



RESIDENTIAL LIGHTING, SWITCHES AND RECEPTACLES

1. PERMIT INFORMATION:

- The repair of or installation of new lighting, switches or receptacles requires an electrical permit.
- A Building Permit may be issued only to a State of California Licensed Contractor or the Homeowner.
- If the work is performed by the Homeowner personally or by his/her workers, and an inspection indicates the work cannot be completed satisfactorily, then a licensed contractor must perform the work.
- If the Homeowner hires workers, State Law requires the Homeowner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

2. INSTALLATION REQUIREMENTS:

- Building Codes:** All work must comply with the 2016 California Residential Code (CRC) or 2016 California Building Code, 2016 California Electrical Code (CEC), 2016 California Mechanical Code (CMC), 2016 California Plumbing Code (CPC), 2016 California Energy Code, 2016 California Green Building Code and 2016 Milpitas Municipal Code (MMC).
- Equipment must be installed in accordance with it's listing and the manufacturer's installation instructions.
- New lighting or receptacles may not overload existing circuits.
- Branch circuits shall be designed in accordance with CEC Article 210.
- If new circuits or additional loads are being added, including adding new outlets, and the service is less than 100 amps, the service panel must be upgraded to a minimum 100 amps, 3-wire [CEC 230.79(C)].
- LIGHTING:
 - Exterior lighting shall be shielded to prevent glare or direct illumination on public streets or adjacent properties (MMC XI-10-54.17).
 - All fixtures installed in wet locations shall be marked "Suitable for Wet Locations. All fixtures installed in damp locations shall be marked "Suitable for Wet Locations" or "Suitable for Damp Locations". [CEC 410.10(A)]
 - Cord-connected fixtures, chain, cable or cord-suspended fixtures, lighting track, pendants, or ceiling-suspended (paddle) fans shall not be located within a zone measured 3 feet horizontally and 8 feet vertically from the top of the bathtub rim or shower stall threshold. This zone is all encompassing and includes the zone directly over the tub or shower stall. Fixtures located within the actual outside dimension of the bathtub or shower to a height of 8 feet vertically from the top of the bathtub rim or shower threshold shall be marked for damp locations, or marked for wet locations where subject to shower spray. [CEC 410.10(D)]

- Fixtures installed in clothes closets shall comply with the following: (CEC 410.16)
 - Fixtures shall be listed and one of the following types:
 - ◆ A surface-mounted or recessed incandescent fixture with a completely enclosed lamp.
 - ◆ A surface-mounted or recessed fluorescent fixture.
 - ◆ Surface-mounted fluorescent or LED fixtures identified as suitable for installation within the storage area.
 - Incandescent fixtures with open or partially enclosed lamps and pendant fixtures or lampholders shall not be permitted.
 - The minimum clearance between fixtures installed in clothes closets and the nearest point of a storage space shall be as follows:
 - ◆ 12 inches for surface-mounted incandescent or LED fixtures with a completely enclosed light source installed on the wall above the door or on the ceiling.
 - ◆ 6 inches for surface-mounted fluorescent fixtures installed on the wall above the door or on the ceiling.
 - ◆ 6 inches for recessed incandescent or LED fixtures with a completely enclosed light source installed in the wall or ceiling.
 - ◆ 6 inches for recessed fluorescent fixtures installed in the wall or the ceiling.
 - ◆ Surface-mounted fluorescent or LED fixtures shall be permitted to be installed within the storage space where identified for this use.

□ RECEPTACLES:

- In every kitchen, family room, dining room, living room, parlor, library, den, sunroom, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets shall be installed so that no point along the floor line in any wall space is more than 6 feet, measured horizontally, from an outlet in that space. Wall space shall include the following: [CEC 210.52(A)]
 - Any wall 2 feet or more in width (including space measured around corners) and unbroken along the floor line by doorways, fixed cabinets, fireplaces and similar openings.
 - The space occupied by fixed panels in exterior walls, excluding sliding panels.
 - The space afforded by fixed room dividers such as freestanding bar-type counters or railings.
 - Receptacles in floors shall not be counted as part of the required number of receptacle outlets unless located within 18 inches of the wall.
 - See page 3 for a plan view of the location of dwelling unit receptacles in a typical room meeting the requirements of CEC Section 210.52(A).
- Receptacles installed in the following locations must be GFI protected: [CEC 210.8(A)]
 - Bathrooms.
 - Garages, and also accessory buildings not intended as habitable rooms and limited to storage areas, work areas, and areas of similar use.

- Outdoors.
- Crawl spaces & unfinished basements.
- Kitchens where the receptacles are installed to serve countertop surfaces.
- Sinks where the receptacles are installed within 6 feet of the outside edge of the sink.
- Bath tubs or showers where receptacles are installed within 6 feet of the outside edge of the tub or shower stall.
- Laundry areas (even if there is no sink).
- Outlets (including receptacles, switches, lights, and hard-wired smoke detectors) installed in **kitchens**, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, **laundry areas**, or similar rooms or areas of dwelling units shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit (210.12).
- All 120 volt, 15 and 20 amp receptacles shall be listed tamper-resistant.
- See Kitchen Remodel and Bathroom Remodel handouts for additional information regarding electrical work in these rooms.

3. **ENERGY REQUIREMENTS:**

- All lighting must comply with all applicable mandatory measures of the California Energy Code.
- Outdoor lighting permanently mounted to the building shall be high efficacy fixtures (e.g. fluorescent) or controlled by a motion sensor in addition to one of the following: a photocontrol, astronomical time clock or Energy management control system (EMCS). Photocontrol, astronomical clock and EMCS shall not have an override or bypass switch (CEnC Section 150(k)).
- If adding or replacing lighting in the kitchen, a minimum of 50% of the total rated lighting wattage (based on the maximum allowed for each fixture) shall be high efficacy fixtures (e.g. fluorescent) switched separately from any low efficacy lighting.
- If adding or replacing lighting in garages, laundry & utility rooms, closets over 70 square feet or bathrooms, the lighting shall be high efficacy fixtures (e.g. fluorescent) or be controlled by a manual-on occupant sensor complying with CEnC Section 119(j). Such occupant sensor shall not have a control that allows the luminaire to be turned on automatically or that has an override allowing the luminaire to be always on. Permanently installed luminaries, that are not high efficacy luminaries, shall be allowed in closets less than 70 square feet.
- If adding or replacing lighting in other rooms (hallways, dining rooms, family rooms, living rooms and bedrooms), the lighting shall be high efficacy fixtures (e.g. fluorescent) or a controlled by a manual-on occupant sensor complying with CEnC Section 119(j) or dimmer switch complying with CEnC Section 119(k). Such motion sensor shall not have a control that allows the luminaire to be turned on automatically or that has an override allowing the luminaire to be always on.
- Recessed lighting in insulated ceilings must be rated for direct insulation contact (IC), certified as airtight construction (AT), and must have a sealed gasket or caulking between the housing and ceiling to prevent the flow of heated or cooled air out of the living areas and into the ceiling cavity (CEnC 150(k)12).

Title 24 Energy Compliance Reports: The following forms must be filled out and provided to the inspector at time of final inspection:

- Installation Certificate CF2R-LTG-01.

4. SMOKE ALARMS, CARBON MONOXIDE ALARMS & SPARK ARRESTERS:

In single family and multi-family residences (including townhomes, condominiums and apartments), installation of smoke alarms, carbon monoxide alarms and spark arresters is required prior to the final inspection as follows: (CRC R314 & R315 and CBC 907.2.11)

Smoke Alarms listed in accordance with UL 217, listed and approved by the California State Fire Marshal and tested & maintained in accordance with the manufacturer's instructions shall be installed in existing or new dwellings as follows: **in each sleeping room, outside each separate sleeping area in the immediate vicinity of the bedrooms and on each story of the dwelling.** In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level. Alarms that no longer function shall be replaced. New smoke alarms that are solely battery powered must have a non-replaceable and non-removable battery capable of powering the smoke alarm for at least 10 years. Fire alarm systems shall be permitted in lieu of smoke alarms if they comply with the provisions of NFPA 72. The installation of smoke alarms and smoke detectors shall also comply with the following requirements:

1. Smoke alarms shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.
2. Smoke alarms shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F or exceed 100°F.
3. Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, alarms shall be mounted on an inside wall.
4. Smoke alarms shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance, except Ionization smoke alarms with an alarm-silencing switch or Photoelectric smoke alarms shall be permitted to be installed 10 feet or greater from a permanently installed cooking appliance and Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 foot distances would prohibit the placement of a required smoke alarm or smoke detector. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance can be installed in accordance with their listing.
5. Smoke alarms shall be installed not less than a 3 foot horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by the code.
6. Smoke alarms shall not be installed within a 36 inch horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.
7. Smoke alarms shall not be installed within a 36 inch horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.
8. Where stairs lead to other occupied levels, alarm shall be located so that smoke rising in the stairway cannot be prevented from reaching the alarm by an intervening door or obstruction.
9. For stairways leading up from a basement, alarms shall be located on the basement ceiling near the entry to the stairs.
10. For tray-shaped ceilings (coffered ceilings), alarms shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 inch vertically down from the highest point.
11. Smoke alarms installed in rooms with joists or beams shall comply with the requirements of NFPA 72.
12. Heat alarms and detectors installed in rooms with joists or beams shall comply with NFPA 72.

Carbon Monoxide Alarms listed in accordance with UL 2034, or combination carbon and smoke alarm listed in accordance with UL2034 and UL217, listed and approved by the California State Fire Marshal and installed and maintained in accordance with the manufacturer's instructions shall be installed in existing or new dwellings having a fuel-fired appliance, fireplace or an attached garage with an opening communicating with the dwelling as follows: **outside each separate sleeping area in the immediate vicinity of bedroom(s) and on every occupiable level of a dwelling unit.** If there is a fuel-burning appliance located with a bedroom or its attached bathroom, an alarm shall be located within the bedroom.

Power supply: Smoke and carbon monoxide alarms shall receive their primary power from the building wiring and shall be equipped with a battery back-up. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection. Smoke and carbon monoxide alarms are permitted to be solely battery operated (carbon monoxide alarms can also be plug-in with battery back-up) in existing buildings where no construction is taking place; in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure unless there is an attic or crawl space available which could provide access for building wiring without the removal of interior finishes; where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck; or when work is limited to the installation, alteration or repairs of plumbing or mechanical systems or the installation, alteration or repair of electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure.

Interconnection: Where more than one smoke or carbon monoxide alarm is required to be installed within an individual dwelling or sleeping unit, the alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit, except interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind; where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure unless there is an attic or crawl space available which could provide access for interconnection without the removal of interior finishes; where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck; or when work is limited to the installation, alteration or repairs of plumbing, mechanical or electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure.

Spark arresters: When a permit has been issued and the value of the work exceeds \$1,000, a spark arrester must be installed on all fireplace chimneys if one does not already exist, per MMC Section II-3-2.06. Spark arresters shall be constructed in conformance with CRC Section 1003.9.2.

5. **WATER CONSERVING FIXTURES:**

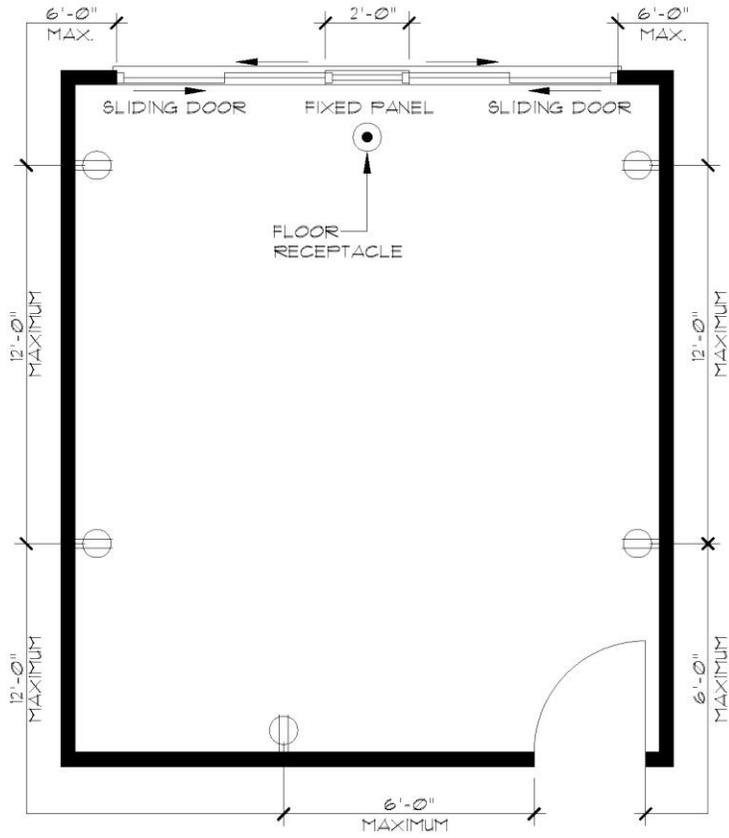
- When required, all non-compliant plumbing fixtures must be replaced. Refer to the attached "*Water Conserving Certificate of Compliance*" handout for details on when this is required.

6. **INSPECTION PROCEDURES:**

- At least two inspections are required. The rough inspection should be scheduled when the new fixtures are located, but before power is supplied to them AND before any wiring inside walls/ceilings are covered. The final inspection should be scheduled after all the work is complete. For each inspection, the Permit Card with the Energy Compliance Report forms completely filled and out attached, and the Approved Job Copy of the Drawings (if any) must be presented to the inspector. Permits expire 180 days after issuance or last inspection passed, whichever is the latest.

7. **QUESTIONS:**

- If you have any questions regarding your project contact the Building & Safety Department at (408) 586-3240.



SAMPLE RECEPTACLES SPACING



EPA Renovation, Repair and Painting Rule

Does the RRP Rule apply to you?

The rule applies to all jobs in pre-1978 housing (i.e. "Target Housing") and child occupied facilities where more than 6 square feet per room or 20 square feet outside will be "disturbed" by worker(s) being compensated for the job. This includes landlords.

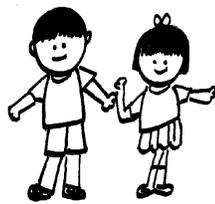
Where does the RRP Rule Apply?

The rule applies in Target Housing and Child-Occupied Facilities*



Target Housing - A house or apartment (including mobile homes) built before January 1, 1978 except for:

- 1) 0-bedroom units (like dorm rooms or studio apartments)
- 2) housing that is officially designated for the elderly or the handicapped
- 3) housing that has been tested by a State Certified Lead Inspector and found to be free of lead based paint.



Child Occupied Facility - A building, or portion of a building, constructed prior to 1978, visited by the same child, 6 years of age or under, on at least 2 different days within any week, provided that each day's visit lasts at least 3 hours, the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Such facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms.

What does the RRP Rule Require? *California Law requires lead-safe work practices for all pre-1978 buildings.

1. **Pamphlet Distribution**—Contractors must give clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job.
2. **Individual Certification**—At least one RRP Certified Renovator is required at each job site. Certification involves taking a 1-day class from an EPA Accredited Training Provider.
3. **Firm Certification**—In addition to individual certification, each firm, agency or non-profit must also become RRP certified.
4. **On-the-Job-Training**—RRP Certified Renovators are required to train all non-certified people at the job site. Note: Contractors who work on buildings receiving Federal assistance, including Section 8, must have everyone trained in the classroom, or have a state-certified lead in construction supervisor present.
5. **Paint Testing**—The rule requires contractors to either test paint they will disturb BEFORE beginning a job, or assume that it is lead-based. In California contractors may not test paint. Instead, current law requires that they must assume that all surfaces in all structures built before 1978 contain lead based paint. The only people who can test for lead-based paint in California are State Certified Lead Inspectors/Risk Assessors.
6. **Use Lead Safe Work Practices**—The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than six (6) square feet per room inside or more than twenty (20) square feet of painted surfaces outside.
7. **Cleaning Verification**—At the end of each job, contractors are required to do a "cleaning verification" to make sure they cleaned up properly.

FOR ADDITIONAL INFORMATION, VISIT
The Environmental Protection Agency www.epa.gov/getleadsafe
Get the Lead Out Coalition www.getleadout.org



WATER CONSERVING CERTIFICATE OF COMPLIANCE

Project Address: _____ Permit Number: _____

If the Building Inspector cannot physically inspect all plumbing fixtures in the building or cannot verify compliance due to lack of product markings or data, this Certificate of Compliance may be signed by the property owner(s) and given to the Building Inspector. The Building Inspector must inspect and verify all plumbing fixtures or receive this Certificate prior to final inspection.

California Civil Code Section 1101 requires the following. **Note this law applies only to properties built and available for use or occupancy on or before January 1, 1994.**

On or before January 1, 2017, for any **one and two family** residential building, all non-compliant plumbing fixtures shall be replaced with water-conserving plumbing fixtures (regardless of whether property undergoes alterations or improvement).

As of January 1, 2014, for any **multi-family** (more than two units) residential building and any **commercial** building, all non-compliant plumbing fixtures shall be replaced with water-conserving plumbing fixtures in the following circumstances:

1. Additions, if the sum of concurrent building permits by the same permit applicant would increase the floor area of the building by more than 10%, all non-compliant fixtures must be upgraded throughout the building. This includes all common area plumbing fixtures as well as fixtures in private individual units or tenant unit owned by the same owner.
2. Alterations or improvements, if total construction cost in the building permit exceeds \$150,000, all non-compliant fixtures that service the specific area of the alteration or improvement will be required to be upgraded.
3. Any alteration to a room that contains non-compliant plumbing fixtures will require all fixtures in that room to be upgraded.

On or before January 1, 2019, for any **multi-family** (more than two units) residential building and any **commercial** building, all non-compliant plumbing fixtures shall be replaced with water-conserving plumbing fixtures (regardless of whether property undergoes alterations or improvement).

The requirements of this law shall not apply to any of the following:

1. The requirements of this law shall be postponed one year from the date of issuance of a demolition permit for the building. If the building is not demolished after one year, the provision of this law shall apply even though the demolition permit is still in effect or a new demolition permit has been issued.
2. Registered historical sites.
3. Real property for which a licensed plumber certifies in writing that, due to the age or configuration of the property or its plumbing, installation of water-conserving plumbing fixtures is not technically feasible.
4. A building for which water service is permanently disconnected.
5. The property was built and available for use or occupancy after January 1, 1994.

I/We, the owner(s) of this property, certify under penalty of perjury:

- All existing plumbing fixtures meet the minimum requirements of water-conserving as noted below.
- All non-compliant plumbing fixtures have been replaced with water-conserving plumbing fixtures in accordance with Civil Code Sections 1101.1 through 1101.8, the current California Plumbing Code and California Green Building Standards Code, and manufacturer's installation requirements, and that the water-conserving plumbing fixtures comply with the requirements as noted below.
- I/We are exempt for reason #____ listed above. If for reason #3, attached is a letter from a licensed plumber.

Signature of Property Owner(s)

Print Name(s)

Date: _____

The following non-compliant fixtures shall be replaced with water-conserving fixtures as noted: (CGBC 4.303 & 5.303)

- Existing water closets that exceed 1.6 gallons per flush shall be replaced with one that has an effective flush volume not to exceed **1.28 gallons per flush**. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type toilets. The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.
- Existing urinals that exceed 1.0 gallons per flush shall be replaced with one that uses not more than an average of **0.125 gallons per flush** (0.47 L) for wall mounted and **0.5 gallons** (1.89 L) for other types of urinals.
- Existing single shower heads that exceed 2.5 gallons per minute shall be replaced with one that has a maximum flow rate of not more than **2.0 gallons per minute** at 80 psi. Shower heads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.
- When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed **2.0 gallons per minute** at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. A hand-held shower shall be considered a showerhead.
- Existing residential lavatory faucets that exceed 2.2 gallons per minute shall be replaced with one that has a maximum flow rate not to exceed **1.2 gallons** (4.54 L) per minute at 60 psi. The minimum flow rate shall not be less than 0.8 gallons (3.03 L) per minute at 20 psi.
- Existing lavatory faucets in residential common and public use areas (outside of dwellings or sleeping units) and in commercial areas that exceed 2.2 gallons per minute shall be replaced with one that has a maximum flow rate not to exceed **0.5 gallons per minute** at 60 psi.
 - Metering faucets shall have a maximum flow rate of **0.20 gallons per cycle commercial** or **0.25 residential**.
- Existing kitchen faucets that exceed 2.2 gallons per minute shall be replaced with one that has a maximum flow rate not to exceed **1.8 gallons per minute** at 60 psi. Residential kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.
 - Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

Lighting – Single Family Dwellings

CEC-CF2R-LTG-01-E (Revised 03/15)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF INSTALLATION		CF2R-LTG-01-E
Lighting – Single Family Dwellings		(Page 1 of 5)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City	Zip Code

A. Types of Installed Lighting and Controls		Y or N
Select Yes or No according to whether your work on the project includes each of the following types of lighting and controls.		
01	Controls for any interior or outdoor lighting	
02	Luminaires in any interior room or outdoor	
03	luminaires recessed into ceilings	
04	Light Emitting Diode (LED) luminaires	
05	Kitchen lighting scope	
06	Lighting internal to cabinets	
07	Bathroom lighting	
08	Lighting in garages, laundry rooms, or utility rooms	
09	Lighting in rooms other than a kitchen, bathroom, garage, laundry room, or and utility room	
10	Outdoor lighting for single family residential	
11	Internally illuminated address signs	
12	Lighting in garages for 8 or more vehicles	

B. Lighting Controls	
01	150.0(k)2A: High efficacy luminaires are switched separately from low efficacy luminaires.
02	150.0(k)2B: Exhaust fans are switched separately from lighting systems, or can be switched OFF in accordance with EXCEPTION
03	150.0(k)2C: Luminaires are switched with readily accessible controls that permit luminaires to be manually switched ON and OFF
04	150.0(k)2D: Lighting controls and equipment are installed in accordance with manufacturer's instructions
05	150.0(k)2E: No controls are installed that bypass a dimmer or vacancy sensor function where that dimmer or vacancy sensor has been installed to comply with Section 150.0(k)
06	150.0(k)2F: Lighting control devices have been Certified to the Energy Commission as applicable; lighting control systems comply with the applicable requirements in Section 110.9.
07	150.0(k)2G: Energy Management Control Systems used to comply with dimmer requirements provide the functionality of a dimmer in accordance with Section 110.9, meet the installation certificate requirements in Section 130.4, the EMCS requirements in Section 130.5, and comply with all other applicable requirements in Section 150.0(k)2.
08	150.0(k)2H: Energy Management Control Systems used to comply with vacancy sensor requirements in Section 150.0(k) provide the functionality of a vacancy sensor in accordance with Section 110.9, meet the installation certificate requirements in Section 130.4, the EMCS requirements in Section 130.5, and comply with all other applicable requirements in Section 150.0(k)2.
09	150.0(k)2I: A multi-scene programmable controller used to comply with dimmer requirements provides the functionality of a dimmer in accordance with Section 110.9, and complies with all other applicable requirements in Section 150.0(k)2.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

C. Luminaires (Lighting Fixtures)	
01	150.0(k)1(A-C): For compliance with Section 150.0(k), all installed luminaires have been classified as high efficacy or low efficacy in accordance with the applicable requirements in Section 130.0(c), and in accordance with TABLE 150.0-A or TABLE 150.0-B
02	150.0(k)1D: Ballasts for fluorescent lamps rated 13 watts or greater are electronic.
03	150.0(k)1E: Night lights are rated to consume no more than five watts of power
04	150.0(k)1F: Lighting integral to exhaust fans meets all applicable requirements of Section 150.0(k)
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	



CERTIFICATE OF INSTALLATION		CF2R-LTG-01-E
Lighting – Single Family Dwellings		(Page 2 of 5)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City	Zip Code

D. Recessed Luminaires in Ceilings	
01	150.0(k)8A: Listed for zero clearance insulation contact (IC)
02	150.0(k)8B: Has label certifying air tight
03	150.0(k)8C: Sealed with a gasket or caulk between the luminaire housing and ceiling, and all air leak paths between conditioned and unconditioned spaces are sealed with a gasket or caulk; and
04	150.0(k)8D: Ballasts for compact fluorescent luminaires certified to the Commission in accordance with Section 110.9; and
05	150.0(k)8E: Allows ballast maintenance and replacement to be readily accessible to building occupants from below the ceiling without requiring the cutting of holes in the ceiling.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

E. LED Luminaires	
01	TABLE 150.0-A: The LED luminaires are classified as low efficacy because they have NOT been Certified to the Energy Commission, or they do not comply with all of the following requirements, as applicable: Sections 110.9(e), 130.0(c)9, 150.0(k)1A, TABLE 150.0-A, and Reference Joint Appendix JA8.
02	150.0(k)1A: The LED luminaires are classified as high efficacy because they ARE Certified to the Energy Commission by the manufacturer in accordance with all of the following requirements, as applicable: Sections 110.9(e), 130.0(c)9, 150.0(k)1A, TABLE 150.0-A, and Reference Joint Appendix JA8.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

F. Kitchen Lighting	
01	150.0(k)1C: The wattage of permanently installed luminaires should be determined as specified in Section 130.0(c).
02	150.0(k)1C: In the kitchen, Any electrical boxes finished with a blank cover count as 180 watts of low efficacy lighting.
03	Method <(a), (b), or (c) as selected above> from Section 150(k)3A: Compliance demonstrated using Method (a) because only high efficacy luminaires have been installed in the kitchen. Compliance demonstrated using Method (b). At least 50% of the installed watts from permanently installed high efficacy. Total A ≥ Total B in Installed Wattage Calculation Table (below) Compliance demonstrated with additional low efficacy wattage allowance of EXCEPTION to 150(k)3
04	<If method (c) is selected, this additional field will be displayed> EXCEPTION to 150.0(k)3: Additional low efficacy watts may be allowed when all luminaires in the kitchen are controlled by a vacancy sensor or dimmers, and 1. See 150.0(k)2A where high efficacy and low efficacy luminaires must be separately controlled. 2. See 150.0(k)2G where EMCS may be used as a dimmer; Section 150.0(k)2H where EMCS may be used as a vacancy sensor; or, 150.0(k)2I where multi-scene programmable controller may be used as a dimmer. NOTES: Compliance demonstrated using Method (c). Kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in Installed Wattage Calculation Table in Method (b) (above) in addition to Additional Low Efficacy Wattage Calculation Table (below).
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	



CERTIFICATE OF INSTALLATION		CF2R-LTG-01-E
Lighting – Single Family Dwellings		(Page 3 of 5)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City	Zip Code

This Table is applicable only if Kitchen Lighting using Method (b) or (c) is selected in Table Q.

Method (b) Total Wattage Calculation								
Luminaire Type	Luminaire (Fixture)		Quantity			Total Watts		
	High Efficacy Watts	Low Efficacy Watts				High Efficacy	Low Efficacy	
			X	=				
			X	=				
			X	=				
			X	=				
			X	=				
			X	=				
	Complies with method (b) if Total A ≥ Total B							
						A	≥ B	

This Table is applicable only if Kitchen Lighting Using Method (c) is selected in Table F above

Method (c) Total Additional Low Efficacy Wattage Calculation			
(see footnote)			
Watts from Method (b)		Additional Watts Low Efficacy	Total Low Efficacy Watts Allowed
High Efficacy	Low Efficacy		
1. Insert 50 if house is ≤ 2,500 square feet; Insert 100 if house is > 2,500 square feet.			

Lighting – Single Family Dwellings

CEC-CF2R-LTG-01-E (Revised 03/15)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF INSTALLATION		CF2R-LTG-01-E
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Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City	Zip Code

G. Lighting Internal to Cabinets01 150.0(k)4: Permanently installed lighting internal to cabinets uses ≤ 20 watts of power per linear foot of illuminated cabinet.**The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.****H. Lighting in Bathrooms**

01 150.0(k)5A: A minimum of one high efficacy luminaire is installed in each bathroom; and

02 150.0(k)5B: All other lighting installed in each bathroom is high efficacy or controlled by vacancy sensors.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.**I. Lighting in Garages, Laundry Rooms, and Utility Rooms**

01 150.0(k)6: All installed luminaires are high efficacy AND controlled by vacancy sensors

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.**J. Lighting other than in Kitchens, Bathrooms, Garages, Laundry Rooms, and Utility Rooms**

01 150.0(k)7: Installed lighting is high efficacy

02 150.0(k)7: Installed lighting is low efficacy and controlled by dimmers or vacancy sensors

03 150.0(k)7: Exempt lighting is in closets that are < 70 sq ft.04 150.0(k)7: Exempt lighting is in detached storage buildings that are $< 1,000$ sq ft.**The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.****K. Address Signs**

01 150.0(k)10A: Internally illuminated address signs. Internally illuminated address signs shall either:

- A. Comply with Section 140.8. Applicable nonresidential sign lighting compliance forms shall also be submitted, or
- B. Consume no more than 5 watts of power, determined according to Section 130.0(c).

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.**L. Single Family Outdoor Lighting**

01 150.0(k)9A: High efficacy outdoor lighting is installed

02 150.0(k)9A: Low efficacy outdoor lighting is installed, and meets all of the lighting control requirements as specified in Section 150.0(k)9A, as summarized below:

- i. Controlled by a manual ON and OFF switch; and
- ii. Controlled by a motion sensor; and
- iii. Controlled by Photocontrol, Astronomical time clock, or EMCS.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Installation documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA/HERS Certification Identification (If applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT		
I certify the following under penalty of perjury, under the laws of the State of California:		
<ol style="list-style-type: none"> The information provided on this Certificate of Installation is true and correct. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation, and attest to the declarations in this statement (responsible builder/installer), otherwise I am an authorized representative of the responsible builder/installer. The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations, and the installation conforms to the requirements given on the plans and specifications approved by the enforcement agency. I reviewed a copy of the Certificate of Compliance approved by the enforcement agency that identifies the specific requirements for the scope of construction or installation identified on this Certificate of Installation, and I have ensured that the requirements that apply to the construction or installation have been met. I will ensure that a registered copy of this Certificate of Installation shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a registered copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy. 		
Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:	
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone	Date Signed:

CF2R-LTG-01-E User Instructions

There are two version of the residential lighting certificate of installation. This version, the CF2R-LTI-01-E, is primarily used for demonstrating compliance with the residential lighting standards for single family dwellings.

The LTI-01 shall also be used to demonstrate compliance with the residential lighting requirements for high-rise residential dwelling units; outdoor lighting that is attached to a high-rise residential or hotel/motel building, and is separately controlled from the inside of a dwelling unit or guest room; fire station dwelling accommodations; hotel and motel guest rooms; and, dormitory and senior housing dwelling accommodations. When using the CF2R-LTI-01-E to demonstrate compliance with the lighting in the dwelling units, compliance with lighting that is not in the dwelling units, such as lighting in common areas, shall be demonstrated using the nonresidential lighting compliance documentation.

The other version of the residential lighting certificate of installation, the CF2R-LTI-02-E, is used for demonstrating compliance with the residential lighting standards for low-rise multi-family dwellings. The primary difference between the LTI-02 and the LTI-01 is that the LTI-02 includes additional requirements for demonstrating compliance with residential outdoor lighting, and common areas associated with low-rise multi-family dwelling units.

Table A

This table is used to identify the scope of the work being covered by the responsible person signing this document. One person may be responsible for all of the measures in this table, or several people may each be responsible for only a portion of the measures. If several people are responsible, each person must separately fill out this certificate of installation for those measures for which they are responsible. In some situations, such as for alterations and additions, only some of the measures may be included in the total scope of work.

For rows 1 through 4 and rows 6 through 12 - insert 'Y' for each measure that is included in the scope of work, and insert 'N' for each measure that is not included in the scope of work.

Row 5, if the scope of the work includes kitchen lighting, identify which method(s) are used to comply, as follows:

- Pick from the list “only high efficacy luminaires (method a)” if appropriate. If this method is picked, do not pick either of the other two pick options; or,
- Pick from the list “at least 50% of installed watts from permanently installed high efficacy lighting (Method (b), and,
- If also appropriate, pick “an additional low efficacy lighting allotment (Method (c))”

Table B

This table is a list of mandatory residential lighting control requirements. Any lighting controls installed must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document.

Table C

This table is a list of mandatory residential luminaire requirements. Any luminaires installed must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document. Additionally, some luminaires, covered in Tables D and E, have additional mandatory requirements.

Table D

This Table is displayed only if residential recessed lighting is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for residential recessed luminaires, which are in addition to the applicable residential luminaire requirements listed in Table C. Any recessed luminaires installed must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document.

Table E

This Table is displayed only if residential LED lighting is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for residential LED luminaires, which are in addition to the applicable residential luminaire requirements listed in Tables C and D. Any LED luminaires installed must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document.

Table F

This Table is displayed only if residential kitchen lighting is selected in Table A as being included in the scope of work. This table includes a list of mandatory requirements for Kitchen lighting. Any Kitchen lighting installed must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document.

For the residential kitchen lighting power requirements, this certificate of installation provides three different methods for demonstrating compliance, as follows:

- Method (a) is used when only high efficacy luminaires have been installed in the kitchen.
- Method (b) is used when at least 50% of the installed watts from permanently installed high efficacy
- Method (c) is used when additional low efficacy watts are allowed because all luminaires in the kitchen are controlled by a vacancy sensor or dimmers, in addition to separately controlling the high efficacy and low efficacy luminaires.

Method (a) does not require a calculation table because only high efficacy luminaires have been installed. Therefore, there are no requirements to demonstrate that at least 50% of the installed lighting power is from high efficacy luminaires.

Method (b) requires the Installed Wattage Calculation Table to be filled out, as follows:

- Use a separate row for each different type of lighting installed in the kitchen.
- Luminaire Type – is an identifying name for the type of luminaire
- High Efficacy Watts – use this cell only if the luminaire on this row is classified as high efficacy according to Tables 150-A or B. Luminaire wattage shall be determined in accordance with Section 130.0(c).
- Low Efficacy Watts – use this cell only if the luminaire on this row is classified as low efficacy according to Tables 150-A or B. Luminaire wattage shall be determined in accordance with Section 130.0(c).
- Quantity – is the number of the type of luminaire being described on this row.
- Total Watts, High Efficacy – if the luminaire described on this row is high efficacy, multiply the high efficacy watts times the quantity. Add the sum total of all of the rows of total high efficacy lighting together on the bottom of this column.
- Total Watts, Low Efficacy – if the luminaire described on this row is low efficacy, multiply the low efficacy watts times the quantity. Add the sum total of all of the rows of total low efficacy lighting together on the bottom of this column.

The kitchen lighting complies with the lighting power requirements if the sum total watts of high efficacy lighting is \geq the sum total watts of low efficacy lighting. However, the kitchen may qualify for additional watts of low efficacy lighting, if also demonstrated by filling out the Method (c) table.

Method (c) requires the Total Additional Low Efficacy Wattage Calculation Table to be filled out, as follows:

- Use only one row for this calculation.
- Watts from Method (b), High Efficacy – is the sum total high efficacy watts taken from Method (b), Installed Wattage Calculation Table.
- Watts from Method (b), Low Efficacy – is the sum total low efficacy watts taken from Method (b), Installed Wattage Calculation Table.
- Additional Watts Low Efficacy – Enter 50 if the house is \leq 2,500 square feet, or enter 100 if the house is $>$ 2,500 square feet
- Total Low Efficacy watts allowed is the sum total of high efficacy watts taken from Method (b), plus the additional watts of low efficacy lighting documented in this table.

The residential kitchen lighting complies with the lighting power requirements if the sum total of all low efficacy watts installed is \leq total low efficacy watts allowed.

By signing this document the installer certifies that the requirements for residential kitchen lighting wattage allowances have been met.

Table G

This Table is displayed only if internal cabinet lighting is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for internal cabinet lighting. Any permanently installed lighting internal to cabinets must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document.

Table H

This Table is displayed only if residential bathroom lighting is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for bathroom lighting. Lighting for each bathroom applicable to the scope of the work being covered by the responsible person signing this document must separately meet these requirements.

Table I

This Table is displayed only if residential garage, laundry room and utility room lighting is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for garage, laundry room and utility room lighting. Lighting for each garage, laundry room and utility room applicable to the scope of the work being covered by the responsible person signing this document must separately meet these requirements.

Table J

This Table is displayed only if lighting in rooms other than kitchen, bathroom, residential garage, laundry room and utility room is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for lighting in residential rooms other than kitchen, bathroom, garage, laundry room and utility room. These mandatory requirements apply to any room not defined in Section 100.1 of the

Standards as a residential kitchen, residential bathroom, residential garage, residential laundry room or residential utility room. Lighting for each room that is other than a kitchen, bathroom, garage, laundry room or utility room applicable to the scope of the work being covered by the responsible person signing this document must separately meet these requirements.

Table K

This Table is displayed only if lighting for residential internally illuminated address signs is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for internally illuminated address signs. Lighting for each internally illuminated address sign applicable to the scope of the work being covered by the responsible person signing this document must separately meet these requirements.

Table L

This Table is displayed only if residential outdoor lighting is selected in Table A as being included in the scope of work. This table is a list of mandatory requirements for single family outdoor lighting. Any installed outdoor lighting must meet those requirements which are applicable to the scope of the work being covered by the responsible person signing this document.

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