

APPENDIX B

Guidelines for Selection of Luminaire and Determination of Mounting Heights

Figure Sources:
City of Hailey, Idaho, 2008.

Table Sources:
Sylvania #PL-150, General Electric #9200 and
Phillips #SG-100 large lamp catalogs, 2008.

The Town of Alpine does not endorse or discriminate against any manufacturer or company that may be mentioned or shown in these illustrations and related statistical tables.

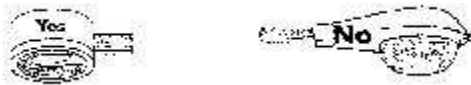
Figure 1: Cutoff Outdoor Lighting Fixture



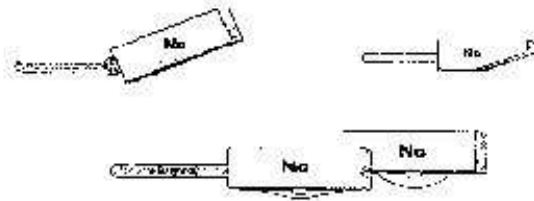
What is a true full cutoff outdoor lighting fixture?



Flat glass lens, eliminates or minimizes direct glare, no upward throw of light. The housings for these fixtures are available in many styles.



Same fixture as above mounted incorrectly - defeating the horizontal mounting design. The fixture now produces direct glare, and can also produce up light at steeper mounting angles.



Known as just "cutoff" center "drop" or "sag" lens with or without exposed bulb, produces direct glare.

Figure 2: 85° Full Cut-off Fixture

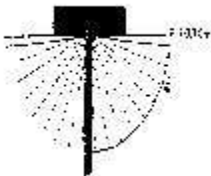


Figure 3: Partially Shielded (Translucent Siding, Bulb Not Visible)

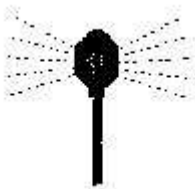


Figure 4: Shielded

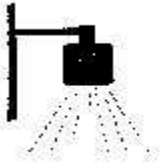


Figure 5: Unshielded With Opaque Top (Less Than 375 Lumens)



Figure 6: Angle Of Floodlight

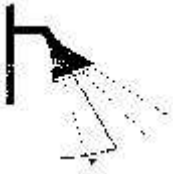


Figure 7: Directional Floodlight With External Shielding



**TABLE 1
INITIAL RATED LIGHT OUTPUT OR VARIOUS LAMPS**

Lamp Type	Lamp Wattage	Initial Lumen Output
Incandescent lamp (frosted) (Syl.)	25	235
Incandescent lamp (frosted) (Syl.)	40	375
Incandescent lamp (frosted) (Syl.)	60	890
Incandescent lamp (frosted) (Syl.)	100	1,690
Incandescent lamp (frosted) (Syl.)	150	2,850
Incandescent flood or spot (G.E.)	75	765
Incandescent flood or spot (G.E.)	120	1,500
Incandescent flood or spot (G.E.)	150	2,000
Quartz halogen lamp (frosted) (Syl.)	42	665
Quartz halogen lamp (frosted) (Syl.)	52	885
Quartz halogen lamp (frosted) (Syl.)	72	1,300
Quartz halogen lamp (frosted) (Syl.)	300	6,000
Quartz halogen lamp (frosted) (Syl.)	500	10,500
Quartz halogen lamp (frosted) (Syl.)	1000	21,000
Quartz halogen mini flood or spot (G.E.) (12 volt MR-16 type)	20	260
Quartz halogen mini flood or spot (G.E.) (12 volt MR-16 type)	42	630
Quartz halogen mini flood or spot (G.E.) (12 volt MR-16 type)	50	895
Quartz halogen mini flood or spot (G.E.) (12 volt MR-16 type)	75	1,300
Fluorescent lamp (Phillips)	7	400
Fluorescent lamp (Phillips)	9	600
Fluorescent lamp (Phillips)	13	900
Fluorescent lamp (Phillips)	22	1,200
Fluorescent lamp (Phillips)	28	1,600
Fluorescent lamp (G.E. cool white)	40	3,150
Low pressure sodium lamp (Phillips)	18	1,800
Low pressure sodium lamp (Phillips)	35	4,800
Low pressure sodium lamp (Phillips)	55	8,000
Low pressure sodium lamp (Phillips)	90	13,500
Low pressure sodium lamp (Phillips)	135	22,500
Low pressure sodium lamp (Phillips)	180	33,000
High pressure sodium lamp (diffuse) (G.E.)	35	2,250
High pressure sodium lamp (diffuse) (G.E.)	50	4,000
High pressure sodium lamp (diffuse) (G.E.)	70	6,400

High pressure sodium lamp (diffuse) (G.E.)	100	9,500
High pressure sodium lamp (diffuse) (G.E.)	150	16,000
High pressure sodium lamp (diffuse) (G.E.)	250	27,500
High pressure sodium lamp (diffuse) (G.E.)	400	50,000
Mercury vapor lamp (white deluxe) (Syl.)	100	4,500
Mercury vapor lamp (white deluxe) (Syl.)	175	8,500
Mercury vapor lamp (white deluxe) (Syl.)	250	11,100
Mercury vapor lamp (white deluxe) (Syl.)	400	20,100
Metal halide lamp (coated) (G.E.)	32	2,500
Metal halide lamp (coated) (Venture)	50	3,400
Metal halide lamp (coated) (G.E.)	175	15,750
Metal halide lamp (coated) (G.E.)	250	20,500
Metal halide lamp (coated) (G.E.)	400	36,000

TABLE 2
MOUNTING HEIGHT/LAMP OUTPUT RECOMMENDATIONS

Table 2 lists the maximum lumen levels standards at various heights above ground level. It provides specific examples listing the common types of lighting sources, lumen levels, and permitted mounting heights.

Mounting Height (Feet)	Max Lumens
6	1,000
8	600 to 1,600
10	1,000 to 2,000
12	1,600 to 2,400
16	2,400 to 6,000
20	4,000 to 8,000
24	6,000 to 9,000
28	8,000 to 12,000
32	9,000 to 24,000
36	12,000 to 28,000
40	16,000 to 32,000

**TABLE 3
MOUNTING HEIGHT RECOMMENDATIONS PER LAMP TYPE**

Low Pressure Sodium

Wattage	180W	135W	90W	55W	35W	18W
Mounting heights	>40'	30' - 32'	28'	24'	16' - 20'	10'
Initial lumens	33,000	22,500	13,500	8,000	4,800	1,800
Mean lumens	33,000	22,500	13,500	8,000	4,800	1,800
Lamp wattage	180	135	90	55	35	18
Circuit wattage	220	180	125	80	60	30
Initial lum/watt	150	125	108	100	80	60
Mean lum/watt	150	125	108	100	80	60
Annual KWH use	902	738	513	328	216	123

High Pressure Sodium

Wattage	400W	250W	200W	150W	100W	70W	50W	35W
Mounting heights	>50'	32-36'	30'	28'	24'	20'	16'	12'
Initial lumens	50,000	28,500	22,000	16,000	9,500	6,300	4,000	2,250
Mean lumens	45,000	25,700	19,800	14,400	8,550	5,470	3,600	2,025
Lamp wattage	400	250	200	150	100	70	50	35
Circuit wattage	465	294	246	193	130	88	66	46
Initial lum/watt	108	97	89	83	73	72	61	49
Mean lum/watt	97	87	80	75	66	64	55	44
Annual KWH use	1,907	1,205	1,009	791	533	361	271	189

Metal Halide

Wattage	1000W	400W	250W	175W	150W	100W	70W	50W	32W
Mounting	>60'	>36'	>30'	>28'	>24'	>20'	>16'	>12'	>10'
Initial lumens	110,000	36,000	20,500	16,600	13,000	9,000	5,500	3,500	2,500
Mean lumens	88,000	28,800	17,000	10,350	8,700	6,400	4,000	2,500	1,900
Lamp wattage	1,000	400	250	175	150	100	70	50	32
Circuit wattage	1,070	456	295	215	184	115	88	62	43
Initial lum/watt	103	79	69	77	71	78	63	56	58
Mean lum/watt	82	63	58	48	47	56	45	40	44
Annual KWH	4,387	1,870	1,210	882	754	472	361	254	176

(Ord. 821, 2-23-2006, eff. 3-16-2006)