

Appendix C – Occupancy Sensor Lighting Control Calculations

Lighting w/ Occupancy Sensors	
Standard Office/Meeting Room Installation	
Labor	\$ 10.00
Leviton Model# PR180-1L	\$ 27.00
Total	\$ 37.00 / space
Laboratory Installation	
Labor	\$ 800.00
Leviton Model #OSC04-IOV	\$ 1,600.00
Total	\$ 2,400.00 / lab space
Open Office Installation	
Labor	\$ 160.00
Leviton Model #OSC04-IOV	\$ 320.00
Total	\$ 480.00 / open office
Energy	\$ 0.0816 / kWh

Energy Savings w/ Occupancy Sensors Lighting Control Strategy											
Space	FP1	FP2	Daily		Cost	84 watts each	64 watts each	Energy After	Annual		Simple
	Fixtures	Fixtures	Hours*	Hours Saved		(FP1) Energy Before	(FP2) Energy Before		Savings	Savings	
Typical Office	2	0	10	0.5	\$ 37.00	420 kWh	0 kWh	399 kWh	21 kWh	\$ 1.71	21.59
Typical Office	2	0	10	1	\$ 37.00	420 kWh	0 kWh	378 kWh	42 kWh	\$ 3.43	10.80
Typical Office	2	0	10	1.5	\$ 37.00	420 kWh	0 kWh	357 kWh	63 kWh	\$ 5.14	7.20
Typical Office	2	0	10	2	\$ 37.00	420 kWh	0 kWh	336 kWh	84 kWh	\$ 6.85	5.40
Typical Office	2	0	10	2.5	\$ 37.00	420 kWh	0 kWh	315 kWh	105 kWh	\$ 8.57	4.32
Typical Office	2	0	10	3	\$ 37.00	420 kWh	0 kWh	294 kWh	126 kWh	\$ 10.28	3.60
Typical Office	2	0	10	3.5	\$ 37.00	420 kWh	0 kWh	273 kWh	147 kWh	\$ 12.00	3.08
Typical Office	2	0	10	4	\$ 37.00	420 kWh	0 kWh	252 kWh	168 kWh	\$ 13.71	2.70
Meeting Room	7	0	10	0.5	\$ 37.00	1470 kWh	0 kWh	1397 kWh	74 kWh	\$ 6.00	6.17
Meeting Room	7	0	10	1	\$ 37.00	1470 kWh	0 kWh	1323 kWh	147 kWh	\$ 12.00	3.08
Meeting Room	7	0	10	1.5	\$ 37.00	1470 kWh	0 kWh	1250 kWh	221 kWh	\$ 17.99	2.06
Meeting Room	7	0	10	2	\$ 37.00	1470 kWh	0 kWh	1176 kWh	294 kWh	\$ 23.99	1.54
Meeting Room	7	0	10	2.5	\$ 37.00	1470 kWh	0 kWh	1103 kWh	368 kWh	\$ 29.99	1.23
Meeting Room	7	0	10	3	\$ 37.00	1470 kWh	0 kWh	1029 kWh	441 kWh	\$ 35.99	1.03
Meeting Room	7	0	10	3.5	\$ 37.00	1470 kWh	0 kWh	956 kWh	515 kWh	\$ 41.98	0.88
Meeting Room	7	0	10	4	\$ 37.00	1470 kWh	0 kWh	882 kWh	588 kWh	\$ 47.98	0.77
Open Office	18	0	10	0.5	\$ 480.00	3780 kWh	0 kWh	3591 kWh	189 kWh	\$ 15.42	31.12
Open Office	18	0	10	1	\$ 480.00	3780 kWh	0 kWh	3402 kWh	378 kWh	\$ 30.84	15.56
Open Office	18	0	10	1.5	\$ 480.00	3780 kWh	0 kWh	3213 kWh	567 kWh	\$ 46.27	10.37
Open Office	18	0	10	2	\$ 480.00	3780 kWh	0 kWh	3024 kWh	756 kWh	\$ 61.69	7.78
Open Office	18	0	10	2.5	\$ 480.00	3780 kWh	0 kWh	2835 kWh	945 kWh	\$ 77.11	6.22
Open Office	18	0	10	3	\$ 480.00	3780 kWh	0 kWh	2646 kWh	1134 kWh	\$ 92.53	5.19
Open Office	18	0	10	3.5	\$ 480.00	3780 kWh	0 kWh	2457 kWh	1323 kWh	\$ 107.96	4.45
Open Office	18	0	10	4	\$ 480.00	3780 kWh	0 kWh	2268 kWh	1512 kWh	\$ 123.38	3.89
Laboratory	25	80	10	0.5	\$ 2,400.00	5250 kWh	12800 kWh	17148 kWh	903 kWh	\$ 73.64	32.59
Laboratory	25	80	10	1	\$ 2,400.00	5250 kWh	12800 kWh	16245 kWh	1805 kWh	\$ 147.29	16.29
Laboratory	25	80	10	1.5	\$ 2,400.00	5250 kWh	12800 kWh	15343 kWh	2708 kWh	\$ 220.93	10.86
Laboratory	25	80	10	2	\$ 2,400.00	5250 kWh	12800 kWh	14440 kWh	3610 kWh	\$ 294.58	8.15
Laboratory	25	80	10	2.5	\$ 2,400.00	5250 kWh	12800 kWh	13538 kWh	4513 kWh	\$ 368.22	6.52
Laboratory	25	80	10	3	\$ 2,400.00	5250 kWh	12800 kWh	12635 kWh	5415 kWh	\$ 441.86	5.43
Laboratory	25	80	10	3.5	\$ 2,400.00	5250 kWh	12800 kWh	11733 kWh	6318 kWh	\$ 515.51	4.66
Laboratory	25	80	10	4	\$ 2,400.00	5250 kWh	12800 kWh	10830 kWh	7220 kWh	\$ 589.15	4.07

*Assumed Value

Energy Savings Per Floor					
<i># of spaces per floor</i>	<i>Type of Space</i>	<i>Installation Cost</i>	<i>Daily Hours Saved</i>	<i>Annual Energy Saved</i>	<i>Annual Saving (\$)</i>
12	Typical Office	\$ 444.00	0.5	252 kWh	\$ 20.56
2	Meeting Room	\$ 74.00	0.5	147 kWh	\$ 12.00
1	Open Office	\$ 480.00	0.5	189 kWh	\$ 15.42
2	Laboratory	\$ 4,800.00	0.5	1805 kWh	\$ 147.29
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 195.27
					Simple Payback (years): 29.7
12	Typical Office	\$ 444.00	1	504 kWh	\$ 41.13
2	Meeting Room	\$ 74.00	1	294 kWh	\$ 23.99
1	Open Office	\$ 480.00	1	378 kWh	\$ 30.84
2	Laboratory	\$ 4,800.00	1	3610 kWh	\$ 294.58
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 390.54
					Simple Payback (years): 14.8
12	Typical Office	\$ 444.00	1.5	756 kWh	\$ 61.69
2	Meeting Room	\$ 74.00	1.5	441 kWh	\$ 35.99
1	Open Office	\$ 480.00	1.5	567 kWh	\$ 46.27
2	Laboratory	\$ 4,800.00	1.5	5415 kWh	\$ 441.86
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 585.81
					Simple Payback (years): 9.9
12	Typical Office	\$ 444.00	2	1008 kWh	\$ 82.25
2	Meeting Room	\$ 74.00	2	588 kWh	\$ 47.98
1	Open Office	\$ 480.00	2	903 kWh	\$ 73.64
2	Laboratory	\$ 4,800.00	2	7220 kWh	\$ 589.15
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 793.03
					Simple Payback (years): 7.3
12	Typical Office	\$ 444.00	2.5	1260 kWh	\$ 102.82
2	Meeting Room	\$ 74.00	2.5	735 kWh	\$ 59.98
1	Open Office	\$ 480.00	2.5	945 kWh	\$ 77.11
2	Laboratory	\$ 4,800.00	2.5	9025 kWh	\$ 736.44
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 976.34
					Simple Payback (years): 5.9
12	Typical Office	\$ 444.00	3	1512 kWh	\$ 123.38
2	Meeting Room	\$ 74.00	3	882 kWh	\$ 71.97
1	Open Office	\$ 480.00	3	1134 kWh	\$ 92.53
2	Laboratory	\$ 4,800.00	3	10830 kWh	\$ 883.73
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 1,171.61
					Simple Payback (years): 4.9
12	Typical Office	\$ 444.00	3.5	1764 kWh	\$ 143.94
2	Meeting Room	\$ 74.00	3.5	1029 kWh	\$ 83.97
1	Open Office	\$ 480.00	3.5	1323 kWh	\$ 107.96
2	Laboratory	\$ 4,800.00	3.5	12635 kWh	\$ 1,031.02
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 1,366.88
					Simple Payback (years): 4.2
12	Typical Office	\$ 444.00	4	2016 kWh	\$ 164.51
2	Meeting Room	\$ 74.00	4	1176 kWh	\$ 95.96
1	Open Office	\$ 480.00	4	1512 kWh	\$ 123.38
2	Laboratory	\$ 4,800.00	4	14440 kWh	\$ 1,178.30
					Total Installation Cost: \$ 5,798.00
					Total Savings (\$): \$ 1,562.15
					Simple Payback (years): 3.7