



Supplemental Plan Check Corrections Sheet for 2013 Building Energy Efficiency Standards

Plan Check / PCIS application number: _____

Job Address _____

P.C. Engineer _____ Phone _____

(Email: firstname.lastname@city.org)

For instruction and other information, read the master plan check list attached.

NOTE: Numbers in parenthesis [] refer to Code sections of Title 24, California Code of Resources, Part 6. Tables referenced herein are from:

- 2013 California State Building Energy Efficiency Standards,
- 2013 Referenced Appendices
- 2013 Residential Compliance Manual
- 2013 Non-Residential Compliance Manual

A copy of referenced standards above can be obtained at: <http://www.energy.ca.gov/title24/2013standards/>

A. All Buildings

- Specify design package used and method of compliance:
 - Prescriptive Component Package A
 - Performance Approach
- The following compliance documents shall be attached to plan:
 - Certificate of Compliance Documents
 - Mandatory Features Summary
 - _____
- 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, call 1-800-772-3300 or visit their website at : <http://www.energy.ca.gov/title24/2013standards/>
- Proposed fenestration U-Factor does not conform with Defaults values from Table 110.6-A. / Alternate Defaults values from table NI-1 (*ACM manual*). Specify on plan NFRC rated products are required for all fenestration with Non-Default U-Factors.
- The Solar Heat Gain Coefficient (SHGC) for proposed glazing does not conform with Defaults values from Table 110.6-B. Specify on plan NFRC rated products are required for all fenestration with Non-Default SHGC.

- The conditioned floor area shown on CF-1R form does not match with plans submitted. Revise calculation(s) accordingly.
- The window area (at _____ facing wall) shown on CF-1R-_____ form does not match with plans submitted. Revise calculation(s) accordingly.
- Incorporate the fenestration SHGC and U-factors required as per CF-1R form with window schedule.
- Provide construction details for all energy insulation assemblies. Show type of insulation on sections.

B. Non-residential, High-rise residential, and hotel / motel buildings

- Insulation is not allowed on T-bar ceiling. [110.8(e)]
- Opaque portions of framed demising walls shall have insulation with no less than R-13. [110.8(f)]
- Prescriptive requirement for building envelope :
 - 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 CRR. [10-113, 140.1, 140.2, 141.1(b)2.B]

- Skylight(s) are required for building over 5,000 ft², ceiling heights over 15-0", and lighting power density over 0.5 W/ft². [140.3(c)]
- Combined total of at least 75 percent of the floor area shall be in the primary Sidelight Daylight Zone in accordance with Section 130.1(d)1B, or Skylit Daylit Zone in accordance with Section 130.1(d)1A. All Skylit Daylit Zones and Primary Sidelit Daylit Zones shall be shown on building plans [140.3(c)].

10. HERS field verification is required. The person(s) responsible for the Certificate(s) of Compliance shall submit the Certificate(s) for registration and retention to a HERS provider data registry. The submittals to the HERS provider data registry shall be made electronically in accordance with the specifications in Reference Joint Appendix JA7. For additional information visit www.energy.ca.gov/HERS/.

C. Low Rise Residential Buildings

1. Prescriptive requirement for building envelope [TABLE.150.1-A]:

- Provide R-____ insulation at Roof/ Ceiling, R-____ insulation at walls, and R-____ insulation at floors.
- Provide radiant barrier. Show details on the plans.
- The maximum total fenestration area shall not exceed 20 percent of conditioned floor area, CFA.
- The maximum west facing fenestration area shall not exceed 5 percent of CFA.
- Installed fenestration products shall have an area weighted average U-factor of 0.32, and SHGC no greater than 0.25.
- Heating system types shall be installed as required in TABLE 150.1-A.
- All space heating and space cooling equipment shall comply with minimum Appliance Efficiency Regulations as specified in Sections 110.0 through 110.2 and meet all applicable requirements of Sections 150.0 and 150.1(c)7
- Provide Whole House Fan per section 150.1(c)(12).
- Water-heating systems shall meet the requirements of section 150.1(c)(8)
- Ducting shall have R-6 insulation

2. Replacement fenestration, where all the glazing in an existing fenestration opening is replaced with a new manufactured fenestration product, shall not exceed the U-factor and SHGC requirements of Package A or as determined by performance approach. [150.1(b)]

D. General Notes

Attach the following notes to plan :

1. Operating information. The builder shall provide the building owner at occupancy, operating information for all applicable features, materials, components, and mechanical devices installed in the building. Operating information shall include instructions on how to operate the features, materials, components, and mechanical devices correctly and efficiently. The instructions shall be consistent with specifications set forth by the Executive Director. For residential buildings, such information shall be contained in a folder or manual which provides all Certificate of Compliance, Certificate of Installation, and Certificate of Verification documentations. This operating information shall be in paper or electronic format. [10-103(b)(2)]
2. Maintenance information. The builder shall provide to the building owner at occupancy, maintenance information for all features, materials, components, and manufactured devices that require 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. [10-103(b)(3)]
3. All systems, equipment and/or building components shall comply with the applicable manufacturer provisions and installation provisions of Sections 110.0 through 110.10.
4. Any appliance regulated by the Appliance Efficiency Regulations, Title 20 California Code of Regulations, Section 1601 et seq., may be installed only if the appliance fully complies with Section 1608(a) of those regulations. [110.1]
5. 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 3, Chapter 50 of the ASHRAE Handbook, HVAC Applications Volume. [110.3(a)(1)]

6. On systems that have a total capacity greater than 167,000 Btu/hr, outlets that require higher than service water temperatures as listed in the ASHRAE Handbook, Applications Volume, shall have separate remote heaters, heat exchangers, or boosters to supply the outlet with the higher temperature. [110.3(c)(1)]
7. Service hot water systems with circulating pumps or with electrical heat trace systems shall be capable of automatically turning off the system. [110.3(c)(2)]
8. Controls for service water-heating systems shall limit the outlet temperature at public lavatories to 110°F. [110.3(c)(3)]
9. 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°F water-air temperature difference shall be less than 6.5 Btu/hr per square foot. [110.3 (c)(4)]
10. Space conditioning equipment shall meet the efficiency standards specified Section 120.2.
11. Pilot lights shall be prohibited for: [110.5]
 - a) Fan-type central furnaces
 - b) Household cooking appliances, except for household cooking appliances without an electrical supply voltage connection and in which each pilot consumes less than 150 Btu/hr
 - c) Pool heaters
 - d) Spa heaters
12. Any pool or spa heating system or equipment shall:
 - a) A thermal efficiency that complies with the Appliance Efficiency Regulations
 - 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) Not utilize electric resistance heating.
 - d) Have a thermal insulation cover for outdoor pools or spas that have a heat pump or gas heater.
- e) Have a permanent, readable, weatherproof instruction card that gives instructions for the proper, energy efficient operation of the pool or spa heater.
- f) Have at least 36 inches of pipe between the filter and heater or dedicated suction and return lines, or built-in or built-up connections shall be installed to allow for the future addition of solar heating equipment.
- g) Have directional inlets for the pool or spa that adequately mix the pool water.
- h) A time switch or similar control mechanism shall be installed as part of a pool water circulation control system that will allow all pumps to be set or programmed to run only during the off-peak electric demand period and for the minimum time necessary to maintain the water in the condition required by applicable public health standards.
13. Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft² of window area, 0.3 cfm/ft² of residential door area, 0.3 cfm/ft² of nonresidential single door area, and 1.0 cfm/ft² of nonresidential double door area. [110.6(a)(1)]
14. Fenestration products 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. [110.6(a)(2), 110.6(a)(5)]
15. 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. ([110.6(a)(6)])
16. 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. [110.7]
17. Insulation shall be certified by Department of Consumer Affairs, Bureau of Home Furnishing and Thermal Insulation that the insulation conductive thermal performance is approved pursuant to the California Code of Regulations. ([110.8(a)])
18. 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. ([110.8(b)])

19. Insulating material shall be installed in compliance with the flame spread rating and smoke density requirements of the CBC. ([110.8(c)])
20. Insulation installed on an existing space conditioning duct, it shall comply with Section 605 of the CMC. ([110.8(d)(3)])
21. External insulation 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 °F water-air temperature difference shall be less than 6.5 Btu per hour per square foot. ([110.8(d)(2)])
22. The opaque portions of framed demising walls shall have insulation with an installed R-value of at least R-13 between framing members. ([110.8(f)])
4. All pumps and pump motors installed shall be listed in the Commission's directory of certified equipment and shall comply with the Appliance Efficiency Regulations.
5. The minimum installed weight per square foot of any loose-fill insulation shall conform with the insulation manufacturer's labeled R-value [150.0 (b)]
6. Material used for slab edge insulation shall meet the following minimum specifications:
 - a) Water absorption rate no greater than 0.3 percent.
 - b) Water vapor permeance no greater than 2.0 perm/inch.
 - c) Concrete slab perimeter insulation must be protected from physical damage and ultraviolet light deterioration.
 - d) Insulation for a heated slab floor shall meet the requirements of Section 110.8(g). [150.0 (l)]

Residential Notes:

1. A masonry or factory-built fireplace shall have the following:
 - 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. [150.0 (e)]
2. Heating systems shall be equipped with thermostats that meet the requirements of Section 110.2(c).
3. Gas or propane water heaters shall have:
 - a) A 120V electrical receptacle that is within 3 feet from the water heater.
 - b) A Category III or IV vent, or a Type B vent with straight pipe.
 - c) Condensate drain that is no more than 2 inches higher than the base.
 - d) A gas supply line with a capacity of at least 200,000 Btu/hr
7. Concrete-slab floor perimeter insulation shall be provided 16 inches deep, or the depth of the footing of the building, whichever is less. [150.1(c)(1)(D)]
8. The crawl space shall be covered with a Class I or Class II vapor retarder.
9. Insulations are required for:
 - a) All hot water pipes from the heating source to the kitchen fixtures.
 - b) All piping with a nominal diameter of 3/4 inch or larger.
 - c) The first 5 feet (1.5 meters) of hot and cold water pipes from the storage tank
10. Insulation shall be provided for water heaters as follows:
 - a) Storage gas water heaters with an energy factor equal to or less than the federal minimum standards 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. [150.0 (j)]

11. Lighting [150.0(k)]

a) Installed luminaires shall be classified as high-efficacy or low-efficacy for compliance with Section 150.0(k) in accordance with TABLE 150.0-A or TABLE 150.0-B, as applicable.

b) A minimum of 50 percent of the total rated wattage of permanently installed lighting in kitchens shall be high efficacy. For the purpose of compliance with Section 150.0(k), kitchen lighting includes all permanently installed lighting in the kitchen except for lighting that is internal to cabinets for the purpose of illuminating only the inside of the cabinets. 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.

EXCEPTION: Up to 50 watts for dwelling units less than or equal to 2,500 ft² or 100 watts for dwelling units larger than 2,500 ft² may be exempt from the 50 percent high efficacy requirement when all lighting in the kitchen is controlled in accordance with the applicable provisions in Section 150.0(k)(2), and is also controlled by vacancy sensors or dimmers.

c) Lighting installed in bathrooms shall meet the following requirements:

- i) A minimum of one high efficacy luminaire shall be installed in each bathroom; **and**
- ii) All other lighting installed in each bathroom shall be high efficacy or controlled by vacancy sensors.

d) Lighting installed in attached and detached garages, laundry rooms, and utility rooms shall be high efficacy luminaires **and** controlled by vacancy sensors.

e) Lighting installed in rooms or areas other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy, **or** shall be controlled by either dimmers or vacancy sensors.

EXCEPTION 1: Luminaires in closets less than 70 square feet.

EXCEPTION 2: Lighting in detached storage buildings less than 1,000 square feet located on a residential site.

f) A. In a low-rise multifamily residential building where the total interior common area in a single

building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building shall be high efficacy luminaires or controlled by an occupant sensor.

g) In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting in that building shall:

- i) Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and
- ii) Lighting installed in corridors and stairwells shall be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors shall be capable of turning the light fully On and Off from all designed paths of ingress and egress.

h) All recessed lighting must be IC at AT rated, and must be sealed

Additional Corrections:
