



SMALL Reflector Selection Guide

- Low to medium height outdoor spaces
- Where setback (distance from lighted surface) is limited
- Where compact size is desired

This guide is designed to assist the lighting professional in comparing and selecting the lamp(s) and luminaire(s) best suited for a project. First determine lamp and luminaire characteristics most important to your application. Then select lamp wattage based on a similar size/type of space, number of luminaires and desired light level. Use lumen or illuminance ratios to approximate alternative light levels or quantity of units.

Typical Applications: Area Code / Size (L x W x H) / Use

A	15' x 10' x 12'	entrance canopy, bus/taxi station
B	100' x 8' x 10'	covered walkway, strip mall canopy, extended soffit
C	100' x 20' x 15'	concourse, commuter train platform
D	60' x 60' x 18'	open-air pavilion, service station canopy
E	100' x 100' x 12'	parking garage

Source	Lamp Type ^③	Lamp Characteristics			Control Characteristics		Performance ^④			Typical Applications ^⑤												
		Correlated Color Temp ^③	Color Rendering Index (CRI)	Lamp Life ^① (Hours)	Starting	Ambient Temperature	Lamp Wattage	Lamp Output	Efficacy	Area Code	No. Units	Wattage	E _c (fcai)	E _g (fcai)	Watts /sq. ft.							
Point Sources Best where setback can be 1/3 to 1/5 the distance the light is to be projected (30' minimum recommended) and where individually mounted luminaires can be spaced 1.5 to 2 times the setback distance. Example: 24" wide space uplighted from two sides (12" throw), 3' setback, 6" on center.	 Tungsten Halogen	2900K <i>Warm</i>	>95 CRI <i>Excellent</i> Ideal for colorful awnings, canopies, tents, featured architectural elements, etc.	2000 Approx. 11 months at 6 hours operation per day. Note: dimming extends lamp life. ^②	Instant-on	Ambient temperature variations typically do not affect lamp light output.	100W	1550 lumens	16 lpw	A	6	150W	36	5	6.0							
							150W	2700	18	B	20	150W	24	6	3.8							
							200W	3400	17	A	3	250W	30	5	5.0							
							250W	4800	19	B	20	250W	42	10	6.3							
										C	40	250W	44	13	5.0							
	 Compact Ceramic Metal Halide	3000K <i>Warm</i> Lamps using ceramic arc tubes offer lamp-to-lamp color consistency and a stable color temperature (+/-200K) over their life.	81 to 85 CRI <i>Very Good</i> Suitable for colorful canopies, awnings, building overhangs, architectural features, etc.	12,000 Approx. 5 to 6 years at 6 hours operation per day.	3 to 5 minutes from cold start; 10 to 20 minutes from warm start (restrike period)	Ballast rated for -20°F/-29°C starting. Ambient temperature variations typically do not affect lamp light output.	35W	3300	59	A	6	35W	47	7	2.2							
															B	20	35W	31	8	1.4		
															A	3	70W	40	6	1.9		
															B	20	70W	58	14	2.4		
															C	40	70W	60	18	1.9		
															D	24	70W	17	7	0.6		
															E	80	70W	18	10	0.8		
															A	3	150W	88	13	3.6		
															B	13	150W	82	20	2.9		
															C	20	150W	66	19	1.8		
									D	24	150W	38	16	1.2								
									E	80	150W	39	21	1.4								
Linear Sources Best where setback is limited to 1/6 to 1/10 the distance the light is to be projected (12" minimum recommended for T5, 18" for T5HO) and where luminaires can be mounted end-to-end in a row.	 T5 Fluorescent	3000K ^③ <i>Warm</i> 3500K <i>Neutral</i> 4100K <i>Cool</i>	82 to 85 CRI <i>Very Good</i> Suitable for continuous canopies, covered walkways, etc.	20,000 to 25,000 Approx. 9 years at 6 hours operation per day.	Programmed start	Ballast rated for 0°F/-18°C starting. Lamp light output may be diminished when operating in low ambient temperatures. Refer to data in Outdoor Accessories section.	14W (22")	1350	95 ^⑤	A	4	28W	31	5	0.8							
																B	25	28W	38	10	1.0	
																	C	50	28W	38	11	0.8
																	D	56	28W	22	9	0.5
																	E	96	28W	14	10	0.3
							 T5 HO Fluorescent							79 ^⑤	A	4	55W	53	8	1.5		
																B	25	55W	66	17	1.8	
																	C	50	55W	66	19	1.5
																	D	56	55W	39	15	0.9
																	E	96	55W	24	17	0.6

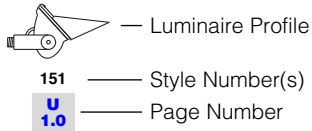
^① Average rated life is the number of hours at which 50% of a large group of lamps are still operating. Fluorescent lamp ratings based on 3 or more operating hours per start. Metal halide based on 10 or more hours per start. Average life may increase or decrease as the period per start increases or decreases.
Where low maintenance is desired or for locations that are difficult to reach, long life metal halide or fluorescent lamps are suggested.

^② Dimming halogen lamps to 95% of rated lamp voltage will double the average lamp life and reduce light output approximately 15%.
^③ Lamp(s) furnished with luminaires. Standard fluorescent color temperature is 3000K. See lamp charts in Outdoor Accessories Section.

^④ **Lamp output** = initial rated lumens; may vary with lamp manufacturer. **Efficacy** = expressed in lumens per watt (lpw); includes ballast losses and may vary, depending on actual lamp and ballast parameters.
^⑤ Efficacy and energy for linear fluorescent luminaires will vary depending on the combination of lamp lengths and number of lamps per ballast.

Key

Styles are available for uplighting from pendant or cantilever. Refer to individual data pages for complete specifications.



Surface - 100 Series		Enssconce - 400 Series		Lamp Type
Remote Ballast (or no ballast)	Integral Ballast	Remote Ballast (or no ballast)	Integral Ballast	
<p>151 U 1.0</p> <p>160 U 3.0</p>		<p>451 / OSA U 4.0</p> <p>451 / OSB U 4.0</p>		Tungsten Halogen
			<p>452 (W mount) U 5.0</p> <p>452 (S mount) U 5.0</p> <p>452 / OSN U 6.0</p> <p>452 / OSO U 6.0</p>	Compact Ceramic Metal Halide
<p>151 U 2.0</p> <p>Also available with T8 lamps. See Catalog pages.</p> <p>151 U 2.0 (contractor fabricated cove by others)</p>	<p>164 U 2.2 (medium reflector)</p>			T5 Fluorescent T5 HO Fluorescent

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Ⓒ Typical uplight applications:

E_c / E_g = illuminance, footcandles average initial (fcai), on ceiling and ground/floor planes respectively (based on rectangular space with flat ceiling, uniform distribution of luminaires and 70/0/5 ceiling/wall/floor reflectance factors).

Watts/sq. ft. = input watts (includes ballast) per area for given number of luminaires; use for comparison purposes only.

Estimated light levels on the overhead surface and ground/floor are for guidance in narrowing the selection of lamp source(s) and/or wattage(s). Values do not represent specific recommendations for all uses/tasks for a given sample area. Consult the IESNA Lighting Handbook for recommended light levels. For maintained light levels, apply suitable light loss factors.









LARGE Reflector Selection Guide

- Medium to high outdoor spaces
- Where higher wattage allows fewer luminaires
- Where high light levels are desired

This guide is designed to assist the lighting professional in comparing and selecting the lamp(s) and luminaire(s) best suited for a project. First determine lamp and luminaire characteristics most important to your application. Then select lamp wattage(s) based on a similar size/type of space, number of luminaires and desired light level. Use lumen or illuminance ratios to approximate alternative light levels or quantity of units.

Typical Applications: Area Code / Size (L x W x H) / Use

- A 15' x 10' x 12' entrance canopy, bus/taxi station
- B 100' x 8' x 10' covered walkway, strip mall canopy, extended soffit
- C 100' x 20' x 15' concourse, commuter train platform
- D 60' x 60' x 18' open-air pavilion, service station canopy
- E 100' x 100' x 12' parking garage

Source	Lamp Type ③	Lamp Characteristics			Control Characteristics		Performance ⑤			Typical Applications ⑦											
		Correlated Color Temp ③	Color Rendering Index (CRI)	Lamp Life ① (Hours)	Starting	Ambient Temperature	Lamp Wattage	Lamp Output	Efficacy	Area Code	No. Units	Wattage	E _c (fcal)	E _g (fcal)	Watts /sq.ft.						
Point Sources Best where setback can be 1/3 to 1/5 the distance the light is to be projected (36" minimum recommended) and where individually mounted luminaires can be spaced 1.5 to 2 times the setback distance. Example: 20' wide space uplighted from one side, 4' setback, 8' on center.	 Tungsten Halogen	3000K Warm	>95 CRI <i>Excellent</i> Ideal for colorful canopies, awnings, tents, featured architectural elements, etc.	2000 Approx. 11 months at 6 hours operation per day. Note: dimming extends lamp life. ②	Instant-on	Ambient temperature variations typically do not affect lamp light output.	300W	5770	19	A	3	350W	76	11	7.0						
							350W	10,000	29	C	20	350W	51	15	3.5						
							500W	10,700	21	D	24	350W	26	11	2.3						
							900W	32,000	36	E	80	350W	26	13	2.8						
							1000W	21,500	22	A	1	900W	86	13	6.0						
	 Metal Halide	175W - 4000K Cool 250W - 3200K Warm 400W - 3200K Warm 1000W - ④ (for alternative colors, see lamp chart in Accessories Section.)	70 CRI <i>Good</i> 175W - 65 CRI Suitable for large entrance canopies, covered concourses, pavilions, public spaces, etc.	400W - 15,000 250W - 10,000 175W - 7500 Approx. 3-1/2 to 7 yrs. at 6 hours operation per day.	3 to 5 minutes from cold start; 10 to 20 minutes from warm start (restrike period).	Ballast rated for -20°F/-29°C starting. Ambient temperature variations typically do not affect lamp light output.	175W	12,800	63	B	10	175W	63	15	2.6						
							250W	21,000	72	E	40	175W	21	11	0.8						
							400W	38,000	82	C	10	250W	44	14	1.5						
							1000W④	100,000	91	A	1	400W	101	15	3.1						
							 High Pressure Sodium	2100K Warm	21 CRI <i>Poor</i> Suitable for parking garages and areas where color rendering is not critical.	24,000+ Approx. 11+ years at 6 hours operation per day.	3 to 5 minutes from cold start or warm start (restrike period).	Ballast rated for -20°F/-29°C starting. Ambient temperature variations typically do not affect lamp light output.	150W	16,000	85	C	10	150W	32	10	0.9
													250W	28,500	97	E	40	150W	26	13	0.8
													400W	51,000	110	A	1	250W	72	11	2.0
													 Hex Tube Compact Fluorescent	3000K Warm ③ 3500K <i>Neutral</i> 4100K <i>Cool</i>	82 CRI <i>Very Good</i> Suitable for colorful canopies, overhangs, etc.	12,000 Approx. 5-1/2 years at 6 hrs. operation per day.	Rapid start	Ballast rated for 0°F starting. Light output may be diminished in extreme low ambient temp.	32W	2400	73
	42W	3200	73	B	20	42W	25	6	1.1												
	2x42W	6400	73	C	20	42W	13	4	0.4												
	45W (36") 2850 60W (48") 4300 75W (60") 5150 85W (72") 6750 110W (96") 9500 115W (48") 6600 160W (72") 10,900 215W (96") 14,500	54 to 62 ⑥	A	3	2x42W	39	6	1.9													
B			13	2x42W	33	8	1.5														
 T12 HO Fluorescent ③	3000K Warm 3500K <i>Neutral</i> 4100K <i>Cool</i>	52 to 82 CRI <i>Good to Very Good</i> Suitable for continuous awnings, walkways, etc.	12,000 5-1/2 years at 6 hours operation per day.	Rapid start	Ballast rated for -20°F/-29°C starting. Lamp light output may be diminished when operating in low ambient temperatures.	45W (36")	2850	54 to 62 ⑥	A	2	110W	37	6	1.8							
						60W (48")	4300		B	12	110W	45	11	2.0							
 T12 VHO Fluorescent ③	3000K Warm 4100K <i>Cool</i>	52 to 62 CRI <i>Good</i>	10,000 4-1/2 years.	Rapid start	Ballast rated for -20°F/-29°C starting. Lamp light output may be diminished when operating in low ambient temperatures.	75W (60")	5150	49 to 55 ⑥	C	24	110W	46	13	1.6							
						85W (72")	6750		D	28	110W	28	11	1.1							
Linear Sources Best where setback is limited to 1/6 to 1/10 the distance the light is to be projected (18" minimum recommended) and where luminaires can be mounted end-to-end in a row.	 T12 HO Fluorescent ③	3000K Warm 3500K <i>Neutral</i> 4100K <i>Cool</i>	52 to 82 CRI <i>Good to Very Good</i> Suitable for continuous awnings, walkways, etc.	12,000 5-1/2 years at 6 hours operation per day.	Rapid start	Ballast rated for -20°F/-29°C starting. Lamp light output may be diminished when operating in low ambient temperatures.	110W (96")	9500	49 to 55 ⑥	E	48	110W	17	13	0.6						
							115W (48")	6600		C	12	215W	30	9	1.5						
							160W (72")	10,900		D	28	215W	42	17	1.9						
 T12 VHO Fluorescent ③	3000K Warm 4100K <i>Cool</i>	52 to 62 CRI <i>Good</i>	10,000 4-1/2 years.	Rapid start	Ballast rated for -20°F/-29°C starting. Lamp light output may be diminished when operating in low ambient temperatures.	215W (96")	14,500	49 to 55 ⑥	E	48	215W	25	20	1.2							



① Average rated life is the number of hours at which 50% of a large group of lamps are still operating. Fluorescent lamp ratings based on 3 or more operating hours per start. Metal halide based on 10 or more hours per start. Average life may increase or decrease as the period per start increases or decreases.

Where low maintenance is desired or for locations that are difficult to reach, long life metal halide or fluorescent lamps are suggested.

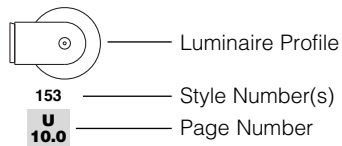
② Dimming halogen lamps to 95% of rated lamp voltage will double the average lamp life and reduce light output approximately 15%.

③ Lamp(s) furnished with luminaires, except T12HO and T12VHO. Standard hex tube fluorescent color temperature is 3000K. See lamp charts in Outdoor Accessories Section.

④ For availability and specifications of 1000W metal halide lamp, consult factory.

Key

Styles are available for uplighting from pendant or cantilever. Refer to individual data pages for complete specifications.



Surface - 100 Series		Enscore - 400 Series		Lamp Type
Remote Ballast (or no ballast)	Integral Ballast ④	Remote Ballast (or no ballast)	Integral Ballast ④	
<p>152 U 7.0</p> <p>153 U 10.0</p>	<p>154 U 10.0</p>	<p>453/OLA U 11.0</p> <p>453/OLB U 11.0</p>	<p>454 (W mount) U 12.0</p> <p>454 (S mount) U 12.0</p> <p>454/OLN U 13.0</p> <p>454/OLO U 13.0</p>	Tungsten Halogen
<p>152 U 8.0</p>	<p>162 U 10.2</p>			Metal Halide
<p>152 U 9.0</p> <p>152 (contractor fabricated cove by others) U 9.0</p>				High Pressure Sodium
				Hex Tube Compact Fluorescent
				T12 HO Fluorescent
				T12 VHO Fluorescent

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⑤ **Lamp output** = initial rated lumens; may vary with lamp manufacturer.
Efficacy = expressed in lumens per watt (lpw); includes ballast losses and may vary, depending on actual lamp and ballast parameters.
 ⑥ Efficacy and energy for linear fluorescent luminaires will vary depending on the combination of lamp lengths and number of lamps per ballast.

⑦ Typical uplight applications:
E_c / E_g = illuminance, footcandles average initial (fcai), on ceiling and ground/ floor planes respectively (based on rectangular space with flat ceiling, uniform distribution of luminaires and 70/0/5 ceiling/wall/floor reflectance factors).
Watts/sq.ft. = input watts (includes ballasts) per area for given number of luminaires; use for comparison purposes only.