

# ADDENDA

**ANSI/ASHRAE/ASHE Addendum b  
to ANSI/ASHRAE/ASHE Standard 170-2017**

# Ventilation of Health Care Facilities

Approved by ASHRAE Standard Committee and the ASHRAE Board of Directors on February 5, 2020; by the American Society for Healthcare Engineering on December 19, 2019; and by the American National Standards Institute on March 2, 2020.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (<https://www.ashrae.org/continuous-maintenance>).

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ISSN 1041-2336



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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

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- b. participation in the next review of the Standard,
- c. offering constructive criticism for improving the Standard, or
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## FOREWORD

*Addendum b removes several spaces from Tables 7.1, 8.1, and 9.1 based on those spaces being adequately addressed in other standards. The addendum also modifies the minimum total air change requirements for several spaces based on the results of CO-RP 3.*

**Note:** In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strike through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

### Addendum b to Standard 170-2017

*Revise Sections 7.5, 8.5, and 9.5 as shown.*

#### 7.5 Support Spaces

[...]

**7.5.3 Medical/Anesthesia Gas Storage Rooms.** Ventilation for medical/anesthesia gas storage rooms shall comply with NFPA 99<sup>10</sup>.

**7.5.4 Food preparation areas.** Provide makeup air to kitchen exhaust systems as specified in ANSI/ASHRAE Standard 154.<sup>4</sup> Kitchens with Type I hoods shall be designed to have a negative pressure with respect to adjacent areas.

**Informative Note:** In some cases, excess exfiltration or infiltration to or from exit corridors compromises the exit corridor restrictions of NFPA 90A<sup>5</sup> or the pressure requirements of NFPA 96.<sup>6</sup>

[...]

#### 8.5 Support Spaces

[...]

**8.5.3 Medical/Anesthesia Gas Storage Rooms.** Ventilation for medical/anesthesia gas storage rooms shall comply with NFPA 99<sup>10</sup>.

[...]

#### 9.5 Support Spaces

[...]

**9.5.3 Medical/Anesthesia Gas Storage Rooms.** Ventilation for medical/anesthesia gas storage rooms shall comply with NFPA 99<sup>10</sup>.

**9.5.4 Food preparation areas.** Provide proper makeup air to kitchen exhaust systems as specified in ANSI/ASHRAE Standard 154.<sup>4</sup> Kitchens with Type I hoods shall be designed to have a negative pressure with respect to adjacent areas.

**Informative Note:** In some cases, excess exfiltration or infiltration to or from exit corridors compromises the exit corridor restrictions of NFPA 90A<sup>5</sup> or the pressure requirements of NFPA 96.<sup>6</sup>

**Add to Informative Appendix B, "Informative References and Bibliography."**

ACGIH. 2001. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, 7th Ed. Cincinnati, OH: American Conference of Governmental Industrial Hygienists.

**Modify Tables 7.1, 8.2, and 9.1 as shown. The remainder of the tables is unchanged.**

**Table 7.1 Design Parameters—Hospital Spaces**

Function of Space	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)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
<b>SURGERY AND CRITICAL CARE</b>							
Medical/anaesthesia gas storage (r)	Negative	NR	8	Yes	NR	NR	NR
<b>RADIOLOGY</b>							
Darkroom (g)	Negative	2	10	Yes	No	NR	NR
<b>DIAGNOSTIC AND TREATMENT</b>							
Dialyzer reprocessing room	Negative	NR	10 (bb)	Yes	No	NR	NR
<b>SERVICE</b>							
Bathroom	Negative	NR	10	Yes	No	NR	72–78/22–26
Food preparation center (i)	NR	2	10	NR	No	NR	72–78/22–26
Warewashing (r)	Negative	NR	NR/10	Yes	No	NR	NR

Note: NR = no requirement

**Normative Notes for Table 7.1:**

- [...]
- i. Not used. Minimum total air changes per hour (ach) shall be that required to provide proper makeup air to kitchen exhaust systems as specified in ANSI/ASHRAE Standard 154<sup>6</sup>. In some cases, excess exfiltration or infiltration to or from exit corridors compromises the exit corridor restrictions of NFPA 90A<sup>7</sup>, the pressure requirements of NFPA 96<sup>8</sup>, or the maximum defined in the table. During operation, a reduction to the number of air changes to any extent required for odor control shall be permitted when the space is not in use.
- [...]
- r. Exhaust rate shall meet or exceed local requirements. See NFPA 99<sup>10</sup> for further requirements.
- [...]
- bb. Lower total ach ventilation rates shall be permitted when use of the ASHRAE Standard 62.1<sup>1</sup>, Section 6.2.5, “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; see appendix B.)

**Table 8.1 Design Parameters—Outpatient Spaces**

Function of Space	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)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
<b>SURGERY AND CRITICAL CARE</b>							
Medical/anaesthesia gas storage (r)	Negative	NR	8	Yes	NR	NR	NR
<b>RADIOLOGY</b>							
Darkroom (g)	Negative	2	10	Yes	No	NR	NR
<b>DIAGNOSTIC AND TREATMENT</b>							
Dialyzer reprocessing room	Negative	NR	10 (bb)	Yes	No	NR	NR
<b>SERVICE</b>							
Bathroom	Negative	NR	10	Yes	No	NR	72–78/22–26
Warewashing (r)	Negative	NR	NR/10	Yes	No	NR	NR

Note: NR = no requirement

**Normative Notes for Table 8.1:**

[...]

r. Exhaust rate shall meet or exceed local requirements. See NFPA 99<sup>10</sup> for further requirements.

[...]

bb. Lower total ach ventilation rates shall be permitted when use of the ASHRAE Standard 62.1<sup>1</sup>, Section 6.5.2, “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; see appendix B.)

**Table 9.1 Design Parameters—Nursing Home Spaces**

Function of Space	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)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
<b>SURGERY AND CRITICAL CARE</b>							
Medical/anaesthesia gas storage (r)	Negative	NR	8	Yes	NR	NR	NR
<b>RADIOLOGY</b>							
Darkroom (g)	Negative	2	10	Yes	No	NR	NR
<b>DIAGNOSTIC AND TREATMENT</b>							
Dialyzer reprocessing room	Negative	NR	10	Yes	No	NR	NR
<b>SERVICE</b>							
Bathroom	Negative	NR	10	Yes	No	NR	72–78/22–26
Food preparation center (i)	NR	2	10	NR	No	NR	72–78/22–26
Warewashing (r)	Negative	NR	NR/10	Yes	No	NR	NR

Note: NR = no requirement

**Normative Notes for Table 9.1:**

i. ~~Not used. Minimum total air changes per hour (ach) shall be that required to provide proper makeup air to kitchen exhaust systems as specified in ANSI/ASHRAE Standard 15<sup>4</sup>. In some cases, excess exfiltration or infiltration to or from exit corridors compromises restrictions in NFPA 90A<sup>5</sup>, the pressure requirements of NFPA 96<sup>6</sup>, or the maximum defined in the table. During operation, a reduction to the number of air changes to any extent required for odor control shall be permitted when the space is not in use.~~

[ . . . ]

r. ~~See NFPA 99-10 for further requirements. Exhaust rate shall meet or exceed local requirements.~~

## **POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES**

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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