



MEMORANDUM

TO: Green Rental home Energy Efficiency Network
FROM: Collin Tateishi, Policy Manager
DATE: August 2, 2018
SUBJECT: 2019 California Energy Code Solar Requirements and Exceptions

The California Energy Commission's new [energy efficiency standards and solar requirements](#) will impact all new construction and rehab projects beginning January 1, 2020. All residential properties (low-rise and high-rise) must be "solar ready" unless they install a solar PV system. Low-rise properties (three or fewer stories) must install a solar photovoltaic (PV) system but have access to various exceptions and offsets. Affordable housing property owners should be aware of the following solar ready and solar PV requirements, exceptions and offsets. For more information about the California Housing Partnership's sustainable housing initiatives, please contact Collin Tateishi: ctateishi@chpc.net.

All newly constructed properties (low-rise and high-rise) must be "solar ready" unless they install a solar PV system.

The intent is to reserve a suitable space of the roof for a future solar PV system which the energy code refers to as a "solar zone." This also applies to building retrofits where the total roof area is increased by at least 2,000 square feet.

- **Location** – The solar zone shall be located: on the roof or overhang of the building; on the roof or overhang of another structure within 250 feet of the building; or on covered parking. It applies to the entire building (including mixed occupancy) and shall have a total area no less than 15 percent of the total roof area of the building (less any skylight area).
- **Minimum Area** – The total solar zone area cannot have a dimension less than 5 feet. For each building with roof areas less than or equal to 10,000 square feet, the total solar zone area cannot have a dimension less than 80 square feet. For each building with roof areas greater than 10,000 square feet, the total solar zone area cannot have a dimension less than 160 square feet.
- **Equipment** – There are no requirements to install panels, conduit, piping or mounting hardware.
- **Exceptions**
 - **Exception 1** – High-rise multifamily buildings that have a solar PV system.
 - **Exception 2** – High-rise multifamily buildings that have a solar thermal system.

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- **Exception 3** – All buildings with a designated solar zone area that is no less than 50 percent of the potential solar zone area.
- **Exception 4** – All buildings with smart thermostats in each dwelling unit. In addition to demand response controls, these buildings must meet one of these two options:
 - Option A (at least 1)
 - Efficient dishwasher plus an efficient refrigerator or a whole house fan
 - Home automation system that controls appliances and lighting
 - Alternative plumbing from clothes washer, showers and bathtubs to outdoor irrigation
 - Rainwater catchment system
 - Option B – Electric vehicle charging spaces
- **Exception 5** – All buildings where the roof is used for cars, parking or helicopter.

Low-rise residential properties (3 or fewer habitable stories) must install on-site solar PV but have access to 6 exceptions and a community solar and/or storage offset.

- **Exception 1** – Shaded roof space. No solar PV is required if the effective annual solar access is restricted to less than 80 contiguous feet.
- **Exception 2** – Reduced size in climate zone 15. Systems can be smaller but may not be less than 1.5 Watt DC per square foot of conditioned floor area.
- **Exception 3** – Reduced size for two story buildings. Systems can be smaller but may not be less than 1.0 Watt DC per square foot of conditioned floor area.
- **Exception 4** – Reduced size in all climate zones. Systems can be smaller based on the effective annual solar access but may not be less than 0.8 Watt DC per square foot of conditioned floor area.
- **Exception 5** – Reduced size if plans were approved prior to January 1, 2020. Systems can be smaller if those plans have a solar zone between 80 and 200 square feet.
- **Exception 6** – Reduced size if paired with battery storage. Solar PV size may be reduced by 25 percent if they install an on-site battery storage system that has at least 7.5 kWh total capacity per dwelling¹.
- **Community solar and/or storage offset** – Low-rise residential properties may use this offset as long as the off-site systems provide energy savings benefits directly to the building that would have otherwise been required to have on-site solar PV. Energy savings benefits must be allocated in a manner demonstrated to be equivalent to the reductions in energy consumption that would have been realized from an on-site system.

High-rise residential properties (between 4 and 10 habitable stories) are required to be “solar ready” but do not have to install an on-site solar PV system.

There are no requirements to install panels, conduit, piping or mounting hardware. High-rise residential properties may install an on-site battery storage system but do not have any solar PV requirements for which an exception or system size reduction could be used. Similarly, community solar and/or storage is not needed as an alternative exception or offset.

¹ California Housing Partnership supports the 25 percent reduction but recommended that multifamily properties be allowed to have smaller battery storage systems with a total capacity no less than 4 kWh per dwelling unit because multifamily dwellings generally use less energy per dwelling unit than single-family homes.