



PARKING LOT LIGHTING DESIGN GUIDE

Navigating how to design a reliable parking lot lighting solution



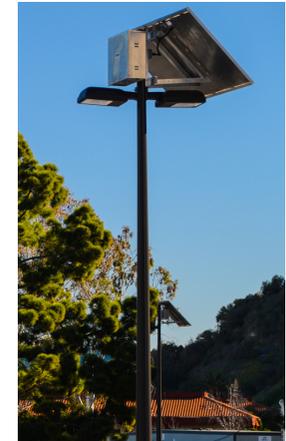


Parking lot lighting provides security to visitors and employees of a business, municipality, school or housing complex. Providing great lighting ensures people walking to and from their vehicles are safe. The lighting also provides added security to the vehicle personal belongings. Parking lots, parking garages and parking areas all require lighting when people are active in the area.

Different lighting levels, patterns of distribution, light pollution, and type of lighting needs to be taken into account when providing parking lot lighting. This eBook will help walk you through the steps to design a reliable system.

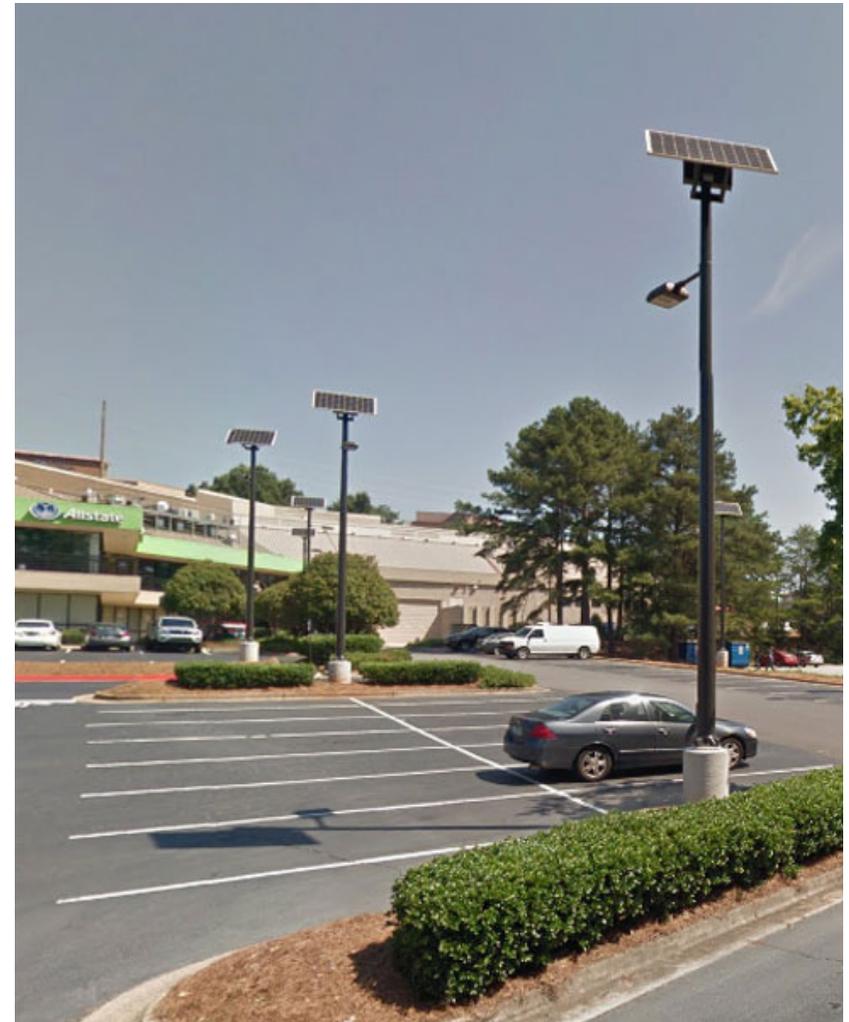
Parking lot lighting produces quick, accurate and comfortable visibility at night. Parking lot lighting also safeguards, facilitates and encourages vehicle and pedestrian safety. By providing good visibility also provides social and economic benefits such as:

- *Businesses and social gathering places stay open later at night*
- *Aid security and police protection*
- *Improve safety and security of employees and visitors*



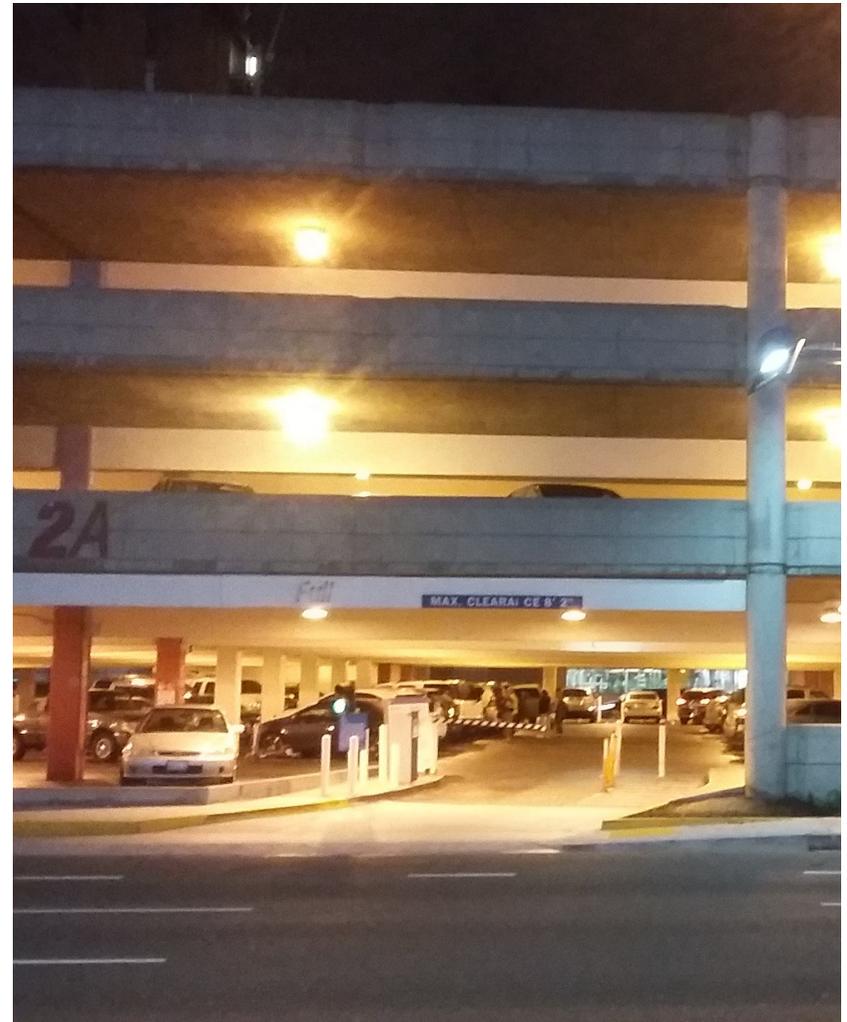
Business Parking Lots

Businesses provide parking lots to their employees and customers. These parking lots need to have adequate lighting for people coming and going from their vehicle to the business for safety and security. Good lighting lowers theft and vandalism rates, provides a sense of safety and security. The lights typically stay on for an hour or so after closing or from dusk to dawn, with the option for reduced output after closing to help with energy usages.



Parking Garages

Parking garages are one of the top areas for theft and vandalism since they are known to have reduced lighting and more areas with lower visibility. LED lighting fixtures provide much better illumination to help reduce accidents and improve security. Ensuring plenty of illumination inside parking garages will help with security and provide less dark areas between cars.



Residential Parking

Residential parking lot lighting provides safety and security to residences. These light levels have the lowest requirement of all parking lot lighting projects.

Residential parking lots do not necessarily need to be evenly illuminated, though suggested like with all parking lots; however, the final design uses the recommendations of the HOA and residences to determine the requirements.



Have you ever walked through a dark or dimly lit parking lot at night? It can be very discomfoting. However, when walking through a well-lit parking lot with uniform lighting and no large dark areas, the feeling of safety and security increases.

Uniformity provides better visual assistance and does not put as much strain on the eyes. When designing a solar parking lot project, uniformity still needs to be taken into consideration.

IES standards are different between parking lots. Large shopping complex parking lots and hospitals have much different light level requirements than rural, residential and other parking lots. Even different cities and municipalities have their own set of standards that go above what IES standards are. Gathering this information and completing a lighting layout to match the standards will be the first step in making sure that the new solar parking lot lights are uniform and meet minimum standards.

The implementation of LEDs allows for uniform lighting levels between various fixture sets. A shoebox style fixture which used to only produce a round area of light directly below the fixture can now provide different distribution patterns and allow for lighting of parking lots with uniformity. SEPCO works with Hubbell Outdoor Lighting to provide different distribution patterns for every project maximizing the light output of each fixture.

LED lights also provide much better lighting with much less light loss from wasted light. Older style fixtures such as metal halide and high-pressure sodium had a lot of wasted light. The lumens of the lamp gets thrown in all directions and the fixtures were designed to push the light out everywhere with no real task lighting.

LEDs provide task specific lighting and are pushing the light in only in the area that requires lighting. This additional efficiency allows for the use of much less power, fewer lumens, and better overall lighting and uniformity.



KNOW WHAT GOES INTO DESIGNING A PARKING LOT LIGHT SYSTEM

Parking lot lights vary from one application to the next. Understanding some of the keypoints used to design a project will help you navigate the process efficiently.

Step 1 – Find the area in need of parking lot lights

The first thing to figure out is the area in need of parking lot lights. This can be a small linear parking lot only a couple hundred of feet long to a large parking lot with medians and pathways through the area. Does the area currently have any type of lighting available? What is the reason for needing parking lot lights in this area?

Step 2 – Find out if electric is available

Is the electrical grid already nearby or would you need to call the power company to bring in electrical lines? If the electric needs to be brought to the area, how much is this going to cost? Depending on how far the grid electric is from the location of the needed lighting, this can be quite expensive. If the underground grid power has gone bad, look at the costs of trenching and repairing the parking lot area.

Step 3 – Determine the lighting requirements

How much lighting is needed for the parking lot? Do the lights need to be dark sky compliant? Do the parking lot lights need to run from dusk to dawn or for only a specified number of hours at night, say an hour or two after the facility closes? Are the parking lot lights able to dim in the middle of the night and still provide enough lighting? These questions need to be answered before you can decide on how many lights you will need to complete the project.

Step 4 – Find all alternatives

Solar power parking lot lights are an option to traditional electrical lights. Solar parking lot lights do not need the electrical grid to be brought in as they are self-contained units that provide their own electric. LED light fixtures provide the best lighting solution by using lower amounts of power, better optics, dimming features where needed, and cost less in an overall solution.

Step 5 – Contact companies for quotes

The last step after gathering the above information is to contact companies for quotes. Just like with anything else, get multiple quotes and weigh the pros and cons of every company and situation. The lowest quote is not always the best, so make sure to do your research on companies and products before you submit a purchase order.

Make sure your quotes come with an explanation of:

Battery Backup: *How much battery backup you are offering based on days? Some solar parking lot lights manufactures offer 2-day backup which is actually a bad solar system assembly design. SEPCO provides a battery backup which has a minimum of 5 days storage. This lengthens the backup times while prolonging the life of the battery.*

Photometric Study: *A photometric layout allows you to see the foot-candle and light distribution for every project. Without the photometric study, there is no representation of the light the systems will produce.*



USING SOLAR LED LIGHTING SYSTEMS FOR YOUR PROJECT

Since solar powered parking lot lights are self-contained, the installation will be a snap. Setting the poles, installing the solar power assembly and light fixture with bracket will take less time and will not require additional trenching. This saves on costs and allows for the lighting to be implemented more quickly.

Solar lights that are in production for commercial applications such as streets, roadways, pedestrian walkways, etc. have a higher upfront cost, but they will pay for themselves immediately when looking at the total costs on installation for new construction. These systems provide lighting for specific applications with different runtime settings. They also provide many days of stored power to provide continuous reliability, even during times of inclement weather.

Each system is built for the type and wattage lamp that will be utilized for the specific application. Lighting a multilane roadway will take much more power than lighting a small pathway. That makes the commercially manufactured solar lights more versatile to adapt from one job to the next. They range from small one LED fixture that runs along a home's driveway to powerful street lights that can illuminate a 150' area.

Solar lighting also has many excellent qualities. It is a green alternative to traditional lighting, it is low cost and practically maintenance free, and there is no power bill associated with utilizing solar since the power is not coming from the grid. Solar is also low voltage which makes it much safer to install and operate. Finally, solar lighting is renewable and promotes sustainability; its only requirement is the sun for operation.

THANK YOU FOR YOUR TIME!

Kindly get in touch to let us know if you have any questions.

One of our solar specialists would be happy to help you choose the best option for your Solar Lighting project and provide clean, renewable solar energy!

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