



City of Bradbury Building Department Energy Requirements

State Energy Standards and Requirements for Small Residential Room Additions

The State of California has mandated that new residential room additions comply with the 2007 California Energy Code. In general, additions must comply with either the performance analysis method (i.e., computer method) or the prescriptive requirements specified in Package D of the standards. The following is a summary of the state's prescriptive energy standards:

1. Exterior wall spaces must be insulated with R-13 insulation.
2. Ceiling spaces must be insulated with R-30 insulation.
3. Raised floors must be insulated with R-19 insulation.
4. Manufactured exterior windows and skylights must have a label showing the U-factor and Solar Heat Gain Coefficient (SHGC); in addition, the label must certify that the window or skylight complies with the state's infiltration standards. The glazing U-factor must not exceed 0.38 and the glazing SHGC cannot exceed a value of 0.31.
5. Manufactured exterior doors must have a label that certifies that the door meets state infiltration standards; in addition, doors with a glazed area that exceeds $\frac{1}{2}$ the area of the door must comply with the state's requirements for windows and be labeled with the U-factor and SHGC values.
6. The area of glazing in windows and exterior doors cannot exceed 20% of the floor area of the addition, of which a maximum of 5% is allowed as west facing glazing. The area of glazing may be increased by the amount of the glazing removed in the wall that separates the addition from the existing house.
7. Exterior joints around windows and doors, between sole plate and foundation, openings for plumbing, electrical and gas lines and similar openings in the building envelope must be caulked, gasketed, weather stripped or otherwise sealed.
8. All new heating and air conditioning duct systems must be insulated to a minimum value of R-6. Also, joints and seams located in the duct system must be mechanically fastened using draw bands or nylon duct ties and sealed with mastic, tape or an aerosol sealant in accordance with the manufacture's installation instructions and the applicable requirements of U.L. Standard 181, 181A and/or 181 B or 723. Cloth backed duct tape cannot be used.
9. All new central furnaces must have a minimum 78% AFUE efficiency rating and split system air conditioning units must have a minimum 13.0 SEER efficiency rating. Also, an automatic setback type thermostat is required for all new central heating and air conditioning systems.
10. A radiant barrier, which is certified by the State Department of Consumers Affairs, must be installed at the roof and gable end walls in compliance with the manufacture's installation instructions and requirements.
11. Fireplaces must comply with the following:

- a) A minimum 6 square inch air intake opening with a readily accessible, operable, and tight fitting damper or air control device shall be provided except where the fireplace is installed over a concrete slab and is not located on an exterior wall.
 - b) Continuous burning gas pilot lights are prohibited.
 - c) A flue damper with a readily accessible control must be installed except that the flue damper may be blocked open when a gas log, log lighter or decorative gas appliance is installed in the fireplace.
 - d) A closeable metal or glass doors must be provided to cover the entire opening of the firebox.
12. Water heaters with an Energy Factor of less than 0.58 must be externally insulated with R-12 or greater insulation and hot and cold-water piping located in unconditioned space must be insulated to R-4 five feet out from the water heater.
13. Lighting must comply with the following:
- a) One-half of the total rated wattage of permanently installed lighting in kitchens must be high efficiency luminaries.
 - b) Lighting installed in garages, laundry rooms, utility rooms and bathrooms must be high efficiency luminaries unless controlled by an occupant sensor.
 - c) Lighting installed in all rooms except as noted above must be high efficiency luminaries unless controlled by an occupant sensor or a dimmer. Closets that are less than 70 square feet in area are exempt from this requirement.
 - d) Lighting installed outdoors and mounted to a building must be high efficiency luminaries unless controlled by a combination photo control and motion sensor, time clock or energy management control system that do not have override or bypass switches.
 - e) Occupant sensors must be the manual on and automatic off type, cannot have a manual override switch and must have a maximum 30-minute integral timer. Also, the sensor should provide the option of turning the lights off upon leaving the room.
 - f) The high efficiency lighting must be switched separately from the rest of the lighting. In addition, the high efficiency lighting cannot contain incandescent lamp sockets (i.e., must be the pin type).
 - g) Lighting fixtures recessed into insulated ceilings must be IC rated (i.e., approved for zero clearance) and have a gasket or caulking between the housing and the ceiling to prevent the flow of heated or cooled air between conditioned and unconditioned spaces. The recessed lighting fixture must have a visible label certifying that it is of airtight construction.
14. All fan systems that exhaust air from the building envelop to outside air must be provided with back draft dampers and switched separately from lighting systems.