



**CITY OF LONG BEACH**  
 Department of Development Services  
 BUILDING AND SAFETY BUREAU  
**ENERGY EFFICIENCY**  
**PLAN REVIEW CHECKLIST**



**DATE:**

<b>INFORMATION</b>	PROJECT NO.:	EXPIRATION DATE:	STATUS:
	PROJECT ADDRESS:	VALUATION:	
	WORK DESCRIPTION:		
	APPLICANT'S NAME:	TEL. NO.:	
<b>INSTRUCTIONS</b>	<p>Your application for a permit, together with plans and specifications, has been examined and you are advised that the issuance of a permit is withheld for the reasons hereinafter set forth. The approval of plans and specifications does not permit the violation of any sections of the Building Code or other local ordinances or state laws.</p> <p>In an effort to streamline the plan review process, please follow the steps outlined below to ensure that there is no delay in processing your application and reviewing your responses to these plan check comments.</p> <ul style="list-style-type: none"> <li>• Comments with circled item numbers apply to this plan check.</li> <li>• Revised plans and calculations shall incorporate or address all comments marked on the original checked set of plans, calculations, and this plan review checklist. Provide a written response to each comment and show where and how it has been addressed. Identify the sheet number and detail or reference note on the revised plans where the corrections are made. Time spent searching for the corrected items on the revised plans or calculations will delay the review and approval process. Once all comments on the plans, calculations, and this checklist have been addressed, contact the plan check staff to <b>SCHEDULE AN APPOINTMENT MEETING</b> to review the changes made.</li> </ul>		
	PLAN REVIEWER: _____ TEL. NO.: <u>562-570-</u>		
	ADDRESS: <u>333 W. OCEAN BLVD., 4<sup>TH</sup> FLOOR, LONG BEACH, CA 90802</u>		
	EMAIL: _____@longbeach.gov WEBSITE: <u>lbsds.longbeach.gov</u>		
<b>NOTE</b>	Should you have any questions or need clarification pertaining to the comments made on your project, you may contact the plan check staff by telephone from 7:30 AM (8:30 AM Wed) to 4:30 PM (M T W TH F).		
	<ul style="list-style-type: none"> <li>• Bring the original checked set of plans and calculations along with this checklist to the appointment meeting. Do not schedule an appointment meeting with the plan check staff until all comments have been addressed.</li> <li>• We will ensure that the appointment meeting or re-submittal of the plans for recheck will proceed as expeditiously as possible. If an impasse is reached during the appointment meeting, you may request that the plan check supervisor be summoned for a 2<sup>nd</sup> opinion or to attempt to resolve and/or clarify the matter.</li> <li>• Major revisions to the plans that necessitate additional review time will be subject to re-submittal and additional plan check fees as authorized by Section 18.12.150 of the Long Beach Municipal Code.</li> <li>• Reviewed plans and/or calculations not picked up within 60 days of notice will be discarded.</li> </ul>		

## A. ALL BUILDINGS

1. Specify design package used and method of compliance:
  - a. Prescriptive Component Package \_\_\_\_\_
  - b. Prescriptive Overall Envelope
  - c. Performance Approach
2. The following compliance documents shall be attached to plan:
  - a. Certificate of Compliance (CF-1R) / (ENV -1)
  - b. Mandatory Features Checklist (MF-1R)
3. Compliance documents shall be produced by up-to-date version of Energy Commission Approved computer programs. To obtain a list of Energy Commission approved compliance programs, visit their website at:

[http://www.energy.ca.gov/efficiency/computer\\_prog\\_list.html](http://www.energy.ca.gov/efficiency/computer_prog_list.html)

4. Proposed fenestration U-Factor does not conform with default values from Table 116-A. Alternate default values from Table NI-1 (ACM manual). Specify on plan NFRC rated products are required for all fenestration with Non-Default U-Factors.
  5. The Solar Heat Gain Coefficient (SHGC) for proposed glazing does not conform with default values from Table 116-B. Specify on plan NFRC rated products are required for all fenestration with Non-Default SHGC.
  6. The conditioned floor area shown on CF-1R form does not match with plans submitted. Revise calculation(s) accordingly.
  7. The window area (at \_\_\_\_\_ facing wall) shown on CF-1R form does not match with plans submitted. Revise calculation(s) accordingly.
  8. Incorporate the fenestration SHGC and U-factors required as per CF-1R form with window schedule.
  9. Provide construction details for all energy insulation assemblies. Show type of insulation on sections.
- ## B. NON-RESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HOTEL / MOTEL BUILDINGS
1. Insulation is not allowed on T-bar ceiling. [118(e)]
  2. Opaque portions of framed demising walls shall have insulation with no less than R-13. [118(f)]
3. Prescriptive requirement for building envelope:
    - a. Cool Roof coating is required. Note on plan all Cool Roof product shall have a clearly visible packaging label that lists the reflectance and emittance tested in accordance with CRRC-1. [141, 142, 149(b)1B]
    - b. Skylight(s) are required for building over 25,000 sq. ft. and ceiling heights over 15'-0" and lighting power density over 0.5 W/ft<sup>2</sup>. [143(c)]
    - c. At least one half of the floor area shall be in the daylight area under skylights. Provide skylights in accordance with [143(c)].
  4. Compliance credit for air infiltration barrier in low rise residential buildings, show air infiltration barrier on construction section. [150(f)]

## C. LOW RISE RESIDENTIAL BUILDINGS

1. Prescriptive requirement for building envelope: The West facing windows shall not exceed 40% of the gross West facing exterior wall area.
2. Provide radiant barrier detail on plans.
3. Masonry and factory built fireplaces shall have a closeable metal or glass doors covering the entire opening of the firebox and shall have combustion air intake as required by [150(e)1].
4. For low rise residential buildings: Replacement fenestration (windows), where all the glazing in an existing fenestration opening is replaced with a new manufactured fenestration product, shall not exceed the U-factor and Solar Heat Gain Coefficient requirements of Package D or as determined by performance approach. [152(b)]
5. Compliance form/Calculations shows duct sealing is required. State on the plans that a third party testing agency shall test ducts for leakage. A Certificate of Field Verification and diagnostic testing signed and dated by HERS shall be submitted to building inspector prior to final inspection. NOTE: If using prescriptive package for compliance, using alternative stated in footnote 9 and 10 of Table 151-C will not require testing. [10-103(c)2]
6. Replacement fenestration (windows), where all the glazing in an existing fenestration opening is replaced with a new manufactured fenestration product, shall not exceed the U-factor and Solar Heat Gain Coefficient requirements of Package D or as determined by performance approach. [152(b)]

7. Compliance credit for air infiltration barrier in low rise residential buildings, show air infiltration barrier on construction section. [150(f)]

#### D. GENERAL NOTES – ALL BUILDINGS

The following notes shall be made part of the plans:

1. Operating information. The builder shall provide the building owner at occupancy the appropriate Certificate(s) of Compliance and a list of the features, materials, components, and mechanical devices installed in the building and instructions on how to operate them efficiently. The instructions shall be consistent with specifications set forth by the executive director.

For residential buildings, such information shall, at a min., include information indicated on forms Certificate of Compliance (CF-1R), Mandatory Measures (MF-1R), Installation Certificate (CF-6R), Insulation Certificate (IC-1), and a manual which provides all information specified in this section 10-103(b). The Home Energy Manual (P400-92-031, July 1992) may be used to meet the requirement for providing this manual. [Title 24, Part 1, Section 10-103(c)1]

2. The builder shall provide to the building owner at occupancy maintenance information for all features, materials, components, and manufactured devices that required routine maintenance for efficient operation. Required routine maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label may be limited to identifying, by title and/or publication number, the operation and maintenance manual for that particular model and type of feature, material, component, or manufactured device.

For dwelling units, buildings or tenant spaces which are not individually owned and operated, or are centrally operated, such information shall be provided to the person(s) responsible for maintaining the feature, material, component, or mechanical device installed in the building. [Title 24, Part 1, Section 10-103(c)2]

3. All systems, equipment and/or building components shall comply with the applicable manufacturer provisions and installation provisions of Title 24, Part 6, Chapter 2, Sections 111 through 119.
4. All appliances for which a California Standard has been established in the Appliance Efficiency

Regulations shall be certified by the manufacturer as compliant with the applicable standards. [Title 24, Part 6, Chapter 2, Section 111]

5. Service water-heating systems that have a total capacity greater than 167,000 Btu/hr, shall have separate remote heaters, heat exchangers, or boosters to supply higher temperature at outlets that require higher than service water temperatures as listed in the 1995 ASHRA E Handbook. [Title 24, Part 6, Chapter 2, Section 113]
6. Controls for service water-heating systems shall limit the outlet temperature at public lavatories to 110 EF. [Title 24, Part 6, Chapter 2, Section 113]
7. Unfired service water-heater storage tanks and backup tanks for solar water-heating systems shall have:
- a. External insulation with an installed R-value of at least R-12, or
  - b. Internal and external insulation with a combined R-value of at least R-16, or
  - c. The heat loss of the tank surface, based on an 80 EF water-air temperature difference shall be less than 6.5 Btu/hr per square foot. [Title 24, Part 6, Chapter 2, Section 113]
8. Any pool or spa heating system or equipment shall:
- a. Have a thermal efficiency for gas-fired systems of at least 78%, when tested according to ANSI standard Z21.56-1994.
  - b. Have a readily accessible on-off switch, mounted on the outside of the heater that allows shutting off the heater without adjusting the thermostat setting.
  - c. Have a permanent, readable, weatherproof instruction card that gives instructions for the proper, energy efficient operation of the pool or spa.
  - d. Not utilize electric resistance heating or a pilot light.
  - e. Have at least 36" of pipe between the filter and heater to allow for the future addition of solar heating equipment.
  - f. Have a thermal insulation cover for outdoor pools or spas.
  - g. Have directional inlets for the pool or spa that adequately mix the pool water.
  - h. Have a time switch for the circulation pump that allows the pump to run in the off-peak electric demand period, and for the min. time necessary to maintain the water in the condition required by applicable public health standards. [Title 24, Part 6, Chapter 2, Section 114]

9. Space conditioning equipment shall meet the efficiency standards specified in Title 24, Part 6, Chapter 2, Section 112.
10. Pilot lights shall be prohibited for:
  - a. Fan-type central furnaces
  - b. Household cooking appliances, except noted below.
  - c. Pool heaters
  - d. Spa heaters

Except for household cooking appliances without an electrical supply voltage connection and in which each pilot consumes less than 150 Btu/hr. [Title 24, Part 6, Chapter 2, Section 115]
11. Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft<sup>2</sup> of window area, 0.3 cfm/ft<sup>2</sup> of residential door area, 0.3 cfm/ft<sup>2</sup> of nonresidential single door area, and 1.0 cfm/ft<sup>2</sup> of nonresidential double door area. [Title 24, Part 6, Chapter 2, Section 116]
12. Fenestration products, other than products which are removed and reinstalled, shall be certified for overall U-values and overall SHGC, and shall have a temporary label which lists the certified U-value and SHGC, and certifies that applicable air infiltration requirements are met. [Title 24, Part 6, Chapter 2, Section 116]
13. Field manufactured fenestration products and exterior doors, other than unframed glass doors and fire doors, shall be caulked between the fenestration products or exterior door and the building, and shall be weatherstripped. [Title 24, Part 6, Chapter 2, Section 116]
14. Joints and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weatherstripped, or otherwise sealed to limit infiltration and exfiltration. [Title 24, Part 6, Chapter 2, Section 117]
15. Insulation shall be certified by the manufacturer as compliant with the California Quality Standards for Insulating Material, Title 24, Part 12, Chapter 12 & 13, CCR. [Title 24, Part 6, Chapter 2, Section 118]
16. Urea formaldehyde foam insulation may only be used in exterior side walls, and requires a four-mil-thick plastic polyethylene vapor barrier between the urea formaldehyde foam insulation and the interior space. [Title 24, Part 6, Chapter 2, Section 118]
17. All insulating material shall be installed in compliance with the flame spread rating and smoke density requirements of the IBC. [Title 24, Part 6, Chapter 2, Section 118]
18. If insulation is installed on an existing space conditioning duct, it shall comply with Section 605 of the CMC. [Title 24, Part 6, Chapter 2, Section 118]
19. If external insulation is installed on an existing unfired water storage tank or on an existing back-up tank for a solar water heating system, it shall have an R-value of at least R-12, or the heat loss of the tank surface based on an 80 EF water-air temperature difference shall be less than 6.5 Btu per hour per square foot. [Title 24, Part 6, Chapter 2, Section 118]
20. Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use as listed in Table 2, Chapter 49 of the ASHRAE Handbook and HVAC application handbook. [Title 24, Part 6, Chapter 2, Section 113]
21. Circulating service water-heating systems shall have a control capable of automatically turning off the circulating pump when hot water is not required. [Title 24, Part 6, Chapter 2, Section 113]
22. The opaque portions of framed demising walls shall have insulation with an installed R-value of at least R-13 between framing members. [Title 24, Part 6, Chapter 2, Section 118]

#### **E. GENERAL NOTES - RESIDENTIAL BUILDINGS**

The following notes shall be made part of the plans:

1. A masonry or factory-built fireplace shall have the following: [Title 24, Part 6, Chapter 7, Section 150(e)]
  - a. Closeable metal or glass doors covering the entire opening of the firebox;
  - b. A combustion air intake to draw air from the outside of the building directly into the firebox, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device (Exception: An outside combustion-air intake is not required if the fireplace will be installed over concrete slab flooring and the fireplace will not be located on an exterior wall.); and
  - c. A flue damper with a readily accessible control.



2. All heating and/or cooling systems other than wood stoves shall have an automatic thermostat with a clock mechanism or other setback mechanism approved by the Executive Director of the California Energy Commission that shuts the system off during peak periods of nonuse and that allows the building occupant to automatically set back the thermostat set points for at least two periods with 24 hours. [Title 24, Part 6, Chapter 7, Section 150(i) & 151(f)]
3. The min. installed weight per square foot of any loose-fill insulation shall conform with the insulation manufacturer's labeled R-value. [Title 24, Part 6, Chapter 7, Section 150(b)]
4. Insulation shall be provided for water heaters as follows: [Title 24, Part 6, Chapter 7, Section 150(j)]
  - a. Storage gas water heaters with an energy factor < 0.58 shall be externally wrapped with insulation having an insulated thermal resistance of R-12 or greater.
  - b. Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, shall be externally wrapped with insulation having an installed thermal resistance of R-12 or greater or have internal insulation of at least R-16 and a label on the exterior of the tank showing the insulation R-value.
  - c. Piping, whether buried or unburied, for recirculating sections of domestic hot water systems, piping from the heating source to the storage tank for an indirect-fired domestic water-heating system and the first five feet of hot and cold water pipes from the storage tank for non-recirculating systems and cooling systems shall be thermally insulated as specified in subsection A & B.
  - d. Solar water-heating systems and/or collectors shall be certified by the Solar Rating and Certification Corporation.
5. Lighting
  - a. **High Efficacy Luminaires.** High Efficacy Luminaires for residential lighting shall contain only high efficacy lamps and shall not contain a medium screw base socket (E24/E26). A high efficacy lamp has a lamp efficacy that is no lower than the efficacies contained in TABLE 150-C. Ballasts for lamps rated 13 Watts or greater shall be electronic and shall have an output frequency no less than 20 kHz.

**EXCEPTION to Section 150(k)1:** High intensity discharge luminaires containing hardwired electromagnetic ballasts in medium screw base sockets shall be considered high efficacy

luminaires for the purposes of meeting Section 150(k)6, provided they meet the efficacies contained in TABLE 150-C.

**NOTE:** To determine the min. lamp efficacy category only the watts of the lamp (not the ballast) are to be considered.

- b. **Lighting in Kitchens.** Permanently installed luminaires in kitchens shall be high efficacy luminaires.

**EXCEPTION to Section 150(k)2:** Up to 50% of the total rated wattage of permanently installed luminaires in kitchens may be in luminaires that are not high efficacy luminaires, provided that these luminaires are controlled by switches separate from those controlling the high efficacy luminaires. The wattage of high efficacy luminaires shall be the total nominal rated wattage of the installed high efficacy lamp(s). The wattage of luminaires shall be determined as specified by Section 130(c).

- c. **Lighting in Bathroom, Garages, Laundry Rooms, and Utility Rooms.** Permanently installed luminaires in bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires.

**EXCEPTION to Section 150(k)3:** Permanently installed luminaires that are not high efficacy shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with Section 119(d). Such motion sensors shall not have a control that allows the luminaire to be turned on automatically or that has an override allowing the luminaire to be always on.

- d. **Lighting other than in Kitchens, Bathrooms, Garages, Laundry Rooms, and Utility Rooms.** Permanently installed luminaires located other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires.

**EXCEPTION 1 to Section 150(k)4:** Permanently installed luminaires that are not high efficacy luminaires shall be allowed provided they are controlled by a dimmer switch.

**EXCEPTION 2 to Section 150(k)4:** Permanently installed luminaires that are not high efficacy shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with Section 119(d). Such motion sensors shall not



have a control that allows the luminaire to be turned on automatically or that has an override allowing the luminaire to be always on.

**EXCEPTION 3 to Section 150(k)4:** Permanently installed luminaires that are not high efficacy luminaires shall be allowed in closets less than 70 square feet.

**NOTE:** Lighting in areas adjacent to the kitchen, including but not limited to dining and nook areas, are considered kitchen lighting if they are not separately switched from kitchen lighting.

- e. **Recessed Luminaires in Insulated Ceilings.** Luminaires recessed into insulated ceilings shall be approved for zero clearance insulation cover (IC) by Underwriters Laboratories or other testing/rating laboratories recognized by the International Code Council, and shall include a label certifying air tight (AT) or similar designation to show air leakage less than 2.0 CFM at 75 Pascals (or 1.57 lbs/ft<sup>2</sup>) when tested in accordance with ASTM E283, and shall be sealed with a gasket or caulk between the housing and ceiling.
- f. **Outdoor Lighting.** Luminaires providing outdoor lighting and permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy luminaires.

**EXCEPTION 1 to Section 150(k)6:** Permanently installed outdoor luminaires that are not high efficacy shall be allowed provided that they are controlled by a motion sensor(s) with integral photocontrol certified to comply with Section 119(d).

**EXCEPTION 2 to Section 150(k)6:** Permanently installed luminaires in or around swimming pools, water features, or other locations subject to Article 680 of the California Electric Code need not be high efficacy luminaires.

- g. **Parking Lots and Garages.** Lighting for parking lots for eight or more vehicles shall comply with the applicable requirements in Sections 130, 132 and 147. Lighting for parking garages for eight or more vehicles shall comply with the applicable requirements in Sections 130, 131, and 146.
- h. **Common Areas of Low-rise Residential Buildings.** Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires.  
  
**EXCEPTION to Section 150(k)8:** Permanently installed luminaires that are not high efficacy shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with Section 119(d). [Title 24, Part 6, Chapter 7, Section 150(k)]
- 6. Material used for slab edge insulation shall meet the following min. specifications: [Title 24, Part 6, Chapter 7, Section 150(l)]
  - a. Water absorption rate no greater than 0.3%.
  - b. Water vapor permeance shall not be greater than 2.0 perm/inch.
  - c. Concrete slab perimeter insulation must be protected from physical damage and ultraviolet light deterioration.
- 7. Concrete-slab floor perimeter insulation shall be provided 16" deep, or the depth of the footing of the building, whichever is less. [Title 24, Part 6, Chapter 8, Section 151(f)]
- 8. If insulation is installed in the existing attic of a low-rise residential building, the total resultant R-value after the addition of the insulation shall be at least R-30. [Title 24, Part 6, Chapter 2, Section 118]
- 9. Raised floors separating conditioned spaces from unconditioned spaces shall be insulated between wood framing members with insulation having an installed thermal resistance of R-13 or greater. [Title 24, Part 6, Chapter 7, Section 150(d)]

**F. ADDITIONAL WRITTEN COMMENTS**

No.	Comment	Code Sec. No.