



California Energy Commission

2019 Building Energy Efficiency Standards

What's New for Residential

The most significant change in the *2019 Building Energy Efficiency Standards* affecting low-rise residential buildings is the **introduction of photovoltaic (PV) requirements in the prescriptive standards**. There are also significant changes related to indoor air quality requirements. These and other major changes include:

Mandatory Measures:

1. Walls with 2x6 framing require R-20 insulation (if wood-framed) or 0.071 maximum U-factor (§150.0(c)2).
2. Modification to the indoor air quality requirements of ASHRAE 62.2 are included for various building and dwelling unit configurations such as horizontally attached buildings, or central ventilation systems. Balanced or continuously operating supply or exhaust ventilation system required. HERS verification required for kitchen range hoods (§150.0(o)).
3. Minimum efficiency reporting value (MERV) 13, or equivalent, filters are required for heating/cooling systems and ventilation systems (§150.0(m)12).
4. Fan efficacy requirements are 0.45 watts/cubic feet per minute (CFM) or less for gas furnace air-handling units or 0.58 watts/CFM or less for air-handling units that are not gas furnaces. New fan efficacy requirement for small-duct high-velocity forced-air systems (§150.0(m)13B, C and D).

Prescriptive Compliance:

1. Added prescriptive Table 150.1-B for multifamily buildings (§150.1(c)).
2. Removed the attic/roof Option A with above-deck insulation (§150.1(c)1A).
3. Required wall U-factors in climate zones 1-5 and 8-16 are changed from 0.051 to 0.048 in single-family buildings; climate zones 6-7 remain at 0.065 (§150.1(c)1B).
4. Added a U-factor requirement for doors (§150.1(c)5).
5. Quality insulation installation (QII) is now a prescriptive requirement for all single-family buildings in all climate zones, and multifamily buildings in all climate zones except climate zone 7 (§150.1(c)1E).
6. Added prescriptive options for heat pump water heaters for newly constructed buildings, additions, and alterations (§150.1(c)8, §150.2(a)1D, and §150.2(b)1H).
7. New solar electric generation photovoltaic (PV) requirement (§150.1(c)14).

Performance Compliance:

All compliance software programs approved by the Energy Commission use the same compliance engine as the public domain software. Compliance is determined based on three components of an Energy Design Rating (EDR): (1) an efficiency EDR, (2) a PV and demand flexibility EDR, and (3) a total EDR (§150.1(b)1). More information is available in the *2019 Residential ACM Reference Manual* and Chapter 8 of the *2019 Residential Compliance Manual*.

Additions and Alterations:

1. Changed the prescriptive requirement for continuous insulation on an existing wall with wood siding; if siding is not removed, only cavity insulation is required (§150.2(a)1).
2. The prescriptive requirement for quality insulation installation (QII) is not required for additions that are 700 square feet or less (§150.2(a)1B).
3. Roof and ceiling insulation, and radiant barrier requirements for prescriptive additions with 700 square feet or less allow for R-38 in climate zones 1, 11-16; or R-30 in climate zones 2-10; and a radiant barrier in climate zones 2-15 (§150.2(a)1B).
4. Natural gas is available for newly constructed buildings if a gas service line can be connected to the site without a gas main extension. For additions, natural gas is available if a gas service line is connected to the existing building (§110.1).
5. More detailed information on additions and alterations in Chapter 9 of the *2019 Residential Compliance Manual*.