Proposal Summary

2022 California Energy Code (Title 24, Part 6)

Multifamily Indoor Air Quality - Requirement for Central Ventilation Shaft Sealing

Updated: Thursday, August 15, 2019

Prepared by Marian Goebes and Gwen McLaughlin, TRC

Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during a utility-sponsored stakeholder meeting on August 22, 2019. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. To provide your comments, email info@title24stakeholders.com by September 5, 2019.

Measure Description

Require that central ventilation shafts in new construction multifamily buildings be sealed within a maximum leakage rate and tested for compliance.

Draft Code Language

The Energy Commission plans to create a multifamily chapter for inclusion in 2022 Title 24, Part 6. The multifamily chapter will draw from the appropriate sections of the 2019 residential and nonresidential Standards. The Statewide CASE Team uses the language and section numbering from residential and nonresidential Standards and Reference Appendices to show the proposed changes below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions). Expected sections or tables of the proposed code (but not specific changes at this time) are highlighted in yellow.

100.1 Definitions and Rules of Construction

ASHRAE Standard 215 is the Air-Conditioning, Heating, and Refrigeration Institute document titled *Method of Test to Determine Leakage of Operating HVAC Air-Distribution Systems*, 2018 (ASHRAE Standard 215-2018)

Section 120.1 Requirements for Ventilation and Indoor Air Quality

120.1(b)2Av. Multifamily building central ventilation systems that serve multiple dwelling-units shall be balanced to provide ventilation airflow to each dwelling-unit served at a rate equal to or greater than the rate specified by Equation 120.1-B, but not more than twenty percent greater than the specified rate. These systems shall utilize balancing means to ensure the dwelling unit airflows can be adjusted to meet this balancing requirement. These system balancing means may include but not be limited to constant air regulation devices, orifice plates, and variable speed central fans. Multifamily building central

ventilation systems shall meet the following requirement: The maximum air leakage rate of each ventilation shaft in a multifamily building shall be confirmed through field verification and diagnostic testing in accordance with applicable procedures specified in Reference Nonresidential Appendix NA1.6.XX to no more than 5 percent of the total rooftop fan flowrate.

Reference Appendices

The Statewide CASE Team will propose language to Title 24, Part 6 Nonresidential Reference Appendix NA1.6.XX for conducting the central ventilation sealing test based on ASHRAE Standard 215, *Method of Test to Determine Leakage of Operating HVAC Air-Distribution Systems*.

Proposal Summary

2022 California Energy Code (Title 24, Part 6)

Multifamily Indoor Air Quality - Prescriptive Option for Heat or Energy Recovery Ventilation in Select Climate Zones

Updated: Thursday, August 15, 2019

Prepared by Marian Goebes and Gwen McLaughlin, TRC

Introduction

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Measure Description

A prescriptive option for a heat recovery ventilator (HRV) or energy recovery ventilator (ERV) in certain climate zones.

Draft Code Language

The Energy Commission plans to create a multifamily chapter for inclusion in 2022 Title 24, Part 6. The multifamily chapter will draw from the appropriate sections of the 2019 residential and nonresidential Standards. The Statewide CASE Team uses the language and section numbering from residential and nonresidential Standards and Reference Appendices to show the proposed changes below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions). Expected sections or tables of the proposed code (but not specific changes at this time) are highlighted in yellow.

Sample language for high-rise multifamily buildings:

Section 120.1(b)2Aivb

b. The mechanical ventilation system shall comply with one of the following subsections 1, 2 or ~~2~~ 3 below. When subsection ~~2~~ 3 is utilized for compliance, all dwelling units in the multifamily building shall use the same ventilation system type.

1. ~~A~~ Dedicated balanced ventilation systems serving individual dwelling units shall provide the required dwelling-unit ventilation airflow. ~~, or~~ In climates zones 1-2, and 10-16, the dedicated dwelling unit ventilation system shall have sensible heat recovery of at least XX% at design conditions.

2. Balanced ventilation systems serving multiple dwelling units shall provide the required dwelling unit ventilation airflow. Systems serving multiple dwelling units with a total exhaust flowrate greater than the total design exhaust airflow rates in table 120.1-D, shall have an energy or heat

recovery system with a sensible heat recovery of at least XX% at design conditions. Provision shall be made to bypass or control the energy recovery system to permit air economizer operation as required by Section 140.4(e).

~~2~~ 3. Continuously operating supply ventilation systems or continuous operating exhaust ventilation systems shall be allowed to be used to provide the required dwelling unit ventilation airflow if the dwelling-unit envelope leakage is less than or equal to 0.3 cubic feet per minute at 50 Pa (0.2 in. of water) per ft2 of dwelling unit envelope surface area as confirmed by field verification and diagnostic testing in accordance with Reference Nonresidential Appendix NA7.18.2.

Table 120.1-D Exhaust Air Energy Recovery Requirements for Central Multifamily Ventilation Systems

Climate Zones	Percent Outdoor Air at Design Conditions			
	≥10% and < 20%	≥20% and < 40%	≥40% and < 60%	≥80%
	Design Airflow Rate, cfm			
1, 2				
10 - 14				
15, 16				

Sample language for low-rise multifamily buildings:

Section 150.0(o)1E

E. Multifamily attached dwelling units shall have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B [ASHRAE 62.2:4.1.1], and comply with one of the following subsections i, ii or iii below. When subsection iii below is utilized for compliance, all dwelling units in the multifamily building shall use the same ventilation system type.

i. ~~A~~ Dedicated balanced ventilation systems serving individual dwelling units shall provide the required dwelling-unit ventilation airflow. ~~, or~~ In climates zones 1-2, and 10-16, the dedicated dwelling unit ventilation system shall have sensible heat recovery of at least XX% at design conditions.

ii. Balanced ventilation systems serving multiple dwelling units shall provide the required dwelling unit ventilation airflow. Systems serving multiple dwelling units with a total exhaust flowrate greater than xxx cfm, shall have an energy or heat recovery system with a sensible heat recovery of at least XX% at design conditions. Provision shall be made to bypass or control the energy recovery system to permit air economizer operation as required by Section 140.4(e).

iii. Continuously operating supply ventilation systems, or continuously operating exhaust ventilation systems shall be allowed to be used to provide the required dwelling unit ventilation airflow if the dwelling-unit envelope leakage is less than or equal to 0.3 cubic feet per minute at 50 Pa (0.2 inch water) per ft2 of dwelling unit envelope surface area as confirmed by field verification and diagnostic testing in accordance with the procedures specified in Reference Residential Appendix RA3.8.

Table 120.1-D to be structured similar to the following from ASHRAE Standard 90.1 which uses IECC climate zones:

Table 6.5.6.1-2 Exhaust Air *Energy* Recovery Requirements for *Ventilation Systems* Operating Greater than or Equal to 8000 Hours per Year

	% *Outdoor Air* at Full Design Airflow Rate							
	≥10% and <20%	≥20% and <30%	≥30% and <40%	≥40% and <50%	≥50% and <60%	≥60% and <70%	≥70% and < 80%	≥80%
Climate Zone	Design Supply Fan Airflow Rate, cfm							
3C	NR	NR	NR	NR	NR	NR	NR	NR
0B, 1B, 2B, 3B, 4C, 5C	NR	≥19,500	≥9000	≥5000	≥4000	≥3000	≥1500	≥120
0A, 1A, 2A, 3A, 4B, 5B	≥2500	≥2000	≥1000	≥500	≥140	≥120	≥100	≥80
4A, 5A, 6A, 6B, 7, 8	≥200	≥130	≥100	≥80	≥70	≥60	≥50	≥40

NR—Not required

Proposal Summary

CALIFORNIA ENERGY CODES & STANDARDS
A STATEWIDE UTILITY PROGRAM

2022 California Energy Code (Title 24, Part 6)

Multifamily Indoor Air Quality: Kitchen Range Hood Capture Efficiency Requirement

Updated: Thursday, August 15, 2019

Prepared by Marian Goebes and Gwen McLaughlin, TRC

Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during a utility-sponsored stakeholder meeting on August 22, 2019. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. To provide your comments, email info@title24stakeholders.com by September 5, 2019.

Measure Description

A requirement that kitchen range hoods in new multifamily units meet a minimum capture efficiency.

Draft Code Language

The Energy Commission plans to create a multifamily chapter for inclusion in 2022 Title 24, Part 6. The multifamily chapter will draw from the appropriate sections of the 2019 residential and nonresidential Standards. The Statewide CASE Team uses the language and section numbering from residential and nonresidential Standards and Reference Appendices to show the proposed changes below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions). Expected sections or tables of the proposed code (but not specific changes at this time) are highlighted in yellow.

Standards

100.1 Definitions and Rules of Construction

ASTM E3087-18 is the American Society of Testing and Materials document titled "Standard Test Method for Measuring Capture Efficiency of Domestic Range Hoods", 2018

120.1 Requirements for Ventilation and Indoor Air Quality

120.1(b)2A vi. Every kitchen range shall have a vented range hood. Kitchen range hoods shall be rated for sound in accordance with Section 7.2 of ASHRAE 62.2 and rated sound shall be no greater than 3 sones at one or more airflow settings greater than or equal to 100 cfm. Kitchen range hoods shall have a rated capture efficiency of at least XX percent in accordance with ASTM E3087-18.

Exception to 120.1(b)2A vi: Alterations where a vented range hood is physically infeasible, and an unvented range hood is installed which meets the sound requirements of ASHRAE 62.2, and where the kitchen range hood has a capture efficiency of at least YY percent in accordance with ASTM E3087-18.

Section 150.0(o) Requirements for Ventilation and Indoor Air Quality

150.0(o)G. Every kitchen range shall have a vented range hood. Kitchen range hoods shall be rated for sound in accordance with Section 7.2 of ASHRAE 62.2 and rated sound shall be no greater than 3 sones at one or more airflow settings greater than or equal to 100 cfm. Kitchen range hoods in multifamily units shall have a rated kitchen range hood capture efficiency of at least xx percent in accordance with ASTM E3087-18.

Exceptions to 150.0(o)G: Alterations where a vented range hood is physically infeasible, and an unvented range hood is installed which meets the sound requirements of ASHRAE 62.2. For multifamily units: alterations where a vented range hood is physically infeasible, an unvented range hood is installed which meets the sound requirements of ASHRAE 62.2, and where the kitchen range hood has a capture efficiency of at least YY percent in accordance with ASTM E3087-18.