

Ordinance No. XXXX

Ordinance of the Council of the City of Palo Alto Amending Chapter 16.17 (California Energy Code, California Code of Regulations, Title 24, Part 6) of the Palo Alto Municipal Code to Adopt the 2022 California Energy Code, Along With Local Amendments Thereto, to Increase Energy Efficiency Standards for Buildings, Mandate Electric-Ready Requirements, and Incentivize All-Electric New Construction.

The Council of the City of Palo Alto does ORDAIN as follows:

SECTION 1. Findings and Declarations.

- (a) The City of Palo Alto adopted a Sustainability and Climate Action Plan, or S/CAP, to meet the City's stated goal of "80 x 30": reducing greenhouse gas emissions 80% below 1990 levels by 2030.
- (b) The S/CAP outlines goals and key actions in eight areas, one of which is energy and more specifically, energy efficiency and electrification. The goals for the energy area of the S/CAP are to reduce GHG emissions from the direct use of natural gas in Palo Alto's building sector by at least 60% below 1990 levels (116,400 MT CO₂e reduction) and to modernize the electric grid to support increased electric demand to accommodate state-of-the-art technology.
- (c) One key action the City is taking to accomplish those goals is to use codes and ordinances - such as the energy reach code, green building ordinance, zoning code, or other mandates - to facilitate electrification in both existing buildings and new construction projects where feasible.
- (d) The purpose of this ordinance is to formally adopt California Code of Regulations, Title 24, Part 11, 2022 California Green Building Standards Code, with local amendments in furtherance of the City of Palo Alto's S/CAP goals.
- (e) California Health and Safety Code sections 17958.5 and 17958.7 requires that the City, in order to make changes or modifications in the requirements contained in the California Green Building Standards on the basis of local conditions, make express finding that such modifications or changes are reasonably necessary because of local climatic, geological or topographical conditions.
- (f) The required findings are attached to this ordinance as Exhibit A.

SECTION 2. Chapter 16.17 (California Energy Code, California Code of Regulations, Title 24, Part 6) of the Palo Alto Municipal Code is hereby amended by repealing in its entirety existing Chapter 16.17 and adopting a new Chapter 16.17 to read as follows:

**CHAPTER 16.17
CALIFORNIA ENERGY CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 6**

Sections

- 16.17.010 2022 California Energy Code, Title 24, Part 6 adopted.**
- 16.17.020 Cross - References to California Energy Code**
- 16.17.030 Local Amendments**
- 16.17.040 Administration & Enforcement of 2022 California Energy Code**
- 16.17.050 Violations – Penalties**
- 16.17.060 Section 100.1 Definitions and Rules of Construction**
- 16.17.070 Section 110.10 Mandatory Requirements for Solar Ready Buildings**
- 16.17.080 Subchapter 4 Nonresidential, High-Rise Residential, and Hotel/Motel Occupancies
 – Mandatory Requirements for Lighting Systems and Equipment, and Electrical
 Power Distribution Systems**
- 16.17.090 Section 130.6 Electric Readiness Requirements for Systems Using Gas or Propane**
- 16.17.100 Subchapter 5 Nonresidential and Hotel/Motel Occupancies — Performance and
 Prescriptive Compliance Approaches for Achieving Efficiency**
- 16.17.110 Section 140.1 Performance Approach: Energy Budgets**
- 16.17.120 Subchapter 7 Single-family Residential Building – Mandatory Features and Devices**
- 16.17.130 Subchapter 8 Single-family Residential Buildings – Performance and Prescriptive
 Compliance Approaches**
- 16.17.140 Subchapter 10 Multifamily Buildings — Mandatory Requirements**
- 16.17.150 Section 160.9 Mandatory Requirements for Electric Ready Buildings**
- 16.17.160 Subchapter 11 Multifamily Buildings — Performance and Prescriptive Compliance
 Approaches**
- 16.17.170 Infeasibility Exemption**
- 16.17.180 Appeal**
- 16.17.010 2022 California Energy Code, Title 24, Part 6 adopted.**

The California Energy Code, 2022 Edition, Title 24, Part 6 of the California Code of Regulations together with those omissions, amendments, exceptions and additions thereto, is adopted and hereby incorporated in this Chapter by reference and made a part hereof the same as if fully set forth herein. Except as amended herein, all requirements of the California Energy Code, 2022 Edition, Title 24, Part 6 of the California Code of Regulations shall apply.

Unless superseded and expressly repealed, references in City of Palo Alto forms, documents and regulations to the chapters and sections of the former editions of the California Code of Regulations, Title 24, shall be construed to apply to the corresponding provisions contained within the California Code of Regulations, Title 24, 2022. Ordinance No. 5571 of the City of Palo Alto and all other ordinances or parts of ordinances in conflict herewith are hereby suspended and expressly repealed.

One copy of the California Energy Code, 2022 Edition, has been filed for use and examination of the public in the Office of the Chief Building Official of the City of Palo Alto.

16.17.020 Cross - References to California Energy Code

The provisions of this Chapter contain cross-references to the provisions of the California Energy Code, 2022 Edition, in order to facilitate reference and comparison to those provisions.

16.17.030 Local Amendments

The provisions of this Chapter shall constitute local amendments to the cross-referenced provisions of the California Energy Code, 2022 Edition, and shall be deemed to replace the cross-referenced sections of said Code with the respective provisions set forth in this Chapter.

16.17.040 Administration & Enforcement of 2022 California Energy Code

Administration and enforcement of this code shall be governed by Chapter 1, Division II of the 2022 California Building Code as amended by Palo Alto Municipal Code Chapter 16.04.

16.17.050 Violations - Penalties

It is unlawful for any person to violate any provision or to fail to comply with any of the requirements of this Chapter or any permits, conditions, or variances granted under this Chapter. Violators shall be subject to any penalty or penalties authorized by law, including but not limited to: administrative enforcement pursuant to Chapters 1.12 and 1.16 of the Palo Alto Municipal Code; and criminal enforcement pursuant to Chapter 1.08 of the Palo Alto Municipal Code. Each separate day or any portion thereof during which any violation of this Chapter occurs or continues shall be deemed to constitute a separate offense.

When the chief building official determines that a violation of this Chapter has occurred, the chief building official may record a notice of pendency of code violation with the Office of the County Recorder stating the address and owner of the property involved. When the violation has been corrected, the chief building official shall issue and record a release of the notice of pendency of code violation.

16.17.060 Section 100.1 Definitions and Rules of Construction

Section 100.1(b) of Subchapter 1 of the California Energy Code is amended by adding the following definitions:

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 of Building Energy Efficiency

Standards for residential and nonresidential buildings.

ELECTRIC EQUIPMENT OR APPLIANCE means one or more devices that use electric energy to serve the needs for heating and cooling, water heating, cooking, and electric vehicle charging. In addition, ancillary equipment such as an electric panel, photovoltaic equipment, and energy storage systems that are deployed to support such devices shall be considered Electric Equipment or Appliance.

ELECTRIC HEATING APPLIANCE is a device that produces heat energy to create a warm environment by the application of electric power to resistance elements, refrigerant compressors, or dissimilar material junctions, as defined in the California Mechanical Code.

NET FREE AREA (NFA) is the total unobstructed area of the air gaps between louver and grille slats in a vent through which air can pass. The narrowest distance between two slats, perpendicular to the surface of both slats is the air gap height. The narrowest width of the gap is the air gap width. The NFA is the air gap height multiplied by the air gap width multiplied by the total number of air gaps between slats in the vent.

SUBSTANTIAL REMODEL (or “50-50-50” RULE) is any project or projects that affects the removal or replacement of 50% or more of the linear length of the existing exterior walls of the building, and/or 50% or more of the linear length of the existing exterior wall plate height is raised, and/or 50% or more of the existing roof framing area is removed or replaced, over a 3-year period.

Any permit(s) applied for will trigger a review of a 3-year history of the project. This review will result in determining if a substantial remodel has occurred.

The Chief Building Official or designee shall make the final determination regarding the application if a conflict occurs.

16.17.070 Section 110.10 MANDATORY REQUIREMENTS FOR SOLAR READY BUILDINGS

Section 110.10 of Subchapter 2 of the California Energy Code is amended by adding Section 110.10 (f) to read:

(f) Existing tree canopies. In the event of a conflict between the provisions of this Code, the Solar Shade Act of 2009, and the Palo Alto Tree Ordinance (Chapter 8.10), the most protective of existing tree canopies shall prevail.

16.17.080 SUBCHAPTER 4 NONRESIDENTIAL AND HOTEL/MOTEL OCCUPANCIES – MANDATORY REQUIREMENTS FOR LIGHTING SYSTEMS AND EQUIPMENT, AND ELECTRICAL POWER DISTRIBUTION SYSTEMS

SECTION 130.0 LIGHTING SYSTEMS AND EQUIPMENT, AND ELECTRICAL POWER DISTRIBUTION SYSTEMS – GENERAL.

Section 130.0 (a) of Subchapter 4 of the California Energy Code is amended to read:

(a) The design and installation of all lighting systems and equipment in nonresidential and hotel/motel buildings, outdoor lighting, and electrical power distribution systems within the scope of Section 100.0(a), shall comply with the applicable provisions of Sections 130.0 through 130.6.

NOTE: The requirements of Sections 130.0 through 130.6 apply to newly constructed buildings and substantial remodels. Section 141.0 specifies which requirements of Sections 130.0 through 130.6 also apply to additions and alterations to existing buildings.

16.17.090 SECTION 130.6 ELECTRIC READINESS REQUIREMENTS FOR SYSTEMS USING GAS OR PROPANE

Subchapter 4 of the California Energy Code is amended to add Section 130.6 to be numbered, entitled, and to read:

130.6 ELECTRIC READINESS REQUIREMENTS FOR SYSTEMS USING GAS OR PROPANE

Where nonresidential systems using gas or propane are installed, the construction drawings shall indicate electrical infrastructure and physical space accommodating the future installation of an electric appliance in the following ways, as certified by a registered design professional or licensed electrical contractor.

- a) Branch circuit wiring, electrically isolated and designed to serve all electric heating appliances in accordance with manufacturer requirements and the *California Electrical Code*, including the appropriate voltage, phase, minimum amperage, and an electrical receptacle or junction box within five feet of the appliance that is accessible with no obstructions. Appropriately sized conduit may be installed in lieu of conductors; and
- b) Labeling of both ends of the unused conductors or conduit shall be with “For Future Electrical Appliance”; and
- c) Reserved circuit breakers in the electrical panel for each branch circuit, appropriately labeled (e.g. “Reserved for Future Electric Range”), and positioned on the opposite end of the panel supply conductor connection; and
- d) Connected subpanels, panelboards, switchboards, busbars, and transformers shall be sized to serve the future electric heating appliances. The electrical capacity requirements shall be adjusted for demand factors in accordance with the *California Electrical Code*; and
- e) Physical space for future electric appliances, including equipment footprint, and if needed a pathway reserved for routing of ductwork to heat pump evaporator(s), shall be depicted on the construction drawings. The footprint necessary for future electric appliances may overlap with non-structural partitions and with the location of currently designed combustion equipment.

**16.17.100 SUBCHAPTER 5 NONRESIDENTIAL AND HOTEL/MOTEL OCCUPANCIES —
PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR ACHIEVING
EFFICIENCY**

SECTION 140.0 PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES

Section 140.0 of Subchapter 5 of the California Energy Code is amended to read:

Nonresidential and hotel/motel buildings shall comply with all of the following:

- a) The requirements of Sections 100.0 through 110.12 applicable to the building project (mandatory measures for all buildings).
- b) The requirements of Sections 120.0 through 130.6 (mandatory measures for nonresidential and high-rise residential and hotel/motel buildings).
- c) Either the performance compliance approach (energy budgets) specified in Section 140.1 or the prescriptive compliance approach specified in Section 140.2 for the Climate Zone in which the building will be located. Climate zones are shown in FIGURE 100.1-A.

NOTE to Section 140.0(c): The Commission periodically updates, publishes, and makes available to interested persons and local enforcement agencies precise descriptions of the Climate Zones, which is available by zip code boundaries depicted in the Reference Joint Appendices along with a list of the communities in each zone.

16.17.110 SECTION 140.1 PERFORMANCE APPROACH: ENERGY BUDGETS

Section 140.1 of Subchapter 5 of the California Energy Code is amended to read:

Sections 140.1 (a) – (c) are adopted without modification.

A newly constructed building or substantial remodel complies with the performance approach provided that:

- 1. The time-dependent valuation (TDV) energy budget calculated for the Proposed Design Building under Subsection (b) is no greater than the TDV energy budget calculated for the Standard Design Building under Subsection (a), and
- 2. The source energy budget calculated for the proposed design building under Subsection (b) has a source energy compliance margin, relative to the energy budget calculated for the standard design building under Subsection (a), of at least the value specified for the corresponding occupancy type in Table 140.1-A below.

TABLE 140.1-A NONRESIDENTIAL BUILDING SOURCE ENERGY COMPLIANCE MARGINS

Occupancy Type	Source Energy Compliance Margins
Office/Mercantile	10%
Hotel/Motel	7%
Restaurants	12%
Industrial/ Manufacturing	0%
All other Nonresidential Occupancies	9%

Exception 1 to Section 140.1 Item 2: A source energy compliance margin of 0 percent or greater is required when nonresidential occupancies are designed with single zone space-conditioning systems complying with Section 140.4(a)2.

3. **Certificate of Compliance.** The Certificate of Compliance shall be prepared and signed by a Certified Energy Analyst and the energy budget for the Proposed Design shall be no greater than the Standard Design Building.

16.17.120 SUBCHAPTER 7 SINGLE-FAMILY RESIDENTIAL BUILDING – MANDATORY FEATURES AND DEVICES

Section 150.0 MANDATORY FEATURES AND DEVICES

Section 150.0 of Subchapter 7 of the California Energy Code is amended to read:

Single-family residential buildings shall comply with the applicable requirements of Sections 150(a) through 150.0(v).

NOTE: The requirements of Sections 150.0 (a) through (v) apply to newly constructed buildings and substantial remodels. 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. The electric readiness requirements of Sections 150.0 (n), (t), (u) and (v) apply to residential remodels or additions when the applicable system is included in the remodel.

Subsections 150.0 (a) – (s) are adopted without modification.

(t) Heat pump space heater ready. Systems using gas or propane furnace to serve individual dwelling units shall include the following:

1. A dedicated 240 volt branch circuit wiring shall be installed within 3 feet from the furnace and accessible to the furnace with no obstructions. The branch circuit conductors shall be rated at 30 amps minimum. The blank cover shall

be identified as “240V ready.” All electrical components shall be installed in accordance with the *California Electrical Code*.

2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future heat pump space heater installation. The reserved space shall be permanently marked as “For Future 240V use.”
3. A designated exterior location for a future heat pump compressor unit.

Subsections 150.0 (u) – (v) are adopted without modification.

16.17.130 SUBCHAPTER 8 SINGLE-FAMILY RESIDENTIAL BUILDINGS – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES

SECTION 150.1 PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR SINGLE-FAMILY RESIDENTIAL BUILDINGS

Section 150.1 of Subchapter 8 of the California Energy Code is amended to read:

Section (a) is adopted without modification.

(b) **Performance Standards.** A building complies with the performance standards if the energy consumption calculated 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, as specified in sub-sections 1, 2 and 3 below.

1. **Newly Constructed Buildings and substantial remodels.** The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Ratings, which are based on source energy and time-dependent valuation (TDV) energy. The Energy Design Rating 1 (EDR1) is based on source energy. The Energy Design Rating 2 (EDR2) is based on TDV energy and has two components, the Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The total Energy Design Rating shall account for both the Energy Efficiency Design Rating and the Solar Electric Generation and Demand Flexibility Design Rating. The proposed building shall separately comply with the Source Energy Design Rating, Energy Efficiency Design Rating and the Total Energy Design Rating.

A building complies with the performance approach if the TDV energy budget calculated for the proposed design building is no greater than the TDV energy budget calculated for the Standard Design Building AND Source Energy compliance margin of at least 8 points, relative to the Source Energy Design Rating 1 calculated for the Standard Design building.

Exception 1 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.

Exception 2 to Section 150.1(b)1. A newly constructed building that does not require a PV system in accordance with Section 150.1(c)14 needs a Source Energy compliance margin of at least 2 points, relative to the Source Energy Design Rating 1 calculated for the Standard Design building.

2. **Additions and Alterations to Existing Buildings.** The Energy Budget for additions and alterations is expressed in terms of TDV energy.
3. **Compliance demonstration requirements for performance standards.**

Section 150.1 (b) 3A of Subchapter 8 of the California Energy Code amended to add subsection i:

- i. **Certificate of Compliance.** The Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the Total Energy Design Rating of the Proposed Design shall be no greater than the Standard Design Building.

Section (c) is adopted without modification.

16.17.140 SUBCHAPTER 10 MULTIFAMILY BUILDINGS — MANDATORY REQUIREMENTS

SECTION 160.4 MANDATORY REQUIREMENTS FOR WATER HEATING SYSTEMS

Section 160.4 (a) of Subchapter 10 of the California Energy Code is deleted:

Sections (b) – (f) are adopted without amendments.

16.17.150 SECTION 160.9 MANDATORY REQUIREMENTS FOR ELECTRIC READY BUILDINGS

Section 160.9 of Subchapter 10 of the California Energy Code is amended to read:

Mandatory requirements for electric-ready buildings apply to newly constructed buildings and substantial remodels.

Section 160.9 Sections (a) – (c) are adopted without amendments.

Sections (d) - (f) are added to read:

- (d) **Systems using gas or propane water heaters to serve individual dwelling units shall**

include the following components:

1. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, copper branch circuit rated to 30 amps, within 3 feet from the water heater and accessible to the water heater with no obstructions. In addition, all of the following:
 - A. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated; and
 - B. 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”;

All electrical components shall be installed in accordance with the *California Electrical Code*.

2. 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,
All plumbing components shall be installed in accordance with the *California Plumbing Code*.

3. The construction drawings shall indicate the location of the future heat pump water heater. The reserved location shall have minimum interior dimensions of 39”x39”x96”,

4. A ventilation method meeting one of the following:

- A. The location reserved for the future heat pump water heater shall have a minimum volume of 700 cu. ft.,
- B. The location reserved for the future heat pump water heater shall vent to a communicating space in the same pressure boundary via permanent openings with a minimum total net free area of 250 sq. in., so that the total combined volume connected via permanent openings is 700 cu. ft. or larger. The permanent openings shall be:
 - i. Fully louvered doors with fixed louvers consisting of a single layer of fixed flat slats; or
 - ii. Two permanent fixed openings, consisting of a single layer of fixed flat slat louvers or grilles, one commencing within 12 inches from the top of the enclosure and one commencing within 12 inches from the bottom of the enclosure.
- C. The location reserved for the future heat pump water heater shall include two 8” capped ducts, venting to the building exterior.
 - i. All ducts connections and building penetrations shall be sealed.
 - ii. Exhaust air ducts and all ducts which cross pressure boundaries shall be insulated to a minimum insulation level of R-6.

- iii. Airflow from termination points shall be diverted away from each other.

All mechanical components shall be installed in accordance with the *California Mechanical Code*.

(e) **Central Heat Pump Water Heater Electric Ready.** Water heating systems using gas or propane to serve multiple dwelling units shall meet the requirements of 160.9(f) and include the following for the future heat pump:

- 1. The system input capacity of the gas or propane water heating system shall be determined as the sum of the input gas or propane capacity of all water heating devices associated with each gas or propane water heating system.
- 2. Space reserved shall include:

A. **Heat Pump.** The minimum space reserved shall include space for service clearances, air flow clearances, and keep outs and shall meet one of the following:

- i. If the system input capacity of the gas water heating system is less than 200,000 BTU/HR, the minimum space reserved for the heat pump shall be 2.0 square feet per input 10,000 Btu/ HR of the gas or propane water heating system, and the minimum linear dimension of the space reserved shall be 48 linear inches.
- ii. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU/HR, the minimum space reserved for the heat pump shall be 3.6 square feet per input 10,000 Btu/ HR of the gas or propane water heating system, and the minimum linear dimension of the space reserved shall be 84 linear inches.
- iii. The space reserved shall be the space required for a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

B. **Tanks.** The minimum space reserved shall include space for service clearances and keep outs and shall meet one of the following:

- i. If the system input capacity of the gas water heating system is less than 200,000 BTU/HR, the minimum space reserved for the storage and temperature maintenance tanks shall be 4.4 square feet per input 10,000 BTU/HR. of the gas or propane water heating system.
- ii. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU/HR, the minimum physical space reserved for the storage and temperature maintenance tanks shall be 3.1 square feet per input 10,000 BTU/HR. of the gas or propane water heating system.

- iii. The space reserved shall be the space required for a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.
3. Ventilation shall be provided by meeting one of the following:
- A. Physical space reserved for the heat pump shall be located outside, or
 - B. A pathway shall be reserved for future routing of supply and exhaust air via ductwork from the reserved heat pump location to an appropriate outdoor location. Penetrations through the building envelope for louvers and ducts shall be planned and identified for future use. The reserved pathway and penetrations through the building envelope shall be sized to meet one of the following:
 - i. If the system input capacity of the gas water heating system is less than 200,000 BTU/HR, the minimum air flow rate shall be 70 CFM per input 10,000 BTU/HR of the gas or propane water heating system and the total external static pressure drop of ductwork and louvers shall not exceed 0.17" when the future heat pump water heater is installed.
 - ii. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU/HR, the minimum air flow rate shall be 420 CFM per input 10,000 BTU/HR of the gas or propane water heating system and the total external static pressure drop of ductwork and louvers shall not exceed 0.17" when the future heat pump water heater is installed.
 - iii. The reserved pathway and penetrations shall be sized to serve a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

All mechanical components shall be installed in accordance with the *California Mechanical Code*.

4. **Condensate drainage piping.** An approved receptacle that is sized in accordance with the California Plumbing Code to receive the condensate drainage shall be installed within 3 feet of the reserved heat pump location, or piping shall be installed from within 3 feet of the reserved heat pump location to an approved discharge location that is sized in accordance with the California Plumbing Code, and meets one of the following:
- A. If the system input capacity of the gas water heating system is less than 200,000 BTU/HR, condensate drainage shall be sized for 0.2 tons of refrigeration capacity per input 10,000 BTU/HR.
 - B. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU/HR, condensate drainage shall be sized for

0.7 tons of refrigeration capacity per input 10,000 BTU/HR.

- C. Condensate drainage shall be sized to serve a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

All plumbing components shall be installed in accordance with the *California Plumbing Code*.

5. Electrical

- A. Physical space shall be reserved on the bus system of the main switchboard or on the bus system of a distribution board to serve the future heat pump water heater system including the heat pump and temperature maintenance tanks. In addition, the physical space reserved shall be capable of providing adequate power to the future heat pump water heater as follows:

- i. **Heat Pump.** For the Heat Pump, the physical space reserved shall comply with one of the following:

- A. If the system input capacity of the gas water heating system is less than 200,000 BTU/HR, provide 0.1 kVA per input 10,000 BTU/HR.
 - B. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU/HR, provide 1.1 kVA per input 10,000 Btu/HR.
 - C. The physical space reserved supplies sufficient electrical power required to power a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

All electric components shall be installed in accordance with the *California Electrical Code*.

- ii. **Temperature Maintenance Tank.** For the Temperature Maintenance Tank, the physical space reserved shall comply with one of the following:

- A. If the system input capacity of the gas water heating system is less than 200,000 BTU/HR, provide 1.0 kVA per input 10,000 BTU/HR.
 - B. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU/HR, provide 0.6 kVA per input 10,000 BTU/HR.
 - C. The physical space reserved supplies sufficient electrical power required to power a heat pump water heater system

that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

- (f) The building electrical system shall be sized to meet the future electric requirements of the electric ready equipment specified in sections 160.9 (a) - (e). To meet this requirement the building main service conduit, the electrical system to the point specified in each subsection, and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each electric ready appliance in accordance with the *California Electric Code*.

16.17.160 SUBCHAPTER 11 MULTIFAMILY BUILDINGS — PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES

SECTION 170.1 PERFORMANCE APPROACH

Section 170.1 of Subchapter 11 of the California Energy Code is amended to read:

Subsections 170.1 (a) – (c) are adopted without modification.

A newly constructed building or substantial remodel complies with the performance approach if the TDV energy budget calculated for the proposed design building under Subsection (b) is no greater than the TDV energy budget calculated for the Standard Design Building under Subsection (a). Additionally,

1. **Low-Rise Multifamily:** The energy budget, expressed in terms of source energy, of a newly constructed low-rise multifamily building (less than four habitable stories) shall be at least 9% lower than that of the Standard Design Building.
2. **High-Rise Multifamily:** Newly Constructed high-rise multifamily buildings (greater than four habitable stories) shall be at least 1% lower than that of the Standard Design Building.
3. **Compliance demonstration requirements for performance standards.** Section 170.1(d)1 is modified to add subsection is as follows:
 - i. **Certificate of Compliance.** The Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the Total Energy Design Rating of the Proposed Design shall be no greater than the Standard Design Building.

16.17.170 Infeasibility Exemption.

- (a) **Exemption.** If an applicant for a Covered Project believes that circumstances exist that makes it infeasible to meet the requirements of this Chapter, the applicant may request an exemption as set forth below. In applying for an exemption, the burden is on the Applicant to show infeasibility.

(b) **Application.** If an applicant for a Covered Project believes such circumstances exist, the applicant may apply for an exemption at the time of application submittal in accordance with the Planning and Development Services administrative guidelines. The applicant shall indicate the maximum threshold of compliance the energy compliance design professional believes is feasible for the covered project and the circumstances that make it infeasible to fully comply with this Chapter. Circumstances that constitute infeasibility include, but are not limited to the following:

- (1) There is conflict with the compatibility of the currently adopted California Building Standards Code;
- (2) There is a lack of commercially available materials and technologies to comply with the requirements of this Chapter;

Applying the requirements of this Chapter would effectuate an unconstitutional taking of property or otherwise have an unconstitutional application to the property.

(c) **Granting of Exemption.** If the Director of Planning and Development Services, or designee, determines that it is infeasible for the applicant to fully meet the requirements of this Chapter based on the information provided, the Director, or designee, shall determine the maximum feasible threshold of compliance reasonably achievable for the project. The decision of the Director, or designee, shall be provided to the applicant in writing. If an exemption is granted, the applicant shall be required to comply with this Chapter in all other respects and shall be required to achieve, in accordance with this Chapter, the threshold of compliance determined to be achievable by the Director or designee.

(d) **Denial of Exemption.** If the Director of Planning and Development Services or designee determines that it is reasonably possible for the applicant to fully meet the requirements of this Chapter, the request shall be denied, and the Director or designee shall so notify the applicant in writing. The project and compliance documentation shall be modified to comply with this Chapter prior to further review of any pending planning or building application.

(e) **Council Review of Exemption.** For any covered project that requires review and action by the City Council, the Council shall act to grant or deny the exemption, based on the criteria outlined above, after recommendation by the Director of Planning and Development Services.

16.17.180 Appeal.

(a) Any aggrieved Applicant may appeal the determination of the Director of Planning and Development Services or designee regarding the granting or denial of an exemption pursuant to 16.17.170.

(b) Any appeal must be filed in writing with the Planning and Development Services

Department not later than fourteen (14) days after the date of the determination by the Director. The appeal shall state the alleged error or reason for the appeal.

- (c) The appeal shall be processed and considered by the City Council in accordance with the provisions of Section 18.77.070 (f) of the City of Palo Alto Municipal Code.

SECTION 3. The Council adopts the findings for local amendments to the California Green Building Standards Code, 2022 Edition, attached hereto as Exhibit “A” and incorporated herein by reference.

SECTION 4. If any section, subsection, clause or phrase of this Ordinance is for any reason held to be invalid, such decision shall not affect the validity of the remaining portion or sections of the Ordinance. The Council hereby declares that it should have adopted the Ordinance and each section, subsection, sentence, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid.

SECTION 5. The Council finds that this ordinance is exempt from the provisions of the California Environmental Quality Act (“CEQA”), pursuant to Section 15061 of the CEQA Guidelines, because it can be seen with certainty that there is no possibility that the amendments herein adopted will have a significant effect on the environment and Section 15308, because the amendments herein adopted is an action taken by the City to assure the maintenance, restoration, enhancement, or protection of the environment .

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SECTION 6. This Ordinance shall be effective on the thirty-first day after the date of its adoption.

INTRODUCED:

PASSED:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

ATTEST:

City Clerk

Mayor

APPROVED AS TO FORM:

APPROVED:

Chief Assistant City Attorney

City Manager

Director of Planning and
Development Services

Director of Administrative Services

Exhibit A
FINDINGS FOR LOCAL AMENDMENTS TO CALIFORNIA ENERGY CODE, 2022 EDITION
TITLE 24, PART 6

Section 17958 of the California Health and Safety Code provides that the City may make changes to the provisions of the California Building Standards Code. Sections 17958.5 and 17958.7 of the Health and Safety Code require that for each proposed local change to those provisions of the California Building Standards Code which regulate buildings used for human habitation, the City Council must make findings supporting its determination that each such local change is reasonably necessary because of local climatic, geological, or topographical conditions.

Regarding the Energy Code, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards, provided the City Council finds that the requirements of the proposed ordinance are cost-effective and do not result in buildings consuming more energy than is permitted by Title 24.

Local building regulations having the effect of amending the uniform codes, which were adopted by the City prior to November 23, 1970, were unaffected by the regulations of Sections 17958, 17958.5 and 17958.7 of the Health and Safety Code. Therefore, amendments to the uniform codes which were adopted by the City Council prior to November 23, 1970 and have been carried through from year to year without significant change, need no required findings. Also, amendments to provisions not regulating buildings used for human habitation do not require findings.

Code: California Energy Code, Title 24, Part 6					
Chapter(s), Sections(s), Appendices	Title	Add	Deleted	Amended	Justification (See below of keys)
100.1	Definitions and Rules of Construction	✓			C & E
110.10 (f)	Existing tree canopies				
130.0	Lighting Systems and Equipment, and Electrical Power Distribution Systems - General			✓	C & E
130.6	Electric Readiness Requirements for Systems Using Gas or Propane	✓		✓	C & E
140.0	Performance and Prescriptive Compliance Approaches			✓	C & E
140.1	Performance Approach: Energy Budgets			✓	C & E
150.0	Mandatory Features and Devices			✓	C & E
150.1	Performance and Prescriptive Compliance Approaches for Single-Family Residential Buildings			✓	C & E

150.1 (b) 3A i	Certificate of Compliance	✓			
160.4 (a)	Mandatory Requirements for Water Heating Systems		✓		C & E
160.9	Mandatory Requirements for Electric Ready Buildings			✓	C & E
170.1	Performance Approach			✓	C & E
	Infeasibility Exemption	✓			A
	Appeal	✓			A

Key to Justification for Amendments to Title 24 of the California Code of Regulations

- A** This is an administrative amendment to clarify and establish civil and administrative procedures, regulations, or rules to enforce and administer the activities by the Palo Alto Building Inspection Department. These administrative amendments do not need to meet HSC 18941.5/17958/13869 per HSC 18909(c).
- C** This amendment is justified on the basis of a local climatic condition. The seasonal climatic conditions during the late summer and fall create severe fire hazards to the public health and welfare in the City. The hot, dry weather frequently results in wild land fires on the brush covered slopes west of Interstate 280. The aforementioned conditions combined with the geological characteristics of the hills within the City create hazardous conditions for which departure from California Energy Code is required. Failure to address and significantly reduce greenhouse gas (GHG) emissions could result in rises in sea level, including in San Francisco Bay, that could put at risk Palo Alto homes and businesses, public facilities, and Highway 101 (Bayshore Freeway), particularly the mapped Flood Hazard areas of the City. Energy efficiency is a key component in reducing GHG emissions, and the construction of more energy efficient buildings can help Palo Alto reduce its share of the GHG emissions that contribute to climate change. The burning of fossil fuels used in the generation of electric power and heating of buildings contributes to climate change, which could result in rises in sea level, including in San Francisco Bay, that could put at risk Palo Alto homes and businesses 1 public facilities, and Highway 101. Due to a decrease in annual rainfall, Palo Alto experiences the effect of drought and water saving more than some other communities in California.
- E** Energy efficiency enhances the public health and welfare by promoting the environmental and economic health of the City through the design, construction, maintenance, operation, and deconstruction of buildings and sites by incorporating green practices into all development. The provisions in this Chapter are designed to achieve the following goals:
- (a) Increase energy efficiency in buildings;
 - (b) Increase resource conservation;
 - (c) Provide durable buildings that are efficient and economical to own and operate;
 - (d) Promote the health and productivity of residents, workers, and visitors to the city;
 - (e) Recognize and conserve the energy embodied in existing buildings; and
 - (f) Reduce disturbance of natural ecosystems.
- G** This amendment is justified on the basis of a local geological condition. The City of Palo Alto is subject to earthquake hazards caused by its proximity to San Andreas fault. This fault runs from Hollister, through the Santa Cruz Mountains, epicenter of the 1989 Loma Prieta earthquake, then on up the San Francisco Peninsula, then offshore at Daly City near Mussel Rock. This is the approximate location of the epicenter of the 1906 San Francisco earthquake. The other fault is the Hayward Fault. This fault is about 74 mi long, situated

mainly along the western base of the hills on the east side of San Francisco Bay. Both of these faults are considered major Northern California earthquake faults which may experience rupture at any time. Thus, because the City is within a seismic area that includes these earthquake faults, the modifications and changes cited herein are designed to better limit property damage as a result of seismic activity and to establish criteria for repair of damaged properties following a local emergency.

- T** The City of Palo Alto topography includes hillsides with narrow and winding access, which makes timely response by fire suppression vehicles difficult. Palo Alto is contiguous with the San Francisco Bay, resulting in a natural receptor for storm and waste water run-off. Also the City of Palo Alto is located in an area that is potentially susceptible to liquefaction during a major earthquake. The surface condition consists mostly of stiff to dense sandy clay, which is highly plastic and expansive in nature. The aforementioned conditions within the City create hazardous conditions for which departure from California Building Standards Codes is warranted.