



CITY OF LOS ANGELES
LARUCP ELECTRICAL
PLAN CHECK LIST



Form fields for Plan Check No., PCIS Number, Job Address, Occ. Group, Applicant Name, Address, City/State/Zip, Plan Check Engineer, Telephone, Fax, Expiration Date, Description, No. of Stories, Square Footage, Review Date, and E-mail.

Your application for a permit, together with plans and specifications, has been examined and the issuance of a permit is withheld for the reasons set forth. The approval of plans and specifications does not permit the violation of any section of the Building Code, or other local ordinance or state law.

NOTE: Numbers in parenthesis () refer to Code sections of the 2008 editions of the City of Los Angeles Electrical Code (based on 2007 California Electrical Code with adopted portions of 2005 National Electrical Code), 2008 L.A. Building Code (LABC), 2008 L.A. Mechanical Code (LAMC), 2002 National Fire Alarm Code (NFPA 72).

INSTRUCTIONS:

- Corrections with circled item numbers apply to this plan check.
• In the left hand margin of the circled corrections, please indicate the sheet number and detail or note number on the plans where the corrections are made. Resubmit marked original plans and one corrected set of plans, calculations and this plan review list.
• Incomplete or unreadable drawings or calculations will not be accepted.
• Incorporate all comments as marked on the checked set of plans and calculations and this corrections sheet.
• Call the plan check engineer for appointment when the plans are ready for resubmittal.
• Appointments are required to schedule for conferences and verifications.

PLEASE BRING THE MARKED UP PLANS TO THE VERIFICATION APPOINTMENT.

3. Provide a dedicated 20-ampere circuit for receptacles in dwelling unit bathroom(s). _____ (210.11(C)(3), 210.52(D))
4. Provide arc-fault circuit interrupter (AFCI), combination type protection on branch circuits serving dwelling unit bedroom outlets. _____ (210.12)
5. Provide ground fault circuit interrupter (GFCI) protection for personnel on receptacle(s) located in: (210.8)
 - a. Kitchens, bathrooms, garages, outdoors, crawl spaces, and unfinished basements of dwelling units.
 - b. Within 6 feet of laundry, utility and wet bar sinks in dwelling units.
 - c. Bathrooms, commercial and institutional kitchens, and roof tops of any occupancy.
 - d. Outdoors in public spaces.
 - e. _____
6. Provide show window lighting(s) and receptacle branch circuit(s) and outlets. _____ (210.62, 220.43)
7. A single receptacle installed on an individual branch circuit shall have an ampere rating of not less than that of the branch circuit. Indicate the receptacle rating. (210.21(B)(1))
8. Provide receptacle outlets wherever cord connected equipment will be used. _____ (210.50(B))

C. FEEDERS

1. A building or structure shall be supplied by one feeder or brach circuit. _____ (225.30)
2. The following feeders are undersized. _____ (310.15, 110.14(c), 240.4)

D. BRANCH CIRCUITS & FEEDER CALCULATIONS

1. Branch circuit loads were incorrectly calculated or omitted: _____ (220.14)
2. Provide 150 VA load for every 2 feet (600mm) of track light. _____ (220.43(B))
3. Provide proper feeder, panel board and branch circuit ampacity for general lighting as required for the particular occupancy. _____ (220.12, 220.40, 215.2)
4. Provide a dedicated branch circuit for exterior sign or outline lighting system calculated at a minimum of 1200 VA. _____ (220.14(F), 600.5(A))
5. Provide a dedicated branch circuit for the light and air conditioning and heating sources for each elevator car. (620.22)
6. Feeder loads were incorrectly calculated or omitted: _____ (220.40)
7. Provide a minimum of 200 VA for each linear foot of show window. _____ (220.14(G))
8. Feeder and branch circuit rating shall be based on not less than noncontinuous loads and 125% of continuous loads. _____ (210.19(A), 215.2(A))
9. Provide 180 VA of load for each general use receptacle. _____ (220.14(I) & (L))

10. Small Appliance branch circuits shall be rated at 1500 VA each. _____ (220.52(A))

E. SERVICES

1. Show the service conductor routing from the utility service point. _____ (93.0207(o) & (n))
2. Provide a copy of the utility company's fault current report indicating the available fault current, voltage, amperes and phase at the service. _____ (93.0207(k))
3. Provide an elevation drawing of the service equipment. Indicate dimensions and show each sections, meters, and disconnects. _____ (93.0207(k))
4. Service disconnect(s) shall be located nearest the point of entrance of the service entrance conductors. _____ (230.70(A))
5. No more than six service disconnecting means is permitted at any one location. _____ (230.71(A))
6. The two to six disconnects as permitted in section 230.71 shall be grouped. _____ (230.72(A))
7. No more than one service disconnecting means is permitted for motor control centers. _____ (430.95)
8. The service equipment shall have a rating not less than the load served. This load shall be calculated per article 220. _____ (230.79)
9. Ground fault protection is required on each 1000 amperes or more, 4W, 277/480 volts wiring system of a service or a feeder disconnecting means. _____ (230.95, 215.10)
10. A building or other structure shall be supplied by only one service. _____ (230.2)
11. When more than one building or other structure is on the same property and under single management, each building or structure shall be provided with means for disconnecting all ungrounded conductors. _____ (225.31)
12. Equipment shall not be connected to the supply side of the service disconnecting means. _____ (230.82)
13. In a multiple occupancy building, occupants shall have access to their service disconnecting means. _____ (230.72(C))
14. Provide service load calculation. _____ (230.42, 93.0207(n))
15. Provide service load calculations for 120/240 V, 3 phase, 4W, delta system in accordance with Los Angeles Electrical Code (Excerpts Section). _____ (93.0207(n))
16. Service and feeder demand load calculation shall be in accordance with article 220.87. _____
17. _____

F. OVERCURRENT PROTECTION AND SHORT CIRCUIT PROTECTION

1. Submit overcurrent coordination study. _____
_____ (240.12, 620.62, Table 685.3)
2. Indicate the provisions to ensure the proper operation of Ground Fault Protection equipment on a separately grounded service and generator system. _____
_____ (215.10, 230.95(C), 240.13, 110.26)
3. Provide proper overcurrent protection for conductors on circuits _____
_____ (240.4)
4. Overcurrent devices shall be connected at the supply point of ungrounded conductors. _____
_____ (240.21)
5. Fuses shall be provided with rejection type fuse holders. Provide notes on the plan. _____ (240.60(B))
6. Provide short circuit analysis including motor contribution. Fuse let-thru is not acceptable. _____
_____ (110.9 & 10, 93.0207)
7. If series rating is used for short circuit protection:
 - a. Indicate the series combination interrupting rating of overcurrent devices. Identify on the plan, the fuse class and the circuit breaker manufacturer, model designation, type and electrical rating used as part of series rating.
 - b. Series combination interrupting rating shall not be used when the second device in the series is subjected to a total connected full load motor current of more than 1% of it's AIC rating.
 - c. Motor circuit protectors shall not be used as part of a series combination interrupting rating. (110.3, 93.0402)
 - d. If series combination ratings are used, provide a cautionary label to the series rated device cover stating "Caution - Series Rated System _____ A available. Identified replacement component required." _____
(240.86, 110.3, 110.22, 93.0402, UL Recognition Directory)
 - e. _____

G. GROUNDING

1. Provide properly sized grounding electrode conductors for the service(s). _____
_____ (250.20, 250.26, 250.66)
2. Separately derived systems shall be separately grounded. _____
_____ (250.20(D) & 30)
3. Where more than one building is supplied by a service, the grounded conductor supplying each building shall be adequately sized and grounded at each building or an equipment grounding conductor shall be provided from the main service to each building. _____
_____ (250.32 & 50)
4. All services supplying a building shall have the same grounding electrode system. _____
_____ (250.58)
5. Provide properly sized grounding conductors for equipment and raceway systems. _____
_____ (250.122)
6. Cold water pipe ground shall be supplemented by an additional ground electrode. _____
_____ (250.50, 250.52(A))
7. All equipment fastened in place or connected by permanent wiring method shall be grounded. _____
_____ (250.110 & 112)

8. Where the phase conductors are increased in size (e.g., for voltage drop compensation), the equipment grounding conductor shall be increased in size proportionately. _____
_____ (250.122(B))
9. Provide an equipment grounding conductor between service and remote panelboard serving swimming pool equipment. _____
_____ (980.25(B))
10. Provide equipment grounding conductors for all pool related equipment and bond together. _____
_____ (680.26)
11. Patient care area receptacles shall be grounded by an insulated copper conductor. _____
_____ (517.13(B))
12. Panelboards serving power to same patient vicinity shall be bonded together with minimum 10 AWG insulated copper conductor. _____ (517.14)

H. WIRING METHODS

1. Conductors rated over 600 volts shall not occupy the same wiring enclosure, raceway or cable with conductors of 600 volts or less. _____
_____ (300.3(C)(2))
2. In dwelling units and guest rooms of hotels, motels and similar occupancies, the lighting and outlet circuit voltage shall not exceed 120 volts nominal. _____
_____ (210.6(A))
3. Indicate the burial depth of underground conduits and conductors and specify the cover material. _____
_____ (Table 300.5)
4. Conduits that are exposed to widely different temperatures, such as coolers, freezers or service entrance conductors, shall be sealed to prevent circulation of air and/or moisture. _____
_____ (300.7(A))
5. Provide cable supports on vertical runs. _____
_____ (300.19)
6. Identify the cable trays used, dimensions, conductor types, and provide cable tray fill calculations per Article 392. _____
7. Areas below access floors shall not be used as a plenum or for storage purposes. _____
_____ (Information Bulletin P/BC 2008-018)
8. Rooms containing access floors shall have a smoke detection system. _____ (645.4, P/BC 2008-18)
9. Wiring methods beneath the access floors shall comply with all requirements of Article 645 and P/BC 2008-18. _____
10. Provide a ground fault circuit interrupter on the pool light circuit. _____
_____ (680.23)

I. CONDUCTORS FOR GENERAL WIRING

1. Provide the proper wire type (temperature rating) for use in the following applications: _____ (310.13)
2. The following branch circuit/feeder conductors are improperly sized: _____
_____ (310.15)
3. Where the number of conductors in a raceway or cable exceeds three, the allowable ampacity of each conductor shall be reduced per table 310.15(B)(2)(a). _____
_____ (310.15(B)(2))
4. Where the maximum ambient temperature is over 30°C, (86°F), the referenced correction factors shall apply to conductors. _____ (Table 310.16 to 19)

5. Types NM, NMC and NMS cable(s) cannot be used for _____ (334.12)

J. CONDUIT, RACEWAYS, J-BOXES, ETC.

- 1. Indicate the number of conductors in raceways _____ (300.17, Chapter 9, table 1)
- 2. Provide proper conduit size on _____ (Chapter 9, tables 4, 5 & 5A)
- 3. A separate grounding conductor shall be installed in non-metallic conduit runs. _____ (352.60)
- 4. Exit signs shall not be used as J-boxes. Show location of required junction boxes. _____ (700.9)
- 5. Indicate type of conduit(s) used. _____ (Chapter 9, table 4, Appendix C, 93.0207(n))
- 6. The following outlet, pull or junction boxes are inadequately sized: _____ (314.16, 314.28, 314.71)
- 7. The center of electrical and communication outlet boxes shall be not less than 15 inches above floor and switch boxes at 48 inches above floor. _____ (404.8(C), 406.2(G), LABC 1117B.6.3)

K. SWITCHES, PANELS, & ROOF EQUIPMENT

- 1. Provide permanent access to roof mounted equipment. _____ (P/MC 2008-006, 240.24, 430.102, 440.14)
- 2. Switches, circuit breakers, fuses shall be readily accessible. _____ (404.8(A), 240.24, 430.102, 440.14)
- 3. Provide individual overcurrent protection on the supply side of each lighting and appliance branch circuit panel board. _____ (408.36(A))
- 4. Provide weather proof, GFCI protected outlets within 25 feet (7.5 m) of heating, air conditioning, or refrigeration equipment. _____ (210.63, 210.8(B)(3))
- 5. Circuit breakers used as switches in 120 and 277 volt fluorescent lighting circuits shall be listed and marked "SWD" or "HID". _____ (240.83(D))

L. MOTORS

- 1. Provide the nameplate current rating of the following:
 - a. Locked-rotor current of Torque motors.
 - b. AC adjustable voltage motors.
 - c. Low Speed (1200 RPM or Less) motors.
 - d. Multi-speed motors.
 - e. Noncontinuous duty motors.
 - f. _____ (430.6, 430.22, Table 430.250)
- 2. Indicate the Duty-Cycle service and design of motors. This information should include the motors duty and time rating. _____ (430.22, Table 430.22(E))
- 3. Provide proper conductor size for motor(s) _____

- _____ (430.22, 430.24, 430.26)
- 4. Provide overload protection for motor(s) _____
- _____ (430.31, 430.32)
- 5. Provide proper short circuit ground fault protection for motor(s). (specify breaker/fuse type). _____ (430.52, 430.62)
- 6. An individual branch circuit is required for each motor over one horsepower or 6 amperes of full load current. _____ (430.53(A))
- 7. Provide properly located disconnects, types and size on motor(s) _____ (430.102, 103, 109 & 110)
- 8. _____

M. TRANSFORMERS

- 1. Provide overcurrent protection on the primary of the transformer. _____ (450.3)
- 2. Provide overcurrent protection for the secondary conductors of transformer. _____ (240.21)
- 3. Indicate transformer(s) secondary tap length(s). _____ (240.21)
- 4. Provide adequate ventilation in transformer room(s). _____ (450.9)
- 5. Indoor dry type transformers over 112.5kVA shall be installed in minimum 1-hour fire rated room. _____ (450.21(B))
- 6. Transformers over 50kVA shall not be installed in hollow spaces, ceiling spaces of the building. _____ (450.13(B))
- 7. _____

N. HAZARDOUS AREAS

- 1. Provide hazardous classification by class, division or zones and group, and show boundaries of the hazardous area(s). _____ (Art. 500, 505)
- 2. Wiring in hazardous areas shall comply with the Code provisions for those areas. _____ (Art. 500 thru 516)
- 3. Provide conduit seals at boundaries of hazardous areas. _____ (501.15, 502.15, 504.70, 513.9, 514.7, 515.9)
- 4. Maximum permitted cross-section fill of seals shall not exceed 25% of the cross-sectional area of a conduit of the same trade size unless specifically approved. _____ (501.15(C)(6))
- 5. Submit details of the natural or mechanical ventilation provided in garage area(s). _____ (511.3)
- 6. Provide GFCI protection for outlets in repair garages. _____ (511.12)

7. Classify the pits in the garage areas. _____ (511.3(B))
8. A manually operated remote control installed at an approved location shall be provided to shut off fans or blower located in flammable vapor or dust systems. _____ (LAMC 503.1)
9. Electrical equipment located in operations that generate explosive or flammable vapors, fumes or dust shall be interlocked with the ventilation system so that the equipment can not be operated unless the ventilation fans are in operation. _____ (LAMC 503.1)

O. CLINICS

1. Indicate type of clinic(s). _____ (LABC 1226)
2. Provide a list of equipment to be installed. (93.0207)
3. Equipment classified for life-support purpose shall be supplied from an essential system as required per sections 517.31 through 517.45.
4. Indicate if the clinic is or will be licensed by the State of California. (LABC 1226.2)
5. Provide a generator to supply all the loads in the ambulatory surgical clinics. (517.45)
6. Wiring installation within an ambulatory surgical or hemodialysis clinics shall be in accordance with 517.45(D).
7. Provide a nurse call system in the birthing clinic. (LABC 1226.16)
8. Provide minimum of 100 fc at working surface in a birthing clinic. (LABC 1226.16)
9. Operating room of a surgical clinic shall include a clock and elapsed timer and an x-ray film illuminator. (LABC 1226.17.1)
10. If Ethylene Oxide sterilizers are supplied from emergency power, the exhaust system shall also be supplied from the emergency power. (LABC 423A.4.4)

P. FIRE PUMP

1. Fire pump circuit conduits shall be encased in no less than 2 inches of concrete. _____ (695.6)
2. Show the routing of the fire pump feeder. _____ (93.0207, 695.6)
3. Overcurrent protection for fire pump services shall provide short circuit protection and shall be set to carry fire pump motor locked rotor current indefinitely. _____ (695.4(B)(1))
4. Provide an emergency source of power for fire pump. _____ (695.3(B), 700.12)
5. No disconnecting means shall be installed within the fire pump feeder circuit. _____ (695.4(A))
6. Transfer of power shall take place within the fire pump room. _____ (695.12(A))

Q. EMERGENCY SYSTEMS

1. Provide (a) properly sized emergency power source(s) for required emergency load(s). _____ (700.5)
2. A completely independent raceway and wiring system shall be installed for emergency circuits. _____ (700.9)

3. The means of egress illumination level shall not be less than 1 foot-candle at the walking surface level. (LABC 1006.2)
4. Emergency lights shall be provided in all means of egress as defined in section 1006.3. _____ (Information Bulletin P/BC 2008-19)
5. The emergency luminaires shall provide an initial average illumination level of at least 1 foot-candle but at any point it shall not be less than 0.1 foot-candle along the path of egress at floor level. _____ (LABC 1006.4)
6. At the end of the required emergency source time duration, the emergency luminaires shall provide an average illumination level of at least 0.6 foot-candle but at any point it shall not be less than 0.06 foot-candle along the path of egress at floor level. _____ (LABC 1006.4)
7. The emergency illumination level shall have a minimum-to-maximum emergency illumination uniformity ratio that does not exceed 40 to 1. _____ (LABC 1006.4)
8. Emergency exit illumination shall be supplied from:
 - a. generator, b. storage battery, c. UPS, d. Fuel Cell with storage battery, or e. unit equipment. (LABC 1006.3, 700.12)
9. Provide exit signs. (LABC 1011.1)
10. Provide low level exit path marking. _____ (LABC 1011.6)
11. Provide battery capacity calculation. _____ (700.5, 700.12(A))
12. Storage batteries shall comply with article 480. _____
13. Provide selective overcurrent protection. _____ (700.27)
14. Exit signs shall be supplied by two circuits, one from normal source and one from emergency source. _____ (700.17, 700.3, 110.3, LABC 1011.2)
15. Provide a lock-on device for circuits supplying emergency unit equipment. _____ (700.12(E)Exception)
16. The branch circuit feeding the unit equipment (emergency light with self-contained rechargeable battery) shall be the same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches or time clocks. Indicate the correct circuit wiring diagram on the plans. _____ (700.12(E))
17. Provide Coordination study for all emergency and legally required standby systems overcurrent protective devices. _____ (700.27, 701.18)

R. FIRE PROTECTIVE SIGNALING SYSTEMS

1. Submit a variance to separate fire warning system or provide the following information in this section. (93.206(b)(8))
2. Provide a fire warning system. (LABC 907)
3. The fire warning system shall be checked and approved by the Fire Department before the approval of the final plans. (93.0206)
4. The fire warning system shall be supplied from an approved source. (NFPA 72)
5. An individual multi-wire branch circuit is required to supply the fire warning system unless a primary battery supplies the trouble signal devices of the signaling system. (NFPA 72)
6. Fire warning equipment shall be listed by a city recognized testing laboratory and shall be approved by the State Fire Marshall. (93.0402)
7. Fire warning system conductors shall be installed in metal raceways unless they are specifically approved for exposed installation. (760.25, 30)

8. Power limited circuit conductors shall run separately from non power limited circuits. (760.54)
9. Provide catalog cut sheets showing the electrical ratings for FACP, power expanders, annunciators, and devices. (93.0207)
10. Provide a worst case DC voltage drop calculation using chapter 9, table 8 of NEC. _____ (93.0600)
11. Indicate type of fire protective signaling systems. (Power or Non-Power limited) (760.15)
12. Fire protective signaling systems shall be equipped with approved control panel(s) and annunciator(s). (NFPA 72)
13. Provide battery load calculation. (NFPA 72)
14. The secondary battery load calculation shall include the total system supervisory and alarm loads. (NFPA 72 4.4.1.5.3.2)
15. Provide approved strobes in common corridors or hallways. (NFPA 72)
16. Provide a fire control center, fire alarm and fire warning system, public address system and two way communication system. (NFPA 72, LABC 907)
17. Provide protection to ensure survivability of critical circuits.

_____ (NFPA 72, 760.81(F), 760.82(G))

S. MACHINERY ROOM

1. A readily accessible control switch shall be provided to shut off all electrically operated machinery in machinery room(s). (LAMC 1109.4)
2. No electrical equipment other than specified in Los Angeles Mechanical Code Section 1108 shall be located in machinery room(s). _____
3. Purging fans and associated equipment in a refrigerant room containing refrigerants other than group A1 or B1 shall comply with the requirements of Article 500 Class I, Division 1 area. (LAMC 1108.8)
4. Provide a readily accessible emergency "off"-only fan control switch outside of machinery room(s). (LAMC 1109.4)
5. Provide a readily accessible machinery room fan ventilation system switch outside of the room's main entrance. (LAMC 1108.6)
6. Machinery rooms shall have approved refrigerant vapor detectors and shall activate visual and audible alarms when the concentration of refrigerant vapor exceeds 25 percent of the LFL. (LAMC 1107.4)
7. Refrigerant detection and alarm systems shall be powered and supervised as required for fire alarm systems in accordance with the Fire Code. (LAMC 1121.2)
8. The detection and alarm systems shall be annunciated at an approved location in accordance with the fire code. (LAMC 1121.3)
9. Provide sufficient illumination and service receptacles to safely perform required tasks in the machinery rooms. (LAMC 1106.4)

T. SMOKE DETECTORS

1. Single- or multiple- station smoke alarms (detectors with built-in battery) shall be installed in the following locations: (LABC 907.2.10.1 & 2)
 - a. In each story within a sleeping/dwelling unit including basement.
 - b. In enclosed common stairwells of multiple dwelling complexes.
 - c. In sleeping areas in Group R-1 and rooms used for sleeping in Groups R-2, R-3, R-3.1, R-4 and I-1 occupancies.

- d. In every room in the path of egress from the sleeping area to the door leading from the sleeping unit that are in primarily transient occupancies (Group R-1 occupancy).
- e. In the immediate vicinity outside of separate sleeping areas of Groups R-2, R-3, R-3.1, R-4 and I-1 occupancies.
- f. In the enclosed common stairwells of apartments and multi-dwelling complexes.
- g. _____

U. OVER 600 VOLTS

1. Provide proper type and size of overcurrent protection for high voltage feeders. _____ (240.100)
2. Select proper feeder ampacity per Ductbank Details in 310.60. _____
3. Medium voltage equipment shall be listed by a city recognized testing laboratory or approved by the Department. _____ (110.2, 93.0402)
4. Provide detail, specifications, and evidence of listings for the following: (110.2, 93.0402)
 - a. Cables.
 - b. Overcurrent protective devices (electrical ratings, listing, type, AIC rating, close-and-latch rating, breakers "K" factor, MVA rating, continuous current rating, fuse time-current curves, etc.)
 - c. Transformer(s) (rating, listing, etc.)
 - d. Raceway(s) (size, material, etc.)
 - e. Terminations and Splices.
 - f. Pull boxes and Manholes.
 - g. Disconnect devices (type, size, electrical rating, magnetizing current interrupting ratings, cable charging rating, fault close rating, etc.)
 - h. Switchgear(s), Substation(s), Unitsubstation(s).
 - i. Grounding Impedance(continues and watt rating, etc.)
 - j. Bracing. (110.8, 93.0207(n))
 - k. _____
5. Clarify the grounding method used. Include information on size and termination method. _____ (Art. 250, 93.0207(n))
6. Provide detail on high impedance grounding. _____ (Art. 250, 93.0207(n))
7. Provide cable pull calculation. _____ (93.0207(n))
8. Provide detailed short circuit analysis including a coordination study. The analysis should reflect the three and single phase fault as well as ground fault and line to line to ground fault(when applicable). _____ (110.9 & 10, 240.21, 93.0207(n))
9. Provide a coordinated protection for the motor circuit. This coordination shall include the fault current, overload, circuit conductors and motor control apparatus. (430.225)
10. Provide means to discharge the stored energy in capacitors and provide a warning sign and discharge instructions on the equipment. _____ (460.28)

V. LOW VOLTAGE POWER CIRCUITS

1. Identify all Class 2 and Class 3 circuits. _____ (725.41)
2. _____

W. STATE ENERGY REGULATIONS (Title 24, Part 6, California Code of Regulation)

T-24 Standards, Design Manuals, Forms and Tables are available at the California Energy Commission website: www.energy.ca.gov

DOCUMENTATION:

1. Submit lighting calculations on 2005 lighting compliance forms for:
 - a. New indoor (conditioned & non-conditioned spaces) on LTG forms. (T-24, Sec. 146)
 - b. New outdoor lighting to be installed on OLTG forms. (T-24, Sec. 147)
 - c. _____
2. Certificate(s) of compliance, forms LTG-1-C (Parts 1 & 2) for interior lighting and OLTG-1-C (Parts 1 & 2) for outdoor lighting shall be printed on plans. (10-103(a))
3. The certificate(s) of compliance shall be signed by the person responsible for its preparation prior to plan check approval. (10-103(a))
4. Provide list of lighting mandatory measures on plans. (10-103(a))
5. Submit copies of the following luminaires catalog cut sheets to verify the efficacy & maximum fixture wattage ratings: _____ (93.0207)

EFFICACY:

6. High efficacy luminaires shall meet Table 150:

Lamp Power Rating	Minimum Lamp Efficacy
up to 15 watts	40 lumens per watt
over 15 watts to 40 watts	50 lumens per watt
over 40 watts	60 lumens per watt
7. Residential lighting:
 - a. Permanently installed luminaires in residential kitchens, bathroom, garages, laundry rooms, and utility rooms shall be high efficacy luminaires. (130(b), 150(k))
 - b. All other residential luminaires shall be high efficacy type unless controlled by certified dimmers or occupancy sensors. (150(k)4)
 - c. Outdoor luminaires shall be high efficacy type unless controlled by certified occupancy sensors with integral photocontrol. (150(k))
 - d. _____
8. Hotel/Motel guest rooms:
 - a. Luminaires in guestrooms shall be high efficacy types. (130(b), 150(k))
9. The wattage for incandescent or tungsten-halogen luminaires with medium screw base sockets shall be the maximum relamping wattage labeled on the luminaire. (130(c))
10. Outdoor luminaires:
 - a. Outdoor luminaires over 100 watts shall have a lamp efficacy of minimum 60 lumens per watt or be controlled by a motion sensor. (132(a))
 - b. Outdoor luminaires over 175 watts in hardscape areas shall be designated Cutoff for light distribution. (132(b))
11. Signs:
 - a. For internally illuminated signs (indoor & outdoor), the maximum allowed lighting power shall be:
 - 12 watts per square feet of sign area.
 - For double faced signs, only single face shall be used to calculate the allowed lighting power. (148)

- b. For externally illuminated signs, the maximum allowed lighting power shall be 2.3 watts per square feet of illuminated sign area. _____ (148)
- c. As alternative to items a and b above, sign(s) shall be illuminated by one or more of following light sources:
 - high pressure sodium, pulse start and ceramic metal halide, neon, cold cathode, light emitting diodes, barrier coat rare earth phosphor fluorescent lamps, compact fluorescent lamps that do not contain a medium base socket;
 - or be equipped only with electronic ballasts with a fundamental output frequency not less than 20kHz. (148)
12. Electric resistance heating systems shall not be used for space heating. _____ (144(g), 151(f)6)
13. Recessed luminaires in insulated ceilings shall be tested and listed for zero clearance insulation cover (IC) and air-tight (AT) by a recognized testing laboratory. (150(k)5)

CONTROLS:

14. The switching or control device shall be located so that a person using the device can see the lights or area controlled by that switch. Label the switches and lights correspondingly. _____ (131(a))
15. Provide an independent switching or control device for each area enclosed by ceiling-height partitions. _____ (131(a))
16. Provide multi-level switching for the general lighting so that reasonably uniform level of illuminance is maintained throughout the area controlled. _____ (131(b))
17. Provide automatic shut-off control for indoor lighting with override switching device. Show control wiring diagram. _____ (131(d)1,2)
18. Show the locations of the override switches and show the area of coverage, not exceeding _____ sq. ft. per floor. _____ (131(d)2)
19. Provide an independent control for at least 50% of the lights in daylight areas. _____ (131(c))
20. Provide automatic shutoff control for daylit areas. _____ (131)
21. Non-high efficacy luminaires in residential units shall be controlled by dimmers or occupancy sensors. _____ (150(k)4)
22. Outdoor lighting shall be controlled by a photocontrol or astronomical time switch. _____ (132(c)1)
23. Provide automatic time switch that reduces lighting by 50%-80% when not needed or provide a dimmer control for building facades, parking lots, garages, sales/non-sales canopies, and all outdoor sales area. _____ (132(c)2)
24. Display lighting shall be separately switched on circuits that are 20 amperes or less. _____ (131(e))
25. In office areas greater than 250 square feet with permanently installed lighting systems, a portable light power of 0.2 watts per square foot shall be included in calculation of actual lighting power density if the actual watts of the fixtures are not known. _____ (146(a))
26. The lighting control devices and equipment shall be certified by the California Energy Commission. _____ (119)
27. Clarify that time clock is _____-day programmable. (131)
28. _____

