OUTDOOR LIGHTING QUICK SELECTOR

The Quick Selector helps estimate the number of wide beam floodlights, roadway luminaires, wallighters or high mast lighting systems needed to light an outdoor area from within or from around the perimeter of the area. The luminaires may be mounted on poles or on nearby buildings and structures.

For applications lighted from the perimeter, the lighted area is considered to be that bordered by the luminaire locations (even if the luminaires are set back away from the actual application area). This method is only applicable for setbacks of up to one mounting height.

Other considerations are: In general, a luminaire location can effectively cover an area of up to two mounting heights away from it. Floodlights are usually considered first for this because they can be aimed away from their location. For example, this makes them especially suited for lighting from around the perimeter of an area. But, floodlights can only light an area 90° wide so that you usually need two or more units per location. Luminaires with roadway light distribution can cover a wide area both in front of and behind the location and find application within the site to be lighted. However roadway luminaires cannot light as far out in front as a floodlight. Wallighters are a hybrid luminaire which combines floodlight and roadway characteristics.

A word of caution: This method is not intended for estimating roadway or sports lighting. The following sections cover these applications in detail.

HERE'S HOW TO USE THIS SELECTOR:

STEP 1. Determine the average maintained illumination level recommended from Illumination Recommendations–Outdoor Table on page 380.

STEP 2. Determine the dimensions (length and width) of the site.

STEP 3. Select light source type (high pressure sodium, metal halide).

STEP 4. Use Figure below to determine the WATTS/SQUARE FOOT by moving horizontally along the desired footcandle line to the appropriate diagonal light source line and then moving vertically down to read the Watts/square foot on the horizontal axis.

STEP 5. Calculate the total lamp watts needed for the area:
TOTAL WATTS = AREA (LxW) x WATTS/SQ FT

STEP 6. Using your knowledge of the site, determine the probable mounting height for the luminaires. Perhaps the height of a nearby building, existing poles, local height restrictions, nearby lighting, or your experience may factor into this decision.

The simple 2X-4X rule of thumb is also effective. Simply divide the shortest distance that can be covered by adjacent luminaire locations by four to get a mounting height that conforms to the rule.

Note that the higher the mounting height, the fewer the locations or poles. Fewer poles, fewer foundations, less wiring, and less trenching translate into lower cost of installation.

STEP 7. Using your mounting height, position pole or building mounted luminaire locations. Keep in mind that the luminaire locations should not be spaced more than four mounting heights apart and that the coverage is not effective more than two mounting heights away or uniformity suffers.

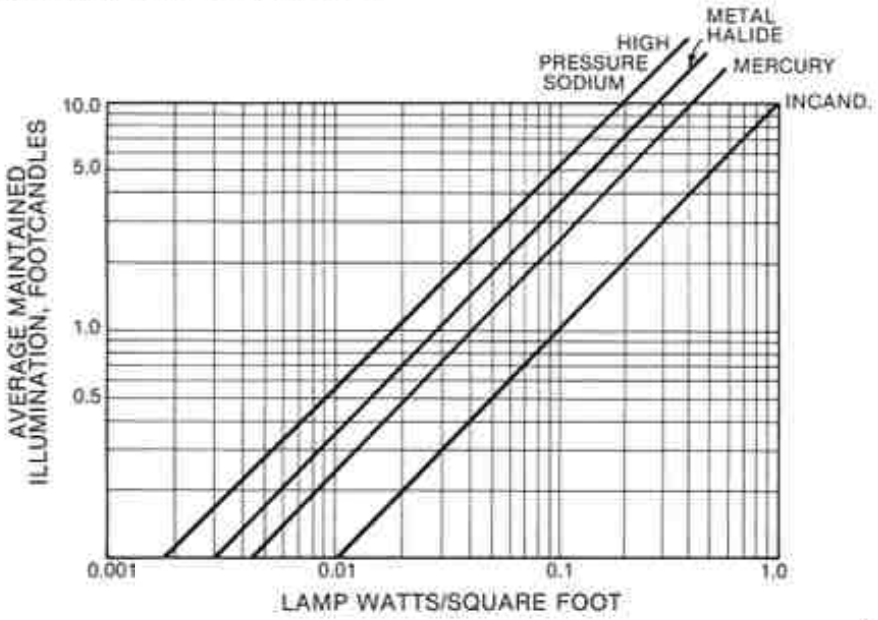
STEP 8. Fine tune your layout in terms of quantity of luminaires per location by referring to the guidelines in this section.

STEP 9. Now calculate the wattage of the luminaires:

Lamp Wattage =

$$\frac{\text{Total lamp wattage for the area (STEP 5)}}{\text{Number of Luminaires}}$$

STEP 10. Select the actual GE luminaire for your application.



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OUTDOOR LIGHTING QUICK SELECTOR (Continued)

Consider this example: You want to light a material handling yard measuring 200 by 1000 ft. To permit free movement within the fenced-in area, you want to locate poles around the perimeter just inside the fence. There are no adjacent structures.

STEP 1. From the Outdoor Illumination Recommendations Table you select a 5 FC light level.

STEP 2. The area is 1000 X 200 = 200,000 sq ft

STEP 3. You choose high pressure sodium because of its efficiency.

STEP 4. From the graph, lamp watts/sq ft = 0.1

STEP 5. 200,000 X 0.1 = 20,000 lamp watts.

STEP 6. Per the 2X-4X rule: $\frac{200\text{ ft}}{4}$ = 50-ft mounting height.

STEP 7. You select locations for poles along both 1000-ft sides of the area.

STEP 8. You position the poles at 200-ft intervals along the sides with the first pole 100-ft–2X from either end.

STEP 9. $\frac{20{,}000}{10\text{ locations}}$ = 2,000 watts/location = two (2) 1000-watt floodlights/location

Following the guidelines, you aim the two floodlights on each pole at 45° angles to the sides of the area (90° from each other) at points 67 feet (2/3 X two mounting heights) from the sides of the area (see diagram).

STEP 10. You select a GE PF-1000 Powerflood® floodlight with a wide beam (NEMA 6X5) distribution.