

2022 RESIDENTIAL ENERGY CODE: Mandatory Measures for New Lighting

This form is required to be posted at the building site or made available for all appropriate inspections.

All new lighting installed in low-rise residential buildings such as single family, accessory dwelling units, duplexes, and half-plexes shall meet the following requirements:

| Required Lighting Controls for Installed Luminaires | | | | | |
|--|--|--|---|--|--|
| <i>The below table summarizes residential lighting control requirements. All installed luminaires must also meet the requirements in the following table. Portable lighting (lighting that is plugged in) is not subject to these regulations.</i> | | | | | |
| Location | Control Requirements | | | | Special Considerations |
| | Auto-Off Sensor | Dimmer | Pressure Switch | On/Off Switch | |
| Habitable Spaces: <i>Such as kitchens, bedrooms, living rooms, offices, dining rooms</i> | Vacancy /occupancy auto-off sensors are not required. | Lighting in habitable spaces must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. <ul style="list-style-type: none"> Vacancy/occupancy auto-off sensors are used. Luminaires connect to a circuit with controlled lighting power < 20 Watts. | Lighting internal to drawers and cabinetry with opaque fronts or doors require controls that turn lights off when the drawer or door is closed. This lighting does not require dimmers. | On/off switches must be readily accessible wall-mounted manual controls, allowing occupants easy control of lighting in the space. Ceilings fans with integral lighting can be controlled with remote control. | Exhaust fans must be controlled separately from lighting. Under-cabinet, under-shelf, display case lighting must be switched separately from ceiling-installed lighting. Energy Management Control Systems (EMCS) can be used if they meet Energy Code lighting control requirements and comply with §130.4 or §160.5(a)2 EMCS requirements. |
| Bathrooms Laundry or Utility Rooms Walk-in Closets Garages: <i>Attached or unattached</i> | At least one luminaire in each of these rooms must be controlled with vacancy/occupancy sensor with auto-off function. | Dimmers are not required. | | | Exhaust fans must be controlled separately from lighting. Under-cabinet, under-shelf, display case lighting must be switched separately from ceiling-installed lighting. Energy Management Control Systems (EMCS) can be used if they meet Energy Code lighting control requirements and comply with §130.4 or §160.5(a)2 EMCS requirements. |
| Other Non-habitable Spaces: <i>Such as attic spaces, non-walk-in closets, detached storage buildings</i> | Vacancy/occupancy auto-off sensors are not required. | Dimmers are not required when lighting is < 5 Watts. | | | |
| Navigation Lighting: <i>Night lights, step lights, path lights</i> | | | | | |
| Blank Electrical Boxes: <i>>5 ft above floor</i> | Each box must be controlled by a vacancy sensor, occupancy sensor, dimmer, low voltage wiring or a fan speed control. | | | | The number of blank electrical boxes must be no greater than the number of bedrooms. |
| Outdoors: <i>Lighting attached to a single-family homes, duplexes or townhomes or to any other building on the properties Lighting controlled from within multifamily dwelling units</i> | <ul style="list-style-type: none"> Sensor types allowed include: <ul style="list-style-type: none"> Photocell and motion sensor OR Photocell and time switch OR Astronomical time clock OR EMCS that works like any of the above Controls that override to ON are not allowed unless the override automatically returns the automatic control to normal operation within 6 hours. Single-family, internally illuminated address signs must meet nonresidential sign lighting power requirements in §140.8 or use no more than 5 Watts. | | | On/off switches are required to allow all other outdoor control functions to work automatically. | Landscape lighting is exempt. Lighting not attached to buildings on single-family, duplex or townhome properties is exempt. Multifamily buildings and property lighting not controlled from within dwelling units has separate requirements per §§160.5(c) and 170.2(e)6. |

VERIFICATION STATEMENT: I, the undersigned, verify for _____ (project address) that any new lighting installed shall comply with the mandatory features and devices listed above, as required for compliance with the 2022 California Energy Code section 150.0(k)

Signature: _____
 Owner Or Designer Or Contractor

Date: _____

2022 RESIDENTIAL ENERGY CODE

Mandatory Measures for New Lighting

All new lighting installed in low-rise residential buildings such as single family, accessory dwelling units, junior accessory dwelling units, duplexes, and half-plexes shall meet the following requirements.

Definitions

- **Additions:** Includes any addition of new conditioned square footage and volume, where new luminaires are installed for the first time
- **Alterations:** Includes modifications where luminaires are replaced, moved, or added via a building permit
- **Lamp:** Lighting industry term for a light source, such as a light bulb or fluorescent tube
- **Light Source:** The component in a luminaire that actually provides illumination, such as an LED lamp or a fluorescent tube (also called a lamp or light bulb)
- **Luminaire:** A complete lighting unit consisting of a lamp and the parts designed to:
 - Distribute the light (lens, reflector)
 - Position and protect the lamp (housing)
 - Connect the lamp to the power supply (ballast, transformer; also commonly referred to as a light fixture)
- **Permanently Installed Lighting:** Includes hard wired ceiling luminaires, chandeliers, vanity lamps, wall sconces, under-cabinet luminaires, luminaires in drawers/cabinets, night lights, step and path lights, and any other luminaire that is attached to the building, or buildings, on the property
- **Portable Lighting:** Lighting that is not permanently installed or hard-wired but uses a plug-in connection for electric power (for example, a freestanding floor or table lamp)
 - The Energy Code does not apply to portable lighting in dwelling units. Requirements for portable lighting are covered by the Appliance Efficiency Regulations.
- **Separable Light Source:** A light source that can be replaced without cutting wires or soldering, such as pin-based or screw-in LED lamps
- **Vacancy or Occupancy Sensor:** An automatic-off lighting control, which includes a manual-off option

Table 1. Residential Lighting Requirements for Additions and Alterations

| These Types of Projects Typically <u>Will</u> Require a Building Permit to meet Title 24, Part 6 Lighting Requirements | These Types of Projects Typically <u>Will Not</u> Require a Building Permit to meet Title 24, Part 6 Lighting Requirements |
|--|---|
| <ul style="list-style-type: none"> ▪ When adding onto a home, the new areas of the home must meet the applicable requirements. ▪ When remodeling a home, only the work being done with a permit must meet the applicable requirements. ▪ Existing recessed ceiling luminaires with screw-base sockets do not need to be replaced when JA8 trim kits or lamps approved for recessed or enclosed light fixtures are used. | <ul style="list-style-type: none"> ▪ Changing light bulbs ▪ Changing lighting controls ▪ Spaces not being renovated in a renovation project ▪ When a project involves the following: <ul style="list-style-type: none"> • Replacing existing lighting fixtures • Moving existing lighting fixtures to a new location |

MANDATORY FEATURES AND DEVICES:

(Single Family / Accessory Dwelling Unit / Junior Accessory Dwelling Units / Duplex / Half-plex)

All residential lighting must be high efficacy. The definition of high efficacy luminaires includes all light sources identified under Table 2, below, for compliant luminaire types. Installed luminaires classified in the Energy Code tables as having high luminous efficacy do not require JA8-certification. All other light sources, including those used in recessed ceiling downlight luminaires, are required to be certified as JA8. Table 2, below, outlines these requirements in more detail. Installers should confirm and document that only certified products are installed. Use the Modernized Appliance Efficiency Database System (MAEDbS) tool to find certified products at <https://cacertappliances.energy.ca.gov/login.aspx>

Table 2. Requirements for Indoor and Outdoor Light Sources

All installed luminaires must meet the requirements in the following table:

| | High Luminous Efficacy Light Sources | Light Sources Required to be JA8 Certified <i>(Products certified as JA8-2016/JA8-2016-E, JA8-2019/JA8-2019-E or JA8-2022/JA8-2022-E as specified in Joint Reference Appendix JA8 can be used for projects subject to the 2022 Energy Code.)</i> |
|----------------|--|--|
| Indoor | Pin-based linear fluorescent with electronic ballast Pin-based compact fluorescent with electronic ballast Inseparable Solid State Lighting (SSL) luminaires with colored light sources for decorative lighting purpose Ceiling fan light kits subject to federal appliance regulations | JA8-certified light sources are required for the following: LED luminaires with white, integral light sources that are not decorative Screw-base LED lamps Pin-based LED lamps |
| Outdoor | High-intensity discharge light sources such as pulse-start metal halide and high-pressure sodium light sources Luminaires with hardwired high frequency generator and induction lamp LED light sources that are installed outdoors | Any light source not otherwise listed JA8-2022-E-certified lamps are required for the following: <ul style="list-style-type: none"> • Enclosed or recessed lamps and luminaires • Recessed ceiling downlights |

Table 2: Requirements for Indoor and Outdoor Light Sources (Content adapted from Table 150.0-A and Table 160.5-A)

Energy Forms for Single-Family Buildings

In addition to permits, lighting projects in single-family homes require the following forms, called certificates, for installation. The forms are available on the Energy Code Ace Get Forms landing page: <https://www.energycodeace.com/content/get-forms.ccc>

There are no Certificate of Compliance (CF1R) form requirements for single-family indoor and outdoor lighting. Mandatory notes should be included in the design documents.

A Certificate of Installation (CF2R) must be provided on-site by the installing contractor or contractors before final inspection. If HERS measures are required for the overall project (typically associated with HVAC and IAQ systems), then the CF2R must be registered with a HERS provider. If there are no HERS measures associated with the project, then the CF2R must be provided but does not need to be registered.

| HERS Requirements | Project Type | Certificates of Compliance | Certificates of Installation* | Certificates of Verification |
|--|--|-----------------------------------|---|-------------------------------------|
| When Project Overall Requires HERS Registration | New Construction, Additions, Alterations | Not applicable | CF2R-LTG-01-E | Not applicable |
| When Project Does Not Require HERS Registration | Additions | Not applicable | CF2R-ADD-02-E allowed, or use CF2R-LTG-01-E | |
| | Alterations | Not applicable | CF2R-ALT-05-E allowed, or use CF2R-LTG-01-E | |

*Certificates of Installation must be completed and signed by the installing contractor and made available for the building department's final inspection.