CITY OF MILPITAS
Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240
www.ci.milpitas.ca.gov

RESIDENTIAL BATHROOM REMODEL

1. PERMIT INFORMATION:

- ❑ The remodeling of an existing bathroom requires a Permit. A Combination permit can be obtained that includes building, electrical, mechanical and plumbing permits all in one.
- ❑ A Permit may be issued only to a State of California Licensed Contractor with the proper license classification 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).
- ❑ **On-line permits can only be obtained for bathroom remodels that do not include any modifications to the existing wall and/or ceiling framing, or the relocation of any fixtures.**
- ❑ See the *"Design Guidelines for Residential Bathroom Remodel"* handout for sample plans for the remodeling of a bathroom.
- ❑ **NOTE:** Please save all fixture boxes for the inspector to verify the GPM. See "Fixtures" below and the *"Water Conserving Certificate of Compliance"* for additional information.
- ❑ Before saw cutting or breaking a slab-on-grade, verify if it is a post tension slab. Cutting a tendon in these slabs can be very dangerous and expensive to repair.
- ❑ If any changes will be made to the existing framing, or if any fixtures will be relocated, drawings must be submitted and approved and the permit obtained in person from the Permit Center, Building & Safety Department, 455 E. Calaveras Blvd. The drawings required may include:
  - Floor plan: Indicate walls, windows (size and type), and door sizes. Show adjoining rooms and label the use of each room. Show location of all cabinets (upper and lower) and plumbing fixtures and show their dimensions.
  - Ceiling plan: If needed to show ceiling heights, electrical and mechanical installed in the ceiling.
  - Structural: If any walls are being removed or relocated, show existing framing that shows the walls were not bearing, or if they were, how the support is being replaced.

- Electrical, mechanical & plumbing: Show electrical receptacles, electrical fixtures with switching, and ventilation. May be included on the floor plan.

- Details and Notes: Provide all details and notes required to explain the work.

- All drawings must be signed by the person preparing them.

3. ROOM REQUIREMENTS:

- ❑ **Ceilings:** Bathrooms and toilet rooms must have a ceiling height of not less than 7 feet, except at the center of the front clearance area for fixtures (12" in front of the fixture) the ceiling height may be 6 feet 8 inches. (CRC R305.1).

- ❑ **Clearances:** No water closet shall be set closer than fifteen (15) inches from its center to any side wall or obstruction (cabinet, bathtub, shower), nor closer than thirty (30) inches center to center to any similar fixture. The clear space in front of any water closet shall not be less than 24 inches. There shall also be a minimum clear space in front of lavatories and shower doors of 24 inches. (CPC 402.5 & Policy BDP-BLG29).

- ❑ **Safety glazing:** Glazing in enclosures for or walls facing hot tubs, whirlpools, saunas, steam rooms, **bathtubs and showers** where the bottom exposed edge of the glazing is less than 60 inches measured vertically above any standing or walking surface shall be safety glazing. Exception: Glazing that is more than 60 inches measured horizontally and in a straight line, from the waters edge of a hot tub, whirlpool or bathtub. (CRC R308.4.5)

- ❑ **Shower & tub wall finish:** Bathtub and shower floors and walls above bathtubs with installed shower heads and in shower compartments shall be finished with a nonabsorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet above the floor. (CRC R307.2).

- ❑ **Backer Boards:** Materials used as backers for wall tile in tub and shower areas and wall panels in shower areas shall be of materials listed in CRC Table R702.4.2, and installed in accordance with the manufacturer's recommendations (CRC R702.4.2). ASTM C1178 Glass Mat Gypsum Backing Panel, ASTM C1278 Fiber-Reinforced Gypsum Panels, ASTM C1288 or ISO 8336 Category C Nonasbestos Fiber-Cement Backer Board, and ASTM C1325 Nonasbestos Fiber Mat Reinforced Cementitious Backer Units are the types of backer board materials allowed by CRC Table R702.4.2.

- ❑ **Water-resistant gypsum backing board:** Gypsum board used as the base or backer for adhesive application of ceramic tile or other required nonabsorbent finish material shall conform to ASTM C 1396 (Not allowed under ceramic tile in tub/shower or shower walls, see backer boards above), C 1178 or C1278. Use of water-resistant gypsum backing board shall be permitted on ceilings where framing spacing does not exceed 12 inches on center for 1/2-inch-thick or 16 inches for 5/8-inch-thick gypsum board. Water-resistant gypsum board shall not be installed over a Class I or II vapor retarder in a shower or tub compartment. Cut or exposed edges, including those at wall intersections, shall be sealed as recommended by the manufacturer. (CRC R702.3.8)

    - Limitations: Water resistant gypsum backing board shall not be used where there will be direct exposure to water, or in areas subject to continuous high humidity (CRC R702.3.8.1).

4. ELECTRICAL REQUIREMENTS – Installation of any new or replacement of any existing electrical shall comply with the following**. NOTE: All bathroom remodels must include upgrading the existing receptacles to have GFCI protection if not already existing.**

- ❑ Listed or labeled equipment shall be installed in accordance with the manufacturer's requirements [CEC 110.3(B)]. Lighting controls and equipment shall be installed in accordance with the manufacturer's instructions (CEnC 150.0(k)2)

- ❑ New lighting or receptacles added may not overload existing circuits or panels (CEC 210.23).

- ❑ Ground-fault circuit-interrupter protection for personnel shall be provided for cables installed in electrically heated floors of bathrooms and in hydromassage bathtub locations [CEC 424.44(G)].

- ❑ If new circuits or additional loads are being added, including adding new outlets, and the existing service is less than 100 amps, the service panel must be upgraded to a minimum 100 amps [CEC 230.79(C)].

- ❑ **Lighting:**

  - At least one wall switch-controlled (or motion-on occupancy sensor controlled) lighting outlet shall be installed in every bathroom [CEC 210.70(A)(1)].

  - Each bathroom must have at least one high-efficacy light fixture (CEnC 150.0(k)5).

  - A list of High efficacy lighting certified as meeting the requirements of the Energy Code is available at www.appliances.energy.ca.gov.

  - High-efficacy lighting must be switched separately from low-efficacy lighting (CEnC 150.0(k)2).

  - Low-efficacy lighting in bathrooms must be controlled by vacancy sensors (CEnC 150.0(k)5).

  - Fixtures recessed into ceilings shall be listed for zero clearance insulation contact (IC), have a label that certifies that the fixture is airtight with air leakage less than 2.0 CFM at 75 Pascal's (AT), be sealed with a gasket or caulk between the luminaire housing and ceiling, and shall have all air leak paths between conditioned and unconditioned spaces sealed with a gasket or caulk (CEnC 150.0(k)8).x

  - Lighting that is integral to ceiling fans must be separately switched from the exhaust fan (CEnC 150.0(k)2).

  - Fixtures installed in wet or damp locations shall be installed so that water cannot enter or accumulate in wiring compartments, lamp holders, or other electrical parts. All fixtures installed in wet locations shall be marked, "Suitable for Wet Locations". [CEC Section 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. Other fixtures located in this zone shall be listed for damp locations, or wet locations if subject to shower spray. [CEC 410.10(D)]

  - Switches shall not be installed within wet locations in tub or shower spaces unless installed as part of listed tub or shower assembly [CEC 404.4)(C)].

- ❑ **Branch Circuits:** At least one 20-ampere branch circuit shall be provided to supply bathroom receptacle outlet(s) [CEC 210.11(C)(3)]. Such circuits shall have no other outlets, except where the circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied in accordance with CEC 210.23(A)(1) and (A)(2).

- ❑ **Receptacles:**

  - At least one (1) wall receptacle outlet shall be installed in each bathroom within 36 inches of the outside edge of each basin. The receptacle outlet shall be located on a wall or partition that is adjacent to the basin or basin countertop. [CEC Section 210.52(D)]

  - All 120 volt, 15 and 20 ampere receptacles installed in bathrooms shall be protected with GFCI [CEC 210.8(A)(1)].

  - Receptacles shall not be installed within or directly over a bathtub or shower stall [CEC406.8(C)].

  - All 120 volt, 15 and 20 amp receptacles shall be listed tamper-resistant.

- ❑ **Hydromassage Bathtubs:**

  - Hydromassage bathtubs and their associated electrical components shall be on an individual branch circuit and protected by a readily accessible ground-fault circuit interrupter. All 125-volt, single-phase receptacles not exceeding 30 amperes and located within 6 feet measured horizontally of the inside walls of a hydromassage tub shall be protected by a ground-fault circuit interrupter. (CEC 680.71).

  - Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish (CEC 680.73).

  - All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together using a copper bonding jumper, insulated, covered, or bare, not smaller than 8 AWG solid (CEC 680.74).

5. PLUMBING REQUIREMENTS:

- ❑ **Approvals:** All pipe, fittings, traps, fixtures, materials and devices used in a plumbing system shall be listed or labeled (third-party certified) by a listing agency and shall be free of defects (CPC 301.1).

- ❑ **Workmanship:** Plumbing systems shall be installed in a manner conforming to the CPC, applicable standards, and the manufacturer's installation instructions. Burred ends of all pipe and tubing shall be reamed to the full bore of the pipe or tube, and all chips shall be removed. (CPC 309.0).

- ❑ **Fixtures:** Fixtures shall be set level and in proper alignment with reference to adjacent walls. See room requirements above for minimum clearances.

- ❑ **Water closets:** The effective flush volume **shall not 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. Toilet flanges must be installed above floor level and secured with corrosion-resistant fasteners. [(CGBC 4.303.1.1 & CPC 403.2.1(1)].

- ❑ **Water closet tanks:** Water closet tanks shall be equipped with a ballcock. The ballcock shall be installed with the critical level at least one (1) inch above the full opening of the overflow pipe. In cases where the ballcock has no hush tube, the bottom of the water supply inlet shall be installed one (1) inch above the full opening of the overflow pipe. (Per CPC 2013 Sec.603.5.2)

- ❑ **Lavatories:** Lavatory faucets shall have a maximum flow rate **not to exceed 1.2 gallons** per minute at 60 psi. The minimum flow rate shall not be less than 0.8 gallons per minute at 20 psi. (CGBC 4.303.1.4.1)

- **Shower heads:** Single shower heads shall have a **maximum flow rate of 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 Shower heads. When a shower is served by more than one shower head, the combined flow rate of all shower heads 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 at time. A hand-held shower shall be considered a showerhead. (CGBC 4.303.1.3.1 and 4.303.1.3.2)

- **Shower door:** Shower doors must not encroach into the required thirty (30) inch circle. Shower doors shall open outward so as to maintain a minimum twenty-two (22) inch unobstructed opening for egress. (CPC 408.5).

- **Shower size:** The shower compartment shall have a minimum finished interior of 1024 square inches and shall be capable of encompassing a 30 inch diameter circle. If using a square shower pan, it will have to be a min. of 34" x 34" in order to meet the 1024 square inch requirement. The required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The minimum area and dimensions shall be maintained to a point 70 inches above the shower drain outlet with no protrusions other than the fixture valve or valves, shower head, soap dishes, shelves, and safety grab bars or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the 30 inch circle. Where an existing bathtub is replaced by a shower receptor, it may have minimum overall dimensions of 30 inches in width and 60 inches in length. (CPC 408.6).

- **Shower receptor:** Shower receptors shall be constructed of vitrified china or earthenware, ceramic tile, porcelain-enameled metal, fiberglass, resin, or of such other material that conforms to acceptable standards as referenced in CPC Table 14-1. Each shower receptor shall be an approved type and be so constructed as to have a finished dam, curb or threshold that is at least one (1) inch lower than the sides and back of such receptor. In no case shall any dam or threshold be less than two (2) inches or more than nine (9) inches in depth when measured from the top of the dam or threshold to the top of the drain. Each such receptor shall be provided with an integral nailing flange to be located where the receptor meets the vertical surface of the finished interior of the shower compartment. The flange shall be watertight and extend vertically a minimum of one (1) inch above the top of the sides of the receptor. The finished floor of the receptor shall slope uniformly from the sides toward the drain not less than one-quarter (1/4) inch per foot nor more than one-half (1/2) inch per foot. Thresholds shall be of sufficient width to accommodate a minimum twenty-two (22) inch door. Shower doors shall open so as to maintain a minimum twenty-two (22) inch unobstructed opening for egress. (CPC 408.7 & 408.5).

- **On-site built-up shower receptors** shall be constructed as follows (CPC 408.7):

  - Shower receptors built directly on the ground shall be watertight and shall be constructed from approved-type dense, nonabsorbent and non-corrosive materials. Each such receptor shall be adequately reinforced, shall be provided with an approved flanged floor drain designed to make a watertight joint in the floor, and shall have smooth, impervious, and durable surfaces.

  - When shower receptors are built above-ground, the subfloor and rough side of walls to a height of not less than three (3) inches above the top of the finished dam or threshold shall be first lined with sheet plastic*, lead*, or copper*, or shall be lined with other durable and watertight materials.

    *Lead and copper subpans or linings shall be insulated from all conducting substances other than their connecting drain by fifteen (at) pound asphalt felt or its equivalent, and no lead pan or liner shall be constructed of material weighting less than four (4) pounds per square foot. Copper pans or liners shall be at least No. 24 B & S Gauge (0.02 inches). Joints in lead pans or liners shall be burned. Joints in copper pans or liners shall be soldered or brazed. Plastic pans shall not be coated with asphalt-based materials.

- Nonmetallic shower sub pans or linings may be built up on the job site of not less than three (3) layers of standard, grade fifteen (15) pound asphalt-impregnated roofing felt. The bottom layer shall be fitted to the formed subbase and each succeeding layer thoroughly hot-mopped to that below. All corners shall be carefully fitted and shall be made strong and watertight by folding or lapping and each corner shall be reinforced with suitable webbing hot-mopped in place. All folds, laps, and reinforcing webbing shall extend at least four (4) inches in all directions from the corner, and all webbing shall be of approved type and mesh, producing a tensile strength of not less than fifty (50) psi in either direction. Nonmetallic shower subpans or linings may also consist of multilayers of other approved equivalent materials suitably reinforced and carefully fitted in place on the job site as elsewhere required in this section.

- Linings shall be properly recessed and fastened to approved backing so as not to occupy the space required for the wall covering and shall not be nailed or perforated at any point that may be less than one (1) inch above the finished dam or threshold. An approved-type subdrain shall be installed with every shower subpan or lining. Each such sub-drain shall be of the type that sets flush with the subbase and shall be equipped with a clamping ring or other devices to make a tight connection between the lining and the drain. The subdrain shall have weep holes into the waste line. The weep holes located in the subdrain clamping ring shall be protected from clogging.

- All lining materials shall be pitched one-quarter (1/4) inch per foot to weep holes in the subdrain of a smooth and solidly formed subbase. All such lining materials shall extend upward on the rough jambs of the shower opening to a point no less than three (3) inches above the top of the finished dam or threshold and shall extend outward over the top of the rough threshold and be turned over and fastened on the outside face of both the rough threshold and the jambs.

- All shower lining materials shall conform to approved standards acceptable to the Building Official.

- ❑ **Tests for Shower Receptors:** Shower receptors shall be tested for watertightness by filling with water to the level of the rough threshold. The test plug shall be so placed that both upper and under sides of the subpan shall be subjected to the test at the point where it is clamped to the drain. (CPC 408.7.1).

- ❑ **Valve location:** At showers and tub/shower combinations, valves shall be located on sidewall of shower compartment to allow bather to adjust the valves prior to stepping into the shower spray (CPC 408.9).

- ❑ **Water Supply Riser:** Every water supply riser from the shower valve to the showerhead outlet, whether exposed or not, shall be securely attached to the structure (CPC 408.10).

- ❑ **Bathtubs and Whirlpool Bathtubs:** Unless otherwise listed, all bathtubs and whirlpool bathtubs shall comply with the following (CPC 409):

  - A removable panel shall be provided to access and remove the pump. Whirlpool pump access located in the crawl space shall be located no more than twenty (20) feet from an access door, trap door, or crawl hole.

  - The circulation pump shall be located above the crown weir of the trap.

  - The pump and the circulation piping shall be self-draining to minimize water retention in accordance with standards referenced in CPC Table 14-1.

  - Suction fittings on whirlpool bathtubs shall comply with the listed standards.

  - The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120^{O}F. The water heater thermostat shall not be considered a control for meeting this provision.

- **Scalding protection:** Showers and tub/shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection. These valves shall conform to ASSE 1016. (CPC 409.4).

- **Drains and vents:** Only approved pipe and fittings shall be installed. Piping shall be sized according to their Drainage Fixture Count loads and comply with the following:

  - Drain and vent materials shall be cast iron, galvanized steel, galvanized wrought iron, copper, brass, Stainless Steel 304 or 316L, Schedule 40 ABS or PVC DWV plastic pipe, or extra strength vitrified clay pipe (CPC 701.1 & 903.1).

    - No galvanized wrought-iron or steel pipe shall be used under ground and shall be kept at least six (6) inches above ground.

    - ABS and PVC DWV piping shall be installed in accordance with Installation Standard 5 & 9.

    - Vitrified clay pipe and fittings shall not be used above ground and shall be kept at least twelve (12) inches below ground.

    - Copper tube shall have a weight of not less than copper drainage tube type DWV.

    - Stainless steel 304 pipe and fittings shall not be installed under ground and shall be kept at least six (6) inches above ground.

  - Drainage piping systems shall be sized in accordance with CPC Section 703.0. Vent piping systems shall be sized in accordance with CPC Section 904.0.

    - Water closets require minimum 3" trap and drain and 1 ½" vent.

    - Bathtubs require minimum 1 ½" trap and drain and 1 ¼" vent.

    - Showers require minimum 2" trap and drain and 1 ¼" vent.

    - Lavatories require minimum 1 ¼" trap (1 ½" if set of two) and drain and 1 ¼" vent.

  - The aggregate cross-sectional area of all vents through the roof shall not be less than that of the building sewer (CPC 904.1).

  - Vent pipes shall extend through its flashing at the roof not less than six (6) inches above the roof and twelve (12) inches from a vertical wall or surface, not less than ten (10) foot from or three (3) foot above any openable window, door, opening, air intake, or vent shaft, nor less than three (3) feet from a property line (CPC 906.0).

  - When joining ABS to PVC, provide a solvent cement transition joint using listed transition solvent cement (CPC 705.10.4).

  - Must use proper fittings for changes of direction of drainage piping in accordance with CPC 706.1.

  - Drainage piping shall be installed with a minimum slope ¼" per foot (CPC 708.1).

  - Where a fixture is installed on a floor level that is lower than the next upstream manhole cover of the public sewer, a backwater valve shall be installed in accordance with CPC Section 710.0.

- Cleanouts must be accessible, located at the upper terminal of each branch or run of piping, and sized per CPC Table 7-6 (CPC 707.0).
    - Cleanouts may be omitted on a horizontal drain less than five (5) feet in length.
    - Cleanouts are not required on piping that is above the floor level of the lowest floor.
    - Cleanouts in piping two (2) inches or less shall be installed with a clearance of not less than twelve (12) inches in front of the cleanout.
    - Cleanouts in piping larger than two (2) inches shall be installed with a clearance of not less than eighteen (18) inches in front of the cleanout.
    - Cleanouts in under floor piping shall be extended to or above the finished floor or shall be extended outside the building when there is less than eighteen (18) inches of vertical overall clearance or when there is less than thirty (30) inches horizontal clearance from the means of access to the cleanout. No cleanout shall be located more than twenty (20) feet from the access door, trap door, or crawl hole.
- Testing: The piping of the plumbing, drainage and venting systems shall be tested with water or air (except plastic shall only be by water). Water test shall be done with a ten (10) foot head of water. Air tests shall be provided with five (5) pounds per square inch minimum/maximum. The water or air must be held in the system for a minimum of fifteen (15) minutes prior to inspection. (CPC 712.0).

❑ **Supports:** All piping shall be supported at intervals not to exceed those shown in CPC Table 313.1.

❑ **Pipe:** Joints and connections shall be in accordance with CPC 316.0. Water piping shall also comply with CPC 606.0.

❑ **Water supply and distribution:** Water supply and distribution piping shall be in accordance with CPC Chapter 6. Water piping materials may be brass, copper, cast iron, galvanized iron, galvanized steel, PEX, or CPVC. CPVC piping must be installed in accordance with Section 604.1.1. PEX-AL-PEX and PE piping is prohibited. Piping systems shall be sized in accordance with CPC 610.0. The minimum size of any branch shall be ½".

6. MECHANICAL REQUIREMENTS:

❑ **Ventilation:** Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet, one-half of which must be openable (CRC R303.3).

Exception: The glazed areas shall not be required where artificial light and a mechanical ventilation system are provided. The minimum ventilation rates shall be 50 cubic feet per minute for intermittent ventilation or 20 cubic feet for continuous ventilation. Ventilation air from the space shall be exhausted directly to the outside.

❑ **Fan exhaust termination:** Exhaust ducts shall terminate outside the building and be equipped with back-draft dampers (CMC 504.1) and shall terminate a minimum of 3 feet from property line and building openings (CMC 504.5). Size fan a minimum of 20 cfm per CMC Table 403.7 for continuous system operation with a maximum rating of 1.0 sone per CEnC. For intermittent bath fan operation, provide minimum ventilation airflow of 50 cfm per CMC Table 403.7 and maximum rating of 3.0 sones per CEnC.

7. ENERGY REQUIREMENTS:

- ❑ **Title 24 Energy Compliance Reports:** All new lighting requires completion of Lighting-Single Family Dwellings form CF2R-LTG-01-E. The form shall be filled out and presented to the Building Inspector at time of final inspection.

8. 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.

9. INSPECTIONS:

- ❑ The number of inspections required depends on the type of structural repair, shower receptor installed, and the overall scope of the work. A rough framing, rough plumbing with test, rough mechanical, and rough electrical inspection should be scheduled for any work installed, and a shower pan test scheduled, prior to installation of any insulation, gypsum board, or finish. Additional inspections may be needed based on extent of the project including a final inspection for all trades affected by the remodel. Review with your inspector during the first inspection the requirements for your project. The final inspection should be scheduled after all the work is completed. For each inspection, provide the Permit Card with the Energy Compliance Report forms completely filled out and attached, and the Approved Job Copy of the Drawings (if any) for the inspectors use. Permits expire 180 days after issuance without inspection or after the last passed inspection.

10. QUESTIONS:

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

CITY OF MILPITAS
Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240
www.ci.milpitas.ca.gov

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 fixutres 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 requirementss 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 certifiers 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, certifiy 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)

_____ Date: _____
Print Name(s)

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.

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 Select Yes or No according to whether your work on the project includes each of the following types of lighting and controls.		**Y or N**
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 (Fixture)					Total Watts			
Luminaire Type	High Efficacy Watts	Low Efficacy Watts		Quantity		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	
High Efficacy	Low Efficacy		Total Low Efficacy Watts Allowed
1. Insert 50 if house is ≤ 2.500 square feet; Insert 100 if house is > 2,500 square feet.			

CERTIFICATE OF INSTALLATION		CF2R-LTG-01-E
Lighting – Single Family Dwellings		(Page 4 of 5)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City	Zip Code

G. Lighting Internal to Cabinets	
01	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.	

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

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:

1. The information provided on this Certificate of Installation is true and correct.
2. 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.
3. 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.
4. 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.
5. 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 ≥ 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 ≤ 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 ≤ 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 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.