



# ADDENDA

**ASHRAE Addendum j to  
ASHRAE Guideline 36-2018**

# High Performance Sequences of Operation for HVAC Systems

Approved by ASHRAE on January 27, 2020.

This addendum was approved by a Standing Guideline Project Committee (SGPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the guideline. Instructions for how to submit a change can be found on the ASHRAE® website ([www.ashrae.org/continuous-maintenance](http://www.ashrae.org/continuous-maintenance)).

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The Senior Manager of Standards of ASHRAE should be contacted for

- a. interpretation of the contents of this Guideline,
- b. participation in the next review of the Guideline,
- c. offering constructive criticism for improving the Guideline, or
- d. permission to reprint portions of the Guideline.

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## FOREWORD

*This addendum revises the zone ventilation control logic in Sections 5.2.1.4 for projects that are to comply with the ventilation control requirements in the California Title 24 Building Energy Efficiency Standards, in order to make the logic consistent with changes to the 2019 version of Title 24.*

*When zones are detected to be unpopulated based on occupancy sensing, Title 24 previously required the ventilation rate to be maintained at 25% of the area-based ventilation requirement. The so-called "occupied-standby mode" added to the 2019 version of Title 24 simplifies the requirement by allowing ventilation to that zone to be reduced to zero in this condition, for certain occupancy types, and makes it consistent with the requirement in ASHRAE Standard 62.1.*

*Section 3.1.1.2(b) is also revised to add an additional requirement for the designer to indicate which zones are to employ occupied-standby mode. This is analogous to the same requirement for projects complying with Standard 62.1 in Section 3.1.1.2(a)(5).*

**Note:** In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strike through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

### Addendum j to Guideline 36-2018

***Revise Section 3.1.1.2(b) as shown (I-P and SI). The remainder of the section is unchanged.***

- b. For projects complying with California Title 24 Ventilation Standards:
1. ***Vocc-min.*** Zone minimum outdoor airflow for occupants, per Title 24-~~2019~~ prescribed airflow-per-occupant requirements.
  2. ***Varea-min.*** Zone minimum outdoor airflow for building area, per Title 24-~~2019~~ prescribed airflow-per-area requirements.
  3. Indicate where occupied-standby mode is allowed based on the zone occupancy category per Title 24-2019, Table 120.1-A.

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*Occupied-standby mode applies to individual zones, is considered a zonal subset of occupied mode, and is not considered a zone-group operating mode. See Section 5.4.6 for zone group operating modes.*

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***Revise Section 5.2.1.4 as shown (I-P and SI). The remainder of the section is unchanged.***

**5.2.1.4** For compliance with California Title 24-~~2019~~, outdoor air set points shall be calculated as follows:

- a. See 3.1.1.2.2 for zone ventilation set points.
- b. Determine the zone minimum outdoor air set points Zone-Abs-OA-min and Zone-Des-OA-min.

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*Zone-Abs-OA-min is used in terminal unit sequences and air-handler sequences. Zone-Des-OA-min is used in air-handler sequences only.*

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1. Zone-Abs-OA-min shall be reset based on the following conditions in order from highest to lowest priority:
  - i. Zero if the zone has a window switch and the window is open
  - ii. ~~Zero Twenty five (25%) of Varea-min~~ Zero if the zone has an occupancy sensor and, is unpopulated, and is permitted to be in occupied-standby mode per Section 3.1.1.2(b)(3).

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*The term “populated” is used instead of “occupied” to mean that a zone occupancy sensor senses the presence of people, because the term “occupied” is used elsewhere to mean “scheduled to be occupied.”*

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- iii. Varea-min if the zone has a CO<sub>2</sub> sensor
- iv. Zone-Des-OA-min otherwise
2. Zone-Des-OA-min is equal to, in order from highest to lowest priority:
  - i. Zero if the zone has a window switch and the window is open.
  - ii. Zero ~~Twenty five (25%) of Varea-min~~ if the zone has an occupancy sensor, ~~and is unpopulated, and is permitted to be in occupied-standby mode per Section 3.1.1.2(b)(3).~~
  - iii. The larger of Varea-min and Vocc-min otherwise.
- c. The occupied minimum airflow Vmin\* shall be equal to Vmin except as noted below, in order from higher to lower priority:
  1. If the zone has an occupancy sensor and is permitted to be in occupied-standby mode per Section 3.1.1.2(b)(3), Vmin\* shall be equal to ~~zero~~25% of Varea-min when the room is unpopulated.
  2. [ . . . ]

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ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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