



City of Berkeley Natural Gas Prohibition & Reach Code for Electrification

Planning and Development Department
Office of Energy and Sustainability

Building Electrification is the substitution of gas appliances (furnaces, water heaters, cooking ranges and stoves, dryers, etc.) with clean, safe, and highly efficient all-electric alternatives.

Through electrification we can eliminate the use of fossil fuels in the home, tackling climate change, while improving the quality of our homes and buildings. By transitioning off natural gas we can also reduce the tremendous amount of methane leakage that happens all along the natural gas infrastructure – from extraction to pipelines.

Benefits of Electrification

- **Better indoor air quality:** All-electric buildings improve indoor air quality and health, by eliminating natural gas combustion inside homes. Burning gas in household appliances produces harmful indoor air pollution.
- **Safety:** Major gas leaks and explosion such as Aliso Canyon and San Bruno can be devastating and capture headlines, but natural gas use in homes is also responsible for almost half of residential house fires.
- **Savings:** All-electric new buildings do not require the installation of gas infrastructure, saving these capital costs. When paired with rooftop solar, new and existing all-electric buildings can benefit from reduced operating costs.
- **Equity:** All-electric new construction can reduce affordable housing costs. For disadvantaged populations that spend a disproportionate amount of their income on energy, and who are more likely to suffer from asthma due to poor indoor air quality, zero emission homes are an important opportunity to deliver social equity benefits.
- **Smaller carbon footprint:** As electricity from the grid gets cleaner, all-electric buildings will eventually stop producing greenhouse gas emissions. All-electric buildings that have rooftop solar or purchase 100% renewable electricity are already zero-emission.

Natural Gas Prohibition: This [ordinance](#) passed by Berkeley City Council prohibits natural gas infrastructure (i.e. gas hookups) in new buildings by amending the City of Berkeley Municipal Code (BMC Title 12). The ordinance prohibits natural gas infrastructure, typically used to provide water and space heating, cooking, and other uses, in new buildings of all types, residential and nonresidential. This ordinance is the first in the nation to prohibit the use of natural gas in new buildings.

The ordinance applies to new buildings that apply for land use permits or zoning certificates after January 1, 2020. It is implemented as a condition of approval in land use permits. It does not impact existing buildings, additions, or alterations, including accessory dwelling units that are built inside an existing home. It allows for specific exceptions when it is not feasible to construct a new building completely without natural gas. Some of these exceptions will diminish with time as the California Energy Commission incorporates more all-electric systems into the California Energy Code and verifies that their use can comply with Code requirements.

In addition, the ordinance includes a public interest exemption. This exemption will be determined on a case-by-case basis and will take into account the use, availability of alternative technologies, and other impacts on health, safety, and welfare. It could allow for specific, minimal, use of natural gas infrastructure in a new building. In cases where natural gas infrastructure is used, electric capacity, conduit, and wiring will also be included to allow for full building electrification in the future.

Reach Code: A “reach code” refers to a local amendment to the Berkeley Energy Code, which exceeds the energy efficiency standards of the California Energy Code. A reach code must be shown to be cost effective, via a cost effectiveness analysis, and the California Energy Commission (CEC) must formally approve it. The Berkeley City Council adopted a reach code for new construction in December 2019. It applies to new buildings that apply for building permits after January 1, 2020. The reach code includes pathways for either all-electric construction or mixed-fuel construction that exceeds the efficiency requirements of the Energy Code. It also extends solar photovoltaic system requirements for single-family and low-rise residential buildings to nonresidential buildings, high-rise residential and hotels/motels. Electric readiness for future electrification is required of systems that use natural gas. Reach code requirements are enforced through the building permit review, issuance, and inspection process.

Why Both? The Natural Gas Prohibition and the Electrification Reach Code complement each other. Together they provide integrated compliance pathways to all types of newly constructed buildings in Berkeley. All-electric building construction is relatively new to this region. The reach code will allow designers and builders to gain experience with all-electric building design before projects subject to the natural gas prohibition begin construction. They work in tandem to support building electrification and its health, safety, and climate benefits.

How do they differ?

	Natural Gas Prohibition Ordinance	Reach Code for Electrification
Requirements	Prohibits natural gas infrastructure in new buildings.	Provides two compliance pathways: All-electric or more efficient mixed-fuel.
Covered Buildings	Applies to newly constructed buildings* that submit a Use Permit or Zoning Certificate after January 1, 2020.	Applies to newly constructed buildings* that submit a Building Permit application after January 1, 2020.
Exceptions and Qualifications	Determined on a case-by-case basis when all-electric not feasible or project determined to be in public interest. Requirements for future electrification when natural gas is used.	Efficiency requirements beyond the Energy Code for mixed-fuel vary by building type based on cost-effectiveness. All-electric buildings are cost-effective. Requirements for future electrification when natural gas is used.
Status	Adopted by City Council on July 23, 2019 as Ordinance No. 7,672-N.S. to add a new Chapter 12.80 to the Berkeley Municipal Code	Adopted by City Council on December 3, 2019 as Ordinance No. 7,678-N.S. to reenact Chapter 19.36 of the Berkeley Municipal Code

* Newly constructed building refers to a building that has never been used or occupied for another purpose, and excludes remodels and converted buildings. This applies to both residential and nonresidential buildings.

ORDINANCE NO. 7,672–N.S.

ADDING A NEW CHAPTER 12.80 TO THE BERKELEY MUNICIPAL CODE PROHIBITING NATURAL GAS INFRASTRUCTURE IN NEW BUILDINGS EFFECTIVE JANUARY 1, 2020

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That Chapter 12.80 of the Berkeley Municipal Code is added to read as follows:

Chapter 12.80

PROHIBITION OF NATURAL GAS INFRASTRUCTURE IN NEW BUILDINGS

Sections:

12.80.010 Findings and Purpose.

12.80.020 Applicability.

12.80.030 Definitions.

12.80.040 Prohibited Natural Gas Infrastructure in Newly Constructed Buildings.

12.80.050 Public Interest Exemption.

12.80.060 Periodic Review of the Ordinance.

12.80.070 Severability.

12.80.080 Effective Date.

12.80.010 Findings and Purpose.

In addition to the findings set forth in Resolution No. 67,736-N.S., the Council finds and expressly declares as follows:

- A. Scientific evidence has established that natural gas combustion, procurement and transportation produce significant greenhouse gas emissions that contribute to global warming and climate change.
- B. The following addition to the Berkeley Municipal Code is reasonably necessary because of local climatic, geologic and topographical conditions as listed below:
 - (1) As a coastal city located on the San Francisco Bay, Berkeley is vulnerable to sea level rise, and human activities releasing greenhouse gases into the atmosphere cause increases in worldwide average temperature, which contribute to melting of glaciers and thermal expansion of ocean water—resulting in rising sea levels.
 - (2) Berkeley is already experiencing the repercussions of excessive greenhouse gas emissions as rising sea levels threaten the City’s shoreline and infrastructure, have caused significant erosion, have increased impacts to infrastructure during extreme tides, and have caused the City to expend funds to modify the sewer system.
 - (3) Berkeley is situated along a wildland-urban interface and is extremely vulnerable to wildfires and firestorms, and human activities releasing greenhouse gases into the atmosphere cause increases in worldwide average temperature, drought conditions, vegetative fuel, and length of fire seasons.
 - (4) Structures in Berkeley are located along or near the Hayward fault, which is likely to produce a large earthquake in the Bay Area.
- C. The following addition to the Berkeley Municipal Code is also reasonably necessary because of health and safety concerns as Berkeley residents suffer from asthma and other health conditions associated with poor indoor and outdoor air quality exacerbated by the combustion of natural gas.
- D. The people of Berkeley, as codified through Measure G (Resolution No. 63,518-N.S.), the City of Berkeley Climate Action Plan (Resolution No. 64,480-N.S.), and Berkeley Climate Emergency Declaration (Resolution No. 68,486-N.S.) all recognize that rapid, far-reaching and unprecedented changes in all aspects of society are required to limit global warming and the resulting environmental threat posed by climate change, including the prompt phasing out of natural gas as a fuel for heating and cooling infrastructure in new buildings.
- E. Substitute electric heating and cooling infrastructure in new buildings fueled by less greenhouse gas intensive electricity is linked to significantly lower greenhouse gas emissions and is cost competitive because of the cost savings associated with all-electric designs that avoid new gas infrastructure.
- F. All-electric building design benefits the health, welfare, and resiliency of Berkeley and its residents.
- G. The most cost-effective time to integrate electrical infrastructure is in the design phase of a building project because building systems and spaces can be designed to optimize the performance of electrical systems and the project can take full advantage of avoided costs and space requirements from the elimination of natural gas piping and venting for combustion air safety.

- H. It is the intent of the council to eliminate obsolete natural gas infrastructure and associated greenhouse gas emissions in new buildings where all-electric infrastructure can be most practicably integrated, thereby reducing the environmental and health hazards produced by the consumption and transportation of natural gas.

12.80.020 Applicability.

- A. The requirements of this Chapter shall apply to Use Permit or Zoning Certificate applications submitted on or after the effective date of this Chapter for all Newly Constructed Buildings proposed to be located in whole or in part within the City.
- B. The requirements of this Chapter shall not apply to the use of portable propane appliances for outdoor cooking and heating.
- C. This chapter shall in no way be construed as amending California Energy Code requirements under California Code of Regulations, Title 24, Part 6, nor as requiring the use or installation of any specific appliance or system as a condition of approval.
- D. The requirements of this Chapter shall be incorporated into conditions of approval for Use Permits or Zoning Certificates under BMC Chapter 23.B.

12.80.030 Definitions.

- A. "Applicant" shall mean an applicant for a Use Permit or Zoning Certification under Chapter 23B,
- B. "Energy Code" shall mean the California Energy Code as amended and adopted in BMC Chapter 19.36.
- C. "Greenhouse Gas Emissions" mean gases that trap heat in the atmosphere.
- D. "Natural Gas" shall have the same meaning as "Fuel Gas" as defined in California Plumbing Code and Mechanical Code.
- E. "Natural Gas Infrastructure" shall be defined as fuel gas 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 as specified in the California Mechanical Code and Plumbing Code.
- F. "Newly Constructed Building" shall be defined as a building that has never before been used or occupied for any purpose.
- G. "Use Permit" shall have the same meaning as specified in Chapter 23B.32.
- H. "Zoning Certificate" shall have the same meaning as specified in Chapter 23B.20.

12.80.040 Prohibited Natural Gas Infrastructure in Newly Constructed Buildings.

- A. Natural Gas Infrastructure shall be prohibited in Newly Constructed Buildings.
 - 1. Exception: Natural Gas Infrastructure may be permitted in a Newly Constructed Building if the Applicant establishes that it is not physically feasible to construct the building without Natural Gas Infrastructure. For purposes of this exception, "physically feasible" to construct the building means either an all-electric prescriptive compliance approach is available for the building under the Energy Code or the building is able to achieve the performance compliance standards under the Energy Code using commercially available technology and an approved calculation method.

- B. To the extent that Natural Gas Infrastructure is permitted, it shall be permitted to extend to any system, device, or appliance within a building for which an equivalent all-electric system or design is not available.
- C. Newly Constructed Buildings shall nonetheless be required at a minimum to have sufficient electric capacity, wiring and conduit to facilitate future full building electrification.
- D. The requirements of this section shall be deemed objective planning standards under Government Code section 65913.4 and objective development standards under Government Code section 65589.5.

12.80.050 Public Interest Exemption.

- A. Notwithstanding the requirements of this Chapter and the Greenhouse Gas Emissions and other public health and safety hazards associated with Natural Gas Infrastructure, minimally necessary and specifically tailored Natural Gas Infrastructure may be allowed in a Newly Constructed Building provided that the entitling body establishes that the use serves the public interest. In determining whether the construction of Natural Gas Infrastructure is in the public interest, the City may consider:
 - 1. The availability of alternative technologies or systems that do not use natural gas;
 - 2. Any other impacts that the decision to allow Natural Gas Infrastructure may have on the health, safety, or welfare of the public.
- B. If the installation of Natural Gas Infrastructure is granted under a public interest exemption, the Newly Constructed Buildings shall nonetheless be required at the minimum to have sufficient electric capacity, wiring and conduit to facilitate future full building electrification.

12.80.060 Periodic Review of Ordinance.

The City shall review the requirements of this ordinance every 18 months for consistency with the California Energy Code and the Energy Commission's mid-cycle amendments and triennial code adoption cycle as applicable.

12.80.070 Severability.

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the prescribed application thereof, shall be severable, and the remaining provisions of this Chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase of this Chapter, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases is declared invalid or unconstitutional.

12.80.080 Effective Date.

The provisions of this chapter shall become effective on January 1, 2020.

Section 2. This Ordinance shall be submitted to the California Building Standards Commission following adoption as consistent with state law.

Section 3. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of the Maudelle Shirek Building, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

At a regular meeting of the Council of the City of Berkeley held on July 16, 2019, this Ordinance was passed to print and ordered published by posting by the following vote:

Ayes: Bartlett, Davila, Droste, Hahn, Harrison, Kesarwani, Robinson, Wengraf, and Arreguin.

Noes: None.

Absent: None.

