ORDINANCE NO.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SUNNYVALE TO AMEND CHAPTER 16.42 (ENERGY CODE) AND CHAPTER 16.43 (GREEN BUILDING) OF TITLE 16 (BUILDINGS AND CONSTRUCTION) OF THE SUNNYVALE MUNICIPAL CODE WITH LOCAL AMENDMENTS TO THE 2022 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS AND GREEN BUILDING STANDARDS CODE TO ADD REACH CODE PROVISIONS FOR EXISTING SINGLE FAMILY RESIDENTIAL REMODELS, ADDITIONS AND ALTERATIONS, AND TO MAKE RELATED FINDINGS

WHEREAS, in 2006, the State of California enacted the California Global Warming Solutions Act of 2006, which created a comprehensive, multi-year program to reduce greenhouse gas (GHG) emissions in California, which was subsequently amended, including in 2016, to add Section 38566 to the Health and Safety Code to require greenhouse gas emissions to be reduced to 40 percent below 1990 levels by no later than December 31, 2030 (SB 32); and

WHEREAS, Sunnyvale's Climate Action Playbook, adopted in 2019, listed six key strategies to reduce GHG emissions, including the strategy of Decarbonizing Buildings, aimed to reduce natural gas use and shift to all-electric buildings, with a target to achieve 100 percent all-electric new buildings by 2030; and

WHEREAS, on December 1, 2020, Sunnyvale adopted Ordinance No. 3168-20 making local amendments to the 2019 California Energy Code and related findings to implement energy reach code standards, consistent with the Climate Action Playbook, including, all-electric requirements for new construction; and

WHEREAS, Sunnyvale later adopted the 2022 California Building Codes including these and other local amendments (Ord. No. 3202-22) effective January 1, 2023; and

WHEREAS, in 2024, after the Ninth Circuit Court of Appeal issued its decision in *California Restaurant Association v. City of Berkeley*, 89 F.4th 1094 (2024) invalidating an all-electric ordinance that was similar to Sunnyvale's local amendments, Sunnyvale adopted a resolution suspending enforcement of its all-electric requirements set forth in Sunnyvale Municipal Code (SMC) Sections 16.42.030 through 16.42.080 (Resolution No. 1238-24); and

WHEREAS, on June 25, 2024, the Sunnyvale City Council adopted the Sunnyvale Climate Action Playbook and Game Plan 2028, which includes Play 2.1 "Reduce energy consumption in existing buildings," and Play 2.2 "Support electrification of existing buildings" with targets for reducing natural gas use in commercial and residential buildings; and

WHEREAS, after consideration of alternatives in consultation with Silicon Valley Clean

Energy (SCVE) and a consortium of public agencies, the City desires to make certain amendments to the previously adopted local amendments to the 2022 California Energy Code and 2022 California Green Building Standards Code, consistent with the updated Climate Action Playbook and Game Plan 2028, and as described in this ordinance; and

WHEREAS, consistent with the Climate Action Playbook, the local amendments to the 2022 California Energy Code and 2022 California Green Building Standards Code establish requirements for existing single-family homes to install heat pumps when air conditioning is replaced and to install "electric-ready" improvements with additions, alterations and remodels, which will reduce demands for local energy resources, reduce regional pollution, and promote a lower contribution to GHG emissions; and

WHEREAS, these local amendments are reasonably necessary to address community and individual health and safety concerns, as Sunnyvale residents suffer from asthma and other health conditions associated with poor indoor and outdoor air quality, exacerbated by the combustion of methane gas; and

WHEREAS, removing combustible gas from structures aids in fire hardening and removes a known hazard during firefighting efforts; and

WHEREAS, the local amendments allow for mixed-fuel construction but incentivize and facilitate all-electric construction, and are consistent with federal law; and

WHEREAS, the local amendments support Sunnyvale residents' compliance with Bay Area Air District's amendments to Rule 9-4 and Rule 9-6, which limit the sale of nitrous oxide emitting water and space heating appliances; and

WHEREAS, California Health and Safety Code Section 17958 requires that local jurisdictions adopt building standards that are substantially the same as those adopted by the California Building Standards Commission and contained in the California Building Standards Code, subject to the ability to adopt local building standard amendments as described below; and

WHEREAS, California Health and Safety Code Sections 17958.5, 17958.7 and 18941.5 provide that jurisdictions may make changes or modifications to the building standards contained in the State California Building Standards Code based upon express findings that such changes or modifications are reasonably necessary because of local climatic, geological or topographical conditions; and

WHEREAS, the City Council finds that each of the amendments, additions, and deletions to the California Energy Code and California Green Building Standards Code contained in this ordinance are reasonably necessary because of the local climatic, geological, or topographical conditions described in Section 1 of this ordinance; and

WHEREAS, Section 10-106 of the 2022 California Administrative Code establishes a process which allows local adoption of energy standards that are more stringent than the statewide Standards, provided that a determination that the standards are cost effective is adopted

at a public meeting and subsequently filed with the California Energy Commission, and the California Energy Commission finds that the standards will require buildings to be designed to consume less energy than permitted by the California Energy Code;

THE CITY COUNCIL OF THE CITY OF SUNNYVALE DOES ORDAIN AS FOLLOWS:

SECTION 1. Findings.

A. Recitals. The recitals above are hereby adopted and incorporated herein by reference as findings.

B. Local Conditions. Over the next century, increasing levels of atmospheric greenhouse gas (GHGs) concentrates are expected to result in global temperature increases, causing a variety of local changes, including extreme weather conditions, sea level rise, more frequent heat waves and extended period of drought. The City of Sunnyvale in particular will experience (1) adverse air quality impacts, exacerbated by local features such as a major highways; (2) extreme heat; (3) flooding from severe storms, exacerbated by Sunnyvale's low elevation and high groundwater table; (4) wildfires and smoke, owing to the City's proximity to the Santa Cruz Mountains; (5) drought; and (6) sea level rise, particularly in the City's northern area bordering the San Francisco Bay. Each of these impacts, as a result of climate change, can have a local impact on the health, safety, and welfare of the City's population, especially those without resources to purchase air conditioning, the elderly, disabled, or those with children. Natural gas combustion and gas-fueled appliances emit a number of air pollutants contributing to indoor and outdoor air quality impacts and atmospheric GHGs. Failure to address and substantially reduce pollutants and GHG emissions creates an increased risk to the health, safety and welfare of the City's residents.

Local climatic geologic, and topographic conditions along with the pollutants and GHGs generated from residential and non-residential structures require exceeding the energy standards for building construction established in the 2022 California Buildings Standards Code. The local Energy Code Amendments adopted in this ordinance will ensure that existing buildings reduce their consumption of fossil-fuel-based energy and avoid exacerbating the hazards posed by local climatic, geological, and topographical conditions.

Amendments to the California Codes have been adopted in the past by the City Council based on specific findings of local geographic, topographic and climatic conditions; and the City Council hereby reaffirms such findings and confirms that the facts on which such findings were based continue to exist. The provisions of this ordinance establishing certain more future-focused and progressive standards than the California Codes will better serve to prevent or minimize structural and environmental damage resulting from local conditions.

C. Cost Effectiveness and Energy Efficiency. The City Council finds, based on evidence presented before the City Council and the recitals set forth above that the local amendments to the Green Building Standards Code contained in this ordinance are cost effective and will require buildings to be designed to consume less energy than permitted by the Green Building Standards Code.

SECTION 2. Purpose and Intent. This ordinance establishes electric-readiness measures and heat-pump requirements for certain additions, alterations and remodels to single-family buildings, in addition to all applicable requirements of the 2022 State Building Codes in order to reduce the air pollution and GHGs coming from appliances in residential buildings that contribute to health and safety concerns.

SECTION 3. Section 16.42.030 AMENDED. Section 16.42.030 of Chapter 16.42 (Energy Code) of Title 16 (Buildings and Construction) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 16.42.030. Definitions
2022 California Energy Code Section 100.1 (Definitions), subsection (b) is hereby amended to add the following definitions, reading as follows:

LEVEL 2 ELECTRIC VEHICLE (EV) CHARGING RECEPTACLE is a 208/240-volt 40-ampere minimum branch circuit and a receptacle.

LOW POWER LEVEL 2 ELECTRIC VEHICLE (EV) CHARGING RECEPTACLE is a 208/240-volt 20-ampere minimum branch circuit and a receptacle.

SECTION 4. Section 16.42.040 AMENDED. Section 16.42.040 of Chapter 16.42 (Energy Code) of Title 16 (Buildings and Construction) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 16.42.040 Electric readiness for remodels, alterations, and additions.
2022 California Energy Code Section 150.0 (Mandatory Features and Devices), is hereby amended to add new subsections (h)(5)-(9) and (w), and to read as follows:

Single family residential buildings shall comply with the applicable requirements of Sections 150(a) to 150(w).

(a) – (h)(4) [Text of 2022 California Energy Code Section 150.0 unchanged]

(h)(5) **System selection.**

A. Equipment sizing and selection shall meet the cooling and heating loads of Sections 150.0(h)1 and 2.

B. Systems shall be sized based on ACCA Manual S-2023 in accordance with these requirements:

i. **Cooling capacity:** There is no limit on the minimum capacity.

ii. **Furnaces:** Heating capacity shall be sized based on ACCA Manual

S-2023, Table N2.5.

iii. **Heat pump heating capacity:**

a. **Minimum:** Heating systems are required to have a heating capacity meeting the minimum requirements of the CBC, not including any supplementary heating.

b. **Maximum:** There is no limit on the maximum heating capacity.

(h)(6) **Defrost.**

A. If a heat pump is equipped with an installer adjustable defrost delay timer, the delay timer shall be set to greater than or equal to 90 minutes.

B. The installer shall certify on the Certificate of Installation (CF2R) that the control configuration has been tested in accordance with the testing procedure in the CF2R.

Exception 1 to Section 150.0(h)6. Dwelling units in Climate Zones 6 and 7.

Exception 2 to Section 150.0(h)6. Dwelling units with a conditioned floor area of 500 square feet or less in Climate Zones 3, 5 through 10, and 15.

(h)(7) **Supplementary heating control configuration.** Heat pumps with supplementary heat, including, but not limited to, electric resistance heaters or gas furnace supplementary heating, shall comply with the following requirements:

A. Lock out supplementary heating above an outdoor air temperature of not greater than 35°F. There are additional thermostat requirements in section 150.0(i)2.

B. The installer shall certify on the Certificate of Installation that the control configuration has been tested in accordance with the testing procedure found in the CF2R.

C. The controls may allow supplementary heater operation above 35°F only during defrost or when the user selects emergency operation.

Exception 1 to Section 150.0(h)7: For buildings with a conditioned floor area less than 500 square feet, and for buildings of any size in Climate Zones 7 and 15, heat pumps with supplementary heaters shall have controls that meet Item i or ii:

i. **Option A:**

1. That prevent supplementary heater operation when the heating load can be met by the heat pump alone; and

2. In which the cut-on temperature for heat pump heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for heat pump heating is higher than the cut-off temperature for supplementary heating.

ii. **Option B:** The controls may allow supplementary heater operation during defrost mode and transient periods, such as start-ups and following a room thermostat setpoint advance, if the controls prevent the unnecessary operation of supplementary heating.

Exception 2 to Section 150.0(h)7: Room air-conditioner heat pumps.

(h)(8) **Sizing of electric resistance supplementary heat.** Where heat pumps have electric resistance heat, the capacity of electric resistance heat shall not exceed the heat pump nominal cooling capacity (at 95°F ambient conditions) multiplied by 2.7 kW per ton, rounded up to the closest kW.

(h)(9) **Capacity variation with third-party thermostats.** Variable or multi-speed systems shall comply with the following requirements:

A. The space conditioning system and thermostat together shall be capable of responding to heating and cooling loads by modulating system compressor speed, and meet thermostat requirements in Section 150.0(i)2.

B. The installer shall certify on the Certificate of Installation that the control configuration has been tested in accordance with the testing procedure found in the CF2R.

(i) – (v) [Text of 2022 California Energy Code Section 150.0 unchanged]

(w) **Electric Readiness for Remodels, Alterations, and Additions**

1. **Electric range.** Where branch circuits or receptacles are added or altered in a kitchen and the work requires an electrical permit, install electrical components in accordance with the California Electrical Code. The electrical components shall include either of the following:

A. A 125-volt, 20-amp electrical receptacle that is connected to the electric panel with a 120/240-volt 3-conductor branch circuit rated at 50 amps minimum, within 3 feet from the appliance and accessible to the appliance with no obstructions. Both ends of the unused conductor

shall be labeled with the word “spare” and be electrically isolated. Space shall be reserved for a single pole circuit breaker in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words “Future Use”.

B. A pathway for a future 240 volt 50 amp minimum branch circuit that shall consist of either conductors or raceway from the main electrical service panel. The main electric panel shall have space reserved to allow for the installation of a double pole circuit breaker for a future electric range installation. The reserved space shall be permanently marked as “For Future 240V use”. The raceway or conductors shall terminate at a junction box within three feet of the appliance. The blank cover shall be identified as “240V ready”.

2. **Electric dryer.** Where a branch circuit is added or altered within three feet of a gas or propane clothes dryer and the work requires an electrical permit, install electrical components in accordance with the California Electrical Code. The electrical components shall include either of the following:

A. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor branch circuit rated at 30 amps minimum, within 3 feet from the appliance and accessible to the appliance with no obstructions. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated. Space shall be reserved for a single pole circuit breaker in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words “Future Use”; or

B. A pathway for a future 240 volt 30 amp minimum branch circuit that shall consist of either conductors or raceway from the main electrical service panel. The main electric panel shall have space reserved to allow for the installation of a double pole circuit breaker for a future heat pump dryer installation. The reserved space shall be permanently marked as “For Future 240V use”. The raceway or conductors shall terminate at a junction box within three feet of the appliance. The blank cover shall be identified as “240V ready”.

3. **Heat pump water heater**.

A. If wall framing is removed or replaced within three feet of a gas or propane water heating appliance, space suitable for the future installation of a heat pump water heater (HPWH) shall be provided. The space shall be at least 2.5 feet by 2.5 feet wide and 7 feet tall and shall include a condensate drain that is no more than 2 inches higher than the base of an installed water heater and allows natural draining

without pump assistance or installed piping or tubing within three feet of the water heater location to a condensate drain or exterior location. If pump assistance is needed, a receptacle on a 120 volt, minimum 15 amp branch circuit for a condensate pump must be available within 3 feet of the water heater location.

B. Where branch circuits are altered or added within three feet of an existing gas or propane water heater or within 10 feet of the designated future location of a heat pump water heater as required under Section 150.0(w)3A, and the work requires an electrical permit, install electrical components in accordance with the California Electrical Code. The electrical components shall include either of the following:

(i) A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit rated at 30 amps minimum, within 3 feet from the water heater and accessible to the water heater with no obstructions. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated. Space shall be reserved for a single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words “Future 240V Use”; or

(ii) A pathway for a future 240 volt 30 amp minimum branch circuit that shall consist of either conductors or raceway from the main electrical service panel. The main electric panel shall have space reserved to allow for the installation of a double pole circuit breaker for a future HPWH installation. The reserved space shall be permanently marked as “For Future 240V use”. The pathway shall terminate at a junction box within three feet of the appliance. The blank cover shall be identified as “240V ready”.

4. **Outdoor gas appliances.** Where a gas line is added or extended to any pool water heater, spa water heater, sauna, fireplace, outdoor cooking appliance, or outdoor heating system, install infrastructure and reserve physical space to accommodate future installation of an electric equivalent of that system that serves the same function, as certified by a registered design professional or licensed electrical contractor.

A. Install conduit designed to serve a future electric appliance(s) with the same function, 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, in accordance with manufacturer requirements and the California Electrical Code. In lieu of or in addition to conduit, electrically isolated branch circuit wiring may be installed; and

B. Label both ends of the unused conduit or conductors “For Future Electrical Appliance”; and

C. Reserve circuit breakers in the electrical panel(s) for each branch circuit, appropriately labeled; and

D. Designate physical space for future electric appliances, including equipment footprint, on the construction drawings. The footprint necessary for future electric appliances may overlap with the location of currently designed combustion equipment.

Exception to Section 150.0(w)4: Generator systems used for emergency power generation.

5. **Electrical Power Upgrades.** Increases in the electrical power infrastructure capacity serving a building shall only be permitted when all the following are documented and submitted to the building official:

A. Calculations in accordance with California Electrical Code Article 220.83 determining future loads will exceed the capacity of the current electrical power infrastructure.

B. Where data is available, calculations in accordance with California Electrical Code Article 220.87 determining that future loads exceed the capacity of the current electrical service infrastructure.

C. Calculations for item (A) and item (B) above shall include at least one of the following:

i. At least one power management or circuit controlling device, serving electric-only appliances such as:

a. Water heater(s)
b. Clothes dryer(s)
c. Range(s)
d. Level 2 EV Charging Receptacle or
e. Low Power Level 2 EV Charging Receptacle

ii. At least one of the following electric-only appliances operating on 120V:

a. Water heater(s)
b. Clothes dryers(s)
c. Range(s)

iii. Circuit control between whole home load and Level 2 EV Charging Receptacle or Low Power Level 2 EV Charging Receptacle

Exception 1 to Section 150.0(w): The project is the result of a repair as defined by Title 24 Part 2 Section 202.
Exception 2 to Section 150.0(w): If an electrical permit is not otherwise required for the project other than compliance with this section.
Exception 3 to Section 150.0(w): Where upgrades to the existing electrical panel or utility service are not proposed, electrical panel capacity shall not be required to exceed the existing utility electrical service to the building to meet compliance with this section. Capacity and overcurrent protection spaces shall be reserved to the extent allowable under the existing electrical panel capacity using the methodology in Section 150(w)5. Tandem overcurrent protection devices shall be used to the extent permissible under the California Electrical Code.
Exception 4 to Section 150.0(w): The project is the result of a safety improvement to remove a known hazard.
Exception 5 to Section 150.0(w): Mobile Homes, Manufactured Housing, or Factory-built Housing as defined in Division 13 of the California Health and Safety 12 Code (commencing with Section 17000 of the Health and Safety Code).
Exception 6 to Section 150.0(w): Emergency Housing pursuant to Appendix P of the California Building Code.
Exception 7 to Section 150.0(w): Creation of a new accessory dwelling unit or junior accessory dwelling unit that is within the existing space of a single family dwelling or accessory structure and includes an expansion of not more than 150 square feet beyond the same physical dimensions as the existing accessory structure. An expansion beyond the physical dimensions of the existing accessory structure shall be limited to accommodating ingress and egress. Or, if the project would not otherwise be a Covered Single Family Project were it not for the inclusion of an accessory dwelling unit or junior accessory dwelling unit that meets the criteria above.

SECTION 5. Section 16.42.050 AMENDED. Section 16.42.050 of Chapter 16.42 (Energy Code) of Title 16 (Buildings and Construction) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 16.42.050 Altered space-conditioning system – duct sealing
2022 California Energy Code Section 150.2(b)1Eiii (Altered space-conditioning system – duct sealing) is hereby amended to read as follows:

iii. If it is not possible to meet the duct sealing requirements of either Section 150.2(b)1Ei or 150.2(b)1Eii, then all accessible leaks shall be sealed and verified through a visual inspection and a smoke test by a certified ECC- Rater utilizing the methods specified in Reference Residential Appendix Section RA3.1.4.3.5.

SECTION 6. Section 16.42.060 AMENDED. Section 16.42.060 of Chapter 16.42 (Energy Code) of Title 16 (Buildings and Construction) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 16.42.060 Altered space-conditioning system – mechanical cooling
2022 California Energy Code Section 150.2(b)1Fii and 150.2(b)1Fiii (Altered space-conditioning system – mechanical cooling) is hereby amended to read as follows:

ii. Air-cooled air conditioners in Climate Zones 2 and 8 through 15 and air-source heat pumps in all climate zones, including but not limited to ducted split systems, ducted package systems, small duct high-velocity air systems, and minisplit systems shall comply with Subsections a and b, unless the system is of a type that cannot be verified using the specified procedures. Systems that cannot comply with the requirements of Section 150.2(b)1Fii shall comply with Section 150.2(b)1Fiii.

Exception to Section 150.2(b)1Fii: Entirely new or complete replacement packaged systems for which the manufacturer has verified correct system refrigerant charge prior to shipment from the factory are not required to have refrigerant charge confirmed through field verification and diagnostic testing. The installer of these packaged systems shall certify on the Certificate of Installation that the packaged system was pre-charged at the factory and has not been altered in a way that would affect the charge. Ducted systems shall comply with minimum system airflow rate requirement in Section 150.2(b)1Fiia, provided that the system is of a type that can be verified using the procedure specified in RA3.3 or an approved alternative in RA1.

a. Minimum system airflow rate shall comply with the applicable Subsection I or II below as confirmed through field verification and diagnostic testing in accordance with the procedures specified in Reference Residential Appendix Section RA3.3 or an approved alternative procedure as specified in Section RA1.

1. Small duct high-velocity systems shall demonstrate a minimum system airflow rate greater than or equal to 250 cfm per ton of nominal cooling capacity; or

2. All other air-cooled air conditioner or air-source heat pump systems shall demonstrate a minimum system airflow rate greater than or equal to 300 cfm per ton of nominal cooling capacity; and

Exception 1 to Section 150.2(b)1Fiia: Systems unable to comply with the minimum airflow rate requirement shall demonstrate compliance using the procedures in Section RA3.3.3.1.5; and the system's thermostat shall conform to the specifications in Section 110.12.

Exception 2 to 150.2(b)1Fiia: Entirely new or complete replacement space-conditioning systems, as specified by Section 150.2(b)1C, without zoning dampers may comply with the minimum airflow rate by meeting the applicable requirements in Table 150.0-B or 150.0-C as confirmed by field verification and diagnostic testing in accordance with the procedures in Reference Residential Appendix Section RA3.1.4.4 and RA3.1.4.5. The design clean-filter pressure drop requirements of Section 150.0(m)12C for the system air filter device(s) shall conform to the requirements given in Tables 150.0-B and 150.0-C.

b. The installer shall charge the system according to manufacturer's specifications. Refrigerant charge shall be verified according to one of the following options, as applicable.

1. The installer and rater shall perform the standard charge verification procedure as specified in Reference Residential Appendix Section RA3.2.2, or an approved alternative procedure as specified in Section RA1; or

2. The installer shall perform the weigh-in charging procedure as specified by Reference Residential Appendix Section RA3.2.3.1, provided the system is of a type that can be verified using the RA3.2.2 standard charge verification procedure and RA3.3 airflow rate verification procedure or approved alternatives in RA1. The ECC-Rater shall verify the charge using RA3.2.2 and RA3.3 or approved alternatives in RA1.

Exception to Section 150.0(b)1Fiib: When the outdoor temperature is less than 55°F and the installer utilizes the weigh-in charging procedure in Reference Residential Appendix Section RA3.2.3.1 to demonstrate compliance, the installer may elect to utilize the verification procedure in Reference Residential Appendix Section RA3.2.3.2. If the verification procedure in Section RA3.2.3.2 is used for compliance, the system's thermostat shall conform to the specifications in Section 110.12. Ducted systems shall comply with the minimum system airflow rate requirements in Section 150.2(b)1Fiia.

iii. Air-cooled air conditioners in Climate Zones 2 and 8 through 15 and air-source heat pumps in all climate zones, including but not limited to ducted split systems, ducted package systems, small duct high-velocity, and minisplit systems, which are of a type that cannot comply with the requirements of Section 150.2(b)1Fiib shall comply with Subsections a and b, as applicable.

a. The installer shall confirm the refrigerant charge using the weigh-in

charging procedure specified in Reference Residential Appendix RA3.2.3.1, as verified by an ECC-Rater according to the procedures specified in Reference Residential Appendix RA3.2.3.2; and

b. Systems that utilize forced air ducts shall comply with the minimum system airflow rate requirement in Section 150.2(b)1Fiia provided the system is of a type that can be verified using the procedures in Section RA3.3 or an approved alternative procedure in Section RA1.

Exception to Section 150.2(b)1Fiii: Entirely new or complete replacement packaged systems for which the manufacturer has verified correct system refrigerant charge prior to shipment from the factory are not required to have refrigerant charge confirmed through field verification and diagnostic testing. The installer of these packaged systems shall certify on the Certificate of Installation that the packaged system was pre-charged at the factory and has not been altered in a way that would affect the charge. Ducted systems shall comply with minimum system airflow rate requirement in Section 150.2(b)1Fiib, provided that the system is of a type that can be verified using the procedure specified in Section RA3.3 or an approved alternative in Section RA1.

SECTION 7. Sections 16.42.070 and 16.42.080 DELETED. Sections 16.42.070 and 16.42.080 of Chapter 16.42 (Energy Code) of Title 16 (Buildings and Construction) of the Sunnyvale Municipal Code are hereby deleted.

SECTION 8. Section 16.43.070 ADDED. Section 16.43.070 of Chapter 16.43 (Green Building Code) of Title 16 (Buildings and Construction) of the Sunnyvale Municipal Code is hereby added to read as follows:

Section 16.43.070 Energy Efficiency

2022 California Green Building Standards Code Division 4.2 (Energy Efficiency) is hereby amended to add new Section A4.204 (Requirements for Alterations to Existing Buildings) to read as follows:

A4.204 Requirements for Alterations to Existing Buildings

A4.204.1 Energy Efficiency. Alterations to existing residential buildings shall comply with Section~~s~~ A4.204.1.1.

A4.204.1.1 Altered Space-Conditioning System Serving Existing Single-Family Dwelling Units – Mechanical Cooling. When a space-conditioning system serving an existing single-family dwelling unit is altered in climate zone ~~4~~ by installation or replacement of an air conditioner, the altered system shall comply with either a or b below in addition to the requirements for installation specified by Title 24, Part 6, Sections 150.2(b)1E and 150.2(b)1F:

a. A heat pump shall be the primary heating source and sized according to

the system selection requirements specified by Title 24, Part 6 of Section 150.0(h)5. Supplemental heating may be provided by a gas furnace or electric resistance heating as specified in Title 24, Part 6, Sections 150.0(h)7 and 150.0(i); or

b. An air conditioner shall meet all the requirements in either subsection I or II below:

I. Systems with Existing Duct Distribution Systems:

A. The duct system measured air leakage shall be equal to or less than 10 percent of the system air handler airflow as confirmed through field verification and diagnostic testing, per the requirements in Title 24, Part 6, Reference Residential Appendix Section RA3.1.4.3.1; and

Exception 1 to A4.204.1.1bIA. If it is not possible to meet the duct sealing requirements, all accessible leaks shall be sealed and verified through a visual inspection and a smoke test by a certified ECC-Rater utilizing the methods specified in Reference Residential Appendix Section RA3.1.4.3.5.
Exception 2 to A4.204.1.1bIA: Existing duct systems, constructed, insulated or sealed with asbestos.

B. Demonstrate, in every control mode, airflow greater than or equal to 300 CFM per ton of nominal cooling capacity through the return grilles, and an air-handling unit fan efficacy less than or equal to 0.45 W/CFM. The airflow rate and fan efficacy requirements in this section shall be confirmed through field verification and diagnostic testing, following the procedures outlined in Title 24, Part 6, Reference Residential Appendix RA3.3; and

Exception 1 to A4.204.1.1bIB: Systems unable to comply with the minimum airflow rate and system efficacy requirements shall demonstrate compliance by satisfying all of the following:

1. Following the procedures in Section RA3.3.3.1.5;

2. Installing a system thermostat that conforms to the specifications in Section 110.12;

3. For standard ducted systems (without zoning dampers), meet the applicable minimum total return filter grille nominal area requirements in Table 150.0-B or 150.0-C as confirmed by field

verification and diagnostic testing in accordance with the procedures in Reference Residential Appendix Sections RA3.1.4.4 and RA3.1.4.5. The design clean-filter pressure drop requirements specified by Section 150.0(m)12D for the system air filter(s) shall conform to the requirements given in Tables 150.0-B and 150.0-C.

Exception 2 to Section A4.204.1.1 b IB: Multispeed compressor systems or variable speed compressor systems shall verify air flow (cfm/ton) and fan efficacy (watts/cfm) for system operation at the maximum compressor speed and the maximum air handler fan speed.
Exception 3 to Section A4.204.1.1bIB: Gas furnace air-handling units manufactured prior to July 3, 2019 shall comply with a fan efficacy value less than or equal to 0.58 W/cfm as confirmed by field verification and diagnostic testing in accordance with the procedures given in Reference Residential Appendix RA3.3.

C. In all climate zones, refrigerant charge verification requirements shall meet the requirements in Title 24, Part 6 Section 150.2(b)1Fiib, including the minimum airflow rate specified in Section 150.2(b)1Fiia; and

D. Vented attics shall have insulation installed to achieve a U-factor of 0.020 or insulation installed at the ceiling level shall result in an insulated thermal resistance of R-49 or greater for the insulation alone; luminaires not rated for insulation contact must be replaced or retrofitted with a fireproof cover that allows for insulation to be installed directly over the cover; and

Exception 1 to Section A4.204.1.1(b)ID: Dwelling units with at least R-38 existing insulation installed at the ceiling level.
Exception 2 to Section A4.204.1.1(b)ID: Dwelling units where the alteration would directly cause the disturbance of asbestos unless the alteration is made in conjunction with asbestos abatement.
Exception 3 to Section A4.204.1.1(b)ID: Dwelling units with knob and tube wiring located in the vented attic.
Exception 4 to Section A4.204.1.1(b)ID: Where the accessible space in the attic is not large enough to accommodate the required R-value, the entire accessible space shall be filled with insulation provided such

installation does not violate Section 806.3 of Title 24, Part 2.5.

E. Air seal all accessible areas of the ceiling plane between the attic and the conditioned space including all joints, penetrations and other openings that are potential sources of air leakage by caulking, gasketing, weather-stripping or otherwise sealing to limit infiltration and exfiltration.

Exception 1 to Section A4.204.1.1bIE: Dwelling units with at least R-38 existing insulation installed at the ceiling level.
Exception 2 to Section A4.204.1.1 bIE: Dwelling units where the alteration would directly cause the disturbance of asbestos unless the alteration is made in conjunction with asbestos abatement.
Exception 3 to Section A4.204.1.1bIE: Dwelling units with atmospherically vented space heating or water heating combustion appliances located inside the pressure boundary of the dwelling unit.

II. Entirely New or Complete Replacement Duct Systems:

A. R-8 duct insulation shall be installed for all new ducts located in unconditioned space; and

B. The total duct system measured air leakage shall be equal to or less than 5 percent of the system air handler airflow as confirmed through field verification and diagnostic testing, per the requirements in Title 24, Part 6, Reference Residential Appendix Section RA3.1.4.3.1; and

C. Demonstrate, in every control mode, airflow greater than or equal to 350 CFM per ton of nominal cooling capacity through the return grilles, and an air-handling unit fan efficacy less than or equal to 0.35 W/CFM. The airflow rate and fan efficacy requirements in this section shall be confirmed through field verification and diagnostic testing, following the procedures outlined in Title 24, Part 6, Reference Residential Appendix RA3.3; and

D. In all climate zones, refrigerant charge verification requirements shall meet the requirements in Title 24, Part 6 Section 150.2(b)1Fiib; and

E. If the air handler and ducts are located within a vented attic, vented attics shall have insulation installed to achieve a U-factor of 0.020 or insulation installed at the ceiling level shall result in an insulated thermal resistance of R-49 or greater for the insulation alone; luminaires not rated for insulation contact must be replaced or retrofitted with a fireproof cover that allows for insulation to be installed directly over the cover; and

Exception 1 to Section A4.204.1.1bIIE: In dwelling units with at least R-19 existing insulation installed at the ceiling level.
Exception 2 to Section A4.204.1.1bIIE: Dwelling units where the alteration would directly cause the disturbance of asbestos unless the alteration is made in conjunction with asbestos abatement.
Exception 3 to Section A4.204.1.1bIIE: Dwelling units with knob and tube wiring located in the vented attic.
Exception 4 to Section A4.204.1.1bIIE: Where the accessible space in the attic is not large enough to accommodate the required R-value, the entire accessible space shall be filled with insulation provided such installation does not violate Section 806.3 of Title 24, Part 2.5.

F. Air seal all accessible areas of the ceiling plane between the attic and the conditioned space including all joints, penetrations and other openings that are potential sources of air leakage by caulking, gasketing, weather-stripping or otherwise sealing to limit infiltration and exfiltration.

Exception 1 to Section A4.204.1.1bIIF: Dwelling units with at least R-19 existing insulation installed at the ceiling level.
Exception 2 to Section A4.204.1.1bIIF: Dwelling units where the alteration would directly cause the disturbance of asbestos unless the alteration is made in conjunction with asbestos abatement.

Exception 3 to Section A4.204.1.1bIIF: Dwelling units with atmospherically vented space heating or water heating combustion appliances located inside the pressure boundary of the dwelling unit.

Exception 1 to Section A4.204.1.1: Where the capacity of the existing main electrical service panel is insufficient to supply the electrical capacity of a heat pump and where the existing main electrical service panel is sufficient to supply a new or replacement air conditioner, as calculated according to the requirements of California Electrical Code Article 220.83 or Article 220.87. Documentation of electrical load calculations in accordance with Article 220 must be submitted to the enforcement agency prior to permitting for both the heat pump and proposed air conditioner.

Exception 2 to Section A4.204.1.1: Where the required capacity of a heat pump to meet the system selection requirements of Section 150.0(h)5 is greater than or equal to 12,000 Btu/h more than the greater of the required capacity of an air conditioner to meet the design cooling load OR the capacity of the existing air conditioner. Documentation of heating and cooling load calculations in accordance with 150.0(h) must be submitted to the enforcement agency prior to permitting for both the heat pump and proposed air conditioner.

SECTION 9. STATUTORY REFERENCES, INCLUSIONS OF AMENDMENTS AND ADDITIONS. Whenever reference is made to any portion of this ordinance, or of any other chapter or section of the Sunnyvale Municipal Code, or of any other ordinance of the city of Sunnyvale, or of any law of the State of California, the reference applies to all amendments and additions now or thereafter made.

SECTION 10. INTERPRETATIONS. In interpreting and applying the provisions of this ordinance, the requirements contained herein are declared to be minimum requirements for the purposes set forth. The provisions of this ordinance, insofar as they are substantially the same as existing statutory provisions relating to the same subject matter, shall be construed as restatements and continuations and not as new enactments. This ordinance shall not nullify the more restrictive provisions of covenants, agreements or other ordinances or laws, but shall prevail as to such provisions which are less restrictive.

SECTION 11. CEQA - EXEMPTION. The City Council finds, pursuant to Title 14 of the California Code of Regulations, Section 15308 (Class 8) Actions by Regulatory Agencies for Protection of the Environment and Section 15305 (Class 5) Minor alterations in Land Use Limitations and Section 15061 of the CEQA Guidelines, that this ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) because it can be seen with certainty that there is no possibility that the changes adopted will have a significant effect on the environment.

SECTION 12. CONSTITUTIONALITY; SEVERABILITY. If any section, subsection,

sentence, clause or phrase of this ordinance is for any reason held to be invalid, such decision or decisions shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance, and each section, subsection, sentence, clause and phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid.

SECTION 13. EFFECTIVE DATE. This ordinance shall be in full force and effect thirty (30) days from and after the date of its adoption.

SECTION 14. POSTING AND PUBLICATION. The City Clerk is directed to cause copies of this ordinance to be posted in three (3) prominent places in the City of Sunnyvale and to cause publication once in The Sun, the official publication of legal notices of the City of Sunnyvale, of a notice setting forth the date of adoption, the title of this ordinance, and a list of places where copies of this ordinance are posted, within fifteen (15) days after adoption of this ordinance.

Introduced at a regular meeting of the City Council held on _____, and adopted as an ordinance of the City of Sunnyvale at a regular meeting of the City Council held on _____, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:
RECUSAL:

ATTEST:

_____
DAVID CARNAHAN
City Clerk
Date of Attestation: _____

APPROVED:

_____
LARRY KLEIN
Mayor

(SEAL)

APPROVED AS TO FORM:

_____
REBECCA MOON
City Attorney

T-DPS-160230/82852
Council Agenda: 8/12/25
Item No.: