



# City of Mission Viejo

Community Development: Building Services  
 Division  
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## RESIDENTIAL ELECTRICAL REQUIREMENTS

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#### GENERAL NOTES

1. This handout is not intended to replace the California Electrical Code as adopted. It focuses only on the electrical requirements for single family dwellings. If more detailed information is needed the CEC is available in many libraries and may be reviewed at your Building Department.  
 The CEC is a very complex document with many exceptions making various practices allowable in specific circumstances. This handout ignores many of those exceptions and simplifies the requirements, though a certain degree of economy is sacrificed in the process. If the reader wishes to take advantage of exceptions they may gain access to the CEC through the code references given.
2. Electrical permit required for alteration of electrical system, improper electrical installations can be hazardous.

CHECKLIST OF CIRCUITS SPECIFICALLY REQUIRED BY THE CEC	Required Ampacity
Kitchen area receptacles must be on a 20 amp circuit. Minimum of two 20 amp circuits to supply kitchen counter top receptacles, refrigerators, gas fired ranges, ovens and counter mounted cooktops may also be on these circuits. CEC 210.11(C), 210.52(B)(1) Do not connect other loads such as garbage disposer, dishwasher or lights. CEC 210.52 (B)(2).	20A
The minimum number of branch circuits shall be determined from the total calculated load and the size rating of the circuits used. CEC 210.11(A).	15A and 20A
At least one 20 amp branch circuit for Bathrooms, Laundry Room. CEC 210.11(C)(2)(3).	20A

CHECKLIST OF CIRCUITS SPECIFICALLY REQUIRED BY THE CEC	Typical Ampacity
Dishwasher (AFCI & GFCI) CEC 210.8(D), 210.12(A) cord connected. CEC 422.16(B)(2).	15A
Garbage Disposer (AFCI), CEC 210.8(A)(7), 422.16(B).	15A
Built in Range Hood/Microwave (AFCI), dedicated circuit. CEC 210.22, 422.16(B)(4).	20A
Electric range (AFCI) (240V) > 8 3/4 kw, dedicated circuit. CEC 210.19(A)(3), 210.23(C).	40A
Electric Cooktop (AFCI) (240V), CEC 210.19(A)(3), 210.23(c).	40A Min.
Bathroom combination vent heater light (AFCI & GFCI), dedicated circuit. CEC 424.3.	30A Min.
Bathroom receptacles dedicated & within 3' of each sink (AFCI & GFCI), CEC 210.11(C), 210.52(D).	20A
Laundry Room, dedicated circuit (AFCI & GFCI). CEC 210.11(C)(2), 210.52(F).	20A
Forced Air Furnace, dedicated circuit. CEC 210.63, 422.12.	15A Min.
AC Condensing Unit name plate rating. CEC 250.122(C), 440.22(C).	30A Min.
Garage receptacles (AFCI & GFCI). CEC 210.11(C), 210.52(G).	20A
Electric Dryer dedicated, 4 wire 30 amp circuit not to be considered part of the Laundry Room branch circuit. CEC 250.142(B).	30A
Electric Water Heater. CEC 422.11(F)(3), 422.13.	30A

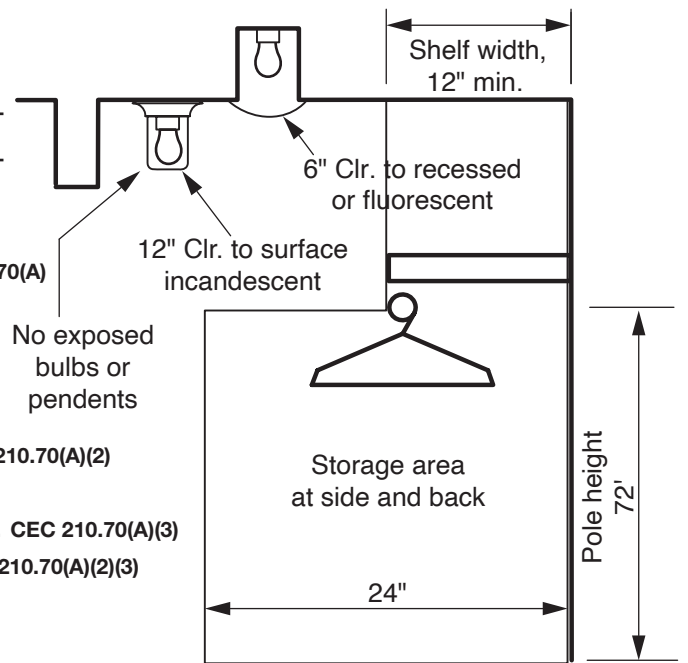
Note: These loads may sometimes be combined with each other or with general lighting but total loads must be calculated and appropriate de-ratings must be applied.

Note: Ampacities given are only typical. Always check the nameplate rating of the actual appliance.

## CHECKLIST OF REQUIRED LIGHTING OUTLETS

See California Electrical Code article 210-70(A) and fig 410.2

1. Wall switched light or receptacle in each living room, bedroom etc. **CEC 210.70(A)(1)**
2. Wall switched light in each kitchen, bathroom etc. **CEC 210.70(A)**
3. Wall switched light in each hallway. **CEC 210.70(A)(3)**
4. Wall switched light in the basement. **CEC 210.70(A)(3)**
5. Wall switched light in an attached garage. **CEC 210.70(A)(2)**
6. Wall switched light at each outdoor entrance or exit. **CEC 210.70(A)(2)**
7. Light near attic furnace equipment switched near access. **CEC 210.70(A)(3)**
8. Light over stairway with switches at top and bottom. **CEC 210.70(A)(2)(3)**



## CHECKLIST OF REQUIRED PLUG OUTLETS

In all areas specified in CEC 210.52, 406.12 & 550.13 all receptacles shall be tamper-resistant. Attachment cords for most lamps etc. are 6 feet long and for kitchen appliances are 24 inches long.

1. Receptacles within 6 feet of all points along the base of walls. **CEC 210.52(A)(1)**
2. Receptacles in any isolated 2 feet or wider wall section where one might place a lamp etc. **CEC 210.52(A)(2)**
3. Outside (GFCI) receptacles accessible at grade at the front and back of dwelling. **CEC 210.52(E)(1)**
4. Receptacles (GFCI) in the laundry area, dedicated 20 amp circuit. **CEC 210.11(C)(2)**
5. Receptacle within 6' of a Laundry Tub or Sink to be GFCI protected. **CEC 210.8(A)(7)**
6. Receptacle (GFCI) required within 6 feet of Laundry Equipment. **CEC 210.50(C)**
7. Receptacles within 6 feet of any other large appliances such as a freezer. **CEC 210.50(C)**
8. Receptacles (GFCI) at each kitchen counter space 12 inches wide or wider. **CEC 210.52(C)**
9. Receptacles (GFCI) within 24 inches of all points along the length of kitchen counters including islands and peninsulas. **CEC 210.52(C)(1)**
10. Extra counter top receptacle (GFCI) wherever a microwave or other large appliance blocks access to the regularly spaced plugs. **CEC 210.52(C)(4)**
11. Receptacle (GFCI) within 3' of bathroom sink. **CEC 210.52(D)**
12. Receptacle (GFCI) in the basement in addition to laundry receptacle if any. **CEC 210.52(G)(3)**
13. Garage, at least one (GFCI) receptacle installed not more than 5'6" above floor. **CEC 210.52(G)(1)**
14. Garage receptacle must be Tamper Resistant if less than 5'6" above the floor. **CEC 406.12**
15. Receptacle (AFCI & Tamper Resistant) in hallways more than 10 feet long. **CEC 210.52(H)**
16. Receptacle near furnace and air conditioning equipment for servicing. **CEC 210.63**
17. Arc Fault protection for all 15 and 20 amp circuits in habitable rooms. **CEC 210.12(A)**
18. Kitchen Dishwasher branch circuit (GFCI). **CEC 210.8(D)**

## CHECKLIST OF OTHER ITEMS TO CONSIDER

1. Outside receptacle required at front and back not more than 6'6" above grade. **CEC 210.52(E)(1)**
2. Lights in closets (see the figure at top of page). **CEC 410.16(C)**
3. The California Residential Code requires hard wired smoke detectors and carbon monoxide detectors. **CRC 314.4**
4. Multiple switches at walk-through rooms and halls. **CEC 210.70(A)(2)**
5. Fluorescent fixtures or dimmers, motion sensors and photocell motion sensors are now required for most lighting, please check the California Energy Code for specifics.
6. A receptacle for the garage door opener. **CEC 210.11(C)(4)**
7. A receptacle for the door bell transformer. **CEC 720.6**
8. A receptacle for a kitchen exhaust fan or hood. **CEC 422.16(B)(4)**