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

Public Review Draft

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

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

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.

ASHRAE, 180 Technology Parkway NW, Peachtree Corners, GA 30092

(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 follows up on action earlier this year when the committee addressed research supporting changes stemming from ASHRAE .CO-RP-03 Academic Research to Support Facilities Guidelines Institute & ANSI/ASHRAE/ASHE Standard 170 published in 2019. This research determined that the definitive value of 20 ACH for operating rooms was not scientifically justified, but could also not be rejected either.

A group of clinicians, engineers, researchers, and facilities managers has since implemented a future work research task from CO-RP-03 that focused on collecting operating test and balance data and compared those against published SSI rates for the corresponding hospital.

The research team collected test and balance data from 45 hospitals that contain 521 operating rooms from three geographically diverse health systems with the key results determining that increased ventilation does not lead to reduced SSI and leads to a marginal increase in SSI rates.

Accordingly, SSPC 170 reviewed the research and recommends that prior to performing operational adjustments to Operating Room space ventilation, a risk assessment should be completed and have added a footnote to Tables 7-1 and 8-1 as noted below.

[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 y to 170-2021

Revise Tables 7-1 & 8-1 as noted below. The remainder of Tables 7-1 & 8-1 are unchanged.

Table 7-1 Design Parameters—Inpatient Spaces

Function of Space (ee)	Pressure Relationship to Adjacent Areas (n)	Minimum Outdoor ach	Minimum Total ach	All Room Air Exhausted Directly to Outdoors (j)	Air Recirculated by Means of Room Units (a)	Unoccupied Turndown	Minimum Filter Efficiencies (cc)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
NURSING UNITS AND OTH & ER PATIENT CARE AREAS									
Cesarean Delivery room *(FGI 2.2–2.9.11.1)* (m), (o)	Positive	4	20 (mm)	NR	No	Yes	MERV-16	20–60	68–75/20–24
Operating room *(FGI 2.2–3.3.3)* (m), (o)	Positive	4	20 (mm)	NR	No	Yes	MERV-16 (hh)	20–60	68–75/20–24
Class 3 imaging room (FGI 2.2–3.4.1.2 & Table 2.2-2) (m), (o)	Positive	4	20 (mm)	NR	No	Yes	MERV-16 (hh)	20-60	68-75/21-24

hh. See also Section 7.4.1(c).

ii. A minimum MERV-8 filter may be utilized for this space in lieu of a minimum MERV-14 filter if all room air is exhausted directly to the outdoors and the pressure relationship to adjacent areas is kept negative. If a filter rated less than MERV-14 is utilized, the space shall be considered "Negative" with regards to the table and must comply with all other requirements for negative spaces within the standard

jj. Negative pressure and room exhaust is required if open mixing of isotopes or gaseous studies are performed as a part of nuclear treatment procedures within the imaging room. See also Section 7.7 (Informative Note: Open mixing of isotopes, when performed, is typically performed in the hot lab.)

kk. The facility governing body shall inform design engineers relating to room function or use (which function is applicable) for Class 1, Class 2, or Class 3 imaging rooms.

ll. In accordance with FGI 2.1-5.1.2.1, one-room sterile processing facilities are permitted only under certain circumstances.

mm. Prior to performing operational adjustments to space ventilation, a risk assessment shall be completed. Risk assessment and operational criteria shall be documented in a ventilation management plan (VMP). ***Informative Note:*** See ASHRAE/ ASHE Guideline 43 for further guidance.

Table 8-1 Design Parameters—Specialized Outpatient Spaces

Function of Space (f)	Pressure Relationship to Adjacent Areas (n)	Minimum Outdoor ach	Minimum Total ach	AII Room Air Exhausted Directly to Outdoors (j)	Air Recirculated by Means of Room Units (a)	Minimum Filter Efficiencies (c)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
SURGERY AND EMERGENCY DEPARTMENT (ED)								
Delivery (Caesarean) *(FGI 2.1–3.2.3)* (m), (o), (v), (gg)	Positive	4	20 (ll)	NR	No	MERV-16 (dd)	20–60	68–75/20–24
Operating room *(FGI 2.1–3.2.3)* (m), (o), (v), (gg)	Positive	4	20 (ll)	NR	No	MERV-16 (dd)	20–60	68–75/20–24
Class 3 imaging room (FGI 2.1–3.5.2.4[1][b][ii]) (m), (o), (ff)	Positive	4	20 (ll)	NR	No	MERV-16 (dd)	20-60	68-75/20-24

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.
q. In a recirculating ventilation system, HEPA filters shall be permitted instead of exhausting the air from these spaces to the outdoors, provided that the return air passes through the HEPA filters before it is introduced into any other spaces. The entire minimum total air changes per hour of recirculating airflow shall pass through HEPA filters.
When these areas are open to larger, nonwaiting spaces, the exhaust air volume shall be calculated based on the seating area of the waiting area. (***Informative Note:*** The intent here is to not require the volume calculation to include a very large space [e.g., an atrium] just because a waiting area opens onto it.)
r. The requirement that all room air be exhausted directly to outdoors applies only to radiology waiting rooms programmed to hold patients who are waiting for chest x-rays for diagnosis of respiratory disease.

Normative Notes for Table 8-1 (continued):
s. Minimum MERV-14 filters shall be required for spaces where sterile equipment is packed into sterile package. Spaces where sterile products are stored but not packed shall not be required to have MERV-14 filters.
t. If anesthetic gases are administered in the area, the minimum total air changes shall be increased to 6.
u. If anesthetic gases are used during the preceding procedure, the minimum total air changes shall be increased to 6.
v. See Section 8.4.1 for ventilation requirements. The "Operating Room" designation includes surgical cystoscopic rooms.
w. See Section 7.2.2 for ventilation requirements.
x. This space includes sputum collection and pentamidine administration. See Section 8.5.2.
y. Examination rooms (identified as "specialty infection control [IC] exam rooms") programmed for use by patients with undiagnosed gastrointestinal symptoms, undiagnosed respiratory symptoms, or undiagnosed skin symptoms.
z. This room is intended for basic blood and urine specimen testing and short-term storage only. Outpatient facilities that provide the following specialized service spaces/rooms should consult Table 7-1 of this standard for ventilation requirements: laboratory work areas, including the specialty lab services such as bacteriology, biochemistry, cytology, glasswashing, histology, media transfer, microbiology, nuclear medicine, pathology, serology and/or sterilizing.
aa. See AAMI Standard ST79 12 for additional information for these spaces.
bb. The term "trauma room," as used herein, is a first-aid room and/or emergency department room used for general initial treatment of accident victims. The operating room (OR) within the trauma center that is routinely used for emergency surgery is considered to be an OR by this standard.
cc. A minimum MERV-8 filter may be utilized for this space in lieu of a minimum MERV-14 filter if all room air is exhausted directly to the outdoors and the pressure relationship to adjacent areas is kept negative. If a filter rated less than MERV-14 is utilized, the space shall be considered "Negative" with regards to the table and must comply with all other requirements for negative spaces within the standard.
dd. See Section 7.4.1(c).
ee. Minimum MERV-14 filters shall be required for spaces where sterile equipment is packed into sterile packages. MERV-8 filters may be used in place of MERV-14 in spaces where sterile products are stored in sealed packaging but are not opened or otherwise handled outside of the sealed package.
ff. The facility governing body shall inform design engineers relating to room function or use (which function is applicable) for Class 1, Class 2, or Class 3 imaging rooms.
gg. As an exception to the standard, alternative ventilation is allowed that provides a fan mounted in a mechanical space outside the room that supplies air through a HEPA filter to the ceiling diffuser.

ii. If this space uses unoccupied turndown it shall include time-delay controls such that turndown does not occur for the first 20 minutes after the space becomes unoccupied. (Informative Note: The 20 minute delay approximates the time required for 90% reduction in airborne contamination at 6 ach, assuming perfect mixing.)

jj. Lower total ach ventilation rates shall be permitted when use of the ASHRAE Standard 62.11, Section 6.5, "Exhaust Ventilation," Performance Compliance Path determines that concentration of the contaminants of concern is lower than the corresponding concentration of interest. In addition to other contaminants of concern required by Standard 62,1 Section 6.5.2, the following contaminants of concern shall be considered for the space and maintained not greater than the concentration level indicated: hydrogen peroxide 1 ppm; glutaraldehyde 0.05 ppm; ethyl alcohol 1000 ppm; isopropyl alcohol 400 ppm. (Informative Note: Listed concentrations of interest were determined by ACGIH [2001]; see Informative Appendix E.)

kk. Pressure relationship and room exhaust should be considered carefully by the designer with respect to connected adjacencies and general air movement from clean to dirty.

ll. Prior to performing operational adjustments to space ventilation, a risk assessment shall be completed. Risk assessment and operational criteria shall be documented in a ventilation management plan (VMP). ***Informative Note:*** See ASHRAE/ASHE Guideline 43 for further guidance.

Add new reference to Informative Appendix D. The remainder of Informative Appendix D is unchanged.

<u>ASHRAE/ASHE Guideline 43-2025, Operations Guideline for Ventilation of Health Care Facilities</u>