

2019 California Energy Code Low-Rise Residential Ventilation Requirements



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LA Basin ICC Chapter
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Goals For This Training

- Identify the 2019 changes to the ventilation requirements of the Energy, including:
 - Single-family ventilation requirements
 - Multifamily ventilation requirements
 - Balanced systems, exhaust only, supply only
 - Nonresidential, high-rise residential, and hotel/motel buildings, including:
 - Newly constructed buildings, and additions and alterations to existing buildings



Questions...

Please feel free to ask
at anytime:

- During class
- During breaks
- The end of class
- After class





Residential Ventilation Requirements

MANDATORY SECTIONS: 150.0(m)12, 150.0(o)

STANDARD REFERENCED: ASHRAE 62.2-2016, including Addenda b, d, l, q, and s



Mandatory HVAC Filter Requirements

§150.0(m)12

- Filters for space conditioning systems:
 - 2" depth filter: allowable pressure drop determined by the system designer
 - 1" depth filter allowed if sized according to Equation 150.0-A with maximum pressure drop of 0.1 inches of water
- Filters for ventilation systems:
 - System must be designed to accommodate the filter pressure drop determined by the system designer
- Filters must be labeled with the design airflow rate, and pressure drop at the design airflow rate

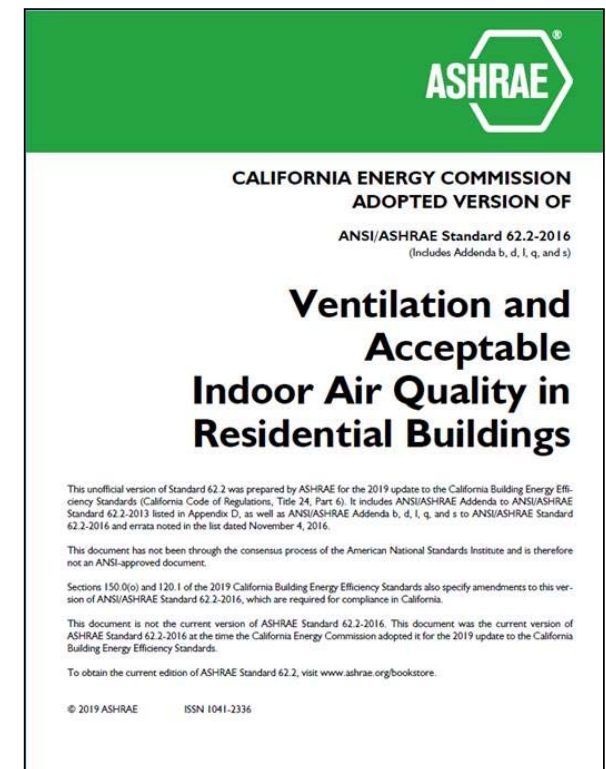




Mandatory Ventilation Requirements

§150.0(o)1

- Dwelling ventilation rates and indoor air quality aligned with ASHRAE 62.2 with California amendments:
 - Window operation is not allowed for providing ventilation
 - Continuous operation of the central system air handlers used in central fan integrated ventilation systems is not allowed.
 - Multifamily system must be one of the following:
 - Balanced ventilation system, or
 - Continuously operating supply, or continuously operating exhaust ventilation systems are allowed if the dwelling unit envelope leakage is verified by a HERS Rater to be ≤ 0.3 cfm.





Mandatory Ventilation Requirements

§150.0(o)1

Amendments to ASHRAE 62.2

- Higher ventilation rates for **single family** and multifamily buildings to meet ASHRAE 62.2-2016

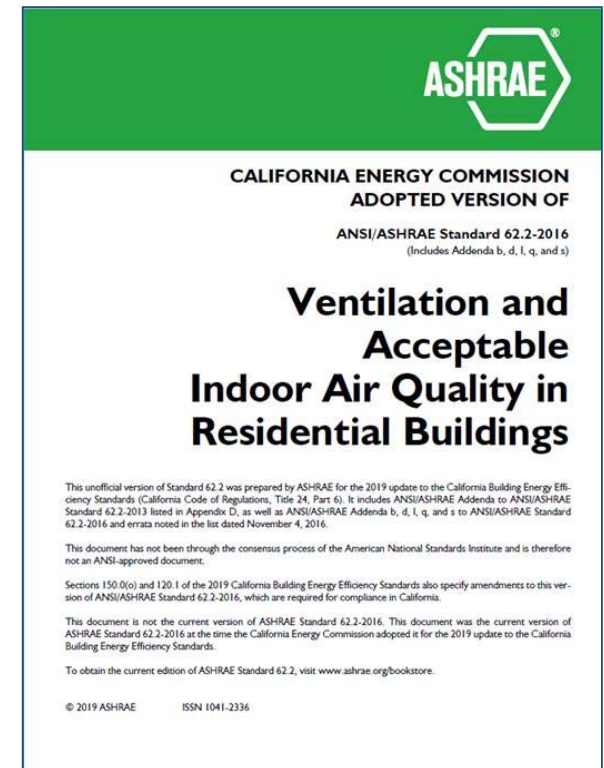
2016 equation: $Q_{tot} = 0.01 \times A_{floor} + 7.5 \times (Nbr + 1)$

2019 equation: $Q_{tot} = 0.03 \times A_{floor} + 7.5 \times (Nbr + 1)$

Q_{tot} = total required ventilation rate, cfm

A_{floor} = dwelling-unit floor area, ft²

Nbr = number of bedrooms (not to be less than 1)





Mandatory Single-Family Whole-Building Ventilation Options

§150.0(o)1

Figure 4-28: Exhaust Ventilation Example

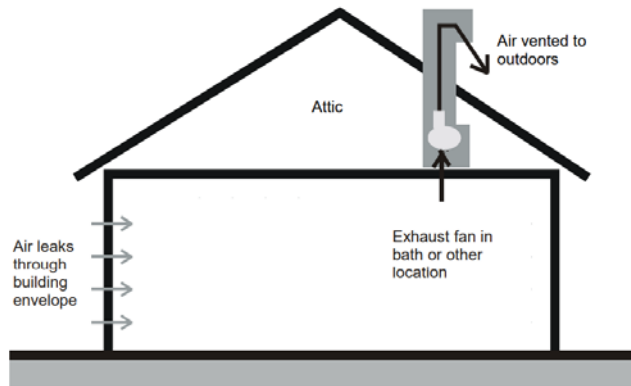


Figure 4-30: Central Fan-Integrated (CFI) Ventilation Example

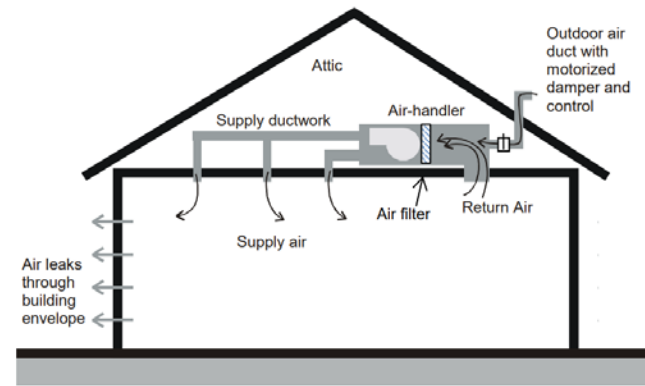


Figure 4-31: Balanced Ventilation Example 1 – HRV or ERV

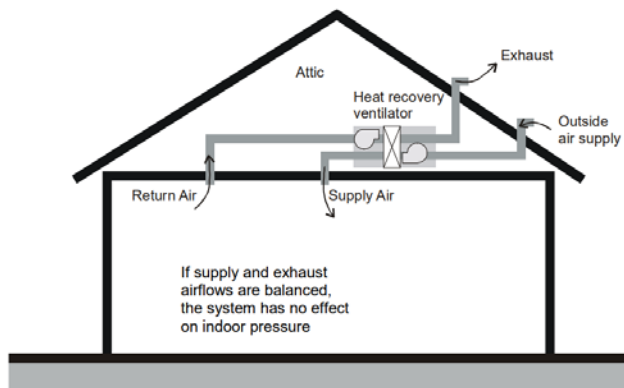
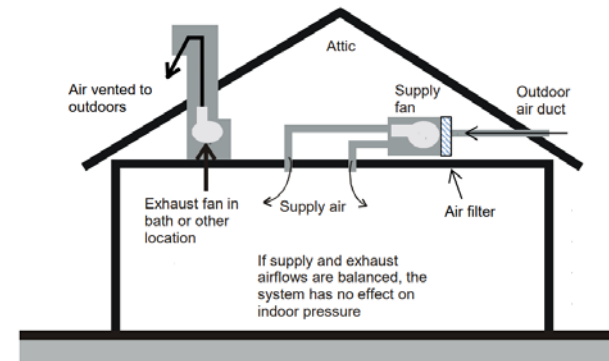


Figure 4-32: Balanced Ventilation Example 2 – Separate Supply and Exhaust Fan





Multifamily Mandatory Ventilation Requirements

§150.0(o)1D

- Multifamily dwelling units must have either:
 - **A balanced ventilation system**, or
 - Continuously operating supply or exhaust ventilation system
 - **Continuous systems require HERS verification for envelope leakage via blower door test**
 - **max leakage of 0.3 CFM @ 50Pa**





Mandatory Kitchen Ventilation Requirements

§150.0(o)2B

➤ Enclosed kitchens:

- Vented range hood with minimum airflow of 100 CFM
 - **HERS verification of range hood values with HVI**
- Other kitchen exhaust fans, including downdraft:
 - **300 CFM**, or
 - 5 ACH

➤ Nonenclosed kitchens:

- Vented range hood with minimum airflow of 100 CFM
 - **HERS verification of range hood values with HVI**
- or
- Other exhaust fans, including downdraft: **300 CFM**

➤ Kitchen exhaust fans have maximum sone rating of 3.0

- Fans over 400 CFM exempt from maximum sone requirement





Ventilation and Additions/ADUs

§150.2(a)1

- §150.2(a)1 - Prescriptive Approach
 - Mechanical ventilation for indoor air quality requirement added **for new dwelling units**
 - **New dwelling units that are additions to an existing building shall have mechanical ventilation airflow provided in accordance with one of the following sections:**
 - 150.0(o)1C for single family detached
 - 150.0(o)1E for multifamily with individual dwelling unit ventilation systems
 - 150.0(o)1F for multifamily buildings with central ventilation systems
 - **NOTE: This ventilation requirement is mandatory.**





Let's finish with some
resources...



Approved 2019 Compliance Software

- Used to demonstrate compliance with the Energy Standards when using the Performance Approach

- Residential
 - CBECC-Res 2019.1.0 approved
 - EnergyPro Version 8.0 approved

- More information at:
https://www.energy.ca.gov/title24/2019standards/2019_computer_prog_list.html



HERS Providers

- CHEERS and CalCERTS **are approved** to be HERS providers for the 2019 code
- More information at:
<https://www.energy.ca.gov/HERS/>





Blueprint

- Email Newsletter
- Published quarterly
- Clarifications on frequently asked questions
- <http://www.energy.ca.gov/efficiency/blueprint/>
- The best thing since sliced bread

Issue 115 March - April 2016

BLUEPRINT

California Energy Commission
Efficiency Division

In This Issue

- New Mechanical Acceptance Test Technician Certification Provider
- Small Duct High Velocity Space Conditioning Systems
- Demand Responsive Controls for Additions and Alterations
- Residential Water Heating Options
- EnergyPro Version 7.0
- Alternative Path for Complying with Lighting Alteration Requirements
- Lighting Standards to Save Californians More Than \$4 Billion in Electricity Costs
- Q&A
 - Illuminated Areas
 - Track Lighting Alterations
 - Compliance Documents
 - Touchscreens and Displays
 - Commissioning
- Energy Code Ace Training Schedule

New Mechanical Acceptance Test Technician Certification Provider

On January 13, 2016, the California Energy Commission (Energy Commission) approved the National Environmental Balancing Bureau (NEBB), as a mechanical Acceptance Test Technician Certification Provider (ATTCP).

This gives NEBB the authority to train, certify, and oversee acceptance test technicians (ATTs) and their employers. NEBB will train and certify ATTs to perform all 17 mechanical acceptance tests required in the 2013 Building Energy Efficiency Standards (Energy Standards).

The Conditions of Approval are available for review in the **Executive Director's recommendation**.

For more information, please visit: <http://energy.ca.gov/10624/attcp/>.

Small Duct High Velocity Space Conditioning Systems

Small duct high velocity (SDHV) systems may be used to comply with the Energy Standards. The following is a list of requirements with direction on how SDHV systems can comply with the low-rise residential requirements of the Energy Standards.

Mandatory Requirements
United States Department of Energy Standards:

SDHV systems manufactured on or after January 23, 2006, and before January 1, 2015, must have a minimum Seasonal Energy Efficiency Ratio (SEER) of 11, and a minimum Heating Seasonal Performance Factor (HSPF) of 6.8.

SDHV systems manufactured on or after January 1, 2015, must have a minimum SEER of 12, and a minimum HSPF of 7.2.

Energy Standards:

Section 150.0(m)13B - Single zone systems that use forced air ducts to supply cooled air to an occupiable space must either meet minimum airflow and fan efficacy requirements, or meet the return duct and grille sizing requirements of TABLES 150.0-C or 150.0-D.

NOTE: The return duct and grille sizing alternative will likely be the method chosen for compliance when installing a SDHV system.

Section 150.0(m)15 - Specific to systems with multiple thermostatically controlled zones, this section requires the same mandatory airflow and fan efficacy requirements as **Section 150.0(m)13B**. However, it does not have the same duct and grille sizing alternative. If such systems cannot satisfy the airflow and fan efficacy requirements of this section, compliance must be demonstrated via the performance approach.

The duct leakage and insulation requirements apply as with any other system.

Prescriptive Requirements
The refrigerant charge and duct insulation requirements apply as with any other system.



Online Resource Center (ORC)


Online Resource Center

The Online Resource Center provides educational assistance about the Building Energy Efficiency Standards to building and enforcement communities. The California Energy Commission and utilities developed the resources, which include fact sheets, energy videos, and presentations.


Expand All

- Compliance Forms +
- Energy Videos +
- Trainings and Upcoming Events +
- Exhibitor Booth Handouts +

ENERGY STANDARDS AND FORMS



2019 Building Energy Efficiency Standards



2016 Building Energy Efficiency Standards

BUILDING ENERGY EFFICIENCY STANDARDS - TITLE 24

- 2022 Building Energy Efficiency Standards
- 2019 Building Energy Efficiency Standards
- 2018 Building Energy Efficiency Standards
- Online Resource Center
- Past Building Energy Efficiency Standards

CONTACT

[Building Energy Efficiency Standards - Title 24](#)

Toll-free in California: 800-772-3300
Outside California: 916-654-5106

SUBSCRIBE


Building Energy Efficiency Standards

First Name *

Last Name *

Email *

RESOURCES AND TRAINING MATERIALS




Overview

Look for informational resources that cover multiple building components in a single document for residential and nonresidential buildings.



Commissioning

Mandatory commissioning requirements for nonresidential buildings.




Covered Processes

Mandatory and prescriptive covered processes requirements for nonresidential buildings.




Electrical Power Distribution

Mandatory electrical power distribution requirements for nonresidential buildings.



Envelope

Mandatory and prescriptive envelope requirements for residential and nonresidential buildings.



HVAC

Mandatory and prescriptive HVAC requirements for residential and nonresidential buildings.

<http://www.energy.ca.gov/title24/orc/>



Hotline

- Toll-free in California
- Open Monday through Friday
 - 8:00 a.m. to noon, and
 - 1:00 p.m. to 4:30 p.m.
- Call at:
 - 1-800-772-3300 (In CA)
 - (916) 654-5106 (Outside CA)
- Or, email at: Title24@energy.ca.gov



Thank you for your time.