



**BSR/ASHRAE/ASHE Addendum s
to ANSI/ASHRAE/ASHE Standard 170-2021**

Public Review Draft

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

**First Public Review (September 2024)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

Proposed Addendum s revises portions of Sections 7 & 8 to provide clarity of intent and/or correlate elements (indicated below) of the current standard. Addendum s also follows the continuing maintenance process in further coordination with the FGI Infection Preventionist team and 170 committee to result in a coordinated document for use by all stakeholders in the Healthcare Community.

This proposed addendum consists of the following general edits:

- *Deletions to Table 7-1 and Table 8-1 relating to space designation.*
- *Deletions to related note that details use of the specific room type.*
- *Deletion of note that resulted in unnecessary confusion.*
- *Deletion of note that was not in use.*
- *Addition of note application to specific room type.*

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

Revise Table 7-1, Table 8-1 and Table 8-2, and related notes as shown below. The remainder of these tables are unchanged.

BSR/ASHRAE/ASHE Addendum s to ANSI/ASHRAE/ASHE Standard 170-2021, *Ventilation of Health Care Facilities*
 First Public Review Draft

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 OTHER PATIENT CARE AREAS									
Cesarean Delivery Room (<i>FGI 2.2-2.9.11.1</i>) (m), (o)	Positive	4	20	NR	No	Yes	MERV-16 (hh)	20-60	68-75/20-24
Operating/surgical cystoscopic rooms (<i>FGI 2.2-3.4 & Table T2.2-2; also see Class 3 Imaging</i>) (m), (o)	Positive	4	20	NR	No	Yes	MERV-16 (hh)	20-60	68-75/20-24
DIAGNOSTIC AND TREATMENT									
ECT procedure room (<i>FGI 2.2-2.12.4.1 & 2.5-3.4</i>)	NR	2	4	NR	NR	Yes	MERV-8	Max 60	72-78/22-26
Gastrointestinal endoscopy procedure room (<i>FGI 2.2-3.11.2 & Table 2.2-1</i>) (x)	NR	2	6	NR	No	Yes	MERV-8	20-60	68-73/20-23
General examination room (<i>FGI 2.1-3.2</i>)	NR	2	4	NR	NR	Yes	MERV-8	Max 60	70-75/21-24
Hydrotherapy (<i>FGI 2.1-8.4.3.9</i>)	Negative	2	6	NR	NR	Yes	MERV-8	NR	72-80/22-27
Instrument processing room (<i>FGI 2.2-3.11.4</i>)	Negative	2	10	Yes	No	No	MERV-8 (gg)	NR	NR
Medication room (<i>FGI 2.1-2.8.8.2[1]</i>)	NR	2	4	NR	NR	Yes	MERV-8	Max 60	70-75/21-24
Nuclear medicine hot lab (<i>FGI 2.2-3.4.8.22</i>)	Negative	NR	6	Yes	No	Yes (ff)	MERV-8	NR	70-75/21-24
Physical therapy (<i>FGI 2.2-2.13.8.16 & 2.6-3.1</i>)	Negative	2	6	NR	NR	Yes	MERV-8	Max 65	72-80/22-27
Special examination room (aa)	NR	2	6	NR	NR	Yes	MERV14 (ii)	Max 60	70-75/21-24
Treatment room (<i>FGI 2.2-3.1.2.4</i>)	NR	2	6	NR	NR	Yes	MERV-8	Max 60	70-75/21-24

Informative Notes: (1) NR = no requirement; (2) FGI paragraph numbers are shown in parentheses in the “Function of Space” column.

Normative Notes for Table 7-1:

- m. National Institute for Occupational Safety and Health (NIOSH) criteria documents ¹¹ regarding occupational exposure to waste anesthetic gases and vapors and control of occupational exposure to nitrous oxide indicate a need for both local exhaust (scavenging) systems and general ventilation of the areas in which the respective gases are used. (**Informative Note:** Refer to NFPA 99 [2021] for other requirements.)
...
- o. Surgeons or surgical procedures may require room temperatures, ventilation rates, humidity ranges, and/or air distribution methods that exceed the minimum indicated ranges.
...
- aa. ~~Not used. Examination rooms programmed for use by patients with undiagnosed gastrointestinal symptoms, undiagnosed respiratory symptoms, or undiagnosed skin symptoms.~~
...
- dd. ~~Not used. As an alternative to the requirement for HEPA filters in Filter Bank No. 2, MERV 14 rated filters may be used in Filter Bank No. 2 if a tertiary terminal HEPA filter is provided for this space. (**Informative Note:** HEPA filters are those filters that remove at least 99.97% of 0.3 micron sized particles at the rated flow in accordance with the testing methods of IEST RP-CC001.3 [2005] in Informative Appendix E).~~
...
- 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.~~

The below Section 7.4.1 is provided for reviewers and the application of normative note (hh) in Table 7-1. No changes are proposed for this section.

7.4.1 Operating Rooms (ORs), Operating/Surgical Cystoscopic Rooms, Caesarean Delivery Rooms, and Class 3 Imaging Rooms. These rooms shall be maintained at a positive pressure with respect to all adjoining spaces at all times. A pressure differential shall be maintained at a value of at least +0.01 in. of water (2.5 Pa). Each room shall have individual temperature control. These rooms shall be provided with a primary supply diffuser array that is designed as follows:

- a. The airflow shall be unidirectional, downwards, and the average velocity of the diffusers shall be 25 to 35 cfm/ft² (127 to 178 L/s/m²). The diffusers shall be concentrated to provide an airflow pattern over the patient and surgical team. (**Informative Note:** For more information, see Memarzadeh and Manning [2002] and Memarzadeh and Jiang [2004] in Informative Appendix E.)
- b. The coverage area of the primary supply diffuser array shall extend a minimum of 12 in.(305 mm) beyond the footprint of the surgical table on each side. Within the portion of the primary supply diffuser array that consists of an area encompassing 12 in. (305 mm) on each side of the footprint of the surgical table, no more than 30% of this portion of the primary supply diffuser array area shall be used for nondiffuser uses such as lights, gas columns, equipment booms, access panels, sprinklers, etc.
- c. In ORs or Class 3 imaging rooms designated for orthopedic procedures, transplants, neurosurgery, or dedicated burn unit procedures, HEPA filters shall be provided and located in the air terminal device.

Additional supply diffusers shall be permitted within the room, outside of the primary supply diffuser array, to provide additional ventilation to the operating room to achieve the environmental requirements of Table 7-1 that relate to temperature, humidity, or a portion of the required air change rates.

The room shall be provided with at least two low sidewall return or exhaust grilles spaced at opposite corners or as far apart as possible, with the bottom of these grilles installed approximately 8 in. (203 mm) above the floor.

Exception to 7.4.1: In addition to the required low return (or exhaust) air grilles, such grilles may be placed high on the walls.

Table 8-1 Design Parameters—Specialized Outpatient Spaces

Function of Space (f)	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)	Minimum Filter Efficiencies (c)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
...								
DIAGNOSTIC AND TREATMENT (<i>Continued</i>)								
Examination/observation (<i>FGI 2.1–3.2.1</i>)	NR	2	4	NR	NR	MERV-8	Max 60	70–75/21–24
Specialty IC exam room (<i>FGI xxx</i>) (y)	Negative	2	6	Yes	NR	MERV-8	Max 60	70–75/21–24
Laboratory work room (<i>FGI 2.1–4.1.2.1</i>) (z)	Negative	2	6	Yes	NR	MERV-8	NR	70–75/21–24
Pharmacy/med prep (<i>FGI 2.1–3.8.8.2 & 2.1–4.2.2</i>) (b)	Positive	2	4	NR	NR	MERV-8	NR	NR
Laser eye room (<i>FGI 2.1–3.2.2</i>)	NR	2	6	NR	No	MERV-8	Max 60	68–73/20–23
Nuclear medicine (see Section 8.7) (<i>FGI 2.1–3.5.7</i>)	Negative	2	6	Yes	No	MERV-8	NR	70–75/21–24
Toilet or Toilet/Shower room (<i>FGI 2.1–3.10.2</i>)	Negative	NR	10	Yes	No	MERV-8	NR	NR

Informative Note: NR = no requirement

Normative Notes for Table 8-1:

- ...
- y. ~~Not used. 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.~~
- ...

Table 8-2 Design Parameters—General Outpatient Spaces (q)

Function of Space (f)	Pressure Relationship to Adjacent Areas (d)	ach Design Option		All Room Air Exhausted Directly to Outdoors (j)	Air Recirculated by Means of Room Units (a)	Min. Filter Efficiencies (c)	Design RH% (i)	Design Temperature °F/°C (k)	R_p - R_a Air-Class Design Option		
		Min. Outdoor ach (q)	Min. Total ach (q)						Air Class (q)	R_p cfm/(L·s)/ person and Min. Space Population (q)	R_a cfm/ft/(L·s/m) (q)
GENERAL DIAGNOSTIC AND TREATMENT											
Birthing room (FGI 2.4-2.2)	NR	2	3	NR (h)	NR	MERV-14	Max 60	70–75/21–24	2	10 (5) / 4	0.18 / (0.9)
Urgent care exam (FGI 2.5-3.2.1) (e)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	2	7.5 (3.8) / 3	0.12 / (0.6)
Urgent care treatment (FGI 2.5-3.2.2) (e)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	2	7.5 (3.8) / 3	0.18 / (0.9)
Urgent care triage (FGI 2.5-3.2.3)	Negative	2	3	Yes	NR	MERV-8	Max 60	70–75/21–24	3	10 (5) / 3	0.18 / (0.9)
Urgent care observation (FGI 2.5-3.3)	NR	2	2	NR	NR	MERV-8	NR	70–75/21–24	2	5 (2.5) / 2	0.12 / (0.6)
General examination room (FGI 2.1-3.2.1)	NR	2	2	NR	NR	MERV-8	NR	70–75/21–24	1	7.5 (3.8) / 3	0.12 / (0.6)
Specialty IC exam room (b)	Negative	2	3	Yes	NR	MERV-8	Max 60	70–75/21–24	3	10 (5) / 3	0.18 / (0.9)
Laboratory work room (FGI 2.1-4.1.2.1) (l)	NR	2	3	NR (h)	NR	MERV-8	NR	70–75/21–24	2	7.5 (3.8) / 2	0.12 / (0.6)
Medication room (FGI 2.1-3.8.8.2)	NR	2	2	NR	NR	MERV-8	Max 60	70–75/21–24	1	5 (2.5) / 2	0.18 / (0.9)
Class 1 Imaging rooms (FGI 2.1-3.5) (g)	NR	2	3	NR	NR	MERV-8	Max 60	72–78/22–26	1	7.5 (3.8) / 2	0.12 / (0.6)
Psychiatric examination room (FGI 2.11-3.2.2)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	1	5 (2.5) / 2	0.06 / (0.3)
Psychiatric consultation room (FGI 2.11-3.2.4)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	1	5 (2.5) / 2	0.06 / (0.3)
Psychiatric group room (FGI 2.11-3.2.5)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	1	5 (2.5) / 2	0.06 / (0.3)
Psychiatric seclusion room (FGI 2.11-3.2.7)	NR	2	2	NR	NR	MERV-8	NR	70–75/21–24	2	10 (5) / 3	0.12 / (0.6)
ECT procedure room (FGI 2.11-3.2.9.2)	NR	2	2	NR	NR	MERV-8	NR	70–75/21–24	1	7.5 (3.8) / 3	0.12 / (0.6)
Physical therapy individual room (FGI 2.12-3.2.2.1)	NR	2	3	NR (h)	NR	MERV-8	NR	70–75/21–24	2	10 (5) / 3	0.12 / (0.6)
Physical therapy exercise area (FGI 2.12-3.2.3)	NR	2	3	NR (h)	NR	MERV-8	NR	70–75/21–24	2	20 (10) / 2	0.18 / (0.9)
Hydrotherapy (FGI 2.12-3.2.4)	Negative	2	3	Yes	NR	MERV-8	NR	72–80/22–27	3	20 (10) / 2	0.12 / (0.6)
Physical therapeutic pool (FGI 2.12-3.2.4)	Negative	2	10	Yes	NR	MERV-8	NR	72–80/22–27	3	—	0.48 / (2.4)
Speech therapy room (FGI 2.12-3.3.2)	NR	2	2	NR	NR	MERV-8	NR	70–75/21–24	1	5 (2.5) / 2	0.06 / (0.3)
Occupational therapy (FGI 2.12-3.3)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	1	5 (2.5) / 2	0.06 / (0.3)
Prosthetics and orthotics room (FGI 2.12-3.3.1)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	2	10 (5) / 3	0.18 / (0.9)
Dental treatment (FGI 2.14-3.1.1)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	1	10 (5) / 3	0.18 / (0.9)
Other dental treatment areas (FGI 2.14-3.2)	NR	2	3	NR	NR	MERV-8	NR	70–75/21–24	1	5 (2.5) / 2	0.06 / (0.3)
Toilet room (FGI 2.1-3.10.2)	Negative	NR	4	Yes	No	MERV-8	NR	NR	3	—	—

Normative Notes for Table 8-2:

- a. Except where indicated by a “No” in this column, recirculating room HVAC units (with heating or cooling coils) are acceptable for providing that portion of the minimum total air changes per hour that is permitted by Section 8.2(a)(5). Because of the cleaning difficulty and potential for buildup of contamination, recirculating room units shall not be used in areas marked “No.”
- b. ~~Not used. 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.~~
- c. Table entries are the minimum filter efficiencies required for the space. Refer to Section 6.4 of this document for further clarification of filtration requirements. The minimum efficiency reporting value (MERV) is based on the method of testing described in ASHRAE Standard 52.2 (***Informative Note:*** ASHRAE [2012] in Informative Appendix E).

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