| DOCKETED | |
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| **Docket Number:** | 22-BSTD-07 |
| **Project Title:** | Local Ordinance Applications Exceeding the 2022 Energy Code |
| **TN #:** | 258396 |
| **Document Title:** | City of Palo Alto June 17 City Council Special Meeting |
| **Description:** | Plain text of City of Palo Alto city council special meeting (second reading). |
| **Filer:** | Michael Shewmaker |
| **Organization:** | California Energy Commission |
| **Submitter Role:** | Commission Staff |
| **Submission Date:** | 8/8/2024 1:20:20 PM |
| **Docketed Date:** | 8/8/2024 |

CITY OF PALO ALTO

**CITY OF PALO ALTO**
**CITY COUNCIL**
**Special Meeting**
**Monday, June 17, 2024**
**Council Chambers & Hybrid**
**4:00 PM**

## Agenda Item

23. SECOND READING: Ordinance Amending Chapter 16.14 (California Green Building Standards, California Code of Regulations, Title 24, Part 11) of the Palo Alto Municipal Code to Adopt the 2022 Green Building Standards Code, Along With Local Modifications Related to Electrical Vehicle Charging Infrastructure Requirements and Building Electrification Requirements and an Ordinance 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 Modifications to Increase Energy Efficiency Standards for Buildings, Mandate Electric-Ready Requirements and Incentivize All-Electric New Construction. CEQA Status: Exempt under CEQA Guidelines Sections 15308 and 15061(b)(3) (FIRST READING: June 3, 2024 PASSED 6-1, Tanaka no and 7-0)

CITY OF PALO ALTO

# City Council Staff Report

**Report Type: CONSENT CALENDAR**
**Lead Department: City Clerk**

**Meeting Date: June 17, 2024**
Report #:2406-3125

**TITLE**
SECOND READING: Ordinance Amending Chapter 16.14 (California Green Building Standards, California Code of Regulations, Title 24, Part 11) of the Palo Alto Municipal Code to Adopt the 2022 Green Building Standards Code, Along With Local Modifications Related to Electrical Vehicle Charging Infrastructure Requirements and Building Electrification Requirements and an Ordinance 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 Modifications to Increase Energy Efficiency Standards for Buildings, Mandate Electric-Ready Requirements and Incentivize All-Electric New Construction. CEQA Status: Exempt under CEQA Guidelines Sections 15308 and 15061(b)(3) (FIRST READING: June 3, 2024 PASSED 6-1, Tanaka no and 7-0)

**BACKGROUND**
This was heard by the City Council on May 13, 2024 for a first reading. An ordinance amending Chapter 16.14 was approved 6-1, Tanaka no and an ordinance amending Chapter 16.17 was approved 7-0. No changes were made to the ordinances; it is now before you for a second reading.

**ATTACHMENTS**
Attachment A - Ordinance Amending Ch 16.14
Attachment B - Ordinance Amending Ch 16.17

**APPROVED BY**:
Mahealani Ah Yun, City Clerk

Ordinance No. XXXX

Ordinance of the Council of the City of Palo Alto Amending Chapter 16.14 (California Green Building Standards, California Code of Regulations, Title 24, Part 11) of the Palo Alto Municipal Code to Adopt the 2022 Green Building Standards Code, Along With Local Amendments Thereto, Related to Electrical Vehicle Charging Infrastructure Requirements and Building Electrification Requirements

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 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 16.14 (California Green Building Standards, California Code of Regulations, Title 24, Part 11) of the Palo Alto Municipal Code is hereby amended by repealing in its entirety existing 16.14 and adopting a new Chapter 16.14 to read as follows:

# CHAPTER 16.14
# CALIFORNIA GREEN BUILDING STANDARDS CODE, CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11

**Sections**

**16.14.140 Section A4.104 Site Preservation.**

**16.14.150 Section A4.105 Deconstruction and Reuse of Existing Materials.**

**16.14.160 Section A4.106.8 Electric Vehicle (EV) Charging for New Construction.**

**16.14.170 Section A4.106.9 Bicycle Parking.**

**16.14.180 Section A4.106.10 Light Pollution Reduction.**

**16.14.190 Section A4.203.1 Performance Approach for Newly Constructed Buildings.**

**16.14.200 Section A4.304.3 Irrigation Metering Device.**

**16.14.210 Section A4.305 Water Reuse Systems.**

**16.14.220 A4.305.4 Additions and Alterations.**

**16.14.230 Section A4.403.1 Frost Protection Foundation Systems.**

**16.14.240 Section A4.403.2 Reduction in Cement Use.**

**16.14.250 Section A4.408.1 Enhanced Construction Waste Reduction.**

**16.14.260 Section A4.504.1 Compliance with formaldehyde limits.**

**16.14.270 Section A4.504.3 Thermal Insulation.**

**Part 8 – Local Modifications to CHAPTER 5 – NONRESIDENTIAL MANDATORY MEASURES**

**16.14.280 Nonresidential Projects: Chapter 5 Preface Green Building Requirements for Project Type and Scope.**

**16.14.290 Section 5.106.1.1 Local Storm Water Pollution Prevention.**

**16.14.295 Section 5.106.8 Light Pollution Reduction.**

**16.14.300 Section 5.106 Full Electrification.**

**16.14.310 Reserved**

**16.14.320 Reserved**

**16.14.330 Section 5.304.2 Invasive Species Prohibited.**

**16.14.340 Section 5.306 Nonresidential Enhanced Water Budget.**

**16.14.350 Section 5.307 Cooling Tower Water Use.**

**16.14.360 Section 5.410.4.6 Energy STAR Portfolio Manager.**

**16.14.370 Section 5.410.4.7 Performance Reviews – Energy.**

**16.14.380 Section 5.410.4.8 Performance Reviews – Water.**

**16.14.390 Section 5.506 Indoor Air Quality.**

**Part 9 – Local Modifications to APPENDIX A5 – NONRESIDENTIAL VOLUNTARY**

**MEASURES**



## Part 1 – General

### 16.14.010 2022 California Green Building Standards Code, Title 24, Part 11 adopted and amended.

The California Green Building Standards Code, 2022 Edition, Title 24, Part 11 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.

Unless superseded and expressly repealed, references in City of Palo Alto forms, documents and regulations to the chapters and sections of the former 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. 5570 of the City of Palo Alto and all other ordinances or parts of ordinances in conflict herewith are hereby suspended and expressly repealed.

Wherever the phrases “California Green Building Standards Code” or “CALGreen” are used in this code or any ordinance of the City, such phrases shall be deemed and construed to refer and apply to the California Green Building Standards Code, 2022 Edition, as adopted and amended by this chapter.

One copy of the California Green Building Standards 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.

### 16.14.020 Cross - References to California Green Building Standards Code.

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

### 16.14.030 Local Amendments.

The provisions of this Chapter shall constitute local amendments to the cross-referenced provisions of the California Green Building Standards 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.

## Part 2 – Local Modifications to CHAPTER 1 – ADMINISTRATION

### 16.14.040 Administration & Enforcement of 2022 California Green Building Standards 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.

### 16.14.050 Adoption of Chapter 1 Administration.

Chapter 1 Administration of the 2022 California Green Building Code is adopted by the City of Palo Alto to supplement, to the extent it does not conflict with, Chapter 1, Division II of the 2022 California Building Code, as amended.

### 16.14.060 Section 101.4 Appendices.

The following Appendix Chapters of the California Green Building Standards Code, 2022 Edition, are adopted and hereby incorporated in this Chapter by reference and made a part hereof the same as if fully set forth herein:

A. Appendix A4 - Residential Voluntary Measures (Tier 1 and Tier 2)

B. Appendix A5 - Nonresidential Voluntary Measures (Tier 1 and Tier 2)

## Part 3 – Local Modifications to CHAPTER 2 – DEFINITIONS

### 16.14.070 Section 202 Definitions.

Section 202 of Chapter 2 of the California Green Building Standards Code is amended to include the following definitions:

**ALL-ELECTRIC BUILDING / SITE.** A building or parcel of land whose sole source of energy is electricity and contains no combustion equipment or plumbing for combustion equipment.

**CPAU.** City of Palo Alto Utilities Department.

**CALGREEN MANDATORY. Mandatory measures** are triggered for projects outlined in Section 301.1 Scope of this code, as amended.

Projects that only trigger Mandatory measures are not required to fulfill Tier 1 or Tier 2 measures in Appendix A4 and A5.

**CALGREEN TIER 1.** To achieve **Tier 1 status**, a project must comply with measures identified in Appendix A4, Section A4.601.4 for *residential projects* and Appendix A5, Section A5.601.2 for *nonresidential projects*.

Projects subject to **Tier 1** must fulfill all mandatory measures, all Tier 1 prerequisite measures and a defined number of Tier 1 elective measures.

**CALGREEN TIER 2.** To achieve **Tier 2 status**, a project must comply with requirements identified in Appendix A4, Section A4.601.5 for *residential projects* and Appendix A5, Section A5.601.3 for *nonresidential projects*.

Projects subject to **Tier 2** must fulfill all mandatory measures, all Tier 2 prerequisite

measures and a defined number of Tier 2 elective measures.

**CALGREEN TIER 1 AND TIER 2 PREREQUISITE MEASURES.** Projects subject to **Tier 1** or **Tier 2** must fulfill all prerequisites as described within Appendix A4, Division A4.6 for *residential projects* and Appendix A5, Division A5.6 for *nonresidential projects.*

**CALGREEN TIER 1 AND TIER 2 ELECTIVE MEASURES.** Projects subject to **Tier 1** or **Tier 2** must fulfill a defined number of electives as described within Appendix A4, Division A4.6 for *residential projects* and Appendix A5, Division A5.6 for *nonresidential projects.*

**CALGREEN INSPECTOR** is a person certified as a CALGreen Inspector/Plans Examiner through the International Code Council (ICC), demonstrating knowledge and application of Green Building concepts during plan review and inspection. For projects that require a CALGreen Inspector/Plans Examiner verification, the Inspector must be contracted directly with the owner and may not be a contractor or employee of the design or construction firm.

**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.

**MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.** The California Department of Water Resources Model Water Efficient Landscape Ordinance.

**SALVAGE.** Salvage means the controlled removal of items and material from a building, construction, or demolition site for the purpose of on- or off-site reuse, or storage for later reuse. Examples include air conditioning and heating systems, columns, balustrades, fountains, gazebos, molding, mantels, pavers, planters, quoins, stair treads, trim, wall caps, bath tubs, bricks, cabinetry, carpet, doors, ceiling fans, lighting fixtures, electrical panel boxes, fencing, fireplaces, flooring materials of wood, marble, stone or tile, furnaces, plate glass, wall mirrors, door knobs, door brackets, door hinges, marble, iron work, metal balconies, structural steel, plumbing fixtures, refrigerators, rock, roofing materials, siding materials, sinks, stairs, stone, stoves, toilets, windows, wood fencing, lumber and plywood.

**SUBSTANTIAL REMODEL (or "50-50-50" RULE).** 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.

**SQUARE FOOTAGE.** For application of green building requirements, "square footage" refers to all new or altered square footage, including basement areas (7 feet or greater in height), as calculated based on outer boundary of proposed construction area, including exterior walls.

## Part 4 – Local Modifications to CHAPTER 3 – GREEN BUILDING

### 16.14.080 SECTION 301 - Voluntary Tiers Added.

SECTION 301 of Chapter 3 of the California Green Building Standards Code is amended to read:

**SECTION 301 GENERAL**

**301.1 Scope.** Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code and any applicable local amendments. In addition, the City requires the use of Voluntary Tiers, as provided in Appendices A4 and A5, for certain residential and nonresidential new construction, additions, and alterations.

**301.1.1 Residential additions and alterations. [HCD]** The Mandatory provisions of Chapter 4 shall be applied to additions and/or alterations of existing residential buildings where the addition and/or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.

**Tier 1 adopted (Residential).** All residential building additions and/or alterations exceeding 1000 square feet must meet CALGreen Mandatory plus the Tier 1 measures, as amended by this Chapter and as applicable to the scope of work.

For Tier 1 projects, the area of alterations will include any construction or renovation to an existing structure other than repair or addition. Alterations include raising the plate height, historic restoration, changes or rearrangements of the structural parts or elements, and changes or rearrangement of bearing walls and full height partitions.

Normal maintenance, reroofing, painting or wall papering, floor finishes, replacement-in-kind of mechanical, plumbing and electrical systems, or replacing or adding new kitchen counter and similar furniture, plumbing fixture to the building are excluded for the purposes of establishing scope of Tier 1 projects.

The area of alteration should be limited to the footprint of element(s) being altered.

This does not exclude mandatory CALGreen measures. The sum of the footprint of the elements being altered with respect to Tier 1, shall be calculated using the following methodology:

1. Raising the plate height: The calculation with respect to raising of the plate height will be based on the area of the footprint in which the plate height is being increased. Plate height means the vertical distance measured from the top of the finished floor to the top of the plates.

2. Historic restoration: The calculation with respect to historic restoration will be based on the area of work covered in the California Historical Building Code (Title 24, Part 8).
3. Structural parts or elements: The calculation with respect to changes or rearrangements of the structural parts or elements will be based on the sum of the individual footprints of each structural change or rearrangement. The footprint shall be calculated based on the proposed design and inclusive of any demolished structural parts or elements.
4. Bearing walls and full height partition: The calculation with respect to changes or rearrangement of walls and full height partitions will be based on the footprint of any demolished wall or full height partition and any new wall or new full height partition.

**Exception:** Attached and detached Accessory Dwelling Units, ADU conversions of existing structures shall meet the California Green Building Standards Code Mandatory measures only.

**301.2 Low-rise and high-rise residential buildings. [HCD]** The provisions of individual sections of CALGreen may apply to either low-rise residential buildings, high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.

**301.2.1 Low-Rise residential new construction – Tier 2 adopted.** All new constructed or substantial remodel projects must meet CALGreen Mandatory plus Tier 2 measures, as amended by this ordinance and as applicable to the scope of work.

**301.3 Nonresidential additions and alterations. [BSC-CG]** The provisions of individual sections of Chapter 5 apply to building nonresidential additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of $200,000 or above (for occupancies within the authority of California Building Standards Commission). Code sections relevant to additions and alterations shall only apply to the portions of the building being added or altered within the scope of the permitted work.

A code section will be designated by a banner to indicate where the code section only applies to newly constructed buildings [**N**] or to additions and alterations [**A**]. When the code section applies to both, no banner will be used.

**Tier 1 adopted.** Nonresidential alterations (including tenant improvements or renovations) of 5,000 square feet that include replacement of at least two of the following: HVAC system, building envelope, hot water system, or lighting system, must comply with CALGreen Mandatory plus Tier 1 measures, as amended by this Chapter and as applicable to the scope of work.

**Tier 2 adopted.** Nonresidential additions of 1000 square feet or greater must comply

with CALGreen Mandatory plus Tier 2 measures, as amended by this Chapter and as applicable to the scope of work.

**301.3.1 - 301.3.2 Unmodified**

**301.3.3 Nonresidential new construction – Tier 2 adopted.** All new nonresidential construction must meet CALGreen Mandatory plus Tier 2 measures, as amended by this ordinance and as applicable to the scope of work.

**301.6 Special inspector requirements.** Residential and nonresidential project owners subject to CALGreen Mandatory, CALGreen Mandatory plus Tier 1, or CALGreen Mandatory plus Tier 2 measures shall contract a Special Inspector in accordance with section 702.2 of CALGreen, as amended.

**301.7 Low-carbon concrete requirements for Tier 1 and Tier 2 projects.** Plain and reinforced concrete installed as part of any project subject to the application of this code shall demonstrate compliance with the requirements of **PAMC 16.14.240**.

## Part 5 – Local Modifications to CHAPTER 4 – RESIDENTIAL MANDATORY MEASURES

*Division 4.1 – PLANNING AND DESIGN*

### 16.14.090 Section 4.106.5 Full Electrification

Section 4.106 of Chapter 4 of the California Green Building Standards Code is amended to add new subsection, 4.106.5 as follows:

**4.106.5 Full electrification.** Full electrification is recommended for new buildings, substantial remodels, and new outdoor appliances/equipment such as fireplaces, firepits, heaters for swimming pool/spa, and similar equipment. Full electrification is required for outdoor grills, stoves, and barbecues. This subsection does not prohibit freestanding and/or portable grills, stoves, or barbecues whose sole source of energy is self-contained fuel canisters.

*Division 4.3 – WATER EFFICIENCY AND CONSERVATION*

### 16.14.100 Section 4.306 Swimming Pool and Spa Covers

Section 4.306 of Chapter 4 of the California Green Building Standards Code is added to read:

**4.306 Swimming pool and spa covers.** Swimming pools and spas shall be provided with a vapor retardant cover.

## Part 6 – Local Modifications to CHAPTER 7 – INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS

### 16.14.120 Section 702.2 Special Inspection.

Section 702.2 of Chapter 7 of the California Green Building Standards Code is amended to read:

> **702.2 Green building special inspection.** When required by the enforcing agency, the owner or responsible entity acting as the owner's agent shall employ one or more Green Building Special Inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Green Building Special Inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a Special Inspector. The City shall maintain a list of pre-approved Special Inspectors in accordance with this section. The owner shall contract a Special Inspector from the pre-approved list meeting one of the following:
>
> 1. Certification by a national or regional green building program:
>
>    *ICC Certified CALGreen Inspector/Plans Examiner*
>
> 2. Other programs acceptable to the enforcing agency.
>
> **Note:** Special Inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

## Part 7– Local Modifications to APPENDIX A4 – RESIDENTIAL VOLUNTARY MEASURES

*Division A4.1 – PLANNING AND DESIGN*

### 16.14.130 Residential Projects. Appendix A4 Preface: Green Building Measures for Project Type and Scope.

A preface is added to Chapter A4 of the California Green Building Standards Code to read:

> **Preface - Green Building Requirements for Project Type and Scope.** For design and construction of residential projects, the City of Palo Alto requires compliance with the mandatory measures of Chapter 4, in addition to use of Tier 1 and Tier 2 as specified in Palo Alto Municipal Code Chapter 16.14. See Section 202 for definitions on CALGreen Mandatory, Tier 1 Prerequisites and Electives, and Tier 2 Prerequisites and Electives. All elective measures are adopted as written under Appendix A4 unless otherwise indicated in this Section.

### 16.14.140 Section A4.104 SITE PRESERVATION.

Section A4.104.1 of Appendix A4 of the California Green Building Standards Code is adopted as a Tier 1 and Tier 2 elective measure and is amended to read:

> **A4.104.1 Supervision and education by a special inspector.** Individuals with oversight authority on the project, as defined in section 16.14.120 of this code, who have been

trained in areas related to environmentally friendly development, shall teach green concepts to other members of the builder's staff and ensure training and written instruction has been provided to all parties associated with the development of the project. Prior to the beginning of the construction activities, the builder shall receive a written guideline and instruction specifying the green goals of the project.

**Note:** Lack of adequate supervision and dissemination of the project goals can result in negative effects on green building projects. If the theme of green building is not carried through the project, the overall benefit can be substantially reduced by the lack of knowledge and information provided to the various entities involved with the construction of the project.

**16.14.150 Section A4.105 Deconstruction and Reuse of Existing Materials.**

Section A4.105 of Appendix A4 of the California Green Building Standards Code is not adopted as an elective measure and is amended to read:

**Section A4.105.1 Chapter 5.24 of Title 5 of the Municipal Code.** See Chapter 5.24 of the Municipal Code for the local deconstruction requirements.

**Section A4.105.2** is adopted as a Tier 1 and Tier 2 elective measure.

**A4.105.2 Reuse of materials**. Nonhazardous materials which can be easily reused include but are not limited to the following:

1. Light fixtures
2. Plumbing fixtures
3. Doors and trim
4. Masonry
5. Electrical devices
6. Appliances
7. Foundations or portions of foundations

**Note**: Reused material must be installed to comply the appropriate Title 24 provisions.

**16.14.160 Section A4.106.8 Electric Vehicle (EV) Charging for New Construction.**

Sections A4.106.8 – A4.106.8.2.1 of the California Green Building Standards Code are deleted in its entirety, adopted as mandatory measures and is amended to read:

**A4.106.8 Electric vehicle (EV) charging for residential structures.** Newly constructed single-family and multi-family residential structures, including residential structures constructed as part of a mixed-use development, shall comply with the following

requirements for electric vehicle supply equipment (EVSE). All parking space calculations under this section shall be rounded up to the next full space. The requirements stated in this section are in addition to those contained in Section 4.106.4 of the California Green Building Standards Code. In the event of a conflict between this section and Section 4.106.4 of the California Green Building Standards Code, the more robust EV Charging requirements shall prevail.

**A4.106.8.1 New single-family, duplex and townhouse dwellings.** The following standards apply to newly constructed detached and attached single-family, duplex and townhouse residences.

(a) In general. The property owner shall provide One (1) Level 2 electrical vehicle supply equipment (EVSE) or one (1) EV ready space (Low Power Level 2 EV Charging Receptacle is acceptable provided that the infrastructure comply with section 4.106.4.1) for each residence (except for accessory dwelling unit (ADU)).

(b) Location. The proposed location of a charging station may be internal or external to the dwelling and shall be in close proximity to an on-site parking space consistent with city regulations.

**A4.106.8.2 New multi-family dwellings.** The following standards apply to newly constructed residences in a multi-family residential structure.

(a) **Resident parking.** The property owner shall provide at least one (1) Level 2 electrical vehicle supply equipment (EVSE) or one (1) Level 2 EV Ready space for each residential unit in the structure (Low Power Level 2 EV Charging Receptacle is acceptable for 60% of the total EV parking spaces) .

(b) **Guest parking**. The property owner shall provide EV Capable Space, EV-Ready Space, or EVSE Installed, for at least 25% of guest parking spaces, among which at least 10% (and no fewer than one) shall be EVSE Installed.

(c) **Accessible spaces.** Projects shall comply with the 2022 California Building Code requirements for accessible electric vehicle parking.

(d) **Minimum total circuit capacity.** The property owner shall ensure sufficient circuit capacity, as determined by the Chief Building Official or designee, to support the EV requirements specified in (a) and (b) above.

(e) **Location.** The EVSE, receptacles, and/or raceway required by this section shall be placed in locations allowing convenient installation of and access to EVSE. In addition, if parking is deed-restricted to individual residential units, the EVSE or receptacles required by subsection (a) shall be located such that each unit has access to its own EVSE or receptacle. Location of EVSE or receptacles shall be consistent with all city regulations.

**A4.106.8.3 New hotels and motels.** The following standards apply to newly constructed hotels.

(a) **In general.** The property owner shall provide at least 40% EV Ready Space and at least 10% Level 2 EVSE installed ~~for~~ of the total parking spaces.

(b) **Accessible spaces.** Projects shall comply with the 2022 California Building Code requirements for accessible electric vehicle parking.

(c) **Minimum total circuit capacity.** The property owner shall ensure sufficient circuit capacity, as determined by the Chief Building Official or designee, to support a Level 2 EVSE in every location where EV-Ready space or EVSE Installed is required.

(d) **Location.** The EVSE and/or receptacles, required by this section shall be placed in locations allowing convenient installation of and access to EVSE. Location of EVSE or receptacles shall be consistent with all City guidelines, rules, and regulations.

**16.14.170 Section A4.106.9 Bicycle Parking.**

Section A4.106.9 of Appendix A4 of the California Green Building Standards Code is not adopted as a Tier 1 and Tier 2 elective measure. Projects must comply with the bicycle parking requirements in the Palo Alto Municipal Code.

**16.14.180 Section A4.106.10 Light Pollution Reduction.**

Section A4.106.10 is added and adopted as a Tier 1 and Tier 2 elective measure for all covered projects and is amended to read:

**A4.106.10 Light pollution reduction.** Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and
2. Backlight, Up light and Glare (BUG) ratings as defined in IES TM-15-11; and
3. Allowable BUG ratings not exceeding those shown in TABLE 5.106.8 [N]; or

   Comply with a local ordinance lawfully enacted pursuant to Section 101.7 of this code, whichever is more stringent.

Projects may use an approved equal reference standard for light fixtures where BUG ratings are unavailable.

**Exceptions:**

1. Luminaires that qualify as exceptions to the California Energy Code.
2. Emergency lighting.
3. One- and two-family dwellings.

**Note:** The International Dark-Sky Association (IDA) and the Illuminating Engineering Society of North America (IESNA) have developed a Model Lighting Ordinance (MLO). The MLO was designed to help municipalities develop outdoor lighting standards that reduce glare, light trespass, and skyglow. The model ordinance and user guides for

the ordinance may be accessed at the International Dark-Sky Association web site.

*Division A4.2 – ENERGY EFFICIENCY*

**16.14.190 Section A4.203.1 Performance Approach for Newly Constructed Buildings.**

Section A4.203.1 of Appendix A4 of the California Green Building Standards Code is not adopted as a Tier 1 and Tier 2 elective measure. Projects shall comply with Chapter 16.17 of the Palo Alto Municipal Code (*California Energy Code*).

*Division A4.3 – WATER EFFICIENCY AND CONSERVATION*

**16.14.200 Section A4.304.3 Irrigation Metering Device.**

Section A4.304.3 of Appendix A4 of the California Green Building Standards Code is adopted as a Tier 1 and Tier 2 elective measure and is amended to read:

> **A4.304.3 Irrigation metering device.** Dedicated irrigation meters from CPAU are to be installed in all new construction and rehabilitated landscapes when the landscape is greater than 1,000 square feet.

**16.14.210 Section A4.305 Water Reuse Systems.**

Sections A4.305.1, A4.305.2, and A4.305.3 of Appendix A4 of the California Green Building Standards Code are adopted as Tier 1 and Tier 2 elective measures and are amended to read:

> **A4.305.1 Graywater.** Alternative plumbing piping is installed to permit the discharge from the clothes washer and other fixtures (except toilets and kitchen sinks) to be used for an irrigation system in compliance with the *California Plumbing Code*. In the event that the whole house graywater system is installed in compliance with the California Plumbing Code, then this measure shall count as 3 electives.
>
> **A4.305.2 Recycled water piping.** Based on projected availability, dual water piping is installed for future use of recycled water at the following locations:
>
> 1. Interior piping for the use of recycled water is installed to serve all water closets, urinals, and floor drains.
> 2. Exterior piping is installed to transport recycled water from the point of connection to the structure. Recycled water systems shall be designed and installed in accordance with the *California Plumbing Code*.
>
> **A4.305.3 Recycled water for landscape irrigation.** Recycled water piping is used for landscape irrigation.

**16.14.220 A4.305.4 Additions and Alterations.**

Section A4.305.4 is added as Tier 1 and Tier 2 prerequisite and amended to read:

> **A4.305.4 Additions and alterations.** All multi-family residential additions and alterations must install recycled water infrastructure for irrigation when the landscape area exceeds 1,000 square feet.

*Division A4.4 – MATERIAL CONSERVATION AND RESOUCE EFFICIENCY*

**16.14.230 Section A4.403.1 Frost Protection Foundation Systems.**

Sections A4.403.1 is not adopted as a Tier 1 and Tier 2 elective measure.

**16.14.240 Section A4.403.2 Reduction in cement use.**

Section A4.403.2 of Appendix A4 of the California Green Building Standards Code is adopted as a Mandatory measure for all Tier 1 and Tier 2 projects and is amended to read:

> **A4.403.2 Low carbon concrete requirements.**
>
> **A4.403.2.1 Purpose.** The purpose of this chapter is to provide practical standards and requirements for the composition of concrete, as defined herein, that maintains adequate strength and durability for the intended application and at the same time reduces greenhouse gas emissions associated with concrete composition. This code includes pathways for compliance with either reduced cement levels or lower-emission supplementary cementitious materials.
>
> **A4.403.2.2 Definitions.** For the application of this section the following definitions shall apply:
>
> **Concrete.** Concrete is any approved combination of mineral aggregates bound together into a hardened conglomerate in accordance with the requirements of this code.
>
> **Environmental product declaration (EPD).** EPDs present quantified environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function. EPDs must conform to ISO 14025, and EN 15804 or ISO 21930, and have at least a "cradle to gate" scope (which covers product life cycle from resource extraction to the factory).
>
> **Upfront embodied carbon (embodied carbon).** The greenhouse gasses emitted in material extraction, transportation and manufacturing of a material corresponding to life cycle stages A1 (extraction and upstream production), A2 (transportation), and A3 (manufacturing). Definition is as noted in ISO 21930 and as defined in V2.3 Product Category Rule for Concrete by NSF dated November 2023.
>
> https://d2evkimvhatqav.cloudfront.net/documents/PCR-Product-Category-Rules/PCR-Concrete-2023-deviation.pdf
>
> **A4.403.2.3 Compliance.** Compliance with the requirements of this chapter shall be demonstrated through any of the compliance options in Sections 4.403.2.3.2 through 4.403.2.3.5:

**TABLE A4.403.2.3 Cement and Embodied Carbon Limit Pathways**

| | **Cement limits** for use with any compliance method A4.403.2.3.2 to A4.403.2.3.5 | **Embodied Carbon limits** for use with any compliance method A4.403.2.3.2 to A4.403.2.3.5 |
|---|---|---|
| Minimum specified compressive strength $f'_c$, psi (1) | Maximum ordinary Portland cement content, lbs/yd$^3$ (2) | Maximum embodied carbon kg $CO_2e/m^3$, per EPD |
| up to 2500 | 362 | 260 |
| 3000 | 410 | 289 |
| 4000 | 456 | 313 |
| 5000 | 503 | 338 |
| 6000 | 531 | 356 |
| 7000 | 594 | 394 |
| 7001 and higher | 657 | 433 |
| up to 3000 light weight | 512 | 578 |
| 4000 light weight | 571 | 626 |
| 5000 light weight | 629 | 675 |

**Notes**
(1) For concrete strengths between the stated values, use linear interpolation to determine cement and/or embodied carbon limits.
(2) Portland cement of any type per ASTM C150.

**A4.403.2.3.1 Allowable increases.**

(1) Cement and Embodied Carbon Limit Allowances. Cement or Embodied Carbon limits shown in Table A4.403.2.3 can be increased by 30% for concretes demonstrated to the Building Official as requiring high early strength. Such concretes could include, but are not limited to, precast, prestressed *concrete*; beams and slabs above grade; and shotcrete

(2) Approved Cements. The maximum cement content may be increased proportionately above the tabulated value when using an approved cement, or blended cement, demonstrated by approved EPD to have a plant-specific EPD lower than 1040 kg CO2e/metric ton. The increase in allowable cement content would be (1040 / plant=specific EPD) %.

**A4.403.2.3.2 Cement limit method — mix**. Cement content of a concrete mix using this method shall not exceed the value shown in the Table A4.403.2.3. Use of this method is limited to concrete with specified compressive strength not exceeding 5,000 psi.

**A4.403.2.3.3 Cement limit method — project.** Total cement content shall be based on total cement usage of all concrete mix designs within the same project. Total cement content for a project shall not exceed the value calculated according to Equation A4.403.2.3.3.

**Equation A4.403.2.3.3:**

$Cem_{proj} < Cem_{allowed}$

where

$Cem_{proj} = \Sigma Cem_n v_n$ and $Cem_{allowed} = \Sigma Cem_{lim} v_n$

and

n = the total number of *concrete* mixtures for the project

$Cem_n$ = the cement content for mixture $_n$, kg/m $^3$ or lb/yd $^3$

$Cem_{lim}$ = the maximum cement content for mixture $_n$ per Table A4.403.2.3, kg/m $^3$ or lb/yd $^3$

$v_n$ = the volume of mixture $_n$ *concrete* to be placed, yd $^3$ or m $^3$

Applicant can use yd $^3$ or m $^3$ for calculation, but must keep same units throughout

**A4.403.2.3.4. Embodied carbon method — mix.** Embodied carbon of a *concrete* mix, based on an approved environmental product declaration (EPD), shall not exceed the value given in Table A4.403.2.3.

**A4.403.2.3.5. Embodied carbon method — project.** Total embodied carbon ($EC_{proj}$) of all *concrete* mix designs within the same project shall not exceed the project limit ($EC_{allowed}$) determined using Table A4.403.2.3 and Equation A4.403.2.3.5.

**Equation A4.403.2.3.5:**

$EC_{proj} < EC_{allowed}$

where

$EC_{proj} = \Sigma EC_n v_n$ and $EC_{allowed} = \Sigma EC_{lim} v_n$

and

n = the total number of *concrete* mixtures for the project

$EC_n$ = the embodied carbon potential for mixture n per mixture EPD, kg/m $^3$

$EC_{lim}$ = the embodied carbon potential limit for mixture n per Table A4.403.2.3, kg/m$^3$

$v_n$ = the volume of mixture $_n$ *concrete* to be placed, yd $^3$ or m $^3$

Applicant can use yd $^3$ or m $^3$ for calculation, but must keep same units throughout.

**A4.403.2.3.6. Enforcement.**

As a condition prior to the issuance of every building permit involving placement of concrete, the permit applicant shall be required to submit a completed low-carbon concrete compliance form that shall be provided by and reviewed for compliance by the building department prior to issuing the permit.

As a condition of such building permits, and prior to approving construction inspections following placement of concrete, the permit applicant shall be required to submit batch certificates and/or EPDs provided by the concrete provider that demonstrate compliance with the low-carbon concrete compliance form on file with the building permit. The batch certificates and/or EPDs shall be reviewed for compliance by the building department prior

to approving any further inspections.

When deviations from compliance with this section occur, the chief building official or his designee is authorized to require evidence of equivalent carbon reductions from the portions of remaining construction of the project to demonstrate alternative compliance with the intent of this chapter.

For projects involving placement of concrete by, or on behalf of, a public works, parks, or similar department the director of such department, or his/her assignee, shall maintain accurate records of the total volume (in cubic yards) of all concrete placed, as well as the total compliant volume (in cubic yards) of all concrete placed, and shall report this data annually to the governing body in a form expressing an annual compliance percentage derived from the quotient of total compliant concrete volume placed divided by total concrete volume placed.

**A4.403.2.3.7. Exemptions.**

**(a) Hardship or infeasibility exemption.** If an applicant for a project subject to this chapter believes that circumstances exist that make it a hardship or 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 hardship or infeasibility. The applicant shall identify in writing the specific requirements of the standards for compliance that the project is unable to achieve and the circumstances that make it a hardship or infeasible for the project to comply with this chapter. Circumstances that constitute hardship or infeasibility may include, but are not limited to the following:

(1) There is a lack of commercially available material necessary to comply with this chapter;

(2) The cost of achieving compliance is disproportionate to the overall cost of the project;

(3) Compliance with certain requirements would impair the historic integrity of buildings listed on a local, state or federal list or register of historic structures as regulated by the California Historic Building Code (Title 24, Part 8).

**(b) Granting of exemption.** If the chief building official determines that it is a hardship or infeasible for the applicant to fully meet the requirements of this chapter and that granting the requested exemption will not cause the building to fail to comply with the California Building Standards Code, the chief building official shall determine the maximum feasible threshold of compliance reasonably achievable for the project. In making this determination, the chief building official shall consider whether alternate, practical means of achieving the objectives of this chapter can be satisfied. 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 the threshold of compliance determined to be achievable by the chief building official.

**(c) Denial of exception.** If the chief building official determines that it is reasonably possible for the applicant to fully meet the requirements of this chapter, the request shall be denied and the applicant shall be notified of the decision in writing. The project and compliance documentation shall be modified to comply with the standards for compliance.

### 16.14.250 Section A4.408.1 Enhanced Construction Waste Reduction.

Section A4.408.1 of Appendix A4 of the California Green Building Standards Code is adopted as a mandatory measure and is amended to read:

**A4.408.1 Enhanced construction waste reduction.** Nonhazardous construction and demolition debris generated at the site is diverted to recycle or salvage in compliance with the following:

Projects with a given valuation of $25,000 or more must have at least an 80-percent reduction. Any mixed recyclables that are sent to mixed-waste recycling facilities shall include a qualified third party verified facility average diversion rate. Verification of diversion rates shall meet minimum certification eligibility guidelines, acceptable to the local enforcing agency.

**Exceptions:**

1. Residential stand-alone mechanical, electrical or plumbing permits.
2. Commercial stand-alone mechanical, electrical or plumbing permits.

**A4.408.1.1 Documentation.** Documentation shall be provided to the enforcing agency which demonstrates compliance with all construction and demolition waste reduction requirements.

*Division A4.5 – ENVIRONMENTAL QUALITY*

### 16.14.260 Section A4.504.1 Compliance with Formaldehyde Limits.

Section A4.504.1 of Appendix A5 of the California Green Building Standards Code is adopted as a Tier 1 and Tier 2 elective measure.

### 16.14.270 Section A4.504.3 Thermal Insulation.

Section A4.504.3 of Appendix A5 of the California Green Building Standards Code is not adopted as a Tier 1 and Tier 2 prerequisite. Section A4.504.3 is adopted as a Tier 1 and Tier 2 elective measure.

## Part 8 – Local Modifications to CHAPTER 5 – NONRESIDENTIAL MANDATORY MEASURES

*Division 5.1 – PLANNING AND DESIGN*

### 16.14.280 Nonresidential Projects: Chapter 5 Preface Green Building Requirements for Project Type and Scope.

A Preface is added to Chapter 5 of the California Green Building Standards Code to read:

**Preface – Green Building Requirements for Project Type and Scope.** For design and

construction of nonresidential projects, the City requires compliance with the mandatory measures of Chapter 5, in addition to use of Tier 1 and Tier 2 as specified in Palo Alto Municipal Code Chapter 16.14. See Section 202 for definitions on CALGreen MANDATORY, Tier 1 prerequisites and electives, and Tier 2 prerequisites and electives. All elective measures are adopted as written under Appendix A5 unless otherwise indicated in this Section.

**16.14.290 Section 5.106.1.1 Local Stormwater Pollution Prevention.**

Section 5.106.1.1 of Chapter 5 of the California Green Building Standards Code is amended to read:

**5.106.1.1 Local ordinance.** Newly constructed projects and additions shall comply with additional City of Palo Alto stormwater runoff management and pollution prevention measures as applicable, and as may be amended from time to time.

**16.14.295 Section 5.106.8 Light Pollution Reduction.**

Section 5.106.8 of Chapter 5 of the California Green Building Standards Code is amended to read:

**5.106.8 Light pollution reduction.** Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, Section 10-114 of the California Administrative Code; and
2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8);
3. Uplight and Glare ratings as defined in California Energy Code (shown in Tables 130.2-A and 130.2-B in Chapter 8); and
4. Allowable BUG ratings not exceeding those shown in Table 5.106.8 [N]; or

   Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Projects may use an approved equal reference standard for light fixtures where BUG ratings are unavailable.

**Exceptions:**

1. Luminaires that qualify as exceptions in Section 103.2(b) and 140.7 of the California Energy Code.
2. Emergency lighting.
3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6.
4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 Alternate materials, designs and methods of construction.

5. Luminaires with less than 6,200 initial luminaire lumens.

**16.14.300 Section 5.106.13 Full Electrification.**

Section 5.106 of Chapter 4 of the California Green Building Standards Code is amended to add new subsection, 5.106.13 as follows:

> **5.106.13 Full electrification.** Full electrification is recommended for new buildings, substantial remodels, and new outdoor appliances/equipment such as fireplaces, firepits, heaters for swimming pool/spa, and similar equipment. Full electrification is required for outdoor grills, stoves, and barbecues. This subsection does not prohibit freestanding and/or portable grills, stoves, and barbecues whose source of energy is self-contained fuel canisters.

**16.14.310 Reserved**

**16.14.320 Reserved**

*Division 5.3 – WATER EFFICIENCY AND CONSERVATION*

**16.14.330 Section 5.304.2 Invasive Species Prohibited.**

Section 5.304.2 of Chapter 5 of the California Green Building Standards Code is added as mandatory measure to read:

> **5.304.2 Invasive species prohibited.** All nonresidential new construction, additions, and alterations shall not install invasive species in a landscape area of any size.

**16.14.340 Section 5.306 Nonresidential Enhanced Water Budget.**

Section 5.306 of Chapter 5 of the California Green Building Standards Code is added as mandatory measure to read:

> **5.306 Nonresidential enhanced water budget.** Nonresidential buildings anticipated to use more than 1,000 gallons of water a day shall complete an Enhanced Water Budget Calculator as established by the Chief Building Official or designee.

**16.14.350 Section 5.307 Cooling Tower Water Use**.

Section 5.307 Cooling Tower Water Use is added as mandatory to read:

> **5.307 COOLING TOWER WATER USE**
>
> **5.307.1. Cooling tower water use in high rise residential or nonresidential buildings.**
>
> Cooling tower water use must meet the conditions as follows and as outlined in Palo Alto

Municipal Code Section 16.08.100. Projects are required to perform a potable water analysis at the site to meet the maximum concentration of parameters noted in Table 5.307.1

**TABLE 5.307.1**

| | |
|---|---|
| Ca (as CaCO3) | 600 ppm |
| Total alkalinity | 500 ppm |
| SiO2 | 150 ppm |
| Cr | 300 ppm |
| Conductivity | 3300 Us/cm |

Calculate maximum number of cycles that can be achieved with these levels of concentration shall be included in the plumbing design plans.

*Division 5.4 – MATERIAL CONSERVATION AND RESOUCE EFFICIENCY*

**16.14.360 Section 5.410.4.6 Energy STAR Portfolio Manager.**

Section 5.410.4.6 of Chapter 5 of the California Green Building Standards is added as mandatory measure to read:

**5.410.4.6 Energy STAR portfolio manager.** All nonresidential projects exceeding $100,000 valuation must provide evidence of an Energy STAR Portfolio Manager project profile for both water and energy use prior to Permit Issuance, acquire an Energy STAR Portfolio Manager Rating, and submit the rating to the City of Palo Alto once the project has been occupied after 12 months.

**16.14.370 Section 5.410.4.7 Performance Reviews – Energy.**

Section 5.410.4.7 of Chapter 5 of the California Green Building Standards is added to read:

**5.410.4.7 Performance reviews – energy.** All projects over 10,000 square feet. The City reserves the right to conduct a performance review, no more frequently than once every five years unless a project fails review, to evaluate the building's energy use to ensure that resources used at the building and/or site do not exceed the maximum allowance set forth in the rehabilitation or new construction design. Following the findings and recommendations of the review, the City may require adjustments to the energy usage or energy-using equipment or systems if the building is no longer compliant with the original design. Renovation or rehabilitation resulting from such audit activity shall be considered a project and shall be subject to applicable documentation submittal requirements of the City. This section is effective only for those projects for which a building permit was issued after January 1, 2009.

**16.14.380 Section 5.410.4.8 Performance Reviews – Water.**

Section 5.410.4.8 of Chapter 5 of the California Green Building Standards is added to read:

> **5.410.4.8 Performance reviews – water.** All sites greater than one acre: The City reserves the right to conduct performance reviews, no more frequently than once every five years unless a project fails review, to evaluate water use to ensure that resources used at the building and/or site do not exceed a maximum allowance set forth in the rehabilitation or new construction design. Water use reviews may be initiated by CPAU, or as a coordinated effort between the CPAU and the Santa Clara Valley Water District (SCVWD), or as part of SCVWD's established water conservation programs. Following the findings and recommendations of the review, the City may require adjustments to irrigation usage, irrigation hardware, and/or landscape materials to reduce consumption and improve efficiency. Renovation or rehabilitation resulting from such audit activity shall be considered a project and shall be subject to applicable documentation submittal requirements of the City.

### 16.14.390 Section 5.506 Indoor Air Quality.

Section 5.506.4 of Chapter 5 of the California Green Building Standards is added as mandatory measure to read:

> **Section 5.506.4 Indoor air quality management plan.** All commercial and multi- family projects must submit an Indoor Air Quality Management Plan (IAQ) with building permit application in accordance with the Sheet Metal and Air Conditioning Contractors National Association (SMACNA IAQ) Guidelines for Occupied Buildings Under Construction, 2nd edition ANSI/SMACNA 008-2008.

## Part 9 – Local Modifications to APPENDIX A5 – NONRESIDENTIAL VOLUNTARY MEASURES

*Division A5.1 – PLANNING AND DESIGN*

### 16.14.400 Section A5.106.5.3 Electric Vehicle (EV) Charging for New Construction.

Section A5.106.5.3 – A5.106.5.3.4 of the California Green Building Standards Code are deleted in its entirety, adopted as mandatory measures and is amended to read:

> **A5.106.5.3 Electric vehicle (EV) charging for nonresidential structures.** New non-residential structures shall comply with the following requirements for electric vehicle supply equipment (EVSE). All parking space calculations under this section shall be rounded up to the next full space. The requirements stated in this section are in addition to those contained in Section 5.106.5.3 of the California Green Building Standards Code. In the event of a conflict between this section and Section 5.106.5.3, the more robust EV Charging requirements shall prevail.
>
> **A5.106.5.3.5 Nonresidential structures other than hotels.** The following standards apply to newly constructed nonresidential structures other than hotels.

In general. For building with 10 to 20 parking spaces, the property owner shall provide at least 20% EV Capable or EVSE-Ready space, and at least 20% Level 2 EVSE installed of the total parking spaces.

For building with over 20 parking spaces, the property owner shall provide at least 15% EV Capable or EVSE-Ready space, and at least 15% EVSE installed for of the total parking spaces

**Accessible spaces.** Projects shall comply with the 2022 California Building Code requirements for accessible electric vehicle parking.

**Minimum total circuit capacity.** The property owner shall ensure sufficient circuit capacity, as determined by the Chief Building Official or designee , to support a Level 2 EVSE in every location where EVSE Capable space, EVSE-Ready space or EVSE Installed is required.

**Location**. The EVSE, receptacles, and/or raceway required by this section shall be placed in locations allowing convenient installation of and access to EVSE. Location of EVSE or receptacles shall be consistent with all city regulations.

*Division A5.4 – ENERGY EFFICIENCY*

### 16.14.410 Section A5.203.1 Performance Approach for Newly Constructed Buildings.

Section A5.203.1 of Appendix A5 of the California Green Building Standards Code is not adopted as a Tier 1 and Tier 2 elective measure. Projects shall comply with Chapter 16.17 of the Palo Alto Municipal Code (*California Energy Code*).

*Division A5.4 – MATERIAL CONSERVATION AND RESOUCE EFFICIENCY*

### 16.14.420 Section A5.405.5 Cement and Concrete.

Section A5.405.5 of Appendix A5 of the California Green Building Standards Code is adopted as a Mandatory measure for Tier 1 and Tier 2 projects and is amended to read:

**A5.405.5 Cement and concrete.** Use cement and concrete made with recycled products and complying with the following sections and requirements per **PAMC Chapter 16.14.240**.

### 16.14.430 Section A5.408 Construction Waste Reduction, Disposal and Recycling.

Section A5.408 of Appendix A5 of the California Green Building Standards Code is adopted as a Mandatory measure for Tier 2 projects and is amended to read:

**A5.408.3.1 Waste enhanced construction waste reduction.** (80% construction waste reduction) as a mandatory requirement for all nonresidential construction, including new construction, additions, and alterations, as long as the construction has a valuation of $25,000 or more. Nonresidential projects with a lower valuation shall remain subject to

California Green Building Standards Code Chapter 5 mandatory measures.

Exceptions:

1. Residential stand-alone mechanical, electrical or plumbing permits.
2. Commercial stand-alone mechanical, electrical or plumbing permits.

**A5.408.3.1.1 - Deleted**

**A5.408.3.1.2 Documentation.** Documentation shall be provided to the enforcing agency which demonstrates compliance with all construction and demolition waste reduction requirements.

**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 project 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 GREEN BUILDING STANDARD CODE**
**TITLE 24, PART 11**

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.

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 Green Building Standard Code, Title 24, Part 11** | | | | | |
|---|---|---|---|---|---|
| **Chapter(s), Sections(s), Appendices** | **Title** | **Add** | **Deleted** | **Amended** | **Justification (See below of keys)** |
| 101.4 | Appendices | ✓ | | | **A** |
| 202 | Definitions | ✓ | | | **A** |
| 301 | Voluntary Tiers Added | | | ✓ | **C, E** |
| 301.1 | Scope | | | ✓ | **C, E** |
| 301.1.1 | Residential additions and alterations | | | ✓ | **C, E** |
| 301.2 | Low-rise and high-rise residential buildings | | | ✓ | **C, E** |
| 301.2.1 | Low-Rise residential new construction – Tier 2 adopted | | | ✓ | **C, E** |
| 301.3 | Nonresidential additions and alterations | | | ✓ | **C, E** |
| 301.3.3 | No-residential new construction – Tier 2 | | | ✓ | **C, E** |
| 301.6 | Special inspector requirements | | | ✓ | **C, E** |
| 301.7 | Low-carbon concrete requirements for Tier 1 and Tier 2 projects | | | ✓ | **C, E** |
| | | | | | |
| 4.306 | Swimming pool and spa covers | ✓ | | | **C, E** |
| 4.509 | Heat pump water heater | | ✓ | | |
| 702.2 | Green building special inspection | | | ✓ | **C, E** |
| A4.104.1 | Supervision and education by a special inspector | | | ✓ | **C, E** |
| A4.105.1 | Chapter 5.24 of Title 5 of the Municipal Code | | | ✓ | **C, E** |

| | | | | | |
|---|---|---|---|---|---|
| A4.105.2 | Reuse of materials | | | ✓ | **C, E** |
| A4.106.8 | Electric vehicle (EV) charging for residential structures | | | | **C, E** |
| A4.106.8.1 | New single-family, duplex and townhouse dwellings | | | ✓ | **C, E** |
| A4.106.8.2 | New multi-family dwellings. | | | ✓ | **C, E** |
| A4.106.8.3 | New hotels and motels | | | ✓ | **C, E** |
| A4.106.9 | Bicycle Parking | | | ✓ | **C, E** |
| A4.106.10 | Light pollution reduction | | | ✓ | **C, E** |
| A4.203.1 | Performance Approach for Newly Constructed Buildings | | | ✓ | **C, E** |
| A4.304.3 | Irrigation metering device | | | ✓ | **C, E** |
| A4.305.1 | Graywater | | | ✓ | **C, E** |
| A4.305.2 | Recycled water piping | | | ✓ | **C, E** |
| A4.305.3 | Recycled water for landscape irrigation | | | ✓ | **C, E** |
| A4.305.4 | Additions and alterations | | | ✓ | **C, E** |
| A4.403.1 | Frost Protection Foundation Systems | | ✓ | | **C** |
| A4.403.2 | Reduction in cement use | | | ✓ | **C, E** |
| A4.403.2.1 | Purpose | | | ✓ | **C, E** |
| A4.403.2.2 | Definitions | | | ✓ | **C, E** |
| A4.403.2.3 | Compliance | | | ✓ | **C, E** |
| Table A4.403.2.3 | Cement and Embodied Carbon Limit Pathways | | | ✓ | **C, E** |
| A4.403.2.3.1 | Allowable increases | | | ✓ | **C, E** |
| A4.403.2.3.2 | Cement limit method - mix | | | ✓ | **C, E** |
| A4.403.2.3.3 | Cement limit method - project | | | ✓ | **C, E** |
| A4.403.2.3.4 | Embodied carbon method - mix | | | ✓ | **C, E** |
| A4.403.2.3.5 | Embodied carbon method - project | | | ✓ | **C, E** |
| A4.403.2.3.6 | Enforcement | | | ✓ | **A** |
| A4.403.2.3.7 | Exemptions | | | ✓ | **A** |
| A4.408.1 | Enhanced construction waste reduction | | | ✓ | **C, E** |
| A4.408.1.1 | Documentation | | | ✓ | **A** |
| A4.504.1 | Compliance with Formaldehyde Limits | | | ✓ | **C, E** |
| A4.504.3 | Thermal Insulation | | | ✓ | **C, E** |
| 5.106.1.1 | Local Storm Water Pollution Prevention | | | ✓ | **C, E** |
| 5.106.1.1 | Local ordinance | | | ✓ | **C, E** |
| 5.106.8 | Light pollution reduction | | | ✓ | **C, E** |
| | | | | | |
| 5.304.2 | Invasive species prohibited | ✓ | | | **C** |
| 5.306 | Nonresidential enhanced water budget | ✓ | | | **C, E** |
| 5.307.1 | Cooling tower water use in high-rise residential or nonresidential buildings | ✓ | | | **C, E** |

| | | | | | |
|---|---|---|---|---|---|
| 5.410.4.6 | Energy STAR portfolio manager | ✓ | | | **C, E** |
| 5.410.4.7 | Performance reviews – energy | ✓ | | | **C, E** |
| 5.410.4.8 | Performance reviews – water | ✓ | | | **C, E** |
| 5.506.4 | Indoor air quality management plan | ✓ | | | **E** |
| A5.106.5.3 | Electric vehicle (EV) charging for nonresidential structures | | | ✓ | **C, E** |
| A5.106.5.3.5 | Nonresidential structures other than hotels | | | ✓ | **C, E** |
| A5.203.1 | Performance Approach for Newly Constructed Buildings | | | ✓ | **C, E** |
| A5.405.5 | Cement and concrete | | | ✓ | **C, E** |
| A5.408.3.1 | Waste enhanced construction waste reduction | | | ✓ | **C, E** |
| A5.408.3.1.1 | Enhanced construction waste reduction – Tier 2 | | ✓ | | **A** |
| A5.408.3.1.2 | Documentation | | | ✓ | **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 Building Standards Code is required. Natural gas combustion and gas appliances emit a wide range of air pollutants, such as carbon monoxide (CO), nitrogen oxides (NOx, including nitrogen dioxide (NO2)), particulate matter (PM), and formaldehyde, which according to a UCLA Study, have been linked to various acute and chronic health effects, and additionally exceed levels set by national and California-based ambient air quality standards. 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, 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 construction of more energy efficient buildings can help Palo Alto reduce its share of the GHG emissions that contribute to climate change. All-electric new buildings benefit the health, safety, and welfare, of Palo Alto and its residents. Requiring all-electric construction, without gas infrastructure will reduce the amount of greenhouse gas produced in Palo Alto and will contribute to reducing the impact of climate change and the associated risks. Due to decrease in annual

rain fall, Palo Alto experiences the effect of drought and water saving more than some other communities in California. Embodied carbon of concrete is a significant contributor to greenhouse gas emissions and climate change, and this amendment includes a requirement to use low-carbon concrete. Providing additional capacity for electric vehicle use reduces use of gasoline which is a major contributor to climate change.

**E** Green building 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 green provisions in this Chapter are designed to achieve the following goals:

(a) Increase energy efficiency in buildings;

(b) Reduce the use of natural gas in buildings which improves indoor environmental quality and health;

(c) Reduce the use of natural gas which will reduce the natural gas infrastructure and fire risk over time;

(d) Reduce the embodied carbon of concrete which reduces greenhouse gas emissions;

(e) Increase water and resource conservation;

(f) Reduce waste generated by construction and demolition projects;

(g) Provide durable buildings that are efficient and economical to own and operate;

(h) Promote the health and productivity of residents, workers, and visitors to the city;

(i) Recognize and conserve the energy embodied in existing buildings;

(j) Increase capacity for use of electric vehicles which reduces greenhouse gas emissions and improves air quality;

(k) Encourage alternative transportation; and

(l) 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 hazard 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 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 which 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. Reduction or eliminating of natural gas infrastructure over time will reduce maintenance costs and fire risk in difficult geological conditions.

**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 Code is warranted. In addition, the reduction or elimination of natural gas infrastructure reduces the likelihood of fire or environmental damage should they become disrupted due to challenging topographic conditions during construction or repair.

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.

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.