



**BSR/ASHRAE/ASHE Addendum d
to ANSI/ASHRAE/ASHE Standard 170-2017**

Public Review Draft

**Proposed Addendum d to
Standard 170-2017, Ventilation of
Health Care Facilities**

**Second Public Review (September 2019)
(Draft Shows Proposed Independent Substantive
Changes to Previous Public Review Draft)**

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at www.ashrae.org/standards-research--technology/public-review-drafts and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at www.ashrae.org/bookstore or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

This standard is under continuous maintenance. To propose a change to the current standard, use the change submittal form available on the ASHRAE website, www.ashrae.org.

The appearance of any technical data or editorial material in this public review document does not constitute endorsement, warranty, or guaranty by ASHRAE of any product, service, process, procedure, or design, and ASHRAE expressly disclaims such.

© 2019 ASHRAE. This draft is covered under ASHRAE copyright. Permission to reproduce or redistribute all or any part of this document must be obtained from the ASHRAE Manager of Standards, 1791 Tullie Circle, NE, Atlanta, GA 30329. Phone: 404-636-8400, Ext. 1125. Fax: 404-321-5478. E-mail: standards.section@ashrae.org.

ASHRAE, 1791 Tullie Circle, NE, Atlanta GA 30329-2305

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

This proposed addendum adds requirements and language similar to those required in Section 5 (Systems and Equipment) of ASHRAE Standard 62.1. Requirements include:

- 1. Air intake separation distance table adapted for 170 requirements.*
- 2. Outdoor air verification requirements while operating.*
- 3. Measures to prevent vehicle combustion in parking garages from entering the building.*
- 4. Air balancing requirements.*

[Note to Reviewers: This public review draft makes proposed independent substantive changes to the previous public review draft. These changes are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the previous draft 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 substantive changes.]

Addendum d to 170-2017

Modify 6.3 Outdoor Air Intakes and Exhaust Discharges as shown below. The remainder of Section 6.3 is unchanged.

6.3.1 Outdoor Air Intakes

6.3.1.1 General. Outdoor air intakes for AHU shall be located such that the shortest distance from the intake to any specific potential outdoor contaminant source shall be equal to or greater than the separation distance listed in Table 6.3.1.1 and comply with all other requirements of this section. New facilities with moderate-to-high risk of natural or man-made extraordinary incidents shall locate air intakes away from public access. All intakes shall be designed to prevent the entrainment of wind-driven rain, shall contain features for draining away precipitation, and shall be equipped with a birdscreen of mesh no smaller than 0.5 in. (13 mm).

Exception 1 to 6.3.1.1: For gas fired, packaged rooftop units, the separation distance of the unit's outdoor air intake from its flue may be less than 25 ft (8 m). The separation distance shall be greater than or equal to the distance prescribed in ANSI/ASHRAE Standard 62.1, Section 5.5.1.2.

Exception 2 to 6.3.1.1: For plumbing vents terminating with stack-type air admittance valves installed less than 3 feet (1m) above the level of the outdoor air intake the minimum separation distance may be 10 feet (3 m). For plumbing vents terminating with stack-type air admittance valves installed at least 3 feet (1m) above the level of the outdoor air intake the minimum separation distance may be 3 feet (1 m).

Exception 3 to 6.3.1.1: If permitted by the AHJ based on an engineering analysis of reentrainment, separation distances may be decreased below table 6.3.1.1 values for cooling towers and exhaust and vent

discharges and an alternate location may be used. The submitted reentrainment analysis shall demonstrate that an exhaust discharge outlet located at a distance less than required by table 6.3.1.1 provides a lower concentration of reentrainment than all the areas located at a distance greater than required by table 6.3.1.1 on the roof level where the exhaust discharge is located.

(**Informative Note:** e.g., located adjacent to an air intake but with the exhaust discharge point above the top of the air intake)

~~**6.3.1.1.1 Exhaust/Relief Outlets.** Separation criteria for required exhaust from Table 7.1, 8.1, or 9.1, Class 2, and Class 3 exhaust/relief outlets applies to the distance from the outdoor air intakes for one ventilation system to the exhaust outlets and relief outlets for any other ventilation system.~~

Table 6.3.1.1 Air Intake Minimum Separation Distance

<u>Object</u>	<u>Potential Outdoor Contaminant Source</u>	<u>Minimum Distance, ft (m)</u>
Class 2 air exhaust/relief outlet		10 (3)
Required exhaust from ASHRAE 62.1 Table 6.5 or other codes		25 (7.5)
Required exhaust from Table 7.1, 8.1, or 9.1 or Class 3 air exhaust/relief outlet		25 (7.5)
Required exhaust from Section 6.3.2.2 or Class 4 air exhaust/relief outlet		30 (10)
Plumbing vents terminating less than 3 ft (1 m) above the level of the outdoor air intake		20 (6) 25 (7.5)
Plumbing vents terminating at least 3 ft (1 m) above the level of the outdoor air intake		6 (1.9)
Vents, chimneys, and flues from combustion appliances and equipment		25(7.5)
Garage Entry, automobile loading area, or drive-in queue		15 (5) See Note 1
Truck loading area or dock, bus parking/idling area		25 (7.5) See Note 1
Driveway, landscaped grade, sidewalk, street, or parking place directly below intake		6 (1.9) 5 (1.6)
Thoroughfare with high vehicle traffic volume		25 (7.5) See Note 1
Roof or other above-grade surface directly below intake		3 (1)
Garbage storage/pick-up area, dumpsters		15 (5) See Note 1
Cooling tower intake or basin		15 (5)
Cooling tower exhaust, intake, or basin		25 (7.5)

Note 1: Refer to ANSI/ASHRAE 62.1, Table 5.5.1¹.

~~**6.3.1.2 Outdoor Air Ventilation System Controls.** Mechanical ventilation systems shall include controls in accordance with the following subsections. **Air-Handling System Controls.** Provide air-handling systems and equipment with manual or automatic controls to maintain the required space minimum outdoor airflow and space minimum total air changes per hour under all design conditions, including any space unoccupied turndown conditions.~~

6.3.1.2.1 All systems shall allow for field verification of outdoor air intake flow during operation and be provided with manual or automatic controls to maintain not less than the outdoor air intake flow required by Section 7, Section 8, and Section 9 under all load conditions or unoccupied turndown conditions.

~~**6.3.1.2.2** Systems with fans supplying variable primary air including single zone VAV and multiple zone recirculating VAV systems, shall be provided with any combination of control equipment, methods, or devices to maintain no less than the outdoor air intake flow required for compliance with section 6.3.1.2.1.~~

6.3.1.3 Relief Air. Relief air is exempt from the 25 ft (8.75 m) separation requirement. Relief air is defined as air that could be returned to the air-handling unit from the occupied spaces but is being discharged to the outdoors to maintain building pressurization (such as during air-side economizer operation).

Informative Note: For more information, see ASHRAE Standard 62.1 (ASHRAE 2016a) in Appendix B.

6.3.1.4 Areaways. [...]

6.3.2 Exhaust Discharges

[...]

6.3.2.3 Buildings Health Care Facilities with attached Parking Garages. In order to ~~limit~~ minimize the entry of vehicular exhaust into occupiable spaces, ~~buildings Health Care Facilities with attached parking garages shall be designed to~~ comply with ANSI/ASHRAE Standard 62.1, Section 5.15¹.

- ~~a. Maintain the garage pressure at or below the pressure of the adjacent occupiable spaces.~~
- ~~b. Use a vestibule between the garage and the adjacent occupiable spaces, or~~
- ~~c. Otherwise migration of air from the attached parking garage into the adjacent occupiable spaces of the building in a manner acceptable to the authority having jurisdiction.~~

6.3.3 Combustion Air. Fuel-burning appliances, both vented and unvented, shall ~~be provided with air for combustion and removal of combustion products in accordance with manufacturer instructions. Products of combustion from vented appliances shall be vented directly outdoors.~~ comply with ANSI/ASHRAE Standard 62.1, Section 5.7¹.

Modify Section 6.7.6 Air Balancing as shown below.

6.7.6 Air Balancing

6.7.6.1 Designing for Air Balancing. The ~~ventilation~~ air distribution system shall be provided with means to adjust the system to achieve at least the minimum ~~ventilation~~ outdoor airflow and the minimum total air changes per hour as required by Section 7, Section 8, and Section 9 under any load condition.

6.7.6.2 Plenum Systems. When the ceiling or floor plenum is used to recirculate return to ceiling-mounted or floor-mounted terminal units the plenum system shall not be used to distribute ~~outside~~ outdoor air.

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

6.7.6.3 Documentation. The design documents shall specify minimum requirements for air balance testing or reference applicable national standards for measuring and balancing airflow. ~~Design criteria that were used in the design with respect to ventilation rates and air distribution shall be made available to the Authority Having Jurisdiction upon request.~~

6.7.7 Building Exfiltration. Outdoor Air ventilation systems for a building shall be designed such that the total building outdoor air intake equals or exceeds the total building exhaust under all load and unoccupied turndown conditions.

Exceptions: Where an imbalance is required by process considerations and approved by the authority having jurisdiction.

Modify Section 6.9 Insulation and Duct Lining as shown below.

6.9 Insulation and Duct Lining

- a. Pipes, ducts, and other surfaces within the building whose surface temperatures are expected to fall below the surrounding dew-point temperature shall be insulated to prevent condensation and provided with an exterior vapor barrier. A vapor barrier is not required for insulation materials that do not absorb or transmit moisture.
- b. Existing insulation and duct lining accessible during a renovation project shall be inspected, repaired, and/or replaced as appropriate.
- c. Duct lining shall not be used in ductwork located down-stream of Filter Bank No. 2. Duct lining with an impervious cover may be allowed in terminal units, sound attenuators, and air distribution devices downstream of Filter Bank No. 2. This lining and cover shall be factory installed.
- d. Duct lining shall not be installed within 15 ft (4.57 m) downstream of humidifiers.