



**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**

**First Public Review (February 2019)  
(Draft shows Proposed Changes to Current Standard)**

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## 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 addendum makes proposed changes to the current standard. 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 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 170-2017

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***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 AHUs shall be located a minimum of 25 ft (8 m) from cooling towers and all exhaust and vent discharges. Outdoor air intakes shall be located such that the bottom of the air intake is at least 6 ft (2m) above grade. 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 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.

**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**

Object	Minimum Distance, ft (m)
Class 2 air exhaust/relief outlet	10 (3)
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)
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)
Truck loading area or dock, bus parking/idling area	25 (7.5)
Driveway, landscaped grade, street, or parking place	6 (1.9)
Thoroughfare with high vehicle traffic volume	25 (7.5)
Roof or other above-grade surface directly below intake	3 (1)
Garbage storage/pick-up area, dumpsters	15 (5)
Cooling tower intake or basin	15 (5)
Cooling tower exhaust	25 (7.5)

**6.3.1.2 Outdoor Air Ventilation System Controls.** Mechanical ventilation systems shall include controls in accordance with the following subsections.

**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.

~~6.3.1.26~~**6.3.1.3 Relief Air.** Relief air is exempt from the 25 ft (8 m) separation requirement. Relief air is defined as the Class 4 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.

~~6.3.1.3~~**Roof Locations.** Intakes on top of buildings shall be located with the bottom of the air intake a minimum of 3 ft (1 m) above roof level.

**6.3.1.4 Areaways.** [...]

**6.3.2 Exhaust Discharges**  
[...]

**6.3.2.3 Buildings with attached Parking Garages.** In order to limit the entry of vehicular exhaust into occupiable spaces, buildings with attached parking garages shall be designed to

- a. Maintain the garage pressure at or below the pressure of the adjacent occupiable spaces.
- b. Use a vestibule to provide an airlock between the garage and the adjacent occupiable spaces, or
- c. Otherwise limit 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.

**Add new Section 6.7.6 Air Balancing and 6.7.7 Building Exfiltration 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 airflow 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 air.

**Informative Note:** Systems with direct connection of ventilation 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. ~~An exterior vapor barrier shall be provided for insulation on cold surfaces.~~ 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.