



Solar Mounts, LLC.

Solar Carport / Canopy Lighting Installation

Background:

Solar Mounts LLC ("SMLLC") designs and fabricates commercial solar ground mounts and solar carports, with or without under-decking. Solar Construction LLC ("SCLLC"), a wholly owned subsidiary of Solar Mounts, installs PV modules on the metallic structure per UL 2703 and in accordance with ANSI/NFPA 70®, National Electrical Code (NEC®)

Although Solar Construction LLC installs PV modules and can supply the (optional) Solar Mounts, LLC carport/canopy lights for carport projects, Solar Construction does not do any electrical work. After the solar support structure is built, 3rd party electrical equipment installation teams are contracted by the customer to connect PV modules to the utility grid, and/or on-site battery storage. The SMLLC lighting fixtures are attached to the carport and the lighting solution is connected by the electrical team to a power source, timers, daylight sensors, etc.

Carport / Canopy Lighting is Recommended

Canopy lighting is recommended for both security and aesthetic reasons. Under-canopy lighting is particularly efficient because all the light from the fixture is focused directly on the ground and any light escaping from the fixture at different angles is normally reflected down to the ground by the SMLLC carport structure.

Optional Solar Mounts, LLC Carport / Canopy Lighting

Solar Mounts LLC offers an under-deck light fixture (see Figure 1). This light has proven its capabilities on scores of sites around the country. It's a tough and efficient light, but other lights are available on the market. The installation contractor has many options. If the contractor chooses their own lights for the project, SMLLC recommends LED lights because of their durability and long life.



Figure 1. Solar Mounts LED Carport Light

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The following carport / canopy lighting mounting methods will not void the SMLLC warranty and are suggestions from SMLLC, based on our experience. Alternative strategies may work better on site and be more acceptable in your jurisdiction

As seen in Figures 1 & 2, the Solar Mounts LLC light is a 77-Watt exterior fixture using LED lights to provide 8000 Lumens, a CRI of 72 and a color temperature of 3100. The fixture draws ~0.65 amps at 120V (50/60 Hz). The beam angle is 145.3° degrees so installers can expect a ~40' diameter pool of light on the parking lot surface when the lighting fixture is 15 feet above ground (Spread of Light = $145.3^\circ \times .018 \times 15 = 39.25$ feet).



Figure 2. SMLLC LED Light suspended from an electrical work box, EMT and Uni-Strut

The SMLLC lighting fixture includes its own heat sink but is relatively lightweight and can be suspended 3-4 inches from an electrical work box connected to metallic conduit (“pendant mount”). Although lighting can be attached directly to the SMLLC purlins, commonly the fixtures and conduits are held tight to the purlins with Uni-Strut (see Figure 3). This strategy also provides adequate air flow around the fixture’s heat sink.



Figure 3. Contractor-supplied fixture fastened to the SMLLC purlins with Uni-Strut

Solar Mounts, LLC recommends one (1) lighting fixture per “bay” (NOTE: an SMLLC carport bay is ~27 feet wide). SMLLC recommends the fixture be mounted in the middle of the bay (see Figure 4); however, installers have mounted fixtures to SMLLC posts, struts or purlins at either end of bays (See Figure 5).



Figure 4. SMLLC lights mounted in the middle of the Bay by Solar-Construction



Figure 5. Lights mounted near the strut at the end of the Bay. Acceptable

The Electrical Contractor has Options


As stated earlier, canopy lighting is recommended for both functionality and aesthetics. However, it is not required at many sites. If contractors choose to install carport lighting, and provide their own fixtures, SMLLC recommends using a high-quality fixture and LED lighting, rated for a color range of 3000-5000K. This color temperature offers a neutral white light, providing excellent visibility for parking and unloading. Look for a color rendition index (CRI) rating of at least 70. If spread-of-light is a concern (excessive light), check to see if the manufacturer offers a lens that reduces the angle of light from the fixture to the ground. Auto-dimming (motion sensors, etc.) can reduce power draw from the carport.

Lights can be mounted at various locations under the carport structure. SMLLC recommends that lights be located at a consistent distance from each other (e.g., 20-35' intervals) to provide, 1) an un-cluttered look to the completed project, and 2) an integrated aesthetic that can reflect positively on the contractors!

Contact Us

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