Form #186

# Code Compliance Checklist

# REACH CODE NON-RESIDENTIAL, HIGH-RISE RESIDENTIAL AND HOTEL/MOTEL

**Building and Safety**
**Permit Service Center**

In addition to all requirements of the California Energy Code, newly constructed buildings shall comply with the performance standards associated with the building energy type (all-electric building or mixed-fuel building). Buildings designed to utilize mixed-fuel can choose between the prescriptive or performance requirements as stated herein.

This checklist is provided by the City of Berkeley in order to demonstrate compliance with the Energy Code and facilitate permit approval.

Numbers in parenthesis refer to code sections of the Berkeley Energy Code (BEnC).

**Building and Safety**
1947 Center St. 3rd floor
Berkeley, CA 94704
510-981-7440 TTY 6903
buildingandsafety@cityofberkeley.info

## Project Information

Project Address: _____

Permit Number: _____

**Note:** *Electric Vehicle Charging standards are covered in the CALGreen Code Compliance Checklists by building type: High-rise Multifamily and Hotel/Motel (CALGreen Residential Form #164 and CALGreen Non-Residential Form #165).*

## Buildings Covered (The Reach Code only applies to newly constructed buildings)

☐ High-rise Multifamily ☐ Hotel/Motel ☐ Nonresidential

## Mandatory Requirements (Required for both Prescriptive or Performance approaches)

### Photovoltaic Requirement

☐ The solar zone, as specified in CEnC 110.10, shall have a solar PV system installed, subject to the exceptions in CEnC 110.10. [CEnC 140.0(b)1]

## Performance Approach

### All-Electric Buildings

☐ A newly constructed All-Electric Building complies with the performance approach if the energy budget calculated for the Proposed Design Building is no greater than the energy budget calculated for the Standard Design Building. [CEnC 140.1]

### Mixed-Fuel Buildings

☐ **Laboratory, Industrial, or Manufacturing Uses**

A newly constructed Mixed-Fuel Building occupied for laboratory, industrial, or manufacturing uses complies with the performance approach if the energy budget calculated for the Proposed Design Building is no greater than the energy budget calculated for the Standard Design Building. [CEnC 140.1]

☐ **All other Nonresidential Mixed-fuel Uses**

A newly constructed Mixed-Fuel Building occupied for other than laboratory, industrial, or manufacturing uses, complies with the performance approach if the energy budget calculated for the Proposed Design Building has a compliance margin, relative to the energy budget calculated for the Standard Design Building of at least 10%.[CEnC 140.1]

### Certified Energy Analyst

☐ For newly constructed buildings, if the Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the energy budget for the Proposed Design is no greater than the Standard Design Building, the required compliance margin is reduced by 1%. [CEnC 140.1]

## Prescriptive Approach

To comply using the prescriptive approach, a building shall be designed with systems and components meeting the applicable requirements of CEnC 140.3 through 140.9 and the following measures, as applicable: [CEnC 140.2]

### Mixed-Fuel Buildings of Hotel, Motels or High-Rise Multifamily Occupancies

☐ Install fenestration with a solar heat gain coefficient no less than 0.45 in both common spaces and guest rooms.

- ☐ Design Variable Air Volume VAV) box minimum airflows to be equal to the zone ventilation minimums.
- ☐ Include economizers and staged fan control in air handlers with a mechanical cooling capacity ≥ 33,000 Btu/h.
- ☐ Reduce the lighting power density (Watts/ft²) by ten percent (10%) from that required from CEnC Table 140.6-C.
- ☐ In common areas, improve lighting without claiming any Power Adjustment Factor credits:
  - Control to daylight dimming plus off per CEnC 140.6(a)2.H; and
  - Perform Institutional Tuning per CEnC 140.6(a)2.J
- ☐ Install one drain water heat recovery device per every three guest rooms that is field verified as specified in the Reference Appendix RA3.6.9.

**All Other Nonresidential Mixed-Fuel Buildings Except Laboratory, Industrial or Manufacturing**

- ☐ Install fenestration with a solar heat gain coefficient no greater than 0.22.
- ☐ Limit the fenestration area on east-facing and west-facing walls to one-half of the average amount of north-facing and south-facing fenestration.
- ☐ Design Variable Air Volume (VAV) box minimum airflows to be equal to the zone ventilation minimums where VAV systems are installed.
- ☐ Include economizers and staged fan control in air handlers with a mechanical cooling capacity ≥ 33,000 Btu/h.
- ☐ Reduce the lighting power density (Watts/ft²) by ten percent (10%) from that required from CEnC Table 140.6-C.
- ☐ Improve lighting without claiming any Power Adjustment Factor credits:
  - Perform Institutional Tuning per CEnC 140.6(a)2.J, and
  - In office spaces, control to daylight dimming plus off per CEnC 140.6(a)2.H, and
  - Install Occupant Sensing Controls in Large Open Plan Offices per CEnC 140.6(a)2. I.

## Electric Readiness for Mixed-Fuel Buildings

**Circuit Capacity.** A Mixed-Fuel Building shall have conductors or raceway shall be installed with termination points at the main electrical panel and at a location no more than 3 feet from each gas outlet or a designated location of a future electric replacement appliance. The conductors or raceway and any intervening subpanels shall be sized to meet the future following electric power requirements: [CEnC 140.0(b)2]

- ☐ **Domestic Hot Water:**
  - 24 amps at 240 volts per dwelling unit; or
  - The electrical power required to provide equivalent functionality of the gas powered equipment as calculated and documented by a licensed design professional associated with the project.
- ☐ **Space Heating:**
  - 24 amps at 240 volts per dwelling unit or
  - The electrical power required to provide equivalent functionality of the gas powered equipment as calculated and documented by a licensed design professional associated with the project.
- ☐ **Clothes Dryer:**
  - 24 amps at 240 volts per domestic dryer; or
  - The electrical power required to provide equivalent functionality of the gas powered equipment as calculated and documented by a licensed design professional associated with the project.
- ☐ **Cooking Equipment in Residential Space:**
  - Range or cooktop: 32 amps at 240 volts per appliance.
  - Stand-alone oven: 16 amps at 240 volts per appliance.
- ☐ **Pools and Spas:**
  - The electrical power required to provide equivalent functionality of the gas powered equipment as calculated and documented by a licensed design professional associated with the project.

**Service Capacity**

- ☐ Mixed-Fuel Building shall have space for additional overcurrent protective devices as well as bus bars of adequate capacity in the main electrical panel and any subpanels to meet all of the building's potential future electrical requirements as specified in CEnC 140.0(b)2. [CEnC 140.0(b)3A]

☐ All newly installed raceways in a Mixed-Fuel Building between the main electric panel and any subpanels, and the point at which the conductors serving the building connect to the common conductors of the utility distribution system, shall be sized for conductors adequate to serve all of the building's potential future electric loads as specified in CEnC 140.0(b)2. [CEnC 140.0(b)3B]

☐ The capacity requirements may be adjusted for demand factors in accordance with the CEC 220. [CEnC 140.0(b)3C]

**Note:** The requirements of Sections 140.0(b)2, 3 and 4 are not intended to trigger additional transformer capacity from the public utility at the time of construction.

**Other Requirements** A Mixed-Fuel Building shall include the following components for equipment that serve individual residential units: [CEnC 140.0(b)4]

☐ **Water Heating**

- The conductors or raceway shall terminate in an area that meets all of the requirements below:
- Is at least 3 feet by 3 feet by 7 feet high; and
- If a condensate line is not attached to the water heater, a condensate line for future use shall be provided that is no less than ¾ inch in diameter, compliant with CPC 814, is no more than 2 inches higher than the base of the installed water heater, and located within 12 inches of the water heater.

☐ **Space Heating**

- The conductors or raceway shall terminate in an area that has a condensate drain that is no less than ¾ inch in diameter, compliant with CPC 814, is no more than two inches higher than the base of the installed heating equipment, and located within 12 inches of the designated location of the heating equipment.

**Additional:**

I certify that I have read and acknowledged all of the Code Requirements noted above. I accept full responsibility for complying with all of the above requirements, as applicable to my project. I further agree that if I fail to comply with the code requirements, due to error or omission, I will correct all deficiencies prior to final inspection.

| Name | Signature | Date |
|---|---|---|
| | | |

Check One: ☐ Contractor ☐ Owner ☐ Owner's Agent