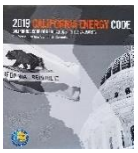
2019 RESIDENTIAL LIGHTING STANDARDS



The 2019 Energy Standards requires that ALL lighting in residential buildings, high-rise residential dwelling units, and hotel and motel guest rooms be high efficacy. The following is summary for low-rise residential building mandatory lighting requirements from 2019 California Energy Code section 150.0(k) effective on Jan 1, 2020 (see https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency for more details).

RESIDENTIAL APPLICATION	LUMINAIRE REQUIREMENTS
KITCHENS	All kitchen lighting shall be high efficacy. Permanently installed lighting in cabinets shall be high efficacy. Undercabinet Lighting shall be controlled separately from ceiling-installed lighting such that one can be turned on without turning on the other.
BATHROOMS, GARAGES, LAUNDRY ROOMS, AND UTILITY ROOMS	All lighting shall be high efficacy. Each room must have at least 1 luminaire is controlled by either a vacancy sensor OR an occupant sensor. If an occupant sensor is installed, it must be configured in vacancy sensor mode before final. Exhaust fans shall be controlled separately from lighting systems or utilize a device where lighting can be turn OFF while the fan is running.
HALLWAYS AND CLOSETS	Lighting for closet less than 70 ft^2 and hallways shall be high efficacy. Lighting for closets larger than 70 ft^2 must be high efficacy AND controlled by a vacancy sensor or dimmer.
OTHER ROOMS OR AREAS	Shall be high efficacy AND controlled by either by a vacancy sensor or dimmer.
OUTDOOR LIGHTING	All permanently installed outdoor lighting shall be high efficacy AND must be controlled by a manual on and off switch AND use one of these automatic control types: ▪ Photocell and motion sensor, OR ▪ Photocell and automatic time switch control, OR ▪ Astronomical time clock that automatically turn outdoor lighting off during daylight hours, OR ▪ Energy Management Control System (EMCS) that provides the functionality of an astronomical time clock. EMCS does not have an override or bypass that allows the luminaries to be always on, and is programmed to automatically turn the outdoor lighting off during daylight hours.
NIGHT LIGHTS, STEP LIGHTS, AND PATH LIGHTS	Night lights, step lights, and path lights shall be high efficacy AND require a vacancy sensor if rated greater than 5 watts and emit more than 150 lumens.
LIGHT SOURCES IN DRAWERS, CABINETS, AND LINEN CLOSETS	All light sources internal to drawers, cabinetry or linen closets shall be high efficacy AND controlled by vacancy sensors if rated greater than 5 watts and emit more than 150 lumens unless they are equipped with controlled that automatically turn the light off when closed.
LIGHTING INTEGRAL TO EXHAUST FANS	Lighting integral to exhaust fans (except when installed by the manufacturer in the kitchen hoods), shall meet the applicable requirements of section 150.0(k).
RECESSED DOWNLIGHT LUMINAIRES IN CEILINGS	▪ Shall be high efficacy, listed for zero clearance insulation contact (IC), labeled as airtight (AT), sealed with a gasket or caulk between the housing and ceiling, allow ballast or driver maintenance and replacement to be readily accessible to building occupants from below the ceiling without requiring the cutting of holes in the ceiling, shall not contain screw base sockets (E26), comply with JA8 elevated temperature requirements for enclosed or recessed luminaires. ▪ For alterations of existing ceiling-recessed luminaire with screw based socket must use new JA8-compliance trim kits or lamps designed for use with recessed down-lights or luminaires.
BLANK ELECTRICAL BOXES	The number of electrical boxes that are more than 5 feet above the finish floor and do not contain a luminaire or other device shall be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
ELECTRONIC BALLASTS FOR FLUORESCENT LAMPS	Ballasts for fluorescent lamps rated 13 watts or greater shall be electronic and shall have an output frequency no less than 20 kHz.
INTERIOR LIGHTING SWITCHING DEVICES AND CONTROLS	▪ All forward phase cut dimmers used with LED light sources shall comply with NEMA SSL 7A. ▪ Exhaust fans shall be controlled separately from lighting system except for an exhaust fan with integral lighting where the lighting system can be manually turned OFF while the fan is running. ▪ Lighting shall have readily accessible wall-mounted controls that permit manual on/off switching. ▪ No controls shall by pass the dimmer, occupant sensor or vacancy sensor function. ▪ Energy Management Control System (EMCS) may be used to comply with vacancy sensor or dimmer requirements. ▪ Multiscene programmable controller may be used to comply with dimmer requirements.