



# 2019 California Energy Code (CEC) Changes

## SUMMARY

Many sections in the residential requirements have been updated in new and altered homes with minor changes. Below lists all of the significant changes. Joint Appendix 11 has many changes for the Photovoltaic system requirements. The most changes to the nonresidential requirements are in lighting. There are many minor changes and additions.

## SIGNIFICANT CHANGES

NEW -CHANGE	CEC SECTION/TABLE NUMBER	COMMENTARY (RESIDENTIAL)	MASTER PLAN IMPACT YES - NO
<input type="checkbox"/> <input checked="" type="checkbox"/>	110.5	<b>Natural Gas Central Furnaces, Cooking Equipment, and Pool Spa Heaters, and Fireplaces:</b> Pilot Lights Prohibited. Indoor and outdoor fireplaces have been added to this list. Natural gas is available for new construction if 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	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	110.10(b)	<b>Interconnection Pathways.</b> Drawings must indicate a location for future inverters/ metering equipment/pathway for conduit between solar zones and electrical service. Central water heating system drawings need to indicate a reserved pathway for plumbing between solar zones and water heater.	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	150.0(c)	<b>Wall Insulation.</b> The following has changed. <ul style="list-style-type: none"> <li>• Wood-framed walls: 2 x 4 = U-factor 0.102 (R-13); 2 x 6 = U-factor 0.071 (R-20)</li> <li>• Non-framed walls: U-factor = 0.102</li> <li>• Mass (masonry) walls: Above-grade: To meet the Prescriptive requirements of Table 150.1-A or Table 150.1-B as a Mandatory measure (this does not apply to below-grade mass walls for which there are no mandatory requirements).</li> </ul>	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	150.0(e)	<b>Installation of fireplaces, decorative gas appliances and gas logs.</b> Language has been added referring to section 110.5. and Title 24, Part 11, Section 4.503 exception allowing for continuous pilot lights in any situation removed.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	150.0(m)12	<b>Air-Distribution and Ventilation System Ducts, Plenums and Fans.</b> Changes were made to the air filtration requirements. Filters are required for heating/cooling and ventilation systems. List provided in section for when an air filter is required. Exception has been added, heat and energy recovery vent system filter location may be down stream of thermal conditioned system if ancillary filtration is located upstream.	<input checked="" type="checkbox"/> <input type="checkbox"/>

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<input type="checkbox"/> <input checked="" type="checkbox"/>	150.0(m)12	<p><b>Space Conditioning System Airflow Rate and Fan Efficacy.</b> Single zone central forced air systems, fan efficacy changed to 0.45 W/CFM or less for gas furnace. Non-gas furnace shall be 0.58 or less. There are new fan efficacy requirements for small-duct high velocity force air systems.</p>	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/> <input type="checkbox"/>	150.0(o)	<p><b>Requirements for Ventilation and Indoor Air Quality.</b> All dwellings shall meet ASHRAE 62.2. All dwelling units shall comply with this section. 150.0(o)E, Multifamily units that are attached must use Equation 150.0-B and balanced ventilation system OR continuous supply/exhaust vent system with HERS verified envelope. Multifamily building central ventilation systems must be balanced per Equation 150.0-B, oversized no more than 20% using system balancing such as constant air regulation devices, orifice plates and variable speed central fans. HERS verification required for kitchen range hoods.</p>	<input checked="" type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	150.0(c)	<p><b>Prescriptive Standards/Component Package.</b></p> <ul style="list-style-type: none"> <li>• Table 150.1-B for multifamily buildings has been added.</li> <li>• Exterior framed, mass, and unframed walls must meet criteria found in Table 150.1-A or 150.1-B.</li> <li>• Climate Zones 1-5 and 8-16 are now 0.048 in single family dwelling units.</li> <li>• Doors must have a NFRC-rated U-factor <math>\leq 0.20</math>. Except for swinging doors between the garage and house that need to be fire rated.</li> <li>• QII is now a prescriptive requirement for all single-family dwellings in all the climate zones, and multi family buildings in all climate zones except for CZ7.</li> <li>• There are new requirements for heat pump water heaters in new construction, additions and alterations.</li> <li>• Photovoltaic system (PV) must meet the requirements per JA11.</li> </ul>	<input checked="" type="checkbox"/> <input type="checkbox"/>

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<input type="checkbox"/> <input checked="" type="checkbox"/>	150.2(a)	<p><b>Additions and alterations to existing low-rise residential buildings.</b> <i>Section 150.2(a) has many new and changed items below:</i></p> <ul style="list-style-type: none"> <li>• Photovoltaic systems are not required for additions.</li> <li>• QII is not required for additions under 700 square feet. If converting an existing, unconditioned space, then existing window/door headers and air barrier do not need to meet QII requirements.</li> <li>• Prescriptive requirement has changed for continuous insulation on an existing wall with wood siding.</li> <li>• Attic and radiant barrier requirements for prescriptive additions with 700 square feet or less allow for R-38 in CZ 1, 11-16 or R-30 in CZ 2-10, and radiant barrier in CZ 2-15.</li> <li>• Extended walls &amp; using existing walls(newly conditioned): 2x4 must use R-15; 2x6 must use R-21.</li> <li>• Mechanical Ventilation for Indoor Air Quality must meet all the requirements including mechanical ventilation airflow, no matter what size the addition is.</li> </ul>	<input checked="" type="checkbox"/> <input type="checkbox"/>

NEW - CHANGE	CEC SECTION/TABLE NUMBER	COMMENTARY (NONRESIDENTIAL)	MASTER PLAN IMPACT YES - NO
<input type="checkbox"/> <input checked="" type="checkbox"/>	110.6, NA6	<b>Fenestration Products &amp; Exterior doors.</b> U-factor, SHGC and VT Exception 1 has dropped the maximum square footage for the Reference Nonresidential Appendix NA6 COG formula to 200 square feet.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input type="checkbox"/>	120.1(b)	<b>High-rise residential buildings.</b> New ventilation requirements for high-rise residential dwelling units. Must be balanced system or a continuously operated supply or exhaust system. HERS blower door testing required for continuously operating ventilation systems.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input type="checkbox"/>	120.1(b)1	<b>High-rise residential buildings.</b> Air Filtration has been added with requirements for mechanical systems, system design and installation, air filter efficiency, air filter pressure drop, and air filter product labeling. There is also a section on Attached Dwelling Units. This must meet the requirements of ASHRAE standard 62.2 with the criteria from this section met.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input type="checkbox"/>	120.1(c)	<b>Non-Residential and hotel/motel buildings.</b> Naturally ventilated spaces must also use mechanical ventilation unless ventilation openings are permanently open or controlled to stay open during times the space is occupied. Mechanical ventilation must comply with Table 120.1A. Exhaust ventilation shall comply with Table 120.1 D.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	120.1	<b>Requirements for Ventilation and Indoor Air Quality.</b> Table 120.1-A has been updated to include minimum ventilation rate for more spaces. Table 120.1B added to list minimum exhaust rate for certain spaces.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	120.2(i)	<b>Required Controls or Space Conditioning Systems.</b> All cooling systems over 54,000 Btuh with an air economizer shall include a stand-alone or integrated FDD system in accordance with this section.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	120.6	<b>Condensers.</b> Section 120.6(a)4c through 120.6(a)4g, have been added to this section. This provides requirements for saturated condensing temperature, all condenser fans, minimum condensing set point, condensing temperature reset, and condenser efficiency. New efficacy and system control requirements for adiabatic condensers serving refrigerated warehouses and supermarkets.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	130.0(c)	<b>Lighting systems, equipment, and electrical power distribution systems.</b> Revised luminaire classification and wattage requirements. Updated sections 130.0(c) numbers 2 through 5. 130.0(c)6, an exception has been added, for power-over-Ethernet lighting systems, power provided to installed non-lighting devices may be subtracted from the total power rating of the power-over-Ethernet system.	<input type="checkbox"/> <input checked="" type="checkbox"/>

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<input type="checkbox"/> <input checked="" type="checkbox"/>	130.1	<b>Mandatory indoor lighting controls.</b> Manual area controls, multi-level lighting controls, and automatic daylighting control requirements updated. New occupancy sensor requirements for bathrooms. New requirements about accessibility of sensors. A new section for indoor lighting control interactions.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	130.2(c)	<b>Controls for outdoor lighting.</b> Controls for outdoor lighting has been updated. Automatic scheduling controls, you must be able to reduce outdoor lighting power 50%-90%, turn the lighting off during times it is not occupied and have at least two scheduling options for each luminaire with a 2-hour override function. Motion sensing must be able to reduce outdoor lighting power 50%-90% and turn the lighting off when unoccupied.	<input type="checkbox"/> <input checked="" type="checkbox"/>
<input type="checkbox"/> <input checked="" type="checkbox"/>	140.3(d) & 140.6(a)2L	<b>Daylighting Design Power Adjustment Factors (PAFs)</b> New prescriptive requirements and power adjustment factors (PAF) for daylighting devices including horizontal slats, light shelves and clerestory fenestrations.	<input type="checkbox"/> <input checked="" type="checkbox"/>