



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

Public Review Draft

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

**First Public Review (March 2020)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

This proposed addendum addresses changes that have been highlighted as the committee has reviewed and responded to informal and formal interpretation requests. Additionally, in recognition of the changes in the behavioral healthcare industry, the committee has sought to specifically provide guidance.

- *Revised lab exhaust discharge requirements in coordination with ANSI/AIHA Z9.5*
- *Updated the standard to allow recirculating room units in sterilizer equipment room*
- *Expanded guidance to address behavioral and mental health patient areas, residential behavioral and mental health patient rooms in coordination with the FGI.*
- *Revised Normative and Informative references in coordination with recent publications*

[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 m to 170-2017

Revise Section 6.1.1 as shown below.

6.1 Utilities

6.1.1 Ventilation Upon Loss of Electrical Power. The space ventilation and pressure relationship requirements of Tables 7.1, 8.1, and 9.1 shall be maintained for the following spaces, even in the event of loss of normal electrical power:

- a. All rooms
- b. PE rooms
- c. Operating rooms (ORs), including delivery rooms (Caesarean)

Exception to 6.1.1: When essential power system is not provided or required, then operation of space ventilation and pressure relationships is not required.

Informative Note: For further information, see NFPA 99 (~~2018~~2015) in Appendix B.

Revise Section 6.3.2.2 as shown below.

6.3.2.2 Additional Requirements

[...]

- b. Exhaust discharge outlets from laboratory work area chemical fume hoods shall discharge with a stack velocity of at least 3000 ~~2500~~ fpm (12.7 m/s).

Exception to 6.3.2.2(b): Lower discharge velocity may be permitted when an engineering analysis can demonstrate the specific design meets the dilution criteria necessary to reduce concentration of hazardous materials in the exhaust to safe levels at all potential receptors. (See ANSI/AIAH Z9.5-2012, Section 2.1) [...]

Revise Section 7.6 as shown below.

7.6 Behavioral and Mental Health Psychiatric Patient Areas. HVAC systems and related controls shall be secured as called for in the patient safety risk assessment. All exposed equipment located with these spaces shall have enclosures with rounded corners and tamper-resistant fasteners. With the exception of HVAC room recirculating units, equipment shall be arranged such that maintenance personnel are not required to enter patient-care spaces for service, unless approved by the AHJ when such arrangement is not possible. Seclusion, restraint and observation rooms intended for behavioral and mental health patients shall use fully recessed, vandal-resistant grilles with diffuser blades designed for ligature-resistant and anti-contraband capability. Spaces intended for the care and treatment of inpatients who do not require acute medical services shall comply with Residential Health in Table 7.1.

Revise Section 8.6 as shown below.

8.6 Behavioral and Mental Health Psychiatric Patient Areas. HVAC systems and related controls shall be secured as called for in the patient safety risk assessment. All exposed equipment located with these spaces shall have enclosures with rounded corners and tamper-resistant fasteners. With the exception of HVAC room recirculating units, equipment shall be arranged such that maintenance personnel are not required to enter patient-care spaces for service, unless approved by the AHJ when such arrangement is not possible. Seclusion, restraint and observation rooms intended for behavioral and mental health patients shall use fully recessed, vandal-resistant grilles with diffuser blades designed for ligature-resistant and anti-contraband capability.

Revise Table 7.1 as shown below. The remainder of Table 7.1 is unchanged.

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
RESIDENTIAL HEALTH								
BEHAVIORAL & MENTAL HEALTH FACILITIES (k)								
Patient Bedroom, Resident room (FGI 2.5-2.2.2)	NR	<u>2</u>	<u>2</u>	NR	NR	MERV-8	NR	NR
Seclusion room (FGI 2.5-2.24.3)	NR	<u>4</u>	<u>2</u>	NR	NR	MERV-8	NR	NR

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
STERILE PROCESSING (aa)								
Sterilizer equipment room (FGI 2.1-4.3.2.2)	Negative	NR	10	Yes	NR	MERV-8	NR	NR

Revise Table 8.1 as shown below. The remainder of Table 8.1 is unchanged.

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
STERILE PROCESSING (aa) Sterilizer equipment room (FGI 2.1-4.3.2.2)	Negative	NR	10	Yes	<u>NR</u>	MERV-8	NR	NR

Add new Section 9.3 as shown below.

9.3 Behavioral and Mental Health Facilities

9.3.1 General These spaces are intended for the care and treatment of inpatients who do not require acute medical services.

9.3.2 Behavioral and Mental Health Patient Areas. HVAC systems and related controls shall be secured as called for in the patient safety risk assessment. All exposed equipment located with these spaces shall have enclosures with rounded corners and tamper-resistant fasteners. With the exception of HVAC room recirculating units, equipment shall be arranged such that maintenance personnel are not required to enter patient-care spaces for service, unless approved by the AHJ when such arrangement is not possible. Seclusion, restraint and observation rooms intended for behavioral and mental health patients shall use fully recessed, vandal-resistant grilles with diffuser blades designed for ligature-resistant and anti-contraband capability.

Revise Section 11 as shown below. Add new normative reference 14 and revise reference 1, 6, 7, 8, 10, 11. The remainder of Section 11 is unchanged.

11. NORMATIVE REFERENCES

¹ ANSI/ASHRAE Standard 62.1 - ~~2019~~~~2010~~, *Ventilation and Acceptable Indoor Air Quality*, Atlanta: ASHRAE.

[...]

⁶ ANSI/ASHRAE Standard 154 - ~~2016~~~~2011~~, *Ventilation for Commercial Cooking Operations*, Atlanta: ASHRAE.

⁷ NFPA 90A, ~~2019~~~~2012~~ *Standard for the Installation of Air-Conditioning and Ventilating Systems*, Quincy, MA: National Fire Protection Association.

⁸ NFPA 96, ~~2017~~~~2014~~ *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, Quincy, MA: National Fire Protection Association.

[...]

¹⁰ NFPA 99, ~~2018~~~~2012~~ *Standard for Health Care Facilities*, Quincy, MA: National Fire Protection Association.

¹¹ AAMI, ~~2017~~~~2013~~ ANSI/AAMI Standard ST79, *Comprehensive Guide to steam sterilization and sterility assurance in health care facilities*, Arlington, VA: Association for the Advancement of Medical Instrumentation.

[...]

¹⁴ ANSI/ASHRAE Standard 62.2 - 2016, *Ventilation and Acceptable Indoor Air Quality in Residential Buildings*, Atlanta: ASHRAE.

Add new informative references and revise existing references in Informative Appendix B as shown. The remainder of Informative Appendix B is unchanged.

ASHRAE. ~~2019~~~~2016a~~, ANSI/ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality*. Atlanta: ASHRAE.

ASHRAE. ~~2019~~~~2015~~, *ASHRAE Handbook - HVAC Applications*. Atlanta: ASHRAE.

ASHRAE. 2017. ANSI/ASHRAE Standard 55, *Thermal Environmental Conditions for Human Occupancy*. Atlanta: ASHRAE.

ASHRAE. 2016. ANSI/ASHRAE Standard 62.2, *Ventilation and Acceptable Indoor Air Quality in Residential Buildings*. Atlanta: ASHRAE.

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Behavioral Health Design Guide. Edition 9.0 November 2019. Behavioral Health Facility Consulting, LLC.

NFPA 99, 2018 2015 *Standard for Health Care Facilities*, Quincy, MA: National Fire Protection Association.

FGI. 2018 2014 *Guidelines for Design and Construction of Hospitals* ~~*Health-Care Facilities*~~. St Louis, MO ~~Chicago, IL~~: Facility Guidelines Institute.

FGI. 2018 *Guidelines for Design and Construction of Outpatient Facilities*. St Louis, MO: Facility Guidelines Institute.

FGI. 2018 *Guidelines for Design and Construction of Residential Health, Care, and Support Facilities*. St Louis, MO: Facility Guidelines Institute.

USP. 2019 2017 National Formulary USP-797, *Pharmaceutical Compounding-Sterile Preparations*. Rockville, MD: US Pharmacopeia Convention

USP. 2017b National Formulary USP-800, *Hazardous Drugs-Handling in Healthcare Settings*. Rockville, MD: US Pharmacopeia Convention