



**BSR/ASHRAE Addendum d
to ANSI/ASHRAE Standard 62.1-2025**

Public Review Draft

Proposed Addendum d to Standard 62.1-2025, Ventilation for Acceptable Indoor Air Quality

**First Public Review (September 2026)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

The ASHRAE HVAC Systems and Equipment Handbook (2024, Chapter 19) states that duct leakage reduces a system's ability to deliver intended airflow, control contaminants, and maintain comfort. It also notes that leakage can lead to noise complaints, drafts, and visible dirt deposits around ducts and recommends duct leakage testing as a standard commissioning activity. Research Project RP-447 emphasizes that actual leakage is highly dependent on installation quality and must be verified through testing. Without mandated testing, systems specified to be sealed may still leak significantly.

Requiring duct sealing and field-verified leakage testing ensures that ventilation systems deliver the intended outdoor air to occupied spaces. This addresses a critical compliance gap by ensuring that design airflow rates are not just theoretical but are achieved in actual building operation. Properly sealed duct systems help prevent a range of IAQ-related issues, including inadequate ventilation, odors, dust accumulation, and the spread of indoor and outdoor contaminants. It also minimize infiltration from unconditioned zones and prevents pressure imbalances that can draw pollutants into occupied spaces, especially in systems with long duct runs or variable-air-volume (VAV) configurations.

Leakage testing introduces accountability into the construction process, encouraging improved workmanship. It provides an objective benchmark that verifies whether a duct system meets the performance expectations set by the designer. This directly supports the primary goal of ASHRAE 62.1.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum d to 62.1-2025

Revise Section 5.10 as follows:

5.10 Ventilation Air Distribution. Ventilating systems shall be designed in accordance with the requirements of Sections 5.10.1 through 5.10.34.

5.10.1 Designing for Air Balancing. Ventilation air distribution systems shall be provided that allow field verification of *outdoor air* intake flow (V_{ot}) during operation.

5.10.1.1 Designing for Varying Loads and Operating Conditions. The ventilation air distribution system for variable-air-volume (VAV) and multispeed constant-air-volume applications shall be provided with means to adjust the system to achieve at least the minimum ventilation airflow as required by Section 6 under any load condition or dynamic reset condition.

5.10.2 Designing for Breathing Zone Delivery. Ductwork shall be leak tested in accordance with ANSI/SMACNA 016 (2012) HVAC Air Duct Leakage Test Manual Chapter 4.

5.10.2.1 Testing Scope. Representative sections totaling not less than 10 percent of the total installed duct area shall be tested. Where the tested 10 percent fail to comply with the requirements of this section, then 40 percent of the total installed duct area shall be tested. Where the tested 40 percent fail to comply with the requirements of this section then 100 percent of the total installed duct area shall be tested. Sections shall be selected by the building owner or designated representative of the building owner. Positive pressure leakage

testing shall be permitted for negative pressure ductwork. The duct leakage class and test pressure shall be specified by the designer. The test pressure shall not be greater than the designed ductwork pressure class rating.

Informative Note: Allowable duct leakage requirements are frequently specified by energy or mechanical codes.

5.10.2.2 Allowable Leakage. The permitted duct leakage shall be not more than the following:

$$L_{max} = C_L \times P^{0.65} \tag{5-1}$$

where

L_{max} = maximum permitted leakage, cfm/100 ft² of duct surface area

C_L = duct leakage class, cfm/100 ft² of duct surface area at 1 inch of water column

P = test pressure, inches of water column

Exceptions to 5.10.2:

1. Transfer air ducts operating at less than 1 inch of water column (0.25 kPa).
2. Where duct leakage testing is performed in accordance with a method acceptable to the authority having jurisdiction.

5.10.2.3 Plenum Systems. When the ceiling or floor plenum is used both to recirculate *return air* and to distribute *ventilation* air to ceiling-mounted or floor-mounted terminal units, the system shall be engineered such that each space is provided with its required minimum ventilation airflow.

Informative Note: Systems with direct connection of ventilation air ducts to terminal units, for example, comply with this requirement.

5.10.3.4 Documentation. The design documents shall specify minimum requirements for air balance testing or reference applicable standards for measuring and balancing airflow. The design documents shall specify duct leakage and testing method consistent with Section 5.10.2. The design documentation shall state assumptions that were made in the design with respect to ventilation rates and air distribution.

Revise Section 9 as follows; renumber subsequent references:

17. SMACNA. 2020. ANSI/SMACNA 016-2012, *HVAC Duct Leakage Test Manual*, 2nd Edition. Chantilly, VA: Sheet Metal and Air Conditioning Contractors National Association.