

DOCKETED	
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CONTRA COSTA COUNTY
**FINDINGS IN SUPPORT OF CHANGES, ADDITIONS, AND DELETIONS TO
CALIFORNIA ENERGY CODE TO REQUIRE CERTAIN NEWLY
CONSTRUCTED BUILDINGS TO BE MORE ENERGY EFFICIENT**

The California Building Standards Commission has adopted and published the 2022 Building Standards Code, which became effective on January 1, 2023. The 2022 Building Standards Code is composed of the 2022 California Building, Residential, Green Building Standards, Energy, Electrical, Plumbing, Mechanical, and Existing Building Codes. These codes are enforced in Contra Costa County by the Building Inspection Division of the Department of Conservation and Development.

Although these codes apply statewide, Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change these codes to establish more restrictive building standards if the jurisdiction finds that the modifications and changes are reasonably necessary because of local climatic, geological, or topographical conditions. Additionally, Public Resources Code section 25402.1(h)(2) further authorizes a local jurisdiction to modify or change the California Energy Code if the local jurisdiction finds that the proposed standards are cost-effective, and the California Energy Commission determines that the proposed standards will require the diminution of energy consumption levels permitted by the 2022 California Energy Code.

Ordinance No. 2024-17 amends the 2022 California Energy Code to increase energy efficiency standards for certain newly constructed residential buildings, hotels, offices, and retail buildings be constructed to be more energy efficient than the 2022 California Energy Code mandates.

Pursuant to Health and Safety Code section 17958.7, the Contra Costa County Board of Supervisors finds that the more restrictive standards contained in Ordinance No. 2024-17 are reasonably necessary because of the local climatic, geological, and topographic conditions that are described below.

I. Local Conditions

A. Climatic

1. Temperature

a) Conditions

Temperatures have been recorded as high as 114° F. Average summer highs are in the 75° to 90° range, with average maximums of 105° in some areas of unincorporated Contra Costa County.

b) Impact

Prolonged exposure to high temperatures can be detrimental to the health and safety of building occupants. Buildings that meet higher efficiency requirements have the ability to maintain indoor space conditioning for longer periods of time. During power outages, particularly outages that coincide with extreme temperatures, energy efficient buildings provide higher levels of health and safety to the occupants of the building.

2. Greenhouse Gas Emissions

a) Conditions

Energy use in buildings contributes significantly to greenhouse gas (GHG) emissions. Increased levels of GHGs in the atmosphere accelerate the rate of climate change, a phenomenon known as global warming. Scientists attribute the global warming trend observed since the mid-20th century to the human expansion of the greenhouse effect. “The greenhouse effect is caused by the warming that results when the atmosphere traps heat radiating from Earth toward space.”¹ Residential and commercial buildings are responsible for roughly 25% of California’s GHG emissions.² In buildings, the combustion of natural gas and petroleum products for heating and cooking needs emits carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Emissions from natural gas consumption represent 78 percent of direct fossil fuel CO₂ emissions from the residential and commercial sectors in 2022.³

In 2016, through Senate Bill 32, California set targets to reduce GHG emissions to be 40 percent below 1990 levels by 2030. Subsequently, the California Air Resources Board (CARB) released its 2022 Scoping Plan outlining a roadmap for California to achieve carbon neutrality by 2045 or earlier.⁴ Contra Costa County is also taking steps to reduce GHG emissions. As part of the Envision Contra Costa 2040, the County is updating its Climate Action and Adaptation Plan to improve community resilience and establish GHG reduction targets consistent with the State targets. As part of this update, the County completed a local greenhouse gas emissions inventory.

b) Impact

Requiring more stringent building efficiency standards in new construction for the building types specified in this ordinance is consistent with the intent of State legislation and County requirements to aggressively implement energy policies designed to ensure success in meeting GHG emission reduction goals.

¹ NASA, The Causes of Climate Change, as of August 8, 2024, <https://science.nasa.gov/climate-change/causes/>

² California Air Resources Board, Building Decarbonization, as of August 8, 2024, <https://ww2.arb.ca.gov/our-work/programs/building-decarbonization>

³ United States Environmental Protection Agency, Source of Greenhouse Gas Emissions, as of August 8, 2024, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#commercial-and-residential>.

⁴ California Air Resources Board (n 2)

B. Geological

1. Seismicity

a) Conditions

Contra Costa County is located in Seismic Design Categories D and E, which designates the County at very high risk for earthquakes. Buildings and other structures in these zones can experience major seismic damage. Contra Costa County is near numerous earthquake faults including the San Andreas Fault, and all or portions of the Hayward, Calaveras, Concord, Antioch, Mt. Diablo, and other lesser faults. A 4.1 earthquake with its epicenter in Concord occurred in 1958, and a 5.4 earthquake with its epicenter also in Concord occurred in 1955. The Concord and Antioch faults have a potential for a Richter 6 earthquake and the Hayward and Calaveras faults have the potential for a Richter 7 earthquake. Minor tremblers from seismic activity are not uncommon in the area. A study released in 2015 by the Working Group of California Earthquake Probabilities predicts that for the San Francisco region, the 30-year likelihood of one or more earthquake of 6.7 or larger magnitude is 72%. The purpose of this Working Group is to develop statewide, time-dependent Earthquake Rupture Forecasts for California that use best available science, and are endorsed by the United States Geological Survey, the Southern California Earthquake Center, and the California Geological Survey. Scientists, therefore, believe that an earthquake of a magnitude 6.7 or larger is now slightly more than twice as likely to occur as to not occur in, approximately, the next 30 years.

b) Impact

A major earthquake could cause major damage to electrical transmission facilities and gas distribution infrastructure which is likely to disrupt these services to buildings. “If ambient temperatures are extremely hot or cold during these outages, it can become a public health emergency. Efficient buildings retain their space conditioning (cooling and heating) longer during power outages, making building occupants more resilient.”⁵ Increasing the level of energy efficiency in new construction for the building types specified in this ordinance will increase resilience during power outages by enabling buildings to maintain safe indoor conditions during power outages.

⁵ Center for Climate And Energy Solutions, Resilience Strategies for Power Outages, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#commercial-and-residential>

C. Topographic

1. Vegetation

a) Conditions

The wildland-urban interface exists throughout Contra Costa County, oftentimes abutting residential development and other critical infrastructure. Due to the presence of highly combustible dry grass, weeds, and brush in hilly and open space areas for 6-8 months of the year, these areas are susceptible to wildland fires which can threaten nearby structures and disrupt power delivery. Wildland fires also create thick layers of toxic smoke and particulate matter that can be harmful to communities exposed to it.

b) Impact

Energy efficient buildings, especially those with Distributed Energy Resources (DER) such as solar generation and battery storage, are more capable of maintaining indoor air quality and comfortable temperatures during power loss events caused by wildland fires and/or extreme heat. “Resilient solutions that incorporate back-up power with efficiency measures will deliver many more critical hours of safety (the duration a building can maintain livable conditions during an extreme weather event or wildfire)”⁶ Requiring more stringent building efficiency standards by amending the building code will enhance Contra Costa County residents’ resilience to wildland fires which have become endemic to the region.

II. Necessity of More Restrictive Standards

Due to the conditions described above, the Contra Costa County Board of Supervisors finds that there are local climatic, geological, and topographical conditions unique to Contra Costa County that require the imposition of building energy standards that are more stringent than the State’s energy code for newly constructed residential buildings, detached accessory dwelling units, hotels, offices, and retail buildings as set forth in Ordinance No. 2024-17

III. California Energy Code

Pursuant to California Public Resources Code section 25402.1(h)(2), the Contra Costa County Board of Supervisors finds that the modifications made to the California Energy Code in this ordinance are cost-effective for newly constructed residential buildings, including detached accessory dwelling units located in climate zone 12, and all newly constructed hotels, offices and retail buildings. This finding of cost-effectiveness is based on the following cost-effectiveness studies prepared as part of the Statewide Reach Codes Program:

⁶ Rocky Mountain Institute (RMI), Adapting to Fire: How Cities Can Enhance Resilience with Distributed Energy, as of August XX, 2024, <https://rmi.org/adapting-to-fire-how-cities-can-enhance-resilience-with-distributed-energy/>

- 2022 Cost-Effectiveness Study: Single Family New Construction
Last modified May 30, 2024
- 2022 Cost-Effectiveness Study: Multifamily New Construction
Last modified June 20, 2023
- 2022 Cost-Effectiveness Study: Nonresidential New Construction Reach Code
Last modified March 24, 2023

Contra Costa County is located in climate zones 3 and 12. The cost-effectiveness studies conclude that specific modifications to the 2022 California Energy Code—including more stringent building energy efficiency requirements for newly constructed residential buildings, hotels, offices, and retail buildings— are cost-effective for climate zones 3 and 12. The Board of Supervisors also finds, pursuant to California Public Resources Code section 25402.1(h)(2), that the modifications made to the California Energy Code in this ordinance will require diminution of energy consumption levels compared to those permitted by the 2022 California Energy Code. These findings of cost-effectiveness and energy savings will be filed with the California Energy Commission before Ordinance No. 2024-17 takes effect.

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AMENDMENT TO THE 2022 CALIFORNIA ENERGY CODE TO INCREASE ENERGY EFFICIENCY STANDARDS FOR CERTAIN NEWLY CONSTRUCTED BUILDINGS

The Contra Costa County Board of Supervisors ordains as follows (omitting the parenthetical footnotes from the official text of the enacted or amended provisions of the County Ordinance Code):

SECTION I. SUMMARY. This ordinance amends the 2022 California Energy Code to increase energy efficiency standards for the design and construction of newly constructed residential buildings, hotels, offices, and retail buildings. These requirements replace the all-electric building requirements previously included in Section 74-4.010 of the County Ordinance Code. This ordinance is adopted pursuant to Health and Safety Code sections 17922, 17958, 17958.5, 17958.7, and 18941.5, Public Resources Code section 25402.1(h)(2), and Government Code sections 50020 through 50022.10.

SECTION II. Section 74-4.010 (Amendments to CEnC) of Chapter 74-4 (Modifications) of Division 74 (Building Code) of the County Ordinance Code is amended to read:

74-4.010 Amendments to CEnC. The 2022 California Energy Code ("CEnC") is amended by the changes, additions, and deletions set forth in this chapter and Division 72. Section numbers used below are those of the 2022 California Energy Code.

- (a) Section 120.11 (Electric Readiness Requirements for All Systems) is added to CEnC Subchapter 3 (Nonresidential, Hotel/Motel Occupancies, and Covered Processes – Mandatory Requirements), to read:

120.11 Electric Readiness Requirements for All Systems. For hotel, office, and retail building types, where nonresidential systems using gas or propane are installed, the construction drawings shall include routing of conduit from the equipment using gas or propane to the point of interconnection with the electrical service.

- (b) Section 140.1 (Performance Approach: Energy Budgets) of CEnC Subchapter 5 (Nonresidential and Hotel/Motel Occupancies – Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency) is amended to read:

140.1 Performance Approach: Energy Budgets. A building complies with the performance approach if both the following conditions are met:

1. The energy budget calculated for the proposed design building under subsection (b) is no greater than the energy budget calculated for the Standard Design Building under subsection (a).

2. For hotel, office, and retail building types, the energy budget calculated for the proposed design building under subsection (b) must also have 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 occupancy type and location in Table 140.1-A, below.

Table 140.1-A SOURCE ENERGY COMPLIANCE MARGINS		
Occupancy Type	Climate Zone	Source Energy Compliance Margin
Hotel	3	5%
	12	4%
Office	3	5%
	12	4%
Retail	3	5%
	12	4%

Exception to Section 140.1(2). The Source Energy Compliance Margin specified in Table 140.1-A is not required when the building is conditioned with single zone space conditioning systems with direct expansion cooling with rated cooling capacity 240,000 Btu/hr or less and direct expansion or furnace heating at any rated heating capacity.

(a) Energy budget for the Standard Design Building. The energy budget for the Standard Design Building is determined by applying the mandatory and prescriptive requirements to the proposed building design. The energy budget is the sum of the source energy and time-dependent valuation (TDV) energy for space-conditioning, indoor lighting, mechanical ventilation, photovoltaic (PV) and battery storage systems, service water heating and covered process loads.

(b) Energy budget for the proposed design building. The energy budget for a proposed design building is determined by calculating the source energy and TDV energy for the proposed design building. The energy budget is the sum of the source energy and TDV energy for space-conditioning, indoor lighting, mechanical ventilation, photovoltaic (PV) and battery storage systems, service water heating, and covered process loads.

Exception to Section 140.1(b). A community shared solar electric generation system, or other renewable electric generation system, or community shared battery storage system, that 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 or battery storage system TDV energy required to comply with the standards, as calculated according to methods established by the Commission in the Nonresidential ACM Reference Manual.

(c) Calculation of energy budget. The TDV energy for both the Standard Design Building and the proposed design building shall be computed by compliance software certified for this use by the Commission. The processes for compliance software approval by the Commission are documented in the ACM Approval Manual.

- (c) Section 150.1(b) (Performance Standards), of CEnC Subchapter 8 (Single-Family Residential Buildings – Performance and Prescriptive Compliance Approaches) is amended to read:

(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. The building must also comply with the applicable requirements in subsections 1, 2, and 3, below.

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. Additionally, for a newly constructed building to comply with the performance standards, the proposed building must have a Source Energy Design Rating Compliance Margin, relative to the Source Energy Design Rating calculated for the Standard Design Building, of at least the value specified for the occupancy type and location in Table 150.1-A, below.

Table 150.1-A SOURCE ENERGY DESIGN RATING COMPLIANCE MARGINS		
Occupancy Type	Climate Zone	Source Energy Design Rating Compliance Margin (EDR1 Points)
Single-Family	3	9
Detached Accessory Dwelling Unit	3	0
Single-Family	12	11
Detached Accessory Dwelling Unit	12	6.6

Exception 1 to Section 150.1(b)1. A community shared solar electric generation system, or other renewable electric generation system, or community shared battery storage system, that 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 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 is not required to have a Source Energy Design Rating Compliance Margin.

[Subsections 150.1(b)(2)-(3) are adopted without modification]

- (d) Section 170.1 (Performance Approach), of CEnC Subchapter 11 (Multifamily Buildings – Performance and Prescriptive Compliance Approaches) is amended to read:

170.1 Performance Approach. A building complies with the performance approach if both the following conditions are met:

1. The energy budget calculated for the proposed design building under subsection (b) is no greater than the energy budget calculated for the Standard Design Building under subsection (a).
2. The energy budget calculated for the proposed design building under subsection (b) must also have a Source Energy Compliance Margin, relative to the energy budget calculated for the Standard

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Design Building under subsection (a), of at least the value specified for the occupancy type and location in Table 170.1-A, below.

Table 170.1-A SOURCE ENERGY COMPLIANCE MARGINS		
Occupancy Type	Climate Zone	Source Energy Compliance Margin
Low Rise Multifamily (three or fewer habitable stories)	3	10%
	12	11%
High Rise Multifamily (four or more habitable stories)	3	4%
	12	4%

(a) **Energy budget for the Standard Design Building.** The energy budget for the Standard Design Building is expressed in terms of source energy and time-dependent valuation (TDV) energy, and they are determined by applying the mandatory and prescriptive requirements to the proposed design building. The source energy budget and the TDV energy budget is the sum of the TDV energy for space-conditioning, indoor lighting, mechanical ventilation, photovoltaic (PV) and battery storage system, service water heating and covered process loads.

(b) **Energy budget for the proposed design building.** The energy budget for a proposed design building is expressed in terms of source energy and time-dependent valuation (TDV) energy, and they are determined by calculating the source energy and TDV energy for the proposed design building. The source energy budget and the TDV energy budget is the sum of the energy for space-conditioning, indoor lighting, mechanical ventilation, photovoltaic (PV) and battery storage system, and service water heating and covered process loads. The proposed building shall separately comply with the source energy budget and the TDV energy budget.

Exception to Section 170.1(b). A community shared solar electric generation system, or other renewable electric generation system, and/or community shared battery storage system, that 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 or

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battery storage system TDV energy required to comply with the standards, as calculated according to methods established by the Commission in the Nonresidential ACM Reference Manual.

(c) **Calculation of energy budget.** The TDV energy for both the Standard Design Building and the proposed design building shall be computed by compliance software certified for this use by the Commission. The processes for compliance software approval by the Commission are documented in the ACM Approval Manual.

[Subsection 170.1(d) is adopted without modification]

(Ords. 2024-17 § 2, 2022-35 § 3, 2022-02 § 3.)

SECTION III. VALIDITY. The Contra Costa County Board of Supervisors declares that if any section, paragraph, sentence, or word of this ordinance or of the 2022 California Energy Code as amended herein is declared for any reason to be invalid, it is the intent of the Contra Costa County Board of Supervisors that it would have passed all other portions or provisions of this ordinance independent of the elimination herefrom any portion or provision as may be declared invalid.

SECTION IV. EFFECTIVE AND OPERATIVE DATE. This ordinance becomes effective, but not operative, upon approval by the California Energy Commission or 30 days after passage, whichever is later. This ordinance will become operative on the effective date of this ordinance or January 1, 2025, whichever is later. Within 15 days of passage, this ordinance shall be published once in the East Bay Times, a newspaper published in this County.

PASSED on October 1 2024, by the following vote:

AYES: John Gioia, Candace Andersen, Diane Burgis, Ken Carlson, Federal D. Glover

NOES: None

ABSENT: None

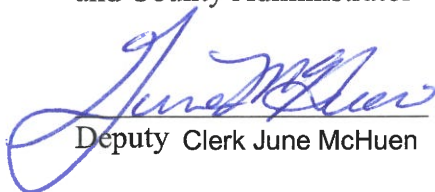
ABSTAIN: None

ATTEST: MONICA NINO,
Clerk of the Board of Supervisors
and County Administrator



Board Chair Federal D. Glover

By:



Deputy Clerk June McHuen

[SEAL]

KCK:

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