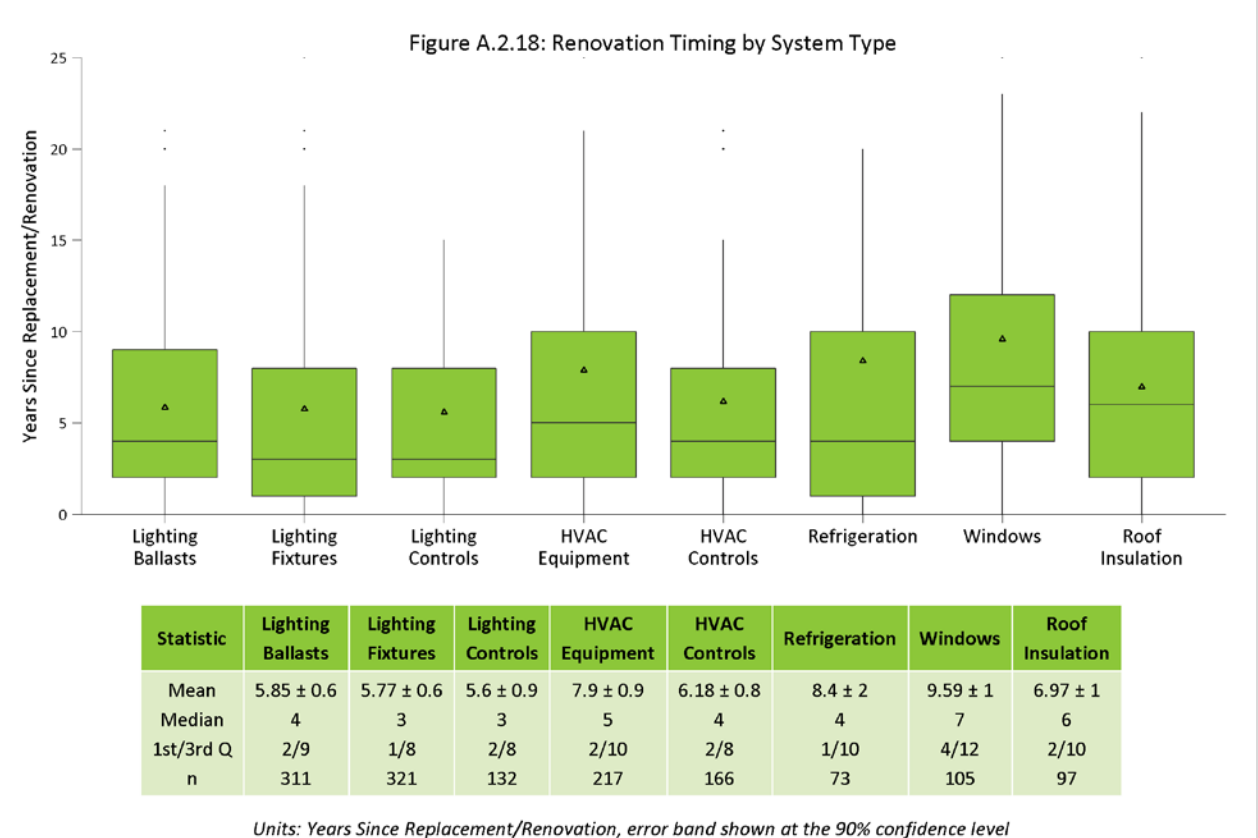
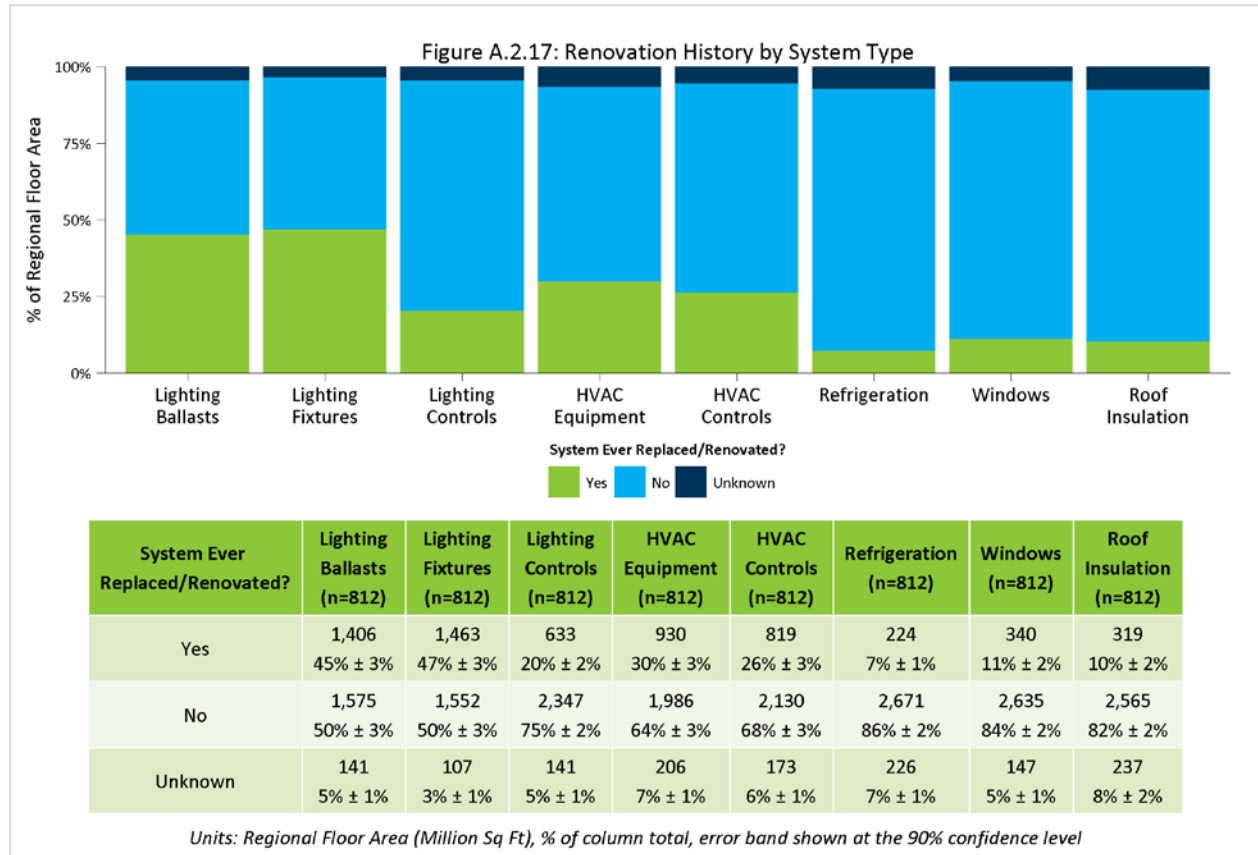
Units: Regional Floor Area (Million Sq Ft), % of Building Type Floor Area

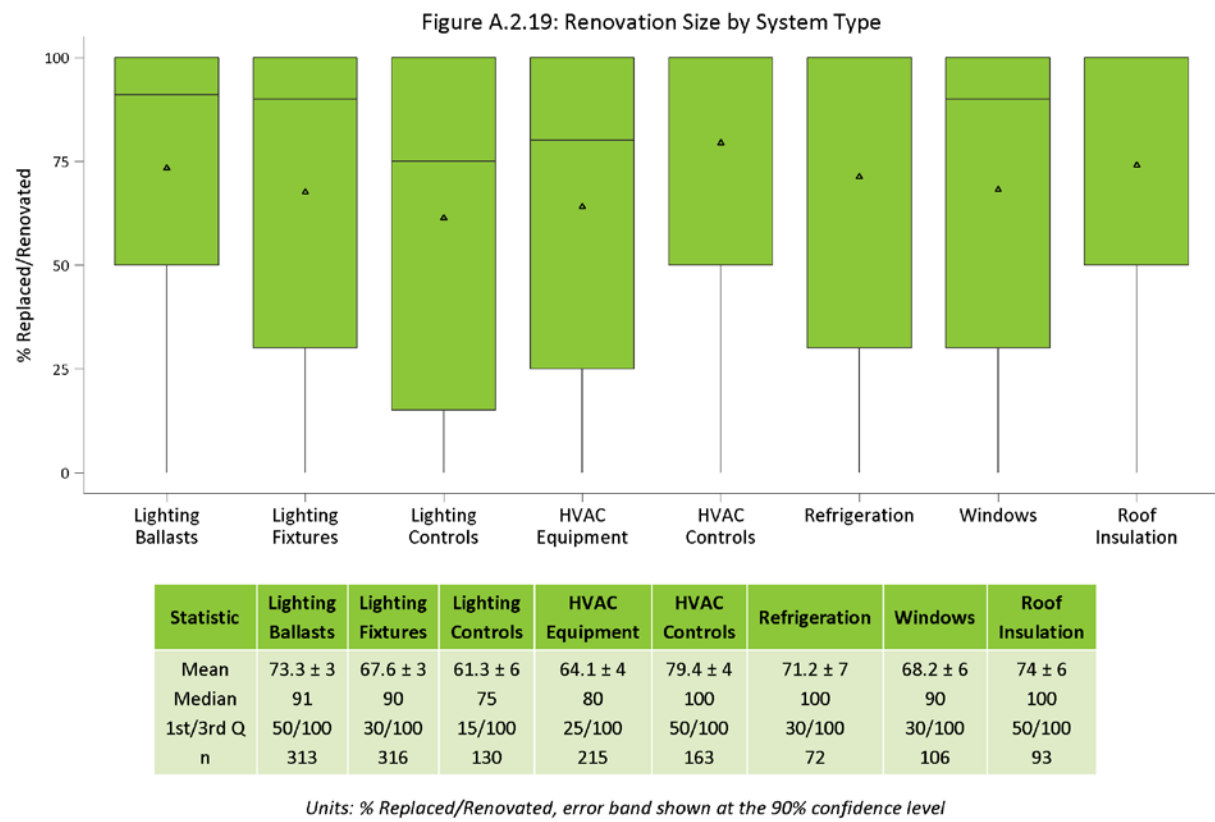
Note: % cooled does not include refrigerated space



	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
% Heating Setback	248 70%	30 60%	29 39%	36 22%	494 76%	26 22%	329 62%	217 90%	103 44%	160 56%
% Cooling Setback	162 57%	33 65%	25 38%	27 19%	463 75%	24 23%	259 62%	115 67%	41 41%	124 52%

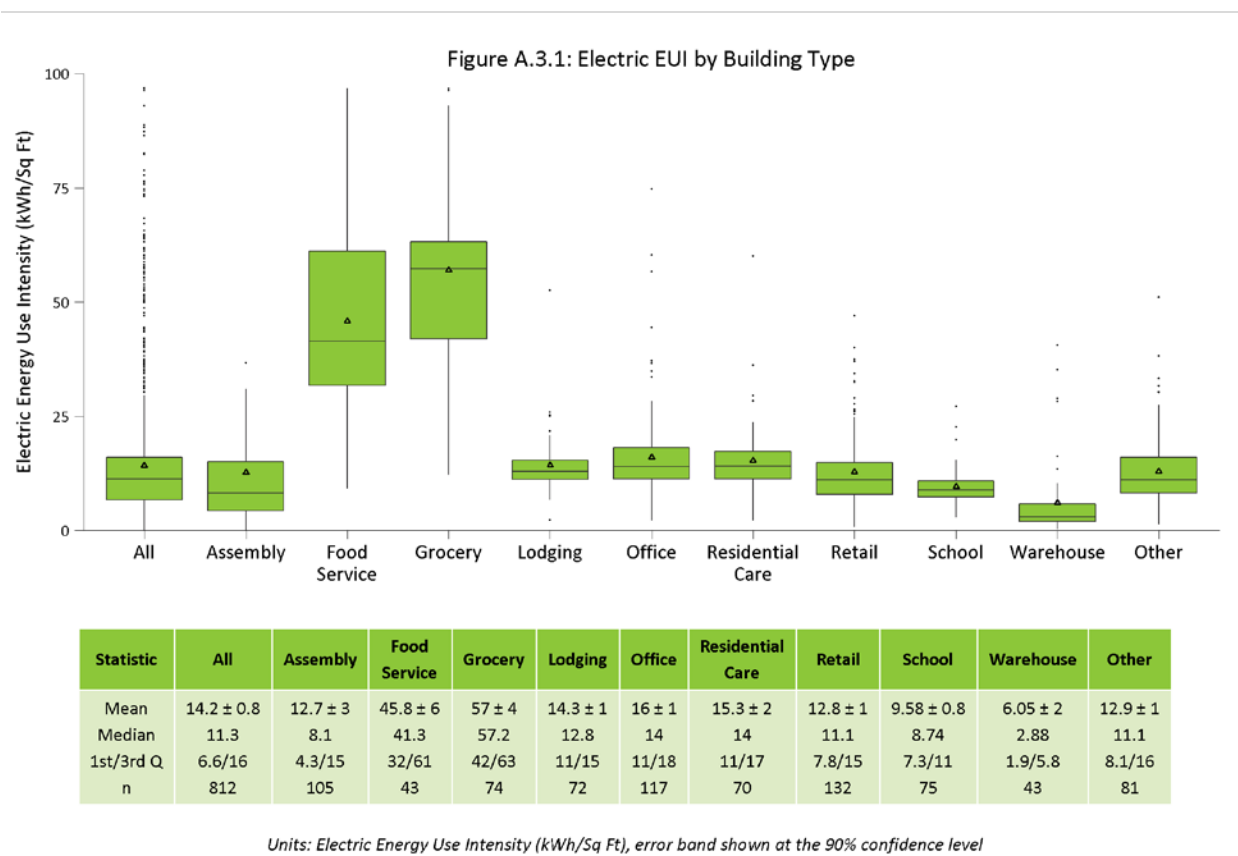
Units: Regional Floor Area (Million Sq Ft), % Building Type Heated/Cooled Floor Area

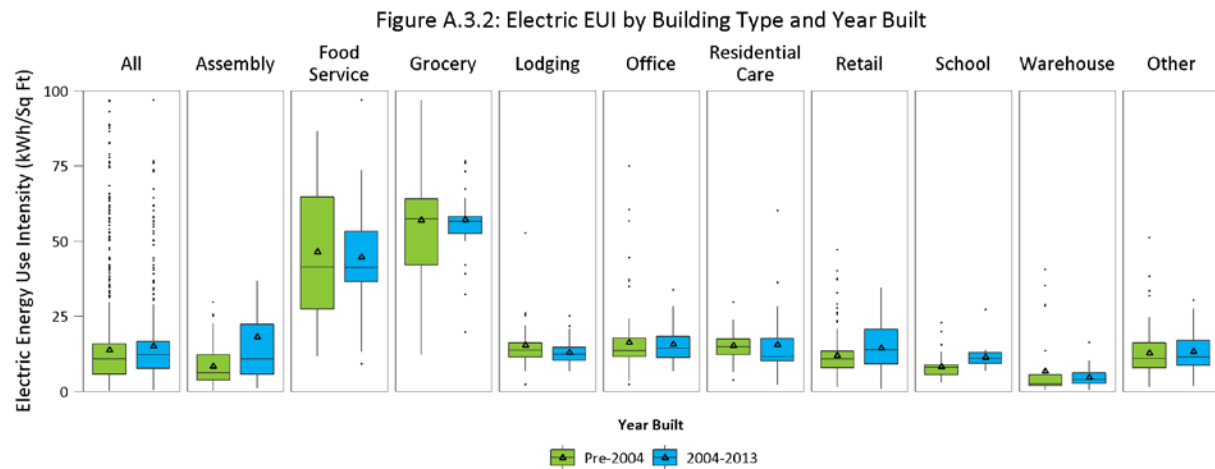




A.3 Energy Use Intensities

All Energy Use Intensities exclude parking garages. Gas EUIs only include gas service customers.

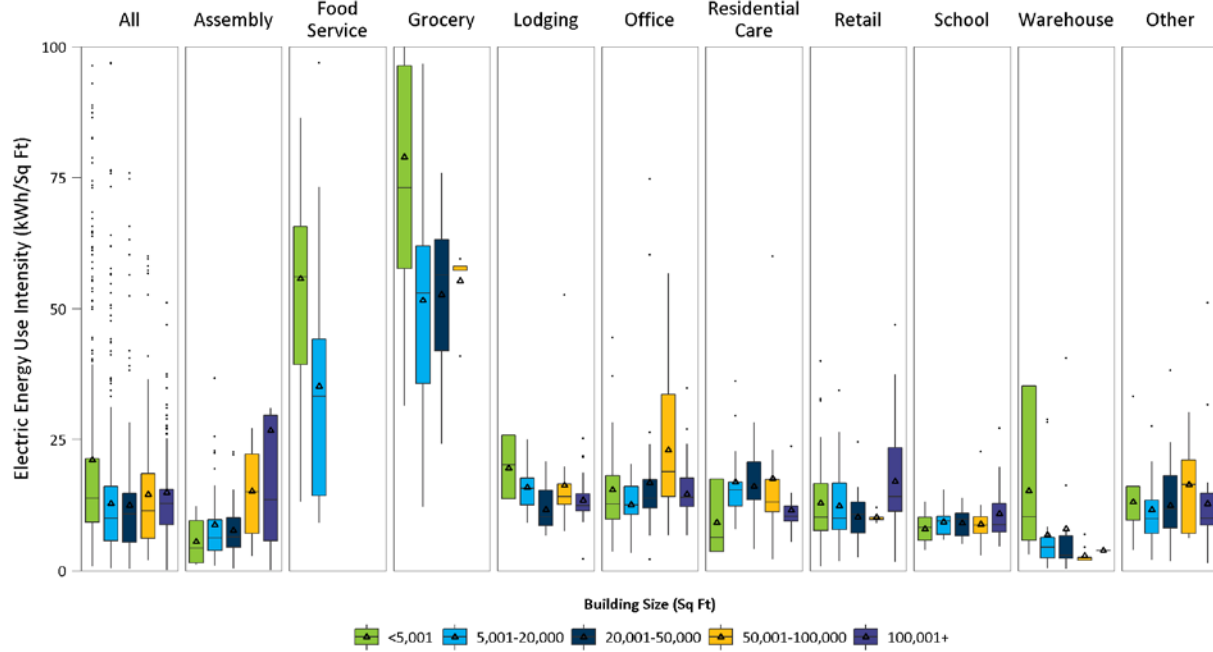




Year Built	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Pre-2004	Mean	13.6 ± 1	8.24 ± 1	46.3 ± 9	56.9 ± 5	15.3 ± 2	16.2 ± 2	15.1 ± 1	11.8 ± 1	8.11 ± 0.9	6.64 ± 4	12.6 ± 2
	Median	10.7	6.19	41.3	57.2	13.5	13.4	14.8	10.6	7.87	2.38	10.8
	1st/3rd Q	5.6/16	3.7/12	27/65	42/64	11/16	12/18	12/17	7.8/13	5.5/8.7	1.9/5.5	7.8/16
	n	517	67	24	53	47	70	46	82	52	23	53
2004-2013	Mean	15 ± 1	18.1 ± 7	44.6 ± 8	57.1 ± 7	12.9 ± 1	15.6 ± 2	15.4 ± 4	14.3 ± 2	11.3 ± 1	4.52 ± 1	13.2 ± 2
	Median	12.2	10.7	41.2	56.4	12.4	14.2	11.6	13.8	10.8	3.78	11.4
	1st/3rd Q	7.5/17	5.6/22	36/53	52/58	10/15	11/18	10/18	9/21	9.2/13	2.5/6.1	8.6/17
	n	295	38	19	21	25	47	24	50	23	20	28

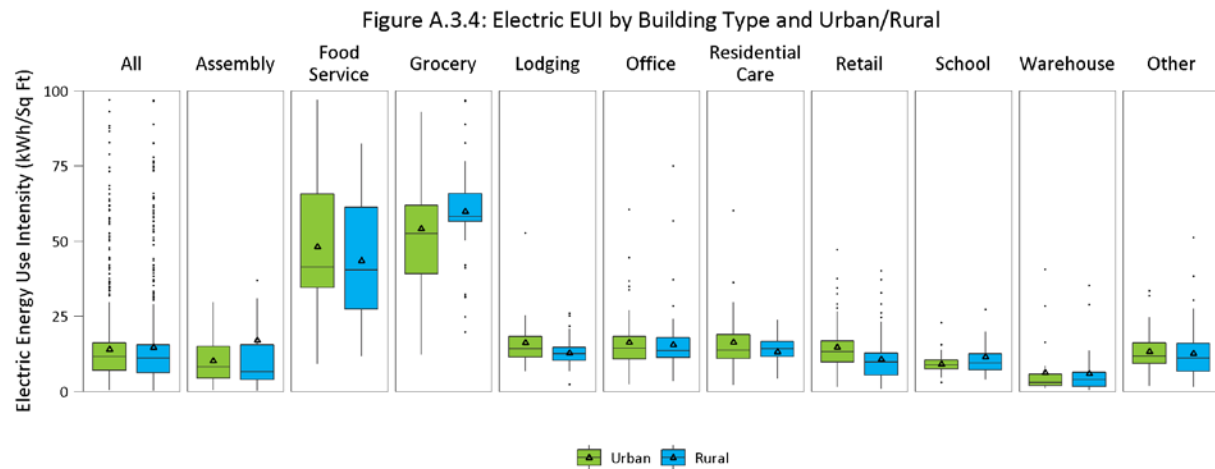
Units: Electric Energy Use Intensity (kWh/Sq Ft), error band shown at the 90% confidence level

Figure A.3.3: Electric EUI by Building Type and Size



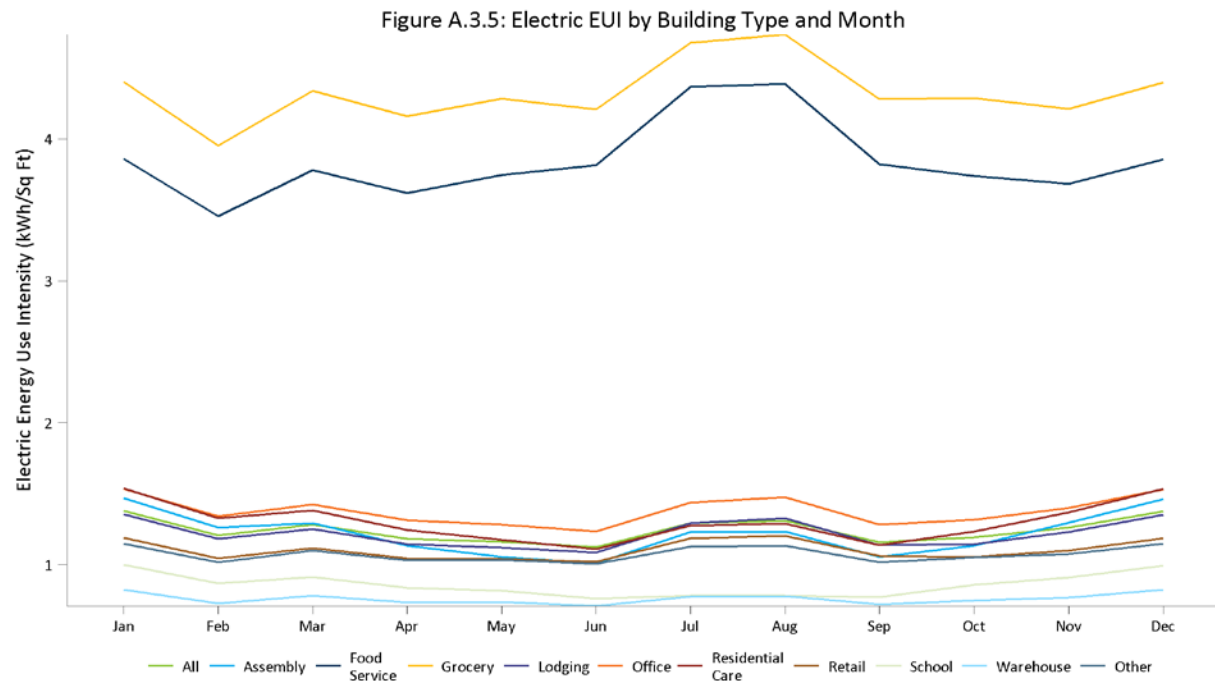
Building Size (Sq Ft)	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
<5,001	Mean	21.1 ± 3	5.5 ± 2	55.7 ± 7	78.9 ± 8	19.5 ± 9	15.4 ± 3	9.14 ± 10	12.9 ± 3	7.93 ± 2	15.2 ± 9	13.1 ± 2
	Median	13.8	4.26	56.1	73.1	20.1	12.6	6.3	10.1	8.2	10.2	16
	1st/3rd Q	9.2/21	1.4/9.5	39/66	58/96	14/26	9.8/18	3.6/17	7.6/17	5.8/10	5.8/35	9.6/16
	n	176	11	29	38	3	33	3	31	8	7	13
5,001-20,000	Mean	12.8 ± 1	8.71 ± 2	35.2 ± 9	51.6 ± 9	15.8 ± 3	12.6 ± 2	16.9 ± 3	12.3 ± 2	9.29 ± 2	6.8 ± 3	11.6 ± 2
	Median	9.94	6.19	33.2	52.9	15.6	12.4	15.4	9.94	9.4	4.45	9.88
	1st/3rd Q	5.7/16	3.8/9.7	14/44	36/62	13/18	11/16	12/17	7.8/17	6.8/10	2.4/6.3	7.1/13
	n	202	39	14	24	11	21	16	26	9	17	25
20,001-50,000	Mean	12.5 ± 1	7.68 ± 2	No Sample Data	52.7 ± 9	11.6 ± 2	16.8 ± 4	16.1 ± 2	10.2 ± 1	9.08 ± 1	7.93 ± 6	12.4 ± 3
	Median	10.8	6.44	No Sample Data	56.4	10.2	13.8	16.2	10.7	9.74	2.88	11.7
	1st/3rd Q	5.4/15	4.4/10	No Sample Data	42/63	8.5/15	12/17	14/21	7.2/13	6.6/11	2.3/6.6	8.1/18
	n	192	32	No Sample Data	8	18	29	19	34	20	13	19
50,001-100,000	Mean	14.5 ± 2	15.1 ± 5	No Sample Data	55.3 ± 8	16.3 ± 4	23 ± 8	17.5 ± 6	10.2 ± 1	8.82 ± 1	2.77 ± 1	16.4 ± 5
	Median	11.3	15	No Sample Data	58.1	14.1	18.8	13	9.67	8.61	2.37	16.4
	1st/3rd Q	6.1/19	7.1/22	No Sample Data	57/58	13/17	14/34	11/17	9.7/10	7/10	1.9/2.5	7/21
	n	100	8	No Sample Data	4	14	10	20	4	26	5	9
100,001+	Mean	14.9 ± 2	26.7 ± 18	No Sample Data	No Sample Data	13.4 ± 1	14.6 ± 2	11.5 ± 2	17 ± 3	10.8 ± 3	3.78 ± 0	12.8 ± 4
	Median	12.7	13.5	No Sample Data	No Sample Data	12.3	14	10.3	14.1	8.74	3.78	9.97
	1st/3rd Q	8.7/16	5.6/30	No Sample Data	No Sample Data	11/15	12/18	9.4/12	11/23	7.3/13	3.8/3.8	8.6/15
	n	142	15	No Sample Data	No Sample Data	26	24	12	37	12	1	15

Units: Electric Energy Use Intensity (kWh/Sq Ft), error band shown at the 90% confidence level



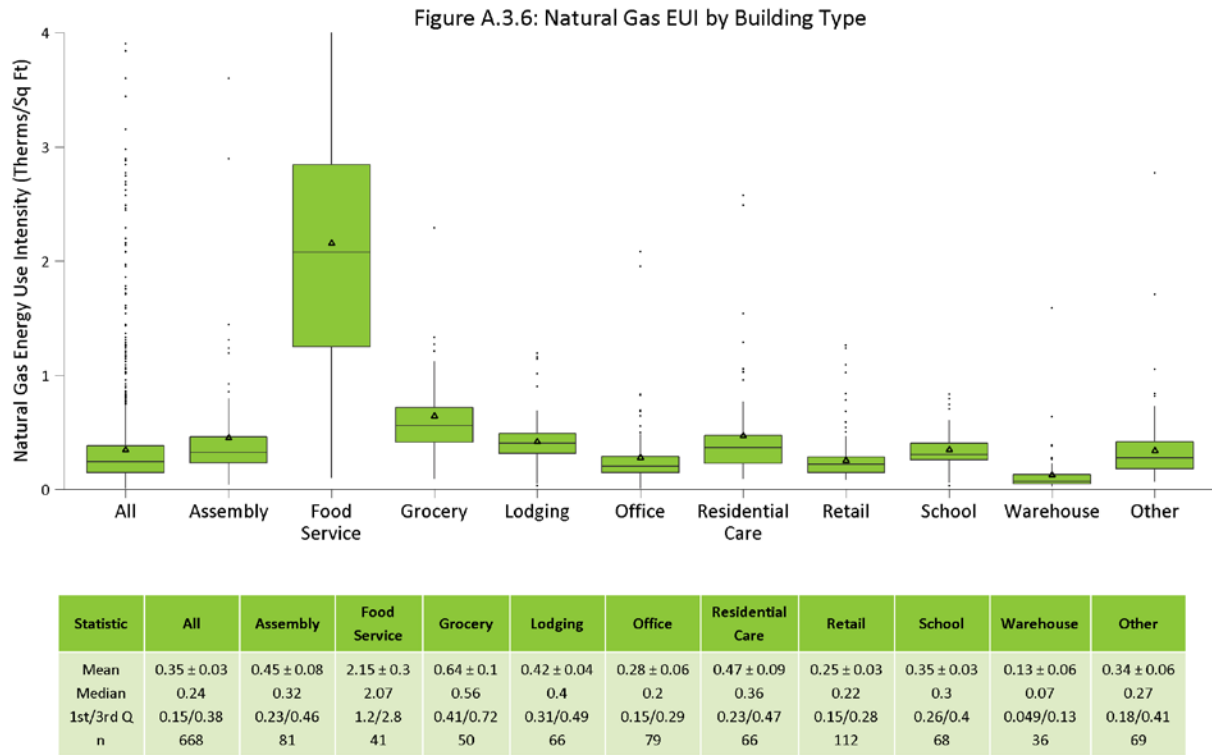
	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Urban	Mean	13.9 ± 1	10.1 ± 2	48.1 ± 10	54 ± 8	16.1 ± 3	16.2 ± 2	16.3 ± 3	14.7 ± 2	8.98 ± 0.7	6.17 ± 3	13.2 ± 2
	Median	11.5	8.11	41.3	52.4	14.1	14.2	13.7	13	8.74	2.88	11.6
	1st/3rd Q	6.9/16	4.3/15	34/66	39/62	11/18	11/18	11/19	9.7/17	7.3/10	1.9/5.6	9.2/16
	n	418	55	20	35	34	64	36	68	44	23	39
Rural	Mean	14.6 ± 1	17 ± 7	43.4 ± 7	59.7 ± 4	12.7 ± 1	15.5 ± 2	13.1 ± 1	10.5 ± 1	11.3 ± 2	5.8 ± 3	12.6 ± 2
	Median	11.1	6.44	40.3	58.1	12.5	13.4	14.1	9.73	9.41	3.78	11
	1st/3rd Q	6.2/15	3.8/15	27/61	56/66	10/15	11/18	11/16	5.3/13	7/12	1.6/6.3	6.6/16
	n	394	50	23	39	38	53	34	64	31	20	42

Units: Electric Energy Use Intensity (kWh/Sq Ft), error band shown at the 90% confidence level

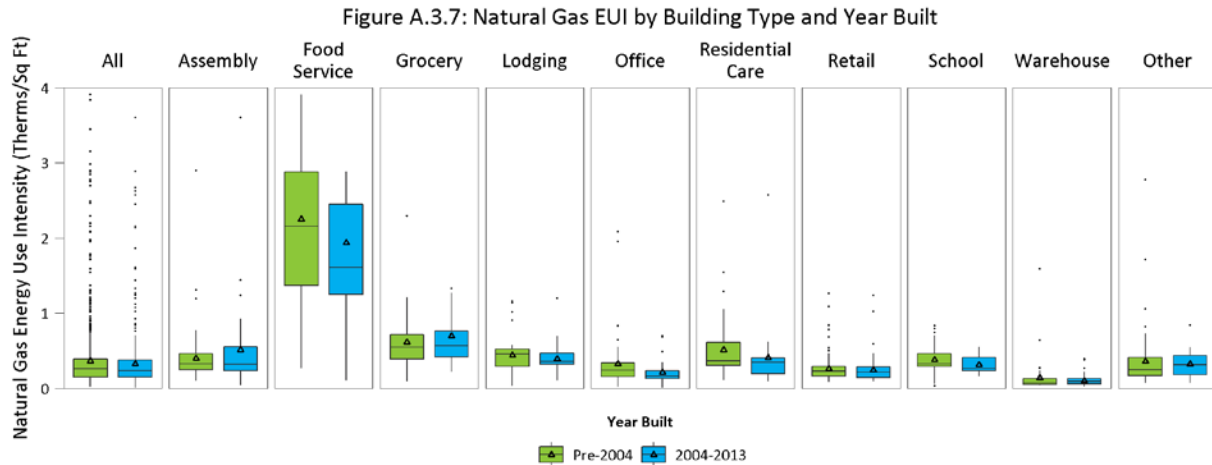


Building Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	1.38	1.21	1.28	1.18	1.16	1.12	1.29	1.31	1.16	1.19	1.26	1.38
Assembly	1.47	1.26	1.29	1.14	1.06	1.01	1.23	1.23	1.05	1.13	1.30	1.46
Food Service	3.86	3.46	3.78	3.62	3.75	3.82	4.37	4.39	3.82	3.74	3.68	3.86
Grocery	4.40	3.95	4.34	4.16	4.28	4.21	4.68	4.73	4.28	4.29	4.21	4.40
Lodging	1.36	1.18	1.25	1.15	1.12	1.09	1.29	1.33	1.14	1.15	1.23	1.35
Office	1.53	1.34	1.43	1.31	1.28	1.24	1.44	1.48	1.28	1.32	1.40	1.53
Residential Care	1.54	1.33	1.38	1.25	1.18	1.11	1.28	1.29	1.14	1.23	1.37	1.54
Retail	1.19	1.04	1.12	1.04	1.04	1.02	1.19	1.20	1.06	1.06	1.10	1.19
School	1.00	0.87	0.91	0.84	0.82	0.76	0.78	0.78	0.77	0.86	0.91	0.99
Warehouse	0.82	0.73	0.78	0.74	0.74	0.71	0.77	0.78	0.72	0.75	0.77	0.82
Other	1.15	1.02	1.10	1.03	1.03	1.01	1.13	1.14	1.02	1.05	1.07	1.15

Units: Electric Energy Use Intensity (kWh/Sq Ft)



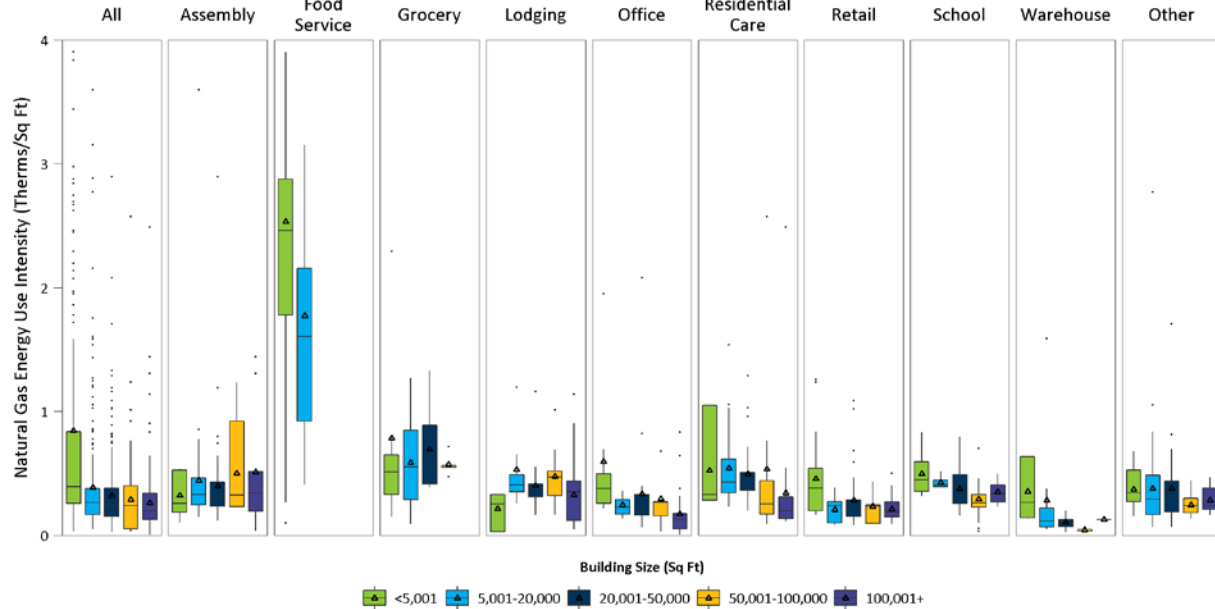
Units: Natural Gas Energy Use Intensity (Therms/Sq Ft), error band shown at the 90% confidence level



Year Built	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Pre-2004	Mean	0.36 ± 0.04	0.4 ± 0.07	2.25 ± 0.4	0.61 ± 0.2	0.44 ± 0.06	0.33 ± 0.09	0.51 ± 0.1	0.26 ± 0.04	0.38 ± 0.04	0.14 ± 0.1	0.36 ± 0.09
	Median	0.25	0.32	2.15	0.55	0.46	0.24	0.36	0.22	0.32	0.07	0.24
	1st/3rd Q	0.15/0.39	0.24/0.46	1.4/2.9	0.39/0.72	0.29/0.52	0.16/0.34	0.3/0.61	0.16/0.29	0.29/0.46	0.049/0.13	0.17/0.41
	n	414	51	23	33	42	46	45	67	46	18	43
2004-2013	Mean	0.32 ± 0.04	0.51 ± 0.2	1.93 ± 0.5	0.69 ± 0.1	0.39 ± 0.06	0.21 ± 0.06	0.41 ± 0.2	0.24 ± 0.04	0.31 ± 0.04	0.1 ± 0.02	0.32 ± 0.06
	Median	0.23	0.31	1.61	0.56	0.36	0.16	0.34	0.21	0.26	0.09	0.31
	1st/3rd Q	0.15/0.38	0.23/0.55	1.2/2.4	0.41/0.76	0.32/0.47	0.13/0.23	0.2/0.4	0.14/0.28	0.23/0.4	0.052/0.13	0.18/0.43
	n	254	30	18	17	24	33	21	45	22	18	26

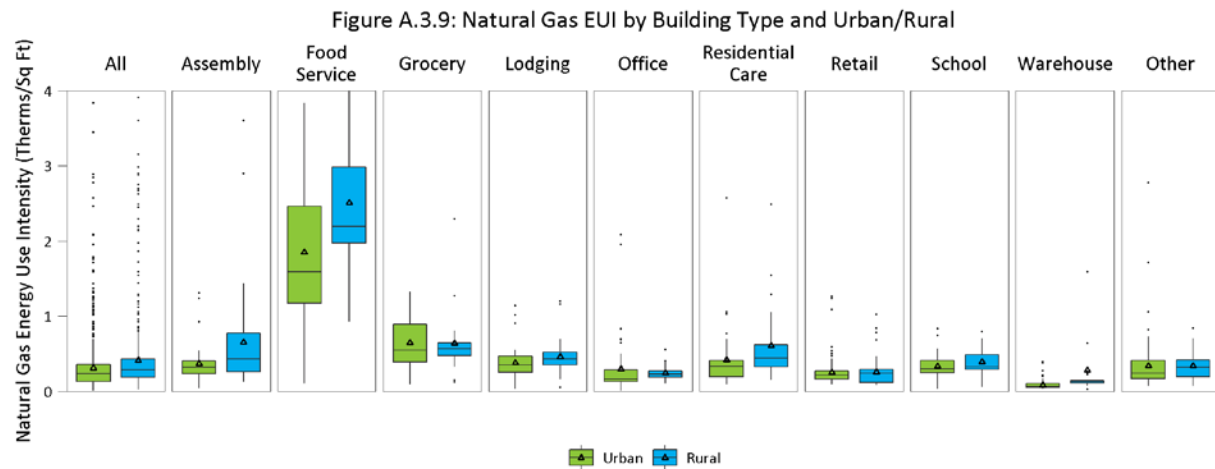
Units: Natural Gas Energy Use Intensity (Therms/Sq Ft), error band shown at the 90% confidence level

Figure A.3.8: Natural Gas EUI by Building Type and Size



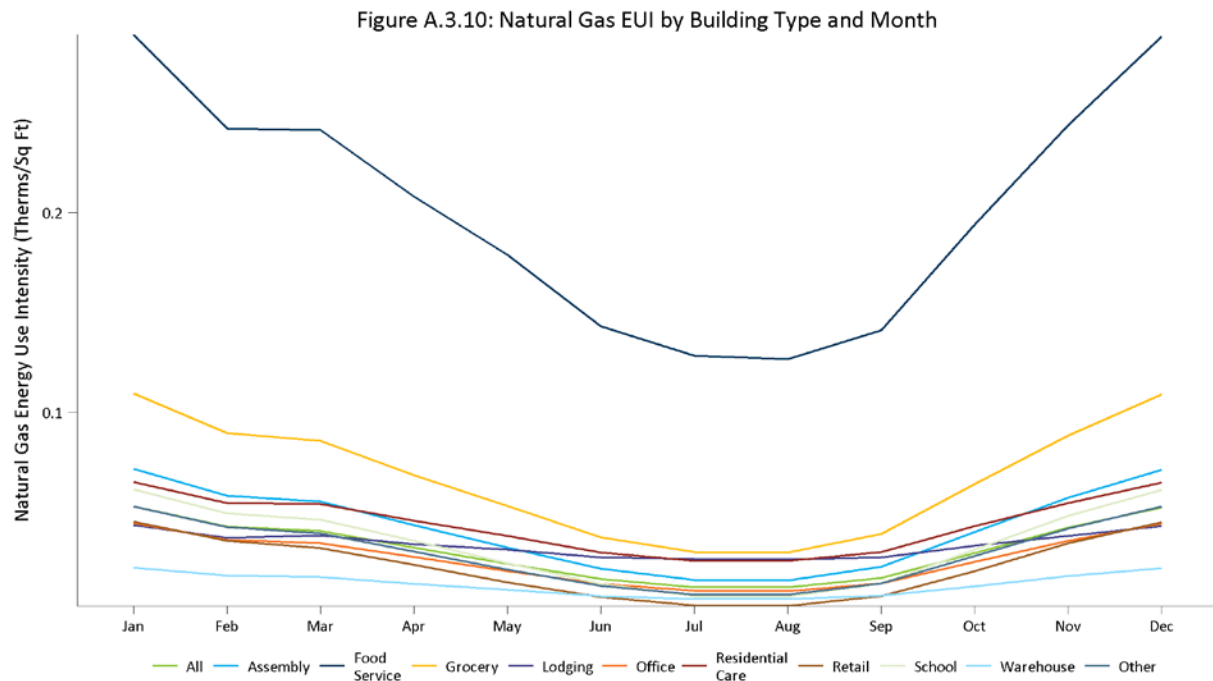
Building Size (Sq Ft)	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
<5,001	Mean	0.85 ± 0.2	0.32 ± 0.1	2.53 ± 0.4	0.78 ± 0.5	0.21 ± 0.2	0.6 ± 0.3	0.52 ± 0.6	0.45 ± 0.1	0.5 ± 0.2	0.35 ± 0.2	0.37 ± 0.1
	Median	0.39	0.25	2.46	0.51	0.25	0.38	0.33	0.38	0.45	0.27	0.34
	1st/3rd Q n	0.26/0.83 117	0.19/0.53 7	1.8/2.9 27	0.33/0.65 22	0.029/0.33 3	0.26/0.5 16	0.28/1 3	0.2/0.54 20	0.35/0.59 6	0.14/0.64 6	0.27/0.53 7
5,001-20,000	Mean	0.39 ± 0.06	0.44 ± 0.2	1.77 ± 0.4	0.59 ± 0.2	0.53 ± 0.2	0.24 ± 0.04	0.54 ± 0.1	0.21 ± 0.04	0.42 ± 0.03	0.28 ± 0.2	0.38 ± 0.1
	Median	0.26	0.33	1.61	0.55	0.41	0.23	0.43	0.24	0.41	0.11	0.29
	1st/3rd Q n	0.17/0.38 156	0.24/0.46 27	0.92/2.2 14	0.28/0.85 17	0.35/0.49 7	0.17/0.29 11	0.34/0.62 15	0.1/0.27 20	0.39/0.44 7	0.066/0.22 13	0.17/0.49 25
20,001-50,000	Mean	0.32 ± 0.04	0.4 ± 0.1	No Sample Data	0.69 ± 0.2	0.4 ± 0.09	0.33 ± 0.1	0.49 ± 0.1	0.28 ± 0.07	0.37 ± 0.06	0.1 ± 0.02	0.38 ± 0.1
	Median	0.24	0.3	No Sample Data	0.61	0.38	0.22	0.4	0.22	0.32	0.11	0.32
	1st/3rd Q n	0.15/0.38 173	0.23/0.43 28	No Sample Data	0.41/0.89 7	0.31/0.42 16	0.16/0.33 24	0.36/0.51 17	0.15/0.28 33	0.26/0.49 19	0.069/0.13 11	0.19/0.44 18
50,001-100,000	Mean	0.29 ± 0.05	0.5 ± 0.2	No Sample Data	0.57 ± 0.09	0.47 ± 0.09	0.29 ± 0.1	0.53 ± 0.3	0.23 ± 0.1	0.29 ± 0.04	0.04 ± 0.01	0.24 ± 0.07
	Median	0.24	0.32	No Sample Data	0.56	0.47	0.26	0.25	0.24	0.26	0.03	0.24
	1st/3rd Q n	0.052/0.4 94	0.23/0.92 8	No Sample Data	0.55/0.56 4	0.32/0.52 14	0.16/0.27 8	0.17/0.44 19	0.094/0.24 4	0.23/0.33 25	0.033/0.049 5	0.18/0.3 7
100,001+	Mean	0.26 ± 0.04	0.51 ± 0.3	No Sample Data	No Sample Data	0.33 ± 0.07	0.17 ± 0.08	0.34 ± 0.2	0.21 ± 0.03	0.35 ± 0.05	0.13 ± 0	0.28 ± 0.05
	Median	0.2	0.34	No Sample Data	No Sample Data	0.35	0.13	0.2	0.19	0.34	0.13	0.24
	1st/3rd Q n	0.13/0.34 128	0.19/0.51 11	No Sample Data	No Sample Data	0.12/0.44 26	0.05/0.18 20	0.13/0.31 12	0.15/0.27 35	0.27/0.4 11	0.13/0.13 1	0.21/0.38 12

Units: Natural Gas Energy Use Intensity (Therms/Sq Ft), error band shown at the 90% confidence level



	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Urban	Mean	0.31 ± 0.03	0.37 ± 0.06	1.85 ± 0.5	0.65 ± 0.1	0.38 ± 0.07	0.29 ± 0.09	0.41 ± 0.1	0.25 ± 0.04	0.33 ± 0.03	0.08 ± 0.02	0.34 ± 0.1
	Median	0.23	0.31	1.58	0.55	0.35	0.16	0.33	0.21	0.3	0.07	0.24
	1st/3rd Q	0.13/0.36	0.23/0.4	1.2/2.5	0.39/0.89	0.25/0.47	0.13/0.29	0.2/0.41	0.16/0.27	0.25/0.4	0.049/0.1	0.16/0.41
	n	361	49	20	24	33	45	35	61	41	23	30
Rural	Mean	0.41 ± 0.05	0.65 ± 0.2	2.51 ± 0.4	0.64 ± 0.2	0.46 ± 0.06	0.24 ± 0.03	0.6 ± 0.2	0.26 ± 0.04	0.39 ± 0.05	0.28 ± 0.2	0.34 ± 0.05
	Median	0.28	0.42	2.2	0.56	0.43	0.22	0.44	0.24	0.33	0.13	0.32
	1st/3rd Q	0.19/0.43	0.26/0.77	2/3	0.47/0.64	0.35/0.52	0.19/0.27	0.32/0.62	0.12/0.29	0.29/0.49	0.11/0.14	0.19/0.41
	n	307	32	21	26	33	34	31	51	27	13	39

Units: Natural Gas Energy Use Intensity (Therms/Sq Ft), error band shown at the 90% confidence level

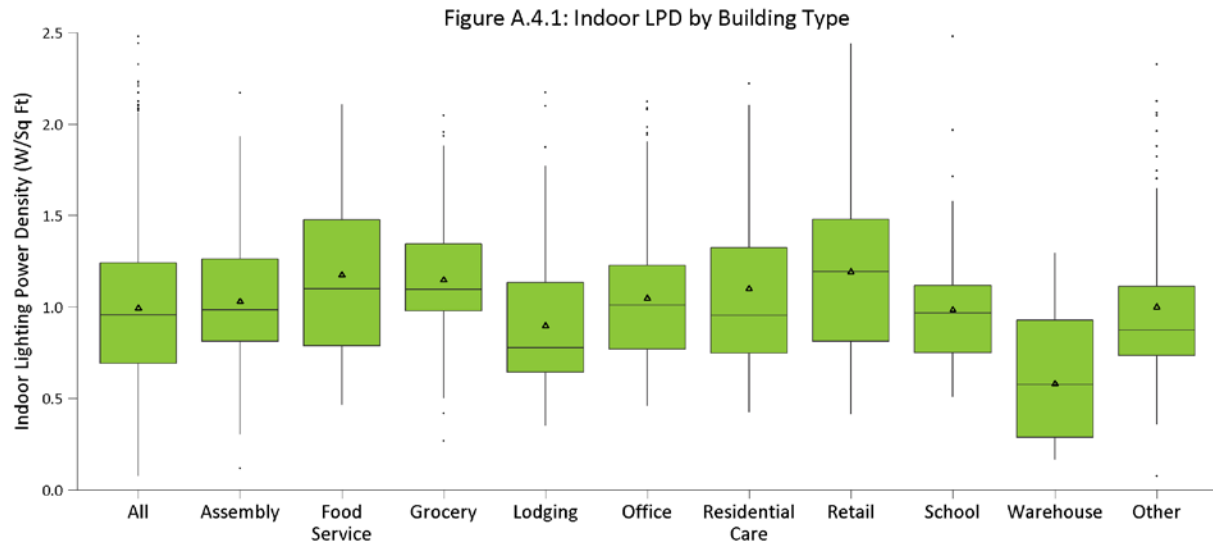


Building Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	0.053	0.043	0.041	0.032	0.024	0.016	0.012	0.012	0.017	0.030	0.042	0.052
Assembly	0.072	0.058	0.055	0.044	0.032	0.022	0.016	0.016	0.023	0.040	0.057	0.071
Food Service	0.289	0.242	0.241	0.208	0.179	0.143	0.128	0.127	0.141	0.194	0.244	0.288
Grocery	0.109	0.090	0.086	0.069	0.053	0.037	0.030	0.030	0.039	0.064	0.088	0.109
Lodging	0.043	0.037	0.038	0.034	0.031	0.027	0.026	0.026	0.027	0.033	0.038	0.043
Office	0.044	0.036	0.034	0.027	0.021	0.014	0.011	0.011	0.014	0.025	0.036	0.044
Residential Care	0.065	0.054	0.054	0.046	0.038	0.030	0.026	0.026	0.030	0.043	0.055	0.065
Retail	0.045	0.036	0.032	0.024	0.015	0.008	0.003	0.003	0.008	0.020	0.034	0.045
School	0.061	0.049	0.046	0.036	0.024	0.014	0.008	0.008	0.014	0.031	0.048	0.061
Warehouse	0.022	0.018	0.018	0.014	0.011	0.008	0.006	0.006	0.008	0.013	0.018	0.022
Other	0.053	0.043	0.039	0.030	0.021	0.013	0.009	0.009	0.014	0.028	0.042	0.053

Units: Natural Gas Energy Use Intensity (Therms/Sq Ft), error band shown at the 90% confidence level

A.4 Lighting

Interior Lighting Power Densities (LPDs) generated using all building floor area except: parking garages, outdoor lighting, and refrigerated case lighting.



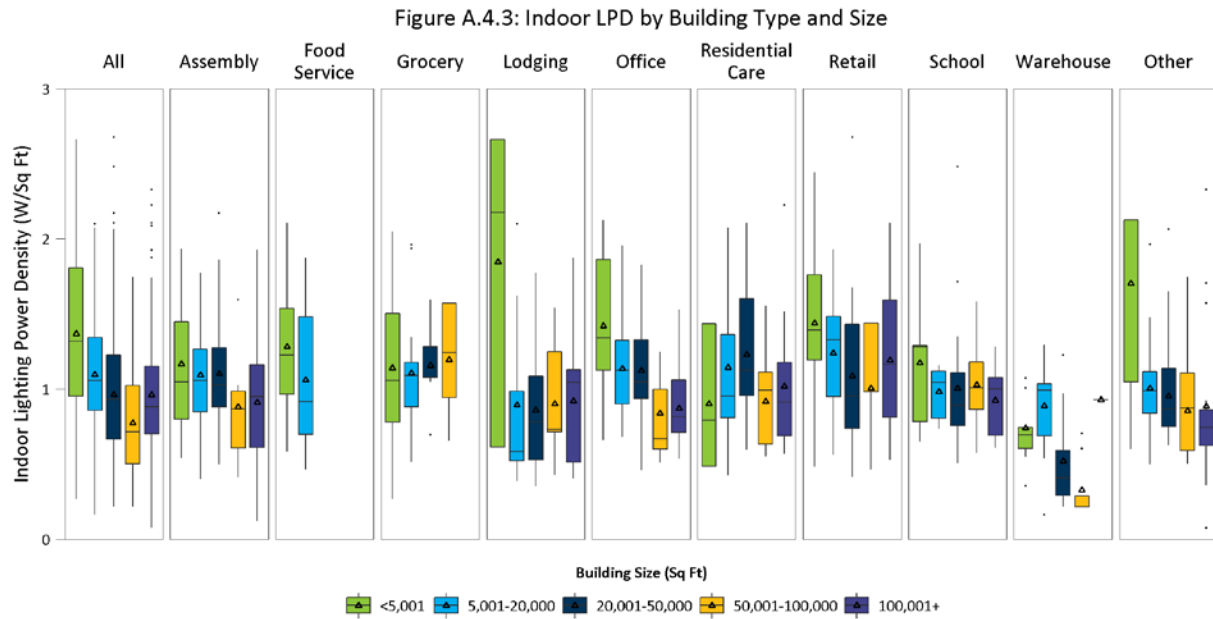
Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

Figure A.4.2: Indoor LPD by Building Type and Year Built



Year Built	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Pre-2004	Mean	1.01 ± 0.03	1.02 ± 0.08	1.15 ± 0.2	1.15 ± 0.08	0.84 ± 0.1	1.15 ± 0.08	1.17 ± 0.1	1.19 ± 0.08	0.98 ± 0.09	0.57 ± 0.1	1.11 ± 0.1
	Median	0.99	1.02	1.05	1.1	0.73	1.18	1.12	1.19	0.98	0.41	1.05
	1st/3rd Q	0.69/1.3	0.82/1.2	0.7/1.5	0.94/1.4	0.57/1	0.87/1.5	0.71/1.5	0.81/1.5	0.71/1.1	0.29/0.97	0.68/1.4
	n	517	67	24	53	47	70	46	82	52	23	53
2004-2013	Mean	0.96 ± 0.03	1.04 ± 0.1	1.23 ± 0.1	1.14 ± 0.1	0.97 ± 0.1	0.9 ± 0.07	1.01 ± 0.1	1.19 ± 0.1	0.99 ± 0.09	0.6 ± 0.1	0.88 ± 0.08
	Median	0.93	0.98	1.29	1.08	1.05	0.84	0.95	1.2	0.93	0.6	0.86
	1st/3rd Q	0.7/1.2	0.8/1.3	0.92/1.5	1.1/1.2	0.72/1.3	0.73/1.1	0.86/1.1	0.81/1.6	0.82/1.2	0.27/0.93	0.74/0.95
	n	295	38	19	21	25	47	24	50	23	20	28

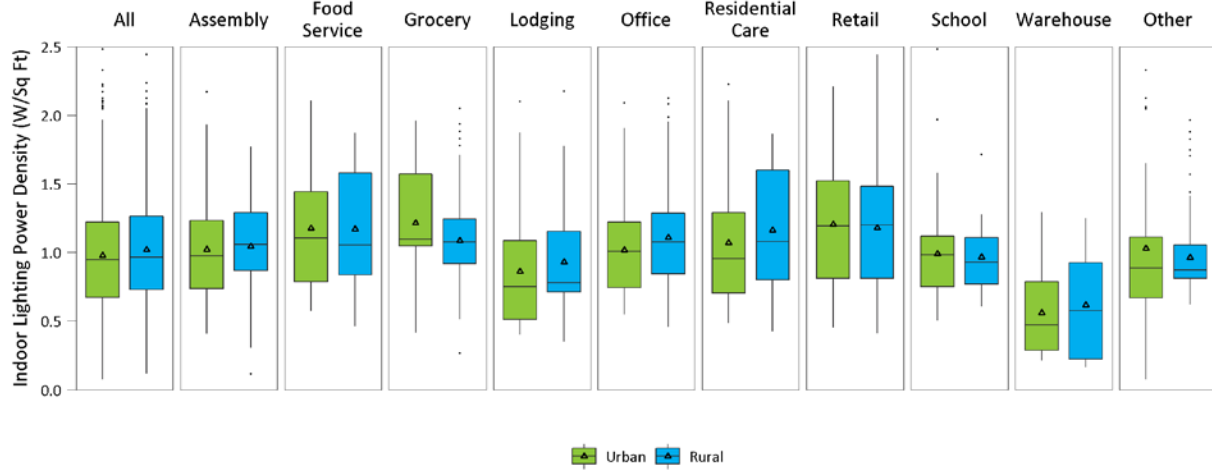
Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level



Building Size	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
<5,001	Mean	1.37 ± 0.06	1.17 ± 0.2	1.28 ± 0.1	1.14 ± 0.1	1.84 ± 1	1.42 ± 0.1	0.9 ± 0.7	1.44 ± 0.2	1.17 ± 0.3	0.74 ± 0.1	1.7 ± 0.3
	Median	1.32	1.05	1.23	1.06	2.17	1.34	0.79	1.39	1.28	0.69	2.12
	1st/3rd Q	0.95/1.8	0.8/1.4	0.96/1.5	0.78/1.5	0.61/2.7	1.1/1.9	0.48/1.4	1.2/1.8	0.78/1.3	0.6/0.74	1/2.1
	n	176	11	29	38	3	33	3	31	8	7	13
5,001-20,000	Mean	1.09 ± 0.04	1.09 ± 0.09	1.06 ± 0.2	1.1 ± 0.1	0.89 ± 0.3	1.14 ± 0.1	1.14 ± 0.2	1.24 ± 0.1	0.98 ± 0.1	0.89 ± 0.1	1 ± 0.09
	Median	1.06	1.06	0.92	1.09	0.58	1.13	0.95	1.33	1.04	0.99	0.99
	1st/3rd Q	0.86/1.3	0.85/1.3	0.7/1.5	0.88/1.2	0.52/0.98	0.9/1.3	0.81/1.4	0.95/1.5	0.8/1.1	0.69/1	0.84/1.1
	n	202	39	14	24	11	21	16	26	9	17	25
20,001-50,000	Mean	0.96 ± 0.05	1.1 ± 0.1	No Sample Data	1.16 ± 0.2	0.86 ± 0.1	1.12 ± 0.1	1.23 ± 0.2	1.09 ± 0.1	1 ± 0.2	0.52 ± 0.2	0.95 ± 0.1
	Median	0.93	1.02	No Sample Data	1.08	0.78	1.05	1.12	0.95	0.89	0.41	0.86
	1st/3rd Q	0.66/1.2	0.88/1.3	No Sample Data	1.1/1.3	0.53/1.1	0.93/1.3	0.95/1.6	0.74/1.4	0.76/1.1	0.29/0.59	0.75/1.1
	n	192	32	No Sample Data	8	18	29	19	34	20	13	19
50,001-100,000	Mean	0.77 ± 0.06	0.88 ± 0.2	No Sample Data	1.19 ± 0.4	0.9 ± 0.2	0.84 ± 0.2	0.92 ± 0.1	1 ± 0.4	1.03 ± 0.08	0.33 ± 0.1	0.85 ± 0.2
	Median	0.71	0.87	No Sample Data	1.24	0.73	0.67	0.99	0.98	1.01	0.29	0.87
	1st/3rd Q	0.5/1	0.61/0.98	No Sample Data	0.94/1.6	0.71/1.2	0.6/1	0.63/1.1	0.98/1.4	0.86/1.2	0.21/0.29	0.59/1.1
	n	100	8	No Sample Data	4	14	10	20	4	26	5	9
100,001+	Mean	0.96 ± 0.05	0.91 ± 0.2	No Sample Data	No Sample Data	0.92 ± 0.1	0.87 ± 0.1	1.02 ± 0.2	1.19 ± 0.1	0.92 ± 0.1	0.93 ± 0	0.88 ± 0.2
	Median	0.88	0.95	No Sample Data	No Sample Data	1.04	0.81	0.91	1.16	1	0.93	0.74
	1st/3rd Q	0.7/1.1	0.61/1.2	No Sample Data	No Sample Data	0.51/1.1	0.71/1.1	0.69/1.2	0.81/1.6	0.69/1.1	0.93/0.93	0.62/0.86
	n	142	15	No Sample Data	No Sample Data	26	24	12	37	12	1	15

Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

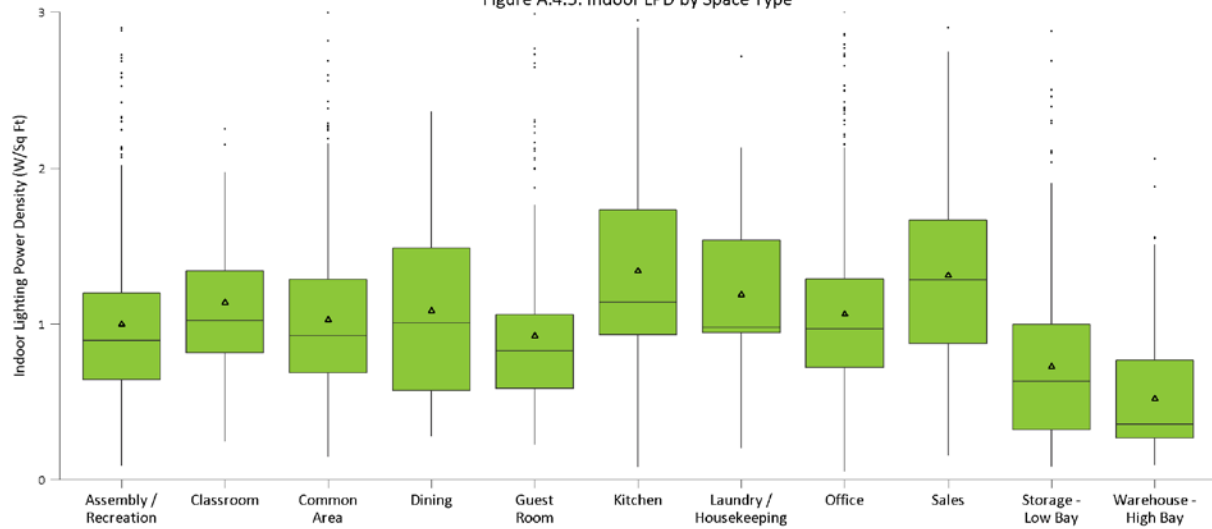
Figure A.4.4: Indoor LPD by Building Type and Urban/Rural



	Statistic	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Urban	Mean	0.98 ± 0.03	1.02 ± 0.09	1.18 ± 0.2	1.22 ± 0.09	0.86 ± 0.1	1.02 ± 0.07	1.07 ± 0.1	1.2 ± 0.08	0.99 ± 0.09	0.56 ± 0.1	1.03 ± 0.1
	Median	0.95	0.98	1.11	1.1	0.75	1.01	0.95	1.19	0.98	0.47	0.89
	1st/3rd Q	0.67/1.2	0.74/1.2	0.79/1.4	1/1.6	0.51/1.1	0.74/1.2	0.7/1.3	0.81/1.5	0.75/1.1	0.29/0.79	0.67/1.1
	n	418	55	20	35	34	64	36	68	44	23	39
Rural	Mean	1.02 ± 0.04	1.04 ± 0.08	1.17 ± 0.2	1.09 ± 0.09	0.93 ± 0.1	1.11 ± 0.09	1.16 ± 0.1	1.18 ± 0.1	0.97 ± 0.07	0.62 ± 0.1	0.96 ± 0.08
	Median	0.96	1.06	1.05	1.08	0.78	1.08	1.08	1.2	0.93	0.58	0.87
	1st/3rd Q	0.73/1.3	0.87/1.3	0.84/1.6	0.92/1.2	0.71/1.2	0.84/1.3	0.8/1.6	0.81/1.5	0.77/1.1	0.22/0.93	0.81/1.1
	n	394	50	23	39	38	53	34	64	31	20	42

Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

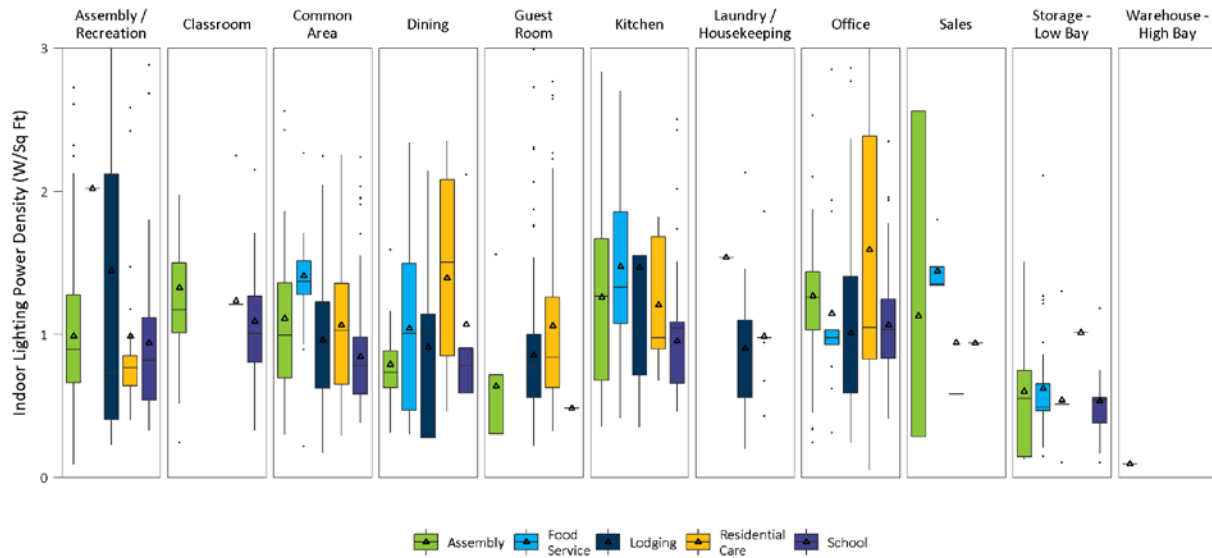
Figure A.4.5: Indoor LPD by Space Type



Statistic	Assembly / Recreation	Classroom	Common Area	Dining	Guest Room	Kitchen	Laundry / Housekeeping	Office	Sales	Storage - Low Bay	Warehouse - High Bay
Mean	1 ± 0.05	1.14 ± 0.08	1.03 ± 0.04	1.08 ± 0.09	0.92 ± 0.06	1.34 ± 0.07	1.19 ± 0.2	1.06 ± 0.04	1.31 ± 0.06	0.73 ± 0.05	0.52 ± 0.06
Median	0.89	1.02	0.92	1.01	0.83	1.14	0.98	0.97	1.28	0.63	0.35
1st/3rd Q	0.64/1.2	0.81/1.3	0.69/1.3	0.57/1.5	0.59/1.1	0.93/1.7	0.94/1.5	0.72/1.3	0.87/1.7	0.32/0.99	0.27/0.77
n	267	138	451	113	163	176	17	565	228	244	94

Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

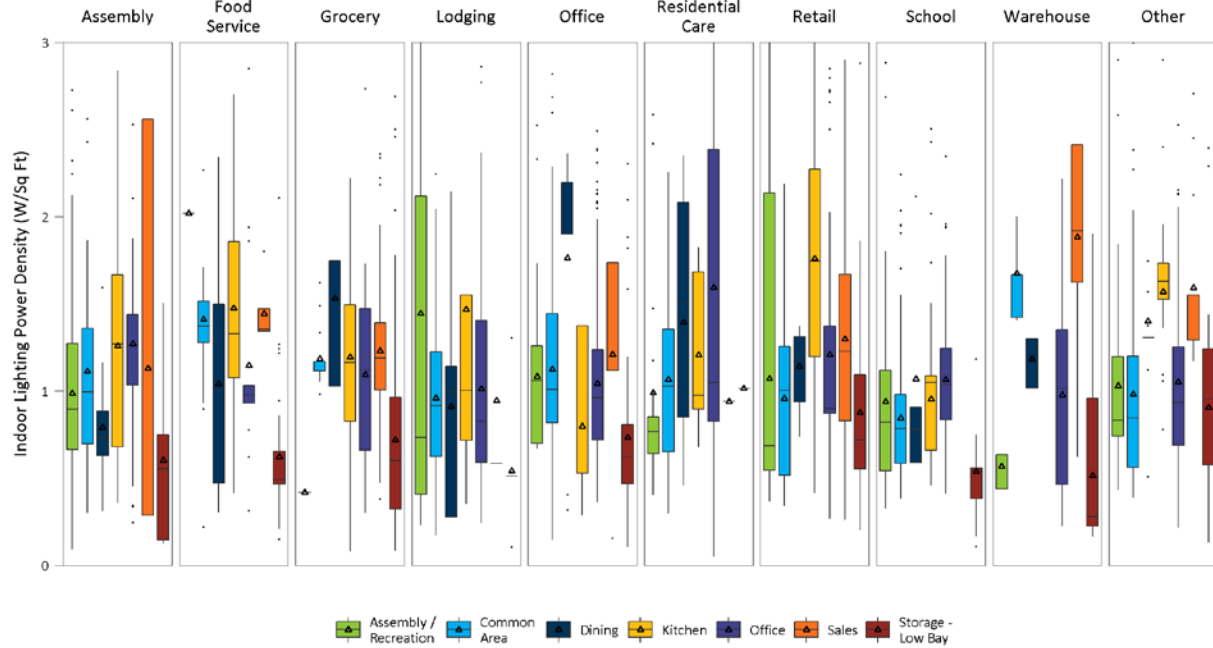
Figure A.4.5: Indoor LPD by Space Type for Select Building Types



Building Type	Statistic	Assembly / Recreation	Classroom	Common Area	Dining	Guest Room	Kitchen	Laundry / Housekeeping	Office	Sales	Storage - Low Bay	Warehouse - High Bay
Assembly	Mean	0.99 ± 0.07	1.33 ± 0.2	1.11 ± 0.1	0.79 ± 0.1	0.64 ± 0.7	1.26 ± 0.2		1.27 ± 0.09	1.13 ± 1	0.6 ± 0.2	0.09 ± 0
	Median	0.9	1.17	0.99	0.73	0.72	1.27	No Sample Data	1.26	0.29	0.55	0.09
	1st/3rd Q	0.66/1.3	1/1.5	0.7/1.4	0.63/0.88	0.31/0.72	0.68/1.7		1/1.4	0.29/2.6	0.14/0.75	0.095/0.095
	n	112	33	72	14	3	24		69	4	13	1
Food Service	Mean	2.02 ± 0	No Sample Data	1.41 ± 0.2	1.04 ± 0.2	No Sample Data	1.47 ± 0.2	1.54 ± 0	1.15 ± 0.3	1.44 ± 0.2	0.62 ± 0.2	No Sample Data
	Median	2.02	No Sample Data	1.37	1.01	No Sample Data	1.33	1.54	0.98	1.35	0.49	No Sample Data
	1st/3rd Q	2/2	No Sample Data	1.3/1.5	0.47/1.5	No Sample Data	1.1/1.9	1.5/1.5	0.93/1	1.3/1.5	0.47/0.65	No Sample Data
	n	1	No Sample Data	14	43	No Sample Data	39	1	9	4	14	No Sample Data
Lodging	Mean	1.44 ± 0.5	No Sample Data	0.96 ± 0.1	0.91 ± 0.3	0.85 ± 0.08	1.47 ± 0.4	0.9 ± 0.3	1.01 ± 0.2	0.94 ± 6	0.54 ± 0.3	No Sample Data
	Median	0.73	No Sample Data	0.92	1	0.77	1	0.89	0.83	0.58	0.51	No Sample Data
	1st/3rd Q	0.41/2.1	No Sample Data	0.62/1.2	0.28/1.1	0.56/1	0.72/1.6	0.56/1.1	0.59/1.4	0.58/0.58	0.51/0.51	No Sample Data
	n	26	No Sample Data	63	11	77	15	10	38	2	4	No Sample Data
Residential Care	Mean	0.99 ± 0.3	1.24 ± 0.7	1.07 ± 0.1	1.39 ± 0.3	1.06 ± 0.1	1.21 ± 0.2	0.99 ± 0.3	1.59 ± 0.3	0.94 ± 0	1.01 ± 0	No Sample Data
	Median	0.77	1.21	1.03	1.5	0.84	0.98	0.98	1.05	0.94	1.01	No Sample Data
	1st/3rd Q	0.64/0.85	1.2/1.2	0.65/1.4	0.85/2.1	0.63/1.3	0.9/1.7	0.98/0.98	0.83/2.4	0.94/0.94	1/1	No Sample Data
	n	17	2	71	15	69	21	5	42	1	1	No Sample Data
School	Mean	0.94 ± 0.1	1.09 ± 0.09	0.84 ± 0.08	1.07 ± 0.5	0.49 ± 0	0.95 ± 0.1		1.07 ± 0.08	No Sample Data	0.54 ± 0.1	No Sample Data
	Median	0.82	1.01	0.78	0.78	0.49	1.05	No Sample Data	1.04	No Sample Data	0.54	No Sample Data
	1st/3rd Q	0.54/1.1	0.81/1.3	0.58/0.98	0.59/0.91	0.49/0.49	0.66/1.1	No Sample Data	0.83/1.2	No Sample Data	0.38/0.56	No Sample Data
	n	58	88	65	7	1	24	No Sample Data	57	No Sample Data	8	No Sample Data

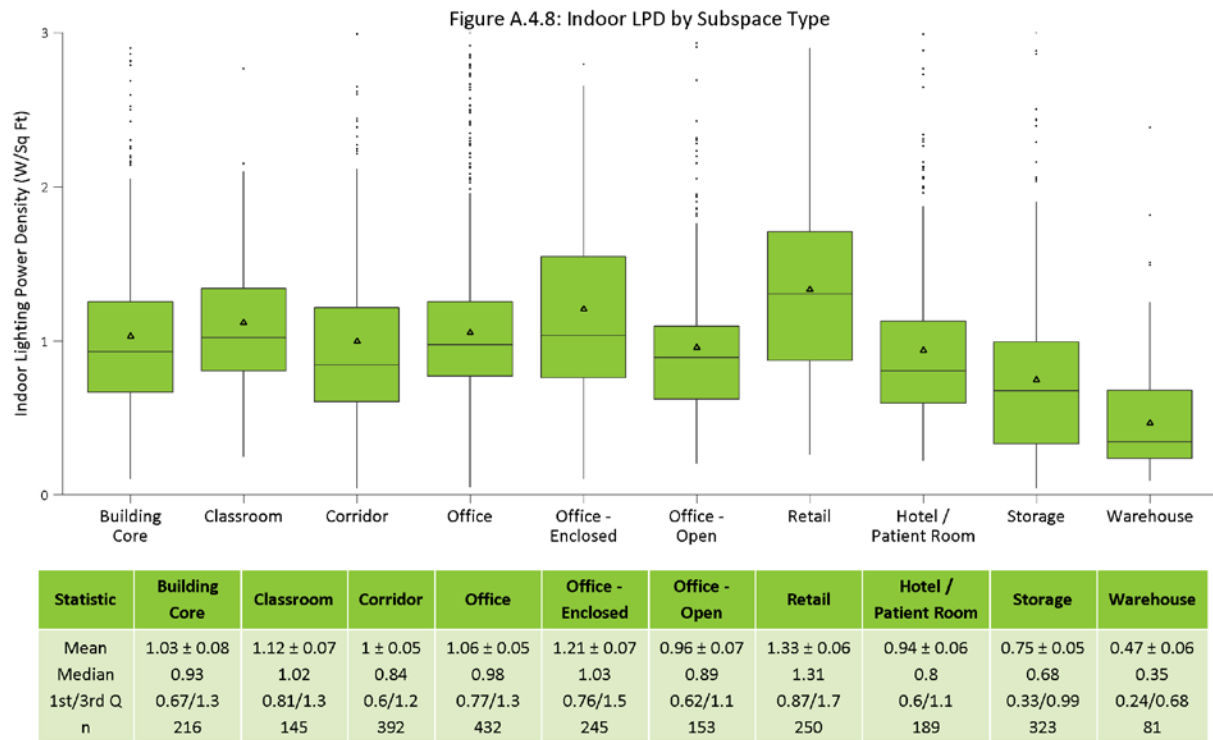
Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

Figure A.4.7: Indoor LPD by Building Type for Select Space Types



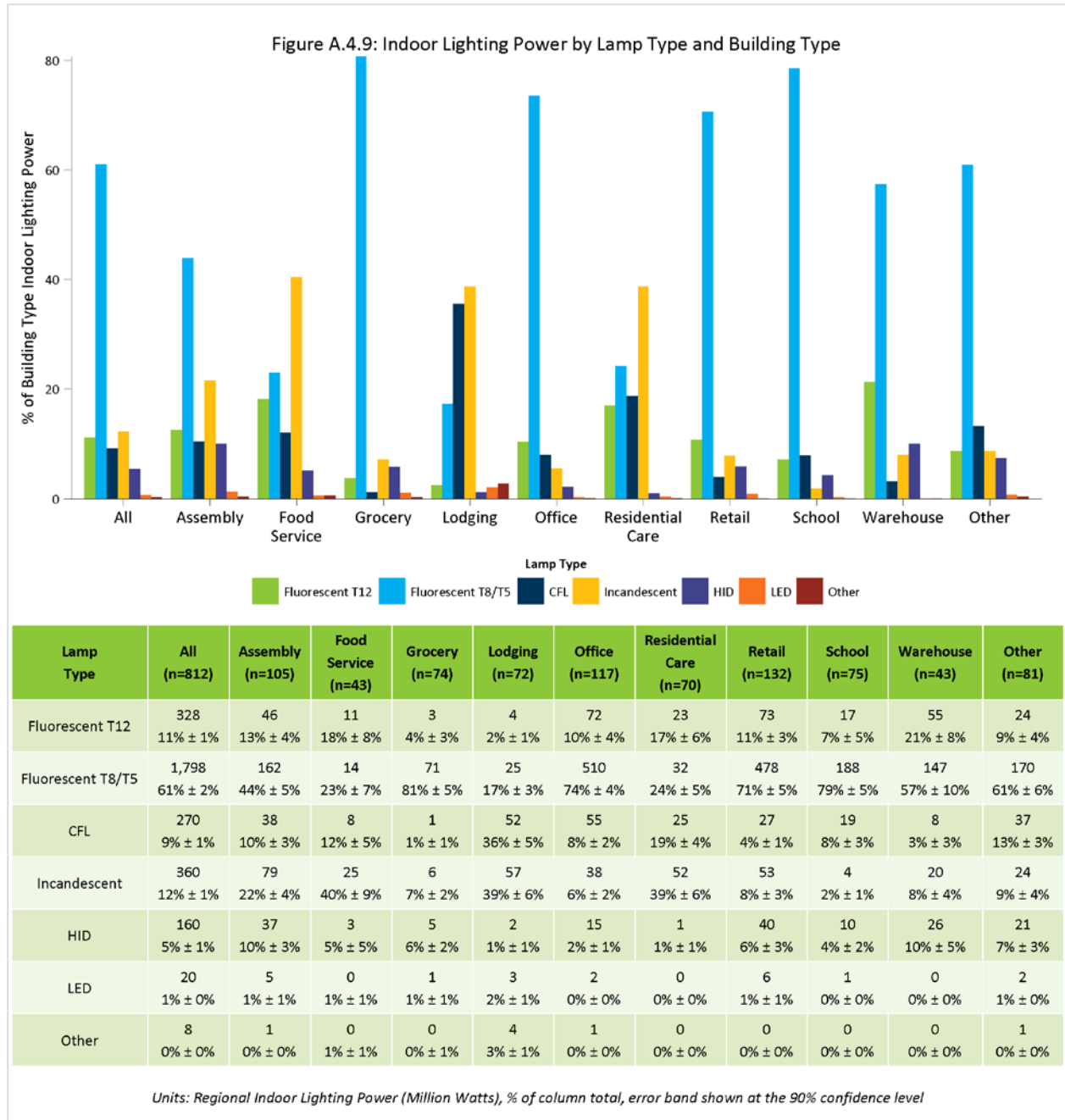
Space Type	Statistic	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Assembly / Recreation	Mean	0.99 ± 0.07	2.02 ± 0	0.42 ± 0	1.44 ± 0.5	1.08 ± 0.2	0.99 ± 0.3	1.07 ± 0.5	0.94 ± 0.1	0.57 ± 0.4	1.03 ± 0.2
	Median	0.9	2.02	0.42	0.73	1.06	0.77	0.68	0.82	0.63	0.83
	1st/3rd Q	0.66/1.3	2/2	0.42/0.42	0.41/2.1	0.7/1.3	0.64/0.85	0.54/2.1	0.54/1.1	0.44/0.63	0.74/1.2
	n	112	1	1	26	17	17	8	58	2	25
Common Area	Mean	1.11 ± 0.1	1.41 ± 0.2	1.18 ± 0.1	0.96 ± 0.1	1.12 ± 0.08	1.07 ± 0.1	0.96 ± 0.1	0.84 ± 0.08	1.67 ± 0.3	0.98 ± 0.1
	Median	0.99	1.37	1.12	0.92	1.01	1.03	1	0.78	1.67	0.84
	1st/3rd Q	0.7/1.4	1.3/1.5	1.1/1.2	0.62/1.2	0.82/1.4	0.65/1.4	0.52/1.3	0.58/0.98	1.4/1.7	0.56/1.2
	n	72	14	7	63	81	71	29	65	5	44
Dining	Mean	0.79 ± 0.1	1.04 ± 0.2	1.53 ± 1	0.91 ± 0.3	1.76 ± 0.7	1.39 ± 0.3	1.14 ± 0.3	1.07 ± 0.5	1.18 ± 0.6	1.4 ± 0.4
	Median	0.73	1.01	1.75	1	2.2	1.5	1.18	0.78	1.3	1.31
	1st/3rd Q	0.63/0.88	0.47/1.5	1/1.7	0.28/1.1	1.9/2.2	0.85/2.1	0.94/1.3	0.59/0.91	1/1.3	1.3/1.3
	n	14	43	2	11	5	15	7	7	2	7
Kitchen	Mean	1.26 ± 0.2	1.47 ± 0.2	1.2 ± 0.1	1.47 ± 0.4	0.8 ± 0.4	1.21 ± 0.2	1.76 ± 0.4	0.95 ± 0.1	3.64 ± 0	1.57 ± 0.2
	Median	1.27	1.33	1.16	1	0.53	0.98	1.74	1.05	3.64	1.63
	1st/3rd Q	0.68/1.7	1.1/1.9	0.83/1.5	0.72/1.6	0.53/1.4	0.9/1.7	1.2/2.3	0.66/1.1	3.6/3.6	1.5/1.7
	n	24	39	25	15	4	21	12	24	1	11
Office	Mean	1.27 ± 0.09	1.15 ± 0.3	1.09 ± 0.1	1.01 ± 0.2	1.04 ± 0.06	1.59 ± 0.3	1.21 ± 0.2	1.07 ± 0.08	0.98 ± 0.1	1.05 ± 0.1
	Median	1.26	0.98	1.12	0.83	0.96	1.05	0.9	1.04	1.01	0.93
	1st/3rd Q	1/1.4	0.93/1	0.66/1.5	0.59/1.4	0.72/1.2	0.83/2.4	0.87/1.4	0.83/1.2	0.46/1.4	0.69/1.3
	n	69	9	24	38	134	42	77	57	40	75
Sales	Mean	1.13 ± 1	1.44 ± 0.2	1.23 ± 0.07	0.94 ± 6	1.21 ± 0.5	0.94 ± 0	1.3 ± 0.08	No Sample Data	1.88 ± 0.5	1.59 ± 0.4
	Median	0.29	1.35	1.19	0.58	1.12	0.94	1.23		1.92	1.55
	1st/3rd Q	0.29/2.6	1.3/1.5	1/1.4	0.58/0.58	1.1/1.7	0.94/0.94	0.83/1.7		1.6/2.4	1.3/1.6
	n	4	4	74	2	4	1	126		6	7
Storage - Low Bay	Mean	0.6 ± 0.2	0.62 ± 0.2	0.72 ± 0.1	0.54 ± 0.3	0.73 ± 0.2	1.01 ± 0	0.88 ± 0.1	0.54 ± 0.1	0.51 ± 0.2	0.9 ± 0.1
	Median	0.55	0.49	0.6	0.51	0.62	1.01	0.72	0.54	0.28	0.96
	1st/3rd Q	0.14/0.75	0.47/0.65	0.32/0.96	0.51/0.51	0.47/0.81	1/1	0.55/1.1	0.38/0.56	0.22/0.96	0.58/1.2
	n	13	14	61	4	22	1	75	8	16	30

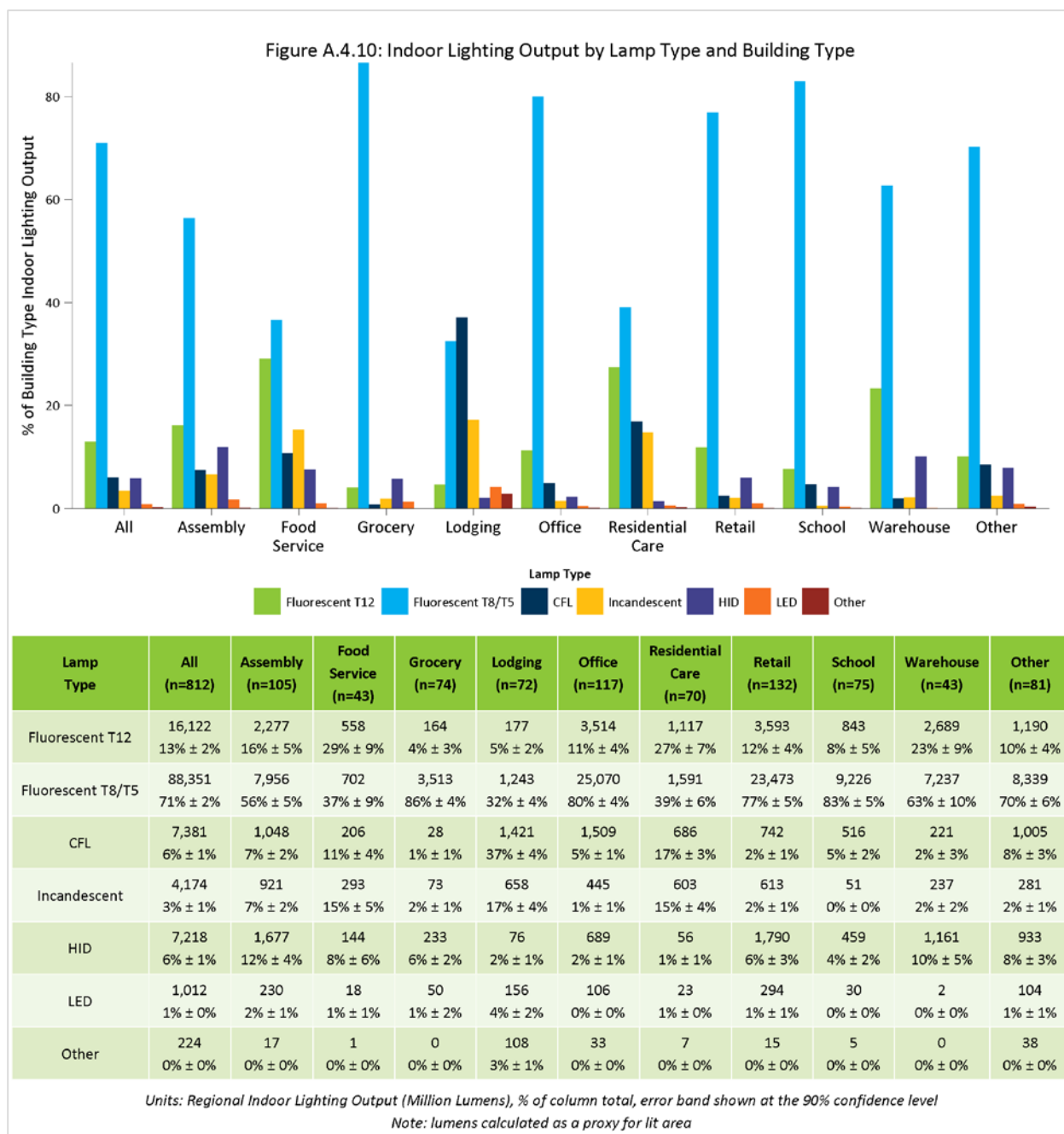
Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

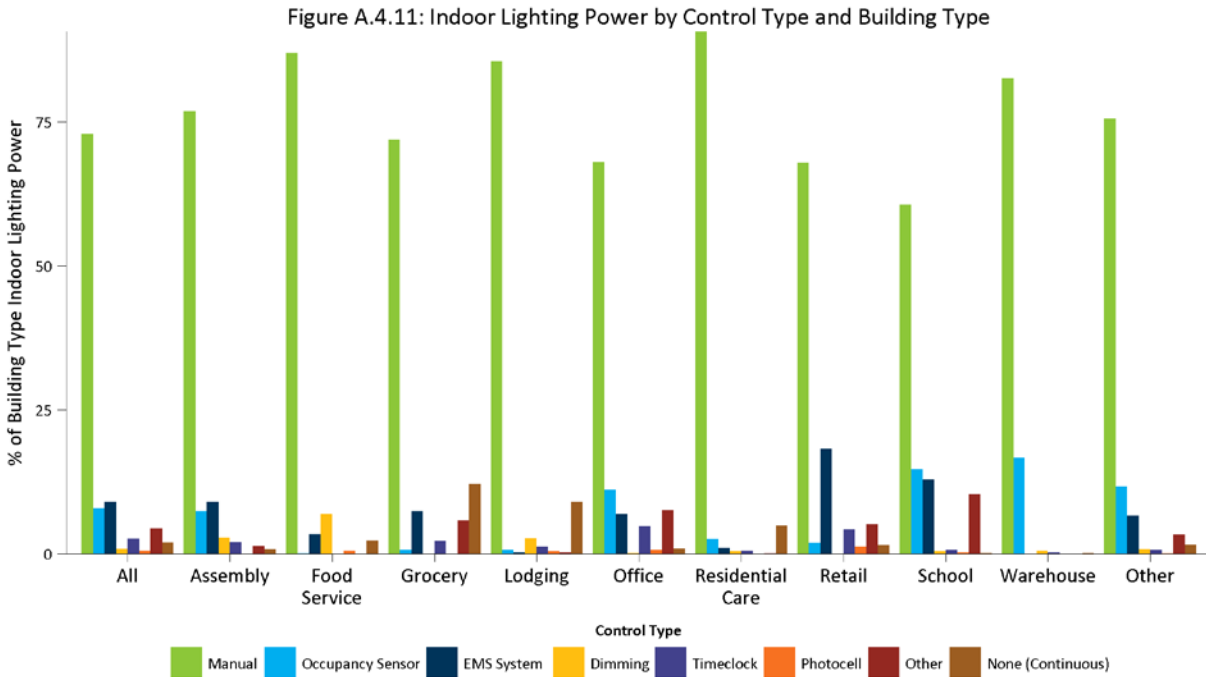


Units: Indoor Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

Note: includes top 10 subspaces, by total watts

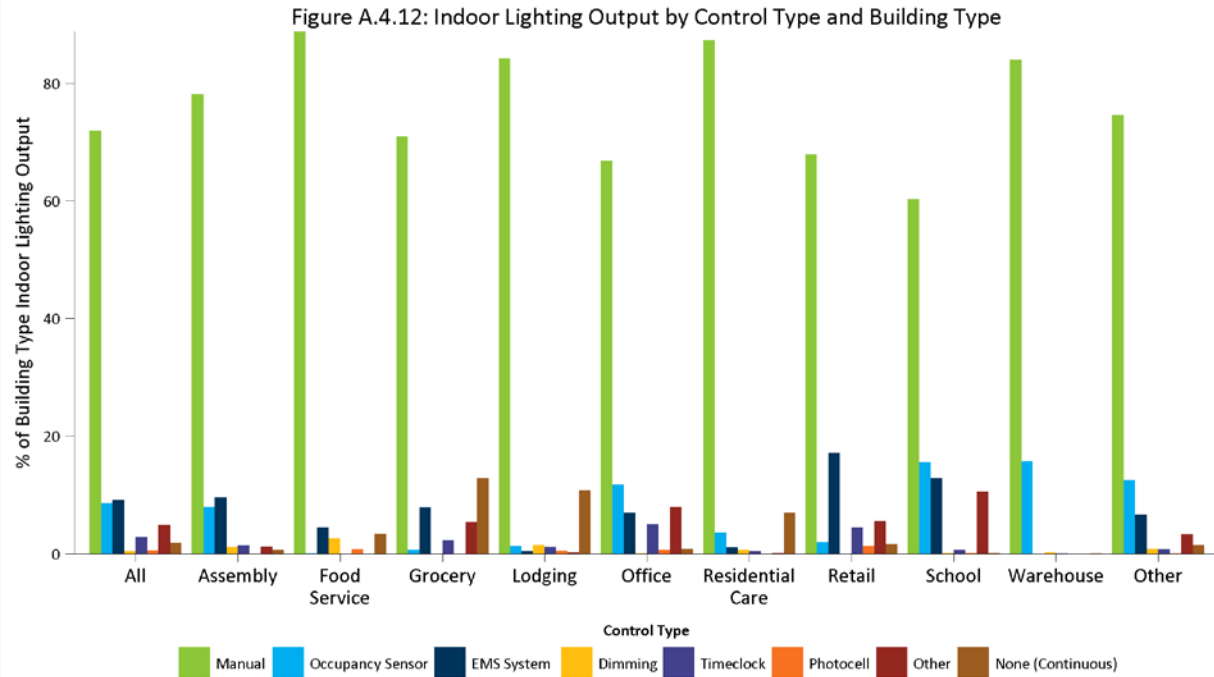






Control Type	All (n=791)	Assembly (n=104)	Food Service (n=43)	Grocery (n=69)	Lodging (n=69)	Office (n=113)	Residential Care (n=68)	Retail (n=129)	School (n=72)	Warehouse (n=43)	Other (n=81)
Manual	2,087 73% ± 2%	279 77% ± 6%	53 87% ± 7%	63 72% ± 8%	121 86% ± 3%	448 68% ± 6%	118 91% ± 3%	447 68% ± 7%	139 61% ± 8%	211 83% ± 7%	208 76% ± 6%
Occupancy Sensor	224 8% ± 1%	27 7% ± 4%	0 0% ± 0%	1 1% ± 1%	1 1% ± 1%	73 11% ± 4%	3 2% ± 2%	12 2% ± 1%	34 15% ± 5%	43 17% ± 7%	32 12% ± 4%
EMS System	256 9% ± 2%	33 9% ± 4%	2 3% ± 4%	6 7% ± 5%	0 0% ± 1%	45 7% ± 4%	1 1% ± 1%	120 18% ± 5%	30 13% ± 6%	0 0% ± 0%	18 7% ± 4%
Dimming	24 1% ± 0%	10 3% ± 2%	4 7% ± 5%	0 0% ± 0%	4 3% ± 1%	1 0% ± 0%	1 0% ± 1%	0 0% ± 0%	1 0% ± 0%	1 0% ± 1%	2 1% ± 1%
Timeclock	74 3% ± 1%	7 2% ± 2%	0 0% ± 0%	2 2% ± 3%	2 1% ± 1%	31 5% ± 3%	1 0% ± 0%	28 4% ± 3%	2 1% ± 1%	0 0% ± 1%	2 1% ± 1%
Photocell	13 0% ± 0%	0 0% ± 0%	0 0% ± 1%	0 0% ± 0%	1 0% ± 0%	4 1% ± 1%	0 0% ± 0%	8 1% ± 1%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%
Other	126 4% ± 1%	5 1% ± 1%	0 0% ± 0%	5 6% ± 3%	0 0% ± 0%	50 8% ± 4%	0 0% ± 0%	33 5% ± 3%	24 10% ± 5%	0 0% ± 0%	9 3% ± 2%
None (Continuous)	54 2% ± 0%	3 1% ± 0%	1 2% ± 4%	11 12% ± 6%	13 9% ± 3%	6 1% ± 0%	6 5% ± 2%	10 2% ± 1%	0 0% ± 0%	0 0% ± 0%	4 2% ± 1%

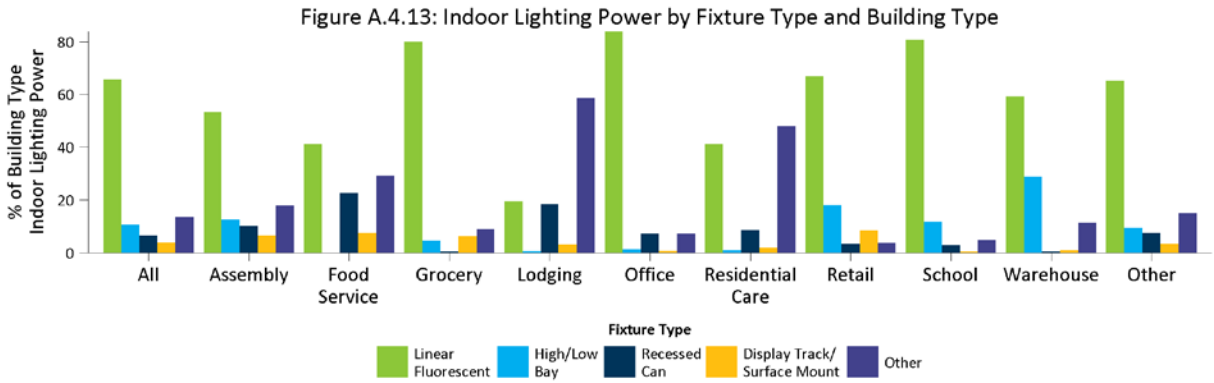
Units: Regional Indoor Lighting Power (Million Watts), % of column total, error band shown at the 90% confidence level



Control Type	All (n=791)	Assembly (n=104)	Food Service (n=43)	Grocery (n=69)	Lodging (n=69)	Office (n=113)	Residential Care (n=68)	Retail (n=129)	School (n=72)	Warehouse (n=43)	Other (n=81)
Manual	85,792 72% ± 2%	10,615 78% ± 6%	1,642 89% ± 7%	2,806 71% ± 8%	2,948 84% ± 3%	19,825 67% ± 6%	3,480 87% ± 4%	19,936 68% ± 7%	6,336 60% ± 8%	9,672 84% ± 7%	8,532 75% ± 6%
Occupancy Sensor	10,208 9% ± 1%	1,075 8% ± 4%	0 0% ± 0%	25 1% ± 1%	46 1% ± 1%	3,482 12% ± 4%	140 4% ± 3%	571 2% ± 1%	1,631 16% ± 5%	1,806 16% ± 7%	1,432 13% ± 4%
EMS System	10,932 9% ± 2%	1,292 10% ± 4%	83 4% ± 5%	313 8% ± 5%	14 0% ± 1%	2,062 7% ± 4%	42 1% ± 1%	5,028 17% ± 5%	1,341 13% ± 6%	0 0% ± 0%	757 7% ± 4%
Dimming	421 0% ± 0%	155 1% ± 1%	49 3% ± 3%	0 0% ± 0%	50 1% ± 1%	22 0% ± 0%	25 1% ± 1%	0 0% ± 0%	11 0% ± 0%	20 0% ± 0%	89 1% ± 1%
Timeclock	3,292 3% ± 1%	192 1% ± 1%	0 0% ± 0%	92 2% ± 3%	40 1% ± 1%	1,481 5% ± 3%	16 0% ± 0%	1,318 4% ± 3%	63 1% ± 1%	9 0% ± 1%	82 1% ± 1%
Photocell	615 1% ± 0%	0 0% ± 0%	13 1% ± 1%	0 0% ± 0%	17 0% ± 0%	194 1% ± 1%	0 0% ± 0%	378 1% ± 1%	11 0% ± 0%	0 0% ± 0%	2 0% ± 0%
Other	5,857 5% ± 1%	165 1% ± 1%	0 0% ± 0%	214 5% ± 3%	7 0% ± 0%	2,352 8% ± 4%	4 0% ± 0%	1,629 6% ± 3%	1,110 11% ± 5%	0 0% ± 0%	376 3% ± 2%
None (Continuous)	2,189 2% ± 1%	81 1% ± 0%	62 3% ± 4%	507 13% ± 6%	378 11% ± 3%	233 1% ± 0%	277 7% ± 3%	474 2% ± 1%	12 0% ± 0%	2 0% ± 0%	165 1% ± 1%

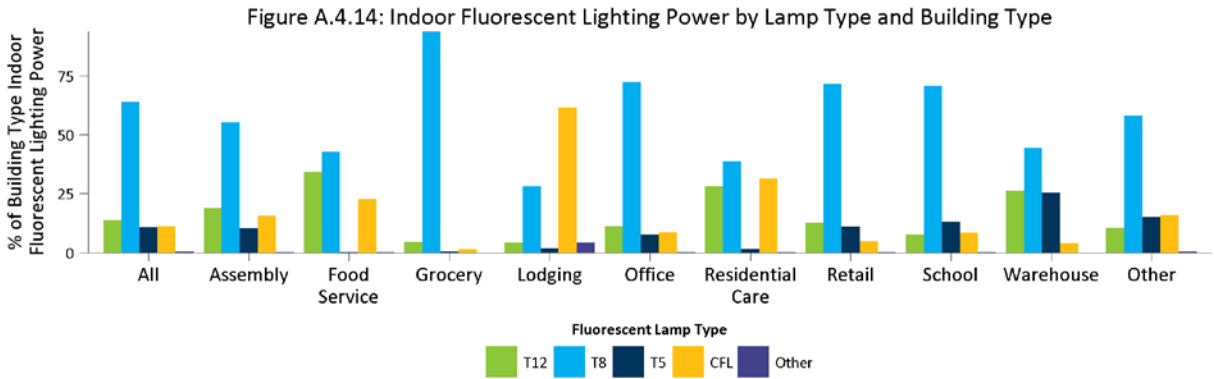
Units: Regional Indoor Lighting Output (Million Lumens), % of column total, error band shown at the 90% confidence level

Note: lumens calculated as a proxy for lit area



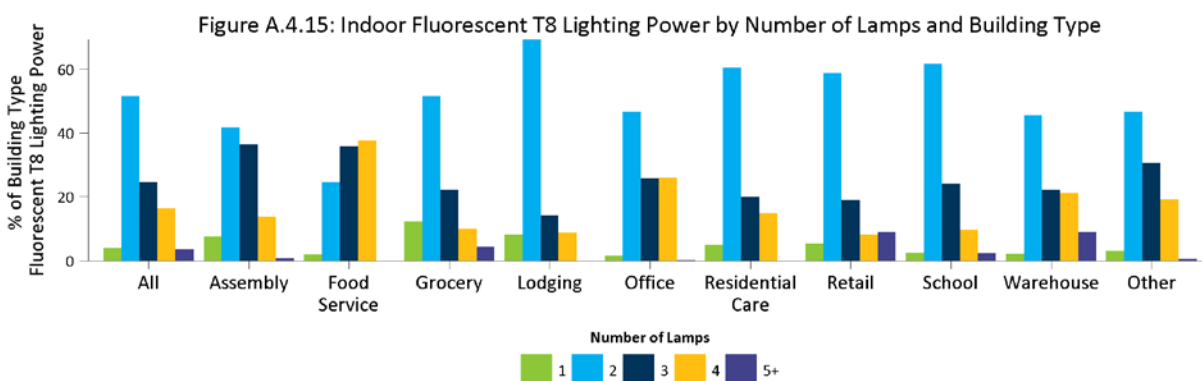
Fixture Type	All (n=812)	Assembly (n=105)	Food Service (n=43)	Grocery (n=74)	Lodging (n=72)	Office (n=117)	Residential Care (n=70)	Retail (n=132)	School (n=75)	Warehouse (n=43)	Other (n=81)
Linear Fluorescent	1,935 66% ± 2%	196 53% ± 4%	26 41% ± 8%	71 80% ± 5%	28 19% ± 3%	581 84% ± 3%	55 41% ± 5%	452 67% ± 5%	193 81% ± 3%	152 59% ± 9%	181 65% ± 5%
High/Low Bay	309 10% ± 1%	46 12% ± 4%	0 0% ± 0%	4 5% ± 2%	1 1% ± 0%	8 1% ± 1%	1 1% ± 1%	121 18% ± 4%	28 12% ± 2%	73 29% ± 9%	26 9% ± 3%
Recessed Can	189 6% ± 1%	38 10% ± 2%	14 23% ± 7%	0 0% ± 0%	27 18% ± 3%	49 7% ± 2%	11 8% ± 2%	22 3% ± 1%	6 3% ± 1%	1 0% ± 0%	21 7% ± 2%
Display Track/Surface Mount	114 4% ± 1%	24 7% ± 2%	5 7% ± 3%	5 6% ± 3%	5 3% ± 2%	5 1% ± 0%	2 2% ± 1%	56 8% ± 2%	1 0% ± 0%	2 1% ± 1%	9 3% ± 2%
Other	397 13% ± 1%	65 18% ± 3%	18 29% ± 7%	8 9% ± 3%	86 59% ± 4%	50 7% ± 2%	64 48% ± 5%	25 4% ± 1%	11 5% ± 2%	29 11% ± 6%	42 15% ± 4%

Units: Regional Indoor Lighting Power (Million Watts), % of column total, error band shown at the 90% confidence level



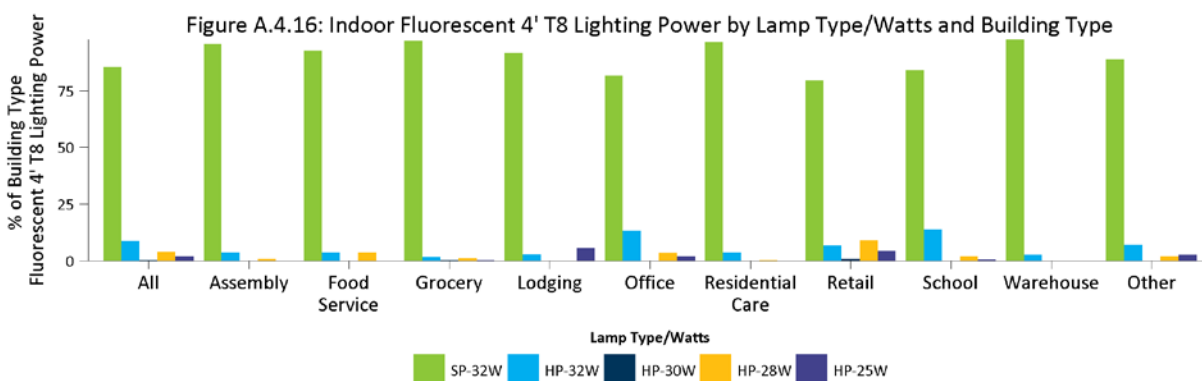
Fluorescent Lamp Type	All (n=809)	Assembly (n=105)	Food Service (n=43)	Grocery (n=74)	Lodging (n=71)	Office (n=116)	Residential Care (n=70)	Retail (n=132)	School (n=75)	Warehouse (n=42)	Other (n=81)
T12	328 14% ± 2%	46 19% ± 5%	11 34% ± 11%	3 4% ± 3%	4 4% ± 3%	72 11% ± 4%	23 28% ± 8%	73 13% ± 4%	17 8% ± 5%	55 26% ± 10%	24 10% ± 4%
T8	1,540 64% ± 2%	136 55% ± 6%	14 43% ± 10%	71 94% ± 4%	24 28% ± 4%	462 72% ± 5%	31 39% ± 6%	414 72% ± 5%	158 71% ± 7%	94 45% ± 10%	135 58% ± 6%
T5	258 11% ± 1%	26 10% ± 4%	0 0% ± 0%	0 0% ± 1%	1 2% ± 1%	48 8% ± 3%	1 2% ± 1%	64 11% ± 4%	29 13% ± 5%	54 26% ± 9%	35 15% ± 5%
CFL	270 11% ± 1%	38 16% ± 3%	8 23% ± 7%	1 1% ± 1%	52 62% ± 4%	55 9% ± 2%	25 31% ± 5%	27 5% ± 2%	19 8% ± 3%	8 4% ± 4%	37 16% ± 4%
Other	6 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	4 4% ± 2%	1 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	1 0% ± 0%

Units: Regional Indoor Fluorescent Lighting Power (Million Watts), % of column total, error band shown at the 90% confidence level



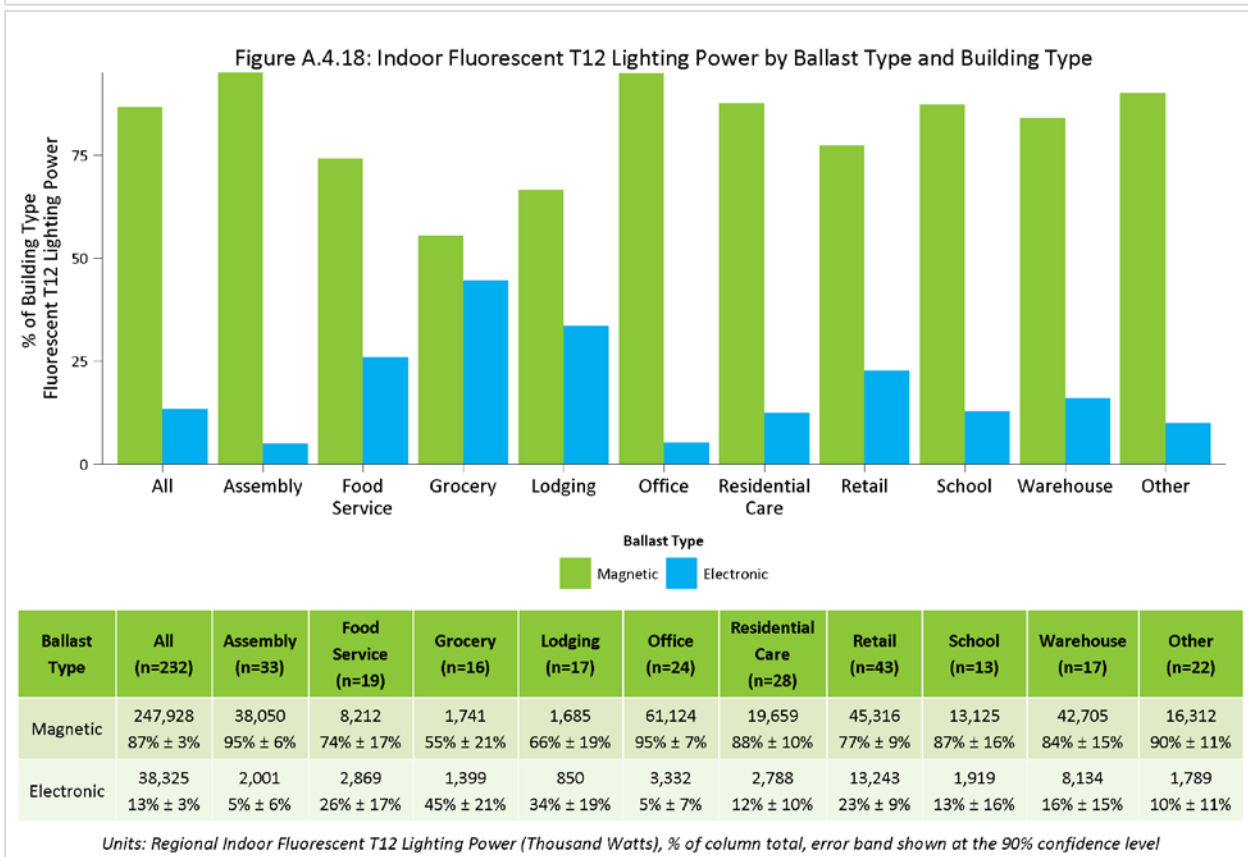
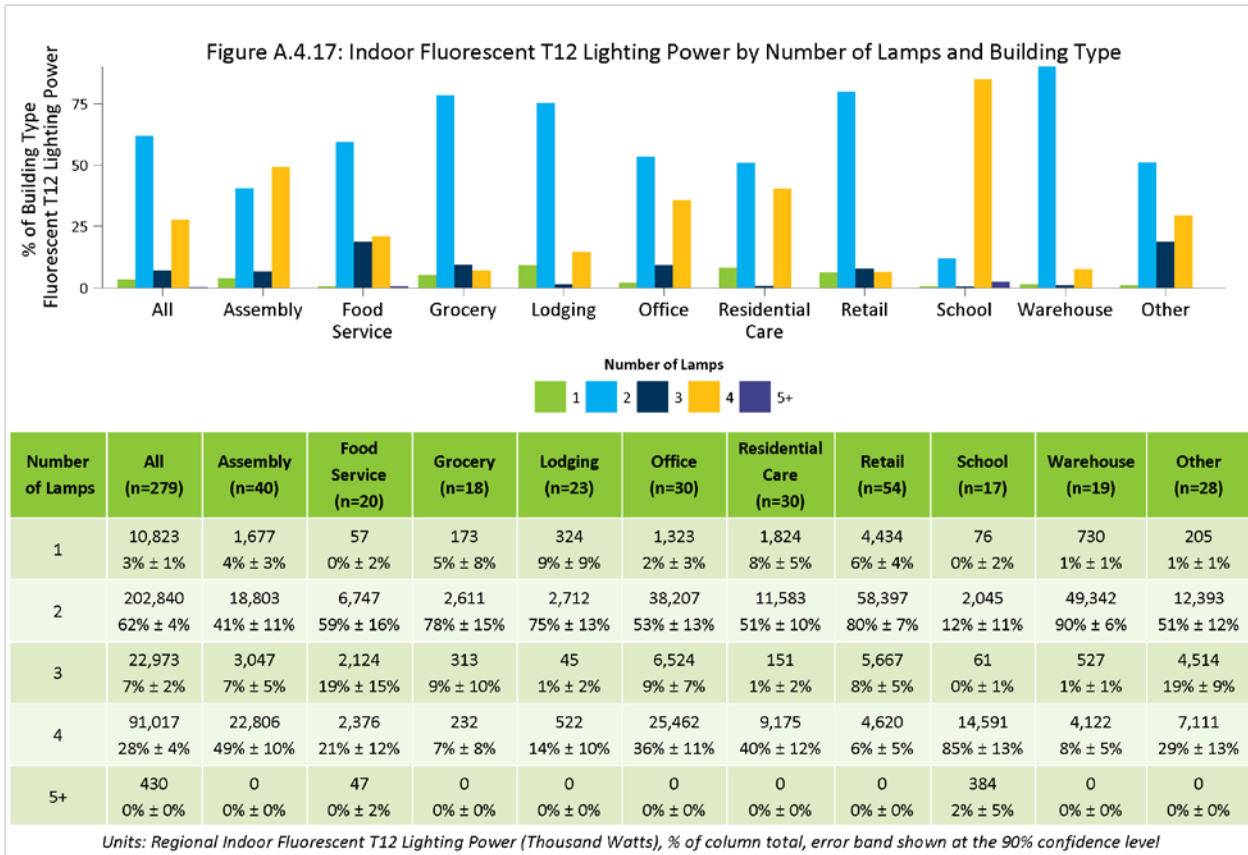
Number of Lamps	All (n=705)	Assembly (n=89)	Food Service (n=29)	Grocery (n=66)	Lodging (n=60)	Office (n=107)	Residential Care (n=62)	Retail (n=118)	School (n=69)	Warehouse (n=32)	Other (n=73)
1	61,231 4% ± 1%	10,152 7% ± 3%	275 2% ± 2%	8,645 12% ± 6%	1,913 8% ± 3%	6,936 2% ± 1%	1,496 5% ± 2%	21,915 5% ± 2%	3,834 2% ± 1%	1,939 2% ± 2%	4,126 3% ± 2%
2	794,111 52% ± 2%	56,830 42% ± 6%	3,491 25% ± 10%	36,692 52% ± 9%	16,497 69% ± 7%	215,279 47% ± 7%	18,847 61% ± 7%	243,320 59% ± 6%	97,750 62% ± 6%	42,595 46% ± 11%	62,810 47% ± 7%
3	378,048 25% ± 2%	49,624 36% ± 6%	5,110 36% ± 13%	15,810 22% ± 8%	3,342 14% ± 6%	119,144 26% ± 6%	6,176 20% ± 6%	78,407 19% ± 5%	38,194 24% ± 6%	20,828 22% ± 8%	41,413 31% ± 7%
4	252,053 16% ± 2%	18,745 14% ± 5%	5,349 38% ± 14%	7,082 10% ± 5%	2,065 9% ± 4%	120,143 26% ± 6%	4,633 15% ± 5%	33,220 8% ± 3%	15,287 10% ± 4%	19,811 21% ± 9%	25,717 19% ± 5%
5+	54,303 4% ± 1%	1,024 1% ± 1%	0 0% ± 0%	2,958 4% ± 3%	0 0% ± 0%	377 0% ± 0%	0 0% ± 0%	37,310 9% ± 3%	3,429 2% ± 1%	8,377 9% ± 6%	828 1% ± 1%

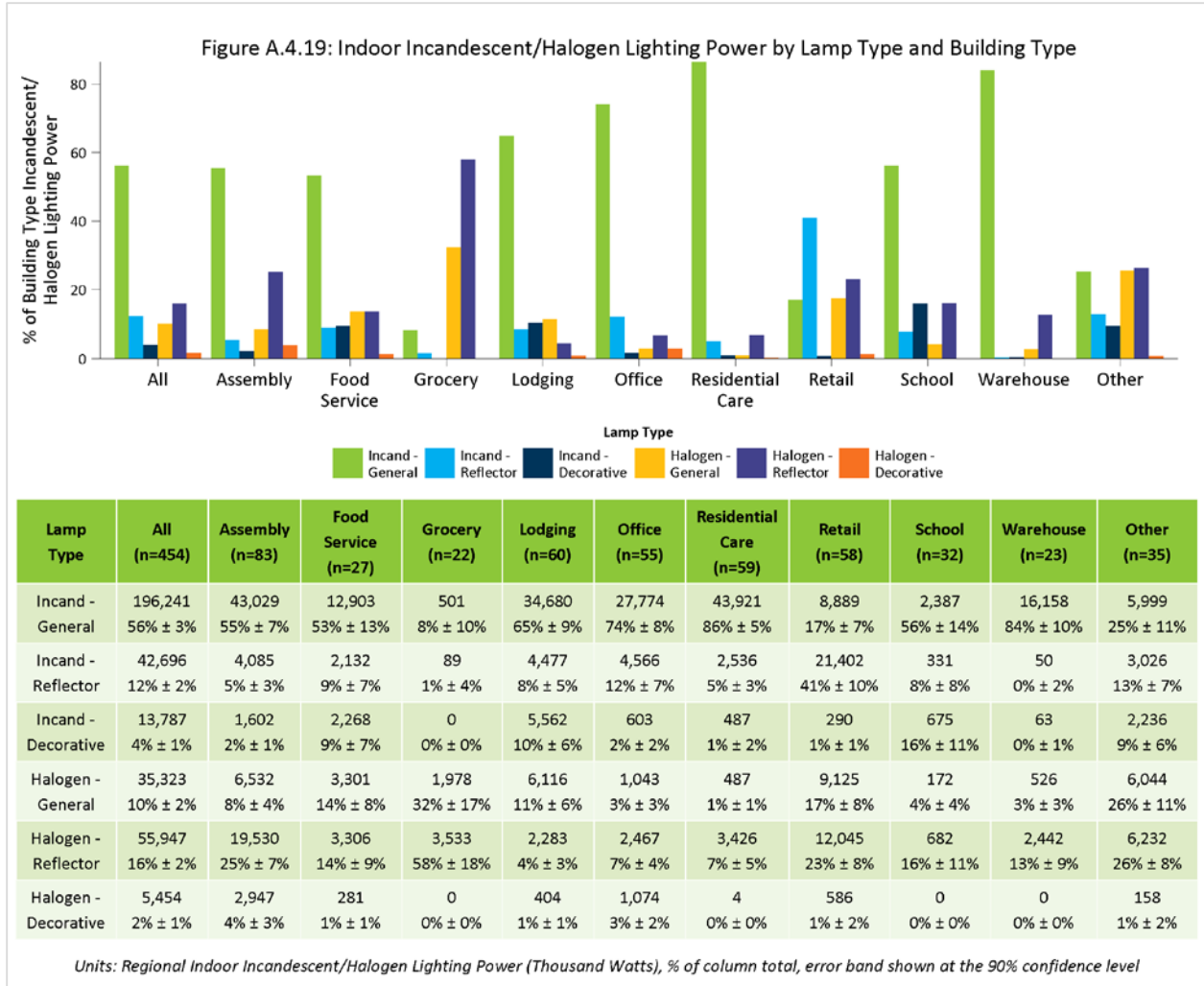
Units: Regional Indoor Fluorescent T8 Lighting Power (Thousand Watts), % of column total, error band shown at the 90% confidence level

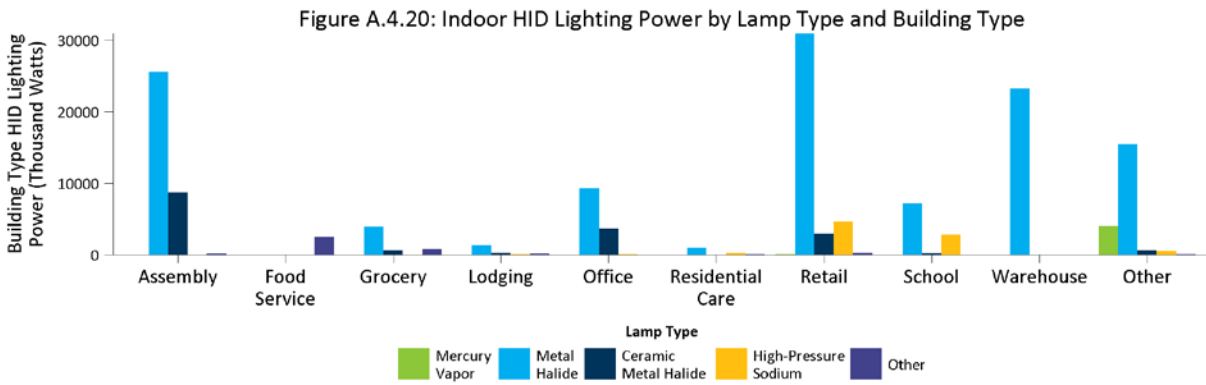


Lamp Type/Watts	All (n=642)	Assembly (n=81)	Food Service (n=27)	Grocery (n=60)	Lodging (n=55)	Office (n=96)	Residential Care (n=57)	Retail (n=107)	School (n=61)	Warehouse (n=29)	Other (n=69)
SP-32W	1,113,450 86% ± 2%	112,992 96% ± 4%	12,328 93% ± 9%	61,110 97% ± 4%	13,739 92% ± 6%	332,153 82% ± 6%	24,729 96% ± 4%	253,281 80% ± 6%	116,345 84% ± 8%	80,905 98% ± 5%	105,869 89% ± 6%
HP-32W	110,565 8% ± 2%	4,305 4% ± 3%	483 4% ± 6%	991 2% ± 3%	421 3% ± 3%	52,970 13% ± 6%	911 4% ± 4%	21,326 7% ± 4%	19,039 14% ± 7%	2,044 2% ± 5%	8,074 7% ± 5%
HP-30W	2,536 0% ± 0%	0 0% ± 0%	0 0% ± 0%	106 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	2,431 1% ± 1%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%
HP-28W	49,268 4% ± 1%	899 1% ± 2%	487 4% ± 6%	674 1% ± 2%	0 0% ± 0%	13,912 3% ± 3%	7 0% ± 0%	28,295 9% ± 5%	2,675 2% ± 3%	0 0% ± 0%	2,319 2% ± 3%
HP-25W	25,247 2% ± 1%	0 0% ± 0%	0 0% ± 0%	53 0% ± 0%	835 6% ± 4%	7,756 2% ± 2%	0 0% ± 0%	13,212 4% ± 3%	329 0% ± 0%	0 0% ± 0%	3,063 3% ± 3%

Units: Regional Indoor Fluorescent 4' T8 Lighting Power (Thousand Watts), % of column total, error band shown at the 90% confidence level

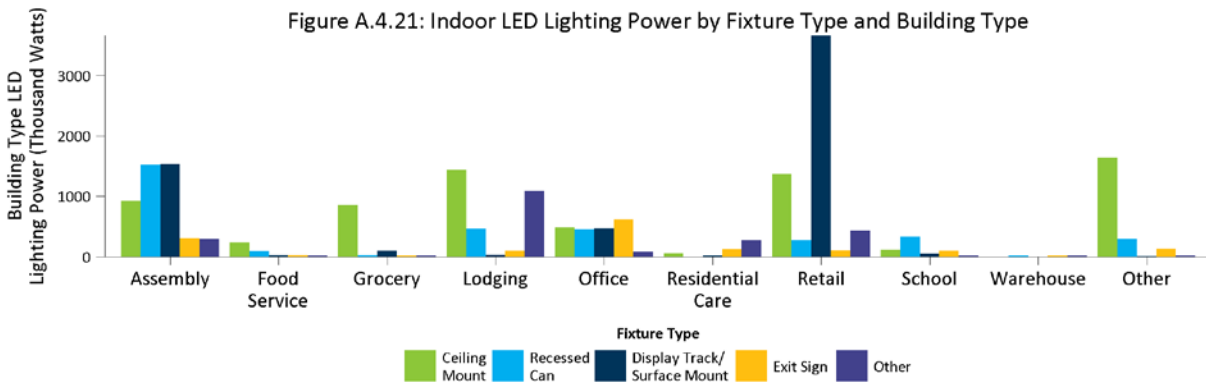






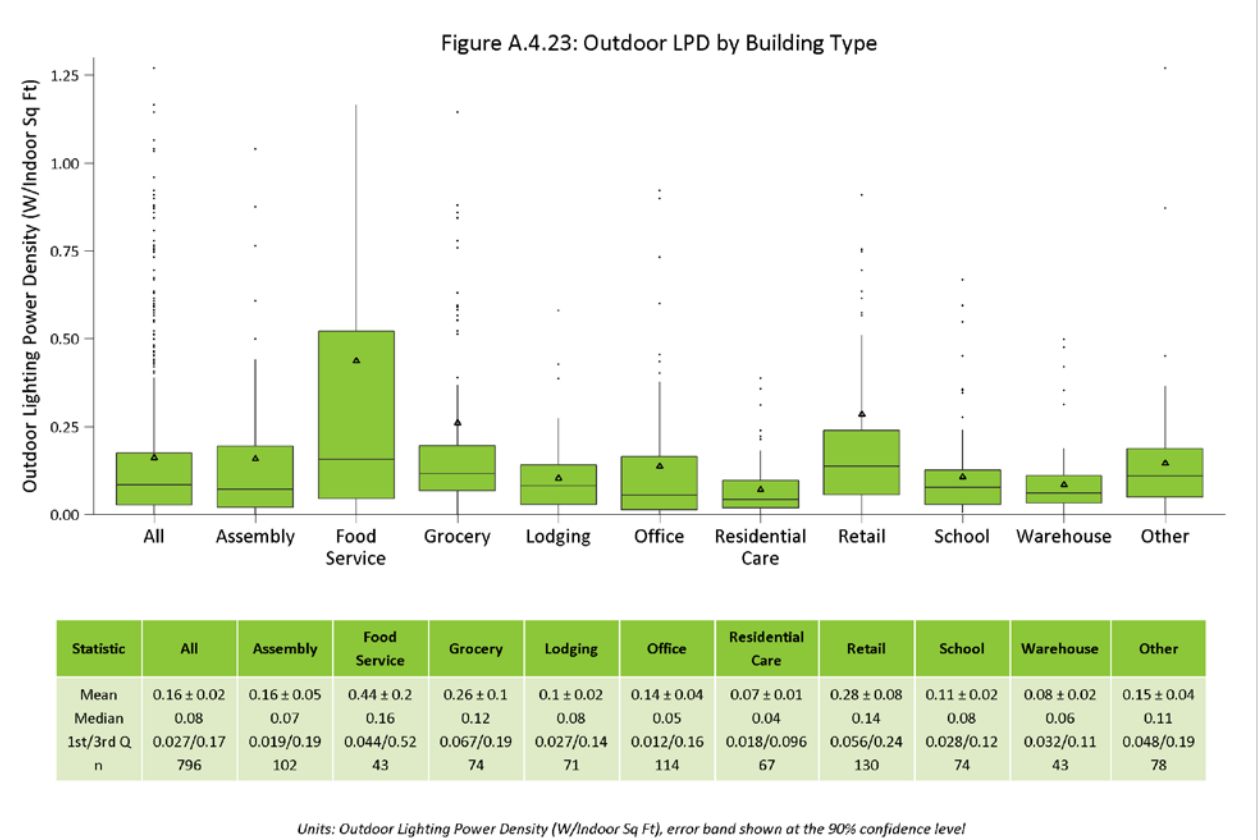
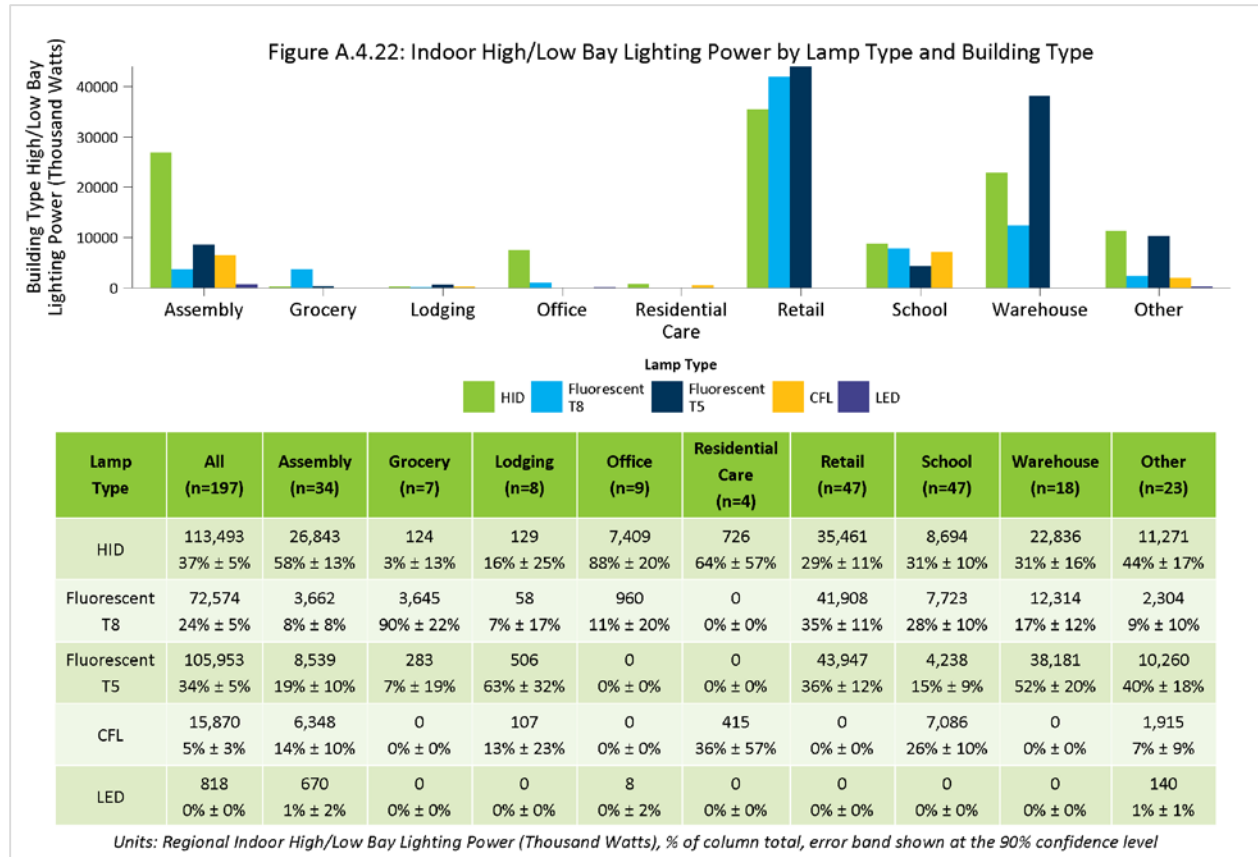
Lamp Type	All (n=151)	Assembly (n=28)	Food Service (n=3)	Grocery (n=11)	Lodging (n=16)	Office (n=13)	Residential Care (n=5)	Retail (n=27)	School (n=14)	Warehouse (n=11)	Other (n=23)
Mercury Vapor	4,045 3% ± 2%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	29 0% ± 0%	0 0% ± 0%	0 0% ± 0%	4,016 20% ± 10%
Metal Halide	117,672 78% ± 5%	25,554 74% ± 14%	0 0% ± 0%	3,852 75% ± 24%	1,276 76% ± 19%	9,299 72% ± 22%	950 77% ± 40%	30,913 80% ± 13%	7,175 71% ± 22%	23,193 100% ± 0%	15,462 75% ± 12%
Ceramic Metal Halide	16,801 11% ± 4%	8,676 25% ± 14%	0 0% ± 0%	579 11% ± 17%	216 13% ± 15%	3,588 28% ± 22%	0 0% ± 0%	2,940 8% ± 8%	199 2% ± 7%	0 0% ± 0%	604 3% ± 6%
High-Pressure Sodium	8,234 5% ± 3%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	47 3% ± 7%	65 1% ± 0%	217 18% ± 36%	4,639 12% ± 10%	2,778 27% ± 21%	0 0% ± 0%	487 2% ± 1%
Other	3,746 2% ± 2%	135 0% ± 1%	2,421 100% ± 0%	732 14% ± 19%	133 8% ± 12%	0 0% ± 0%	65 5% ± 21%	244 1% ± 2%	0 0% ± 0%	0 0% ± 0%	16 0% ± 1%

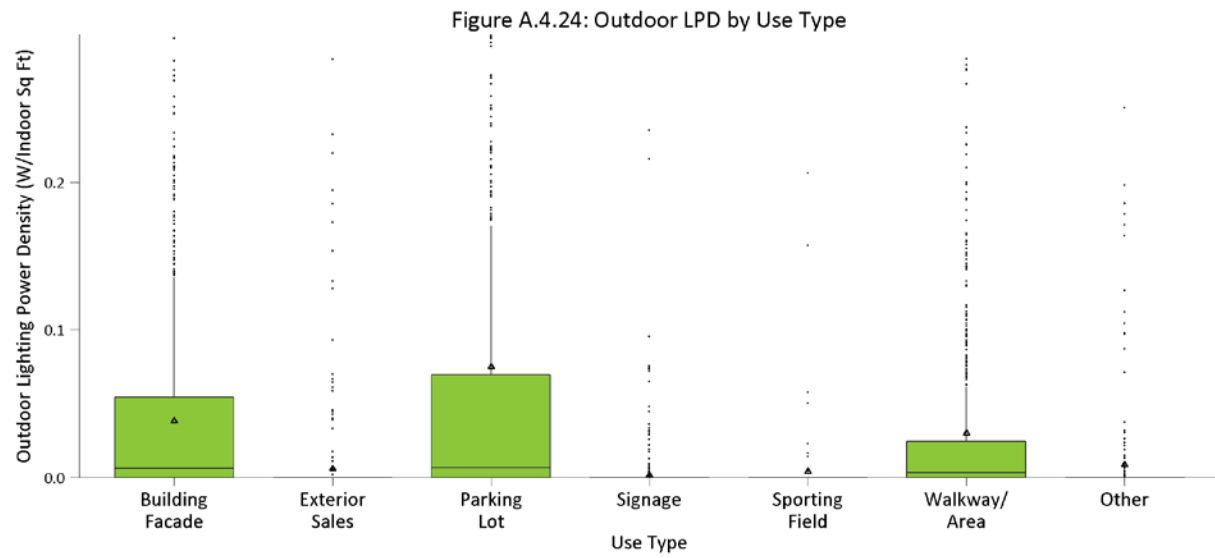
Units: Regional Indoor HID Lighting Power (Thousand Watts), % of column total, error band shown at the 90% confidence level



Fixture Type	All (n=222)	Assembly (n=39)	Food Service (n=8)	Grocery (n=20)	Lodging (n=32)	Office (n=29)	Residential Care (n=21)	Retail (n=40)	School (n=17)	Warehouse (n=3)	Other (n=13)
Ceiling Mount	7,081 35% ± 5%	923 20% ± 9%	228 62% ± 17%	857 86% ± 13%	1,427 46% ± 11%	485 23% ± 13%	56 12% ± 10%	1,367 23% ± 11%	107 18% ± 12%	0 0% ± 0%	1,632 79% ± 18%
Recessed Can	3,449 17% ± 4%	1,522 33% ± 11%	85 23% ± 15%	23 2% ± 5%	459 15% ± 8%	454 22% ± 13%	0 0% ± 0%	274 5% ± 4%	332 56% ± 20%	9 27% ± 42%	291 14% ± 15%
Display Track/Surface Mount	5,854 29% ± 5%	1,525 33% ± 12%	24 7% ± 4%	91 9% ± 11%	31 1% ± 3%	471 22% ± 13%	9 2% ± 2%	3,657 63% ± 11%	46 8% ± 7%	0 0% ± 0%	1 0% ± 0%
Exit Sign	1,498 7% ± 3%	306 7% ± 6%	20 5% ± 13%	9 1% ± 3%	90 3% ± 4%	613 29% ± 14%	119 26% ± 17%	103 2% ± 3%	98 17% ± 16%	15 46% ± 85%	127 6% ± 12%
Other	2,194 11% ± 3%	289 6% ± 3%	9 3% ± 11%	12 1% ± 4%	1,085 35% ± 10%	81 4% ± 5%	268 59% ± 17%	423 7% ± 4%	9 1% ± 3%	9 27% ± 43%	9 0% ± 2%

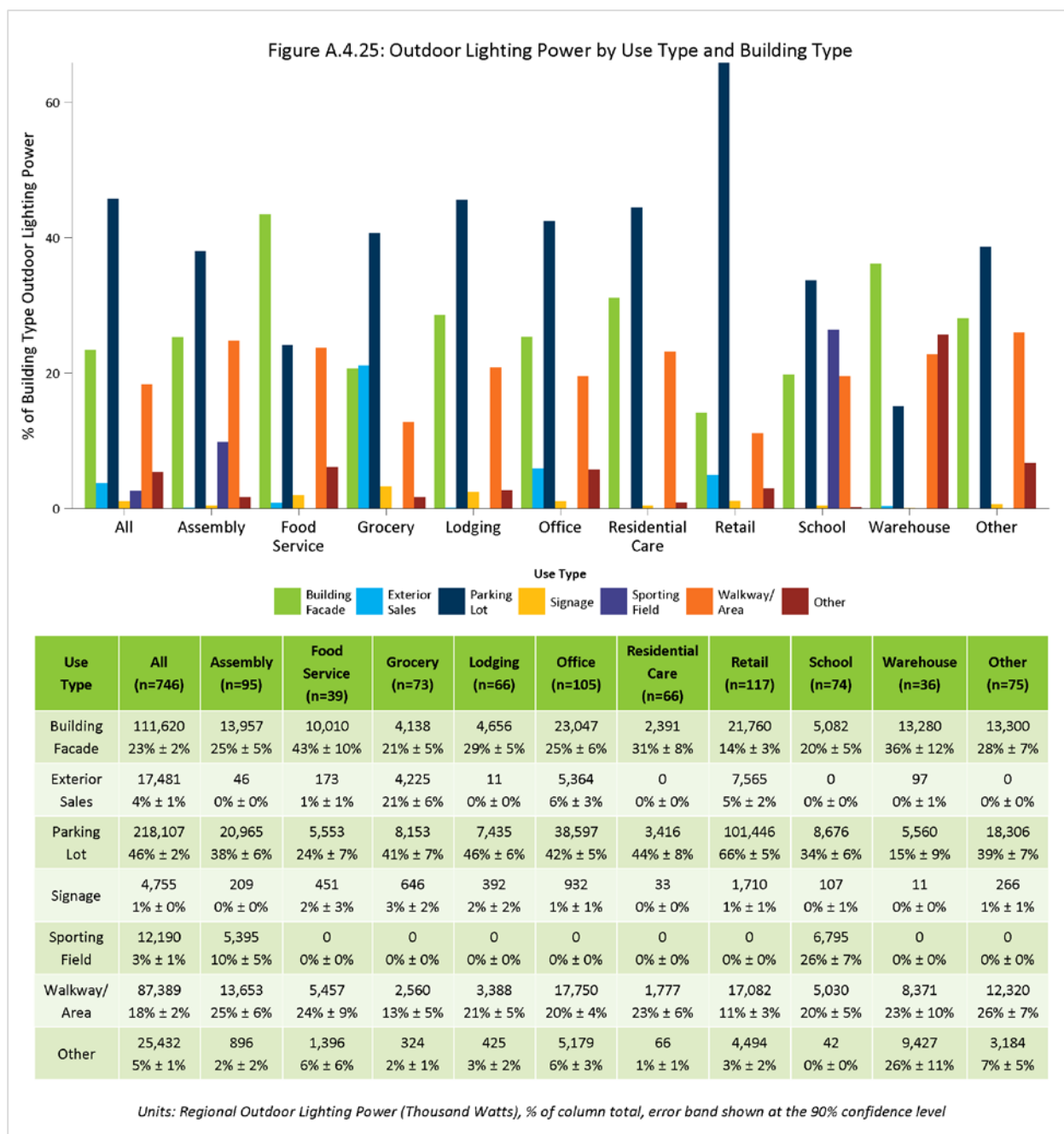
Units: Regional Indoor LED Lighting Power (Thousand Watts), % of column total, error band shown at the 90% confidence level

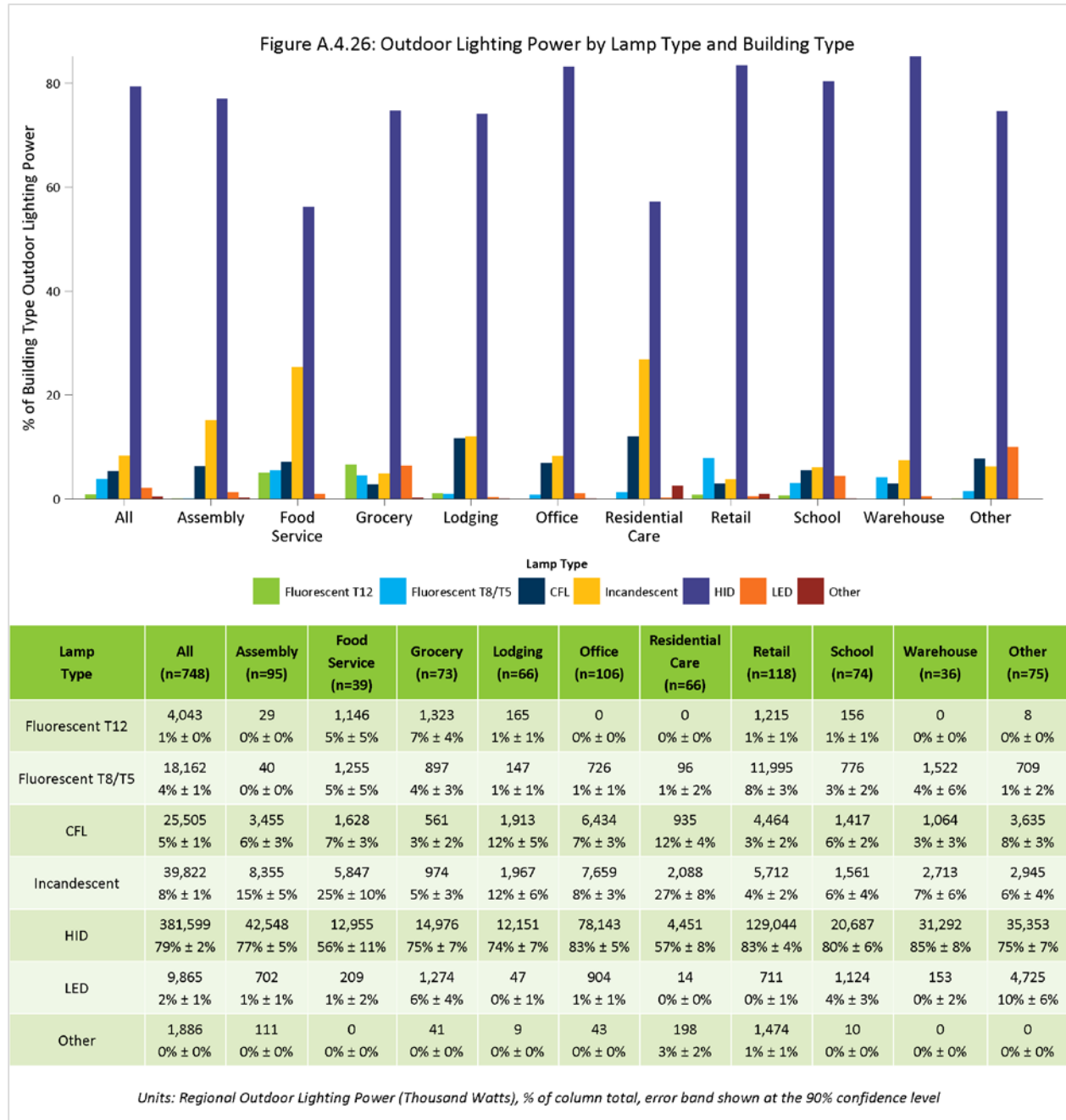


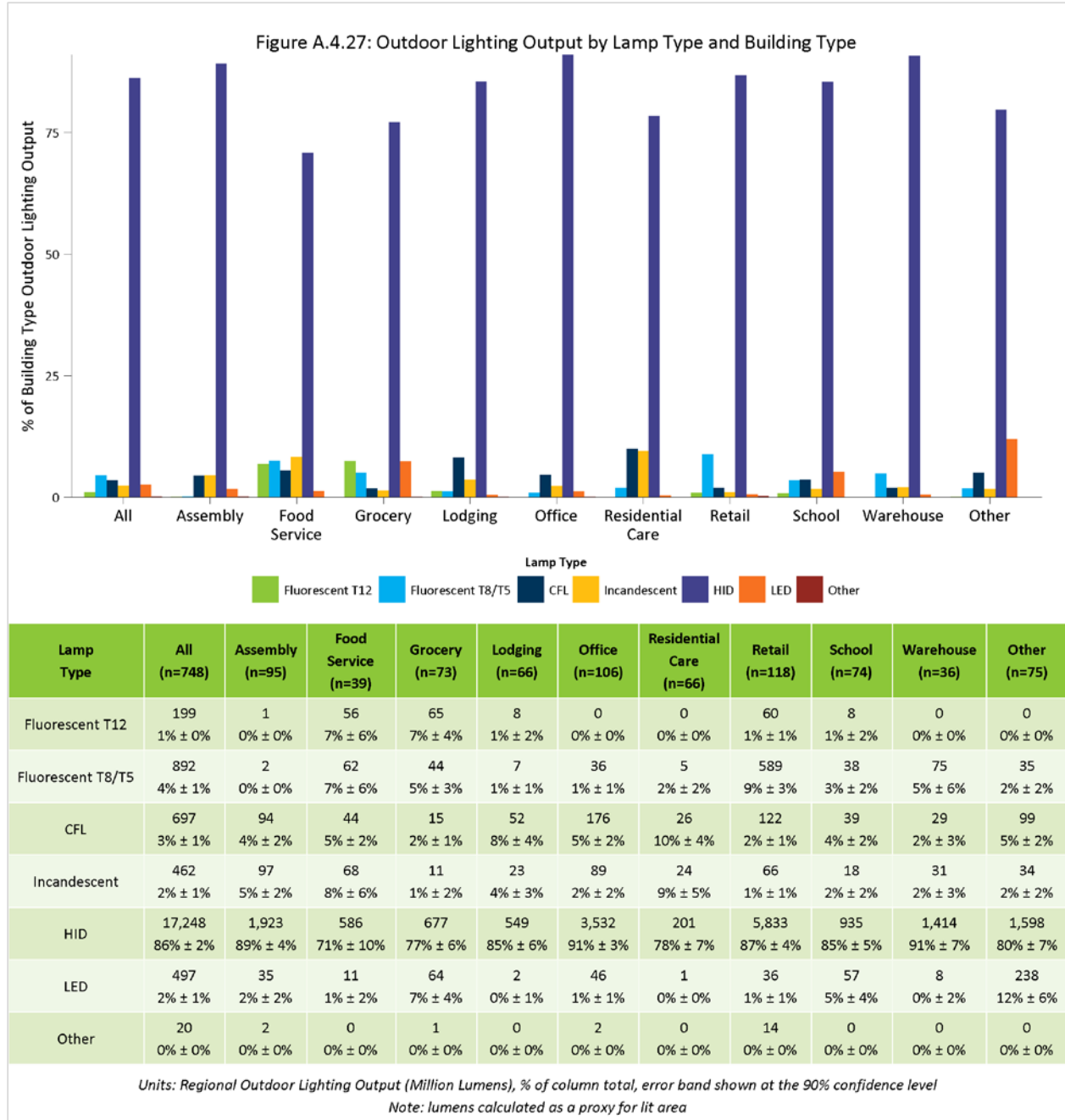


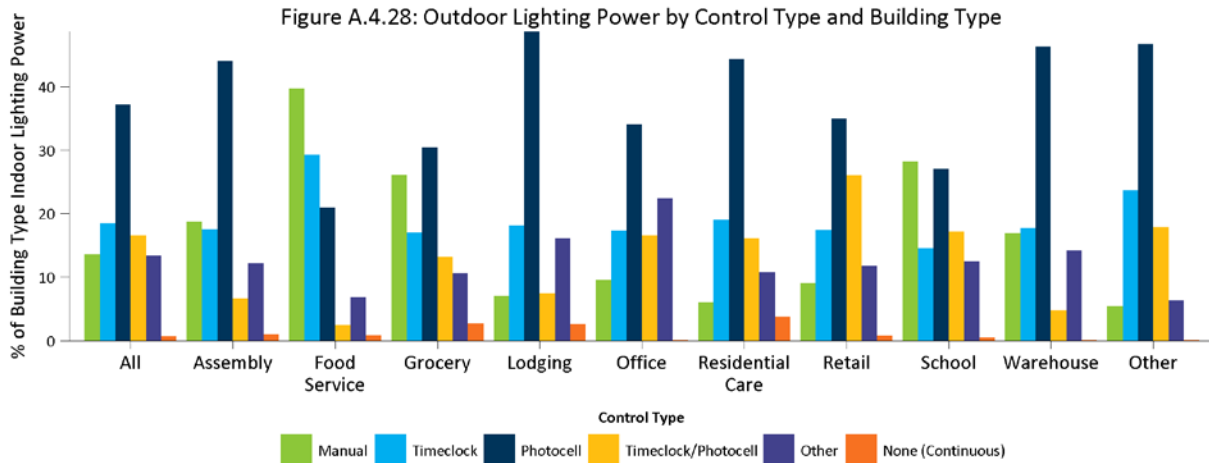
Statistic	Building Facade	Exterior Sales	Parking Lot	Signage	Sporting Field	Walkway/ Area	Other
Mean	0.04 ± 0.006	0.01 ± 0.005	0.08 ± 0.02	0 ± 8e-04	0 ± 0.003	0.03 ± 0.007	0.01 ± 0.005
Median	0.01	0	0.01	0	0	0	0
1st/3rd Q	0/0.054	0/0	0/0.07	0/0	0/0	0/0.025	0/0
n	796	796	796	796	796	796	796

Units: Outdoor Lighting Power Density (W/Indoor Sq Ft), error band shown at the 90% confidence level



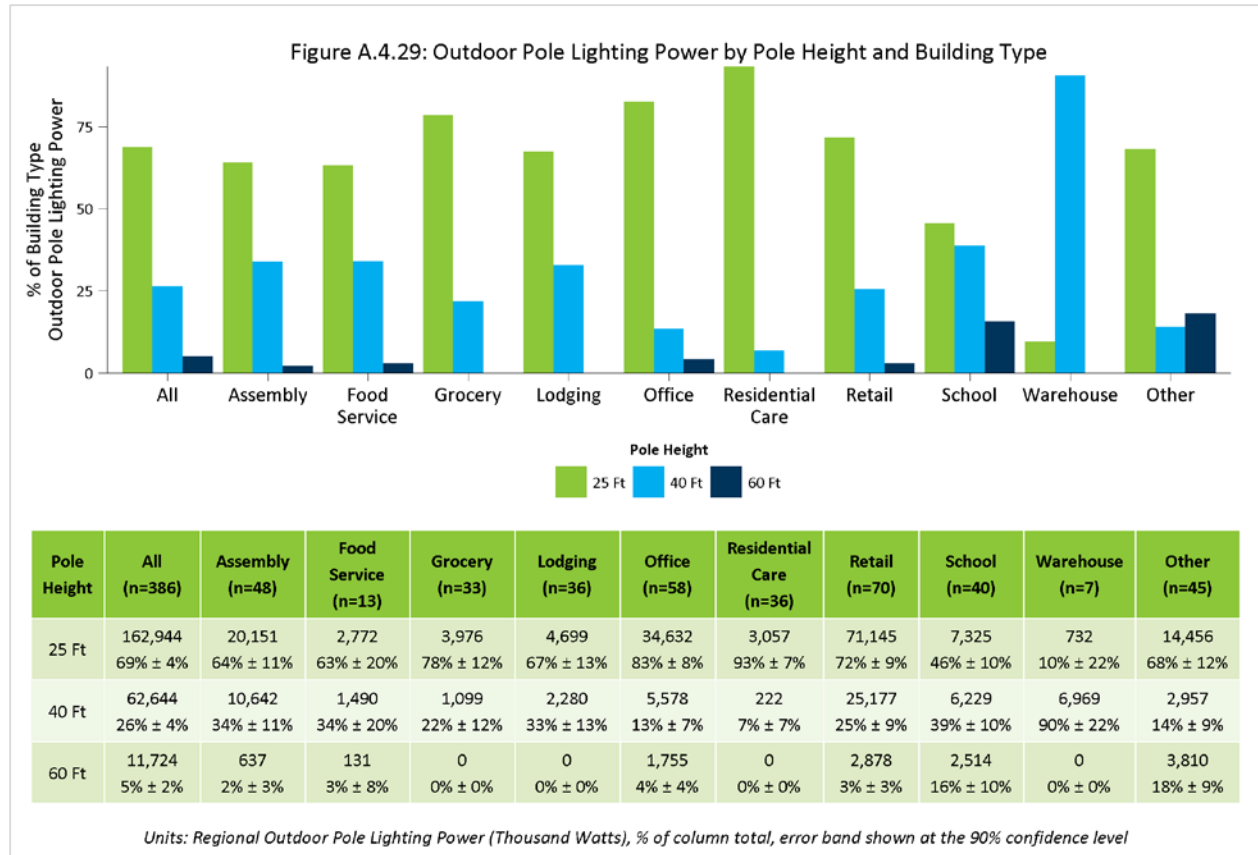


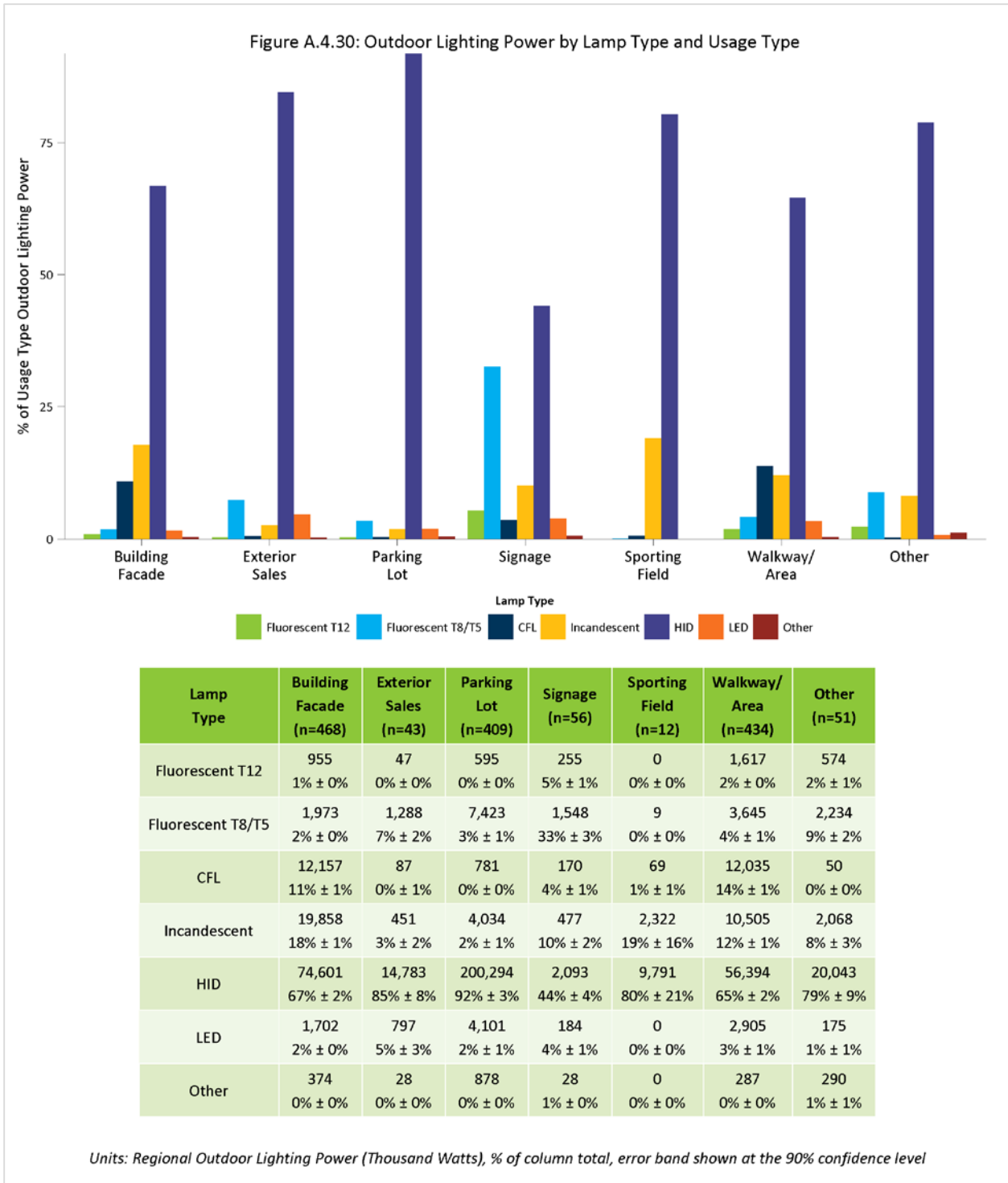




Control Type	All (n=748)	Assembly (n=95)	Food Service (n=39)	Grocery (n=73)	Lodging (n=66)	Office (n=106)	Residential Care (n=66)	Retail (n=118)	School (n=74)	Warehouse (n=36)	Other (n=75)
Manual	65,361 14% ± 2%	10,338 19% ± 6%	9,149 40% ± 13%	5,232 26% ± 8%	1,157 7% ± 4%	8,936 10% ± 4%	469 6% ± 4%	14,014 9% ± 4%	7,262 28% ± 8%	6,237 17% ± 9%	2,568 5% ± 4%
Timeclock	88,975 19% ± 2%	9,694 18% ± 6%	6,745 29% ± 12%	3,418 17% ± 7%	2,972 18% ± 7%	16,305 17% ± 6%	1,480 19% ± 8%	26,916 17% ± 6%	3,745 15% ± 7%	6,506 18% ± 11%	11,194 24% ± 8%
Photocell	178,943 37% ± 3%	24,327 44% ± 8%	4,822 21% ± 11%	6,099 30% ± 9%	7,987 49% ± 9%	32,037 34% ± 7%	3,452 44% ± 10%	54,110 35% ± 7%	6,959 27% ± 8%	17,024 46% ± 13%	22,127 47% ± 9%
Timeclock/Photocell	79,800 17% ± 2%	3,641 7% ± 4%	569 2% ± 4%	2,636 13% ± 6%	1,221 7% ± 5%	15,522 17% ± 6%	1,252 16% ± 7%	40,332 26% ± 7%	4,413 17% ± 7%	1,745 5% ± 6%	8,470 18% ± 7%
Other	64,502 13% ± 2%	6,726 12% ± 5%	1,575 7% ± 7%	2,122 11% ± 6%	2,635 16% ± 7%	21,042 22% ± 7%	835 11% ± 6%	18,152 12% ± 4%	3,214 12% ± 6%	5,206 14% ± 9%	2,994 6% ± 4%
None (Continuous)	3,300 1% ± 0%	516 1% ± 1%	180 1% ± 1%	538 3% ± 3%	426 3% ± 2%	69 0% ± 0%	292 4% ± 4%	1,091 1% ± 1%	139 1% ± 1%	27 0% ± 0%	21 0% ± 0%

Units: Regional Indoor Lighting Power (Million Watts), % of column total, error band shown at the 90% confidence level





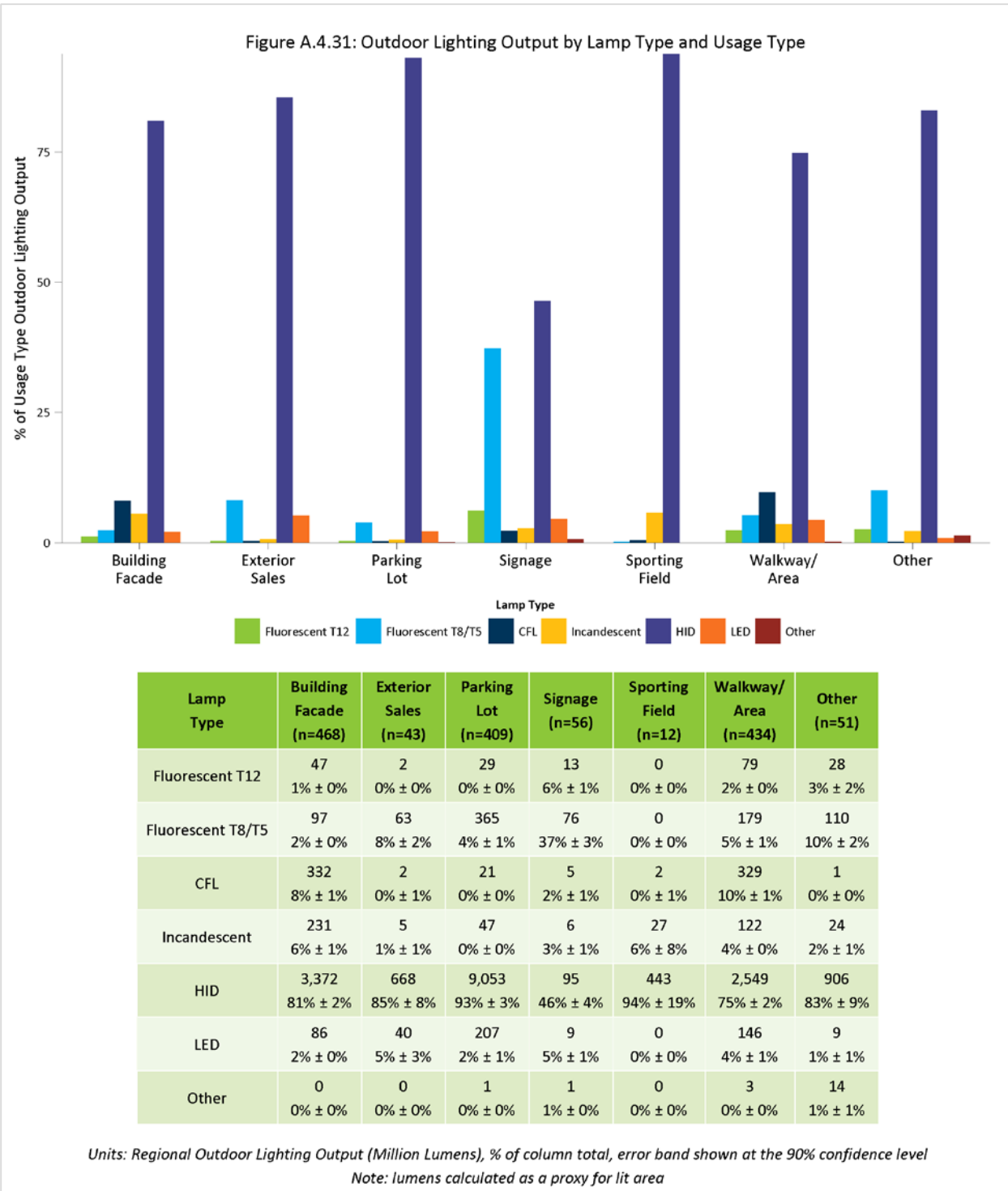
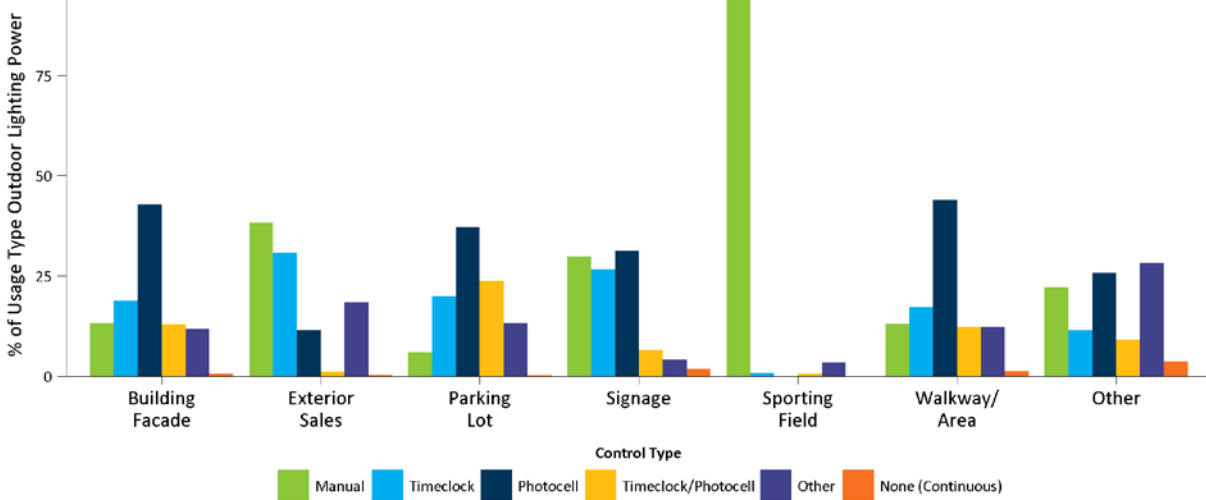
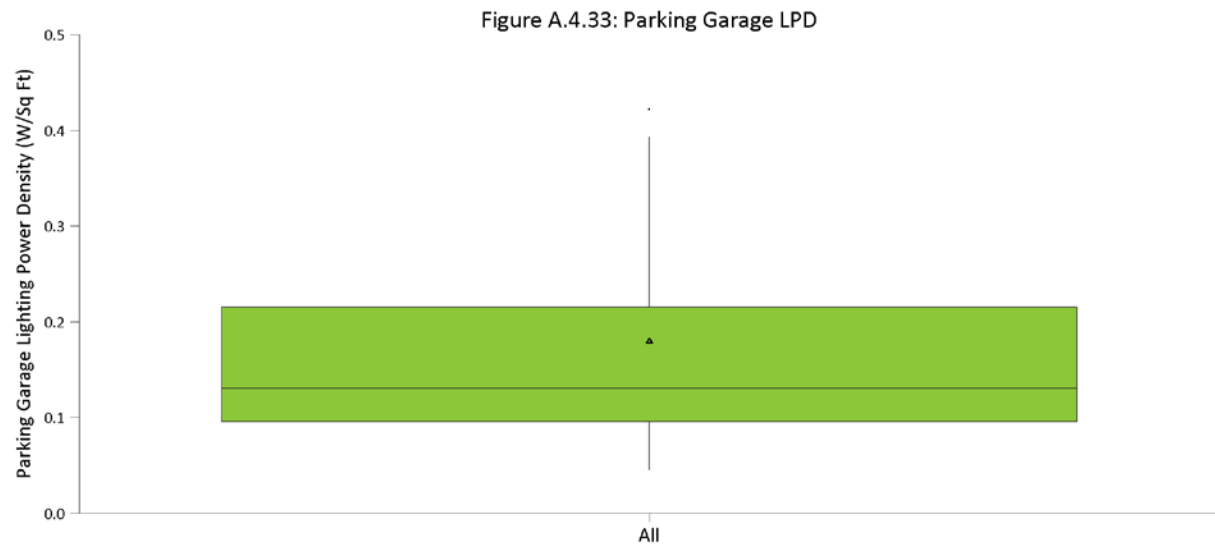


Figure A.4.32: Outdoor Lighting Power by Control Type and Usage Type



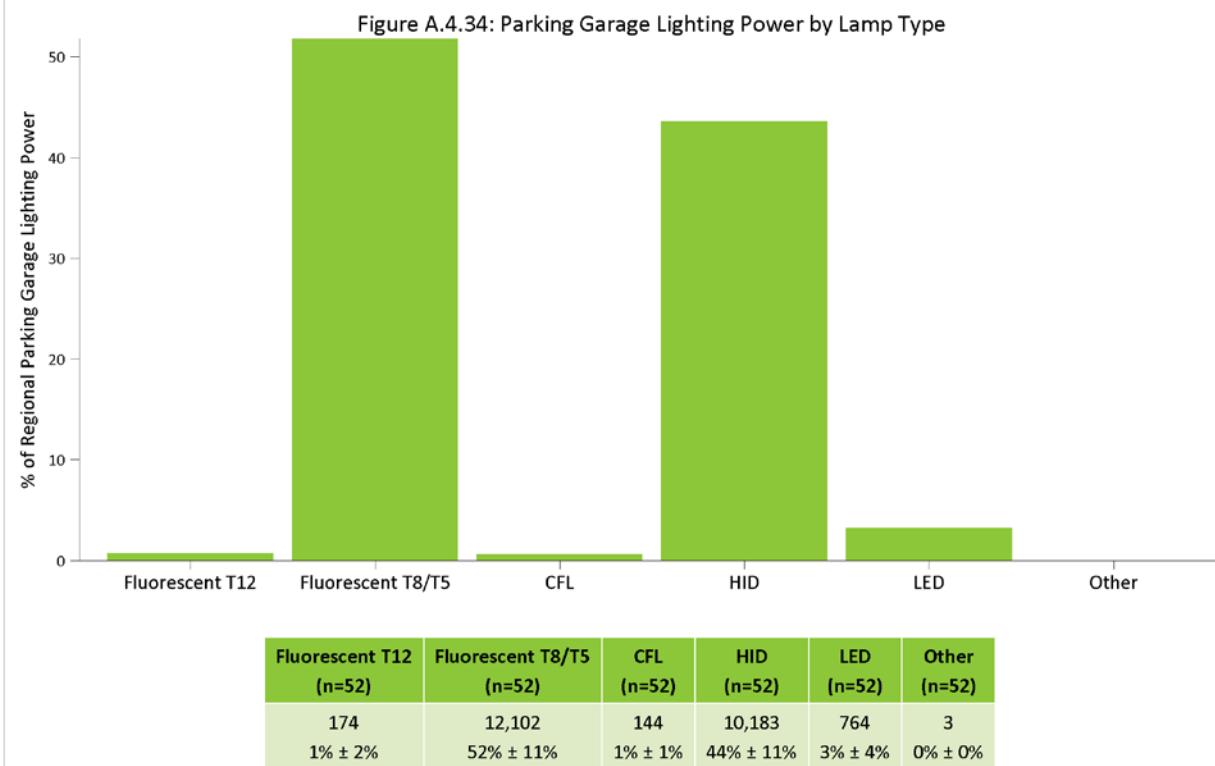
Control Type	Building Facade (n=468)	Exterior Sales (n=43)	Parking Lot (n=409)	Signage (n=56)	Sporting Field (n=12)	Walkway/ Area (n=434)	Other (n=51)
Manual	14,721 13% ± 1%	6,693 38% ± 7%	13,020 6% ± 1%	1,414 30% ± 4%	11,632 95% ± 19%	11,404 13% ± 1%	5,639 22% ± 4%
Timeclock	20,984 19% ± 1%	5,362 31% ± 7%	43,329 20% ± 2%	1,265 27% ± 3%	87 1% ± 1%	15,031 17% ± 1%	2,915 11% ± 4%
Photocell	47,786 43% ± 2%	2,002 11% ± 4%	80,808 37% ± 3%	1,487 31% ± 2%	0 0% ± 0%	38,399 44% ± 2%	6,527 26% ± 6%
Timeclock/Photocell	14,362 13% ± 1%	173 1% ± 1%	51,836 24% ± 3%	309 6% ± 2%	69 1% ± 1%	10,782 12% ± 1%	2,270 9% ± 4%
Other	13,100 12% ± 1%	3,205 18% ± 5%	28,624 13% ± 2%	196 4% ± 1%	403 3% ± 3%	10,734 12% ± 1%	7,156 28% ± 6%
None (Continuous)	667 1% ± 0%	46 0% ± 0%	490 0% ± 0%	84 2% ± 1%	0 0% ± 0%	1,039 1% ± 0%	924 4% ± 2%

Units: Regional Outdoor Lighting Power (Thousand Watts), % of column total, error band shown at the 90% confidence level

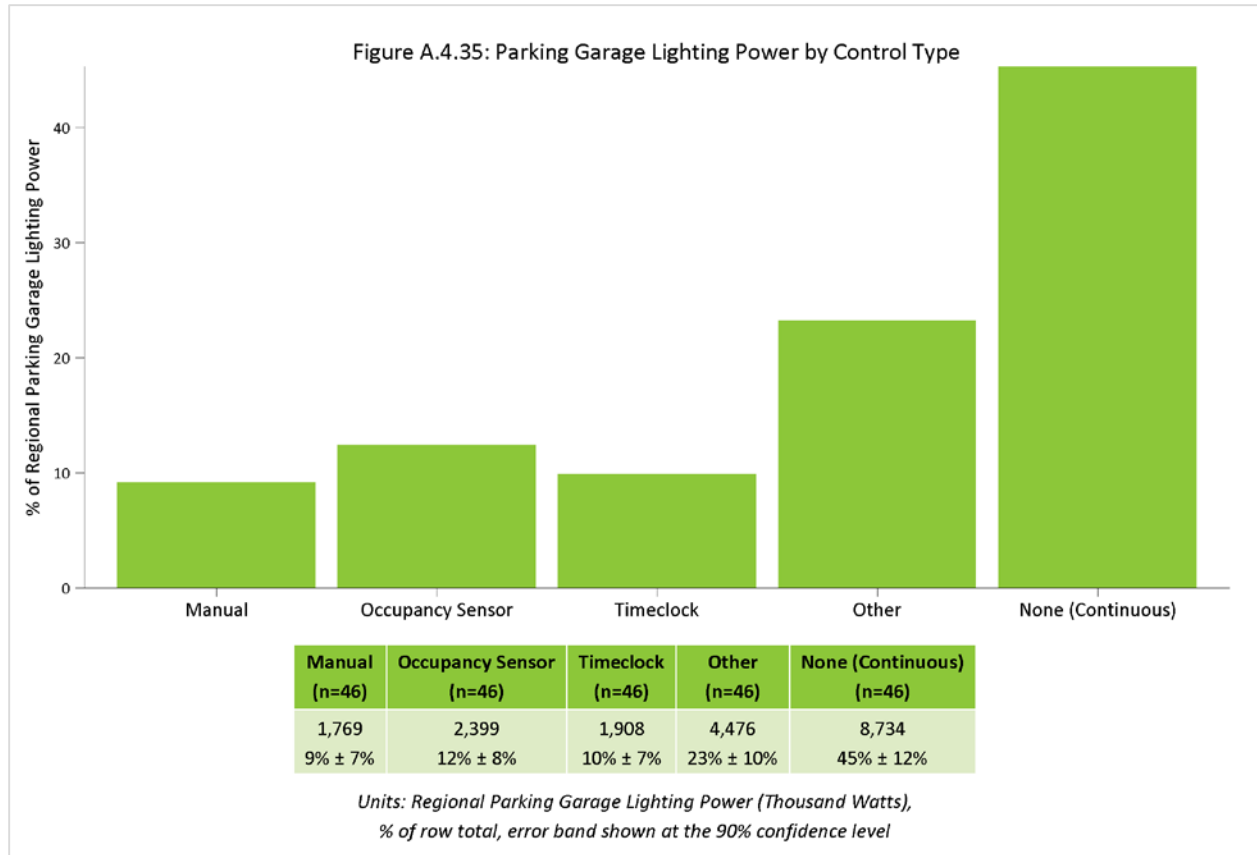


Statistic	All Buildings
Mean	0.18 ± 0.03
Median	0.13
1st/3rd Q	0.096/0.22
n	52

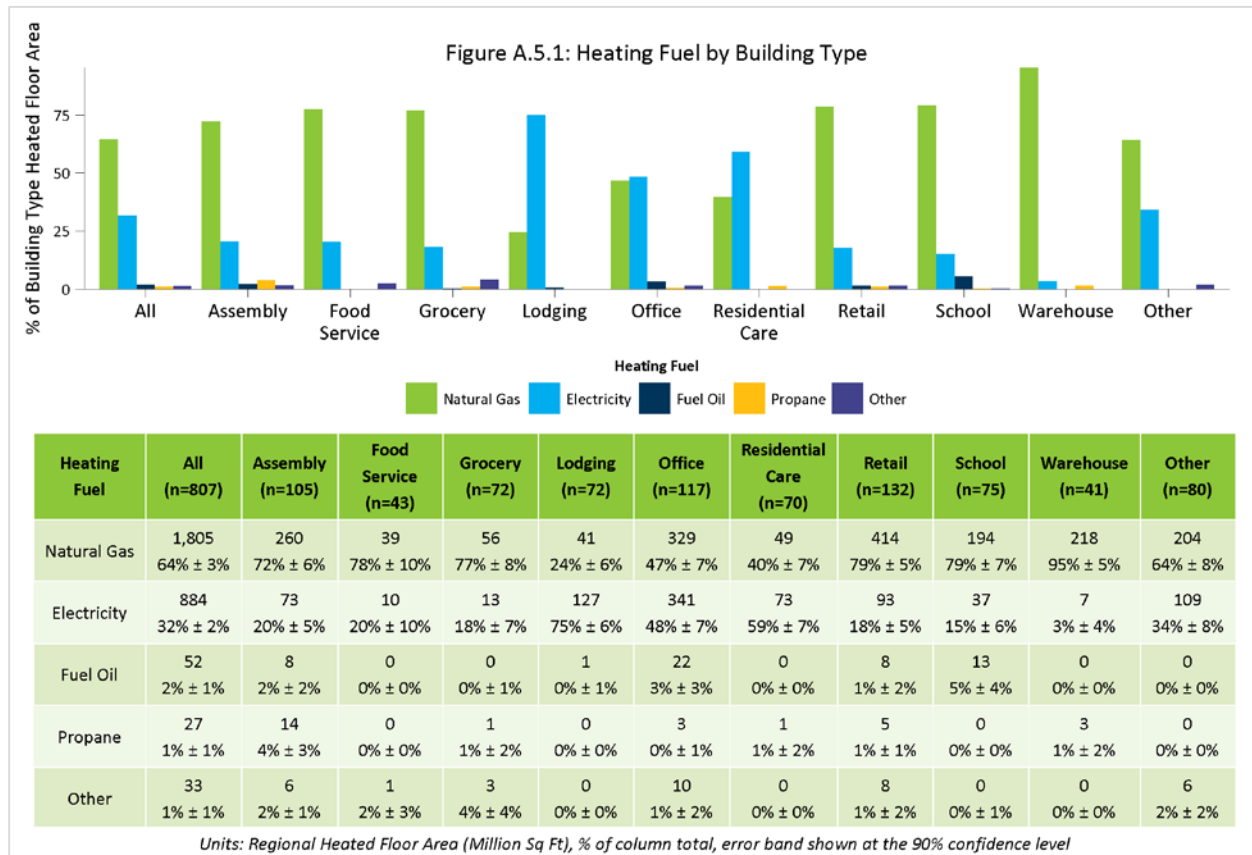
Units: Parking Garage Lighting Power Density (W/Sq Ft), error band shown at the 90% confidence level

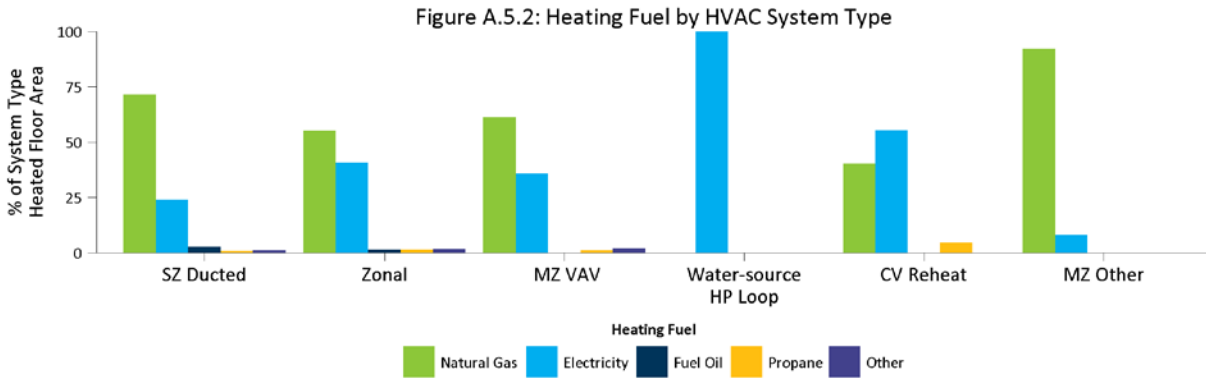


Units: Regional Parking Garage Lighting Power (Thousand Watts), % of row total, error band shown at the 90% confidence level



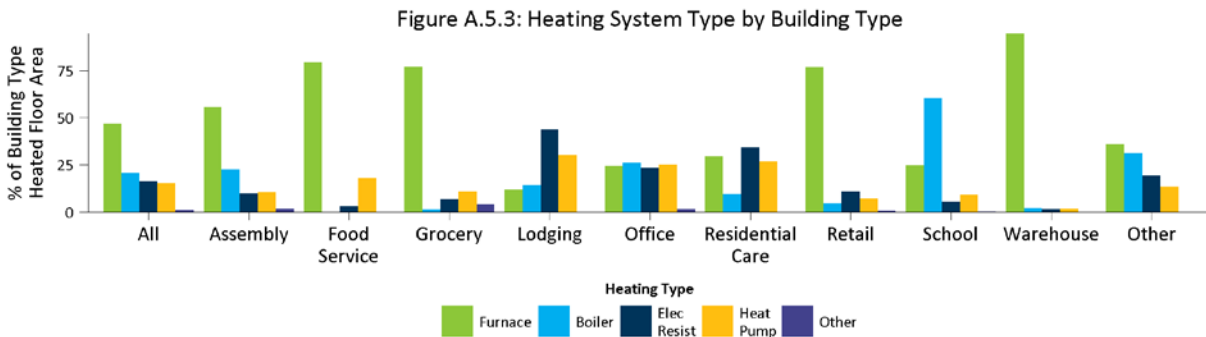
A.5 HVAC





Heating Fuel	SZ Ducted (n=669)	Zonal (n=392)	MZ VAV (n=81)	Water-source HP Loop (n=30)	CV Reheat (n=13)	MZ Other (n=13)
Natural Gas	1,195 72% ± 3%	339 55% ± 3%	176 61% ± 8%	0 0% ± 0%	12 40% ± 15%	30 92% ± 14%
Electricity	399 24% ± 2%	250 41% ± 3%	103 36% ± 6%	93 100% ± 10%	17 55% ± 17%	3 8% ± 7%
Fuel Oil	44 3% ± 1%	8 1% ± 1%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%
Propane	15 1% ± 0%	8 1% ± 0%	3 1% ± 1%	0 0% ± 0%	1 4% ± 3%	0 0% ± 0%
Other	17 1% ± 0%	11 2% ± 1%	6 2% ± 2%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%

Units: Regional Heated Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level

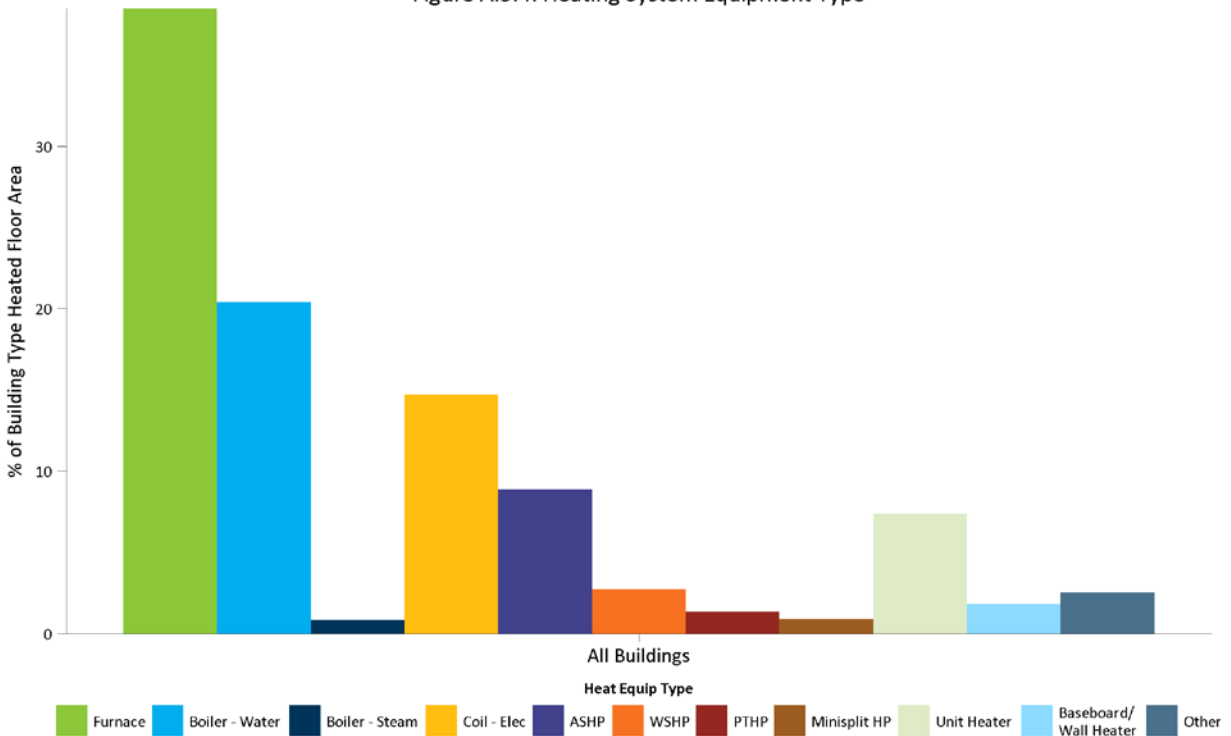


Heating Type	All (n=801)	Assembly (n=105)	Food Service (n=43)	Grocery (n=70)	Lodging (n=72)	Office (n=117)	Residential Care (n=69)	Retail (n=130)	School (n=75)	Warehouse (n=40)	Other (n=80)
Furnace	1,306 47% ± 3%	200 56% ± 7%	39 79% ± 10%	56 77% ± 8%	20 12% ± 3%	171 24% ± 6%	35 30% ± 7%	399 77% ± 5%	60 25% ± 7%	210 95% ± 5%	114 36% ± 8%
Boiler	574 21% ± 2%	81 22% ± 6%	0 0% ± 0%	1 1% ± 2%	24 14% ± 6%	183 26% ± 7%	12 10% ± 5%	23 5% ± 3%	147 60% ± 9%	5 2% ± 3%	99 31% ± 8%
Elec Resist	454 16% ± 2%	35 10% ± 4%	1 3% ± 4%	5 7% ± 5%	74 44% ± 7%	164 23% ± 6%	41 34% ± 7%	55 11% ± 4%	13 5% ± 3%	3 2% ± 3%	62 19% ± 6%
Heat Pump	420 15% ± 2%	38 11% ± 4%	9 18% ± 10%	8 11% ± 6%	51 30% ± 8%	176 25% ± 6%	32 27% ± 7%	38 7% ± 3%	22 9% ± 5%	4 2% ± 3%	42 13% ± 5%
Other	22 1% ± 0%	6 2% ± 1%	0 0% ± 0%	3 4% ± 4%	0 0% ± 0%	10 1% ± 2%	0 0% ± 0%	3 1% ± 1%	0 0% ± 1%	0 0% ± 0%	0 0% ± 0%

Units: Regional Heated Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level

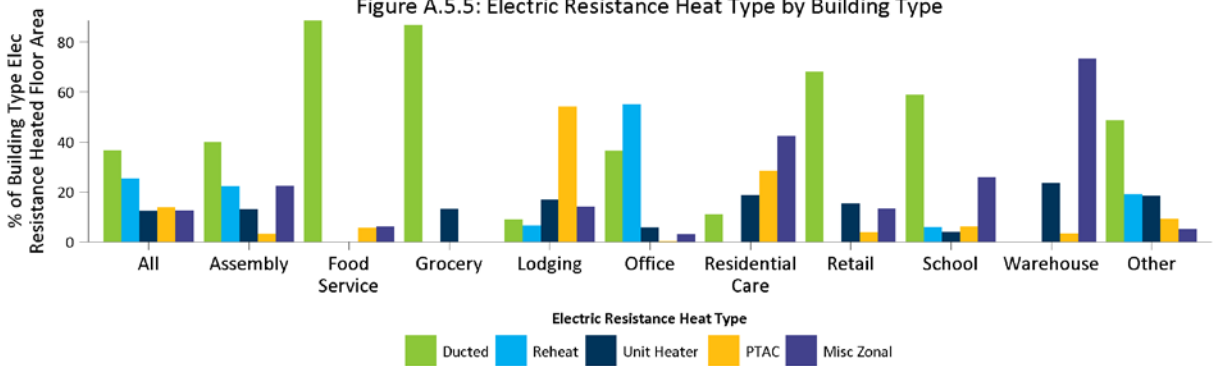
Note: "Furnace" type includes combustion furnaces and unit heaters. Electric furnaces are included in "Elec Resist"

Figure A.5.4: Heating System Equipment Type



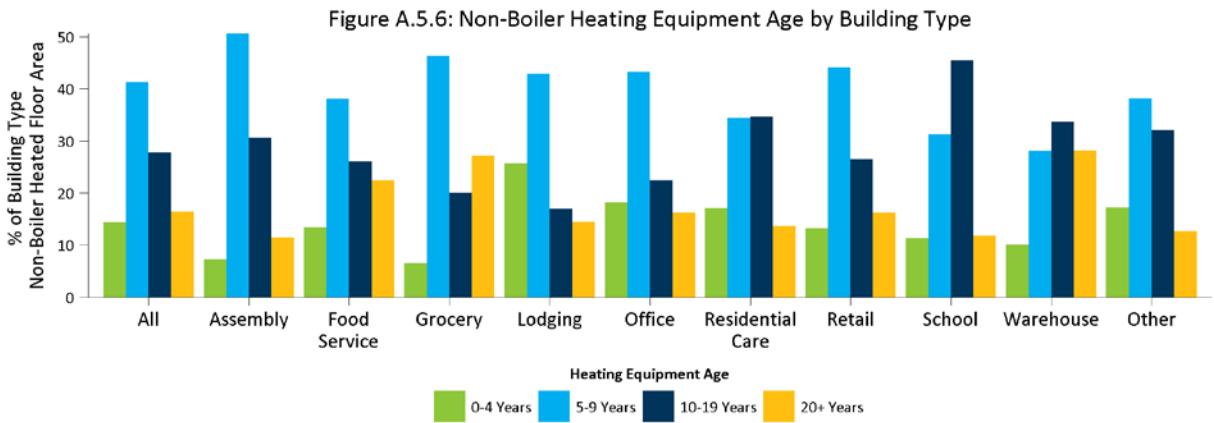
Heat Equip Type	All (n=799)	Assembly (n=105)	Food Service (n=43)	Grocery (n=70)	Lodging (n=72)	Office (n=117)	Residential Care (n=69)	Retail (n=129)	School (n=75)	Warehouse (n=39)	Other (n=80)
Furnace	1,064 38% ± 3%	196 55% ± 7%	39 79% ± 10%	47 66% ± 8%	20 12% ± 3%	168 24% ± 6%	35 30% ± 7%	321 63% ± 6%	57 23% ± 7%	95 43% ± 11%	85 27% ± 7%
Boiler - Water	564 20% ± 2%	80 22% ± 6%	0 0% ± 0%	1 1% ± 2%	20 12% ± 6%	193 27% ± 7%	10 8% ± 5%	23 5% ± 3%	133 55% ± 9%	5 2% ± 3%	99 31% ± 8%
Boiler - Steam	23 1% ± 0%	4 1% ± 1%	0 0% ± 0%	0 0% ± 0%	4 3% ± 3%	0 0% ± 0%	1 1% ± 2%	0 0% ± 0%	13 5% ± 4%	0 0% ± 0%	0 0% ± 0%
Coil - Elec	406 15% ± 2%	27 8% ± 3%	1 3% ± 4%	5 7% ± 5%	66 39% ± 8%	160 23% ± 6%	24 20% ± 7%	48 9% ± 4%	11 5% ± 3%	1 0% ± 2%	63 20% ± 6%
ASHP	246 9% ± 1%	33 9% ± 4%	8 17% ± 10%	7 10% ± 6%	11 7% ± 4%	110 16% ± 5%	10 8% ± 4%	30 6% ± 3%	8 3% ± 3%	4 2% ± 3%	24 7% ± 4%
WSHP	76 3% ± 1%	3 1% ± 1%	0 0% ± 0%	0 0% ± 0%	12 7% ± 5%	39 6% ± 3%	8 7% ± 4%	0 0% ± 0%	10 4% ± 4%	0 0% ± 0%	3 1% ± 2%
PTHP	37 1% ± 1%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	23 14% ± 6%	0 0% ± 0%	12 10% ± 4%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%	1 0% ± 1%
Minisplit HP	24 1% ± 0%	2 0% ± 0%	0 1% ± 1%	0 0% ± 0%	0 0% ± 0%	7 1% ± 1%	1 1% ± 0%	3 1% ± 1%	1 1% ± 1%	0 0% ± 1%	9 3% ± 3%
Unit Heater	204 7% ± 1%	3 1% ± 1%	0 0% ± 0%	9 12% ± 5%	0 0% ± 0%	2 0% ± 0%	0 0% ± 0%	72 14% ± 4%	4 1% ± 1%	94 43% ± 11%	21 7% ± 4%
Baseboard/Wall Heater	51 2% ± 1%	8 2% ± 2%	0 0% ± 0%	0 0% ± 0%	9 5% ± 3%	4 1% ± 1%	17 14% ± 6%	7 1% ± 1%	2 1% ± 1%	2 1% ± 2%	2 1% ± 1%
Other	70 3% ± 1%	1 0% ± 0%	0 0% ± 0%	3 4% ± 4%	5 3% ± 3%	21 3% ± 2%	0 0% ± 0%	7 1% ± 1%	2 1% ± 1%	20 9% ± 7%	10 3% ± 2%

Units: Regional Heated Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level



Electric Res Heat Type	All (n=264)	Assembly (n=28)	Food Service (n=5)	Grocery (n=17)	Lodging (n=49)	Office (n=41)	Residential Care (n=37)	Retail (n=32)	School (n=18)	Warehouse (n=9)	Other (n=28)
Ducted	170 37% ± 5%	14 40% ± 16%	1 88% ± 55%	5 87% ± 14%	7 9% ± 5%	60 36% ± 13%	4 11% ± 6%	38 68% ± 13%	9 59% ± 17%	0 0% ± 0%	32 49% ± 16%
Reheat	117 25% ± 4%	8 22% ± 13%	0 0% ± 0%	0 0% ± 0%	5 6% ± 5%	91 55% ± 13%	0 0% ± 0%	0 0% ± 0%	1 6% ± 4%	0 0% ± 0%	13 19% ± 12%
Unit Heater	57 12% ± 3%	4 13% ± 10%	0 0% ± 0%	1 13% ± 14%	13 17% ± 7%	9 6% ± 5%	8 19% ± 9%	8 15% ± 9%	1 4% ± 7%	1 23% ± 31%	12 18% ± 12%
PTAC	63 14% ± 3%	1 3% ± 5%	0 5% ± 39%	0 0% ± 0%	41 54% ± 11%	0 0% ± 1%	12 28% ± 12%	2 4% ± 6%	1 6% ± 9%	0 3% ± 9%	6 9% ± 9%
Misc Zonal	58 12% ± 3%	8 22% ± 13%	0 6% ± 41%	0 0% ± 0%	11 14% ± 8%	5 3% ± 4%	17 42% ± 14%	7 13% ± 10%	4 26% ± 17%	3 73% ± 31%	3 5% ± 7%

Units: Regional Elec Resistance Heated Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level



Heating Equip Age	All (n=645)	Assembly (n=91)	Food Service (n=39)	Grocery (n=56)	Lodging (n=60)	Office (n=85)	Residential Care (n=59)	Retail (n=105)	School (n=53)	Warehouse (n=36)	Other (n=61)
0-4 Years	254 14% ± 2%	17 7% ± 4%	6 13% ± 8%	4 7% ± 5%	30 26% ± 9%	74 18% ± 7%	17 17% ± 8%	50 13% ± 5%	9 11% ± 7%	18 10% ± 7%	29 17% ± 8%
5-9 Years	729 41% ± 3%	120 51% ± 8%	17 38% ± 13%	26 46% ± 11%	51 43% ± 11%	176 43% ± 9%	34 34% ± 10%	166 44% ± 8%	25 31% ± 11%	49 28% ± 12%	66 38% ± 10%
10-19 Years	491 28% ± 3%	73 31% ± 8%	11 26% ± 12%	11 20% ± 8%	20 17% ± 8%	91 22% ± 7%	35 35% ± 10%	99 26% ± 7%	37 46% ± 11%	59 34% ± 13%	55 32% ± 10%
20+ Years	290 16% ± 2%	27 11% ± 5%	10 22% ± 11%	15 27% ± 10%	17 14% ± 7%	66 16% ± 6%	14 14% ± 7%	61 16% ± 6%	10 12% ± 6%	49 28% ± 13%	22 13% ± 7%

Units: Regional Non-Boiler Heated Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level

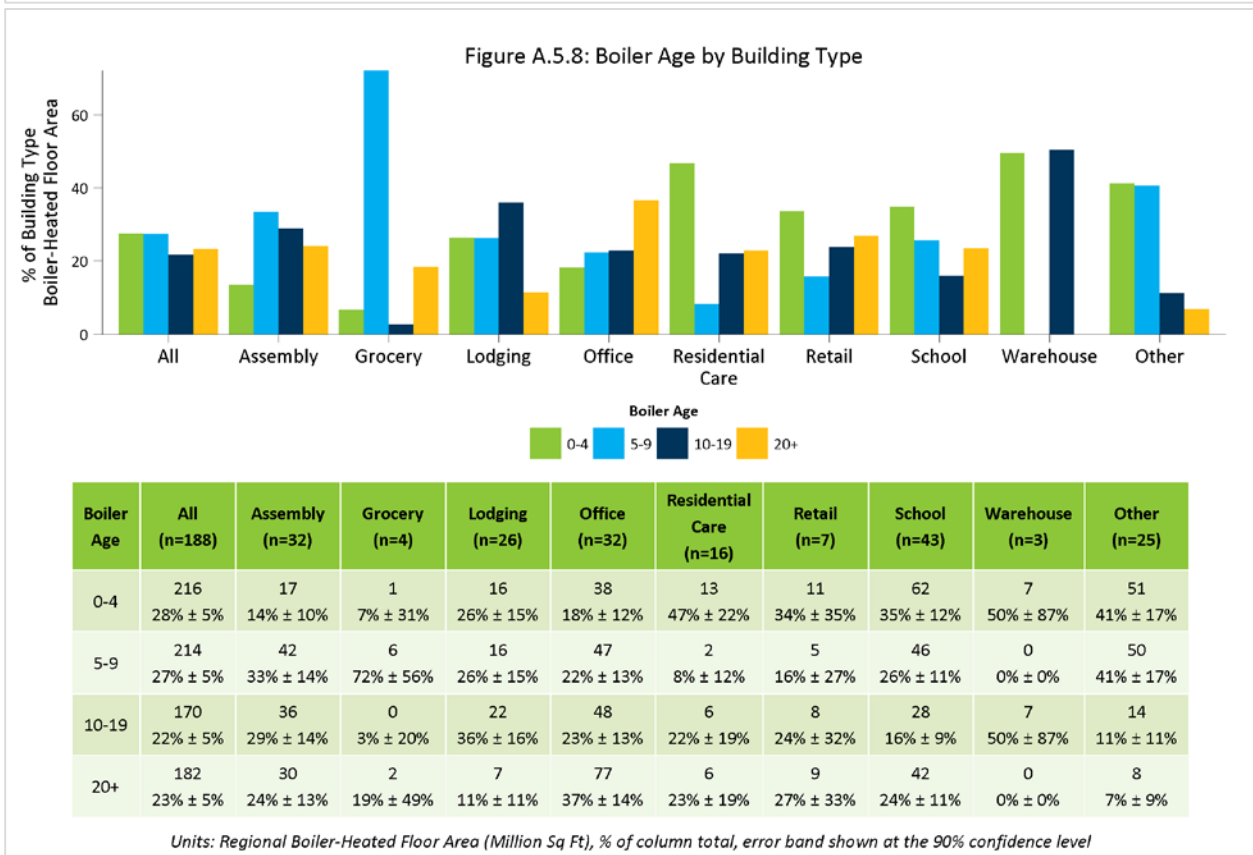
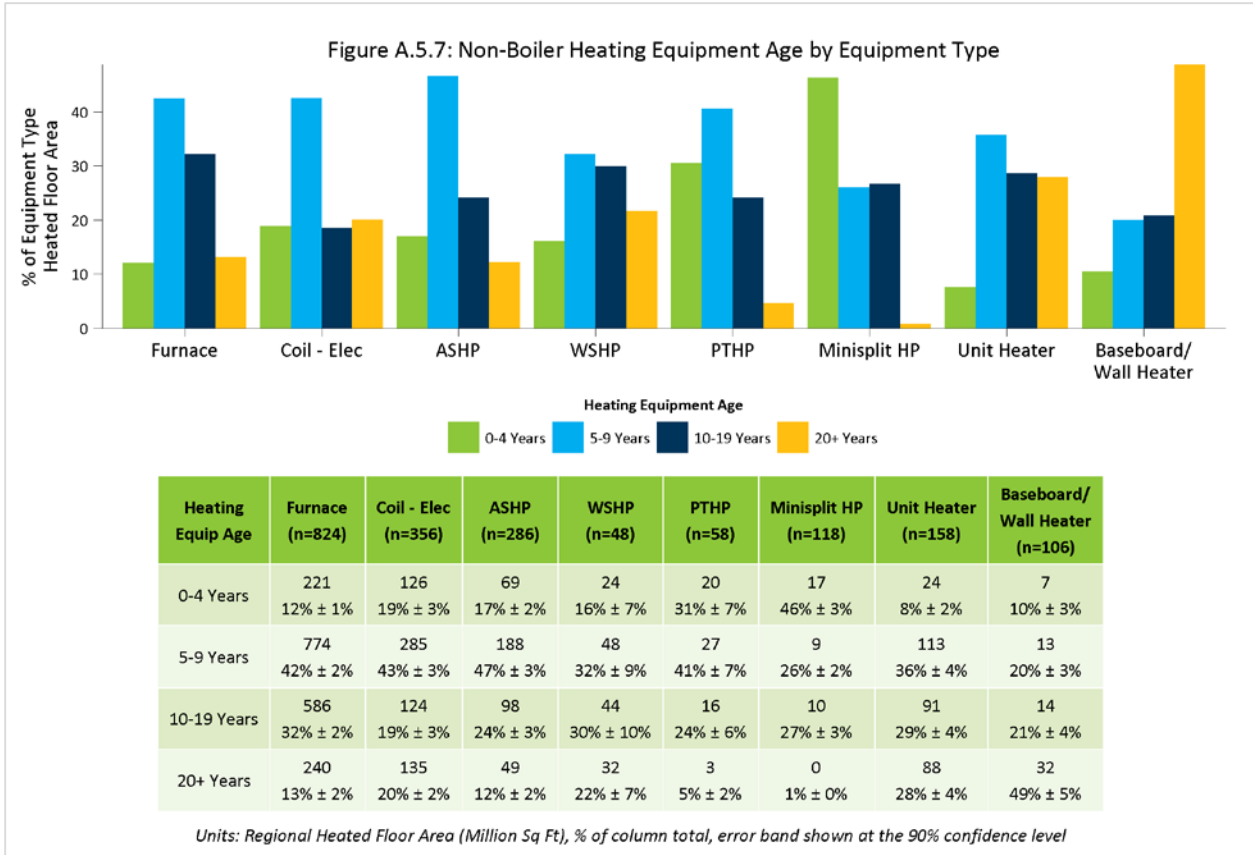
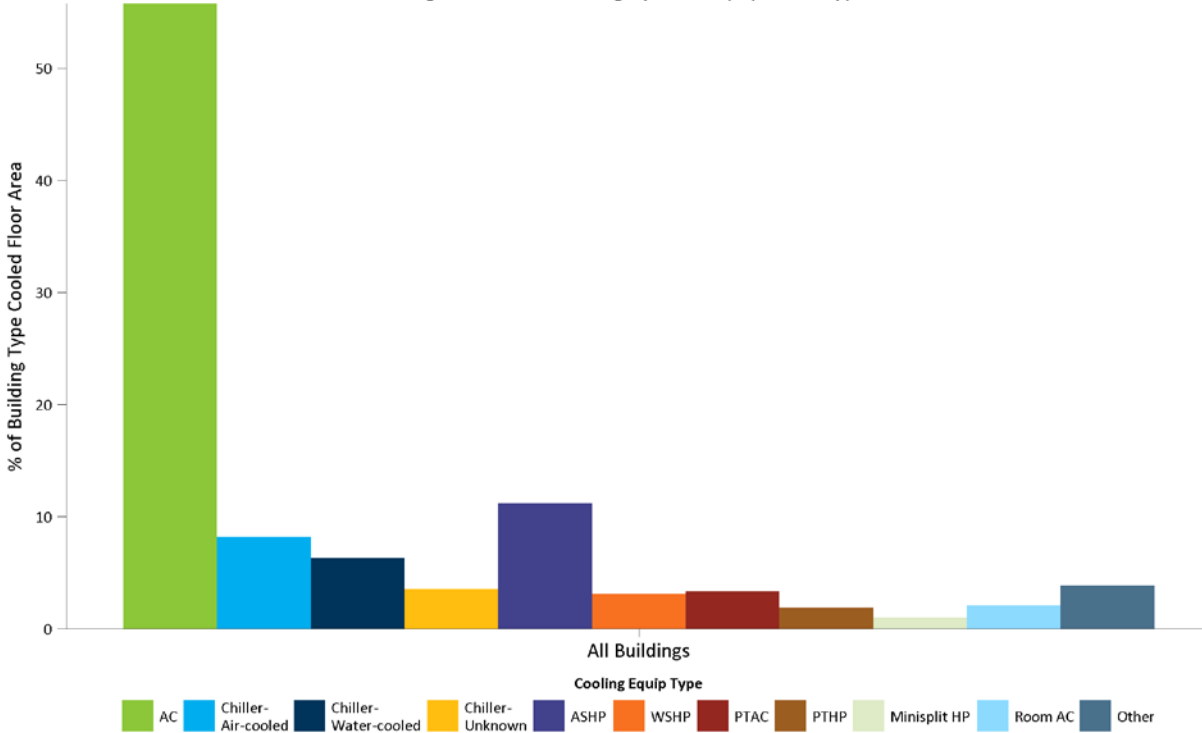


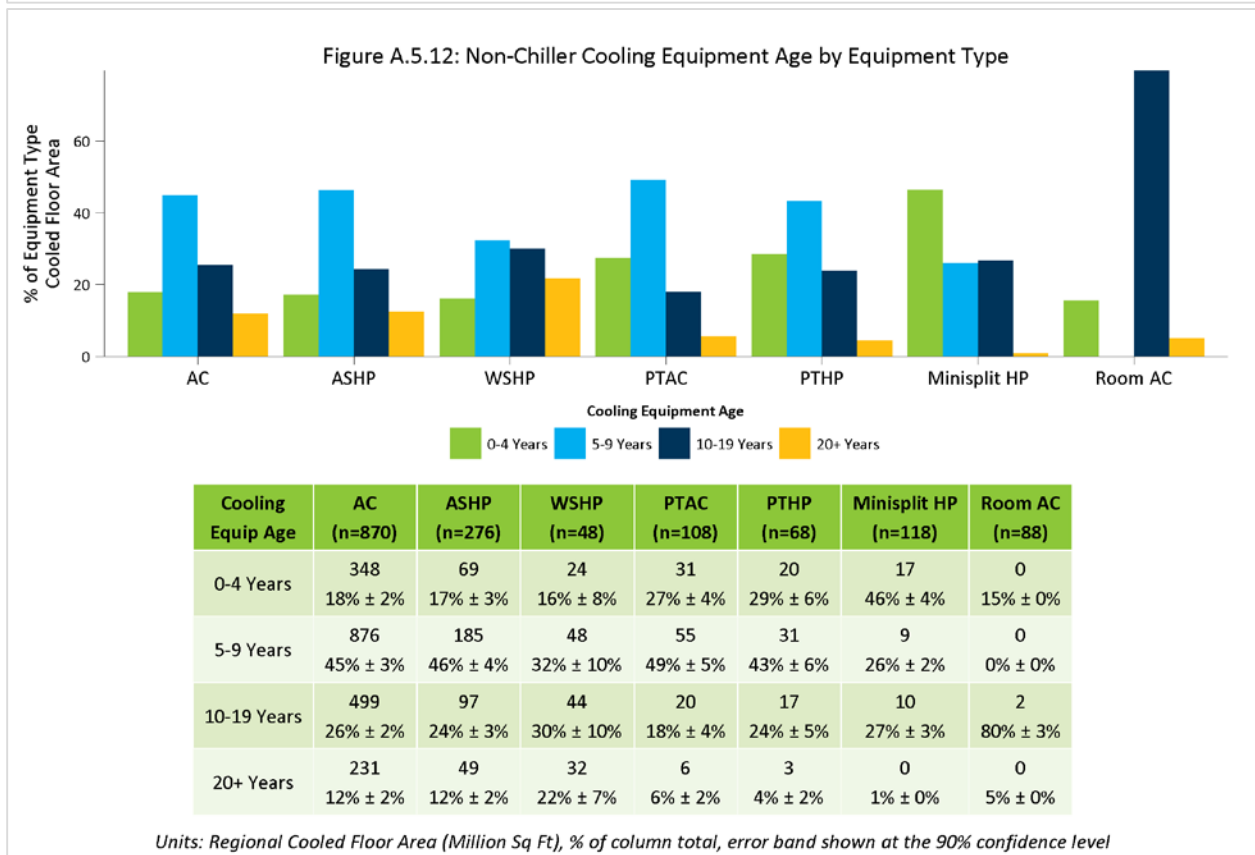
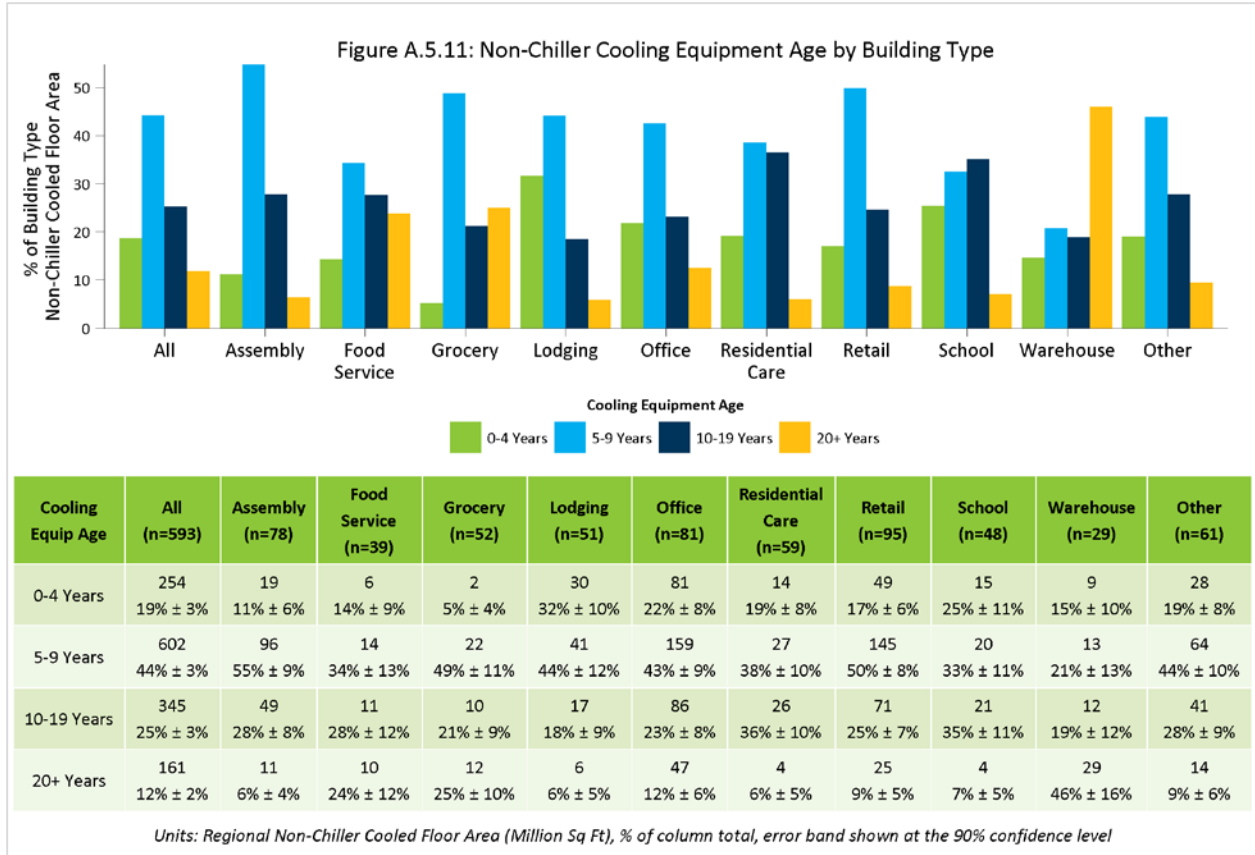


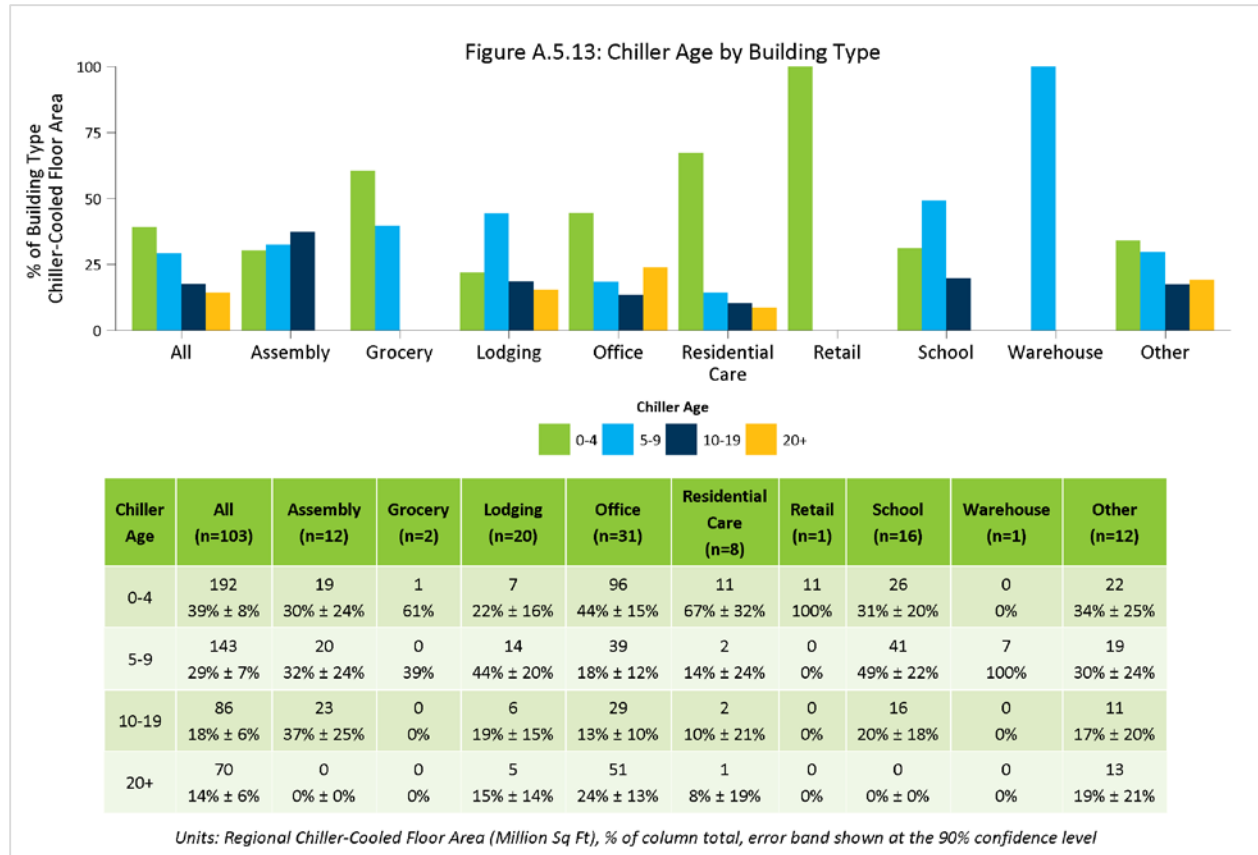
Figure A.5.10: Cooling System Equipment Type

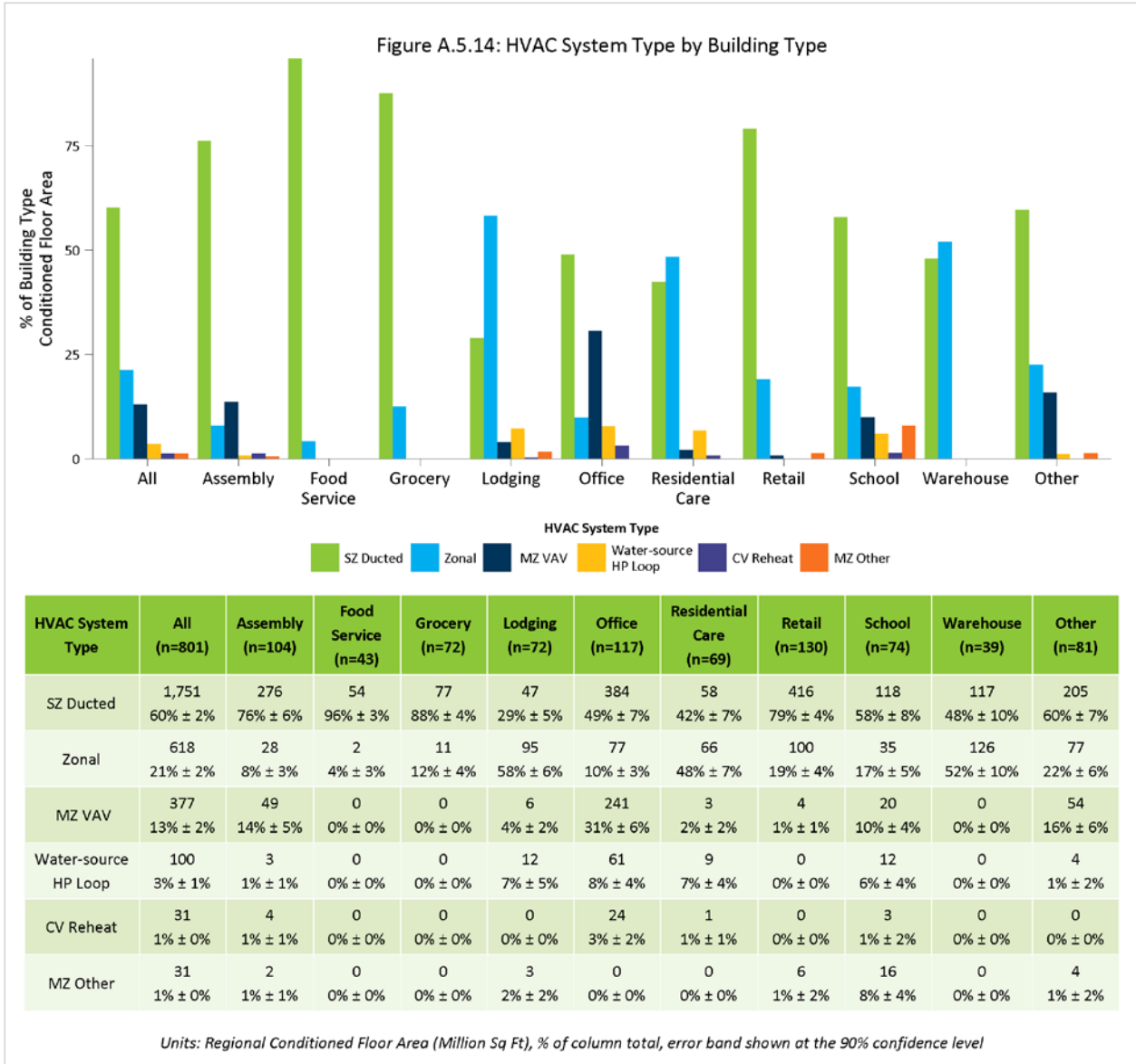


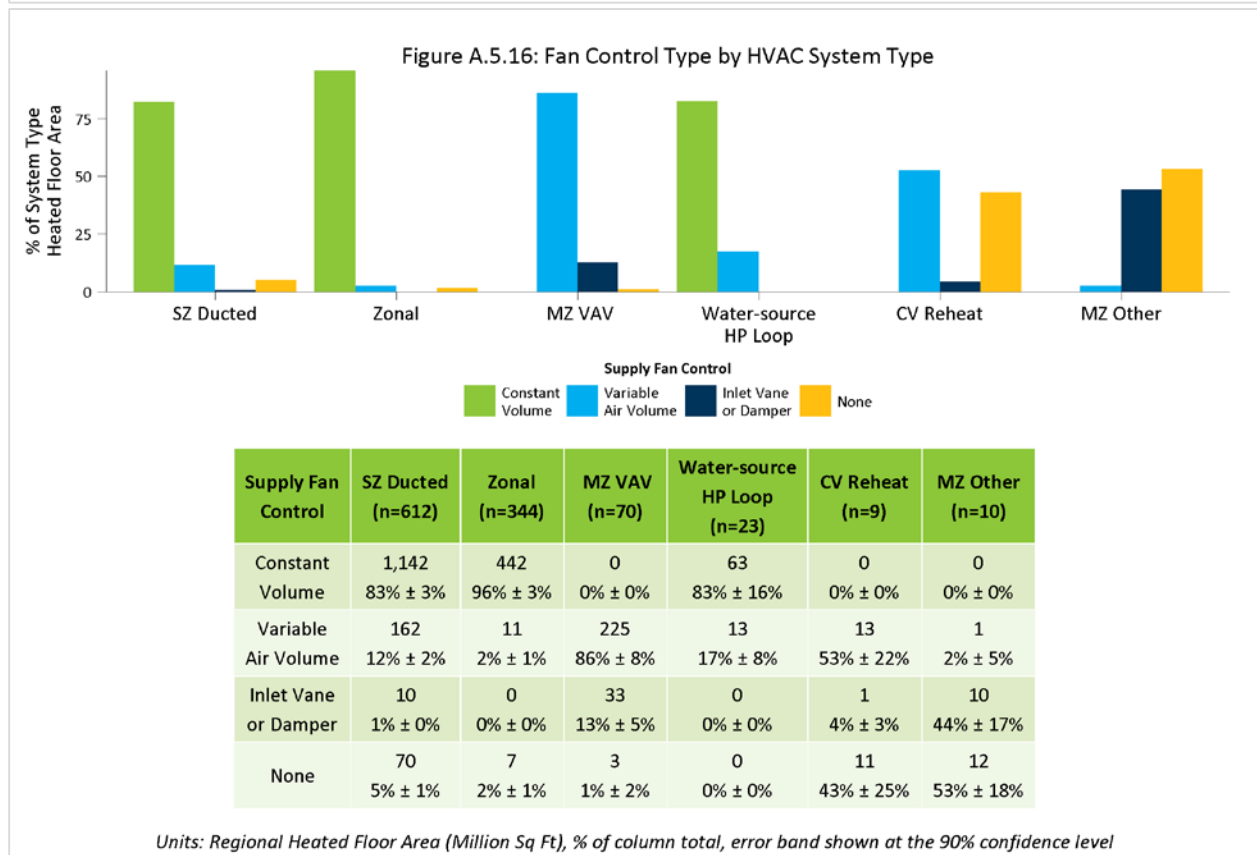
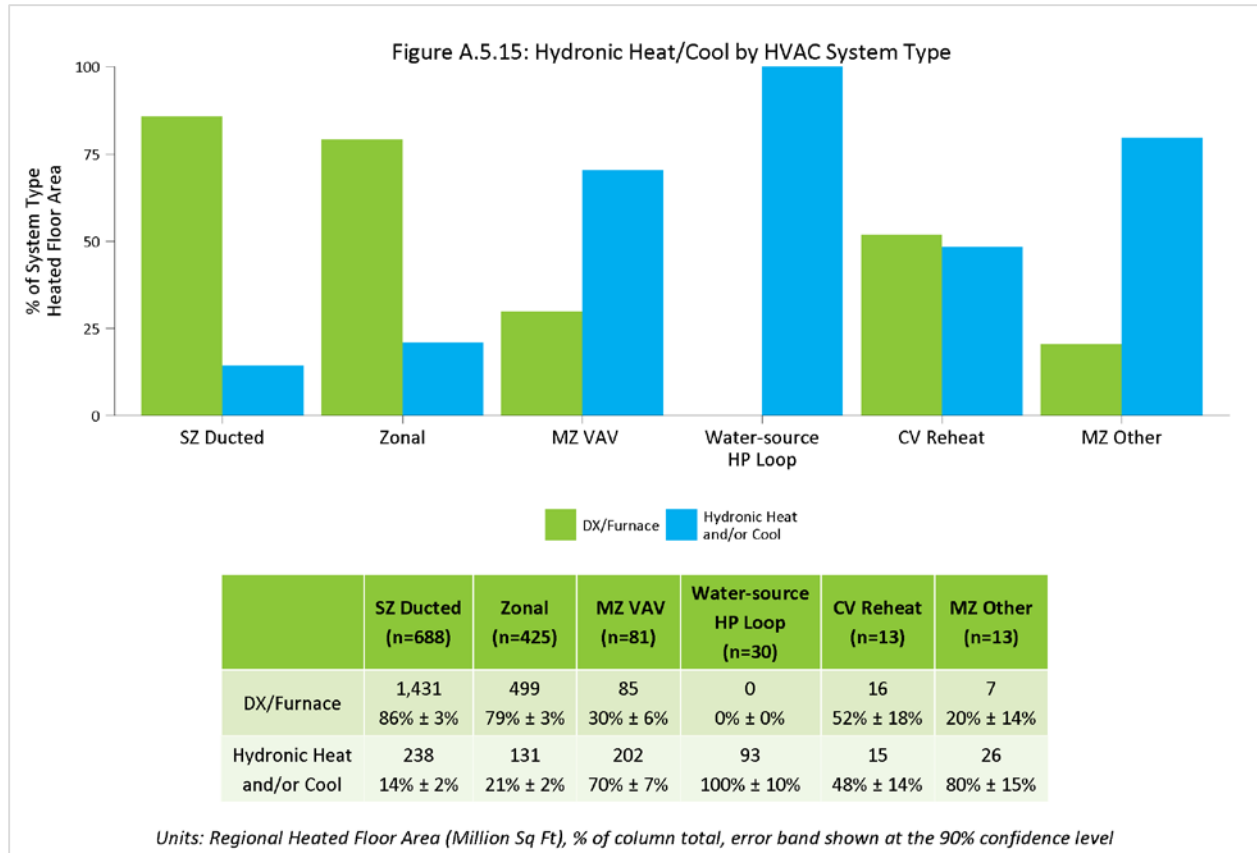
Cooling Equip Type	All (n=720)	Assembly (n=86)	Food Service (n=43)	Grocery (n=66)	Lodging (n=63)	Office (n=111)	Residential Care (n=66)	Retail (n=119)	School (n=62)	Warehouse (n=33)	Other (n=71)
AC	1,272 56% ± 3%	188 65% ± 8%	40 78% ± 10%	56 84% ± 7%	28 19% ± 5%	300 44% ± 7%	39 38% ± 7%	331 81% ± 6%	55 33% ± 10%	83 93% ± 7%	153 56% ± 9%
Chiller-Air-cooled	186 8% ± 2%	38 13% ± 6%	0 0% ± 0%	1 1% ± 2%	4 3% ± 3%	74 11% ± 5%	2 2% ± 3%	0 0% ± 0%	50 31% ± 10%	0 0% ± 0%	17 6% ± 4%
Chiller-Water-cooled	143 6% ± 1%	13 4% ± 4%	0 0% ± 0%	0 0% ± 0%	11 7% ± 5%	78 11% ± 5%	2 2% ± 1%	11 3% ± 2%	0 0% ± 0%	0 0% ± 0%	28 10% ± 6%
Chiller-Unknown	81 4% ± 1%	2 1% ± 1%	0 0% ± 0%	0 0% ± 0%	8 5% ± 5%	40 6% ± 4%	4 3% ± 3%	0 0% ± 0%	28 17% ± 8%	0 0% ± 0%	0 0% ± 0%
ASHP	255 11% ± 2%	36 13% ± 5%	8 16% ± 9%	7 11% ± 6%	10 7% ± 4%	104 15% ± 5%	10 10% ± 5%	33 8% ± 4%	10 6% ± 4%	3 4% ± 5%	32 12% ± 6%
WSHP	71 3% ± 1%	3 1% ± 1%	0 0% ± 0%	0 0% ± 0%	12 8% ± 5%	32 5% ± 3%	9 9% ± 5%	0 0% ± 0%	12 7% ± 6%	0 0% ± 0%	3 1% ± 2%
PTAC	75 3% ± 1%	1 0% ± 0%	0 1% ± 2%	0 0% ± 1%	43 29% ± 8%	1 0% ± 0%	12 12% ± 5%	3 1% ± 1%	2 1% ± 2%	1 1% ± 2%	12 4% ± 3%
PTHP	42 2% ± 1%	1 0% ± 1%	0 0% ± 0%	0 0% ± 0%	24 16% ± 6%	1 0% ± 0%	13 13% ± 5%	1 0% ± 0%	0 0% ± 0%	0 0% ± 0%	2 1% ± 1%
Minisplit HP	22 1% ± 0%	2 1% ± 1%	1 1% ± 2%	0 0% ± 0%	2 1% ± 2%	6 1% ± 1%	2 2% ± 2%	3 1% ± 1%	1 1% ± 2%	0 0% ± 1%	6 2% ± 2%
Room AC	47 2% ± 1%	6 2% ± 2%	0 0% ± 1%	1 2% ± 3%	1 1% ± 2%	10 2% ± 2%	11 10% ± 6%	11 3% ± 2%	1 1% ± 2%	2 2% ± 3%	3 1% ± 2%
Other	87 4% ± 1%	2 1% ± 1%	2 3% ± 3%	2 2% ± 2%	6 4% ± 4%	41 6% ± 4%	0 0% ± 0%	15 4% ± 3%	5 3% ± 3%	0 0% ± 0%	15 6% ± 4%

Units: Regional Cooled Floor Area (Million Sq Ft), % of column total, error band shown at the 90% confidence level

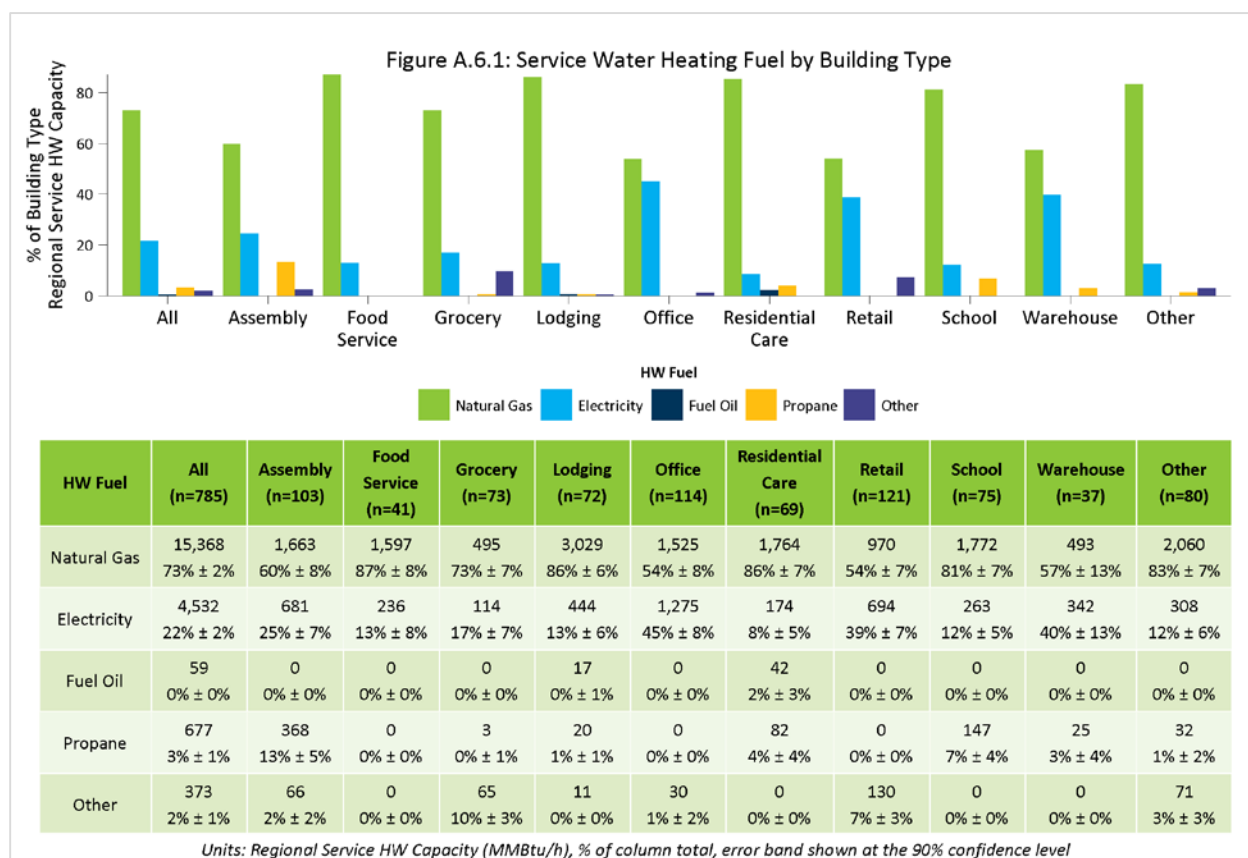


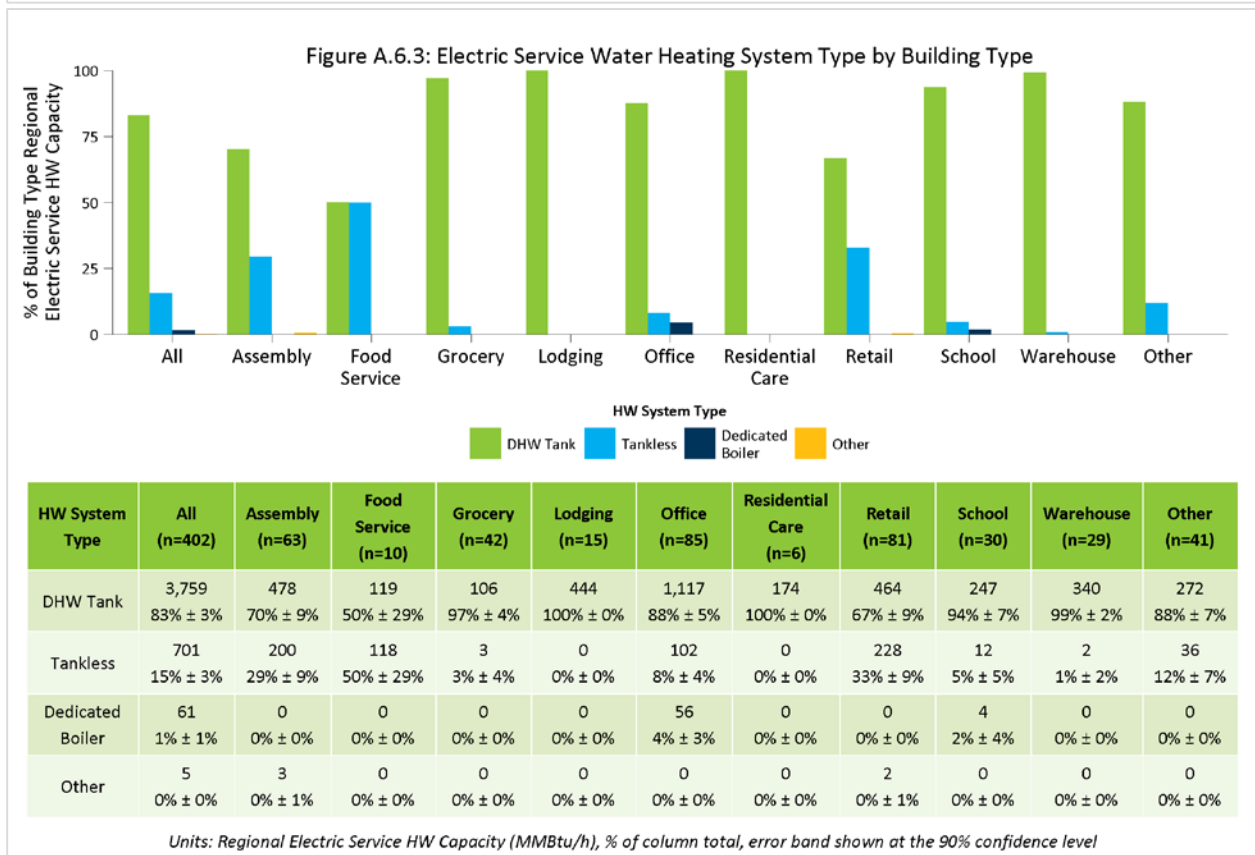
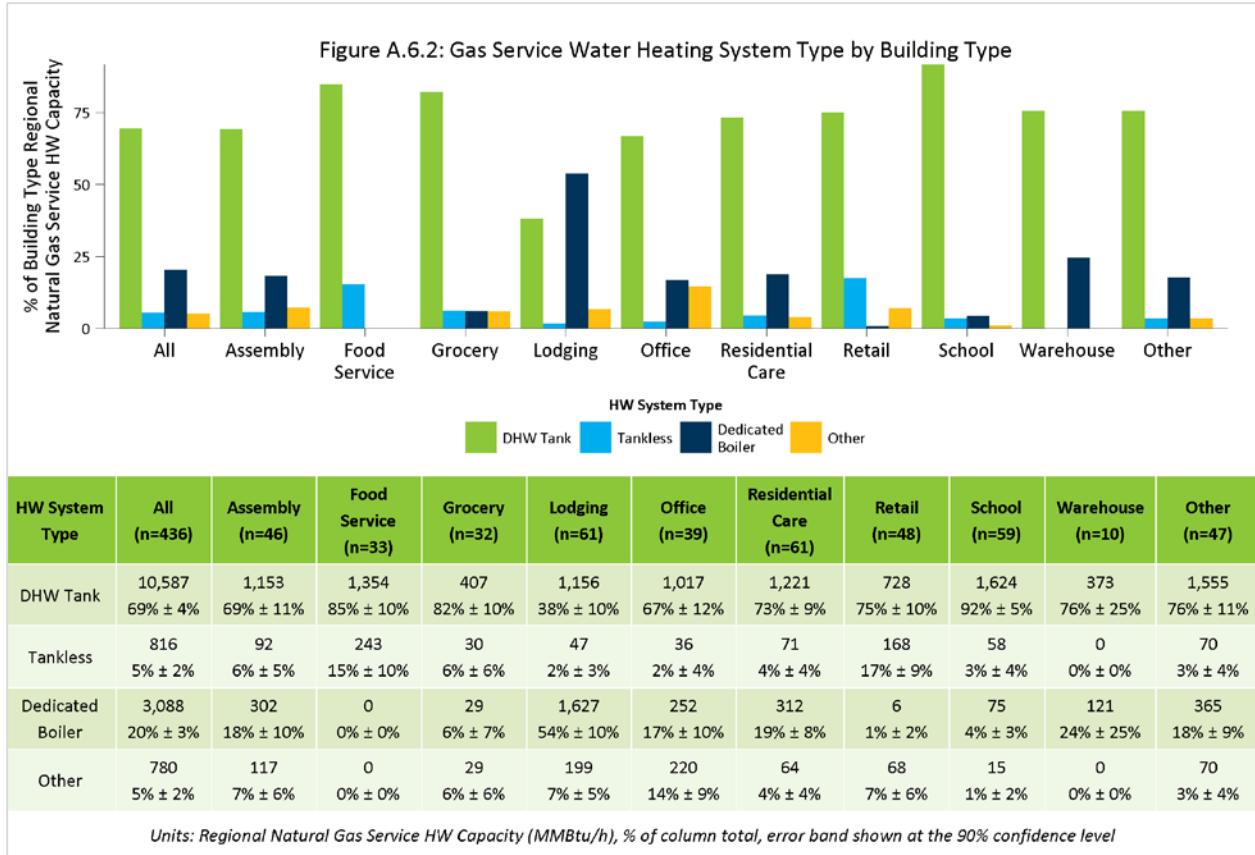


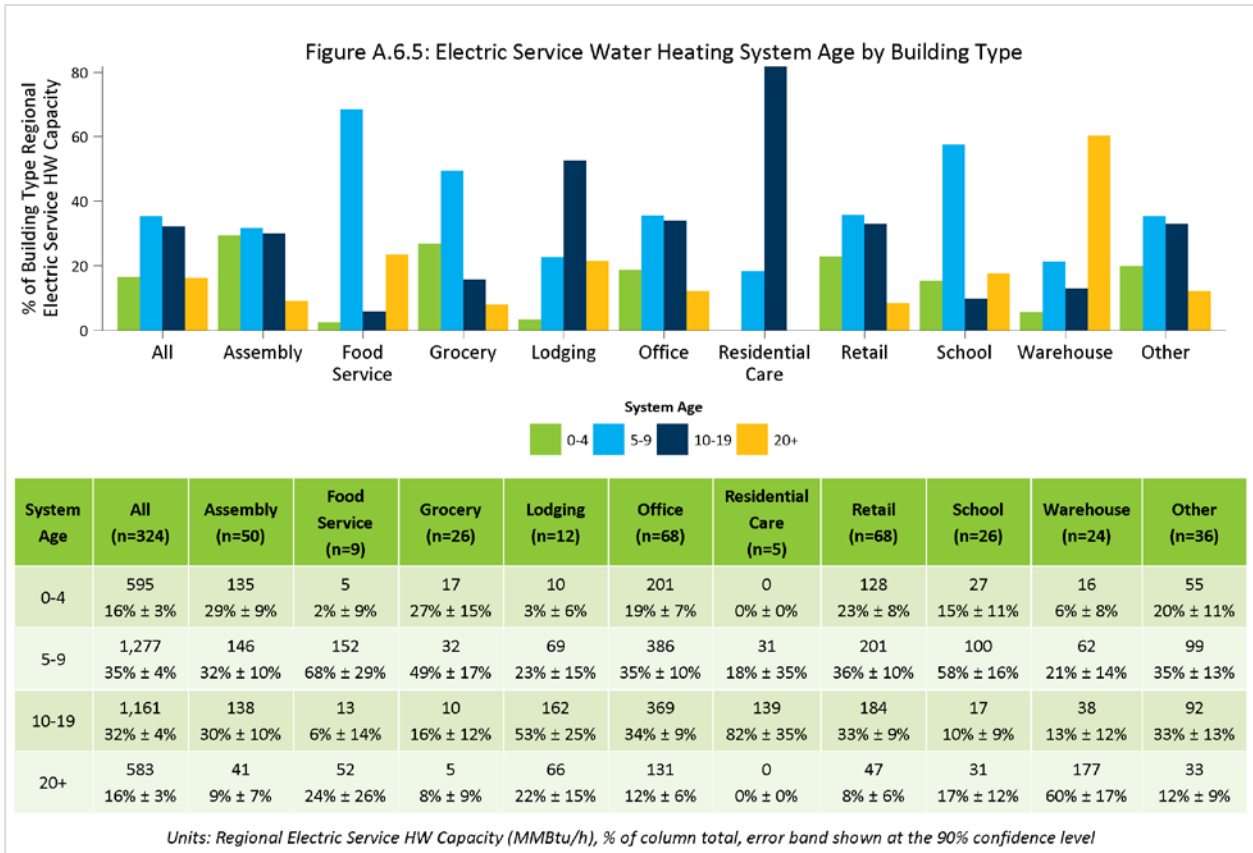
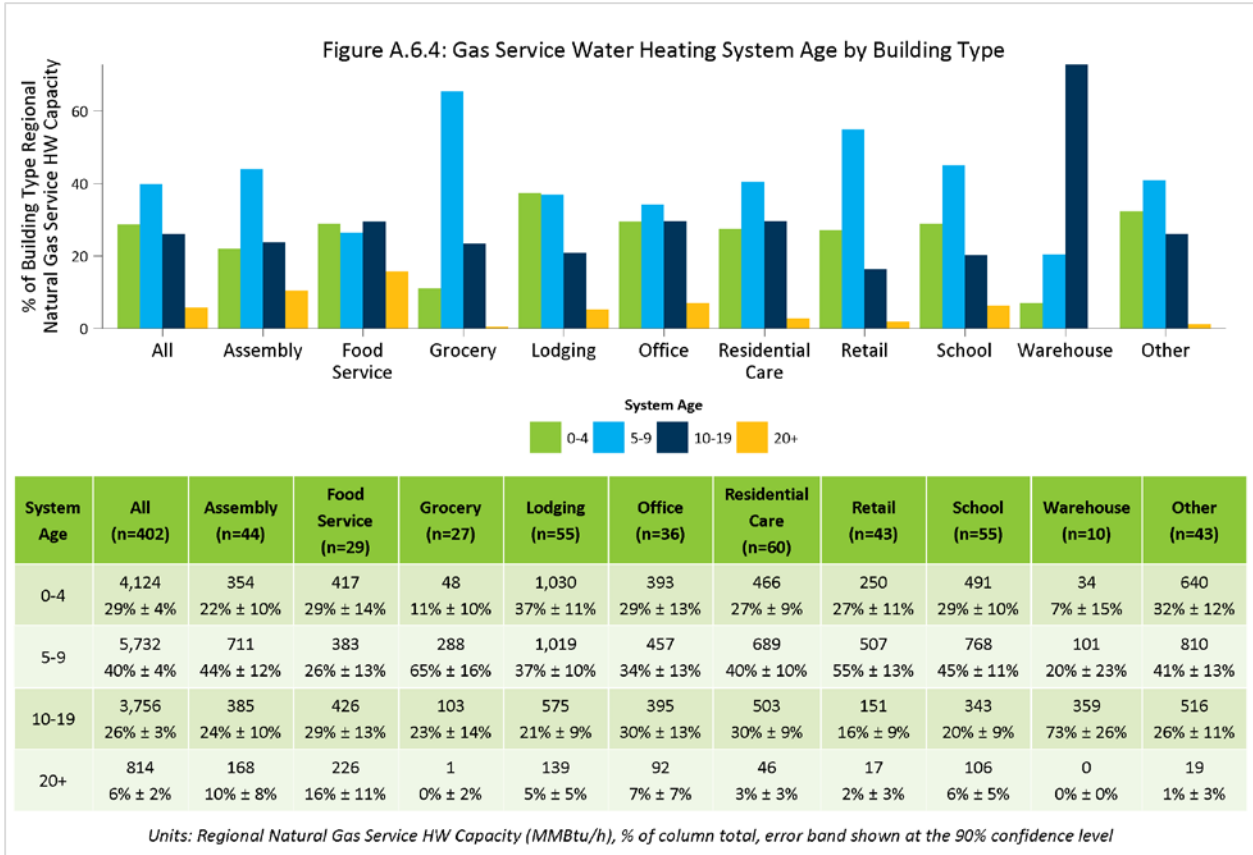


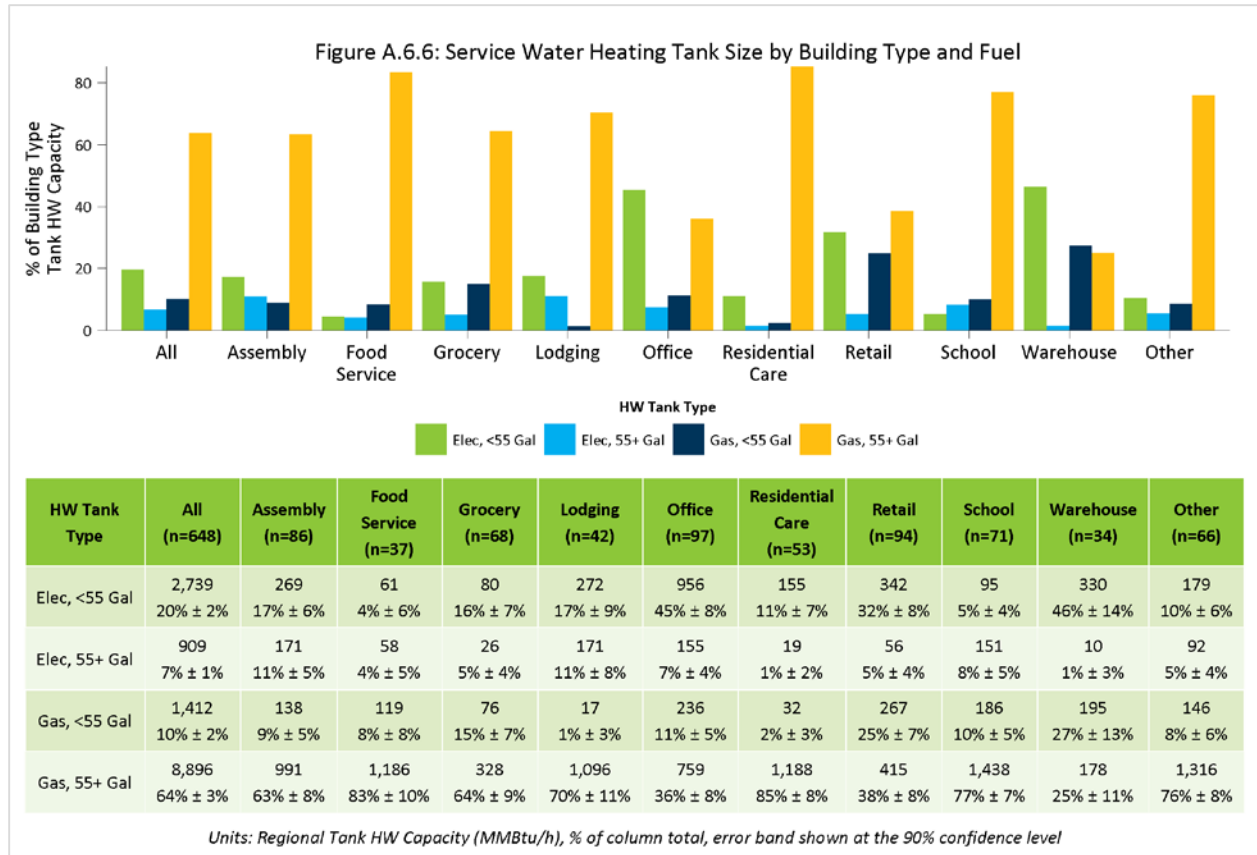


A.6 Service Hot Water

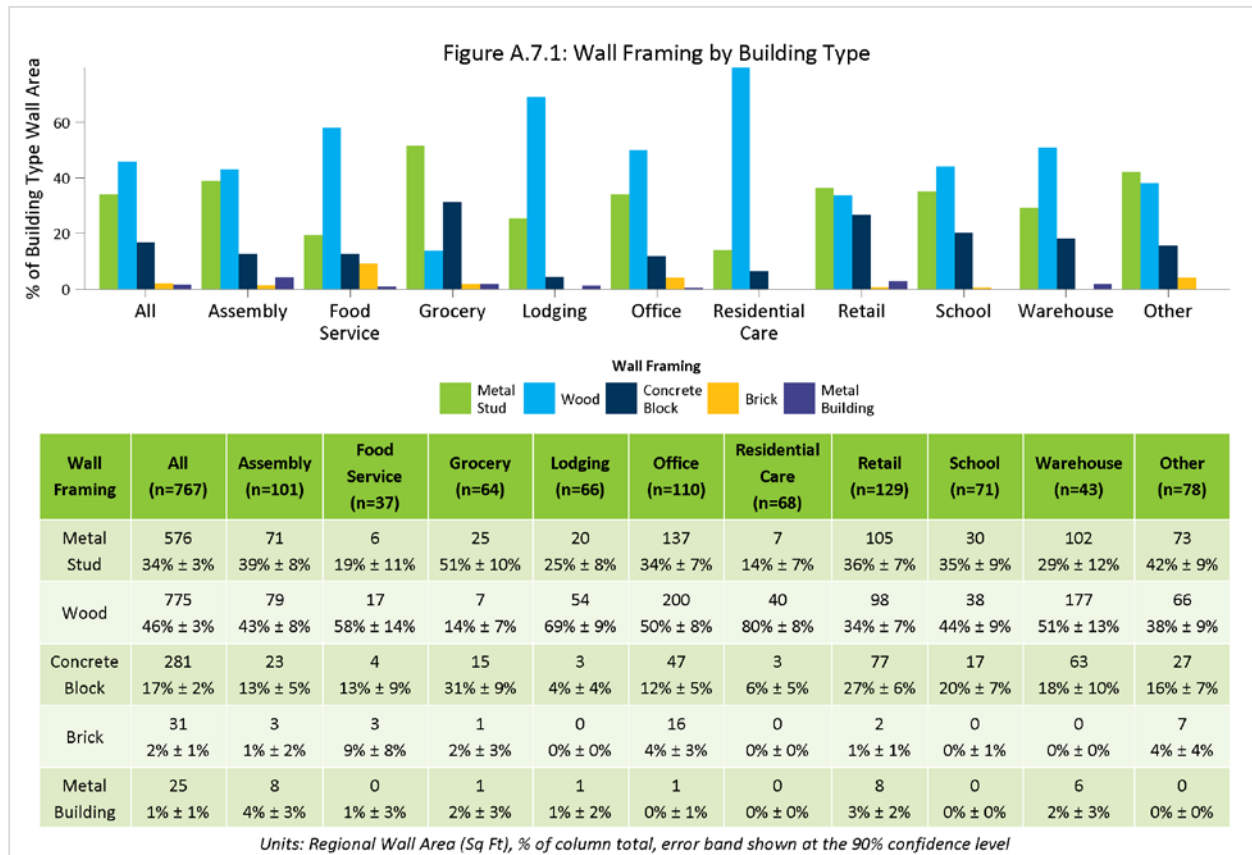




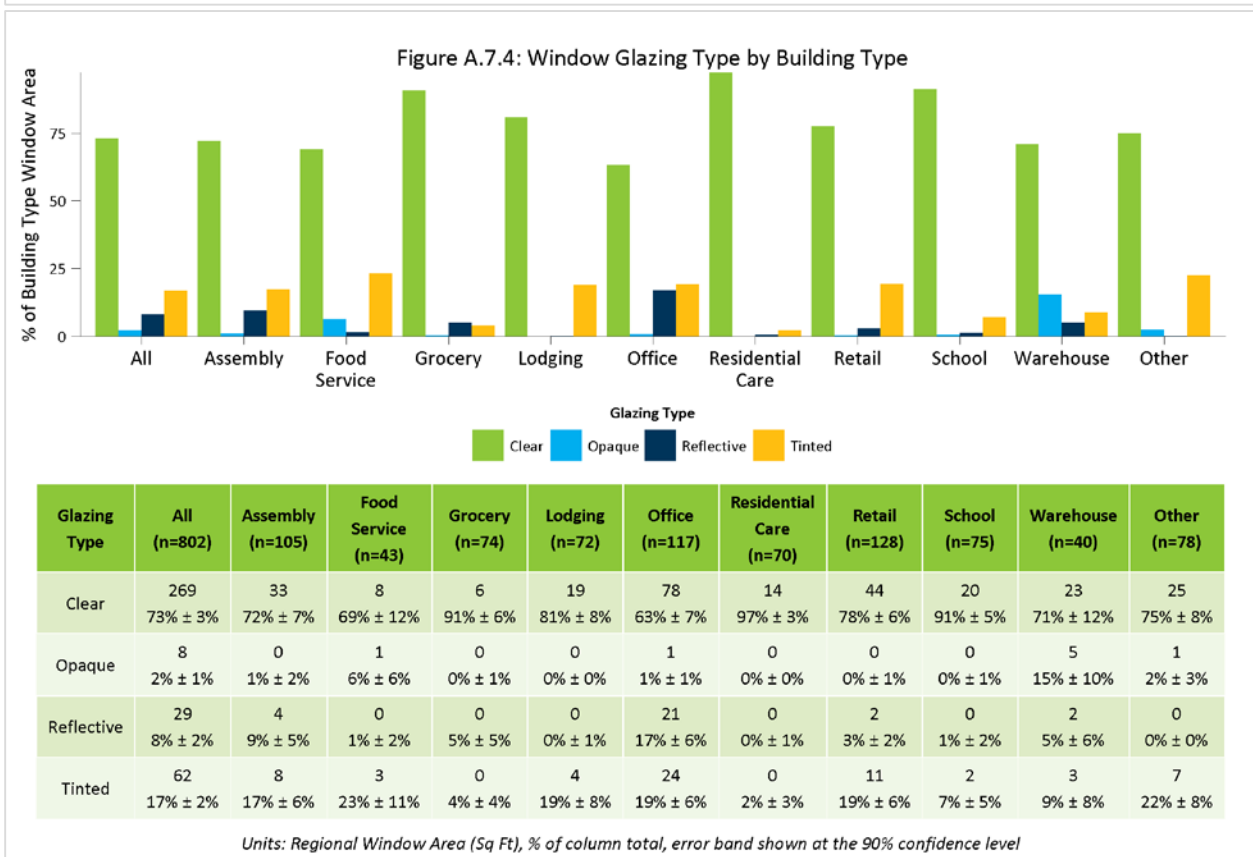
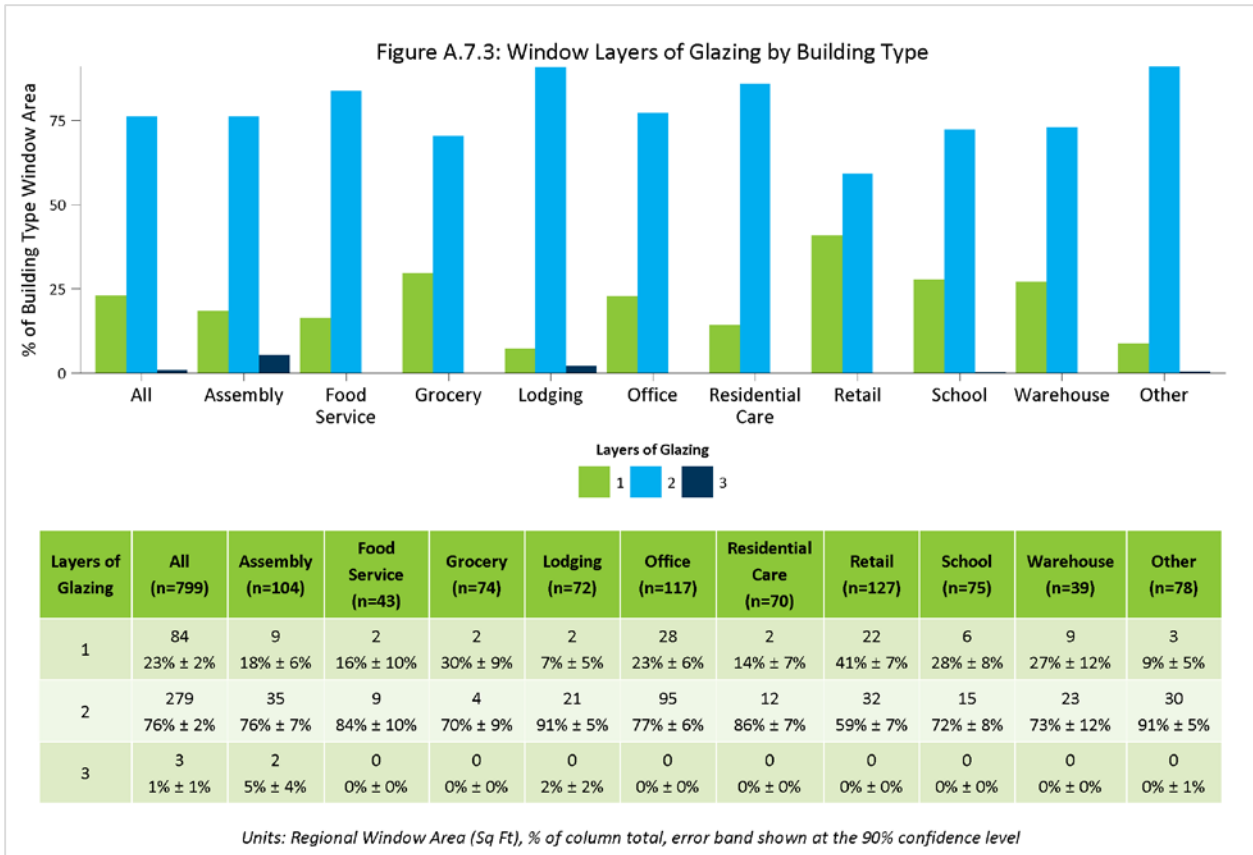


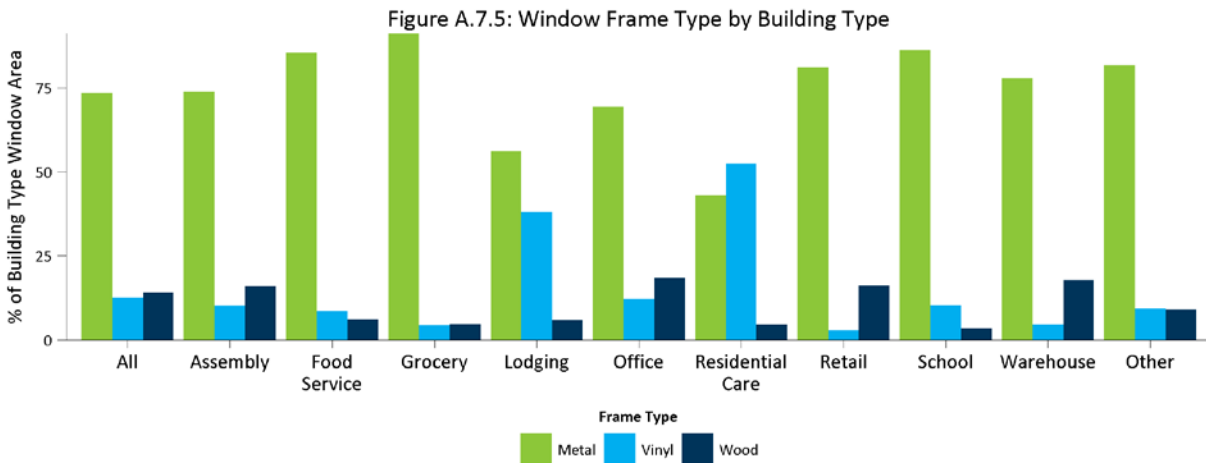


A.7 Building Envelope



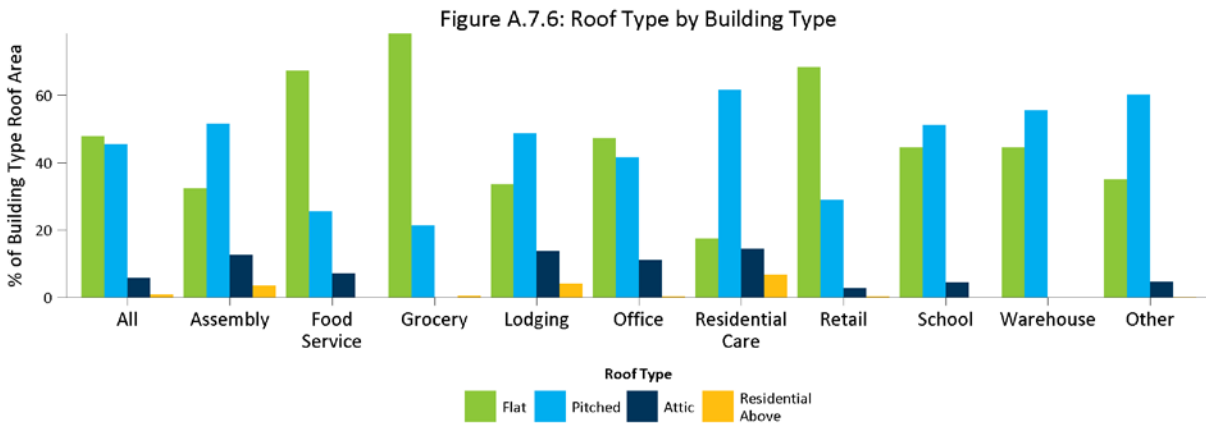






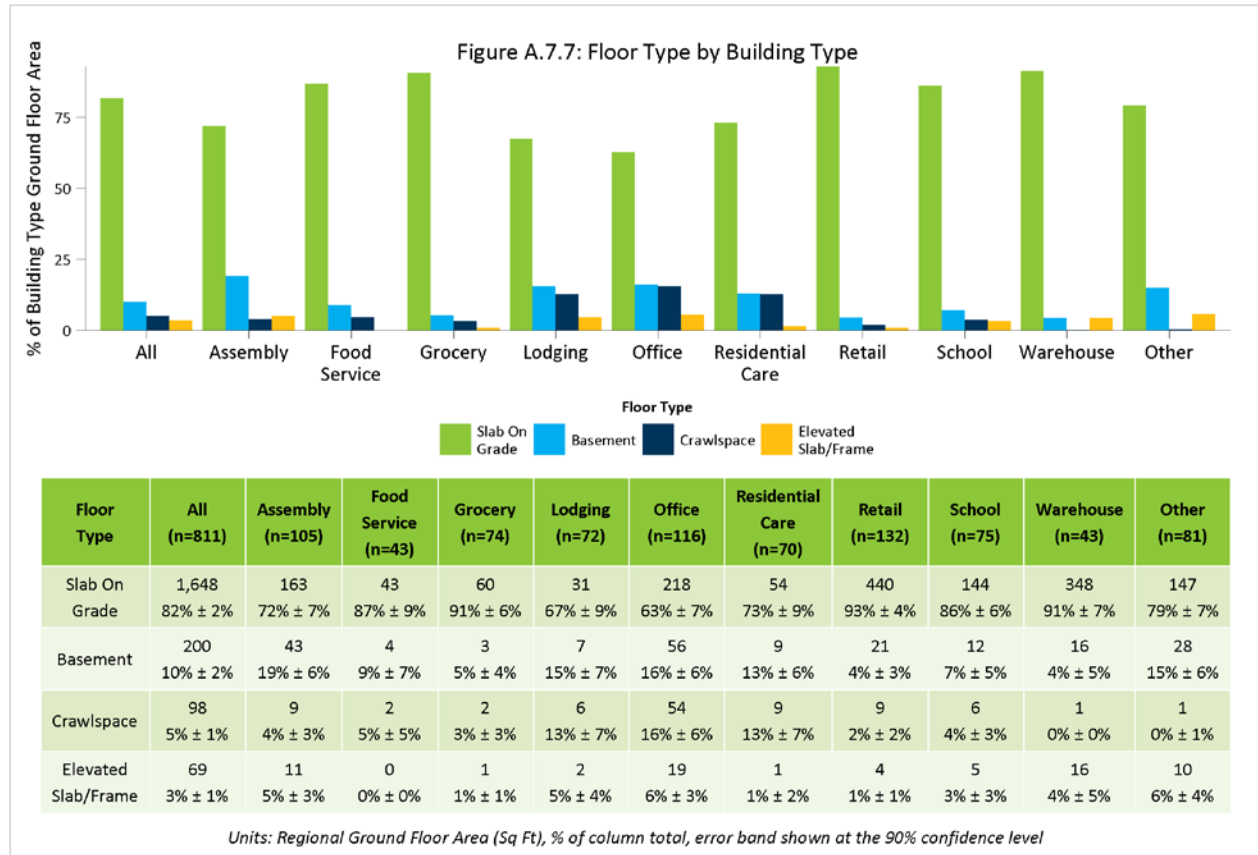
Frame Type	All (n=801)	Assembly (n=105)	Food Service (n=43)	Grocery (n=74)	Lodging (n=72)	Office (n=116)	Residential Care (n=70)	Retail (n=128)	School (n=75)	Warehouse (n=40)	Other (n=78)
Metal	270 74% ± 2%	34 74% ± 7%	9 86% ± 9%	6 91% ± 6%	13 56% ± 10%	86 69% ± 7%	6 43% ± 10%	46 81% ± 5%	18 86% ± 6%	25 78% ± 11%	27 82% ± 7%
Vinyl	46 12% ± 2%	5 10% ± 5%	1 8% ± 7%	0 4% ± 4%	9 38% ± 10%	15 12% ± 5%	8 52% ± 10%	2 3% ± 2%	2 10% ± 5%	1 4% ± 5%	3 9% ± 6%
Wood	52 14% ± 2%	7 16% ± 6%	1 6% ± 6%	0 5% ± 4%	1 6% ± 4%	23 19% ± 6%	1 5% ± 4%	9 16% ± 5%	1 3% ± 3%	6 18% ± 10%	3 9% ± 5%

Units: Regional Window Area (Sq Ft), % of column total, error band shown at the 90% confidence level



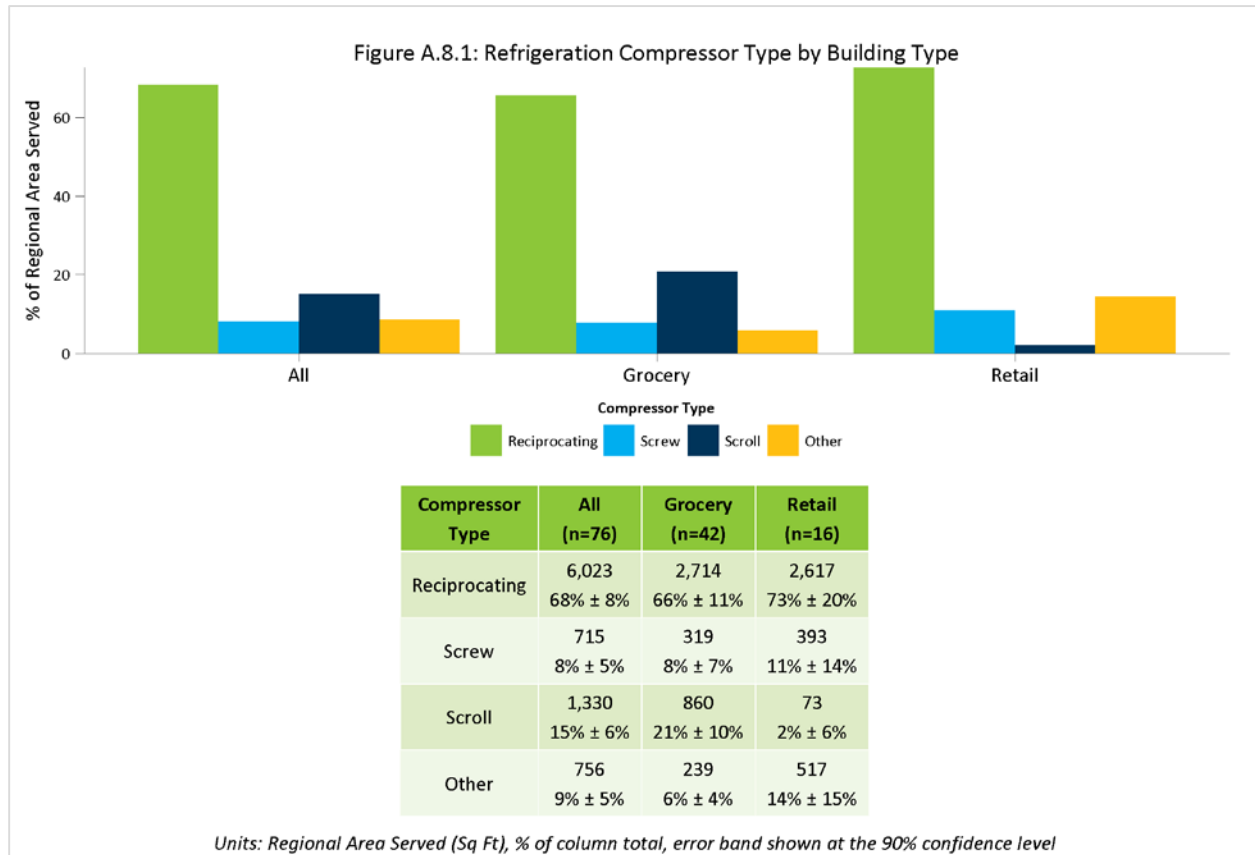
Roof Type	All (n=812)	Assembly (n=105)	Food Service (n=43)	Grocery (n=74)	Lodging (n=72)	Office (n=117)	Residential Care (n=70)	Retail (n=132)	School (n=75)	Warehouse (n=43)	Other (n=81)
Flat	1,061 48% ± 3%	88 32% ± 7%	32 67% ± 12%	57 78% ± 7%	20 34% ± 9%	163 47% ± 7%	14 17% ± 7%	330 68% ± 7%	78 44% ± 9%	192 45% ± 13%	86 35% ± 9%
Pitched	1,009 46% ± 3%	141 52% ± 7%	12 26% ± 11%	15 21% ± 7%	29 49% ± 9%	143 42% ± 7%	51 62% ± 9%	139 29% ± 6%	89 51% ± 9%	240 55% ± 13%	148 60% ± 9%
Attic	128 6% ± 1%	34 13% ± 5%	3 7% ± 7%	0 0% ± 0%	8 14% ± 7%	38 11% ± 5%	12 14% ± 7%	13 3% ± 2%	8 4% ± 4%	0 0% ± 0%	11 5% ± 4%
Residential Above	19 1% ± 1%	9 3% ± 3%	0 0% ± 0%	0 0% ± 1%	2 4% ± 4%	1 0% ± 0%	5 7% ± 5%	1 0% ± 1%	0 0% ± 0%	0 0% ± 0%	0 0% ± 0%

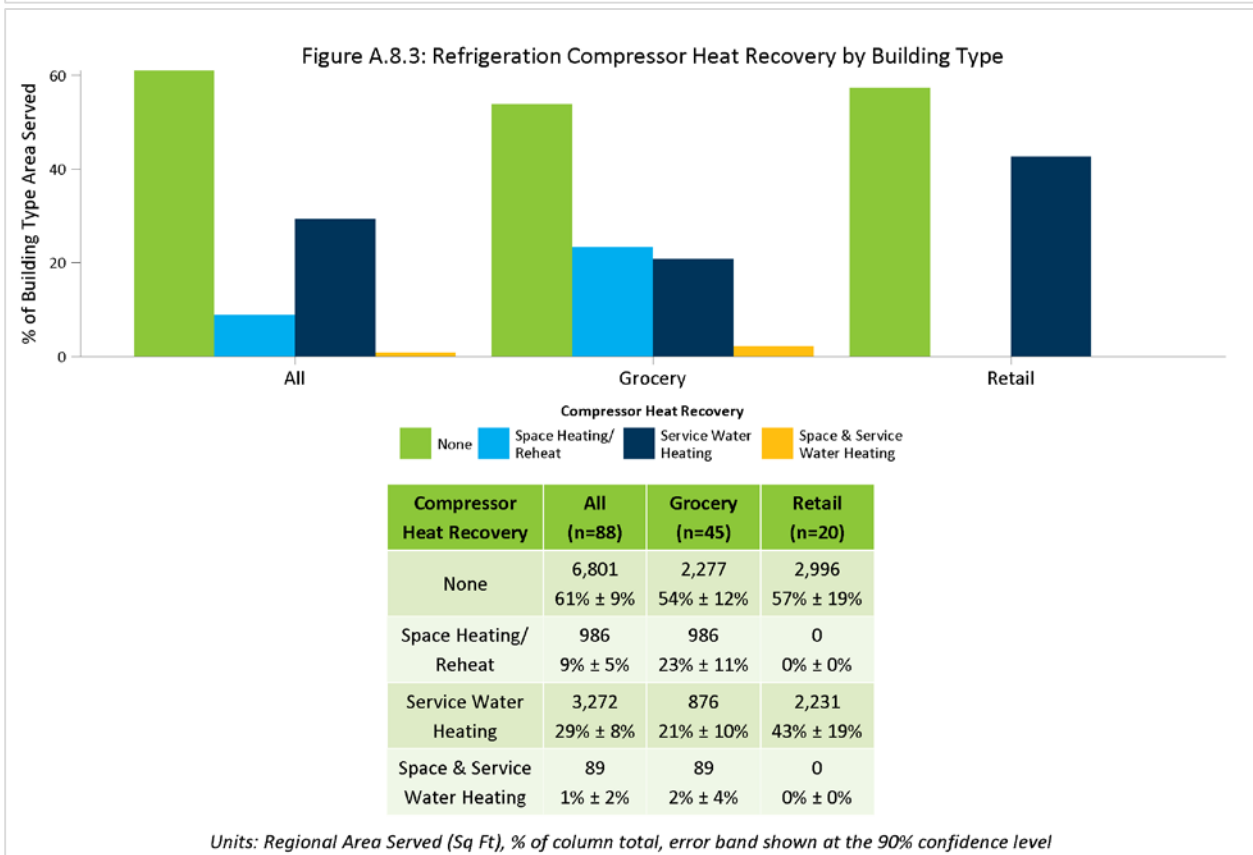
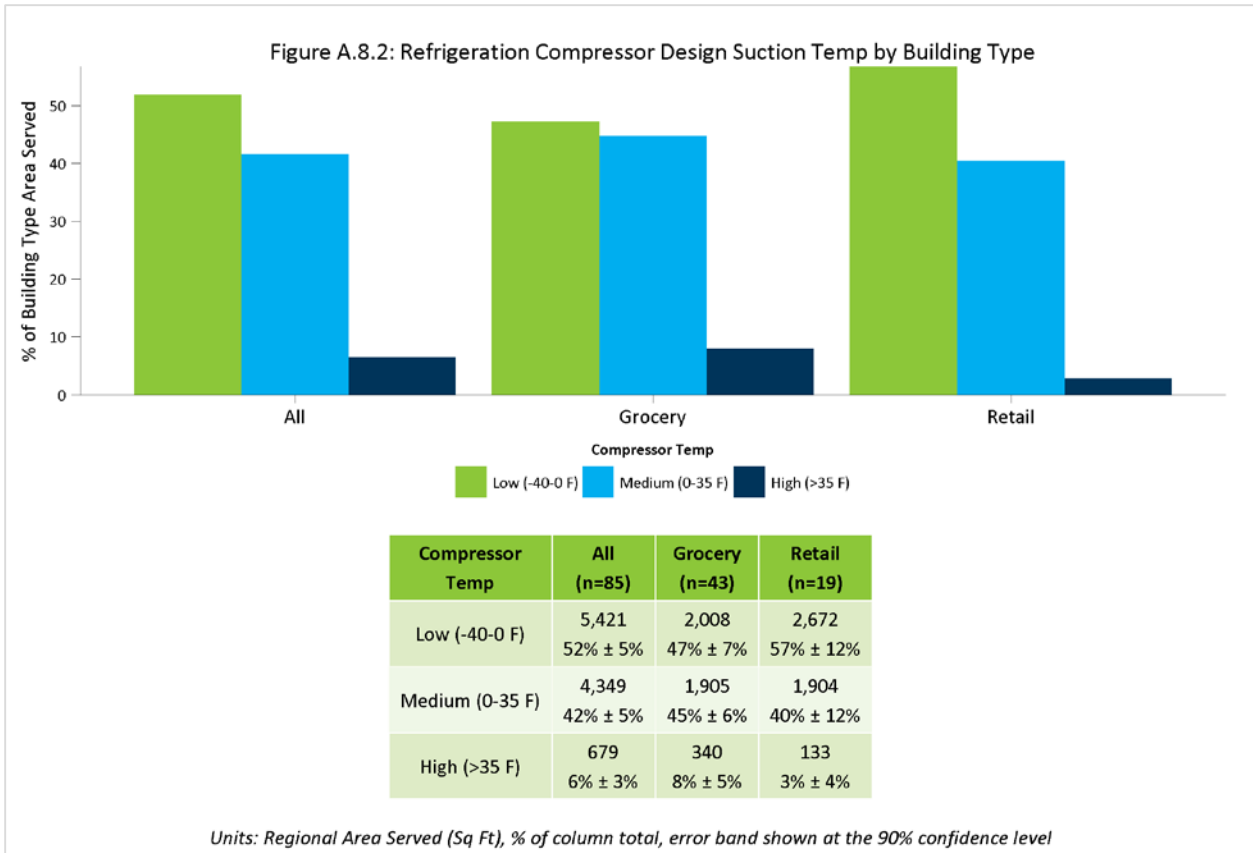
Units: Regional Roof Area (Sq Ft), % of column total, error band shown at the 90% confidence level

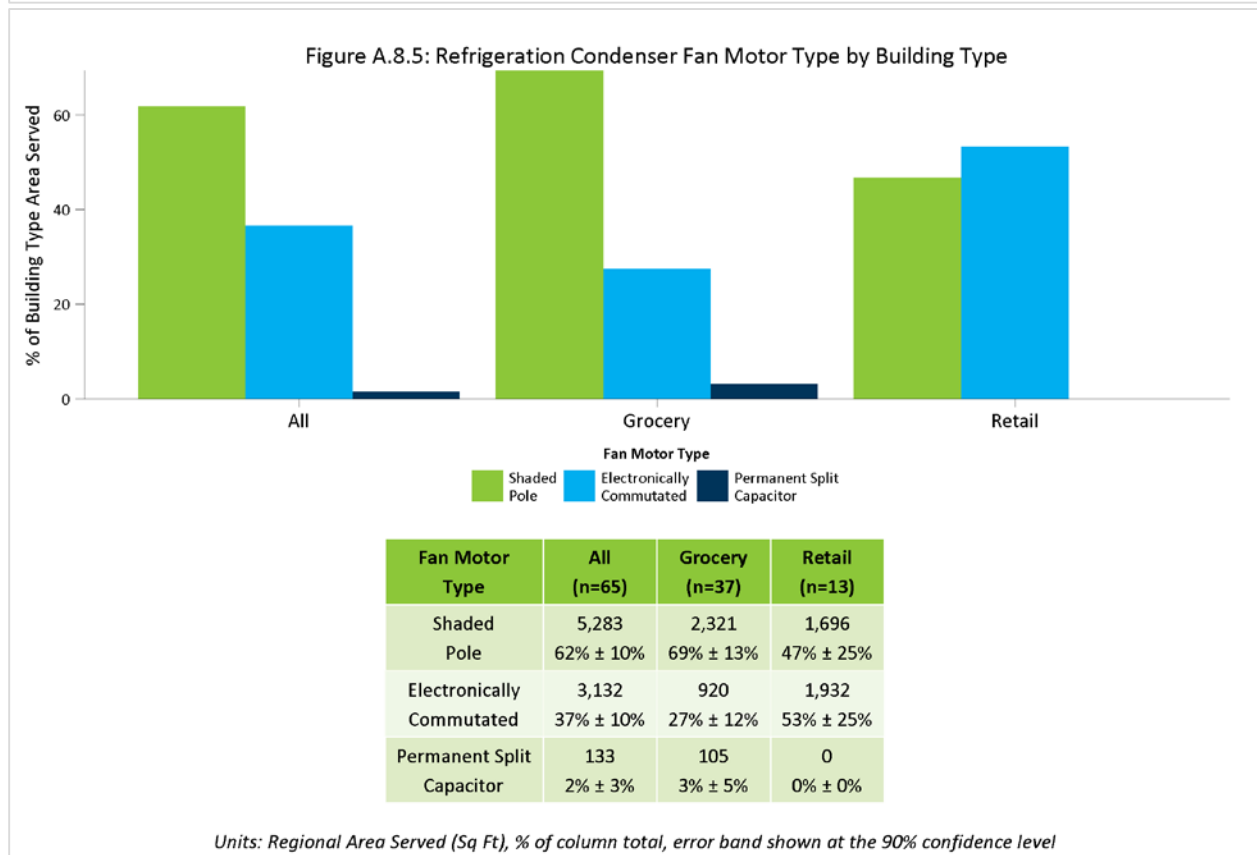
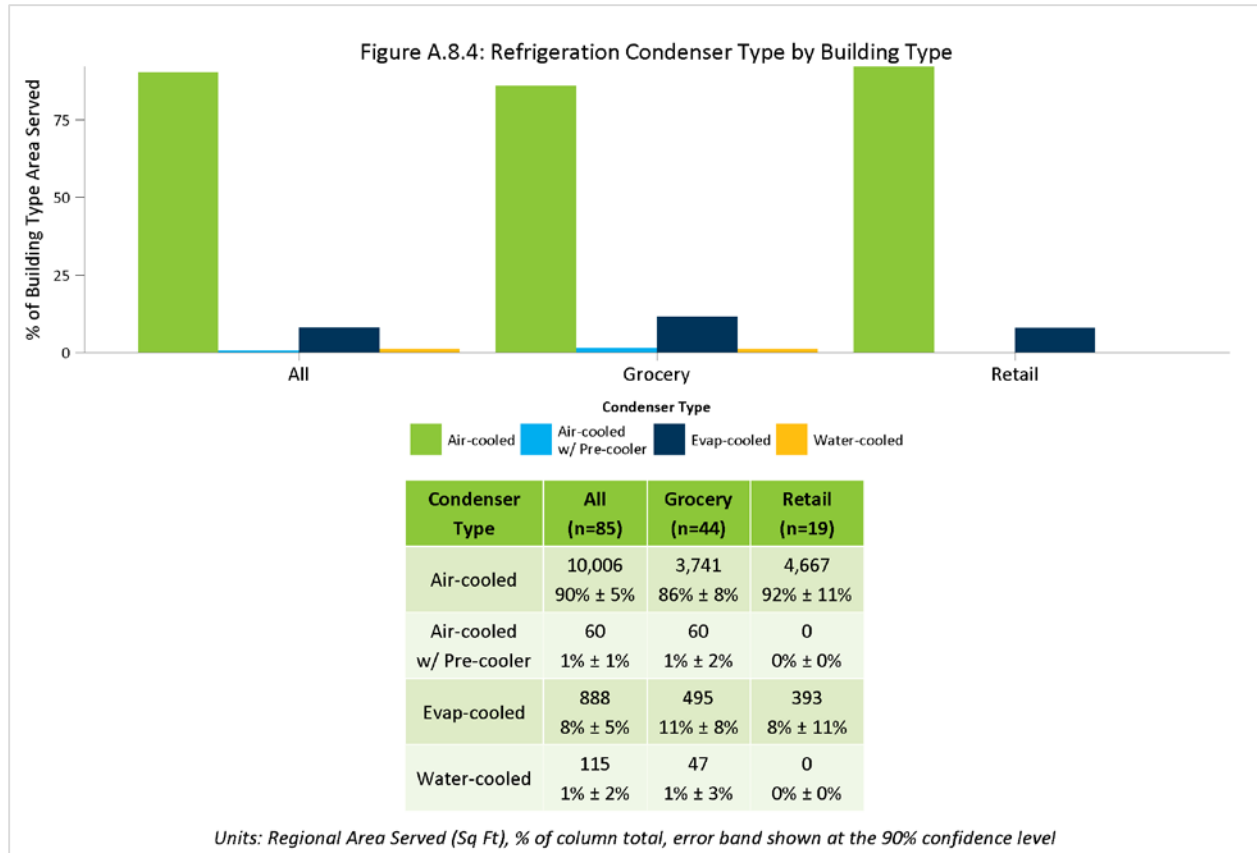


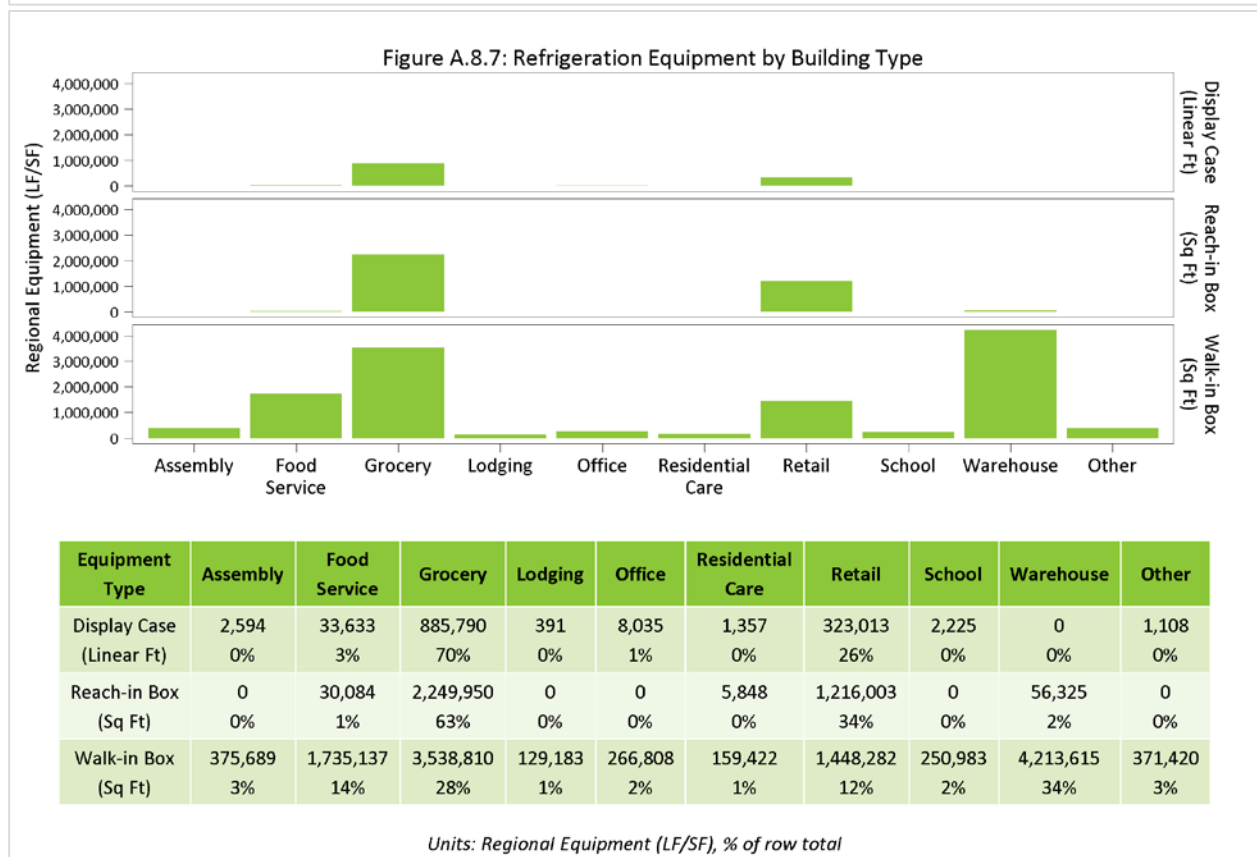
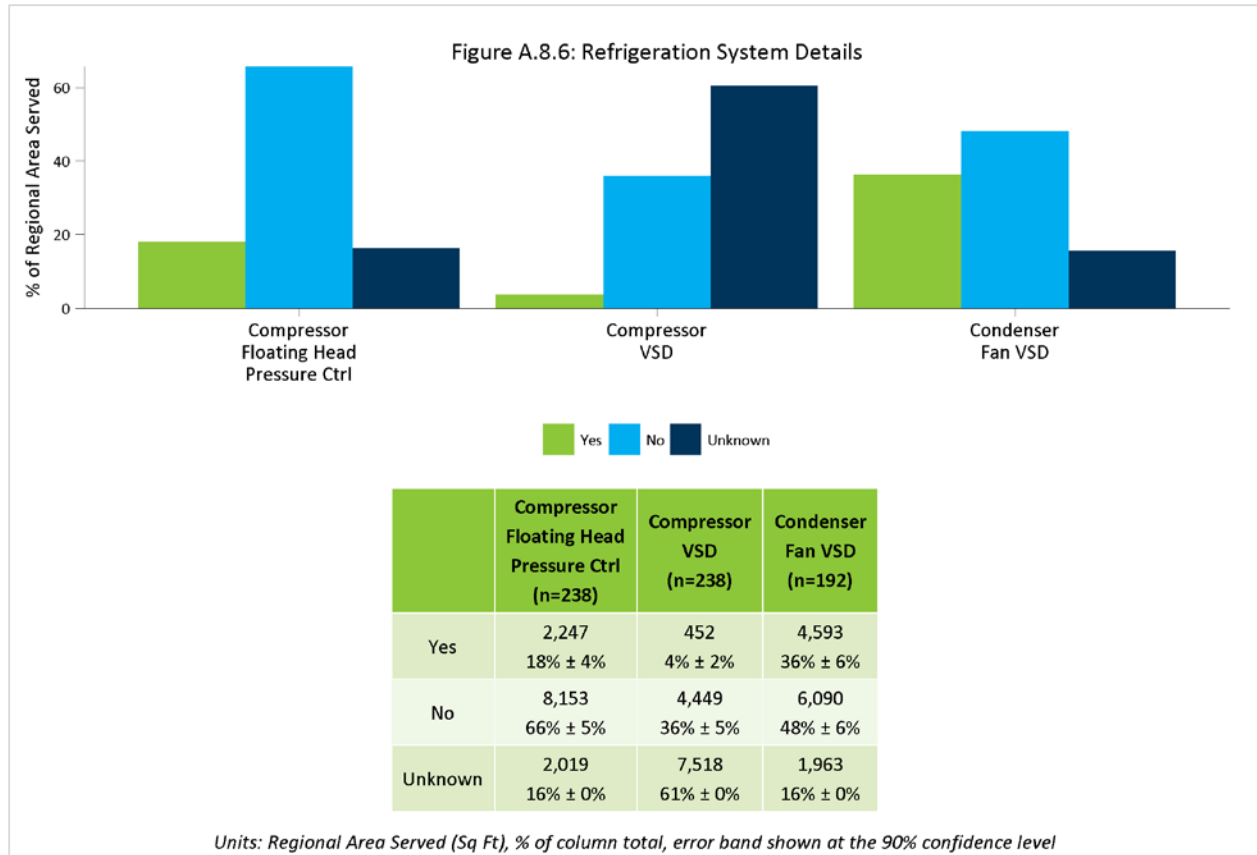
A.8 Refrigeration

Compressor and condenser square footage limited to sites meeting the following criteria: categorized as Grocery, Retail, or Warehouse with either 400+ square feet of combined storage box and walk-in refrigeration, or more than 60 lineal feet of refrigerated display case.

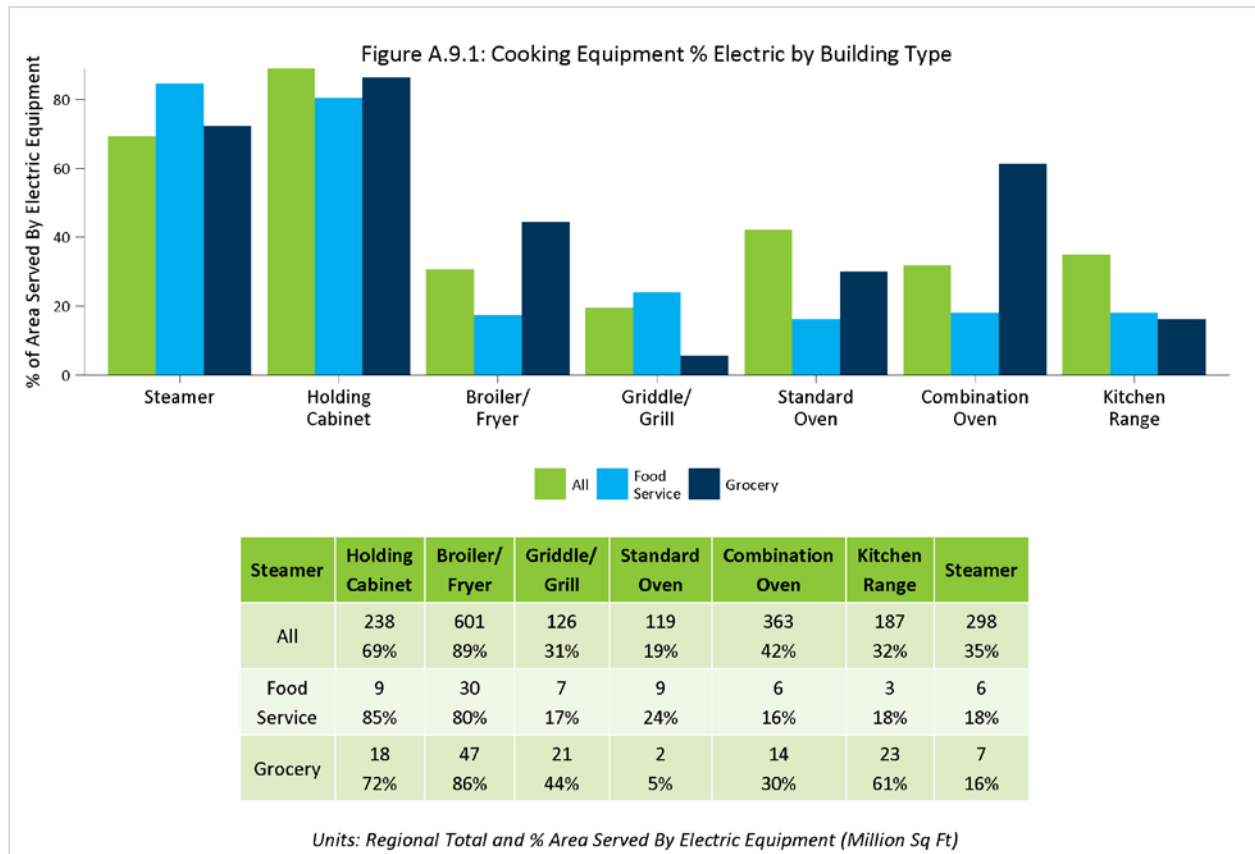








A.9 Miscellaneous



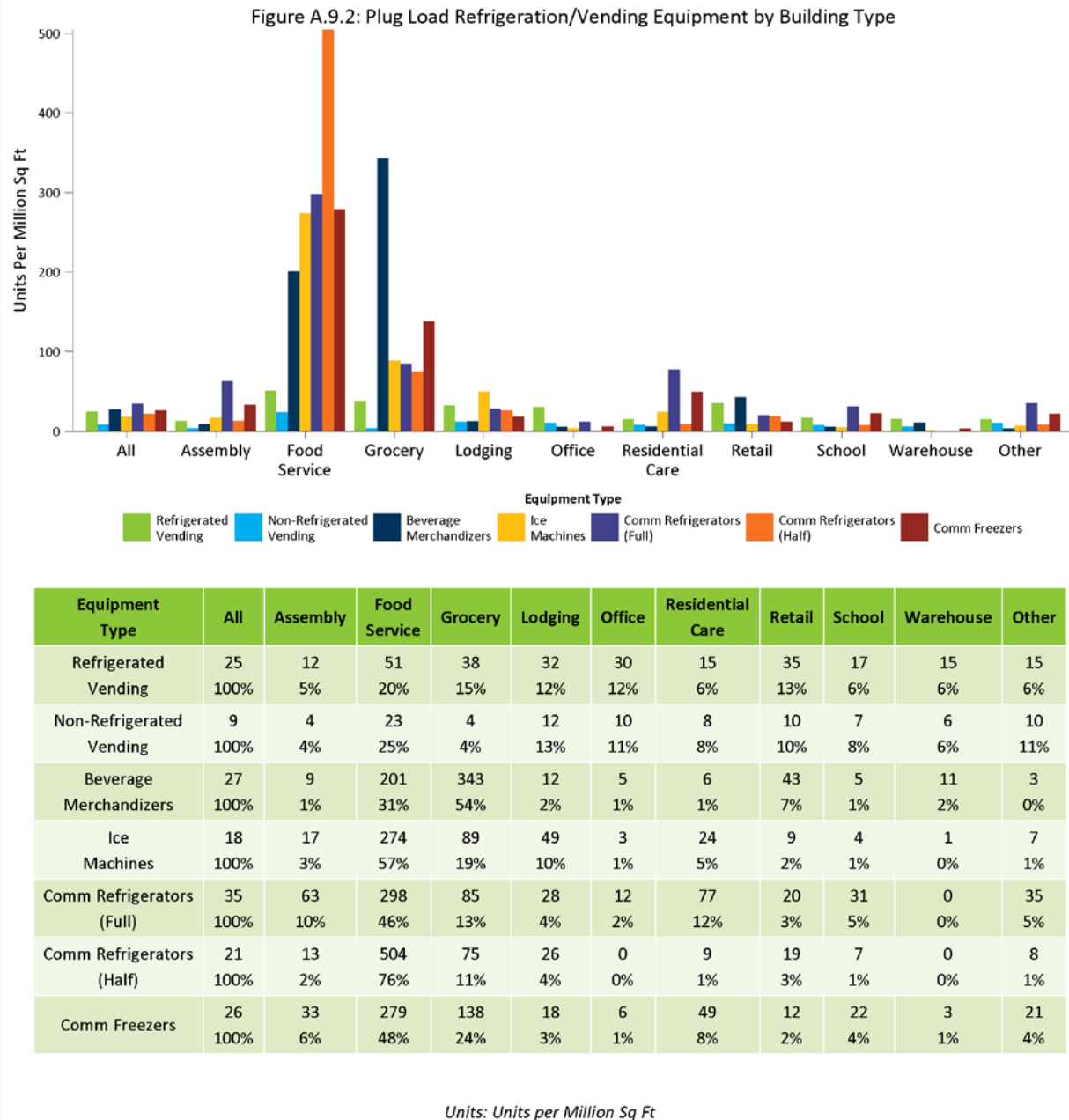
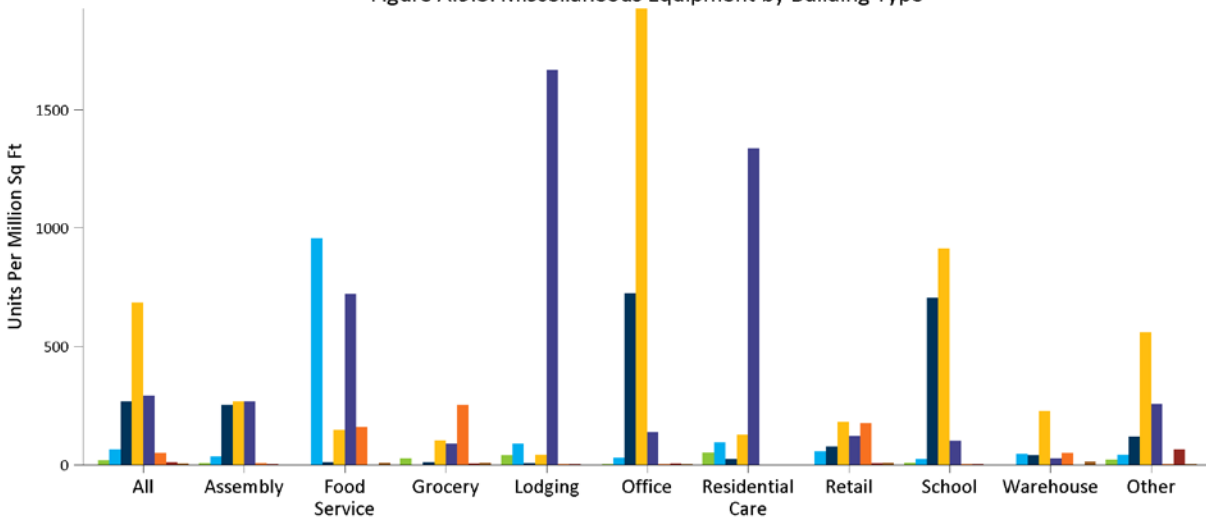


Figure A.9.3: Miscellaneous Equipment by Building Type



Equipment Type											
Equipment Type	All	Assembly	Food Service	Grocery	Lodging	Office	Residential Care	Retail	School	Warehouse	Other
Clothes Dryer (Gas)	18	5	0	25	38	1	51	0	8	0	19
	100%	3%	0%	17%	26%	1%	34%	0%	5%	0%	13%
Clothes Dryer (Elec)	62	35	955	0	88	29	95	55	23	46	41
	100%	3%	70%	0%	6%	2%	7%	4%	2%	3%	3%
Laptop Computer	267	251	9	9	5	723	24	76	704	39	118
	100%	13%	0%	0%	0%	37%	1%	4%	36%	2%	6%
Desktop Computer	683	267	145	102	41	1,927	126	179	913	227	557
	100%	6%	3%	2%	1%	43%	3%	4%	20%	5%	12%
TV	292	266	721	88	1,668	137	1,336	122	101	25	255
	100%	6%	15%	2%	35%	3%	28%	3%	2%	1%	5%
Cash Register	49	5	159	252	1	2	0	175	1	49	2
	100%	1%	25%	39%	0%	0%	0%	27%	0%	8%	0%
Vehicle Charger	9	1	0	4	0	2	0	6	0	0	63
	100%	1%	0%	5%	0%	3%	0%	8%	0%	0%	83%
Forklift Charger	3	0	6	7	0	0	0	6	0	12	2
	100%	0%	19%	21%	0%	1%	0%	19%	0%	36%	5%

Units: Units per Million Sq Ft

