

DOCKETED

Docket Number:	19-BSTD-06
Project Title:	Local Ordinances Exceeding the 2019 Energy Code
TN #:	231286-4
Document Title:	Berkeley 2019 - Ordinance No 7,678-N.S. Building Code
Description:	N/A
Filer:	Danuta Drozdowicz
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	12/18/2019 6:00:10 PM
Docketed Date:	12/19/2019

ORDINANCE NO. 7,678–N.S.

REPEALING AND REENACTING BERKELEY MUNICIPAL CODE CHAPTERS 19.28 (BERKELEY BUILDING CODE), 19.29 (BERKELEY RESIDENTIAL CODE), 19.30 (BERKELEY ELECTRICAL CODE), 19.32 (BERKELEY MECHANICAL CODE), 19.34 (BERKELEY PLUMBING CODE), 19.36 (BERKELEY ENERGY CODE), AND 19.37 (BERKELEY GREEN CODE)

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

Section 1. That Berkeley Municipal Code Chapter 19.28 is hereby repealed and reenacted to read as follows:

Chapter 19.28

BERKELEY BUILDING CODE*

Sections:

19.28.010 Adoption of the California Building Code

Article 1. Scope and Administrative Provisions

19.28.020 Adoption of Chapter 1 Scope and Administration

Article 2. Restrictions in Fire Zones

19.28.030 Chapter 7A Materials and Construction Methods for Exterior Wildlife Exposure

Article 3. Wood Burning Appliances

19.28.040 Wood Burning Appliances

Article 4. Projection into Public Right of Way

19.28.050 Encroachment into the Public Right of Way - Revocation and Removal Indemnification and Hold Harmless

Article 5. Existing Buildings

19.28.060 Adoption of 2019 California Existing Building Code and certain Chapters of the 2018 International Existing Building Code by Reference

Article 6. Repairs to Existing Buildings and Structures

19.28.070 Adoption of Regulations for the Repairs of Existing Structures

Article 7. Amendments to Structural Standards

19.28.080 Technical Amendments to Structural Standards

Article 8. Construction of Exterior Appurtenances
19.28.090 Technical Amendments for Construction of Exterior Projecting Elements and Appurtenances

Article 9. Emergency Housing
19.28.100 Emergency Housing and Emergency Housing Facilities

Notes:

* See Chapter 1.24 for abatement of nuisances by City.

19.28.010 Adoption of the California Building Code.

A. The California Building Code, 2019 edition, as adopted in Title 24 Part 2 of the California Code of Regulations, including Appendices I, J and O, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. One copy of this Code is on file in the office of the City Clerk of the City of Berkeley.

B. The California Historical Building Code, 2019 edition, as adopted in Title 24 Part 8 of the California Code of Regulations, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. One copy of this Code is on file in the office of the City Clerk of the City of Berkeley.

C. The California Existing Building Code, 2019 edition, as adopted in Title 24 Part 10 of the California Code of Regulations, including Appendix A, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. One copy of this Code is on file in the office of the City Clerk of the City of Berkeley.

D. This Chapter shall be known as the "Berkeley Building Code" and shall be referred to in this Chapter as "this Code."

E. This Chapter will become effective on January 1, 2020, and shall not apply to any building permit submitted by December 31, 2019.

Article 1. Scope and Administrative Provisions

19.28.020 Adoption of Chapter 1 Scope and Administration

Chapter 1 of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below.

CHAPTER 1 SCOPE AND ADMINISTRATION

SECTION 101 – GENERAL

101.1 Title. These regulations shall be known as the Berkeley Building Code, hereinafter referred to as "this Code".

101.4 Referenced codes. The other codes listed in Sections 101.4.1 through 101.4.9,

and referenced elsewhere in this Code, shall be considered part of the requirements of this Code to the extent prescribed in each such reference.

101.4.1 Gas. The provisions of the Berkeley Mechanical Code, based on the 2019 California Mechanical Code, and the Berkeley Plumbing Code, based on the 2019 California Plumbing Code, as amended herein, shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this Code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 Mechanical. The provisions of the Berkeley Mechanical Code, based on the 2019 California Mechanical Code, as amended herein, shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.4.3 Plumbing. The provisions of the Berkeley Plumbing Code, based on the 2019 California Plumbing Code, as amended herein, shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system. The provisions of the Berkeley Plumbing Code shall apply to private sewage disposal systems.

101.4.4 Residential property maintenance. The provisions of the Berkeley Housing Code, based on the 1997 Uniform Housing code, as amended in Chapter 19.40, shall apply to existing residential buildings and premises; equipment and facilities; light, ventilation, space heating, sanitation, life and fire safety hazards; responsibilities of owners, operators and occupants; and occupancy of existing premises and structures.

Notwithstanding any provisions contrary in this Chapter, any building or portion thereof constructed in compliance with the Berkeley Building Code shall not be deemed to be in violation of the Housing Code provisions that may conflict.

101.4.5 Fire prevention. The provisions of the Berkeley Fire Code based on the 2019 California Fire Code shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

101.4.6 Energy. The provisions of the Berkeley Energy Code, based on the 2019 California Energy Code, as amended herein, shall apply to all matters governing the design and construction of buildings for energy efficiency.

101.4.7 Existing buildings. The provisions of the Berkeley Existing Building Code, based on the 2019 California Existing Building Code, as amended herein, shall apply to matters governing the repair, alteration, change of occupancy, addition to and relocation of existing buildings.

101.4.8 Electrical. The provisions of the Berkeley Electrical Code, based on the 2019 California Electrical Code, as amended herein, shall apply to the installation of electrical systems, including alterations, repairs, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

101.4.9 Green. The provisions of the Berkeley Green Code, based on the 2019 California Green Building Standards Code, as amended herein, shall apply to enhanced design and construction of buildings through the use building concepts having a reduced negative impact or the positive environmental impact and encouraging sustainable construction practices.

101.5 References to prior codes. Unless superseded and expressly repealed, references in City forms, documents and regulations to the chapters and sections of former Berkeley Building Code editions, shall be construed to apply to the corresponding provisions contained within the 2019 Berkeley Building Code Ordinance No. 7,315–N.S. and all ordinances amendatory thereof. Any ordinances or parts of ordinances in conflict herewith are hereby superseded and expressly repealed.

SECTION 103 – DIVISION OF BUILDING AND SAFETY

103.1 Creation of enforcement agency. The Division of Building and Safety is hereby created and the official in charge thereof shall be known as the building official.

103.2 Appointment. The building official shall be appointed by the City Manager.

SECTION 104 – DUTIES AND POWERS OF BUILDING OFFICIAL

104.7 Division records. The building official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for retention of public records.

Add a new Subsection 104.12 to read:

104.12 Unpermitted dwelling units. When a building permit record for a residential unit does not exist, the building official is authorized to make a determination of when the residential unit was constructed and then apply the building standards in effect when the

residential unit was determined to be constructed or the current building standards, whichever is the least restrictive, provided the building does not become or continue to be a substandard or unsafe building. The Building Official is authorized to accept reasonable alternatives to the requirements of the prior or current code editions when dealing with unpermitted dwelling units.

SECTION 105 - PERMITS

105.3.2 Expiration of application. An application for a permit for any proposed work shall expire one year after the date of filing, unless it can be demonstrated by the applicant that such application has been pursued in good faith or a permit has been issued. The building official or the permit service center coordinator are authorized to grant one or more extensions of time for additional periods not exceeding a 180 days per extension. The extension shall be requested in writing and justifiable cause demonstrated. Requests for time extensions shall be accompanied by the payment of a fee set by resolution of the City Council.

If a project is associated with a code enforcement case, the dates specified in the code enforcement notices take precedence over the timelines specified in this section.

105.5 Expiration of permit. Permits issued by the building official shall expire one year from the date of issuance. The building official or the supervising building inspector are authorized to grant one or more extensions of time to complete the work for additional periods not exceeding one year per extension. The extension shall be requested in writing and justifiable cause demonstrated. Requests for time extensions shall be accompanied by the payment of a fee set by resolution of the City Council.

The issuance of a building permit shall not excuse the permittee or any other person from compliance with any notice and/or order to correct a code violation issued by the City.

When a permit is expired and a new permit is required to complete the work, a new permit application and plans shall be filed describing the remaining work to be done. If a site visit or other review is required to determine the extent of the remaining work, a fee may be charged to make such determination.

SECTION 109 – FEES

109.1 Payment of fees. Except when fees are deferred, a permit shall not be valid until the fees as set forth by resolution of City Council have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

109.2 Schedule of permit fees. On buildings, structures, electrical, gas, mechanical, and plumbing systems or alterations requiring a permit, a fee for each permit shall be paid as required, in accordance with the fee as set forth by resolution of the City Council. Fees for permits and inspections and other related services under this Code shall be assessed and paid as set forth by resolution of the City Council. Unless waived or deferred as

provided by local regulations, a plan review fee and other fees as specified in the resolution shall be paid at the time of submitting any documents for review and additional fees as specified in the resolution shall be paid at issuance of the permit.

109.4 Work commencing before permit issuance. Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary permit shall be subject to a fee as set forth by resolution of the City Council equal to and in addition to the permit fees for the portion of the scope of work performed without the permit.

109.7 Re-inspection fees. A re-inspection fee, as set forth by resolution of the City Council, may be assessed for each re-inspection when such portion of work for which an inspection is scheduled is not complete or when corrections previously called for are not made.

Re-inspection fees shall not be required each time a job is disapproved for failure to comply with the requirements of this Code. Rather this section shall be used to control the practice of calling for inspections before the job is ready for such inspection, or when the approved plans are not readily available to the inspector, or for failure to provide access on the date for which the inspection is requested, or when work deviates from the approved plans but no revision is submitted to the City.

To obtain a re-inspection, the applicant shall pay the re-inspection fee as set forth by resolution of the City Council. In instances where re-inspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

SECTION 112 – SERVICE UTILITIES

112.4 Authority to connect utilities. Clearance for connection of one utility, either gas or electrical, will be withheld until final building, electrical, plumbing, and/or mechanical inspections are made and approval has been given for any new building or change in occupancy classification to an existing building for which connection to such utilities is sought, unless approval has been first obtained from the building official, as provided by a Temporary Certificate of Occupancy or Final Certificate of Occupancy.

112.5 Unsafe service utilities. Unsafe service utilities are hereby declared to be public nuisances and shall be abated, repaired, rehabilitated, demolished or removed in accordance with the procedures set forth in Chapter 19.40 of the Berkeley Municipal Code (BMC) for residential buildings and Berkeley Building Code for all other buildings, or any alternate procedure that may be adopted by the City of Berkeley. In addition, the City Attorney may pursue other appropriate action to prevent, restrain, correct or abate the violation as provided for in the BMC. Remedies under this section are cumulative. When service utilities are maintained in violation of this Code and in violation of a notice issued pursuant to the provisions of this section, the building official shall institute appropriate action to prevent, restrain, correct or abate the violation.

112.6 Authority to disconnect utilities in emergencies. The building official or his or her authorized representative shall have the authority to disconnect electrical power or other energy service supplied to the building, structure or building service equipment therein regulated by this Code in case of emergency where necessary to eliminate an immediate hazard to life or property. The building official or his or her authorized representative shall, whenever possible, notify the serving utility, and the owner of the building, structure or electrical system or equipment and any building occupants of the decision to disconnect prior to taking such action and shall notify them, in writing, of the disconnection as soon as possible thereafter.

112.7 Authority to condemn electrical system and equipment. Whenever the building official determines that an electrical system or electrical equipment regulated by this Code is hazardous to life, health or property, the building official may order in writing that such electrical system or equipment either be removed or restored to a safe condition. The written notice shall fix a reasonable time limit for compliance with such order. Persons shall not use or maintain defective electrical systems or equipment after receiving such notice except as may be provided therein.

When equipment or an installation is to be disconnected, a written notice of such disconnection and the reasons therefore shall be given within 24 hours of the order to disconnect to the serving utility, the owner and occupants of the building, structure or premises.

When equipment or an installation is maintained in violation of this Code and in violation of a notice issued pursuant to the provisions of this section, the building official shall institute appropriate action to prevent, restrain, correct or abate the violation.

Unsafe electrical systems or equipment are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition or removal in accordance with the procedures set forth in Chapter 19.40 of the BMC for residential buildings and Berkeley Building Code for all other buildings, or any alternate procedure that may be adopted by the City of Berkeley. In addition, the City Attorney may pursue other appropriate action to prevent, restrain, correct or abate the violation as provided for in the BMC. Remedies under this section are cumulative.

112.8 Connection after order to disconnect. Persons shall not make connections to a service utility system or equipment that has been disconnected or ordered to be disconnected by the building official, or the use of which has been ordered to be discontinued by the building official, until the building official authorizes the reconnection and use of the electrical system or equipment.

SECTION 113 – BOARD OF APPEALS

113.1 General. In order to hear and decide appeals of orders, decisions, or determinations made by the building official relative to the application and interpretation of this Code, there shall be and is hereby created a board of appeals consisting of the

Housing Advisory Commission pursuant to Section 19.44.020 of the Berkeley Municipal Code. The building official may convene and consult with an advisory panel of qualified individuals. This advisory panel is intended to help the building official in formulating and making staff recommendations to the Housing Advisory Commission. The advisory panel may provide written and/or oral presentations to the Housing Advisory Commission as needed.

113.3 Qualifications. The board of appeals shall consist of members meeting the qualifications required for the Housing Advisory Commission. The advisory panel shall consist of individuals found by the building official to be qualified by experience and training in the specific area of the appeal who are not employees of the jurisdiction.

SECTION 114 – VIOLATIONS

114.4 Violation penalties. Any person who violates a provision of this Code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of this Code, shall be subject to penalties as prescribed by law. Violations of this Code are misdemeanors, but may be cited or charged, at the election of the enforcing officer, building official, or City Attorney, as infractions, subject to an election by the defendant under Penal Code Subsection 17(d). Nothing in this Section shall prevent any other remedy afforded by law.

SECTION 116 - UNSAFE STRUCTURES AND EQUIPMENT

116.1 Conditions. Structures or existing equipment that are or hereafter become structurally unsafe, insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the building official deems necessary and as provided for in this section. A vacant structure that is not secured against entry shall be deemed unsafe.

All such unsafe buildings, equipment, structures or appendages are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition or removal in accordance with the procedures set forth in Chapters 1.24, 19.28, 19.40 and/or 19.44 of the BMC as applicable. As an alternative, the building official, or other employee or official of this jurisdiction as designated by the City Council, may institute any other appropriate action to prevent, restrain, correct or abate the violation.

116.6 Safety Assessment Placards.

116.6.1 Intent. This section establishes standard placards to be used to indicate the condition of a structure for occupancy after a natural disaster and a rapid evaluation by

authorized personnel. The building official and his or her authorized representatives post the appropriate placard at each entry point to a building or structure upon completion of a safety assessment.

116.6.2 Application of provisions. The provisions of this section are applicable to all buildings and structures of all occupancies regulated by the City of Berkeley. The Council may extend the provisions as necessary.

116.6.3 Definitions.

116.6.3.1 "Safety Assessment" is a visual, non-destructive examination of a building or structure for the purpose of determining the condition for continued occupancy.

116.6.3.2 Placards. Following are titles and descriptions of the official jurisdiction placards to be used to designate the condition of a building structure for continued occupancy, partial or conditional occupancy, or unsafe to enter. Copies of placards are on file in the Building and Safety Division of the Planning and Development Department.

INSPECTED – Lawful Occupancy Permitted is to be posted on any building or structure wherein no apparent hazard has been found. This placard is not intended to mean there is no damage to the building or structure, but that any damage that occurred does not present a hazard to occupants.

RESTRICTED USE is to be posted on each building or structure that has been damaged wherein the damage has resulted in some form of restriction to the continued occupancy. The individual who posts this placard will note in general terms the type of damage encountered and will clearly and concisely note the restrictions on continued occupancy.

UNSAFE – Do Not Enter or Occupy is to be posted on each building or structure that has been damaged such that continued occupancy poses a threat to life safety. Building or structures posted with this placard shall not be entered under any circumstances except as authorized in writing by the building official, or his or her authorized representative. Safety assessment teams shall be authorized to enter these building at any time. This placard is not to be used or considered as a demolition order. The individual who posts this placard will note in general terms the type of damage encountered.

116.6.4 Content of placard. The BMC Section number and the words "City of Berkeley" shall be permanently affixed to each placard.

116.6.5 Unlawful to remove. Once a placard has been attached to a building or structure, it is not to be removed, altered or covered until done so by an authorized representative of the Building Official. It shall be unlawful for any person, firm or corporation to alter, remove, cover or deface a placard unless authorized pursuant to this section.

Article 2. Restrictions in Fire Zones

19.28.030 CBC Chapter 7A Materials and Construction Methods for Exterior Wildlife Exposure.

Chapter 7A of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below.

701A – SCOPE, PURPOSE AND APPLICATION

701A.1 Scope. This chapter applies to building materials, systems and or assemblies used in the exterior design and construction of new buildings and structures, additions, alterations, repairs and re-roofs located within a Wildland-Urban Interface Fire Area as defined in Section 702A.

701A.2 Purpose. The purpose of this Chapter is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any building or structure in the Wildland-Urban Interface Fire Area to resist the intrusion of flame or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.

701A.3 Application. New buildings located in any Fire Hazard Severity Zone or new buildings and structures, additions, alterations, repairs and re-roofs located in any Wildland-Urban Interface Fire Area designated by the enforcing agency constructed after the application date shall comply with the provisions of this Chapter.

Exceptions:

1. Buildings or structures of an accessory character classified as a Group U occupancy and not exceeding 120 square feet in floor area, when located at least 30 feet from an applicable building or property lines.

701A.3.1 Application date and where required. New buildings for which an application for a building permit is submitted on or after July 1, 2008 located in any Fire Hazard Severity Zone or buildings and structures, additions, alterations, repairs and re-roofs for which an application for a building permit is submitted on or after July 1, 2008 located in the Wildland Interface Fire Area shall comply with all sections of this chapter.

702A – DEFINITIONS

FIRE ZONE ONE shall encompass the entire City of Berkeley except for Fire Zones Two and Three.

FIRE ZONE TWO encompasses those areas designated as Combined Hillside District in the Official Zoning map of the City of Berkeley and those areas designated as Very High in the official Fire Hazard Severity Zones (FHSZ) map of The Department of Forestry and Fire Protection (CAL FIRE), as they may be amended from time to time. The following properties, not part of the Combined Hillside District, are included in Fire Zone Two under the Very High designation of the FHSZ map: the eastern section of the University of

California, Berkeley main campus, block number 2042 (Alameda County Assessor's parcel numbering (APN) system), to the east city line; all of the Clark-Kerr campus, block number 7690, to the east city line; all of block number 7680 in the City of Berkeley; portions of block number 1702 in the City of Berkeley. See Exhibit A for the specific parcels by APN and address.

FIRE ZONE 3 encompasses those areas designated as Environmental Safety – Residential Districts on the Official Zoning Map of the City of Berkeley, as it may be amended from time to time.

LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE means an area designated by a local agency upon the recommendation of the CDF Director pursuant to Government Code Sections 51177(c), 51178 and 51189 that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection. Fire Zones 2 and 3 are designated as Local Agency High Fire Hazard Severity Zone.

WILDLAND-URBAN INTERFACE FIRE AREA is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. Fire Zones 2 and 3 are designated as Wildland-Urban Interface Fire Area.

705A – ROOFING

705A.1 General. Roofs shall be a Class A minimum and shall comply with the requirements of Chapter 7A and Chapter 15. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions. Wooden shakes and shingles are prohibited roof coverings regardless of the assembly rating of the roof system.

Exception: Replacement of less than 50% of the roof area within a 5 year period.

705A.5 Spark Arrestors. All chimneys of fireplaces, stoves, barbecues or heating appliances using solid fuel shall be provided with an approved spark arrestor whenever modification has been made to any of these appliances, or whenever a structure is re-roofed. The net free area of the spark arrestor shall be not less than four times the net free area of the outlet of the chimney. The spark arrestor shall have heat and corrosion resistance equivalent to twelve-gauge wire, nineteen gauge galvanized wire, or twenty-four-gauge stainless steel. Openings shall not permit the passage of spheres having a diameter larger than one-half inch and shall not block the passage of spheres having a diameter of less than three-eighths inch. The arrestor shall be securely attached to the chimney or stovepipe and shall be adequately supported. The use of bands, mollies, masonry anchors or mortar ties are recommended depending upon the individual need.

707A – EXTERIOR COVERING

707A.3.3 Replacement of Exterior Wall Covering. Materials for replacement of existing exterior wall covering shall meet or exceed the standards set forth in this Chapter.

Exception: Where less than 50% of any wall surface is being replaced or repaired, and the matching of the new plane to the existing plane on that wall is not possible.

711A – UNDERGROUND UTILITY CONNECTIONS

711A.1 Underground utility connections. For new construction, provisions shall be made for the undergrounding of all utilities serving the property, including but not limited to electrical, telephone and cable television, by the installation of appropriately sized underground conduits extending from the street property.

712A – ADDITIONAL REQUIREMENTS IN FIRE ZONE THREE

712A.1 General. In addition to meeting the other requirements of this Chapter, buildings or structures hereinafter erected, constructed, moved, altered, added, or repaired within Fire Zone Three shall comply with the following requirements for buildings and structures.

712A.2 Fire Warning System. All residential units shall be equipped with a Fire Warning System as specified by the residential smoke detector requirements of the current edition of the California Building Code and with an audible exterior alarm. The exterior alarm must meet the requirements of NFPA 72 or equivalent and generate 45 decibels ten feet from the alarm, or more.

712A.3 Automatic Fire Sprinklers, Berkeley Fire Code Section 903.3. Any new construction or new additions to existing structures requiring a permit determined to be \$100,000 or more in construction costs shall be required to install automatic fire sprinklers throughout the existing structure.

712A.4 Utilities. Utilities, pipes, furnaces, water heaters or other mechanical devices located in an exposed underfloor area of a building or structure shall be enclosed with material as required for exterior one hour fire resistive construction. Adequate covered access openings for servicing and ventilation of such facilities shall be provided as required by appropriate codes.

712A.5 Control of brush or vegetation. Brush and vegetation shall be controlled as required in the Berkeley Fire Code.

712A.6 Special Conditions. The following additional conditions must be met:

1. **Public access roads and fire trails.** No person(s) shall use any public access road or fire trail for the storage of any construction material, stationary construction equipment, construction office, portable refuse container, or earth from any grading or excavating.

2. Water Service. The water service to the site shall be installed with a ¾” hose bib connection prior to beginning any wood framing. The person responsible for the construction shall have at the site a 75 ft ¾” hose available.

Exhibit A
Parcels in Addition to the Combined Hillside District

The following additional parcels by Assessor’s Parcel Number and address are included in Fire Zone Two:

Parcel Number (APN)	Address
048-7680-001-02	3 Tanglewood Road
048-7680-002-01	5 Tanglewood Road
048-7680-031-00	7 Tanglewood Road
048-7680-019-00	11 Tanglewood Road
048-7680-014-00	19 Tanglewood Road
048-7680-032-01	25 Tanglewood Road
048-7680-027-00	29 Tanglewood Road
054-1702-067-00	10 Tanglewood Road
054-1702-068-00	18 Tanglewood Road
054-1702-069-00	22 Tanglewood Road
054-1702-070-00	28 Tanglewood Road
054-1702-063-00	2701 Belrose Avenue
054-1702-076-00	2715 Belrose Avenue
054-1702-075-00	2721 Belrose Avenue
054-1702-074-00	2729 Belrose Avenue
054-1702-073-00	2737 Belrose Avenue
054-1702-112-00	2801 Claremont Boulevard
054-1702-123-01	2811 Claremont Boulevard
054-1702-122-00	2815 Claremont Boulevard
054-1702-120-01	2821 Claremont Boulevard
054-1702-114-01	2816 Claremont Avenue
054-1702-115-00	2820 Claremont Avenue
054-1702-072-00	3005 Garber Street
054-1702-071-00	3015 Garber Street
054-1702-113-00	3020 Garber Street
054-1702-116-00	3017 Avalon Avenue

Article 3. Wood Burning Appliances

19.28.040 Wood Burning Appliances.

Chapter 31 of the 2019 California Building Code is adopted in its entirety subject to the

modifications thereto which are set forth below.

3114 Wood Burning Appliances.

A. The purpose of this section is to reduce the health risks caused by wood smoke under the climatic conditions applicable to Berkeley.

B. For purposes of this section the following terms shall be defined as set forth below.

1. "EPA" means the United States Environmental Protection Agency.
2. "EPA Certified" means any wood heater that is labeled "EPA Certified" in accordance with the standards in Title 40, Part 60, Subpart AAA, of the Code of Federal Regulations or equivalent, in effect at the time the wood heater is installed.
3. "Pellet heater" means wood heaters that burn pellet fuel exclusively and are either EPA-certified or exempted under EPA requirements set forth in Part 60 Title 40, Subpart AAA, of the Code of Federal Regulations, February 26, 1988.
4. "Wood-burning" means an appliance that burns wood or any wood-based solid fuel, including but not limited to wood pellets.
5. "Wood burning cooking device" means any wood-burning device that is designed or primarily used for cooking.
6. "Wood-burning fireplace" means any permanently-installed masonry or factory-built wood-burning appliance, either open or with doors in front of the combustion chamber, which is neither a wood heater as defined in 40 CFR 60.531 nor designed and used for cooking.

C. No wood-burning fireplace or wood heater as defined in 40 CFR 60.531, that is not EPA certified or exempted by under EPA requirements may be installed in any occupancy.

Exception: Existing masonry fireplaces may be repaired in accordance with the applicable codes in effect at the time of the proposed repair or reconstruction. For purposes of this exception, the term repair includes resurfacing the combustion chamber, but does not include replacing any other part of the combustion chamber.

D. Wood burning cooking devices are not prohibited by this section.

E. Any person planning to install a wood-burning fireplace or heating stove must submit verifiable documentation to the City showing that the appliance conforms to the requirements of this section.

Article 4. Projection into Public Right of Way

19.28.050 Encroachments into the Public Right of Way – Revocation, Removal, Indemnification and Hold Harmless.

Chapter 32 of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below.

3202 – ENCROACHMENTS

3202.5 Projection into the Public Right of Way – Revocation, Removal, Indemnification and Hold Harmless.

Any permits granted pursuant to this Code which allow any projection upon, over, or under the public right of way may be revoked by the City at any time. Upon such revocation, the permittee or his or her successor(s) or assignee(s) shall forthwith remove such projection at his or her cost and expense and without any cost or expense whatsoever to the City.

Any person who is granted a permit pursuant to the provisions of this Code which allows a projection upon, over or under the public right of way shall by the issuance of such permit thereby indemnify and hold harmless the City of Berkeley, its officers and employees of and from any and all liabilities, claims, demands, actions or causes of action for injury or injuries to any person or persons or death or deaths of any person or persons or damage to property arising out of or occasioned in any way by the issuance of said permit, the work performed pursuant to such permit, or the existence of such projection. The obligation of such indemnification and hold harmless provision shall be applicable to the successor(s) and assignee(s) of the permittee.

Article 5. Existing Buildings

19.28.060 Adoption of 2019 California Existing Building Code and certain Chapters of the 2018 International Existing Building Code by reference.

2019 California Existing Building Code (CEBC), including Appendix A, is adopted in its entirety subject to the modifications thereto which are set forth below.

DIVISION II SCOPE AND ADMINISTRATION

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any CEBC administrative provisions that may conflict.

101.9 Adoption of Certain Chapters of the 2018 International Existing Building Code by reference.

When seismic retrofit is not otherwise required by this Code, the following Chapters of the 2018 International Existing Building Code (IEBC) published by the International Code

Council contained in the IEBC Appendix A are hereby adopted by reference as applicable to the types of buildings as designated therein as though fully set forth herein:

Chapter A2, Earthquake Hazard Reduction in Existing Reinforced Concrete and Reinforced Masonry Wall Buildings with Flexible Diaphragms,

Chapter A5, Earthquake Hazard Reduction in Existing Concrete Buildings.

Article 6. Repairs to Existing Buildings and Structures

19.28.070 Adoption of Regulations for the Repairs of Existing Structures.

Add a new Subsection 405.2.6 to Chapter 4 Repairs Section 405 Structural of the California Existing Building Code.

405.2.6 Seismic Evaluation and Design Procedures for Repairs. The seismic evaluation and design shall be based on the procedures specified in the California Building Code or ASCE 41 *Seismic Evaluation and Retrofit of Existing Buildings*. The procedures contained in Appendix A Chapters A1, A3 and A4 of the California Existing Building Code and Appendix A Chapters A2 and A5 of the International Existing Building Code shall be permitted to be used as specified in Section 405.2.6.2.

405.2.6.1 Compliance with CBC level seismic forces. Where compliance with the seismic design provisions of the California Building Code is required, the procedures shall be in accordance with one of the following:

1. One-hundred percent of the values in the California Building Code. Where the existing seismic force-resisting system is a type that can be designated as “Ordinary,” the values of R, Ω_0 , and Cd used for analysis in accordance with Chapter 16 of the California Building Code shall be those specified for structural systems classified as “Ordinary” in accordance with Table 12.2-1 of ASCE 7, unless it is demonstrated that the structural system will provide performance equivalent to that of a “Detailed,” “Intermediate” or “Special” system.
2. Compliance with ASCE 41 using both BSE-1 and BSE-2 earthquake hazard levels and the corresponding performance levels in Table 405.2.6.1.

**Table 405.2.6.1
PERFORMANCE CRITERIA FOR CBC LEVEL SEISMIC FORCES**

RISK CATEGORY (BASED ON CBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
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I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note a	Note a
IV	Immediate Occupancy (IO)	Life Safety (LS)

- a. Acceptance criteria for Risk Category III shall be taken as 80 percent of the acceptance criteria specified for Risk Category II performance levels, but need not be less than the acceptance criteria specified for Risk Category IV performance levels.

405.2.6.2 Compliance with reduced CBC level seismic forces. Where seismic evaluation and design is permitted to meet reduced California Building Code seismic force levels, the procedures used shall be in accordance with one of the following:

1. The California Building Code using 75 percent of the prescribed forces. Values of R, Ω_0 , and Cd used for analysis shall be as specified in Section 405.2.6.1 Item 1.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A of the California Existing Building Code (CEBC) or Appendix A of the International Existing Building Code (IEBC) as specified in Items 2.1 through 2.5 below shall be deemed to comply with this section.
 - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Risk Category I or II are permitted to be based on the procedures specified in CEBC Appendix A Chapter A1, provided the design is no less stringent than required in Berkeley Municipal Code Section 19.38.130.
 - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Risk Category I or II are permitted to be based on the procedures specified in IEBC Appendix A Chapter A2.
 - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Risk Category I or II are permitted to be based on the procedures specified in CEBC Appendix A Chapter A3.
 - 2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Risk Category I or II are permitted to be based on the procedures specified in CEBC Appendix A Chapter A4.
 - 2.5. Seismic evaluation and design of concrete buildings in all Risk Categories are permitted to be based on the procedures specified in IEBC Appendix A

Chapter A5.

3. Compliance with ASCE 41 using the BSE-1 Earthquake Hazard Level defined in ASCE 41 and the performance level as shown in Table 405.2.6.2. The design spectral response acceleration parameters S_x and S_{x1} specified in ASCE 41 shall not be taken less than 75 percent of the respective design spectral response acceleration parameters SDS and $SD1$ defined by the *California Building Code* and its reference standards.

**Table 405.2.6.2
PERFORMANCE CRITERIA FOR REDUCED CBC LEVEL SEISMIC FORCES**

RISK CATEGORY (BASED ON CBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)
II	Life Safety (LS)
III	Note a
IV	Immediate Occupancy (IO)

- a. Acceptance criteria for Risk Category III shall be taken as 80 percent of the acceptance criteria specified for Risk Category II performance levels, but need not be less than the acceptance criteria specified for Risk Category IV performance levels.

**Table 405.2.6.3
REFERENCED STANDARDS**

Standard Reference Number	Title	Referenced in Code Section Number
ASCE 41-17	Seismic Evaluation and Retrofit of Existing Buildings	405.2.6 Table 405.2.6.1 405.2.6.2 Table 405.2.6.2

Article 7. Technical Amendments to Structural Standards

19.28.080 Various Technical Amendments to Structural Standards.

Chapter 17 of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below.

1705.3 Concrete construction. Special inspections and tests of concrete construction shall be performed in accordance with this section and Table 1705.3.

Exception: Special inspections and tests shall not be required for: 1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock, where the structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 MPa).

Chapter 19 of the 2019 California Building Code is adopted in its entirety subject to the

modifications thereto which are set forth below.

1905.1.7 ACI 318, Section 14.1.4. Delete ACI 318, Section 14.1.4, and replace with the following:

14.1.4 - Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

14.1.4.1 - Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

(a) ~~Structural plain concrete basement, foundation or other walls below the base are permitted in detached one and two family dwellings three stories or less in height constructed with stud bearing walls. In dwellings assigned to seismic design category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 7¹/₂ inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 14.6.1.~~

(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

~~**Exception:** In detached one and two family dwelling three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.~~

(c) Plain concrete footings supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. ~~For footings that exceed 8" inches (203 mm) in thickness, a~~ minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

Exceptions:

- ~~1. In seismic design categories A, B and C, detached one and two family dwellings three stories or less in height and constructed with stud bearing walls, are permitted to have plain concrete footings without longitudinal reinforcement.~~
- ~~2. For foundation systems consisting of a plain concrete footing and a plain concrete stem wall, a minimum of one bar shall be provided at the top of the stem wall and at the bottom of the footing.~~
- ~~3. Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.~~

Article 8. Construction of Exterior Appurtenances

19.28.090 Technical Amendments for Construction of Exterior Projecting Elements and Appurtenances.

Chapter 12 of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below:

1202.7 Ventilation of weather exposed enclosed assemblies. Balconies, landings, decks, stairs and similar exterior projecting elements and appurtenances exposed to the weather and sealed underneath shall have cross ventilation for each separate enclosed space by ventilation openings protected against the entrance of rain and snow and as set forth in Section 2304.12.2.6. Blocking and bridging shall be arranged so as not to interfere with the movement of air. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated. Ventilation openings shall comply with Section 1202.2.2. An access panel of sufficient size shall be provided on the underside of the enclosed space to allow for periodic inspection.

Exceptions:

1. An access panel is not required where the exterior coverings applied to the underside of joists are easily removable using only common tools.
2. Removable soffit vents 4 inches minimum in width can be used to satisfy both ventilation and access panel requirements.

Chapter 14 of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below:

1403.14 Projections exposed to weather. Balconies, landings, decks, stairs and similar floor projections exposed to the weather shall be constructed of naturally durable wood, preservative-treated wood, corrosion resistant (e.g., galvanized) steel, or similar approved materials.

Chapter 23 of the 2019 California Building Code is adopted in its entirety subject to the modifications thereto which are set forth below:

2304.12.2.3 Supporting members for permanent appurtenances. ~~Naturally durable or preservative-treated wood shall be utilized for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances where such members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering to prevent moisture or water accumulation on the surface or at joints between members.~~

2304.12.2.4 Laminated timbers. ~~The portions of glued-laminated timbers that form the structural supports of a building or other structure, projecting element, or appurtenance and are exposed to weather and not fully protected from moisture by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or preservative-treated wood.~~

2304.12.2.5 Supporting members for permeable floors and roofs. Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or preservative-treated wood unless and shall be separated from such floors or roofs by an impervious moisture barrier.

Article 9. Emergency Housing

19.28.100 Emergency Housing and Emergency Housing Facilities.

HCD Appendix O of the 2019 California Building Code is adopted on an emergency basis and reproduced in its entirety subject to the modifications thereto which are set forth below:

APPENDIX O EMERGENCY HOUSING

SECTION O101

GENERAL

O101.1 Scope. This appendix shall be applicable to emergency housing and emergency housing facilities, as defined in Section O102. The provisions and standards set forth in this appendix shall be applicable to emergency housing established pursuant to the declaration of a shelter crisis under Government Code section 8698 et seq. and located in new or existing buildings, structures, or facilities owned, operated, erected, or constructed by, for or on behalf of the City of Berkeley on land owned or leased by the City of Berkeley.

O101.2 Application. Notwithstanding any provisions of this Code to the contrary, the following requirements shall apply to emergency housing operated during a shelter crisis, as provided for in Government Code Section 8698 et seq. Other than the specific requirements set forth in this appendix, the facilities need not comply with the requirements of this Code for Group R occupancies unless otherwise specified in this Code.

SECTION O102

DEFINITIONS

N102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

DECLARATION OF SHELTER CRISIS. The duly proclaimed existence of a situation in which a significant number of persons are without the ability to obtain shelter, resulting in a threat to their health and safety. (See Government Code Section 8698)

DEPENDENT UNIT. Emergency housing not equipped with a kitchen area, toilet, and

sewage disposal system. Recreational vehicles that are not self-contained and without utility service connections shall be considered dependent units.

EMERGENCY HOUSING. Housing in a permanent or temporary structure(s), occupied during a declaration of state of emergency, local emergency, or shelter crisis. Emergency housing may include, but is not limited to, buildings and structures constructed in accordance with the California Building Standards Code; and emergency sleeping cabins, emergency transportable housing units, and tents constructed in accordance with this appendix.

EMERGENCY HOUSING FACILITIES. On-site common use facilities supporting emergency housing. Emergency housing facilities include, but are not limited to, kitchen areas, toilets, showers and bathrooms with running water. The use of emergency housing facilities is limited exclusively to the occupants of the emergency housing, personnel involved in operating the housing, and other emergency personnel.

EMERGENCY HOUSING SITE. A site containing emergency housing and emergency housing facilities supporting the emergency housing.

EMERGENCY SLEEPING CABIN. Relocatable hard-sided structure constructed in accordance with this appendix, which may be occupied only for emergency housing if allowed by the enforcing agency.

EMERGENCY TRANSPORTABLE HOUSING UNIT. A single or multiple section prefabricated structure that is transportable by a vehicle and that can be installed on a permanent or temporary site in response to a need for emergency housing. Emergency transportable housing units include, but are not limited to, manufactured homes, mobilehomes, multifamily manufactured homes, recreational vehicles, and park trailers. For the purposes of this appendix, emergency transportable housing units may also include commercial modulars as defined in the Health and Safety Code Section 18001.8, if approved by the enforcing agency. Emergency transportable housing units do not include factory-built housing as defined in the Health and Safety Code Section 19971.

LANDING PLATFORM. A landing provided as the top step of a stairway accessing a loft.

LOCAL EMERGENCY. Local Emergency as defined in the Government Code, Section 8558.

LOFT. A floor level located more than 30 inches (762 mm) above the main floor and open to it on at least one side with a ceiling height of less than 6 feet 8 inches (2032 mm), used as a living or sleeping space.

MANUFACTURED HOME. A structure designed to be used as a single-family dwelling, as defined in the Health and Safety Code, Section 18007.

MOBILEHOME. A structure designed to be used as a single-family dwelling, as defined in the Health and Safety Code, Section 18008.

MULTIFAMILY MANUFACTURED HOME. A structure designed to contain not less than two dwelling units, as defined in the Health and Safety Code, Section 18008.7.

PARK TRAILER. A trailer designed for human habitation that meets all requirements in the Health and Safety Code, Section 18009.3.

RECREATIONAL VEHICLE. A motor home, travel trailer, truck camper, or camping trailer, with or without motive power, designed for human habitation, that meets all requirements in the Health and Safety Code, Section 18010.

STATE OF EMERGENCY. State of Emergency as defined in the Government Code, Section 8558.

TENT. A structure, enclosure or shelter, with or without sidewalls or drops, constructed of fabric or pliable material supported by any manner except by air or the contents that it protects.

SECTION O103

EMERGENCY HOUSING

O103.1 General. Emergency sleeping cabins, emergency transportable housing units including commercial modulars, membrane structures and tents constructed and/or assembled in accordance with this appendix, shall be occupied only during declaration of state of emergency, local emergency, or shelter crisis.

Buildings and structures constructed in accordance with the California Building Standards Code, used as emergency housing, shall be permitted to be permanently occupied.

O103.2 Existing buildings. Existing residential and nonresidential buildings or structures shall be permitted to be used as emergency housing and emergency housing facilities provided such buildings or structures comply with the building code provisions and/or other regulations in effect at the time of original construction and/or alteration. Existing buildings or structures used as emergency housing shall not become or continue to be substandard buildings, as determined by the enforcing agency.

O103.2.1 New additions, alterations, and change of occupancy. New additions, alterations, and change of occupancy to existing buildings shall comply with the requirements of the California Building Standards Code effective at the time of addition, alteration, or change of occupancy. The requirements shall apply only to and/or within the specific area of the addition, alteration, or change of occupancy.

Exceptions:

1. Existing buildings and structures used for emergency housing and emergency housing facilities may not be required to comply with the California Energy Code, as determined by the enforcing agency.
2. Change in occupancy shall not mandate conformance with new construction requirements set forth in the California Building Standards Code, provided such change in occupancy meets the minimum fire and life safety requirements set forth in Section O112 of this appendix.

O103.3 Occupant load. Except as otherwise stated in this appendix, the maximum occupant load allowed in buildings and structures used as emergency housing shall be determined by the enforcing agency, but the interior floor area shall not be less than 70 square feet (6.5 m²) for one occupant. Where more than one person occupies the building/structure, the required floor area shall be increased at the rate of 50 square feet (4.65 m²) for each occupant in excess of one.

Exceptions:

1. Tents.
2. Recreational vehicles and park trailers designed for human habitation that meet the requirements in the Health and Safety Code, Sections 18009.3 and 18010, as applicable

O103.4 Fire and life safety requirements not addressed in this appendix. If not otherwise addressed in this appendix, fire and life safety measures, including, but not limited to, means of egress, fire separation, fire sprinklers, smoke alarms, and carbon monoxide alarms, shall be determined and enforced by the enforcing agency.

O103.5 Privacy. Emergency housing shall be provided with a privacy lock on each entrance door and all windows for use by the occupants.

O103.6 Heating. All sleeping areas shall be provided with adequate heating as determined by the enforcing agency.

SECTION O104

EMERGENCY SLEEPING CABINS

O104.1 General. Emergency sleeping cabins shall have an interior floor area of not less than 70 square feet (6.5 m²) for one occupant. Where more than one person occupies the cabin, the required floor area shall be increased at the rate of 50 square feet (4.65 m²) for each occupant in excess of one. The interior floor area shall not exceed 400 square feet (37 m²), excluding lofts.

O104.2 Live loads. Emergency sleeping cabins shall be designed to resist intrusion of wind, rain, and to support the following live loads:

1. Floor live loads not less than 40 pounds per square foot (1.92 kPa) of floor area.
2. Horizontal live loads not less than 15 pounds per square foot (718 Pa) of vertical

wall and roof area.

3. Roof live loads not less than 20 pounds per square foot (958 Pa) of horizontal roof area.
4. In areas where snow loads are greater than 20 pounds per square foot (958 Pa), the roof shall be designed and constructed to resist these additional loads.

O104.3 Minimum ceiling height. Habitable space and hallways in emergency sleeping cabins shall have a ceiling height of not less than 80 inches (2032 mm). Bathrooms, toilet rooms, and kitchens, if provided, shall have a ceiling height of not less than 76 inches (1930 mm). Obstructions shall not extend below these minimum ceiling heights including beams, girders, ducts, lighting and other obstructions.

Exception: Ceiling heights in lofts constructed in accordance with Section N108 are permitted to be less than 80 inches (2032 mm).

O104.4 Means of egress. Emergency sleeping cabins shall be provided with at least two forms of egress placed remotely from each other. One form of egress may be an egress window complying with Section N104.4.1. When a loft is provided, one form of egress shall be an egress window complying with Section N104.4.1, provided in the loft space.

O104.4.1 Egress window. The bottom of the clear opening of the egress window shall not be more than 44 inches (1118 mm) above the floor. The egress window shall have a minimum net clear opening height of 24 inches (610 mm), and a minimum net clear opening width of 20 inches (508 mm). The egress window shall have a minimum net clear opening area of 5 square feet (0.465 m²).

O104.5 Plumbing and gas service. If an emergency sleeping cabin contains plumbing or gas service, it shall comply with all applicable requirements of the California Plumbing Code and the California Mechanical Code.

O104.6 Electrical. Emergency sleeping cabins shall be provided with all of the following installed in compliance with the California Electrical Code:

1. Continuous source of electricity.

Exception: The source of electricity may be an emergency generator or renewable source of power such as solar or wind power.

2. At least one interior lighting fixture.
3. Electrical heating equipment listed for residential use and a dedicated receptacle outlet for the electrical heating equipment.

Exception: Electrical heating equipment and a dedicated receptacle outlet for the electrical heating equipment are not required if a nonelectrical source of heating is provided.

4. At least one GFCI-protected receptacle outlet for use by the occupant(s).

O104.7 Ventilation. Emergency sleeping cabins shall be provided with means of ventilation (natural and/or mechanical) allowing for adequate air replacement, as determined by the enforcing agency.

O104.8 Smoke alarms. Emergency sleeping cabins shall be provided with at least one smoke alarm installed in accordance with the California Residential Code, Section R314.

O104.9 Carbon monoxide alarms. If an emergency sleeping cabin contains a fuel-burning appliance(s) or a fireplace(s), a carbon monoxide alarm shall be installed in accordance with the California Residential Code, Section R315

SECTION O105

EMERGENCY TRANSPORTABLE HOUSING UNITS

O105.1 General. In addition to the requirements in this appendix, manufactured homes, mobilehomes, multifamily manufactured homes, commercial modulares, recreational vehicles, and park trailers used as emergency transportable housing shall comply with all applicable requirements in the Health and Safety Code, Division 13, Part 2; and Title 25, Division 1, Chapter 3, Subchapter 2.

No provisions of Sections O111 through O114 of this appendix shall be deemed to grant authorization for any additional work that may conflict with the standards specified in Section O105 applicable for emergency transportable housing units.

SECTION O106

TENTS AND MEMBRANE STRUCTURES

O106.1 General. Tents shall not be used to house occupants for more than 7 days unless such tents are maintained with tight wooden floors raised at least 4 inches (101.6 mm) above the ground level and are equipped with baseboards on all sides to a height of at least 6 inches (152.4 mm). Tents may be maintained with concrete slabs with the finished surface at least 4 inches (101.6 mm) above grade and equipped with curbs on all sides at least 6 inches (152.4 mm) high.

A tent shall not be considered a suitable sleeping place when it is found necessary to provide heating facilities in order to maintain a minimum temperature of 50 degrees Fahrenheit (10 degrees Celsius) within such tent during the period of occupancy.

Membrane structures installed and/or assembled in accordance with Chapter 31 of this code, may be permitted to be used as emergency housing and emergency housing facilities, as determined by the enforcing agency.

Tents and membrane structures shall comply with Chapter 31 of the California Fire Code and shall not be erected for a period of more than 180 days within a 12 month period.

Tents and membrane structures shall be limited to one level located at the level of Fire Department vehicle access road or lane. Tents and membrane structures complying with Chapter 31 of the California Fire Code shall not be subject to additional provisions of Sections O111 and O112 of this appendix.

Tents and membrane structures used for sleeping purposes shall be equipped with single station battery powered smoke alarms installed in accordance with Section 907.2.11 of the California Fire Code.

SECTION O107

ACCESSIBILITY

O107.1 General. Emergency housing shall comply with the applicable requirements in Chapter 11B and/or the US Access Board Final Guidelines for Emergency Transportable Housing.

Note: The Architectural and Transportation Barriers Compliance Board (US Access Board) issued the Final Guidelines for Emergency Transportable Housing on May 7, 2014. The final guidelines amended the 2004 ADA Accessibility Guidelines (2004 ADAAG) and the 2004 Architectural Barriers Act (ABA) Accessibility Guidelines (2004 ABAAG) to specifically address emergency transportable housing units provided to disaster survivors by entities subject to the ADA or ABA. The final rule ensures that the emergency transportable housing units are readily accessible to and usable by disaster survivors with disabilities.

SECTION O108

LOFTS IN EMERGENCY HOUSING

O108.1 Minimum loft area and dimensions. Lofts used as a sleeping or living space shall meet the minimum area and dimension requirements of Sections O108.1.1 through O108.1.3.

O108.1.1 Minimum area. Lofts shall have a floor area of not less than 35 square feet (3.25 m²).

O108.1.2 Minimum dimensions. Lofts shall be not less than 5 feet (1524 mm) in any horizontal dimension.

O108.1.3 Height effect on loft area. Portions of a loft with a sloping ceiling measuring less than 3 feet (914 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the loft.

Exception: Under gable roofs with a minimum slope of 6:12, portions of a loft with a sloping ceiling measuring less than 16 inches (406 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the loft.

O108.2 Loft access. The access to and primary egress from lofts shall be any type described in Sections O108.2.1 through O108.2.4.

O108.2.1 Stairways. Stairways accessing lofts shall comply with the California Residential Code or with Sections O108.2.1.1 through O108.2.1.6.

O108.2.1.1 Width. Stairways accessing a loft shall not be less than 17 inches (432 mm) in clear width at or above the handrail. The minimum width below the handrail shall be not less than 20 inches (508 mm).

O108.2.1.2 Headroom. The headroom in stairways accessing a loft shall be not less than 74 inches (1880 mm), as measured vertically, from a sloped line connecting the tread or landing platform nosings in the middle of their width.

O108.2.1.3 Treads and risers. Risers for stairs accessing a loft shall be not less than 7 inches (178 mm) and not more than 12 inches (305 mm) in height. Tread depth and riser height shall be calculated in accordance with one of the following formulas:

1. The tread depth shall be 20 inches (508 mm) minus $\frac{4}{3}$ of the riser height, or
2. The riser height shall be 15 inches (381 mm) minus $\frac{3}{4}$ of the tread depth.

O108.2.1.4 Landing platforms. The top step of stairways accessing lofts shall be constructed as a landing platform where the loft ceiling height is less than 74 inches (1880 mm). The landing platform shall be 18 inches (457 mm) to 22 inches (559 mm) in depth measured from the nosing of the landing platform to the edge of the loft, and 16 inches (406 mm) to 18 inches (457 mm) in height measured from the landing platform to the loft floor.

O108.2.1.5 Handrails. Handrails shall comply with the California Residential Code, Section R311.7.8.

N108.2.1.6 Stairway guards. Guards at open sides of stairways shall comply with the California Residential Code, Section R312.1.

O108.2.2 Ladders. Ladders accessing lofts shall comply with Sections O108.2.2.1 and O108.2.2.2.

O108.2.2.1 Size and capacity. Ladders accessing lofts shall have a rung width of not less than 12 inches (305 mm), and 10 inches (254 mm) to 14 inches (356 mm) spacing between rungs. Ladders shall be capable of supporting a 200 pound (90.7 kg) load on any rung. Rung spacing shall be uniform within $\frac{3}{8}$ -inch (9.5 mm).

O108.2.2.2 Incline. Ladders shall be installed at 70 to 80 degrees from horizontal.

O108.2.3 Alternating tread devices. Alternating tread devices are acceptable as allowed by the enforcing agency.

O108.2.4 Loft guards. Loft guards shall be located along the open side of lofts. Loft guards shall not be less than 36 inches (914 mm) in height or one-half of the clear height to the ceiling, whichever is less. Loft guards shall not have openings from the walking surface to the required guard height that allow passage of a sphere 4 inches (102 mm) in diameter.

SECTION O109

LOCATION, MAINTENANCE AND IDENTIFICATION

O109.1 Maintenance. Emergency housing and emergency housing facilities shall be maintained in a safe and sanitary condition, and free from vermin, vectors and other matter of an infectious or contagious nature. The grounds within emergency housing sites shall be kept clean and free from accumulation of debris, filth, garbage and deleterious matter. Emergency housing and emergency housing facilities shall not be occupied if a substandard condition exists, as determined by the enforcing agency.

O109.1.1 Fire hazards. Dangerous materials or materials that create a fire hazard, as determined by the enforcing agency, shall not be allowed on the grounds within emergency housing sites.

O109.3 Identification. Emergency housing shall be designated by address numbers, letters, or other suitable means of identification. The identification shall be in a conspicuous location facing the street or driveway fronting the building or structure. Each identification character shall be not less than 4 inches (102 mm) in height and not less than 0.5 inch (12.7 mm) in width, installed/painted on a contrasting background.

SECTION O110

EMERGENCY HOUSING FACILITIES SANITATION REQUIREMENTS

O110.1 Drinking water. Potable drinking water shall be provided for all occupants of emergency housing.

O110.2 Kitchens and food facilities. Where provided, kitchens and food facilities, as defined in Section 113789 of the California Health and Safety Code, which support emergency housing sites, shall comply with applicable food safety provisions of Sections 113980 – 114094.5 of the California Health and Safety Code.

Where occupants of dependent units are permitted or required to cook for themselves, a separate area shall be equipped and maintained as a common use kitchen. Refrigerated storage shall be provided for safe storage of food.

O110.3 Toilet and bathing facilities. When dependent units are used as emergency housing, the emergency housing site shall be provided with one toilet and one bathing facility for every 15 occupants of each gender. The enforcing agency may permit different types and ratios of toilet and bathing facilities. The approval shall be based upon a finding that the type and ratio of toilet and bathing facilities are sufficient to process the anticipated volume of sewage and waste water, while maintaining sanitary conditions for the occupants of the emergency housing.

Bathing facilities shall be provided with heating equipment which shall be capable of maintaining a temperature of 70 degrees F (21.0 degrees Celsius) within such facilities.

Lavatories with running water shall be installed and maintained in the toilet facilities or adjacent to the toilet facilities.

O110.4 Garbage, waste and rubbish disposal. All garbage, kitchen waste and rubbish shall be deposited in approved covered receptacles, which shall be emptied when filled and the contents shall be disposed of in a sanitary manner acceptable to the enforcing agency.

SECTION O111

EMERGENCY HOUSING LIGHTING AND VENTILATION REQUIREMENTS

O111.1 Lighting. Buildings or structures used for emergency housing shall be provided with natural light by means of exterior glazed openings in accordance with Section 1204.2 of the California Building Code, or shall be provided with artificial light in accordance with Section 1204.3 of the California Building Code.

O111.2 Ventilation. Buildings or structures used for emergency housing shall be provided with natural ventilation in accordance with Section 1202.5 of the California Building Code, or mechanical ventilation in accordance with the California Mechanical Code.

SECTION O112

EMERGENCY HOUSING FIRE AND LIFE SAFETY REQUIREMENTS

O112.1 Location on property. Buildings or structures used for emergency housing, including sleeping cabins, shall be located in accordance with the requirements of Table 602 and Section 705 of the California Building Code, based on their type of construction and fire-resistance ratings of the exterior walls. During a shelter crisis, the fire separation distances are permitted to be measured to the existing buildings on the adjacent parcels rather than to the interior lot lines, provided the open spaces are to remain unobstructed for the duration of the shelter crisis.

O112.2 Buildings on same lot. Buildings or structures used for emergency housing,

including sleeping cabins, shall be separated from each other and from other buildings on the same lot as set forth in Section 705.3 of the California Building Code. The Building Official and Fire Marshal may accept reasonable alternatives to these requirements provided reasonably equivalent fire and life safety is achieved.

O112.3 Means of egress. Buildings or structures used for emergency housing shall be provided with means of egress complying with Chapter 10 of the California Building Code, unless modified elsewhere in this appendix.

O112.4 Emergency escape and rescue. Each area of a building or structure used for sleeping purposes in emergency housing shall be provided with an emergency escape and rescue opening in accordance with Section 1030 of the California Building Code, unless modified elsewhere in this appendix.

O112.5 Smoke alarms. Buildings or structures used for emergency housing, which provide sleeping accommodations, shall be equipped with single station battery powered smoke alarms installed in accordance with the location requirements of Section 907.2.11 of the California Fire Code, unless modified elsewhere in this appendix.

O112.6 Carbon monoxide alarms. Buildings or structures used for emergency housing, which provide sleeping accommodations, and equipped with fuel-burning appliances shall be provided with carbon monoxide detection in accordance with Section 915 of the California Fire Code, unless modified elsewhere in this appendix.

O112.7 Fire alarm. A manual fire alarm system capable of arousing sleeping occupants in accordance with Section 907.2.10.1 of the California Fire Code shall be installed in buildings, structures, or groups of buildings or structures used for emergency housing and having a gross floor area of more than 2,500 square feet or having more than 49 sleeping occupants.

Exception: Individual buildings or structures in a group of buildings or structures with sufficient separation distances to allow each building or structure to function independently in case of a fire, as approved by the Fire Marshal.

O112.8 Automatic sprinkler systems. Fire sprinklers shall be provided for new and existing buildings or structures used for emergency housing, including sleeping cabins, which provide sleeping facilities, as required by Section 903.3 of the California Fire Code. Strict compliance with the requirements of Section 903.3 may not be required when approved by the Fire Marshal. The Fire Marshal is authorized to accept reasonably equivalent alternatives to the installation provisions of Section 903.3 when dealing with buildings or structures used for emergency housing.

O112.9 Fire extinguishers. Portable fire extinguishers shall be provided in accordance with Section 906.1 of the California Fire Code.

O112.10 Flammable or combustible liquids. The possession or storage of any flammable or combustible liquids or gases shall not be permitted (intact cigarette lighters excepted). The use of any type of open flame indoors is prohibited unless conditionally approved by the Fire Chief.

O112.11 Storage in attics, under-floor and concealed spaces. Combustible materials, including but not limited to the possessions of occupants, users and staff shall not be stored in attics, under-floor spaces, or within other concealed spaces of buildings or structures used for emergency housing with sleeping accommodations.

O112.12 Fire department access. Fire Department access to building and premises used for emergency housing shall be in compliance with Section 503, Appendix D and Section 504 of the California Fire Code, as approved by the Fire Chief.

O112.13 Water supply. An approved fire protection water supply complying with Section 507 of the California Fire Code, or as approved by the Fire Chief, shall be provided for each structure, group of structures or premises used for emergency housing.

SECTION O113

ADDITIONAL REQUIREMENTS

O113.1 Operating procedures. Operating procedures including a security plan and service requirements shall be developed by the professional service provider and shown to be consistent with the shelter standards imposed by the Alameda County Social Services Agency. These procedures shall be designed to maintain order and safety within the buildings or structures used for emergency housing.

SECTION O114

ALTERNATIVES AND MODIFICATIONS

O114.1 Alternatives and modifications. Alternative compliance and/or modifications that are reasonably equivalent to the requirements in this appendix may be granted by the Local Administrative Authority in individual cases when dealing with buildings or structures used for emergency housing.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.5, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17922.14, 17927, 17928, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1 through 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; Civil Code Sections 1101.4 and 1101.5; and Government Code Sections 12955.1 and

12955.1.1. (Ord. 7613-NS § 3, 2018)

Section 2. That Berkeley Municipal Code Chapter 19.29 is hereby repealed and reenacted to read as follows:

Chapter 19.29

BERKELEY RESIDENTIAL CODE

Sections:

- 19.29.010 Adoption of California Residential Code.**
- 19.29.020 Title.**
- 19.29.030 Administrative Provisions.**
- 19.29.040 Subsection R301.2 Climatic and Geographic Design Criteria.**
- 19.29.050 Section R337 Materials and Construction Methods for Exterior Wildlife Exposure.**
- 19.29.060 Technical Amendments to Structural Standards.**

19.29.010 Adoption of California Residential Code.

The California Residential Code, 2019 Edition, as adopted in Title 24 Part 2.5 of the the California Code of Regulations, including Appendices H, Q, R, S is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. A copy of this Code is on file for use and examination by the public in the office of the City Clerk of the City of Berkeley.

19.29.020 Title.

This Code shall be known as the "Berkeley Residential Code" and may be cited as "this Code".

19.29.030 Administrative provisions.

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any CRC administrative provisions that may conflict.

For regulations governing wood burning appliances see BMC 19.28.040.

19.29.040 CRC Subsection R301.2 Climatic and geographic design criteria.

**TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA**

GROUND SNOW LOAD ^o	WIND DESIGN				SEISMIC DESIGN CATEGORY ^f	SUBJECT TO DAMAGE FROM		
	Speed ^d (mph)	Topographic Effects ^k	Special Wind Region ^l	Wind-borne Debris Zone ^m		Weathering ^a	Frost line depth ^b	Termite ^c
ZERO	85	NO	NO	NO	D ₂ or E	NEGLIGIBLE	N/A	VERY HEAVY
MANUAL J DESIGN CRITERIA ⁿ								
Elevation	Latitude	Winter heating	Summer cooling	Altitude correction factor	Indoor design temperature	Design temperature cooling		
345	38	40	80	1.0	70	75		

WINTER DESIGN TEMP ^e	ICE BARRIER UNDERLAYMENT REQUIRED ^h	FLOOD HAZARDS ^g	AIR FREEZING INDEX ⁱ	MEAN ANNUAL TEMP ^j
See Footnote 'q'	NO	See Footnote 'p'	ZERO	57.2°F

MANUAL J DESIGN CRITERIA ⁿ							
Heating temperature difference	Cooling temperature difference	Wind velocity heating	Wind velocity cooling	Coincident wet bulb	Daily range	Winter humidity	Summer humidity
30	5	15 MPH	7.5 MPH	63	16	55	55

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

- a. Where weathering requires a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this Code, the frost line depth strength required for weathering shall govern. The weathering column shall be filled in with the weathering index, "negligible," "moderate" or "severe" for concrete as determined from Figure R301.2.(4)]. The grade of masonry units shall be determined from ASTM C34, C55, C62, C73, C90, C129, C145, C216 or C652.
- b. Where the frost line depth requires deeper footings than indicated in Figure R403.1(1), the frost line depth strength required for weathering shall govern. The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.
- c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.

- d. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(5)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- e. Temperatures shall be permitted to reflect local climates or local weather experience as determined by the building official. [Also see Figure R301.2(1).]
- f. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
- g. The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of all currently effective FIRMs and FBFMs or other flood hazard map adopted by the authority having jurisdiction, as amended.
- h. In accordance with Sections R905.1.2, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall fill in this part of the table with "NO."
- i. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3.(2) or from the 100-year (99%) value on the National Climatic Data Center data table "Air Freezing Index- USA Method (Base 32°)".
- j. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index- USA Method (Base 32°F)".
- k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall indicate "NO" in this part of the table.
- l. In accordance with Figure R301.2(5)A, where there is local historical data documenting unusual wind conditions, the jurisdiction shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the jurisdiction shall indicate "NO" in this part of the table.
- m. In accordance with Section R301.2.1.2, the jurisdiction shall indicate the wind-borne debris wind zone(s). Otherwise, the jurisdiction shall indicate "NO" in this part of the table.
- n. The jurisdiction shall fill in these sections of the table to establish the design criteria using Table 1a or 1b from ACCA Manual J or established criteria determined by the jurisdiction.
- o. The jurisdiction shall fill in this section of the table using the Ground Snow Loads in Figure R301.2(6).
- p. Flood Hazard Data for the City of Berkeley:
 - Date of Jurisdiction's Entry into the NFIP: December 7, 1973;
 - Date of adoption of the first code or ordinance for management of flood hazards: Ordinance No. 5085-N.S., July 25, 1978;
 - Date of Flood Insurance study: Aug 3, 2009;
 - Panel numbers and dates of all currently effective maps adopted by the AHJ

(Ordinance 7108-NS 9/29/09):

- FEMA's "Use of Digital Flood Hazard Data" establishes that paper and digital maps are equivalent. Policy and related information are available from FEMA. The policy implements section 107 of Public Law 108-264, 118 Stat. 724 (2004)
 - Panel 13 (not available in printed form)
 - Panel 14 of 725, Map Number 06001C0014G, August 3, 2009
 - Panel 18 of 725, Map Number 06001C0018G, August 3, 2009
 - Panel 19 of 725, Map Number 06001C0019G, August 3, 2009
 - Panel 38 (not available in printed form)
 - Panel 51 (not available in printed form)
 - Panel 52 of 725, Map Number 06001C0052G, August 3, 2009
 - Panel 53 (not available in printed form)
 - Panel 54 of 725, Map Number 06001C0054G, August 3, 2009
 - Panel 56 of 725, Map Number 06001C0056G, August 3, 2009
 - Panel 57 of 725, Map Number 06001C0057G, August 3, 2009
 - Panel 80 of 725, Map Number 06001C0080G, August 3, 2009
- q. Heating Load Calculation Data for the City of Berkeley:
- 33 degrees F "Winter Median of Extremes"
 - 37 degrees F "Design Drybulb (0.2%)
 - 40 degrees F "Design Drybulb (0.6%)

19.29.050 CRC Section R337 Materials and Construction Methods for Exterior Wildlife Exposure.

Chapter 3 of the 2019 California Residential Code is adopted in its entirety subject to the modifications thereto which are set forth below.

R337.1 – SCOPE, PURPOSE AND APPLICATION

R337.1.1 Scope. This Chapter applies to building materials, systems and/or assemblies used in the exterior design and construction of new buildings and structures, additions, alterations, repairs and re-roofs located within a Wildland-Urban Interface Fire Area as defined in Section R337.2.

R337.1.2 Purpose. The purpose of this Chapter is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any building or structure in the Wildland-Urban Interface Fire Area to resist the intrusion of flame or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.

R337.1.3 Application. New buildings located in any Fire Hazard Severity Zone or new buildings and structures, additions, alterations, repairs and re-roofs located in any Wildland-Urban Interface Fire Area designated by the enforcing agency constructed after the application date shall comply with the provisions of this Chapter.

Exceptions:

1. Buildings or structures of an accessory character classified as a Group U occupancy and not exceeding 120 square feet in floor area, when located at least 30 feet from an applicable building or property lines.

R337.1.3.1 Application date and where required. New buildings for which an application for a building permit is submitted on or after July 1, 2008 located in any Fire Hazard Severity Zone or buildings and structures, additions, alterations, repairs and re-roofs for which an application for a building permit is submitted on or after July 1, 2008 located in the Wildland Interface Fire Area shall comply with all sections of this chapter.

R337.2 – DEFINITIONS

For the purposes of this Chapter, certain terms are defined below:

FIRE ZONE ONE shall encompass the entire City of Berkeley except for Fire Zones Two and Three.

FIRE ZONE TWO encompasses those areas designated as Combined Hillside District in the Official Zoning map of the City of Berkeley and those areas designated as Very High in the official Fire Hazard Severity Zones (FHSZ) map of The Department of Forestry and Fire Protection (CAL FIRE), as they may be amended from time to time. The following properties, not part of the Combined Hillside District, are included in Fire Zone Two under the Very High designation of the FHSZ map: the eastern section of the University of California, Berkeley main campus, block number 2042 (Alameda County Assessor's parcel numbering (APN) system), to the east city line; all of the Clark-Kerr campus, block number 7690, to the east city line; all of block number 7680 in the City of Berkeley; portions of block number 1702 in the City of Berkeley. See Exhibit A for the specific parcels by APN and address.

FIRE ZONE 3 encompasses those areas designated as Environmental Safety – Residential Districts on the Official Zoning Map of the City of Berkeley, as it may be amended from time to time.

LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE means an area designated by a local agency upon the recommendation of the CDF Director pursuant to Government Code Sections 51177(c), 51178 and 51189 that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection. Fire Zones 2 and 3 are designated as Local Agency High Fire Hazard Severity Zone.

WILDLAND-URBAN INTERFACE FIRE AREA is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. Fire Zones 2 and 3 are designated as Wildland-Urban Interface Fire Area.

R337.5 – ROOFING

R337.5.1 General. Roofs shall be a Class A minimum and shall comply with the requirements of Sections R337 and R902. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions. Wooden shakes and shingles are prohibited roof coverings regardless of the assembly rating of the roof system.

Exception: Replacement of less than 50% of the roof area within a 5 year period.

R337.5.5 Spark Arrestors. All chimneys of fireplaces, stoves, barbecues or heating appliances using solid fuel shall be provided with an approved spark arrestor whenever modification has been made to any of these appliances, or whenever a structure is re-roofed. The net free area of the spark arrestor shall be not less than four times the net free area of the outlet of the chimney. The spark arrestor shall have heat and corrosion resistance equivalent to twelve-gauge wire, nineteen gauge galvanized wire, or twenty-four-gauge stainless steel. Openings shall not permit the passage of spheres having a diameter larger than one-half inch and shall not block the passage of spheres having a diameter of less than three-eighths inch. The arrestor shall be securely attached to the chimney or stovepipe and shall be adequately supported. The use of bands, mollies, masonry anchors or mortar ties are recommended depending upon the individual need.

R337.7 – EXTERIOR COVERING

R337.7.3.3 Replacement of Exterior Wall Covering. Materials for replacement of existing exterior wall covering shall meet or exceed the standards set forth in this chapter.

Exception: Where less than 50% of any wall surface is being replaced or repaired, and the matching of the new plane to the existing plane on that wall is not possible.

R337.11 – UNDERGROUND UTILITY CONNECTIONS

R337.11.1 Underground utility connections. For new construction, provisions shall be made for the undergrounding of all utilities serving the property, including but not limited to electrical, telephone and cable television, by the installation of appropriately sized underground conduits extending from the street property.

R337.12 – ADDITIONAL REQUIREMENTS IN FIRE ZONE THREE

R337.12.1 General. In addition to meeting the other requirements of this Chapter, buildings or structures hereinafter erected, constructed, moved, altered, added, or repaired within Fire Zone Three shall comply with the following requirements for buildings and structures.

R337.12.2 Fire Warning System. All residential units shall be equipped with a Fire Warning System as specified by the residential smoke detector requirements of the current edition of the California Building Code and with an audible exterior alarm. The exterior alarm must meet the requirements of NFPA 72 or equivalent and generate 45

decibels ten feet from the alarm, or more.

R337.12.3 Automatic Fire Sprinklers, Berkeley Fire Code Section 903.3. Any new construction or new additions to existing structures requiring a permit determined to be \$100,000 or more in construction costs shall be required to install automatic fire sprinklers throughout the existing structure.

R337.12.4 Utilities. Utilities, pipes, furnaces, water heaters or other mechanical devices located in an exposed underfloor area of a building or structure shall be enclosed with material as required for exterior one hour fire resistive construction. Adequate covered access openings for servicing and ventilation of such facilities shall be provided as required by appropriate codes.

R337.12.5 Control of brush or vegetation. Brush and vegetation shall be controlled as required in the Berkeley Fire Code.

R337.12.6 Special Conditions. The following additional conditions must be met:

1. Public access roads and fire trails. No person(s) shall use any public access road or fire trail for the storage of any construction material, stationary construction equipment, construction office, portable refuse container, or earth from any grading or excavating.
2. Water Service. The water service to the site shall be installed with a ¾" hose bib connection prior to beginning any wood framing. The person responsible for the construction shall have at the site a 75 ft ¾" hose available.

Exhibit A

Parcels in Addition to the Combined Hillside District

The following additional parcels by Assessor's Parcel Number and address are included in Fire Zone Two:

Parcel Number (APN)	Address
048-7680-001-02	3 Tanglewood Road
048-7680-002-01	5 Tanglewood Road
048-7680-031-00	7 Tanglewood Road
048-7680-019-00	11 Tanglewood Road
048-7680-014-00	19 Tanglewood Road
048-7680-032-01	25 Tanglewood Road
048-7680-027-00	29 Tanglewood Road
054-1702-067-00	10 Tanglewood Road
054-1702-068-00	18 Tanglewood Road
054-1702-069-00	22 Tanglewood Road
054-1702-070-00	28 Tanglewood Road
054-1702-063-00	2701 Belrose Avenue
054-1702-076-00	2715 Belrose Avenue

054-1702-075-00	2721 Belrose Avenue
054-1702-074-00	2729 Belrose Avenue
054-1702-073-00	2737 Belrose Avenue
054-1702-112-00	2801 Claremont Boulevard
054-1702-123-01	2811 Claremont Boulevard
054-1702-122-00	2815 Claremont Boulevard
054-1702-120-01	2821 Claremont Boulevard
054-1702-114-01	2816 Claremont Avenue
054-1702-115-00	2820 Claremont Avenue
054-1702-072-00	3005 Garber Street
054-1702-071-00	3015 Garber Street
054-1702-113-00	3020 Garber Street
054-1702-116-00	3017 Avalon Avenue

19.29.060 Technical Amendments to Structural Standards

Chapter 6 of the 2019 California Residential Code is adopted in its entirety subject to the modifications thereto which are set forth below.

Table R602.10.3(3) Bracing Requirements based on Seismic Design Category

Add a new footnote “g” to the end of CRC Table R602.10.3(3)^a to read:

g. In Seismic Design Categories D0, D1, and D2, Method GB is not permitted and the use of Method PCP is limited to one-story dwellings and accessory structures.

Add a new Subsection R602.10.4.5, to read:

R602.10.4.5 Limits on methods GB and PCP. In Seismic Design Categories D0, D1, and D2, Method GB is not permitted, but gypsum board is permitted to be placed on the opposite side of the studs from other types of braced wall panel sheathing. In Seismic Design Categories D0, D1, and D2, the use of Method PCP is limited to one-story dwellings and accessory structures.

Section 3. That Berkeley Municipal Code Chapter 19.30 is hereby repealed and reenacted to read as follows:

Chapter 19.30

BERKELEY ELECTRICAL CODE

Sections:

- 19.30.010 Adoption of California Electrical Code.**
- 19.30.020 Title.**
- 19.30.030 Administrative provisions.**

19.30.010 Adoption of California Electrical Code.

The California Electrical Code, 2019 Edition, as adopted by the California Code of Regulations, Title 24, Part 3 is hereby adopted and made a part of this Chapter as though fully set forth herein subject to the modifications thereto which are set forth in this Chapter. A copy of this Code is on file for use and examination by the public in the office of the City Clerk of the City of Berkeley.

19.30.020 Title.

This Code shall be known as the "Berkeley Electrical Code" and may be cited as "this Code".

19.30.030 Administrative provisions.

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any administrative provisions contained in Article 89 General Code Provisions that may conflict.

Section 4. That Berkeley Municipal Code Chapter 19.32 is hereby repealed and reenacted to read as follows:

Chapter 19.32

BERKELEY MECHANICAL CODE

Sections:

- 19.32.010 Adoption of the California Mechanical Code.**
- 19.32.020 Title.**
- 19.32.030 Administrative provisions.**
- 19.32.040 Amendments to the California Mechanical Code**

19.32.010 Adoption of the California Mechanical Code.

The California Mechanical Code, 2019 Edition, as adopted in Title 24 Part 4 of the California Code of Regulations, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. A copy of this Code is on file for use and examination by the public in the office of the City Clerk of the City of Berkeley.

19.32.020 Title.

This Code shall be known as the "Berkeley Mechanical Code" and may be cited as "this Code".

19.32.030 Administrative provisions.

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any CMC administrative provisions that may conflict.

19.32.040 Amendments to the California Mechanical Code

Chapter 4 of the 2019 California Mechanical Code is adopted in its entirety subject to the modifications thereto which are set forth below:

402.1.2 Ventilation in Dwelling Units. Requirements for ventilation air rate for single-family dwellings and residential dwelling units in multi-family buildings shall be in accordance with this ~~chapter or section~~ and ASHRAE 62.2. Each kitchen range shall be provided with a vented hood ducted to terminate outside the building, with a minimum air flow of 100 cfm and a maximum sound rating of 3 sones.

Exception: A vented range hood shall not be required in dwelling unit kitchens equipped with a local mechanical exhaust system installed in accordance with ASHRAE 62.2.

For regulations governing wood burning appliances, see BMC 19.28.040.

Section 5. That Berkeley Municipal Code Chapter 19.34 is hereby repealed and reenacted to read as follows:

Chapter 19.34

BERKELEY PLUMBING CODE

Sections:

- 19.34.010 Adoption of the California Plumbing Code.**
- 19.34.020 Title.**
- 19.34.030 Administrative provisions.**
- 19.34.040 Gas Shut-Off Valves**

19.34.010 Adoption of the California Plumbing Code.

The California Plumbing Code, 2019 Edition, as adopted in Title 24 Part 5 of the California Code of Regulations, including Appendices A, B and D, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. A copy of this Code is on file for use and examination by the public in the office of the City Clerk of the City of Berkeley.

19.36.020 Title.

This Code shall be known as the "Berkeley Plumbing Code" and may be cited as "this Code."

19.34.030 Administrative provisions.

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any CPC administrative provisions that may conflict.

19.34.040 Gas Shut-Off Valves

Chapter 12 of the 2019 California Plumbing Code is adopted in its entirety subject to the modifications thereto which are set forth below.

1209.2 General Requirements for Gas Shut-Off Valves. Automatic gas shut-off valves installed either in compliance with this Section or voluntarily pursuant to a plumbing permit issued on or after the effective date of this Section, shall comply with the following:

1209.2.1 All valves shall:

1. Comply with all applicable requirements of the Berkeley Plumbing Code.
2. Be tested and listed by recognized testing agencies such as the Independent Laboratory of the International Approval Services (IAS), Underwriter's Laboratory (UL), International Association of Plumbing and Mechanical Officials (IAPMO) or any other agency approved by the State of California Office of the State Architect (OSA).
3. Be listed to ANSI Z21.93/CSA6.30 Excess Flow Valves for Natural and LP Gas with Pressures up to 5 Psig.
4. Be installed on downstream side of the gas utility meter.
5. Be installed in accordance with the manufacturer's instructions.
6. Be installed in accordance with a plumbing permit issued by the City of Berkeley.
7. Provide a method for expedient and safe gas shut-off in an emergency.
8. Provide a capability for ease of consumer or owner resetting in a safe manner.

1209.2.2 Motion activated seismic gas shut-off valves shall be mounted rigidly to the exterior of the building or structure containing the fuel gas piping, unless otherwise specified in the manufacturer's installation instructions.

1209.3 Definitions

For the purpose of this Section terms shall be defined as follows:

AUTOMATIC GAS SHUT- OFF VALVE shall mean either a motion activated gas shut-off valve or device or an excess flow gas shut-off valve or device.

DOWNSTREAM OF GAS UTILITY METER shall mean all gas piping on the property owner's side of the gas meter and after the service tee.

EXCESS FLOW GAS SHUT- OFF VALVE shall mean an approved valve or device that is activated by significant gas leaks or overpressure surges that can occur when pipes rupture inside a structure. Such valves are installed at each appliance, unless otherwise specified by the manufacturer's installation instructions.

MOTION ACTIVATED GAS SHUT OFF VALVE shall mean an approved gas valve activated by motion. Valves are set to activate in the event of a moderate or strong seismic event greater than 5.0 on the Richter scale.

UPSTREAM OF GAS UTILITY METER shall mean all gas piping installed by the utility up to and including the meter and the utility's service tee.

1209.4 Devices When Required. Approved automatic gas shut-off valves shall be installed as follows:

1209.4.1 New Construction. In any new building construction containing gas piping for which a building permit is first issued on or after the effective date of this Section.

1209.4.2 Existing Buildings. In any existing building, when any addition, alteration or repair is made for which a building permit is issued on or after the effective date of this Section and the valuation for the work exceeds \$50,000.

Exceptions:

1. Buildings with individually metered residential units when the building contains 5 or more residential units, unless the units are condominiums.
2. For residential or mixed use condominium buildings, valves are required when the value of the work exceeds \$50,000 in any single condominium unit or when any work done outside of the units exceeds \$50,000.
3. Commercial occupancies and uses in mixed use buildings of residential and non-residential occupancies with a single gas service line larger than 1 ½ inches that serves the entire building.
4. Automatic gas shut-off valves installed with a building permit on a building prior to the effective date of this Section provided the valves remain installed on the building or structure and are adequately maintained for the life of the building or structure.
5. Automatic gas shut-off valves installed on a gas distribution system owned or operated by a public utility.

Section 6. That Berkeley Municipal Code Chapter 19.36 is hereby repealed and reenacted to read as follows:

Chapter 19.36

BERKELEY ENERGY CODE

Sections:

- 19.36.010 Adoption of the California Energy Code.
- 19.36.020 Title.
- 19.36.030 Administrative provisions.
- 19.36.040 Amendments to the California Energy Code.
- 19.36.050 CEQA

19.36.010 Adoption of the California Energy Code.

The California Energy Code, 2019 Edition, as adopted in Title 24 Part 6 of the California Code of Regulations, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. A copy of this Code is on file for use and examination by the public in the office of the City Clerk of the City of Berkeley.

19.36.020 Title.

This Code shall be known as the "Berkeley Energy Code" and may be cited as "this Code".

19.36.030 Administrative provisions.

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any California Energy Code administrative provisions that may conflict.

For regulations governing wood burning appliances see BMC 19.28.040.

19.36.040 Amendments to the California Energy Code.

SUBCHAPTER 1: ALL OCCUPANCIES – GENERAL PROVISIONS of the 2019 California Energy Code is adopted in its entirety subject to the modifications thereto which are set forth below:

Modify SECTION 100.1(b) to add the following definitions:

ALL-ELECTRIC BUILDING is a building that has no natural gas or propane plumbing installed within the building, and that uses electricity as the source of energy for its space heating, water heating, cooking, and clothes drying appliances.

CERTIFIED ENERGY ANALYST is a person registered as a Certified Energy Analyst with the California Association of Building Energy Consultants as of the date of submission of a Certificate of Compliance as required under Section 10-103.

MIXED-FUEL BUILDING is a building that is plumbed for the use of natural gas or

propane as fuel for space heating, water heating (including pools and spas), cooking or clothes drying appliances.

NATURAL GAS shall have the same meaning as “Fuel Gas” as defined in the California Plumbing Code and Mechanical Code.

NEWLY CONSTRUCTED BUILDING is a building that has never before been used or occupied for any purpose and does not include additions, alterations, or repairs.

REACH CODE is a cost-effective locally adopted energy standard that requires buildings to be designed to consume no more energy than permitted by the California Energy Code.

Add a new SECTION 100.3 to read as follows:

SECTION 100.3 REACH CODE

- (a) **Buildings Covered.** In addition to all requirements of the California Energy Code, newly constructed buildings shall comply with the following requirements of the Reach Code:
1. New nonresidential, high-rise residential, and hotel/motel buildings that are designed to utilize mixed-fuel (natural gas or propane in addition to electricity) shall be required to install solar panels on the Solar Zone, as defined in Section 110.10. With the exception of laboratory, industrial, and manufacturing uses or occupancies, the new nonresidential, high-rise residential, and hotel/motel buildings shall also comply with either the prescriptive requirements of Section 140.2, as amended herein, or have a compliance margin, as defined in Section 140.1, that meets or exceeds the Standard Design Building by 10%.
 2. New low-rise residential buildings that are designed to utilize mixed-fuel (natural gas or propane in addition to electricity) shall be required to either comply with the prescriptive requirements of Section 150.1(c), as amended herein, or meet a Total Energy Design Rating (EDR) margin, as defined by the California Energy Code, of 10. The performance requirements may be reduced, but not below the requirements for the Standard Design Building, if sufficient solar access is not available.
 3. If a Certified Energy Analyst prepares the Certificate of Compliance, the design shall be credited with one (1) EDR point or one (1) percent of compliance margin, to the extent that the resultant energy budget is no greater than the energy budget for the Standard Building Design.
 4. New nonresidential, high-rise residential, and hotel/motel Mixed-Fuel Buildings shall have electrical systems and designs that support a future retrofit to facilitate the installation of all-electric appliances for all gas appliance plumbing connections. This includes electrical conductors or raceways, bus bar capacity, and space for circuit breakers.

5. New low-rise residential Mixed-Fuel Buildings shall have electrical systems and designs that support a future retrofit to facilitate the installation of all-electric appliances for all gas appliance plumbing connections. This includes electrical conductors or raceways, bus bar capacity, and space for circuit breakers, and for equipment serving individual units only, service panel capacity and pre-wired and installed circuit breakers.

SUBCHAPTER 5: NONRESIDENTIAL, HIGH-RISE RESIDENTIAL AND HOTEL/MOTEL OCCUPANCIES – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR ACHIEVING ENERGY EFFICIENCY of the 2019 California Energy Code is adopted in its entirety subject to the modifications thereto which are set forth below:

SECTION 140.0(b) is modified to read as follows:

- (b) The requirements of Sections 120.0 through 130.5 (mandatory measures for nonresidential, high-rise residential and hotel/motel buildings) including the following additional mandatory measures:

1. **Photovoltaic Requirement.** The solar zone, as specified in Section 110.10, shall have a solar PV system installed, subject to the exceptions in Section 110.10.
2. **Electric Readiness: Circuit Capacity.** A Mixed-Fuel Building shall have conductors or raceway installed with termination points at the main electrical panel (via subpanels panels, if applicable) 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 electric power requirements as specified below at the service voltage. The capacity requirements may be adjusted for demand factors in accordance with the California Electric Code Article 220. Gas flow rates shall be determined in accordance with the California Plumbing Code Section 1208.4.

A. Domestic Hot Water:

- i. 24 amps at 240 volts per dwelling unit; or
- ii. 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.

B. Space Heating:

- i. 24 amps at 240 volts per dwelling unit; or
- ii. 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.

Exception to Section 140.0(b)2B: If permanent space cooling equipment is installed for all of the affected dwelling units, the conductors or raceway serving the cooling equipment may be increased in size to accommodate

the future electric space heating equipment.

C. Clothes Dryer:

- i. 24 amps at 240 volts per domestic dryer; or
- ii. 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.

D. Cooking Equipment in Residential Space:

- i. Range or cooktop: 32 amps at 240 volts per appliance.
- ii. Stand-alone oven: 16 amps at 240 volts per appliance.

E. Pools and Spas:

- i. 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.

3. **Electric Readiness: Service Capacity.**

A. A 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 Section 140.0(b)2.

B. 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 Section 140.0(b)2.

C. The capacity requirements may be adjusted for demand factors in accordance with the California Electric Code, Title 24, Part 3, Section 220.

4. **Electric Readiness: Other requirements.** A Mixed-Fuel Building shall include the following components for equipment that serve individual residential units:

A. Water Heating

- i. The conductors or raceway shall terminate in an area that meets all of the requirements below:
- ii. Is at least 3 feet by 3 feet by 7 feet high; and
- iii. 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 $\frac{3}{4}$ inch in diameter, compliant with California Plumbing Code Section 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.

B. Space Heating.

- i. 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 California Plumbing Code Section 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.

Exception 1 to Sections 140.0(b)2, 3 and 4. If the design includes bus bar capacity, raceway or conductor capacity necessary for the installation of electrical equipment that can serve the intended function of the gas equipment.

Exception 2 to Sections 140.0(b)2, 3 and 4. Facilities where natural gas is necessary to meet the requirements of other permitting agencies or is demonstrated to be necessary for the purpose of protecting public health, safety and welfare.

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.

SECTION 140.1 is modified to read as follows:

SECTION 140.1 – PERFORMANCE APPROACH: ENERGY BUDGETS

A building newly constructed All-Electric Building or 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 under Subsection (b) is no greater than the energy budget calculated for the Standard Design Building under Subsection (a).

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 under Subsection (b) has a compliance margin, relative to the energy budget calculated for the Standard Design Building under Subsection (a), of at least 10%.

- (a) **Energy Budget for the Standard Design Building.** The energy budget for the Standard Design Building is determined by applying the mandatory and prescriptive requirements to the proposed design building. The energy budget is the sum of the TDV energy for space-conditioning, indoor lighting, mechanical ventilation, service water heating, and covered process loads.
- (b) **Energy Budget for the Proposed Design Building.** The energy budget for a Proposed Design Building is determined by calculating the TDV energy for the Proposed Design Building. The energy budget is the sum of the TDV energy for space-conditioning, indoor lighting, mechanical ventilation and service water heating and covered process loads.
- (c) **Calculation of Energy Budget.** The TDV energy for both the Standard Design Building and the Proposed Design Building shall be computed by Compliance Software certified for this use by the Commission. The processes for Compliance

Software approval by the Commission are documented in the ACM Approval Manual.

Exception to Section 140.1: 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%.

SECTION 140.2 is modified to read as follows:

SECTION 140.2 – PRESCRIPTIVE APPROACH

To comply using the prescriptive approach, a building shall be designed with and shall have constructed and installed systems and components meeting the applicable requirements of Sections 140.3 through 140.9 and additionally the following measures as applicable intended to exceed the remaining prescriptive requirements:

- (a) Mixed-Fuel Buildings of Hotel, Motels or High-Rise Multifamily Occupancies
 - 1. Install fenestration with a solar heat gain coefficient no less than 0.45 in both common spaces and guest rooms.
 - 2. Design Variable Air Volume (VAV) box minimum airflows to be equal to the zone ventilation minimums.
 - 3. Include economizers and staged fan control in air handlers with a mechanical cooling capacity \geq 33,000 Btu/h.
 - 4. Reduce the lighting power density (Watts/ft²) by ten percent (10%) from that required from Table 140.6-C.
 - 5. In common areas, improve lighting without claiming any Power Adjustment Factor credits:
 - A. Control to daylight dimming plus off per Section 140.6(a)2.H; and
 - B. Perform Institutional Tuning per Section 140.6(a)2.J
 - 6. 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.
- (b) All Other Nonresidential Mixed-Fuel Buildings
 - 1. Install fenestration with a solar heat gain coefficient no greater than 0.22.
 - 2. 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.
 - 3. Design Variable Air Volume (VAV) box minimum airflows to be equal to the zone ventilation minimums where VAV systems are installed.
 - 4. Include economizers and staged fan control in air handlers with a mechanical cooling capacity \geq 33,000 Btu/h.
 - 5. Reduce the lighting power density (Watts/ft²) by ten percent (10%) from that required from Table 140.6-C.

6. Improve lighting without claiming any Power Adjustment Factor credits:
 - A. Perform Institutional Tuning per Section 140.6(a)2.J, and
 - B. In office spaces, control to daylight dimming plus off per Section 140.6(a)2.H, and
 - C. Install Occupant Sensing Controls in Large Open Plan Offices per Section 140.6(a)2.I.

Exception to Section 140.2(b). Newly constructed Mixed-Fuel Buildings occupied for laboratory, industrial, or manufacturing uses.

SUBCHAPTER 7: LOW-RISE RESIDENTIAL BUILDINGS – MANDATORY FEATURES AND DEVICES of the 2019 California Energy Code is adopted in its entirety subject to the modifications thereto which are set forth below:

SECTION 150.0 is modified to read as follows:

SECTION 150.0 – MANDATORY FEATURES AND DEVICES

Low-rise residential buildings shall comply with the applicable requirements of Sections 150(a) through 150.0(~~r~~)(u).

NOTE: The requirements of Sections 150.0(a) through 150.0(~~r~~)(u) apply to newly constructed buildings. Sections 150.2(a) and 150.2(b) specify which requirements of Sections 150.0(a) through 150.0(r) also apply to additions or alterations.

SECTION 150.0(h) is modified to add a new subsection (5) to read as follows:

5. **Electric Readiness.** Systems using gas or propane space heating equipment shall include the following components:
 - A. For equipment serving individual dwelling units, a dedicated 240 volt, 30 amp or greater electrical circuit shall be provided for a future electric heater. In addition, all of the following shall be required:
 - i. The circuit shall terminate within 3 feet from the designated future location of an electric heater with no obstructions into a listed cabinet, box or enclosure labelled “For Future Electric Space Heater”; and
 - ii. The circuit shall be served by a dedicated double pole circuit breaker in the electrical panel labeled with the words “For Future Electric Space Heater”.
 - iii. If a condensate line is not attached to the heating equipment, a condensate line for future use shall be provided that is no less than ¾ inch in diameter, compliant with California Plumbing Code Section 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.

Exception to Section 150.0(h)5.A: If a 240 volt 30 amp or greater electrical circuit exists for space cooling equipment.

- B. Equipment serving multiple dwelling units or common areas shall have conductors or raceway installed with termination points at the main electrical panel (via subpanels panels, if applicable) 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 electric power requirements as specified below and in Section 150.0(u).
- i. 24 amps at 240 volts per dwelling unit; or
 - ii. 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.

Exception to Section 150.0(h)5.B: If permanent space cooling equipment is installed for all of the affected dwelling units, the raceway serving the cooling equipment may be increased in size to accommodate the future electric space heating equipment.

SECTION 150.0(n) is modified to read as follows:

(n) Water heating system.

1. Systems using gas or propane water heaters to serve individual dwelling units shall include the following components:
 - A. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within 3 feet from the water heater and accessible to the water heater with no obstructions. In addition, all of the following:
 - i. Both ends of the circuit and the unused conductor shall be labeled with the words "Hot Water Receptacle" and be electrically isolated; and
 - ii. A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in A above and labeled with the words "Future 240V Use For Future 240V Electric Water Heater"; and
 - B. A Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; and
 - C. A condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assistance, and
 - D. A gas supply line with a capacity of at least 200,000 Btu/hr; and
 - E. Located in an area that is at least 3 feet by 3 feet by 7 feet high.

2. Water heating recirculation loops serving multiple dwelling units shall meet the requirements of Section 110.3(c)5.
3. Solar water-heating systems and collectors shall be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.
4. Instantaneous water heaters with an input rating greater than 6.8 kBTU/hr (2kW) shall meet the requirements of Section 110.3(c)7.
5. Water heating equipment serving multiple dwelling units or common areas shall have:
 - A. 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 California Plumbing Code Section 814, is no more than two inches higher than the base of the installed water heater, and located within 12 inches of the water heater; and
 - B. Conductors or raceway installed with termination points at the main electrical panel (via subpanels panels, if applicable) and into a listed cabinet, box or enclosure at a location no more than 3 feet from each gas outlet or a designated location of a future electric replacement appliance labelled "For future water heater." The conductors or raceway and any intervening subpanels shall be sized to meet the future electric power requirements as specified below and in Section 150.0(u).
 - i. 24 amps at 240 volts per dwelling unit or
 - ii. 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.

SECTION 150.0 is modified to add new subsections (s, t, and u) to read as follows:

- (s) **Other Gas Equipment.** Buildings plumbed for all other natural gas or propane equipment shall include the following components for each gas terminal or stub out:
1. Clothes Drying.
 - A. Equipment serving individual dwelling units shall have a dedicated 240-volt, 30 amp or greater electrical receptacle within 3 feet of the appliance and accessible with no obstructions. In addition, all of the following:
 - i. The receptacle shall be labeled with the words "For Future Electric Clothes Dryer"; and
 - ii. A double pole circuit breaker in the electrical panel labeled with the words "For Future Electric Clothes Dryer".
 - B. Equipment serving multiple dwelling units or common areas shall have conductors or raceway installed with termination points at the main electrical

panel (via subpanels panels, if applicable) 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 electric power requirements as specified below and in Section 150.0(u).

- i. 24 amps at 240 volts per dwelling unit or
- ii. 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.

2. Combined Cooktop and Oven or Stand Alone Cooktop

- A. A dedicated 240-volt, 40 amp or greater circuit and 50 amp or greater electrical receptacle located within 3 feet of the appliance and accessible with no obstructions. In addition, all of the following:
 - i. The electrical receptacle shall be labeled with the words "For Future Electric Range" and be electrically isolated; and
 - ii. A double pole circuit breaker in the electrical panel labeled with the words "For Future Electric Range".

3. Stand Alone Cooking Oven

- A. A dedicated 240-volt, 20 amp or greater receptacle within 3 feet of the appliance and accessible with no obstructions. In addition, all of the following:
 - i. The electrical receptacle shall be labeled with the words "For Future Electric Oven" and be electrically isolated; and
 - ii. A double pole circuit breaker in the electrical panel labeled with the words "For Future Electric Oven".

4. Pools and Spas

- A. Gas or propane equipment pools or spas shall have conductors or raceway installed with termination points at the main electrical panel (via subpanels panels, if applicable) 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 electric power requirements as specified below and in Section 150.0(u).
 - i. 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.

(t) **Service Capacity**

1. All newly installed electrical panels and subpanels serving loads in a Mixed-Fuel Building shall have space for additional overcurrent protective devices and

adequate bus bar capacity to meet all of the building's potential future electrical requirements as specified in Sections 150.0(h), (n) and (s).

2. All newly installed raceways in a Mixed-Fuel Building between the utility service point and the main electric panel and any subpanels shall be adequately sized for conductors to serve all of the building's potential future electrical requirements as specified in Sections 150.0(h), (n) and (s).
3. The service capacity requirements of this section shall be determined in accordance with Section 150.0(u).

(u) **Conductor, Raceway and Subpanel Sizing.**

1. The capacity requirements may be adjusted for demand factors in accordance with the California Electric Code, Title 24, Part 3, Section 220.
2. Raceway and subpanel capacity shall be sized to be large enough to meet the requirements at the service voltage.

Exception to Sections 150.0(h)5, 150.0 (n)1.A.iii, 150.0 (n)1.E, 150.0 (n)5 and 150.0(s), 150.0(t) and 150.0(u): If the design includes the bus bar capacity raceway or conductor capacity necessary for the installation of electrical equipment that can serve the intended function of the gas equipment.

SUBCHAPTER 8: LOW-RISE RESIDENTIAL BUILDINGS – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES of the 2019 California Energy Code is adopted in its entirety subject to the modifications thereto which are set forth below:

SECTION 150.1(b) is modified to read as follows:

- (b) **Performance Standards.** A building complies with the performance standards if the energy consumption for the Proposed Design Building is no greater than the energy budget calculated for the Standard Design Building using Commission-certified compliance software as specified by the Alternative Calculation Methods Approval Manual. Newly Constructed Mixed-Fuel Buildings must additionally reach an EDR margin above the Standard Design in order to comply with performance standards.
1. **Newly Constructed Buildings.** The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Rating, which is based on TDV energy. The Energy Design Rating (EDR) has two components, the Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The Solar Electric Generation and Demand Flexibility Design Rating shall be subtracted from the Energy Efficiency Design Rating to determine the Total Energy Design Rating. The Proposed Building shall separately comply with the Energy Efficiency Design Rating and the Total Energy Design Rating.
 - A. An All-Electric Building complies with the performance standards if both the Total Energy Design Rating and the Energy Efficiency Design Rating for the

Proposed Building are no greater than the corresponding Energy Design Ratings for the Standard Design Building.

- B. A Mixed-Fuel Building complies with the performance standards if:
 - i. The Energy Efficiency Design Rating of the Proposed Building is no greater than the Energy Efficiency Design Rating for the Standard Design Building; and
 - ii. The Total Energy Design Rating for the Proposed Building is at least 10 points less than the Total Energy Design Rating for the Standard Design Building.

Exception 1 to Section 150.1(b)1.B.ii: If the Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the Total Energy Design Rating of the Proposed Design is no greater than the Standard Design Building, the Total Energy Rating of the Proposed Building complies with this section if it is at least 9 points less than the Total Energy Design Rating for the Standard Design Building.

Exception 2 to Section 150.1(b)1.B.ii: Buildings with limited solar access are exempt if all of the following are met:

- a. The Total Energy Design Rating for the Proposed Building is no greater than the Standard Design Building; and
- b. A photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11 is installed on all available areas with 80 contiguous square feet or more of effective annual solar access. Effective annual solar access shall be 70 percent or greater of the output of an unshaded PV array on an annual basis, wherein shade is due to existing permanent natural or manmade barriers external to the dwelling, including but not limited to trees, hills, and adjacent structures; and
- c. The Energy Efficiency Energy Design Rating for the Proposed Building is no greater than the respective value for the Standard Design Building by the EDR margin in Table 150.1(b)1 below.

Table 150.1(b)1: Energy Efficiency EDR Margins

<u>Building Type</u>	<u>Energy Efficiency EDR Margin</u>
<u>Single Family</u>	<u>2</u>
<u>Multifamily</u>	<u>0</u>

Exception to Section 150.1(b)1: A community shared solar electric generation system, or other renewable electric generation system, and/or community shared battery storage system, which provides dedicated power, utility energy reduction credits, or payments for energy bill reductions, to the permitted building and is

approved by the Energy Commission as specified in Title 24, Part 1, Section 10-115, may offset part or all of the solar electric generation system Energy Design Rating required to comply with the Standards, as calculated according to methods established by the Commission in the Residential ACM Reference Manual.

SECTION 150.1(c) is modified to read as follows:

- c. **Prescriptive standards/component packages.** Buildings that comply with the prescriptive standards shall be designed, constructed, and equipped to meet all of the requirements for the appropriate Climate Zone shown in TABLE 150.1-A or B as well as all of the requirements of Sections 150.1(c)15 and 16, whichever are more stringent. In TABLE 150.1-A and TABLE 150.1-B, a NA (not allowed) means that feature is not permitted in a particular Climate Zone and a NR (no requirement) means that there is no prescriptive requirement for that feature in a particular Climate Zone. Installed components shall meet the following requirements:

New Subsections 15 and 16 are added to SECTION 150.1(c) to read as follows:

15. Additional Prescriptive Requirements for Newly Constructed Single Family Mixed-Fuel Buildings:

- A. **Duct System Sealing and Leakage Testing.** The total duct system leakage shall not exceed 2 percent of the nominal system air handler air flow.
- B. **Insulation for a Heated Slab.** Perimeter insulation for a heated slab shall be installed with an R-value equal to or greater than R-10 and shall comply with the requirements of Section 110.8(g).
- C. **Compact Hot Water.** The hot water distribution system shall be designed and installed to meet minimum requirements for the basic compact hot water distribution credit according to the procedures outlined in the 2019 Reference Appendices RA4.4.6.
- D. **Ducted Central Forced Air Heating Systems. Central Fan Integrated Ventilation Systems.** The duct distribution system shall be designed to reduce external static pressure to meet a maximum fan efficacy equal to:
Gas Furnaces: 0.35 Watts per cfm
Heat Pumps: 0.45 Watts per cfm
according to the procedures outlined in the 2019 Reference Appendices RA3.3.
- E. **Energy Storage.** A battery energy storage system with a minimum capacity equal to 5 kWh shall be installed. The system shall have automatic controls programmed to have the ability to charge anytime PV generation is greater than the building load and discharge to the electric grid, during the highest priced time of use hours of the day.

16. **Additional Prescriptive Requirements for Newly Constructed Multifamily Mixed-Fuel Buildings:**

- A. **Insulation for a Heated Slab.** Perimeter insulation for a heated slab shall be installed with an R-value equal to or greater than R-10 and shall comply with the requirements of Section 110.8(g).
- B. **Compact Hot Water.** The hot water distribution system shall be designed and installed to meet minimum requirements for the basic compact hot water distribution credit according to the procedures outlined in the 2019 Reference Appendices RA4.4.6.
- C. **Central Fan Integrated Ventilation Systems.** Central forced air system fans used to provide outside air, shall have an air-handling unit fan efficacy less than or equal to 0.35 W/CFM. The airflow rate and fan efficacy requirements in this section shall be confirmed through field verification and diagnostic testing in accordance with all applicable procedures specified in Reference Residential Appendix RA3.3. Central Fan Integrated Ventilation Systems shall be certified to the Energy Commission as Intermittent Ventilation Systems as specified in Reference Residential Appendix RA3.7.4.2.
- D. **Energy Storage.** A battery energy storage system with a capacity equivalent to the PV system shall be installed. The system shall have automatic controls programmed to have the ability to charge anytime PV generation is greater than the building load and discharge to the electric grid, during the highest priced time of use hours of the day.

19.36.050 CEQA

These standards are is exempt from CEQA under 15061(b)(3) on the grounds that these standards are more stringent than the State energy standards, there are no reasonably foreseeable adverse impacts and there is no possibility that the activity in question may have a significant effect on the environment.

Section 7. That Berkeley Municipal Code Chapter 19.37 is hereby repealed and reenacted to read as follows:

Chapter 19.37

BERKELEY GREEN CODE

Sections:

- 19.37.010 Adoption of the California Green Building Standards Code.**
- 19.37.020 Title.**
- 19.37.030 Administrative provisions.**
- 19.37.040 Amendments to the California Green Building Standards Code.**

The California Green Building Standards Code (CALGreen), 2019 Edition, as adopted in Title 24 Part 11 of the California Code of Regulations, is hereby adopted and made a part of this Chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this Chapter. A copy of this Code is on file for use and examination by the public in the office of the City Clerk of the City of Berkeley.

19.37.020 Title.

This Code shall be known as the "Berkeley Green Code" and may be cited as "this Code".

19.37.030 Administrative provisions.

All of the administrative provisions contained in Article 1 of Chapter 19.28, the Berkeley Building Code, shall apply to this Code as well and take precedence over any California Green Building Standards Code administrative provisions that may conflict.

For regulations governing wood burning appliances see BMC 19.28.040.

19.37.040 Amendments to the California Green Building Standards Code.

Chapter 2 Definitions of the California Green Buildings Code is adopted in its entirety subject to the modifications thereto which are set forth below:

Add a new definition to read:

ELECTRIC VEHICLE CHARGING SPACE (EV SPACE) RACEWAY EQUIPPED. An EV Space that includes a raceway between any enclosed, inaccessible or concealed areas and the electrical service panel or subpanel. No additional electrical panel capacity is required at time of construction.

Chapter 3 Green Building of the California Green Buildings Code is adopted in its entirety subject to the modifications thereto which are set forth below:

Add a new Subsection 301.1.2 to read:

301.1.2 Residential waste diversion. The requirements of Section 4.408 shall be required for:

1. Any additions or alterations, which increase the building's conditioned area, volume or size
2. Any building alterations with a permit valuation over \$100,000
3. Any interior or exterior demolitions valued over \$3,000

Modify Subsection 301.3.2 to read:

301.3.2 Nonresidential waste diversion. The requirements of Section 5.408 shall be required for additions and, alterations and demolitions whenever a permit is required for work.

Chapter 4 Residential Mandatory Measures of the California Green Buildings Code is adopted in its entirety subject to the modifications thereto which are set forth below:

4.106.4.1 New one- and two-family dwellings and townhouses with attached or detached private garages, carports, or any other on-site parking. For each dwelling unit, install a listed raceway and associated conductors to accommodate a dedicated 208/240-volt branch circuit for a future EV charger. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. ~~The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device. The service panel and/or subpanel shall be provided with a 40 ampere minimum dedicated branch circuit and overcurrent protective device for a future EV charger.~~

4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device ~~space(s) reserved~~ for future EV charging as ~~"EV-CAPABLE"~~ "EV CHARGER READY". The raceway termination location shall be permanently and visibly marked as ~~"EV-CAPABLE"~~ "EV CHARGER READY".

4.106.4.2 New multifamily dwellings. If residential parking is available:

1. Twenty (20) ten (10) percent of the total number of parking spaces on a building

site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future ~~EVSE~~ EV chargers. All raceways, conductors, 40-ampere minimum dedicated branch circuits, and branch circuit overcurrent protective devices, shall be installed as described in Sections 4.106.4.2.3 and 4.106.4.2.4. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

2. Eighty (80) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be EV Spaces Raceway Equipped capable of supporting future Electric Vehicle Service Equipment (EVSE). Raceways shall be installed between any enclosed, inaccessible or concealed areas and the electrical service panel or subpanel. No additional electrical panel capacity is required at time of construction. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

Notes:

1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be ~~constructed or~~ available until EV chargers are installed for use.

4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.

4.106.4.2.1.1 Electric vehicle charging stations (EVCS). When EV chargers are installed, EV spaces required by Section 4.106.4.2.2, Item 3, shall comply with at least one of the following options:

1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space.
2. The EV space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.

Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3.

Note: Electric vehicle charging stations serving public housing are required to comply with the California Building Code, Chapter 11 B.

4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).
2. The minimum width of each EV space shall be 9 feet (2743 mm).
3. One in every 25 EV spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).
 - a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.3 Single EV space for a future EV charger required. Install a listed raceway and associated conductors capable of accommodating a 208/240-volt dedicated branch circuit for a future EV charger. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. ~~The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.~~ The service panel and/or subpanel shall be provided with a 40 ampere minimum dedicated branch circuit and overcurrent protective device for a future EV charger.

4.106.4.2.4 Multiple EV spaces for future EV chargers required. Install listed raceways and all associated conductors capable of accommodating 208/240-volt dedicated branch circuits for future EV chargers. The raceways shall originate at the main service or subpanel and shall terminate into listed cabinets, boxes or other enclosures in close proximity to the proposed locations of EV spaces. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of dedicated branch circuits, future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging

purposes as “~~EV CAPABLE~~” “EV CHARGER READY” in accordance with the California Electrical Code.

4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide Electric Vehicle Charging Stations (EVCS) equipped with EV chargers as set forth in Section 4.106.4.3.1 Item 1, and EV Spaces Raceway Equipped as set forth in Section 4.106.4.3.1 Item 2 capable of supporting future installation of EVSE. The construction documents shall identify the location of the EVCS and the EV spaces.

Notes:

1. Construction documents are intended to demonstrate the project’s capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be ~~constructed~~ or available until EV chargers are installed for use.

4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with ~~Table 4.106.4.3.1~~ the following:

1. Ten (10) percent of the total number of parking spaces shall be Electric Vehicle Charging Stations (EVCS), designed in accordance with Section 4.106.4.2.4, and equipped with EV chargers.
2. Forty (40) percent of the total number of parking spaces shall be EV Spaces Raceway Equipped capable of supporting future Electric Vehicle Service Equipment (EVSE). Raceways shall be installed between any enclosed, inaccessible or concealed areas and the electrical service panel or subpanel. No additional electrical panel capacity is required at time of construction.

Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

Exception: Installation of a Direct Current Fast Charger with the capacity to provide at least 80 kW of output may substitute for 10 EV Spaces as designed in accordance with Section 4.106.4.2.4.

Table 4.106.4.3.1 is deleted in its entirety.

4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).
2. The minimum width of each EV space shall be 9 feet (2743 mm).

4.106.4.3.3 Single EV space EVCS required. When a single EV space EVCS is required, the EV space shall be designed in accordance with Section 4.106.4.2.3. Installation of the EV charger is required.

4.106.4.3.4 Multiple EV spaces EVCS required. When multiple EV spaces EVCS are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4. Installation of EV chargers is required.

4.106.4.3.5 Identification. ~~The service panels or subpanels shall be identified in accordance with Section 4.106.4.2.5.~~ The service panels or subpanels shall identify the overcurrent protective devices serving EVCS as “EV CHARGER”.

4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, ~~when installed,~~ shall comply with the accessibility provisions for EV charging stations in the California Building Code, Chapter 11B.

4.405 Material Sources

Add a new Subsection 4.405.1 to read:

4.405.1 Reduction in cement use. As allowed by the enforcing agency, cement used in concrete mix design shall be reduced not less than 25 percent. Products commonly used to replace cement in concrete mix designs include, but are not limited to:

1. Fly ash
2. Slag
3. Silica fume
4. Rice hull ash

Exception: Minimum cement reductions in concrete mix designs approved by the Engineer of Record may be lower where high early strength is needed for concrete products or to meet an accelerated project schedule.

Modify Subsection 4.408.1 to read:

4.408.1 Construction waste management. Recycle and/or salvage for reuse 100% of excavated soil and land-clearing debris, 100% of concrete, 100% of asphalt, and a minimum of 65 percent of the other nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, ~~or meet a more stringent local construction and demolition waste management ordinance.~~

Exceptions:

1. ~~Excavated soil and land-clearing debris.~~
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

Chapter 5 Nonresidential Mandatory Measures of the California Green Buildings Code is adopted in its entirety subject to the modifications thereto which are set forth below:

5.106.5.3 Electric vehicle (EV) charging. [N] Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to ~~facilitate future~~ require installation of electric vehicle supply equipment (EVSE) including EV chargers. When EVSE(s) is/are installed, it shall be in accordance with the California Building Code, the California Electrical Code and as follows:

5.106.5.3.1 Single electric vehicle charging station (EVCS) charging space requirements. [N] When only a single ~~charging space~~ EVCS is required per ~~Table 5.106.5.3.3~~ Section 5.106.5.3.3, a raceway with all associated conductors is required to be installed at the time of construction and shall be installed in accordance with the *California Electrical Code*. Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE including the EV charger.
2. A listed raceway and associated conductors capable of accommodating a 208/240-volt dedicated branch circuit.
3. The raceway shall not be less than trade size 1”.
4. The raceway shall originate at a service panel or a subpanel serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into a listed suitable cabinet, box, enclosure or equivalent.
5. ~~The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40 ampere dedicated branch circuit for the future installation of the EVSE.~~ The service panel or subpanel shall be provided with a 40 ampere minimum dedicated branch circuit and overcurrent protective device to serve EVSE.

5.106.5.3.2 Multiple electric vehicle charging station (EVCS) charging space requirements. [N] When multiple EVCS charging spaces are required per ~~Table 5.106.5.3.3~~ Section 5.106.5.3.3 raceway(s) with associated conductors is/are required to be installed at the time of construction and shall be installed in

accordance with the California Electrical Code. Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE including the EV chargers.
2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.
3. Plan design shall be based upon 40-ampere minimum branch circuits.
4. Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.
5. ~~The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.~~ The service panel or subpanel(s) shall be provided with a required number of 40 ampere minimum dedicated branch circuits and overcurrent protective devices to serve EVSE.

5.106.5.3.3 EV charging space calculation. [N] ~~Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.~~ When 10 or more parking spaces are constructed:

1. Ten (10) percent of the total number of parking spaces shall be EVCS with installed EV chargers designed in accordance with Section 5.106.5.3.1 or 5.106.5.3.2. Calculation for spaces shall be rounded up to the nearest whole number.
2. Forty (40) percent of the total number of parking spaces shall be EV Spaces Raceway Equipped capable of supporting future EVSE. Raceway(s) shall be installed between any enclosed, inaccessible or concealed areas and the electrical service panel or subpanel. No additional electrical panel capacity is required at time of construction. Calculation for spaces shall be rounded up to the nearest whole number.

Exceptions:

1. On a case-by-case basis where the local enforcing agency has determined EV charging and infrastructure is not feasible based upon one or more of the following conditions:
 - 1.1 Where there is insufficient electrical supply.

1.2 Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.

2. Installation of a Direct Current Fast Charger with the capacity to provide at least 80 kW of output may substitute for 10 EV Spaces as designed in accordance with Section 5.106.5.3.2.

Table 5.106.5.3.3 is deleted in its entirety.

5.106.5.3.4 [N] Identification. The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV CAPABLE”. The service panels or subpanels shall identify the overcurrent protective devices serving EVCS as “EV CHARGER”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE”.

5.106.5.3.5 [N] Future charging spaces. Future charging spaces qualify as designated parking as described in Section 5.106.5.2 *Designated parking for clean air vehicles.*

5.405 Material Sources

Add a new Subsection 5.405.1 to read:

5.405.1 Reduction in cement use. As allowed by the enforcing agency, cement used in concrete mix design shall be reduced not less than 25 percent. Products commonly used to replace cement in concrete mix designs include, but are not limited to:

1. Fly ash.
2. Slag.
3. Silica fume.
4. Rice hull ash.

Exception: Minimum cement reductions in concrete mix designs approved by the Engineer of Record may be lower where high early strength is needed for concrete products or to meet an accelerated project schedule.

5.408.3 Concrete, asphalt, excavated soil and land clearing debris. 100 percent of concrete, asphalt, trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

Section 8. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 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 November 12, 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.

At a regular meeting of the Council of the City of Berkeley held on December 3, 2019, this Ordinance was adopted by the following vote:

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

Noes: None.

Absent: None.



Jesse Arreguin, Mayor

ATTEST: 

Mark Numainville, City Clerk

Date signed: December 4, 2019