

CEC 2019 Residential Energy Efficiency Standards: Key Changes

Effective Date: The new energy efficiency standards will apply to building permit applications submitted to the local building department on or after **January 1, 2020**. (H&S 18938.5)

Compliance Metric: Energy Design Rating

The 2019 Residential Energy Standards use an “Energy Design Rating” (EDR) metric to demonstrate compliance, which is similar to a HERS Score. Compliance is based on two EDR targets. The *Efficiency EDR* target must be met using energy efficiency features only, and the *Renewable EDR* target must be met using a combination of energy efficiency features and photovoltaics/batteries.

MAJOR CHANGES

Attics:

Increase prescriptive R-value for below roof deck insulation from R-13 to R-19 in CZs 4 and 8-16

Walls:

Increase prescriptive R-value requirements from R19 fill and R5 continuous insulation to R21 fill with R5 continuous insulation, reflecting an overall decrease in the performance U-factor for the assembly from 0.051 to 0.048 in CZs 1-5, 8-16

Quality Insulation Installation:

Add Quality Insulation Installation (QII) to the prescriptive requirements for newly constructed buildings. This requirement is probably the largest increase in stringency in the 2019 Standards.

SOLAR MANDATE & BATTERY STORAGE

Solar:

- Prescriptive Requirement for solar on every home sized approximately to offset the estimated electrical usage of the home
- Exceptions for shading and limitations for 2- and 3-story homes, and for high desert area (CZ 15) to reduce the huge system size requirement.
- Community Solar option – builders may choose to provide off-site solar to partially or totally meet the onsite PV requirement
- NEW: Joint Appendix (JA 11) provides more details about technical solar requirements

Battery Storage:

- Generous compliance credit for battery storage systems; may be used to offset some of the solar requirement or the newly added efficiency measures (see GHC discussion below).
- Grid Harmonization Credit (GHC): Allows a portion of the battery credit to be used to offset the energy efficiency EDR (anywhere from 1 EDR point to 3.5 EDR points depending on climate zone)
- 3 different levels of control with differing amounts of compliance credit
- Community storage option – builders may choose to provide offsite battery systems to get battery compliance credit
- NEW: Joint Appendix (JA 12) provides more details about technical battery requirements

ADDITIONAL CHANGES

Fenestration:

- Update the definitions of “door” and “glazed door” to match National Fenestration Rating Council (NFRC) definitions.
- Increase the stringency of the prescriptive U-factor for windows from 0.32 to 0.30
- Increase the stringency of the prescriptive Solar Heat Gain Coefficient (SHGC) required in Climate Zones 2 and 5 - 15 from 0.25 to 0.23.

Furnaces:

Update minimum fan efficacy requirements to 45 cfm per watt. *This is a requirement of the new federal NAECA (national appliance) requirements for furnaces effective July 3, 2019.*

Water heating:

- The specifications for compact distribution have been revised.
- An option for prescriptive compliance using a heat pump water heater has been added.
- New specifications and a compliance option for Drain Water Heat Recovery have been added.

Ventilation:

- References to ASHRAE 62.2 have been updated to incorporate the current version by reference with additional state amendments to ensure energy efficiency and indoor air quality.
- Increase air filter filtration requirements to a Minimum Efficiency Reporting Value (MERV) of 13, necessary for filtering out the smallest category of potentially harmful particulates. This change includes requiring certain return grills accommodate a 2” filter depth, to ensure that MERV 13 filters are installed with little or no impact on overall system performance. A 1” filter may be used when the system meets given requirements for face velocity. This requirement does not apply to ductless systems.
- Changes to multifamily ventilation include specifying that dwelling units may either use balanced ventilation or verify leakage rates with a blower door test.
- Extend HERS verification requirements to include verifying Home Ventilating Institute (HVI) certification of kitchen range hoods.

Lighting:

- JA8 has been revised to align testing requirements with current federal, state and ENERGY STAR test procedures
- Path lights, step lights, and lighting internal to drawers, cabinetry, and closets other than walk-in closets have new options for compliance