**2022 Model Existing Building All-Electric Part 11 Reach Code – Time of Replacement and Renovation**

In recognition of the significant contribution that methane gas use in buildings makes to climate change, Peninsula Clean Energy, Silicon Valley Clean Energy, and East Bay Community Energy encourage all member jurisdictions to consider adopting a combination of codes, incentives, and programs to decarbonize existing buildings.

The following Time of Replacement and Renovation Model Code serves as a menu of building code options for jurisdictions to consider when customizing a code through stakeholder discussions. The majority of the model code represents electrification and electric-readiness measures integrated during low-cost opportunities within a project scope, such as appliance replacement. Exception criteria are intended to avoid high-cost requirements but staff are encouraged to delete exceptions that do not apply to the city. The Model Code represents recommended local building code amendments to cross-referenced portions of the 2022 Title 24 Part 11 of the California Code of Regulations, the California Green Building Standards Code (also known as CALGreen). Additions are underlined, ~~deletions are stricken through~~.

While the Model Code *is* intended to be broad and comprehensive, it is *not* intended to be a recommendation toward all jurisdictions to adopt every element. Each jurisdiction will need to consider unique circumstances, demographics, legalities, resources, and capabilities before adoption. In addition, all jurisdictions should consider the costs of complying with codes and the availability of complementary resources at its disposal, to achieve code compliance and ensure that their code produces equitable and just outcomes.

Please visit [BayAreaReachCodes.Org](https://bayareareachcodes.org/) for [case studies](https://bayareareachcodes.org/wp-content/uploads/2023/01/Existing-Buildings-Suggested-Framework-and-Policy-Examples-.pptx) and an alternative [Municipal Ordinance](https://bayareareachcodes.org/wp-content/uploads/2022/09/Existing-Building-All-Electric-Municipal-Ordinance.docx) Model Code which includes elements that are not suited for a building code amendment, such as disclosure policies and an end-of-flow date.

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| **Version Date** | **Summary of Updates** |
| February 2023 | 1st Draft |
| March 2023 | 1. Added exception for water heater replacement
2. Minor wording revisions
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--------------------------------------BEGINNING OF CODE------------------------------------------------

**Part 11 – California Green Building Standards Code (CALGreen)**

**CHAPTER 2 – DEFINITIONS**

**ADDITION.** An extension or increase in floor area of an existing building or structure.

**ALTERATION OR ALTER.** Any construction or renovation to an existing structure other than repair for the purpose of maintenance or addition.

**APPLIANCE UPGRADE.** The installation, relocation, or replacement of any appliance.

**COMMERCIAL FOOD HEAT-PROCESSING EQUIPMENT.** Equipment used in a food establishment for heat-processing food or utensils and that produces grease vapors, steam, fumes, smoke, or odors that are required to be removed through a local exhaust ventilation system, as defined in the California Mechanical Code.

**FUEL GAS**. Natural, manufactured, liquefied petroleum, methane, or a mixture of these, as defined in the California Mechanical Code.

**FUEL GAS INFRASTRUCTURE.** Piping, other than service pipe, in or in connection with a building, structure or within the property lines of premises, extending from the point of delivery at the gas meter, service meter assembly, outlet of the service regulator, service shutoff valve, or final pressure regulator, whichever is applicable, as defined in the California Mechanical Code.

**REPAIR.** Reconstruction, replacement, or renewal of any part of an existing building for the purpose of its maintenance or to correct damage, as defined in the California Existing Building Code.

**CHAPTER 4 – RESIDENTIAL MANDATORY MEASURES**

***Division 4.1 PLANNING AND DESIGN***

**SECTION 4.106**

**SITE DEVELOPMENT**

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**4.106.5 All-electric buildings.**

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**4.106.5.1. New construction and qualifying alteration projects.**

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**4.106.6.1. Existing residential dwellings.** Appliance upgrades shall follow the requirements of section 4.106.6.1.1 through 4.106.6.1.6.

4.106.6.1.1 Space cooling or space heating appliance upgrades shall use electricity for space heating, unconnected to fuel gas infrastructure*.* Any other space heating system serving the space shall be configured to provide supplemental heat*.*

4.106.6.1.2 Water heater appliance upgrades, including for use in pools and spas, shall be all-electric, unconnected to fuel gas infrastructure.

ALTERNATIVE-1: 4.106.6.1.2 Domestic water heater appliance upgrades shall have a 240 volt, 30 ampere circuit and receptacle installed within 6 feet of appliance location. Water heater appliance upgrades for pools and spas shall have a 240 volt, 50 ampere circuit and receptable installed within 6 feet of the appliance location.

ALTERNATIVE-2: 4.106.6.1.2 Alterations with permit valuations exceeding $200,000 shall include a domestic water heater appliance upgrade which shall be all-electric, unconnected to fuel gas infrastructure.

Exceptions:

1. Where the existing water heater is served by fuel gas infrastructure, is instantaneous, serves an area greater than 500 square feet, and the existing water heater is in a location that is smaller than 2.5 feet by 2.5 feet wide and 7 feet tall including required setbacks.
2. Appliances installed that have a demand of over 500 gallons/day of hot water.
3. Where the appliance upgrade is serving an existing pool.
4. Water heating systems served by an existing solar thermal hot water system.
5. Water heating systems contained entirely inside conditioned space.
6. Where the existing water heater is in a location that contains no electrical receptacle within 4 feet, unobstructed, of the water heater.
7. Emergency water heater replacements subject to California Residential Code 105.2.1.

**4.106.6.1.3.** Kitchen alterations shall include a cooking appliance upgrade which shall be all-electric, not connected to fuel gas infrastructure.

ALTERNATIVE-1: 4.106.6.1.3 Kitchen alterations shall include a 240v, 50 ampere circuit and receptacle installed within 6 feet of the cooktop, oven, and/or range location.

ALTERNATIVE-2: 4.106.6.1.3 Cooking appliance upgrades shall be all-electric, not connected to fuel gas infrastructure.

**4.106.6.1.4** Alterations to areas designated for the installation of laundry equipment shall include a clothes-drying appliance upgrade which shall be all-electric, not connected to fuel gas infrastructure.

ALTERNATIVE-1: 4.106.6.1.4 Alterations to areas designated for the installation of laundry equipment shall include a 240v, 30 ampere circuit and receptacle installed within 6 feet of clothes drying appliance location.

ALTERNATIVE-2: 4.106.6.1.4 Clothes drying appliance upgrades shall be all-electric, not connected to fuel gas infrastructure.

**4.106.6.1.5** Alterations or additions that include or require an increase to the capacity of electrical panels or transformers as part of the scope shall include reserved physical space for circuit breakers on the electrical panel, and reserved electrical capacity on transformers, as calculated per California Electric Code Section 220 for the following current or proposed appliances as applicable to the project site, that will not be connected to fuel gas infrastructure:

1. Electric water heaters meeting the requirements of the California Energy Code.
2. Electric space heater and air-conditioner meeting the requirements of the California Energy Code.
3. Electric pool and/or spa water heater.
4. Electric clothes dryer.
5. Electric cooking equipment.
6. Electric vehicle charger.
7. Solar photovoltaic array

EXCEPTION 1: Busbar electrical capacity shall not be required to exceed the proposed utility electrical service to the building <OPTIONAL: if the utility service is underground>. Capacity and circuit breaker spaces shall be reserved in the priority listed above to the extent allowable under the proposed busbar capacity.

EXCEPTION 2: Reserved electric vehicle charger panel capacity may be shared with one of the following: water heater, clothes dryer, or cooking equipment.

EXCEPTION 3: Reserved cooking equipment panel capacity may be shared with one of the following: water heater, spa heater, or pool heater.

EXCEPTION 4: Electrical panels with internet-connected circuit breakers that monitor circuit load and manage power distribution.

**4.106.6.1.6** Existing fuel gas infrastructure shall not be extended to any system or device within a building. Inactive fuel gas infrastructure shall not be activated or otherwise operated.

**Exceptions to 4.106.6.1:**

1. Where meeting the requirements of section 4.106.6.1 would necessitate an increase in capacity for an electrical panel, feeders, transformer, or electrical service that is not part of the appliance upgrade scope, to meet the requirements of the California Electrical Code. To qualify for this exception, applicant must provide a calculation conforming to the California Electrical Code.
2. Subsidized Housing
	1. Dwelling Units, regardless of ownership, for which the Rents are subsidized or regulated by federal law or by regulatory agreements between a Landlord and (a) the City, (b) the Housing Authority, or (c) any agency of the State of California or the Federal Government. If a Dwelling Unit no longer qualifies for the full or partial exemption under this Section, for example, the Landlord withdraws from a subsidy program or a regulatory agreement expires and/or is not renewed, the Dwelling Unit will immediately be subject to all provisions of this Article.
	2. Dwelling Units owned by the Housing Authority.
	3. Rooms in a building or Dwelling Unit that provides a structured living environment that has the primary purpose of helping formerly homeless persons obtain the skills necessary for independent living in permanent housing and where occupancy is limited to a specific period and where the occupant has been informed in writing of the temporary nature of the arrangement at the inception of the occupancy.
	4. Floating (boat) homes
3. Economic hardship exemptions shall be provided if the replacement cost for an all-electric system, including all incentives, is greater than 110 percent of a like-for-like fuel gas system replacement. The building official shall consult with the [Community and Economic Development Director] in deciding whether to approve an economic hardship exemption.

ALTERNATIVE Exception 3 to 4.106.6.1 Projects submitting fees in-lieu of electric appliance installation that amount to the future costs of electrification retrofits.

**CHAPTER 5 – NONRESIDENTIAL MANDATORY MEASURES**

**SECTION 5.106**

**SITE DEVELOPMENT**

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**5.106.13 All-electric buildings.**

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**5.106.13.1. New construction and qualifying alteration projects.**

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**5.106.13.2. Existing construction.** The appliance upgrades shall follow the requirements of section 5.106.13.2.1 through 5.106.13.2.6

5.106.13.2.1 Space cooling or space heating appliance upgrades shall use electricity for space heating, unconnected to fuel gas infrastructure*.* Any other space heating system serving the space shall be configured to provide supplemental heat*.*

EXCEPTION: Where the scope of the appliance upgrade includes replacing or relocating an existing space cooling appliance with capacity of greater than 360,000 Btu/h.

5.106.13.2.2 Water heater appliance upgrades, including for use in pools and spas, shall be all-electric, unconnected to fuel gas infrastructure.

ALTERNATIVE-1 5.106.13.2.2 Service water heater appliance upgrades, including for use in pools and spas, shall have a 240 volt, 30 ampere circuit and receptacle installed within 6 feet of appliance location.

ALTERNATIVE-2 5.106.13.2.2 Alterations with permit valuations exceeding $200,000 shall include a domestic water heater appliance upgrade which shall be all-electric, unconnected to fuel gas infrastructure.

Exceptions:

1. Appliances installed that have a demand of over 500 gallons/day of hot water usage.
2. Where the appliance upgrade is serving an existing pool.
3. Water heating systems served by an existing solar thermal hot water system.
4. Water heating systems contained entirely inside conditioned space.
5. Where the existing water heater is in a location that contains no electrical receptacle within 4 feet of the water heater.
6. <OPTIONAL: Where the cost of upgrading with an all-electric water heater exceeds $500,000 compared to the proposed gas replacement.>

**5.106.13.2.3.** Kitchenette and break room alterations with fuel gas cooking appliances shall include a cooking *appliance upgrade* which shall be all-electric, not connected to fuel gas infrastructure.

ALTERNATIVE-1 5.106.13.2.3 Kitchenette and break room alterations with fuel gas cooking appliances shall include a 240v, 50 ampere circuit and receptacle installed within 6 feet of the cooktop, oven, and/or range location.

ALTERNATIVE-2: 4.106.6.1.3 Cooking appliance upgrades shall be all-electric, not connected to fuel gas infrastructure.

EXCEPTION: Commercial food heat-processing equipment

**5.106.13.2.4** Alterations to areas designated for the installation of laundry equipment shall include a clothes drying appliance upgrade which shall be all-electric, not connected to fuel gas infrastructure.

**5.106.13.2.5** Alterations or additions that include or require an increase to the capacity of electrical panels or transformers as part of the scope, shall include reserved physical space for circuit breakers on the electrical panel, and reserved electrical capacity on transformers, as calculated per California Electric Code Section 220 for the following current or proposed appliances, as applicable to the project site, that will not be connected to fuel gas infrastructure:

1. Electric water heaters meeting the requirements of the California Energy Code.
2. Electric space heater and air-conditioner meeting the requirements of the California Energy Code.
3. Electric pool and/or spa water heater.
4. Electric clothes dryer.
5. Electric cooking equipment.
6. Solar Photovoltaic array

EXCEPTION 1: Busbar electrical capacity shall not be required to exceed the proposed utility electrical service to the building <OPTIONAL: if the utility service is underground>. Capacity and circuit breaker spaces shall be reserved in the priority listed above to the extent allowable under the proposed busbar capacity.

EXCEPTION 2: Reserved electric vehicle charger panel capacity may be shared with one of the following: water heater, clothes dryer, or cooking equipment.

EXCEPTION 3: Electrical panels with internet-connected circuit breaker devices that monitor circuit load and manage power distribution.

**5.106.13.2.6** Existing fuel gas infrastructure shall not be extended to any system or device within a building. Inactive fuel gas infrastructure shall not be activated or otherwise operated.

**Exceptions to 5.106.13.2:**

1. Where meeting the requirements of section 5.106.13.2 would necessitate an increase in capacity for an electrical panel, feeders, transformer, or electrical service that is not part of the appliance upgrade scope, to meet the requirements of the California Electrical Code. To qualify for this exception, applicant must provide a calculation conforming to the California Electrical Code.
2. Economic hardship exemptions shall be provided if the replacement cost for an all-electric system, including all incentives, is greater than 110 percent of a like-for-like fuel gas system replacement, including the future costs of electrification retrofits. The building official shall consult with the [Community and Economic Development Director] in deciding whether to approve an economic hardship exemption.

ALTERNATIVE Exception 2 to 5.106.13.2 Projects submitting fees in-lieu of electric appliance installation that amount to the future costs of electrification retrofits.