

PROPOSED ENERGY PROVISIONS OF THE CALIFORNIA GREEN BUILDING STANDARDS CODE

PART 11 OF THE CALIFORNIA BUILDING CODE
(also known as CalGreen)



CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown Jr., Governor

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Title 24, Part 11 Green Building Standards

The following text shall replace all existing text in the Energy Efficiency Divisions of the Voluntary Measure Appendices in the 2010 CALIFORNIA GREEN BUILDING STANDARDS CODE.

APPENDIX A4 - RESIDENTIAL VOLUNTARY MEASURES

DIVISION A4.2 ENERGY EFFICIENCY

Newly constructed low-rise residential buildings shall meet Sections 1 and 2:

1. **Prerequisites.** Each of the following efficiency measures is required:

A. ~~Home Energy Rating System (HERS) Design Rating.~~ A ~~HERS~~ design rating shall be computed by Compliance Software certified by the Commission for the Proposed Design Building and this rating shall be included in the Certificate of Compliance documentation;

B. **Quality Insulation Inspection (QII).** The QII procedures specified in Title 24, Part 6 shall be completed;

C. ~~High efficiency indoor lighting~~ **Lighting.** In each dwelling unit, all applicable requirements of Title 24, Part 6 Section 150.0(k), except as required below:

(1) All permanently installed indoor lighting shall be high efficacy as defined in and controlled as required by Title 24, Part 6 Section 150.0(k). ~~Permanently installed lighting shall be~~ and is installed in kitchens, bathrooms, utility rooms, and private garages at a minimum.

(2) All permanently installed lighting in bathrooms is controlled by a vacancy sensor.

Exception: One high efficacy luminaire with total lamp wattage rated to consume no greater than 26 watts of power is not required to be controlled by a vacancy sensor.

(3) Every room which does not have permanently installed lighting shall have at least one switched receptacle installed.

(4) Permanently installed night lights complying with Title 24, Part 6 Section 150.0(k)1E are allowed.

(5) Lighting integral to exhaust fans complying with Title 24, Part 6 Section 150.0(k)1F is allowed.

(6) For single family residences, all permanently installed outdoor lighting is high efficacy as defined in Title 24, Part 6 Section 150.0(k) and is controlled as required in Title 24, Part 6 Section 150.0(k)9Ai-iii. For multi-family residential buildings, all permanently installed outdoor lighting for private patios, entrances, balconies, and porches is high efficacy as defined in Title 24, Part 6 Section 150.0(k) and is controlled as required in Title 24, Part 6 Section 150.0(k)9Ai-iii.

D. ~~High efficacy exterior lighting.~~ All permanently installed exterior lighting mounted to the building shall be high efficacy as defined in and controlled as required by Title 24, Part 6.

~~ED.~~ **Maximum Hot Water Pipe Volume.**

(1) **Hot Water Distribution Systems without Recirculation:** The maximum volume of water contained in hot water distribution pipe between the water heater and any fixture fitting shall not exceed 32 ounces. Exception: Branches serving bathtubs without showers.

(2) **Hot Water Distribution Systems with Recirculation:** The maximum volume of water contained in each branch between the recirculation loop and a fixture fitting shall not exceed 16 ounces. Exception: Branches serving bathtubs without showers.

2. **Performance Standard.** One of the following advanced efficiency levels shall be met:

- A. **Tier I:** Buildings complying with the first level of advanced energy efficiency shall have an Energy Budget that is no greater than 85 percent or less than of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission. ~~There shall be a limit on calculated~~ ~~For single family residences, total net building electricity consumption placed on~~ of the Proposed Design Building ~~within~~ as calculated by the Compliance Software ~~that is equivalent to~~ shall be no greater than 10,000 kWh per year. A Proposed Design Building calculated by the Compliance Software to consume more than this amount of grid supplied electricity shall use additional energy efficiency measures or an on-site solar electric system to reduce the Proposed Design Building calculated total net building electricity consumption to a level that is at or below no greater than 10,000 kWh per year; or
- B. **Tier II:** Buildings complying with the second level of advanced energy efficiency shall have an Energy Budget that is no greater than 70 percent or less than of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission. ~~There shall be a limit on calculated~~ ~~For single family residences, total net building electricity consumption placed on~~ of the Proposed Design Building ~~within~~ as calculated by the Compliance Software ~~that is equivalent to~~ shall be no greater than 8,500 kWh per year. A Proposed Design Building calculated by the Compliance Software to consume more than this amount of grid supplied electricity shall use additional energy efficiency measures or an on-site solar electric system to reduce the Proposed Design Building calculated total net building electricity consumption to a level that is at or below no greater than 8,500 kWh per year.

Additions and alterations to low-rise residential buildings shall meet Sections 3 and 4:

3. **Prerequisites.** Each of the following efficiency measures is required if applicable to the addition or alteration building project:

A. **Quality Insulation Inspection (QII).** The QII procedures specified in Title 24, Part 6 shall be completed;

~~C.B. **High efficacy indoor lighting.** All permanently installed lighting shall be high efficacy as defined in and controlled as required by Title 24, Part 6. Permanently installed lighting shall be installed in kitchens, bathrooms, utility rooms, and garages at a minimum. Every room which does not have permanently installed lighting shall have at least one switched receptacle installed. Each ceiling fan provided by the builder shall be installed with an ENERGY STAR light kit; and Lighting.~~ In each dwelling unit, all applicable requirements of Title 24, Part 6 Section 150.0(k), except as required below:

(1) All permanently installed new indoor lighting shall be high efficacy as defined in and controlled as required by Title 24, Part 6 Section 150.0(k).

(2) All permanently installed new lighting in bathrooms is controlled by a vacancy sensor.

Exception: One high efficacy luminaire with total lamp wattage rated to consume no greater than 26 watts of power is not required to be controlled by a vacancy sensor.

(3) Every new room which does not have permanently installed lighting shall have at least one switched receptacle installed.

(4) Permanently installed new night lights complying with Title 24, Part 6 Section 150.0(k)1E are allowed.

(5) Lighting integral to new exhaust fans complying with Title 24, Part 6 Section 150.0(k)1F is allowed.

(6) For single family residences, all permanently installed new outdoor lighting is high efficacy as defined in Title 24, Part 6 Section 150.0(k) and is controlled as required in Title 24, Part 6 Section 150.0(k)9Ai-iii. For multi-family residential buildings, all permanently installed new outdoor lighting for private patios, entrances, balconies, and porches is high efficacy as defined in Title 24, Part 6 Section 150.0(k) and is controlled as required in Title 24, Part 6 Section 150.0(k)9Ai-iii.

~~D. **High efficacy exterior lighting.** All permanently installed lighting mounted to the building shall be high efficacy as defined in and controlled as required by Title 24, Part 6.~~

4. **Performance Standard.** One of the following advanced efficiency levels shall be met:

A. **Tier I:** Buildings complying with the first level of advanced energy efficiency shall have an Energy Budget that is no greater than (1) or (2) below, depending on the number of mechanical systems added or modified. Space heating systems, space cooling systems and water heating systems are each separate mechanical systems for the

purpose of complying with this requirement. If the addition or alteration changes the envelope with no change to mechanical systems, then no additional performance requirements above Part 6 are required.

(1) **For one and only one mechanical system:** No greater than 95 percent ~~or less than~~ of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission ~~for each mechanical system altered. Mechanical systems include heating, space cooling, and water heating systems. If the addition or alteration changes the envelope with no change to mechanical systems, then no additional efficiency measures above Part 6 are required; or~~

(2) **For two or more mechanical systems:** No greater than 90 percent of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission.

B. Tier II: Buildings complying with the second level of advanced energy efficiency shall have an Energy Budget that is no greater than (1) or (2) below, depending on the number of mechanical systems added or modified. Space heating systems, space cooling systems and water heating systems are each separate mechanical systems for the purpose of complying with this requirement. If the addition or alteration changes the envelope with no change to mechanical systems, then no additional performance requirements above Part 6 are required. ~~90 percent or less than the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission for each mechanical system altered. Mechanical systems include heating, space cooling, and water heating systems. If the addition or alteration changes the envelope with no change to mechanical systems, then no additional efficiency measures above Part 6 are required.~~

(1) **For one and only one mechanical system:** No greater than 90 percent of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission; or

(2) **For two or more mechanical systems:** No greater than 85 percent of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission.

Note: The Energy Budget is the sum of the TDV energy for energy use components included in the performance compliance approach for the Standard Design Building, as established in the Alternative Calculation Method Reference Manual approved by the Energy Commission, and calculated by the Compliance Software. For Energy Budget calculations high-rise residential and hotel/motel buildings are considered nonresidential buildings.

APPENDIX A5 - NONRESIDENTIAL VOLUNTARY MEASURES

DIVISION A5.2 ENERGY EFFICIENCY

Nonresidential, high-rise residential and hotel/motel buildings that include lighting and/or mechanical systems shall meet Sections 1 and 2. ~~Newly constructed buildings as well as additions and alterations are included in the scope of these sections. Buildings that are permitted without lighting or mechanical systems do not need to comply with Section 1.B. or Section 2, but do need to comply with Section 1.A.~~

1. **Prerequisites.** Each of the following efficiency measures is required for all applicable components of the building project:

A. **Outdoor Lighting.** ~~The~~ Newly installed outdoor lighting power shall be ~~equal to~~ ~~no greater than 90 percent or less than~~ of the Title 24, Part 6 calculated value of allowed outdoor lighting power.

B. **Service Water Heating in Restaurants.** Newly constructed ~~R~~restaurants 8,000 square feet or greater and with service water heaters rated 75,000 Btu/h or greater shall install ~~either~~ a solar water-heating system with a minimum solar savings fraction of 0.15.

Exceptions:

(~~a~~1)- Buildings with ~~A~~ a natural gas service water heater with a minimum of 95 percent thermal efficiency; ~~or~~

(~~b~~2)-Buildings where greater than 75 percent of the total roof area has annual solar access that is less than 70 percent. Solar access is the ratio of solar insolation including shade to the solar insolation without shade.

Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access. ~~A solar water heating system with a minimum solar savings fraction of 0.15.~~

2. **Performance Standard.** One of the following advanced efficiency levels shall be met:

A. **Tier I:** Buildings complying with the first level of advanced energy efficiency shall have an Energy Budget that is no greater than (1) or (2) below, depending on the type of energy systems included in the building project. If the newly constructed building, addition or alteration does not include lighting or mechanical systems, then no additional performance requirements above Part 6 are required.

(1) **For building projects that include lighting or mechanical systems, but not both:** No greater than 950 percent ~~or less than~~ of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission; or

(2) **For building projects that include lighting and mechanical systems:** No greater than 90 percent of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission.

B. **Tier II:** Buildings complying with the second level of advanced energy efficiency shall have an Energy Budget that is no greater than (1) or (2) below, depending on the type of energy systems included in the building project. If the newly constructed building, addition or alteration does not include lighting or mechanical systems, then no additional performance requirements above Part 6 are required. ~~80 percent or less than the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission.~~

(1) **For building projects that include lighting or mechanical systems, but not both:** No greater than 90 percent of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission; or

(2) **For building projects that include lighting and mechanical systems:** No greater than 85 percent of the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the Energy Commission.

Note: The Energy Budget is the sum of the TDV energy for energy use components included in the performance compliance approach for the Standard Design Building, as established in the Alternative Calculation Method Reference Manual approved by the Energy Commission, and calculated by the Compliance Software. For Energy Budget calculations high-rise residential and hotel/motel buildings are considered nonresidential buildings.
