

BLUEPRINT

CALIFORNIA ENERGY COMMISSION
EFFICIENCY DIVISION

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Local Ordinances Exceeding the 2019 Energy Code

Local jurisdictions may adopt building efficiency ordinances that are more stringent than statewide Building Energy Efficiency Standards (Energy Code) requirements. Local

jurisdictions wishing to enforce locally adopted energy standards are required to apply to the California Energy Commission (CEC) for approval. The CEC has updated the **local ordinance webpage** with information on how to apply and reflects currently approved local

ordinances. This webpage will be updated as approvals are completed for applications submitted in the future. (Figure 1)

The screenshot shows the California Energy Commission website. The main heading is "Local Ordinance Exceeding the 2019 Energy Code". Below the heading is a paragraph: "Local jurisdictions wishing to enforce locally adopted energy standards are required to apply to the California Energy Commission (CEC) for approval. Local jurisdictions must establish a process to adopt building efficiency ordinances that are more stringent than statewide Energy Code requirements." Below this text is an "Expand All" button and a list of two items: "Approved Local Energy Standards" and "How to Apply", each with a plus sign icon to its right. On the right side of the page, there are three yellow boxes: "CONTACT" with a link to "Diana Droboutz" and phone number "916-454-4399"; "RELATED LINKS" with a link to "Docket Log (19-BSTD-06)"; and "CATEGORIES" with a link to "Program Building Energy Efficiency Standards - Title 24".

Figure 1: Local Ordinance Webpage

Fillable 2019 NRCA Forms

The nonresidential certificate of acceptance (NRCA) forms for 2019 Energy Code compliance are now fillable. The new fillable forms simplify compliance and are easier for users to complete. These fillable compliance forms are available on the **Energy Code Ace website** under the *Get Forms* tab.

The NRCA-LTI and NRCA-LTO lighting forms will need to be completed by a lighting acceptance test technician (ATT) through an ATT Certification Provider's website. For more information on the acceptance testing program and to find an ATT, visit the **ATTCP webpage**.

Solar Assessment Tools Updated

The **solar assessment tools webpage** has been updated with additional approved tools and links. These tools can be used to verify and document the shading conditions of an installed solar photovoltaic (PV) system as part of the PV requirements for the 2019 Energy Code. The tools may also confirm an exception to the PV requirements has been met.

Temporary Fenestration Labels

The Energy Code requires that U-factor and SHGC values on temporary window labels are certified by the National Fenestration Rating Council (NFRC). Any manufactured fenestration products that are not certified by the NFRC must incorporate an alternative temporary label that lists the Energy Code default U-factor values from **Table 110.6-A** and default SHGC values from **Table 110.6-B**.

Section 10-111 of the Energy Code states that no other values for U-factor or solar heat gain coefficient (SHGC) are allowed on the temporary labels. This restricts a manufacturer from using its own values, even when these values are on a separate label in addition to the code-compliant NFRC label or CEC-default label.

ENERGY STANDARDS HOTLINE

Available to help with Energy Code (Title 24, Part 6) questions.

EMAIL
title24@energy.ca.gov

CALL
800-772-3300 | 916-654-5106
Toll free in CA | Outside CA

HOURS 8 a.m.–12 p.m. and 1 p.m.–4:30 p.m.

The U-factor and SHGC values on the temporary NFRC labels (Figure 2) attached to each newly installed product should be checked at inspection. Temporary labels should only be removed after the building has passed inspection.

Manufacturer-generated simulated performance alternative label values should not be accepted. Manufacturer-generated values do not meet the Energy Code fenestration labeling requirements and cannot be used to verify code compliance. Please see the **CEC fenestration labeling regulatory advisory**, which still applies to the 2019 Energy Code.

 National Fenestration Rating Council® CERTIFIED	World's Best Window Co. Millennium 2000+ Vinyl-Clad Wood Frame Double Glazing • Argon Fill • Low E Product Type: Vertical Slider
ENERGY PERFORMANCE RATINGS	
U-Factor (U.S./I-P) 0.30	Solar Heat Gain Coefficient 0.30
ADDITIONAL PERFORMANCE RATINGS	
Visible Transmittance 0.51	Air Leakage (U.S./I-P) 0.2
<small>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org</small>	

Figure 2: Sample NFRC Label

For information on NFRC certification and labeling, visit the **NFRC website**.



The CEC welcomes feedback on Blueprint. Please contact the editor at: Title24@energy.ca.gov.

Certification of Mini-Split Systems and Multi-Split Systems

Mini-split systems are heating and cooling systems that allow you to control the temperatures in individual rooms or spaces.

Mini-split systems have two main components, an outdoor compressor and condensing unit, and an indoor air-handling unit (evaporator).

There are different configurations of mini-splits available. Single indoor unit mini-split systems, also called single-split systems, have one outdoor unit and a single indoor unit. Multi-head mini-split systems have one outdoor unit that serves two or more indoor units connected with a single refrigeration circuit and operate in unison in response to a single indoor thermostat. Multiple-split or multi-split systems have one outdoor unit and two or more indoor units connected with a single refrigeration circuit that operate independently in response to at least two indoor thermostats. (Figure 3)

Variable capacity heat pump (VCHP) systems are cooling and heating systems with outdoor units consisting of multiple compressors or a single variable capacity compressor. Both mini-split and multi-split systems can be VCHP systems.

A low-static VCHP system is a ducted system that has a blower and coil system that produces greater than 0.01 inch of water and a maximum of 0.35 inch of water external static pressure when operating at the cooling full-load air volume rate not exceeding 400 cubic feet per minute per rated ton of cooling.

Non-VCHP mini-split and multi-split heating and cooling systems must be certified to the CEC's **Title 20 Modernized Appliance Efficiency Database System (MAEDbS)**. Non-VCHP mini-split or multi-split systems have one, single-speed compressor. If it has only cooling capability, it must be listed in MAEDbS under "Central Air Conditioners." If it has heating only, or both heating and cooling capability, it must be listed in MAEDbS under "Central Heat Pumps."

VCHP mini-split and multi-split systems do not need to be certified to MAEDbS. However, they must be certified to the Air Conditioning, Heating, and Refrigeration Institute (AHRI) and listed in the AHRI database. The CEC issued a **regulatory advisory** for this in 2011. The advisory is effective until the model data listed with AHRI is imported into MAEDbS.

Q&A

Mini-Split and Multi-Split Performance Modeling Credit

Is there a performance compliance credit available for installation of a mini-split or multi-split system that does not have more than one compressor or a variable capacity compressor?

Yes. Mini-split and multi-split single speed systems may receive credit for having ducts entirely within conditioned space. HERS verification is required to verify that the location of the heads are completely within conditioned space.

Is there performance compliance credit available for installation of a VCHP mini-split or multi-split system?

Yes. VCHP mini-split and multi-split systems may qualify for a 5 percent cooling credit, a 12 percent heating credit, or both, when the performance method of compliance is used. HERS

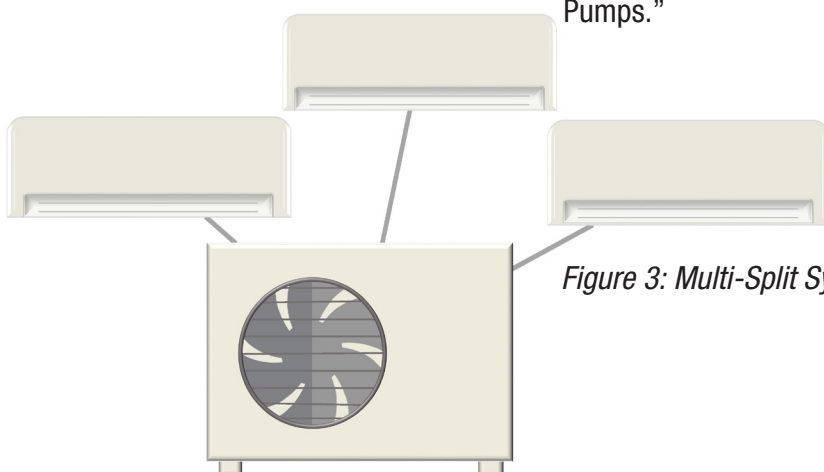


Figure 3: Multi-Split System

verification is required to confirm:

- Location of the indoor units and ducts are entirely within conditioned space
- Refrigerant charge
- Airflow to all habitable spaces either by use of a ductless indoor unit located in the room, or by use of ducts connected directly to the supply air outlet of a ducted indoor unit
- Zones greater than 150 square feet have a wall-mounted thermostat

Is there a performance compliance credit available for installation of a ducted mini-split or multi-split system?

Yes. Ducted VCHP mini-split and multi-split systems can receive the same heating and cooling efficiency credits as non-ducted VCHP systems. However, if the ducted indoor unit operates continuously by default, the credit will be lower than the credit given to ductless systems due to the additional fan power used by continuous fan operation in ducted systems. (Ductless systems do not have a fan energy penalty for continuous fan operation.) To receive the heating and cooling credits, ducted systems must be certified to the CEC by the manufacturer to be a low-static VCHP system. Note that certification to the CEC is in addition to the AHRI listing. To receive the VCHP credit, HERS verification is required for the items listed under non-ducted systems and

For additional help with the 2019 Energy Code: See Energy Code Ace's **online offerings** of trainings, tools, and resources.



the following additional items:

- Low leakage ducts located entirely inside conditioned space
- Minimum airflow rate (350 cfm/ton)
- Air filter sizing
- Air filter maximum pressure drop

Is there performance compliance credit available for ducted systems that do not operate continuously by default?

Yes. Ducted systems can receive a performance credit for reduced fan energy if the system does not operate continuously by default. To receive the credit, the manufacturer must include the non-continuous fan feature in the certification to the CEC. Certification of non-continuous fan operation is not required, but performance credit cannot be used when it is not certified. HERS verification of the fan operation is required to receive the credit. The credit for non-continuous fan operation is not available for non-ducted systems.

Information on the requirements for eligibility, verification, and how to certify ducted low-static systems to the CEC can be found on the **Ducted VCHP Certification webpage**. For more on modeling VCHP systems via the performance approach, see **Section 8.4.3 of the CBECC-Res User Manual**.

Electric Resistance Space Heating - Natural Gas Availability

Is electric resistance space heating allowed by the Energy Code when using the performance method of compliance?

Yes. Electric resistance space heating is allowed when using the performance method of compliance. However, the nonresidential standard design is based on a building using gas space heating, making compliance with electric resistance space heating very difficult. Low-rise residential standard design is based on a heat pump system.

Is electric resistance space heating allowed by the Energy Code when using the prescriptive method of compliance?

No. Electric resistance space heating is not allowed when using the prescriptive method of compliance. However, there are some exceptions for nonresidential, high-rise residential, and hotel/motel occupancies listed in **Section 140.4(g)**. There are no exceptions for low-rise residential prescriptive compliance. If electric resistance is used for low-rise residential buildings, the performance method of compliance must be used.

For nonresidential, high-rise residential, hotel and motel occupancies, Exception 5 to Section 140.4(g), what does “where natural gas is not available” mean and how is it applied to newly constructed buildings, additions, and alterations?

To address natural gas availability a definition was added to **Section 100.1** in the 2019 Energy Code: *"For newly constructed buildings, natural gas is available if a gas service line can be connected to the site without a gas main extension. For additions and alterations, natural gas is available if a gas service line is connected to the existing building."*

Is there an exception for any building occupancy allowing the use of electric resistance space heating if the authority having jurisdiction (AHJ) passes an ordinance banning or restricting the use of natural gas space heating?

No. The AHJ's decision to ban or restrict the use of natural gas does not meet the additional requirements of **Exception 5 to Section 140.4(g)**, which stipulates that the building must:

- Not be a high-rise residential or hotel/motel building
- Have a conditioned floor area no greater than 5,000 square feet
- Be in an area where a natural gas service line cannot be connected to the site without a gas main extension

Is there an alternative to electric resistance space heating if the AHJ bans natural gas?

Yes. An alternative to natural gas space heating is an electric heat pump system. Heat pumps are allowed prescriptively by the Energy Code for all building occupancies for new construction, additions, and alterations, even when natural gas is available.

How does the new definition for natural gas availability apply to low-rise residential buildings?

It mainly applies to additions and alterations, since the 2019 Energy Code allows for an all-electric pathway in newly constructed low-rise residential buildings.

Water Heater Alterations in Outdoor Closets

When replacing an existing water heater, can a heat pump water heater (HPWH) be installed in an attached outdoor closet (Figure 4) when using the prescriptive approach?

Yes. Per **Section 150.2(b)1Hiib** or **150.2(b)1Hiic**, a HPWH may be installed as long as it is not located outdoors. When placed in a closet, airflow must be provided per manufacturer's installation requirements (vents, louvers, etc.).

Can a replacement HPWH be installed in an attached outdoor closet using the prescriptive approach when the existing water heater is in another location?

Yes. Regardless of where the existing water heater is located, a replacement HPWH may be installed in an attached outdoor closet.

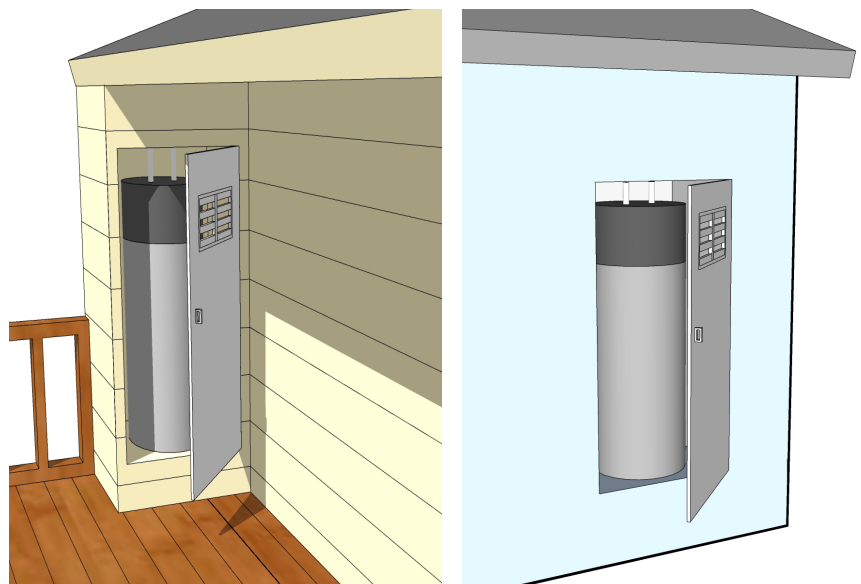


Figure 4: Water Heater Outdoor Closets

If the existing water heater uses gas, can a replacement HPWH be installed in an attached outdoor closet when using the prescriptive approach?

Yes. Regardless of the existing water heater fuel type, a replacement HPWH may be installed in an attached outdoor closet.

Can a HPWH be installed in an attached outdoor closet for newly constructed buildings or additions when using the prescriptive approach?

No. Prescriptively per **Section 150.1(c)8Aiv** or **150.1(c)8Av**, the HPWH must be located inside the building (garage, basement, attic, or conditioned space). The performance approach may be used to model the HPWH in an attached outdoor closet, which may require other efficiency trade-offs to demonstrate compliance.

Community Solar Compliance Option

Does a subdivision with 10 or more single family residences that uses an approved community solar compliance option per Section 10-115 still have to comply with the solar ready requirements for each individual residence?

Yes. In new subdivisions with 10 or more homes, the solar ready provisions of **Section 110.10** are mandatory for low-rise residential buildings that do not have an installed PV system, unless it qualifies for an exception to **Section 110.10**. This applies to low-rise multifamily buildings as well.

FOR MORE INFORMATION

Online Resource Center (ORC):
www.energy.ca.gov/orc

Home Energy Rating System (HERS):
www.energy.ca.gov/HERS

Acceptance Test Technician Certification Provider Program (ATTCP): www.energy.ca.gov/ATTCP

2019 Approved Compliance Software:
<https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency-2>

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