

STANDARD

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

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

Approved by the ASHRAE Standards Committee on March 27, 2024, by the Illuminating Engineering Society on March 15, 2024, and by and the American National Standards Institute on April 22, 2024.

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FOREWORD

Standard 62.1 offers two procedures for determining minimum outdoor air intake flow: the Ventilation Rate Procedure (VRP) and the Indoor Air Quality Procedure (IAQP). The IAQP can lead to a more energy efficient design (lower outdoor air requirement) by incorporating gas-phase air cleaning to offset a portion of the outdoor air requirement under the VRP.

According to Section 6.1 of Standard 62.1-2022, “although the intake airflow determined using each of these approaches [the VRP and the IAQP] may differ significantly because of assumptions about the design, any of these approaches is a valid basis for design.”

Despite these two procedures for determining minimum outdoor air intake flow for acceptable indoor air quality, Standard 90.1 Normative Appendix G requires that baseline and proposed case ventilation rates be the same. As such, Appendix G does not enable design teams using the IAQP with gas-phase air cleaning to take energy credit against a design that uses the VRP and no gas-phase air cleaning. Addendum n fixes this by doing the following:

- Introducing a new Exception 5 to Section G3.2.2.4
- Eliminating baseline case fan power adjustment for gas-phase air cleaning when applying Exception 5 to Section G3.2.2.4
- Adding a new section, “Air Cleaning” to Table G3.1 to explicitly specify that the baseline-case energy model should not include gas-phase air-cleaning system energy

This addendum impacts an optional performance path in the standard designed to provide increased flexibility and therefore was not subjected to cost-effectiveness analysis.

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 n to Standard 90.1-2022

Modify Normative Appendix G as follows, IP (and SI).

G3.2.2.4 Ventilation. Minimum ventilation system outdoor air intake flow shall be the same for the proposed design and baseline building design.

Exceptions to G3.2.2.4:

1. When modeling demand control ventilation in the proposed design in systems with outdoor air capacity less than or equal to 3000 cfm (1400 L/s) serving areas with an average design capacity of 100 people per 1000 ft² (93 m²) or less.
2. ~~When~~ Where designing systems in accordance with Standard 62.1, Section 6.2, “Ventilation Rate Procedure,” reduced ventilation airflow rates ~~may~~ are permitted to be calculated for each HVAC zone in the proposed design with a zone air distribution effectiveness (E_z) > 1.0 as defined by Standard 62.1, Table 6-24. Baseline ventilation airflow rates in those zones shall be calculated using the proposed design Ventilation Rate Procedure calculation with the following change only. Zone air distribution effectiveness shall be changed to (E_z) = 1.0 in each zone having a zone air distribution effectiveness (E_z) > 1.0. Proposed design and baseline building design Ventilation Rate Procedure calculations, as described in Standard 62.1, shall be submitted to the rating authority to claim credit for this exception.
3. Where the minimum outdoor air intake flow in the proposed design is provided in excess of the amount required by the building code or the rating authority, the baseline building design shall be modeled to reflect the greater of that required by either the rating authority or the building code and will be less than the proposed design.
4. For baseline systems serving only laboratory spaces that are prohibited from recirculating return air by code or accreditation standards, the baseline system shall be modeled as 100% outdoor air.

Table G3.1 Modeling Requirements for Calculating Proposed Building Performance and Baseline Building Performance

Proposed Building Performance	Baseline Building Performance
[...]	
19. Air Cleaning	
Where an air-cleaning system has been designed and submitted with design documents, components of the air-cleaning system shall be consistent with design documents.	Where using Exception 5 to G3.2.2.4, nonparticulate air-cleaning system energy shall not be included in the baseline building performance.

Table G3.2.2.8 Baseline Fan Brake Horsepower (Baseline Fan Motor Power)

Baseline Fan Brake Horsepower (Baseline Fan Motor Power)		
Constant-Volume Systems 3, 4, 12, and 13	Variable-Volume Systems 5 to 8	Variable-Volume System 11
[...]		

Notes:

1. Where A is calculated according to Section 6.5.3.1.1 using the pressure-drop adjustment from the *proposed design* and the design flow rate of the baseline *building system*.
2. Do not include pressure-drop adjustments for evaporative coolers or heat recovery devices that are not required in the baseline *building system* by Section G3.2.2.9.
3. Do not include pressure-drop adjustments for nonparticulate air-cleaning systems where using Exception 5 to Section G3.2.2.4.

5. Where designing systems in accordance with Standard 62.1, Section 6.3, “Indoor Air Quality Procedure,” baseline ventilation airflow rates in those zones are permitted to be greater than the *proposed design* and shall be calculated in accordance with Standard 62.1, Section 6.2, “Ventilation Rate Procedure” and the following:
 - a. For single-zone Systems 1, 2, 3, 4, 9, 10, 11, 12, 13, as specified in Table G3.1.1-4, the zone air distribution effectiveness shall be $(E_z) = 1.0$ as defined by Standard 62.1, Table 6-4.
 - b. For multizone Systems 5, 6, 7, 8, as specified in Table G3.1.1-4, the system ventilation efficiency shall be $(E_z) = 0.75$, as defined by Standard 62.1, Section 6.4.2.3.

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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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