

STANDARD

**ANSI/ASHRAE/IES Addendum o to
ANSI/ASHRAE/IES Standard 90.1-2022**

Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE and the American National Standards Institute on March 29, 2024; and by the Illuminating Engineering Society on March 12, 2024.

This addendum was approved by a Standing Standard Project Committee (SSPC) 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 standard. Instructions for how to submit a change can be found on the ASHRAE® website (<https://www.ashrae.org/continuous-maintenance>).

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Cognizant TC: 7.6 Systems Energy Utilization

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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

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FOREWORD

This addendum clarifies the requirements for demand control ventilation when using CO₂-based controls based on an update to ASHRAE Standard 62.1. It does not affect the cost of construction.

The Standard 90.1 requirement mandating demand control ventilation (DCV) in densely occupied spaces does not specify how DCV is accomplished. ANSI/ASHRAE Standard 62.1-2022 Addendum ab provides very specific means to implement DCV using CO₂ concentration, including establishing CO₂ maximum concentrations above ambient for each occupancy type. Standard 90.1 Addendum o

- *Requires that DCV controls and sensors meet the minimum requirements of Standard 62.1 (in applications where compliance with Standard 62.1 is not already mandated)*
- *Requires that sensors and controllers be capable of and configured to maintain the maximum CO₂ concentration prescribed by ASHRAE Standard 62.1 Addendum ab. Using these maximum concentration values in DCV logic will maximize energy savings.*

ASHRAE Guideline 36 will also reference the change in Standard 62.1 Addendum ab, so the informative note below Section 6.4.3.8.2 still applies.

This addendum includes a new definition for “design minimum outdoor air rate.” This definition was initially developed for another addendum that is being developed concurrently with this addendum. The definitions are the same in both.

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

Addendum o to Standard 90.1-2022

Modify Section 3 as shown (I-P and SI).

outdoor air rate, design minimum: the lowest quantity of outdoor air an HVAC system is designed to supply to the space(s) it serves when these space(s) are occupied at design occupancy levels.

Modify Section 6.4.3.8 as shown (I-P and SI).

6.4.3.8 ~~Ventilation Controls~~ Demand Control Ventilation for High-Occupancy Areas

6.4.3.8.1 Demand control ventilation (DCV) is required for spaces larger than the floor area shown in Table 6.4.3.8 based on an occupant outdoor airflow component in cfm per 1000 ft² and served by systems with one or more of the following:

- a. Air economizer
- b. Automatic modulating control of outdoor air damper
- c. Design outdoor airflow greater than 3000 cfm

Exceptions to 6.4.3.8.1:

1. Multiple-zone systems without DDC of individual zones communicating with a central control panel.
2. Spaces where >75% of the space design outdoor airflow is required for makeup air that is exhausted from the space or transfer air that is required for makeup air that is exhausted from other spaces.
3. Spaces where Maximum CO₂ above Ambient is indicated as “NA” in Table 6-1 of ~~with one of the following occupancy categories as defined in ASHRAE Standard 62.1: correctional cells, day care sickrooms, science labs, barbers, beauty and nail salons, and bowling alley seating.~~
4. Spaces where the requirements of ASHRAE Standard 170, applicable codes, or applicable accreditation standards do not allow the reduction of outdoor airflow.

6.4.3.8.2 DCV systems shall meet the requirements of ASHRAE Standard 62.1.

6.4.3.8.3 Where CO₂ concentration is used for *DCV*, sensors and controls shall be capable of and configured to limit CO₂ concentration to C_{max} as determined in accordance with ASHRAE Standard 62.1.

6.4.3.8.4 *DCV* controls shall not cause the *outdoor air rate set point* to exceed the *design minimum outdoor air rate*.

Informative Note: ASHRAE Guideline 36 includes detailed sequences of control for CO₂-based *demand control ventilation* and how it can be implemented while complying with ASHRAE Standard 62.1.

13. NORMATIVE REFERENCES

| Reference | Section |
|----------------------------------------------------------------------|-------------------------------------------------------------|
| ASHRAE 180 Technology Parkway, Peachtree Corners, GA 30092 | |
| ANSI/ASHRAE Standard 62.1- 2019 2022 with addendum ab | Ventilation for and Acceptable Indoor Air Quality [. . .] |

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

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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