ADDENDA

ANSI/ASHRAE Addendum h to
ANSI/ASHRAE Standard 62.1-2022

Ventilation and Acceptable Indoor Air Quality

Approved by ASHRAE and the American National Standards Institute on September 30, 2025.

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 (www.ashrae.org/continuous-maintenance).

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FOREWORD

ANSI/ASHRAE Standard 62.1, Section 8, addresses operations and maintenance of ventilation systems and related components. Ventilation systems that are not operated per design or maintained in good working condition are subject to degraded maintenance of acceptable indoor air quality (IAQ), which could potentially impact energy use.

Table 8-1 has previously duplicated or modified maintenance tasks from ANSI/ASHRAE/ACCA Standard 180, which provides maintenance tasks for HVAC systems. Addendum h adds a new Table 8-1, separate from Standard 180, that is based on the requirements of Standard 62.1 and provides facility users with a list of inspection tasks that are important to maintaining acceptable IAQ.

It is important to emphasize that this new table is based on inspection and not maintenance. The results of the inspection task may have an impact on the preventive maintenance plan or could elevate the need for service or professional support. The goals are to be IAQ focused, identify issues that may otherwise go undetected, and keep the ventilation system performing as intended.

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

Addendum h to Standard 62.1-2022

Modify Section 8 as follows.

8. OPERATIONS AND MAINTENANCE

8.1 General

8.1.1 Application. The requirements of this section apply to buildings and their ventilation systems and their components ~~constructed or renovated after the adoption date of this section~~ after placed into service.

8.1.2 Building Alterations or Change of Use. ~~When~~ Where buildings are altered or ~~when~~ where changes in building use, occupant category, significant change in occupant density, or other changes inconsistent with system design assumptions are made, the ventilation system design, operation, and maintenance shall be reevaluated and the O&M manual updated as necessary.

8.2 O&M Manual. An O&M manual, either written or electronic, shall be developed and maintained on site or in a centrally accessible location for the working life of the applicable ventilation system equipment or components. This manual shall be updated as necessary. The manual shall include the O&M procedures, ventilation system operating schedules and any changes made thereto, final design drawings, maintenance schedules based on manufacturer's instructions, and the inspection and maintenance requirements and frequencies provided in Table 8-1 and in ANSI/ASHRAE/ACCA Standard 180.

Informative Note: ANSI/ASHRAE/ACCA Standard 180, *Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems*, provides requirements for the development of a comprehensive maintenance plan for commercial HVAC systems.

8.3 Ventilation System Operation. Mechanical and natural ventilation systems shall be operated in a manner consistent with the O&M manual. Systems shall be operated such that spaces are ventilated in accordance with Section 6 during periods of expected occupancy.

8.4 Ventilation System Maintenance. The building ventilation system components shall be maintained in accordance with the O&M manual.

8.5 Ventilation System Inspection, Verification, and Validation. The building ventilation system and components shall be inspected and verified to continue to meet requirements as designed in accordance with this standard. The inspection and verification shall be performed per minimum frequencies provided in Table 8-1.

Informative Note: Tasks may need to be increased in frequency when operating in a mode that is beyond normal operation. Tasks may result in changes to the O&M manual or identification of ventilation system deficiencies that require corrective action. Failure to perform tasks, make repairs, or correct deficiencies may result in less than acceptable IAQ.

Delete Table 8-1 in its entirety and replace with the new Table 8-1 as follows. Note that for readability the text has not been underlined.

Table 8-1 Minimum Inspection, Verification, and Validation Activity and Frequency for Ventilation Systems and Associated Components

Task No.*	Relative Section	Inspection, Verification, Validation Task	Frequency
1a	4.1 6.1.4	Verify that the building is located in an area not designated as a nonattainment area. If the area has been designated as a nonattainment area, prepare and implement a plan to comply with the requirements of Section 6.1.4.	Annually
2a	5.1.2	Inspect piping and ductwork insulation system in accessible areas for integrity and signs of moisture or biological growth and repair as needed.	Annually
3a	5.4.1	Verify that no modifications to the HVAC system or the facility have been made that impact separation distances. If deficiencies are identified, document the deficiencies and undertake and document corrective actions.	Annually
4a	5.4.3 5.4.4 5.4.5	Inspect outdoor air intakes and exhaust openings, bird screens, louvers, dampers, and other attached components and ducting for rain intrusion, snow entrainment, pest intrusion, and physical condition, including the following: a. Indication of biological growth b. Indication of corrosion c. Buildup of dirt and debris d. Indication or presence of birds, insects, or other animals e. Integrity Clean and repair as needed; determine root cause and corrective actions.	Semiannually
5a	5.5 5.9	Verify air filtration fit, function, and performance. a. Verify efficiency and particulate matter rating meets or exceeds minimum requirements. b. Verify filters are correct thickness, fit, and size for housing assembly. c. Verify seal integrity so that airflow cannot bypass the filter(s). d. Verify filter scheduled replacement frequency per the O&M manual. e. Replace filters that exceed the maximum pressure drop of the filter per the O&M manual. f. Verify electronic air cleaning devices are operating in accordance with manufacturer's instructions. Repair, replace, or clean filters or assembly components as needed.	Quarterly or at scheduled replacement if sooner
6a	5.7.1 5.7.2 5.7.3 5.7.4 7.2.3	Inspect drain pans, seals, traps, pumping systems, drains and drain piping within air handling equipment, ducting, and plenums. a. Verify drain pan is positioned under water producing devices. ***Informative Note:*** The operator may check sizing per Sections 5.7.4 and 7.2.3. b. Verify drain pan slope is in direction of drain outlet. c. Inspect for biological growth, corrosion, or other debris that would prevent intended drain operation. d. Verify water drains freely out of pan and through attached drain piping. e. Verify traps, seals, and priming devices are wet and operational. f. Verify pumps are operational. g. Inspect for signs of overflow or water carryover. h. Validate shutoff devices or alarms function as intended. Clean and repair as needed; determine root cause and make corrective actions.	Semiannually

***Notes:**

1. Task numbers labeled "a" are intended as verifications (see Note 2). Task numbers labeled "b" are intended as validations (see Note 3).
2. "Verify" shall mean checking a condition through means such as visual inspection, review of documentation, reading gages, using telltales, viewing local displays, or analyzing live or trend data in a building automation system (BAS). These tasks are intended to be accomplished without special tools or specialized instrumentation and by persons without specialized training, knowledge, certifications, or licenses.
3. "Validate" shall mean taking action that requires specific tools, calibrated instrumentation, adjustments, and changes in operation and that is performed by persons needing specialized training, knowledge, certifications, or licenses.
4. If the desired results of a task cannot be verified, as described in Note 2, then the task shall be validated as described in Note 3, regardless of listed minimum frequency.

Table 8-1 Minimum Inspection, Verification, and Validation Activity and Frequency for Ventilation Systems and Associated Components *(Continued)*

Task No.*	Relative Section	Inspection, Verification, Validation Task	Frequency
7a	5.8	Inspect humidifiers and dehumidifiers. a. Verify drain components function as intended. b. Verify water feed components function as intended. c. Inspect for biological growth, corrosion, or other debris on units or associated ducting as an indication of improper operation. d. Verify humidity, dew point, or other moisture measurements are within designed ranges and associated sensors are functional. e. Verify operation of desiccant dehumidifiers per manufacturer's instructions. Clean and repair as needed; determine root cause and make corrective actions.	Semiannually
7b	5.8	Validate that humidity, dew point, and other sensors that measure moisture are calibrated and function as intended.	Every 3 years
8a	5.9.1 5.9.2	Verify operation and condition of electrical air-cleaning devices and ultraviolet devices. a. Verify operation of air-cleaning devices per manufacturer's instructions. b. Inspect for indication of lamp malfunction or ineffectiveness and determine root cause and corrective action. c. Clean lamps in accordance with manufacturer's instructions. d. Replace lamps per manufacturer's schedule or upon lamp failure.	Quarterly
9a	5.10.1.1 5.19.1 5.19.2 5.19.3	Verify that space and access is provided and is maintained unobstructed for the following areas: a. All areas necessary for air balancing, verification, and measurement of ventilation by Section 7.2.2 b. All other areas that require routine maintenance and inspection by Section 8.2 c. All components and equipment that require verification by Section 8.5 d. All sensors, instruments, and ventilation system components, controls, and equipment e. All access doors and panels i. Verify access doors and panels are functional and correctly seal when not open for testing, inspection, or maintenance. Clean, repair, and provide access as needed.	Semiannually
10a	5.10.2 5.11.1	Inspect floor, ceiling, or mechanical room plenum systems and ductwork. a. Verify that there is no biological growth, corrosion, or indication of insects or other animals. b. Verify chemicals, cleaning products or equipment, or other materials are not kept in air-handling spaces or plenums. Clean and remove foreign objects; determine root cause and make corrective actions.	Annually

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2. "Verify" shall mean checking a condition through means such as visual inspection, review of documentation, reading gages, using telltales, viewing local displays, or analyzing live or trend data in a building automation system (BAS). These tasks are intended to be accomplished without special tools or specialized instrumentation and by persons without specialized training, knowledge, certifications, or licenses.
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4. If the desired results of a task cannot be verified, as described in Note 2, then the task shall be validated as described in Note 3, regardless of listed minimum frequency.

Table 8-1 Minimum Inspection, Verification, and Validation Activity and Frequency for Ventilation Systems and Associated Components *(Continued)*

Task No.*	Relative Section	Inspection, Verification, Validation Task	Frequency
11a	5.10.3 7.2.2	Perform air balance verification. a. If occupancy or space utilization has changed, determine if airflow rates meet the requirements of this standard. i. Review design documents, most recent TAB report, and current requirements. ii. Determine if reported airflows meet design intent. b. When airflow is displayed: i. Verify outdoor airflows meet design requirements of this standard. ii. In spaces that require exhaust by Table 6-2, verify exhaust airflow is greater than supply airflow. c. Verify dynamic reset and outdoor airflow per Task No. 14a of this table. Verify CO_2 sensor calibration date and CO_2 DCV setup. a. When the time elapsed since the previous CO_2 sensor calibration date is beyond manufacturer's calibration frequency, have the sensor calibrated. b. Determine space type and design occupancy and verify maximum CO_2 limit is correctly set. c. Verify when the space is unoccupied that ventilation for the building component ventilation rate is provided or the space is in occupancy standby.	Annually
11b	5.10.3 5.18 6.2.5 6.2.6 6.2.6.1.3 6.2.5 6.2.6 7.2.2	Perform TAB air balance validation. a. Measure outdoor airflows of all units and adjust as necessary. i. Spot check space level airflows at outlets and inlets at a minimum of 20% of all zones. ii. Rebalance as necessary to achieve compliance with the design intent and this standard. iii. If occupancy or space utilization has changed and airflows no longer meets design intent or this standard, rebalance all zone and space level airflows. b. Rebalance exhaust airflows to maintain supply and exhaust relationship and pressurization requirements. c. Validate CO_2 sensor calibration date and CO_2 DCV setup. i. When CO_2 sensor calibration date is beyond manufacturer's calibration frequency, calibrate in accordance with manufacturer's instructions. d. Validate, maintain, and calibrate ventilation sensors. i. Calibrate static and differential pressure transducers used to control fan pressure, room pressure, VAV boxes, airflow, and filters. ii. Validate airflow rates of airflow sensors. Clean and calibrate airflow sensors per manufacturer's instructions.	Every 3 years
12a	5.12	Verify cooling systems maintain indoor conditions below humidity limits as referenced in Section 5.12. Make corrective actions.	Annually
13a	5.13 5.17 6.5.1.2	Verify directional airflow and building pressurization. a. Verify that zones are pressurized positively or negatively per design and that flow moves toward the exhaust. b. Verify operation of any pressure indication or measurement sensors.	Annually

***Notes:**

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2. "Verify" shall mean checking a condition through means such as visual inspection, review of documentation, reading gages, using telltales, viewing local displays, or analyzing live or trend data in a building automation system (BAS). These tasks are intended to be accomplished without special tools or specialized instrumentation and by persons without specialized training, knowledge, certifications, or licenses.
3. "Validate" shall mean taking action that requires specific tools, calibrated instrumentation, adjustments, and changes in operation and that is performed by persons needing specialized training, knowledge, certifications, or licenses.
4. If the desired results of a task cannot be verified, as described in Note 2, then the task shall be validated as described in Note 3, regardless of listed minimum frequency.

Table 8-1 Minimum Inspection, Verification, and Validation Activity and Frequency for Ventilation Systems and Associated Components *(Continued)*

Task No.*	Relative Section	Inspection, Verification, Validation Task	Frequency
14a	5.18 6.2.5 6.2.6	Verify ventilation system with variable load or dynamic reset controls. a. Inspect and test damper assemblies and adjust and repair as needed. i. Verify seals are intact, linkages and dampers operate smoothly, dampers operate full range, actuator clamps are tight on shaft, dampers close tight, and actuators modulate as intended and fail-safe on power loss. b. Inspect fan assemblies for the following. Clean, lubricate, adjust, and repair as needed. i. Belt tension and wear, sheave alignment, bearing operation ii. Fan balance, tightness, and cleanliness iii. Electrical connections, motor controllers, variable frequency drives, and other speed modulating devices c. For ventilation zones with airflow sensors, verify that zone level controls reset to changing conditions. i. Verify that zone air ventilation rates are maintained during supply fan turn-down and other reduced load conditions. ii. Verify that demand control ventilation zones respond to changes in occupancy. d. Verify that occupancy controls shut off the zone ventilation when the space is either unoccupied or in occupied standby.	Every 2 years
15a	5.20	Verify *Legionella* plan is implemented and maintained.	Annually
16a	6.3.1 6.3.3.2 7.3	For systems designed per the Indoor Air Quality Procedure (IAQP), verify if changes to occupancy, changes to space utilization, new procedures, new components, refurbishments, or renovations have been made. If so, see Task No. 16b. ***Informative Notes:*** 1. New procedures or components in the space such as new furniture, printers, computers, cleaning chemicals, or other additions could increase the compounds listed in Table 6-5. 2. Refurbishment of carpets, paint, tiles, windows, or other additions could increase the compounds listed in Table 6-5.	Every 2 years
16b	6.3.1 6.3.3.2 7.3	For systems designed per the Indoor Air Quality Procedure (IAQP), validate that concentrations of DCs and PM2.5 remain less than the design limits (DLs) per Section 6.3.1. a. Perform objective evaluation per Section 7.3.1 to verify DLs continue to be met. i. If any limit is exceeded, perform root cause analysis to determine if flow rates need adjustment or air-cleaning equipment needs repair or replacement. b. Conduct subjective evaluation of occupants per Section 7.3.2. i. Address concerns of occupants.	As required
17a	6.4.3	Verify natural ventilation controls and accessibility. a. Verify that occupant-operated natural ventilation openings are functional and accessible. b. Verify control sequences and instrumentation that automate natural ventilation openings operate during occupied periods. Validate that openings cannot be closed except during unoccupied periods or when mechanical ventilation system is active. c. Verify controls and sequences for mechanical ventilation operate when conditions for natural ventilation are inadequate.	Annually

***Notes:**

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3. "Validate" shall mean taking action that requires specific tools, calibrated instrumentation, adjustments, and changes in operation and that is performed by persons needing specialized training, knowledge, certifications, or licenses.
4. If the desired results of a task cannot be verified, as described in Note 2, then the task shall be validated as described in Note 3, regardless of listed minimum frequency.

Table 8-1 Minimum Inspection, Verification, and Validation Activity and Frequency for Ventilation Systems and Associated Components *(Continued)*

Task No.*	Relative Section	Inspection, Verification, Validation Task	Frequency
18a	6.5	Verify exhaust ventilation. a. When following the Prescriptive Compliance Path (Section 6.5.1), review design documents and most recent TAB report exhaust flow rates. i. Determine if exhaust airflow rates are per Tables 6-2 and 6-3. ii. If occupancy or space utilization has changed, identify new exhaust rates. b. When following the Performance Compliance Path (Section 6.5.2), review design documents to determine that expected contaminants and mixtures of concern have not changed. i. Verify that exhaust monitoring and control system are detecting and maintaining concentrations below limits. For systems equipped with airflow sensors verify design airflow rates are maintained. ii. If occupancy or space utilization has changed identify new contaminants or mixtures of concern, concentration limits, and exhaust flow rates. c. If concentration levels, airflow rates, or pressurization requirements are not being maintained per design, perform the necessary actions described in Task No. 11b of this table.	Annually

***Notes:**

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3. "Validate" shall mean taking action that requires specific tools, calibrated instrumentation, adjustments, and changes in operation and that is performed by persons needing specialized training, knowledge, certifications, or licenses.
4. If the desired results of a task cannot be verified, as described in Note 2, then the task shall be validated as described in Note 3, regardless of listed minimum frequency.

Add the following reference to Section 9.

ANSI/ASHRAE/ACCA Standard 180 (2018)
Standard Practice For Inspection And Maintenance Of Commercial Building HVAC Systems
Tables 5.1–5.25, Section 8.2

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.

ASHRAE · 180 Technology Parkway · Peachtree Corners, GA 30092 · www.ashrae.org

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