BSR/ASHRAE/ASHE Addendum w
to ANSI/ASHRAE/ASHE Standard 170-2021

Public Review Draft

Proposed Addendum w to Standard 170-2021, Ventilation of Health Care Facilities

First Public Review (April 2025)
(Draft shows Proposed Changes to Current Standard)

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FOREWORD

Bronchoscopy procedures are performed in many locations depending on clinical need, which may mean that they are not performed under ventilation conditions currently specified in ASHRAE/ASHE 170 (i.e., for patients in an ICU setting who cannot be moved or in an operating room as needed by a patient undergoing surgery). The listing in ASHRAE/ASHE 170 should specify the minimum requirements for ventilation provided in a room designed as a dedicated space for performing bronchoscopies (and/or other procedures such as endoscopy, which may be performed in a negative pressure environment). This addendum adds the word "room" after Bronchoscopy in the Tables 7-1 and 8-1, as well as where rooms for bronchoscopy are mentioned in the text. Additionally, reference to bronchoscopy rooms was removed from footnote p for Tables 7-1 and 8-1, as it was deemed unnecessary.

Sputum collection and pentamidine administration are currently included on the same line as bronchoscopy in Table 7-1. These cough-inducing or aerosol-generating procedures, as indicated by FGI, require ventilation precautions for patients that may have infectious Mycobacterium tuberculosis*. Healthcare facilities do not typically design spaces or rooms dedicated to either of these procedures. Prior to sputum collection, facilities should operationalize administrative, environmental, and respiratory-protection controls for inpatient settings in which patients with suspected or confirmed infectious TB disease are expected to be encountered per CDC Guidelines[1]; primary environmental controls using source control (e.g., hoods, tents, or booths) with local exhaust are preferrable to secondary controls such as using a specially designed room (e.g., AII room). Pentamidine administration is no longer common, but when it is used, CDC Guidelines[1] indicate screening protocols for TB and alternate treatment. This addendum removes "sputum collection and pentamidine administration" from tables and text and modifies Bronchoscopy Room notes to indicate that local exhaust be provided for sputum collection for patients with suspected or confirmed tuberculosis.*

Due to equivalency in ventilation specifications for airborne infection control, AII rooms and Bronchoscopy rooms require a dedicated exhaust stream (i.e., AII Room Air Exhausted Directly to Outdoors), which can be shared among these room types. This proposed addendum adds language to indicate that the Exception to 6.3.2.2(a) for HEPA filtration applies to both of these airborne infection control room types, not just AII rooms.

[1]Centers for Disease Control and Prevention. Guidelines for preventing the transmission of Mycobacterium tuberculosis in health-care facilities, 2005. MMWR 2005;54 (No. RR-17).

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by <u>underlining</u> (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 w to 170-2021

Revise Section 6.3.2 as shown.

6.3.2 Exhaust Discharges

6.3.2.1 General. Exhaust discharge outlets that discharge air from AII rooms, bronchoscopy rooms, ~~and sputum collection and pentamidine administration~~, emergency department public waiting areas, nuclear medicine hot labs, radiology waiting rooms programmed to hold patients who are waiting for chest x-rays for diagnosis of respiratory disease, pharmacy hazardous-drug exhausted enclosures, and laboratory work area chemical fume hoods shall

a. be designed so that all ductwork within the building is under negative pressure.

Exception to 6.3.2.1(a): Ductwork located within mechanical equipment rooms. Positive- pressure exhaust ductwork located within mechanical equipment rooms shall be sealed in accordance with SMACNA duct leakage Seal Class A[2].

b. be located such that they reduce the potential for the recirculation of exhausted air back into the building.

6.3.2.2 Additional Requirements

a. Exhaust discharge outlets from AII rooms, bronchoscopy rooms, ~~and sputum collection exhaust,~~ pharmacy hazardous-drug exhausted enclosures, and laboratory work area chemical fume hoods shall additionally be arranged to discharge to the atmosphere in a vertical direction (with no rain cap or other device to impede the vertical momentum) and meet the following:

1. A discharge termination shall be a minimum of 10 ft (3 m) above service access level.

2. Discharge termination shall be higher than any roof surface within 4 ft (1.2 m).

3. Discharge termination shall be a minimum of 6 ft (1.8 m) from exterior walls.

4. Discharge termination shall be a minimum of 30 ft (10 m) from outdoor air intakes, openable windows/doors, and areas that are normally accessible to the public.

Exception to 6.3.2.2(a):

1. AII room and bronchoscopy room exhaust that first passes through a high-efficiency particulate air (HEPA) filter.

2. If permitted by the AHJ, an alternate location may be used (Informative Note: e.g., located adjacent to an air intake but with the exhaust discharge point above the top of the air intake). The submitted re-entrainment analysis shall demonstrate that an exhaust discharge outlet located at a distance less than 30 ft (10 m) horizontally provides a lower concentration of re-entrainment than all the areas located at a distance greater than 30 ft (10 m) horizontally on the roof level where the exhaust discharge is located.

Revise Section 6.8.3 as shown.

6.8 Energy Recovery Systems

6.8.3 Energy Recovery Systems with Leakage Potential. If energy recovery systems with leakage potential are used, they shall be arranged to minimize the potential to transfer exhaust air directly back into the supply airstream. Energy recovery systems with leakage potential shall be designed to have no more than 5% of the total supply airstream consisting of exhaust air. Energy recovery systems with leakage potential shall not be used from these exhaust air- stream sources: emergency department waiting rooms, triage, emergency department decontamination, radiology waiting rooms, darkroom, bronchoscopy rooms, ~~sputum collection and pentamidine administration,~~ laboratory fume hood and other directly ducted laboratory equipment exhaust, waste anesthesia gas disposal, autopsy, nonrefrigerated body holding, endoscope cleaning, central medical and surgical supply soiled or decontamination room, laundry general, hazardous

material storage, dialyzer reprocessing room, nuclear medicine hot lab, nuclear medicine treatment room, and any other space identified by the AHJ or the infection control risk assessment (ICRA) team.

Revise Table 7-1 Design Parameters – Inpatient Spaces as shown.

Function of Space (ee)	
DIAGNOSTIC AND TREATMENT	
Bronchoscopy room, ~~sputum collection, and pentamidine administration~~ *(FGI 2.2–3.9.2)* (n), (x)	

Revise Normative Notes for Table 7-1 as shown.

p. ~~Treatment rooms used for bronchoscopy shall be treated as bronchoscopy rooms.~~ Treatment rooms used for procedures with nitrous oxide shall contain provisions for exhausting anesthetic waste gases.

x. If the planned space is designated in the organization's operational plan to be used for both bronchoscopy and gastrointestinal endoscopy, the design parameters for "bronchoscopy room~~, sputum collection, and pentamidine administration~~" shall be used.

Revise Section 7.2.1 as shown.

7.2 Additional Room-Specific Requirements

7.2.1 Airborne Infection Isolation (AII) Rooms.

…

b. All exhaust air from the AII rooms, associated anterooms, and associated toilet rooms shall be discharged by one of the following methods:

1. Discharged directly to the outdoors mixing only with exhaust from other spaces designed for airborne infection control (e.g., AII rooms, bronchoscopy rooms, emergency department waiting areas). Air shall not be mixed ~~without mixing~~ with exhaust air from any other non-~~AII~~ airborne infection control room or general exhaust system.
2. Discharged into the general exhaust stream, provided the AII exhaust air first passes through a HEPA filter. The HEPA filter, including ductwork and fans, shall be under negative pressure (suction side) for any supplemental fan used to account for filter pressure drop, and all exhaust ductwork shall be kept under negative pressure in accordance with Section 6.3.2.1. (Informative Note: If fans are used/needed due to static pressure drop of HEPA filtration, consideration should be given to the fan operation being inter- locked with the general exhaust system fan. Alarms for filter loading and fan failure should be considered.)

Revise Section 7.3.1 as shown.

7.3 Support Spaces

7.3.1 Bronchoscopy Room

a. Differential pressure between bronchoscopy room ~~procedure and sputum induction rooms~~ and any adjacent spaces that have other functions shall be a minimum of –0.01 in. of water (–2.5Pa).

~~b. Local exhaust shall be provided for sputum collection procedures.~~

Revise Table 8-1 Design Parameters – Specialized Outpatient Spaces as shown.

DIAGNOSTIC AND TREATMENT
…
Bronchoscopy room *(FGI 2.1–3.2.2.1)* (n) (x)

Revise Normative Notes for Table 8-1 as shown.

h. If the planned space is designated in the organization's operational plan to be used for both bronchoscopy and gastrointestinal endoscopy, the design parameters for "bronchoscopy room, ~~sputum collection, and pentamidine administration~~" shall be used.

…

p. ~~Treatment or procedure rooms used for bronchoscopy shall be treated as bronchoscopy rooms.~~ Treatment or procedure rooms used for procedures with nitrous oxide shall contain provisions for exhausting anesthetic waste gases.

Revise Section 8.2.1 as shown.

8.2 General Outpatient Facility Requirements.

8.2.1 Bronchoscopy Room

a. Differential pressure between bronchoscopy room ~~procedure and sputum induction rooms~~ and any adjacent spaces that have other functions shall be a minimum of –0.01 in. of water (–2.5 Pa).

~~b. Local exhaust shall be provided for sputum collection procedures~~