

# BLUEPRINT

CALIFORNIA ENERGY COMMISSION  
EFFICIENCY DIVISION

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### Snow Load and PV

The 2019 Building Energy Efficiency Standards (Energy Code) includes solar photovoltaic (PV) system requirements for all newly constructed low-rise residential buildings per **Section 150.1(c)14**. The California Building Code (CBC, Title 24, Part 2) and the California Residential Code (CRC, Title 24, Part 2.5) require PV systems, including modules, supports, and attachments, to meet the design and installation requirements for high snow loads in American Society of Civil Engineers (ASCE) Standard 7-16. Simultaneous compliance with the code requirements of the Energy Code, CBC, and CRC should be met, when feasible, in all newly constructed low-rise residential buildings.

The California Energy Commission (CEC) has confirmed that the solar PV system requirement does not apply to buildings that cannot meet the PV system structural requirements in the CBC and CRC due to high snow loads.

Site-specific conditions will determine whether a PV system can be installed safely to meet

high snow loads. Building permit applicants must address the issues under their control to meet PV system high snow load structural requirements. These include the specific characteristics of the PV modules, method of installation, roof slope and design, and PV module location.

Steps that can be taken to meet high snow load structural requirements include the following:

- Use three-rail mounting or other installation practices to make PV modules resilient to high snow loads.
- Design roof slopes and PV module locations to maximize the roof slope and allow the PV system to qualify as unobstructed slippery surfaces.
- Modify roof designs, roof locations, or PV module mounting to avoid unnecessary snow accumulation or snow sliding off the roof to undesirable locations on the site.

Local enforcement agencies should ensure that practical approaches are taken to design homes that facilitate the installation of PV systems whenever possible.

Experienced designers in high snow load areas have demonstrated that PV systems can be successfully installed with attention to all ASCE Standard 7-16 requirements. Local enforcement agencies are encouraged to provide technical assistance to ensure that designs of roofs and PV systems are modified to meet the demanding conditions of high snow loads.

The CEC recognizes that regardless of best efforts to install PV systems, building sites that receive an extreme amount of snow can have design snow load requirements that are greater than what PV modules are rated to withstand based on ASCE Standard 7-16. Additional information can be found in the **CEC staff report** on the Town of Truckee petition to the solar PV requirement.

## New Fact Sheets on ORC

New 2019 Energy Code fact sheets are available on the following Online Resource Center (ORC) web pages:

### Solar

- Solar PV System

### Overview

- Healthcare Exceptions Summary

### Covered Processes

- Commercial Kitchens
- Commercial Refrigeration
- Compressed Air Systems
- Computer Rooms & Data Centers
- Elevators
- Enclosed Parking Garages
- Escalators & Moving Walkways
- Laboratory & Factory Exhaust
- Process Boilers
- Refrigerated Warehouses

## Virtual Compliance Assistant for NRCC Forms

Announcing the **Virtual Compliance Assistant** tool provided by Energy Code Ace. This tool fills in the Nonresidential Certificate of Compliance (NRCC) forms by directing users to answer a series of simple and direct questions about the project. The tool then confirms that the project complies with the Energy Code. The tool is great for beginners and experts. It gives users the ability to work efficiently as a design project team. Some of the special features include:

- One form per building component
- Simple questions
- Tips and tricks
- Built-in compliance logic
- Guides users to enter correct information
- Requires only applicable tables
- Energy Code section references
- Save forms progress
- Assign tasks to responsible person

All 2019 NRCC forms are available with the Virtual Compliance Assistant:

- Commissioning
- Domestic Water Heating
- Envelope
- Electrical Power Distribution
- Indoor Lighting
- Mechanical
- Outdoor Lighting
- Process Systems
- Sign Lighting

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



## Updated Lighting Videos

Four newly updated 2019 Energy Code lighting videos have been added to the **ORC Lighting webpage**. These videos are designed to increase knowledge and implementation of code-compliant lighting in nonresidential and residential buildings.

### Nonresidential

- Introduction to Lighting Control Systems
- Introduction to Lighting Controls Acceptance Testing
- Introduction to Lighting Alterations

### Residential

- Overview of High Efficacy Lighting

The videos were developed by the California Lighting Technology Center (CLTC) at UC Davis with funding from Southern California Edison (SCE), in collaboration with RMS Energy Consulting, LLC, and the CEC. The videos links will open in the CLTC website.

## Accessory Dwelling Unit (ADU) Scenarios

**When building an ADU on top of an existing detached garage, is this an addition?**

Yes. Sharing a common ceiling/floor of an existing structure is considered an addition, regardless if the existing structure is an unconditioned space. Figure 1.

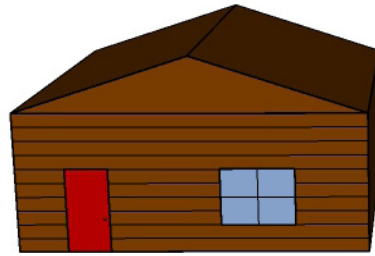


Figure 1: ADU over detached garage

**Is it still an addition if the new ADU is built side-by-side with the existing garage?**

Yes. A new ADU that shares a common wall with an existing garage is an addition. Figure 2.

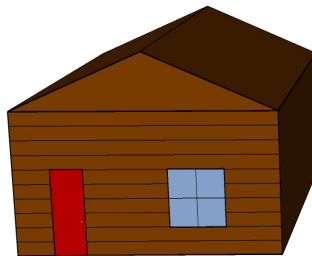


Figure 2: ADU adjacent to detached garage

**When a newly built ADU is attached to the existing home by a breezeway, or covered walkway, is this an addition?**

No. This is a newly constructed building. It does not share a common wall or common (or adjacent) ceiling/floor. Figure 3.

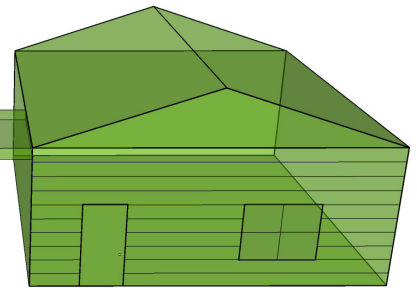
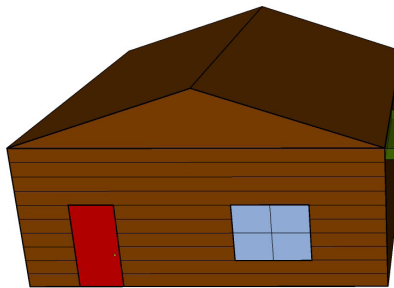


Figure 3: ADU attached with breezeway

**When converting existing conditioned space, like a conditioned basement, into an ADU or junior ADU, is this an addition?**

No. This is an alteration. Energy Code requirements may be triggered if altering a component which is covered by the Energy Code.

Some examples of alterations that are covered by the Energy Code are newly installed water heaters or mini-split HVAC systems,

lighting upgrades, changes to the building envelope, etc.

For additional ADU scenarios, see [Blueprint 122](#).



# ENERGY STANDARDS

# HOTLINE

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

## Kitchen Range Hood HERS Verification for Alterations

**Does a kitchen-only remodel require HERS verification of the kitchen range hood?**

Yes. Kitchens with range hoods which previously met the local exhaust requirements of **Section 150.0(o)2B** must continue to meet those requirements post-alteration. This requires HERS verification of the newly installed kitchen range hood.

## FOR MORE INFORMATION

**Online Resource Center (ORC):**

[www.energy.ca.gov/orc](http://www.energy.ca.gov/orc)

**Home Energy**

**Rating System (HERS):**

[www.energy.ca.gov/HERS](http://www.energy.ca.gov/HERS)

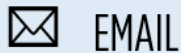
**Acceptance Test Technician Certification Provider Program (ATTCP):**

[www.energy.ca.gov/ATTCP](http://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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HOURS 8 a.m.–12 p.m. and 1 p.m.–4:30 p.m.

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