

Solar Requirement on New CA Homes in 2020

2019 CA Building Energy Efficiency Standards (Title 24 Part 6)

On May 9, 2018, the California Energy Commission (CEC) unanimously approved the [2019 Building Energy Efficiency Standards](#). The Standards will require solar PV on new homes starting in 2020. The CEC also created a solar plus storage option to give credit toward the new Standards. California is the first state in the country to require solar, and the first state to include a solar plus storage option. California builds 80,000 new homes annually, but currently only about 15,000 of them are built with solar. The CEC projects that on average the utility bill savings are expected to be \$80/month, and the increased cost on a homeowner's mortgage will be \$40/month.

The section of state code that the CEC used to create this requirement is [Title 24 Part 6](#). Existing state law gives the CEC the authority to establish new building efficiency codes, and they have been doing it since the 1970s. Every three years it is updated with new cost-effective measures to increase energy efficiency, and with the [official memorandum](#), solar is now required to help meet those efficiency standards.

Over the next several months the CEC will be developing the compliance manuals and software programs that will add more detail to the Standards. They will also provide the actual calculations and compliance process for building new homes to the new code that will be enforced for new building permits submitted after January 1, 2020. CALSSA will be commenting on this process. Check back for updated fact sheets as this process unfolds.

Solar Prescriptive Requirement:

- All low-rise residential buildings (single family homes and multifamily three stories or less) must have solar PV starting in 2020.
- There will be exceptions for shaded roofs and multi-story buildings with limited roof space. ~~The details of these exceptions will be decided soon.~~
- The required minimum size varies by climate zone to meet the cost-effectiveness requirements of Title 24. It is approximately 2.5 kW for single family homes. PV systems can be larger, but larger systems will not receive additional credit towards meeting the overall Standards.
- The required minimum size is calculated as a flat kW/unit (ranges from 1.06 kW to 1.51 kW) plus a kW per 1000 sq. ft. (ranges from 0.5 to 1.5 kW). The requirements are defined in [Section 150.1, starting on p. 304](#), and supplemented by [Appendix JA11](#).
- Solar leases meet the requirement since the Standards only require what is built, but does not describe how they are financed.
- A CEC-approved community solar system can technically meet the requirement if it is shown to provide equivalent benefits (energy savings, bill reductions, durability) as onsite systems, per [Section 150.1, p.296](#). Note: This option does not create a new

community solar program and viable options for community solar in California are very limited.

- Details for the solar PV requirement, including how community solar would be counted, will be developed further in the compliance manuals.

Solar Plus Storage Compliance Option (not required):

- **If the home has energy storage, the required solar PV size is reduced by 25%.**
- Storage also gets a credit against the energy design rating (EDR) requirement that is used to demonstrate overall compliance with the Energy Efficiency Standards.
- The storage compliance option is defined in [Section 150.1, p. 305](#) and supplemented by [Appendix JA12](#).
- Details for the storage compliance option will be developed further in the compliance manuals.

Solar Water Heating

- Solar thermal technologies continue to meet the compliance requirements for water heating in the 2019 Standards, just as they did in the 2016 and 2013 Building Energy Efficiency Standards. For multi-family buildings with central water heating, solar water heating remains a prescriptive measure and provides at minimum:
 - 20% Solar Savings Fraction for zones 1-9
 - 35% Solar Savings Fraction for zones 10-16
- In practice the Solar Savings Fraction achieved can be far higher for buildings and note that any Solar Savings Fraction above the minimum prescriptive amount will still contribute additional credit in performance model calculation.
- Because solar water heating is a prescriptive measure for all climate zones, it is included in the standard building calculation for the energy code performance method; meaning that every multi-family building with central water heating must either have solar thermal or make up the difference with another measure. Therefore, solar water heating is an attractive, effective measure for new buildings.

Other documents in the 2019 Building Energy Efficiency Standards:

- [CEC Summary](#)
- [CEC Detailed FAQ Document](#)
- [CEC FAQ Document](#)
- [2019 Revised Energy Code](#) [Ch 5, 7, 8, 10 have solar (PV and thermal) and storage components]
- [2019 Reference Appendices](#) (Solar is in JA 11 and Storage is in JA 12)
- [2019 Building Energy Model \(beta\)](#)