DOCKETED

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2019 Building Energy Efficiency Standards Lead Commissioner Hearing For 45-Day Language

California Energy Commission
Hearing Room A
(Arthur Rosenfeld Room)

February 6, 2018

Mark Alatorre, P.E.

Subchapter 3
Sections 120.0 Through 120.9

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1 – MANDATORY REQUIREMENTS FOR VENTILATION AND INDOOR AIR QUALITY

Updated the scope of this section to clarify which building types must comply with this section:

- 120.1(b) – high-rise residential
- 120.1(c) – nonresidential, hotel/motel
- Noted in 120.1(a) – healthcare facilities are subject to the ventilation requirements of the California Mechanical Code as amended by OSHPD

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(b) – High-Rise Residential Buildings

Air Filtration Requirements According to System Types

Require air filtration for:

- Ducted mechanical space conditioning systems.
- Supply ventilation systems.
- The supply side of balanced ventilation systems

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NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(b) – High-Rise Residential Buildings

Air filter sizing compliance options for space conditioning systems:

- Two-inch minimum depth filter, or
- Allow use of one-inch depth filter if:
  - The filter face area is sized to allow maximum 150 ft/min face velocity, and
  - Filters installed meet a maximum clean filter maximum pressure drop in 120.1(b)1Dii (0.1 inch water)

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§ 120.1(b) – High-Rise Residential Buildings

Increase minimum air filter particle size efficiency from MERV 6 to MERV 13

For space conditioning systems:

- 2-inch depth filter: allowable pressure drop determined by the system designer.
- 1-inch depth filter: pressure drop maximum 0.1 inches water at the design airflow rate.

For ventilation systems:

- Filter pressure drop determined by the system designer

Air Filter Product Labeling

SUBCHAPTER 3
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§ 120.1(b) – High-Rise Residential Buildings

All dwelling units shall be ventilated in accordance with ASHRAE 62.2

Amendments to ASHRAE 62.2:

- Window operation is not permissible for providing “whole-building ventilation airflow”
- Central Fan integrated ventilation is not permissible
- Assumed infiltration credit at 2 ACH50

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§ 120.1(b) – High-Rise Residential Buildings

The required ventilation rate will use ASHRAE 62.2 Section 4.1.1 and comply with one of 2 alternatives:

- Use a balanced ventilation system, otherwise
- If HERS verified enclosure leakage is ≤ 0.3 cfm per ft2 of enclosure area (blower door test), then the dwelling may use:
  - Continuously operating exhaust-only ventilation systems, or
  - Continuously operating supply-only ventilation systems.

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§ 120.1(b) – High-Rise Residential Buildings

Multifamily Building Central Ventilation Systems that serve multiple dwelling units

Ventilation airflow rates to each dwelling unit served shall be balanced to be:

- greater than or equal to ASHRAE 62.2 dwelling unit ventilation airflow rate, and
- Not more than 10% greater than the ASHRAE 62.2 dwelling unit ventilation airflow rate.

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NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(b) – High-Rise Residential Buildings

Kitchen Range hoods

HERS verification to confirm the installed range hood is rated by HVI to meet:

- The minimum ventilation airflow rate specified in Section 5 of ASHRAE 62.2 (100 cfm).
- The maximum sound rating specified in section 7.2.2 of ASHRAE 62.2 (3 sone at airflow greater than or equal to 100 cfm).

Airflow Performance

Acceptance testing for unit ventilation airflow

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(c) – NONRESIDENTIAL, HOTEL/MOTEL

Outdoor Air Treatment

- MERV 13
- At least 2 inch depth

Natural Ventilation

- Alignment with ASHRAE 62.1 Natural Ventilation Procedure

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(c) – NONRESIDENTIAL, HOTEL/MOTEL

Mechanical Ventilation

- Expanded Ventilation Rate Table
- Occupancy Categories based on ASHRAE 62.1
- Rates are based on the current rate method
- Table includes air classifications
- Alignment with ASHRAE 62.1 Exhaust Ventilation Procedure
- New Tables 120.1-A, 120.1-B and 120.1-C

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NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(d)3 – REQUIRED DEMAND CONTROL VENTILATION

New trigger for DCV for spaces with an occupant density of 25 people per 1000 ft2 with:

- An air economizer; or
- Modulating outside air control; or
- Design outside airflow rate > 3,000 cfm

Deletion of EXCEPTION 1, making DCV required for classrooms, call centers, office spaces

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.1(d)5 – OCCUPANT SENSOR VENTILATION CONTROL DEVICES

Deletion of subsections C, D and E which described the occupant sensor control requirements

The control requirements are now specified in §120.2(e)3

SUBCHAPTER 3
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§ 120.1(g) – AIR CLASSIFICATION AND RECIRCULATION LIMITATIONS

Aligned with ASHRAE 62.1

Specifies limitations of recirculation or transfer of air between air classes

Gives direction of classifying air from spaces not listed in Table 120.1-A, 120.1-B or 120.1-C

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NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.2(e)3 – OCCUPANT SENSING ZONE CONTROLS

Occupied standby (for specific spaces)

- Occupancy sensor present for lighting controls; and
- Table 120.1-A identified space as eligible;

During occupied standby

- Cooling/heating set points reset by 2º F or 0.5º F if DDC
- Zone ventilation reduced to zero while within active set points

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§ 120.2(h) – AUTOMATIC DEMAND SHED CONTROLS

Automatic Demand Shed Controls

- The entire section of 120.2(h) was moved to 110.12.

§ 120.2(i) – ECONOMIZER FAULT DETECTION AND DIAGNOSTICS (FDD)

Economizer Fault Detection and Diagnostics (FDD)

- Expanded to apply to all cooling systems greater than 4.5 tons of cooling capacity what also include an air economizer

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.3 - REQUIREMENTS FOR PIPE INSULATION, § 120.4 - REQUIREMENTS FOR AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS, § 120.5 - REQUIRED NONRESIDENTIAL MECHANICAL SYSTEM ACCEPTANCE

Clarification

- Added hot refrigerant lines under space heating systems
- Clarified the pipe insulation requirement was “minimum”
- Added exceptions for healthcare facilities where appropriate

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.6(a) – MANDATORY REQUIREMENTS FOR REFRIGERATED WAREHOUSES

Added requirements for adiabatic (hybrid) condensers:

- New design saturated condensing drybulb temperatures (dry mode):
  - 20°F for freezers
  - 20°F for coolers
- Condenser fan control
- Minimum condensing temperature ≤ 70°F

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.6(a) – MANDATORY REQUIREMENTS FOR REFRIGERATED WAREHOUSES

Added requirements for adiabatic (hybrid) condensers:

- Condensing temperature reset while operating in drymode
- Minimum Condenser efficiency while operating in drymode:
  - 45 Btuh/W for systems using halocarbon refrigerants

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.6(b) – MANDATORY REQUIREMENTS FOR COMMERCIAL REFRIGERATION

Added requirements for adiabatic (hybrid) condensers:

- New design saturated condensing drybulb temperatures (dry mode):
  - 20ºF for freezers
  - 20ºF for coolers
- Condenser fan control
- Minimum condensing temperature ≤ 70ºF

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.6(b) – MANDATORY REQUIREMENTS FOR COMMERCIAL REFRIGERATION

Added requirements for adiabatic (hybrid) condensers:

- Condensing temperature reset using variable setpoint control logic
- Minimum Condenser efficiency while operating in drymode:
  - 45 Btuh/W for systems using halocarbon refrigerants

SUBCHAPTER 3
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, HOTEL/MOTEL OCCUPANCIES—MANDATORY REQUIREMENTS

§ 120.7 – MANDATORY INSULATION REQUIREMENTS

- Minor edits made to this section to provide clarity and improve grammar/readability

How to submit written comments

- **We strongly encourage submitting written comments via e-file.** Comments on the proposed 2019 Energy Code can be submitted to: https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-02.
- Comments on the proposed 2019 CALGreen can be submitted to: https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-03.
- Comments can also be submitted physically or by e-mail, here:

California Energy Commission

Dockets Office, MS-4

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