

ORDINANCE NO. 2024-21

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SANTA CRUZ AMENDING
CHAPTER 18.15 - ENERGY CODE, ADOPTING LOCAL AMENDMENTS TO THE
CALIFORNIA ENERGY CODE, PART 6 OF THE CALIFORNIA BUILDING
CONSTRUCTION AND FIRE PREVENTION CODE

WHEREAS, The State of California has a goal to achieve carbon neutrality by 2045; and

WHEREAS, The California Air Resources Board (CARB) has introduced zero-emission appliance standards with a phased implementation beginning in 2027 to reduce greenhouse gas emissions and improve air quality, with an expectation that all new space and water heaters sold in California meet zero-emission standards by 2030; and

WHEREAS, The City adopted its Climate Action Plan 2030 (CAP 2030) in 2022 with a legal target to reduce emissions 40% from 1990 levels by 2030 and an aspirational target of carbon neutral by 2035, 10 years earlier than the State target; and

WHEREAS, The CAP 2030 contains three measures related to existing building energy use which accounts for 24% of greenhouse gas emissions regulated by CARB, including Measure BE-2, to electrify 31% of existing residential buildings by 2030 and 53% by 2035; Measure BE-3, to electrify 26% of existing commercial buildings by 2030 and 45% by 2035; and Measure BE-5 is to increase resiliency through equitable energy efficiency and local solar programs; and

WHEREAS, Considering that 96% of the City's building stock is residential and 87% of residential buildings are single family homes older than 1978, large renovations are one of the best opportunities to make improvements to single family homes resulting in reduce energy use and emissions and improved comfort and satisfaction; and

WHEREAS, Public Resources Code Section 25402.1 (h)(2) allows local agencies to adopt local amendments that are cost-effective and that require greater energy reduction/conservation than the California Energy Code; and

WHEREAS, the California Energy Codes and Standards Statewide Utility Program, has determined specific modifications to the 2022 State Energy Code for each climate zone that are cost-effective; and that such modifications will result in designs that consume less energy than they would under the 2022 State Energy Code; and

WHEREAS, staff has reviewed the "2024 Existing Building Cost-Effectiveness Study" and associated data, and find them sufficient to illustrate compliance with the requirements set forth under California Administrative Code Chapter 10-106; and

WHEREAS, based on these studies, the City finds the proposed local amendments to the 2022 California Energy Code to be cost-effective and consume less energy than permitted by Title 24, Part 6; and

WHEREAS, the 2022 California Energy Code offers compliance options that were established through the public rulemaking process of the code update; and

WHEREAS, the Council expressly declares that the proposed amendments to the Energy Code are reasonably necessary because of local climatic, topological, and geological conditions; and

WHEREAS, the requirements specified in this Ordinance were reviewed via public comment and through a publicly noticed public hearing process; and

WHEREAS, The municipal code amendments are consistent with the Negative Declaration approved for the City of Santa Cruz 2030 Climate Action Plan adopted by City Council on September 13, 2022, and therefore, no further environmental review under the California Environmental Quality Act (CEQA) is required; the amendments are exempt from CEQA under the general rule, 15061(b)(3), because it can be seen with certainty that the provisions contained herein would not have the potential for causing a significant effect on the environment; and, this ordinance is exempt per CEQA Guidelines Section 15308, Class 8, Actions by Regulatory Agencies for Protection of Natural Resources, since the proposed ordinance would institute regulatory requirements intended to protect the environment and natural resources.

BE IT ORDAINED By the City of Santa Cruz as follows:

Section 1. Section 18.15.040 of Chapter 18.15 of the Santa Cruz Municipal Code is hereby amended to read as follows:

18.050.040 ENERGY CODE – MODIFICATIONS.

The following sections of the code as adopted in Section 18.15.030 are hereby modified as follows:

Section 100.1(b) of the CEnC is amended to add the following:

ELECTRIC HEATING APPLIANCE. 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.

MAJOR ADDITION is any change to an existing building that increases conditioned floor area by 350 or more square feet in a one-year period.

MAJOR ALTERATION is any construction or renovation to an existing structure other than a repair whose altered components cover 350 or more square feet in a one-year period. A project that consists only of roof and/or fenestration replacement is not considered a major alteration.

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.

Section 130.0 of the CEnC is amended to read as follows:

- 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. Section 141.0 specifies which requirements of Sections 130.0 through 130.6 also apply to additions and alterations to existing buildings.

Subchapter 4 of the CEnC is amended to add Section 130.6 to be numbered, entitled, and to read as follows:

130.6 Electric Readiness Requirements for Systems Using Gas or Propane

Where nonresidential systems using gas or propane are installed, construction drawings shall indicate electrical infrastructure and physical space accommodating the future installation of an electric heating appliance by including the following, 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.
- b) Labeling of both ends of the unused conductors or conduit that includes the terms “For Future Electrical Appliance.”
- 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.
- d) Connected subpanels, panelboards, switchboards, busbars, and transformers that are sized to serve the future electric heating appliances. The electrical capacity requirements shall be adjusted for demand factors in accordance with the California Electric Code.
- e) Physical space for future electric heating appliances, including equipment footprint, and if needed, a pathway reserved for routing of ductwork to heat pump evaporator(s), all of which shall be depicted on the construction drawings. The footprint necessary for future

electric heating appliances may overlap with non-structural partitions and with the location of currently designed gas-fueled equipment.

Section 140.0 of the CEnC is amended to read as follows:

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.

NOTE to Section 140.0: The requirements of Sections 140.1 through 140.10 apply to newly constructed buildings. Section 141.0 specifies which requirements of Section 140.1 through 140.10 also apply to additions or alterations to existing buildings.

Section 140.1 of the CEnC is amended to read as follows:

The following conditions are necessary for a building to comply with the performance approach:

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 7 percent for all nonresidential occupancies.

EXCEPTION 1 to 140.1 item 2 A source energy compliance margin of at least 7 percent is not required when nonresidential occupancies are designed with single zone space-conditioning systems complying with Section 140.4(a)2.

(a) – (c): Subsections 140.1 (a) – (c) are adopted without modification.

Section 150.0 of the CEnC is amended as follows:

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

NOTE: The requirements of Sections 150.0 (a) through (v) apply to newly constructed buildings. Sections 150.2(a) and 150.2(b) specify which requirements of Sections 150.0(a) through 150.0(r) also apply to additions or alterations. The City of Santa Cruz amendments to sections 150.0 (t) do not apply to additions or alterations.

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

(t) Heat pump space heater ready. Systems using a 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 with either a drain or natural drainage for condensate and adequate space to maintain the equipment in accordance with California Mechanical Code 304.1 & California Electrical Code 110.26.

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

Section 150.0(w) is added to read as follows:

(w)Mandatory Requirements for Existing Building Additions and Alterations. Existing Building Additions and Alterations shall meet the requirements of Items 1 through 3 below, as applicable:

1. **Major addition.** Any major addition shall require installation of a set of measures from the Measure Menu Table, Table 150.0-I to achieve a total score that is equal to or greater than 9. In addition, all mandatory measures listed in Table 150.0-I shall be installed. Measure verification shall be explicitly included as an addendum to the Certificate of Compliance to be filed pursuant to 2022 Title 24 Section 10-103. Installed measures shall meet the specifications in Table 150.0-J.

2. **Major alteration.** Any major alteration shall require installation of a set of measures from the Measure Menu Table, Table 150.0-I to achieve a total score that is equal to or greater than 9. In addition, all mandatory measures listed in Table 150.0-I shall be installed. Measure verification shall be explicitly included as an addendum to the Certificate of Compliance to be filed pursuant to 2022 Title 24 Section 10-103. Installed measures shall meet the specifications in Table 150.0-J.
3. **Combination alterations and additions.** Any project that includes an addition and alteration whose altered components cover 350 square feet or greater shall require installation of a set of measures from the Measure Menu Table, Table 150.0-I to achieve a total score that is equal to or greater than 9. In addition, all mandatory measures listed in Table 150.0-I shall be installed. Measure verification shall be explicitly included as an addendum to the Certificate of Compliance to be filed pursuant to 2022 Title 24 Section 10-103. Installed measures shall meet the specifications in Table 150.0-J.
4. **Water heating system electric readiness.** Any project that includes a major addition, major alteration, or combination alteration and addition that requires water heating system electric readiness shall meet Item A below:
 - a. Systems using gas or propane water heaters to serve individual dwelling units shall designate a space at least 2.5 feet by 2.5 feet wide and 7 feet tall suitable for the future installation of a heat pump water heater (HPWH). All electrical components shall be installed in accordance with the *California Electrical Code*. The space shall include 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, within 3 feet from the water heater and accessible to the water heater with no obstructions; and
 - ii. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated; and
 - iii. 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 Use”; and
 - iv. 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.
 - v. 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.

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 compliance costs exceed 20% of total project valuation or due to conditions specific to the project, it is technically infeasible to achieve compliance through any available set of measures, 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.

- (1) Application. Based on the following, 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. The applicant may not petition for relief from any requirement of the 2022 California Energy Code (Title 24, Part 6) and referenced standards, or the 2022 California Green Building Standards (Title 24, Part 11) of the California Building Standards Code. Circumstances that constitute hardship or infeasibility shall include one of the following:
 - i. That the cost of achieving compliance is disproportionate to the overall cost of the project;
 - ii. That it is technically infeasible to achieve compliance through all packages due to conditions specific to the project; That strict compliance with these standards would create or maintain a hazardous condition(s) and present a life safety risk to the occupants.
- (2) 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 2022 California Energy Code (Title 24, Part 6) and referenced standards, or the 2022 California Green Building Standards (Title 24, Part 11) of the California Building Standards Code, the chief building official shall determine the minimum feasible threshold of compliance reasonably achievable for the project. 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.
- (3) Denial of exemption. 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.
- (4) Appeal. Any aggrieved applicant or person may appeal the determination of the chief building official regarding the granting or denial of an exemption or compliance with any other provision of this chapter. An appeal of a determination of the chief building official shall be filed in writing with the Board of Building and Fire Appeals.

Exception 3 to Section 150.0(w): If the dwelling unit has previously installed measures from the Measure Menu, Table 150.0-I, and compliance can be demonstrated to the building official, then these measures shall not be required to be newly installed, and appropriate credit shall be included in the applicable compliance calculations.

Exception 4 to Section 150.0(w): The applicant may request an exemption to any requirements of this chapter which would impair the historic integrity of any building listed on a local, state, or federal register of historic structures, as determined by the Planning Director or designee and as regulated by the California Historic Building Code (Title 24, Part 8). In making a determination of exemption, the Planning Director or designee may require the submittal of an evaluation by an architectural historian or similar expert.

Exception 5 to Section 150.0(w): An alteration that consists solely of seismic safety improvements.

Exception 6 to Section 150.0(w): Buildings which are temporary (such as construction trailers).

Exception 7 to Section 150.0(w): An alteration that consists solely of roof and/or fenestration projects.

Exception 8 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 9 to Section 150.0(w): One accessory dwelling unit and one junior accessory dwelling unit per lot with a proposed or existing single-family dwelling if all of the following apply:

- (1) The accessory dwelling unit or junior accessory dwelling unit is within the proposed space of a single-family dwelling or existing space of a single-family dwelling or accessory structure and may include 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.
- (2) The space has exterior access from the proposed or existing single-family dwelling.
- (3) The side and rear setbacks are sufficient for fire and safety.

Exception 10 to Section 150.0(w): Where the project includes an accessory dwelling unit or junior accessory dwelling unit that is attached to the primary dwelling unit, either as a new addition or converted from within the space of the primary dwelling unit, and there is not an additional combination alteration/addition to the primary dwelling unit of at least 350 square feet, then the primary dwelling unit is exempt from the requirements.

New Table 150.0-I is added to read as follows:

Table 150.0-I: Measure Menu

Measures	Table 150.0-J ID	Points
Water Heating Package	E1	1
Induction Cooktop	E2	1
Heat Pump Clothes Dryer	E3	1
Air Sealing	E4	2
Duct Sealing	E5	3
R-49 Attic Insulation	E6	4
Windows	E7	4
R-13 Wall Insulation	E8	5
New Ducts + Duct Sealing	E9	6
R-19 Floor Insulation	E10	9
R-30 Floor Insulation	E11	10
Heat Pump Water Heater (HPWH)	E12	12
Solar PV + Electric Ready Pre-Wire	E13	13
Heat Pump Space Heater	E14	18
Utility Room, Kitchen & Laundry-Related Electric Ready Pre-Wire	M1	Mandatory
Panel-Related Electric Ready Pre-Wire	M2	Mandatory
Note: the measures in the Measure Menu table shall conform to the specifications in Table 150.0-J		

New Table 150.0-J is added to read as follows:

Table 150.0-J: Measure Specifications

ID	Measure Specification
General Measures	
E1	Water Heating Package: Add exterior insulation meeting a minimum of R-6 to existing storage water heaters. Insulate all accessible hot water pipes with pipe insulation a minimum of ¾ inch thick. This includes insulating the supply pipe leaving the water heater, piping to faucets underneath sinks, and accessible pipes in attic spaces or crawlspaces. Upgrade fittings in sinks and showers to meet current California Green Building Standards Code (Title 24, Part 11) Section 4.303 water efficiency requirements. Water heaters 20 gallons or less, or water heaters that are not able to add exterior insulation may not take credit for this measure. Exception 1: Water heater blanket is not required on water heaters less than 20 gallons. Exception 2: Water heater blanket not required if application of a water heater blanket voids the warranty on the water heater.

	Exception 3: Upgraded fixtures are not required if existing fixtures have rated or measured flow rates of no more than ten percent greater than 2022 California Green Building Standards Code (Title 24, Part 11) Section 4.303 water efficiency requirements. Exception 4: Water heaters with factory installed insulation of R-24 or greater
E2	Heat Pump Space Heater: Replace all existing gas and electric resistance space heating systems with an electric-only heat pump system.
E3	Induction Cooktop: Replace existing gas and electric resistance stove top with inductive stove top and cap the gas line.
E4	Air Sealing: Seal all accessible cracks, holes, and gaps in the building envelope at walls, floors, and ceilings. Pay special attention to penetrations including plumbing, electrical, and mechanical vents, recessed can light luminaires, and windows. Weather-strip doors if not already present. Verification shall be conducted by a certified HERS Rater that either: a) shows at least a 30 percent reduction from pre-retrofit conditions; or b) shows that the number of air changes per hour at 50 Pascals pressure difference (ACH50) does not exceed ten for Pre-1978 vintage buildings, seven for 1978 to 1991 vintage buildings and five for 1992-2010 vintage buildings. Compliance can also be demonstrated with blower door testing conducted by a certified HERS Rater no more than three years prior to the permit application date showing compliance with condition (a) or (b). If combustion appliances are located within the pressure boundary of the building, conduct a combustion safety test by a professional certified by the Building Performance Institute in accordance with the ANSI/BPI-1200-S-2017 Standard Practice for Basic Analysis of Buildings, the Whole House Combustion Appliance Safety Test Procedure for the Comfortable Home Rebates Program 2020 or the California Community Services and Development Combustion Appliance Safety Testing Protocol. Reducing the air leakage of a building can reduce the building's drying potential. When improving the air sealing of a building, consider if there is a need to add continuous ventilation to the building (if not already present).
E5	Duct Sealing: Air seal all space conditioning ductwork to meet the requirements of the 2022 Title 24 Section 150.2(b)1E. The duct system must be tested by a HERS Rater no more than three years prior to the alteration or addition permit application date to verify the duct sealing and confirm that the requirements have been met. This measure may not be combined with the New Ducts and Duct Sealing measure in this Table. Dwelling units without ductwork or where the ducts are in conditioned space may not take credit for this measure.
E6	R-49 Attic Insulation: Attic insulation shall be installed to achieve a weighted assembly U-factor of 0.020 or insulation installed at the ceiling level shall have a thermal resistance of R-49 or greater for the insulation alone. Recessed downlight luminaires in the ceiling shall be covered with insulation to the same depth as the rest of the ceiling. Luminaires not rated for insulation contact must be replaced or fitted with a fire-proof cover that allows for insulation to be installed directly over the cover. Exception: In buildings where existing R-30 is present and existing recessed downlight luminaires are not rated for insulation contact, insulation is not required to be installed over the luminaires.

E7	Windows: Replace at least 50% of existing windows with high performance windows with an area-weighted average U-factor no greater than 0.30.
E8	R-13 Wall Insulation: Install wall insulation in all exterior walls to achieve a weighted U-factor of 0.102 or install wall insulation in all exterior wall cavities that shall result in an installed thermal resistance of R-13 or greater for the insulation alone.
E9	New Ducts + Duct Sealing: Replace existing space conditioning ductwork with new R-8 ducts that meet the requirements of 2022 Title 24 Section 150.0(m)11. This measure may not be combined with the Duct Sealing measure in this Table. To qualify, a preexisting measure must have been installed no more than three years before the alteration or addition permit application date.
E10	R-19 Floor Insulation: Raised-floors shall be insulated such that the floor assembly has an assembly U-factor equal to or less than U-0.037, or shall be insulated between wood framing with insulation having an R-value equal to or greater than R-19. This measure cannot be combined with measure R-30 Floor insulation.
E11	R-30 Floor Insulation: Raised-floors shall be insulated such that the floor assembly has an assembly U-factor equal to or less than U-0.028, or shall be insulated between wood framing with insulation having an R-value equal to or greater than R-30. This measure cannot be combined with measure R-19 Floor insulation.
E12	Heat Pump Water Heater (HPWH): Replace existing electric resistance or natural gas storage water heater with a heat pump water heater.
E13	PV and Electric Ready Pre-Wire: Install a solar PV system that meets the requirements of 2022 Title 24 Section 150.1(c)14. In addition to the solar PV system, comply with the water heating system electric readiness requirements per Section 150.0(w)4 and the heat pump space heaters requirements per Section 150.0(t) and one of the following: A. Energy Storage Systems (ESS) Ready, as specified in Section 150.0(s), or B. EV Charger Ready as specified in the California Green Building Code, Title 24, Part 11, Section A4.106.8.1, which otherwise applies to new construction. Exception 1: In buildings where the designated space requirement specified in Section 150.0(n)1 can be demonstrated to the building official as infeasible, the electric readiness components per Section 150.0(n)1 are not required.
Mandatory Measures	
M1	Utility Room, Kitchen & Laundry-Related Electric Ready Pre-Wire: Where the project includes a kitchen remodel, comply with the electric cooktop ready requirement, as specified in Section 150.0(u). Where the project includes a laundry room remodel, comply with the electric clothes dryer ready requirement, as specified in Section 150.0(v). Where the project includes a utility room remodel, comply with the water heating system electric readiness requirements per Section 150.0(w)4 and the heat pump space heater electric readiness requirements per Section 150.0(t): Exception 1: If an electrical permit is not otherwise required for the project other than compliance with this measure. Exception 2: If a utility service upgrade is not otherwise required for the project other than compliance with this measure. Exception 3: In buildings where the designated space requirement specified in Section 150.0(w)4 can be demonstrated to the building official as infeasible, the electric readiness components per Section 150.0(w)4 are not required.

M2	Panel-Related Electric Ready Pre-Wire: Where the project includes a new electrical panel and electrical service upgrade to 200A or more, comply with the water heating systems electric readiness requirements per Section 150.0(w)4 and the heat pump space heater electric readiness requirements per Section 150.0(t). Exception 1: In buildings where the designated space requirement specified in Section (150.0(w)4 can be demonstrated to the building official as infeasible, the electric readiness components per Section 150.0(w)4 are not required.
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Section 150.1 of the CEnC is amended to read as follows:

- (a) 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.
 - 1. Newly Constructed Buildings. 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 with an EDR1 compliance margin of at least 9, 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 and demand flexibility 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 does not need a Source Energy compliance margin of at least 9, 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. Section (b)(3) is adopted without modification.

(c) Section (c) is adopted without modification.

Section 150.2(a) [ENERGY EFFICIENCY STANDARDS FOR ADDITIONS AND ALTERATIONS TO EXISTING SINGLE FAMILY RESIDENTIAL BUILDINGS] is modified to read as follows:

Additions. Additions to existing single-family residential buildings shall meet the requirements of Sections 110.0 through 110.9, Sections 150.0(a) through (n), (p), (q), (w), and either Section 150.2(a)1 or 2.

Section 150.2(b) [ENERGY EFFICIENCY STANDARDS FOR ADDITIONS AND ALTERATIONS TO EXISTING SINGLE FAMILY RESIDENTIAL BUILDINGS] is modified to read as follows:

Alterations. Alterations to existing single-family residential buildings or alterations in conjunction with a change in building occupancy to a single-family residential occupancy shall meet either Item 1 or 2 below.

1. Prescriptive approach. The altered component and any newly installed equipment serving the alteration shall meet the applicable requirements of Sections 110.0 through 110.9 and all applicable requirements of Sections 150.0(a) through (l), 150.0(m)1 through 150.0 (m)10, 150.0(p) through (q), and 150.0 (w); and
2. Performance approach. The altered component(s) and any newly installed equipment serving the alteration shall meet the applicable requirements of Subsections A, B, and C below.
 - A. The altered components shall meet the applicable requirements of Sections 110.0 through 110.9, Sections 150.0(a) through (l), Sections 150.0(m)1 through 150.0 (m)10, Sections 150.0(p) through (q), and Section 150.0(w). Entirely new or complete replacement mechanical ventilation systems as these terms are used in Section 150.2(b)1L, shall comply with the requirements in Section 150.2(b)1L. Altered mechanical ventilation systems shall comply with the requirements of Section 150.2(b)1M. Entirely new or complete replacement space-conditioning systems, and entirely new or complete replacement duct systems, as these terms are used in Sections 150.2(b)1C and 150.2(b)1Diia, shall comply with the requirements of Sections 150.0(m)12 and 150.0(m)13.

Section 160.4 of the CEnC is amended to remove subsection (a) as follows:

- (a) Reserved.

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

Section 160.9 Sections (a) to (c) of the CEnC are adopted without amendments. Sections (d) and (e) are added as follows:

(d) Systems using gas or propane water heaters to serve individual dwelling units shall include the following:

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.
 - A. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated.
 - B. A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in (A) above shall be included and labeled with the words “Future 240V Use.”
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.
3. Construction drawings that indicate the reserved location of the future heat pump water heater with minimum interior dimensions of 39” x 39” x 96.”
4. A ventilation method that incorporates one of the following:
 - A. A space reserved for the future heat pump water heater with a volume of at least 700 cu. ft.
 - B. A space reserved for the future heat pump water heater that vents 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 greater. 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. A space reserved for the future heat pump water heater that includes two 8" capped ducts, venting to the building exterior.
 - i. All duct connections and building penetrations shall be sealed.
 - ii. Exhaust air ducts and all ducts that cross pressure boundaries shall be insulated to a minimum insulation level of R-6 in compliance with California Mechanical Code 502.0.
 - iii. Airflow from termination points shall be diverted away from each other.
- (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(e) and include the following for the future heat pump:
 - 1. A system input capacity of the gas or propane water heating system that is 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. A space reserved that includes and complies with the following:
 - A. Heat Pump. The minimum space reserved shall include space for service clearances, air flow clearances, and compliant working spaces. Additionally, unless the space reserved is sufficient to support 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, the space reserved shall comply with 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 dimension of reserved spaces shall be 48 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 dimension of reserved spaces shall be 84 inches.
 - B. Tanks. The minimum space reserved shall include space for service clearances and keep outs. Additionally, unless the space reserved is sufficient to support 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, the space reserved shall comply with 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.

3. Ventilation, which shall be provided by including the following:

A. A physical space reserved for the heat pump located outside, or

B. A pathway 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. Additionally, unless the reserved pathway and penetrations are 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, the reserved pathway and penetrations through the building envelope shall be sized to comply with 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.

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. Additionally, unless the condensate drainage receptacles and piping are 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, the condensate drainage shall comply with 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.

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.
 - 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.

The building electrical system shall be sized to meet the future electric requirements of the electric ready equipment specified in sections 160.9(a) – 160.9(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.

Section 170.1 of the CEnC is adopted with amendments as follows:

A building 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. The source energy budget of a newly constructed low-rise multifamily building shall be at least 10% lower than that of the Standard Design Building.
2. The source energy budget of a newly constructed high-rise multifamily building shall be at least 4% lower than that of the Standard Design Building.

Sub-sections (a) to (d) are adopted without amendments.

Section 3. This ordinance shall take effect and be in full force thirty (30) days after final adoption.

PASSED FOR PUBLICATION this 19th day of November, 2024, by the following vote:

AYES: Councilmembers Newsome, Brown, Watkins, Brunner, Kalantari-Johnson;
Vice Mayor Golder; Mayor Keeley.

NOES: None.

ABSENT: None.

DISQUALIFIED: None.

APPROVED: _____
Fred Keeley, Mayor

ATTEST: _____
Bonnie Bush, City Clerk Administrator

ORDINANCE NO. 2024-21

PASSED FOR FINAL ADOPTION this 10th day of December, 2024, by the following vote:

AYES:

NOES:

ABSENT:

DISQUALIFIED:

APPROVED: _____
Fred Keeley, Mayor

ATTEST: _____
Bonnie Bush, City Clerk Administrator

This is to certify that the above and foregoing document is the original of Ordinance No. 2024-21 and that it has been published or posted in accordance with the Charter of the City of Santa Cruz.

Bonnie Bush, City Clerk Administrator