ASHRAE/ASHE Guideline 43

Operations Guideline for Ventilation of Health Care Facilities

AHA Events

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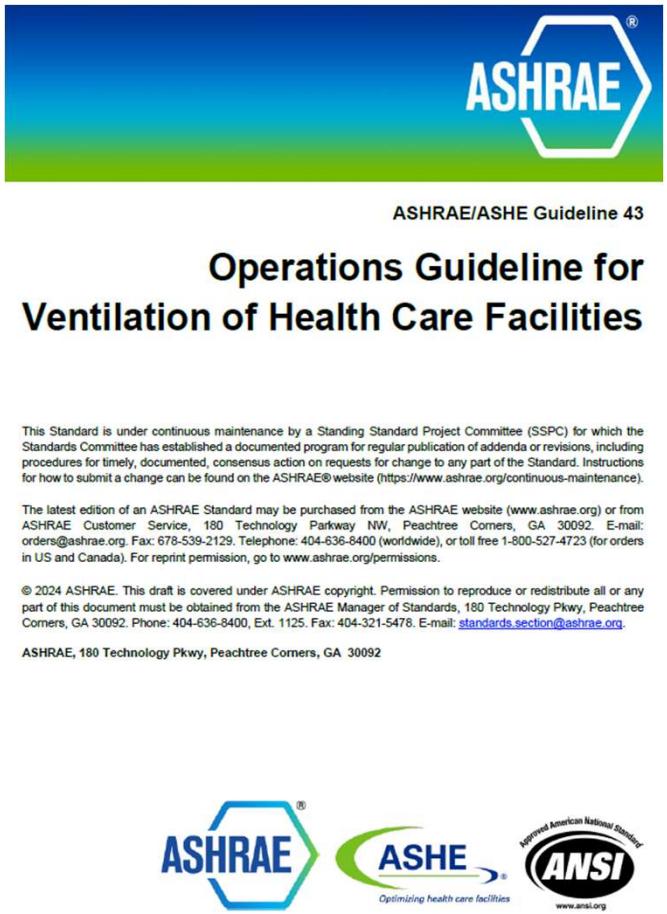

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Operations Guideline for Ventilation of Health Care Facilities

This Standard is under continuous maintenance 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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ASHRAE, 180 Technology Pkwy, Peachtree Corners, GA 30092

Operations *Guideline* for the Ventilation of Health Care Facilities

- **Purpose: to provide *recommendations* for the operations of heating, ventilation and air conditioning (HVAC) systems that provide environmental control in health care facilities for the safety and comfort of health care facility occupants.**
- **Scope: The operation of health care facility HVAC systems and equipment, their normal and routine maintenance, major tasks of periodic maintenance, and energy conservation.**

ASHRAE/ASHE Guideline 43 – Table of Contents

The Reason Why!

Standard 170 verses Guideline 43

STANDARD

ANSI/ASHRAE/ASHE Standard 170-2021
(Supersedes ANSI/ASHRAE/ASHE Standard 170-2017)
Includes ANSI/ASHRAE/ASHE addenda listed in Appendix F

Ventilation of Health Care Facilities

See Appendix F for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, the ASHE Board of Directors, and the American National Standards Institute.

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GUIDELINE

ASHRAE/ASHE Guideline 43-2025

Operations Guideline for Ventilation of Health Care Facilities

Approved by ASHRAE on May 23, 2025, and by the American Society for Health Care Engineering on May 19, 2025.

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PDF includes hyperlinks for convenient navigation. Click on a reference to a section, table, figure, or equation to jump to its location. Return to the previous page via the bookmark menu.

ASHRAE ASHE Optimizing health care facilities

ASHE®

Steps to Developing a VMP

- Form a Committee
- Develop a “Source of Truth”
- Risk Ranking
- Condition Indicators
- Excursion Response
- Create the VMP
- Get Approval
- Educate Staff
- Maintain the Plan

Multidisciplinary Committee

- Accreditation, PDC, Engineering, Infection Prevention, Nursing, Perioperative Services, Pharmacy, Site Leaders
- Subcommittee of EoC?
- Meet often during development
  - Standardize meeting with EoC/Utility Management

Develop Source of Truth

- Create list of spaces/equipment
  - Ventilation Requirements
  - Patient Services
  - Equipment
    - Consider utilizing existing lists
    - ASC (Align, Standardize, Combine)

- Code References
  - AAMI, ANSI, ASHRAE, USP, State & Local Codes
  - Different editions based on time of design/construction
  - Design versus Operations

Risk Ranking

- Patient Services Provided
- Impact of HVAC to Services
  - Pressure
  - Temperature
  - Humidity
  - Exhaust
- Example - NFPA 99 Categories
  - Category 1 – Major Injury/Death
  - Category 2 – Minor Injury
  - Category 3 – Cause Injury/Discomfort
  - Category 4 – No Impact on Patient Care

Why do a Risk Assessment

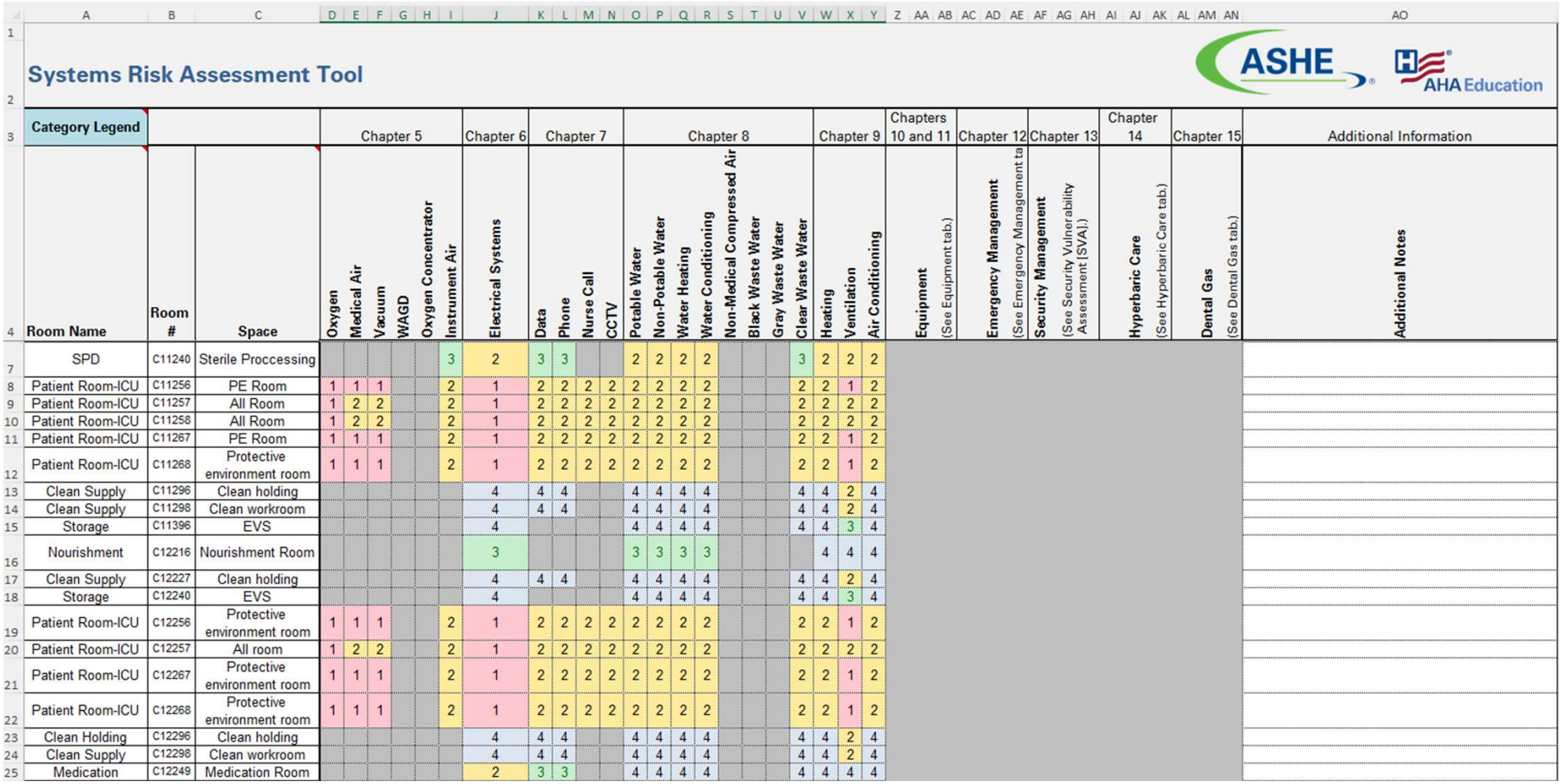
- **CMS CoP § 482.41 Condition of Participation: Physical Environment**
  - **The hospital must be constructed, arranged, and maintained to ensure the safety of the patient, and to provide facilities for diagnosis and treatment and for special hospital services appropriate to the needs of the community**

- **Paragraph (c) Standard: Building Safety**
  - **The hospital must meet the applicable provisions and must proceed in accordance with the 2012 Health Care Facilities Code - NFPA 99**

Risk Ranking

- **Establishes the foundation of**
  - **Critically Ventilated Spaces**
    - **Those spaces *used for invasive or high-risk procedures*, infection control isolation, or any space where loss of required air flow, temperature, humidity, and/or pressurization *could result in harm, injury or death to patients, visitors or staff*.**
  - **Generally Ventilated Spaces**
    - **Those spaces *not used for invasive or high-risk procedure areas*, not used for infection control isolation, and where loss of required air flow, temperature, humidity, and/or pressurization *would not result in harm, injury or death to patients, visitors or staff*.**

Risk Ranking



Systems Risk Assessment Tool

Category Legend			Chapter 5						Chapter 6	Chapter 7				Chapter 8								Chapter 9				Chapters 10 and 11	Chapter 12	Chapter 13	Chapter 14	Chapter 15	Additional Information
Room Name	Room #	Space	Oxygen	Medical Air	Vacuum	WAGD	Oxygen Concentrator	Instrument Air	Electrical Systems	Data	Phone	Nurse Call	CCTV	Potable Water	Non-Potable Water	Water Heating	Water Conditioning	Non-Medical Compressed Air	Black Waste Water	Gray Waste Water	Clear Waste Water	Heating	Ventilation	Air Conditioning	Equipment (See Equipment tab.)	Emergency Management (See Emergency Management ta	Security Management (See Security Vulnerability Assessment [SVA].)	Hyperbaric Care (See Hyperbaric Care tab.)	Dental Gas (See Dental Gas tab.)	Additional Notes
SPD	C11240	Sterile Proccessing						3	2	3	3			2	2	2	2				3	2	2	2						
Patient Room-ICU	C11256	PE Room	1	1	1			2	1	2	2	2	2	2	2	2	2				2	2	1	2						
Patient Room-ICU	C11257	All Room	1	2	2			2	1	2	2	2	2	2	2	2	2				2	2	2	2						
Patient Room-ICU	C11258	All Room	1	2	2			2	1	2	2	2	2	2	2	2	2				2	2	2	2						
Patient Room-ICU	C11267	PE Room	1	1	1			2	1	2	2	2	2	2	2	2	2				2	2	1	2						
Patient Room-ICU	C11268	Protective environment room	1	1	1			2	1	2	2	2	2	2	2	2	2				2	2	1	2						
Clean Supply	C11296	Clean holding							4	4	4			4	4	4	4				4	4	2	4						
Clean Supply	C11298	Clean workroom							4	4	4			4	4	4	4				4	4	2	4						
Storage	C11396	EVS							4					4	4	4	4				4	4	3	4						
Nourishment	C12216	Nourishment Room							3					3	3	3	3					4	4	4						
Clean Supply	C12227	Clean holding							4	4	4			4	4	4	4				4	4	2	4						
Storage	C12240	EVS							4					4	4	4	4				4	4	3	4						
Patient Room-ICU	C12256	Protective environment room	1	1	1			2	1	2	2	2	2	2	2	2	2				2	2	1	2						
Patient Room-ICU	C12257	All room	1	2	2			2	1	2	2	2	2	2	2	2	2				2	2	2	2						
Patient Room-ICU	C12267	Protective environment room	1	1	1			2	1	2	2	2	2	2	2	2	2				2	2	1	2						
Patient Room-ICU	C12268	Protective environment room	1	1	1			2	1	2	2	2	2	2	2	2	2				2	2	1	2						
Clean Holding	C12296	Clean holding							4	4	4			4	4	4	4				4	4	2	4						
Clean Supply	C12298	Clean workroom							4	4	4			4	4	4	4				4	4	2	4						
Medication	C12249	Medication Room							2	3	3			4	4	4	4				4	4	4	4						

ASHRAE/ASHE 43 Guideline – Chapter 5

- **Chapter 5: Monitored Spaces - categorized based on risk of harm**
  - **Critically Ventilated Spaces**
    - **Those spaces *used for invasive or high-risk procedures*, infection control isolation, or any space where loss of required air flow, temperature, humidity, and/or pressurization *could result in harm, injury or death to patients, visitors or staff*.**
  - **Generally Ventilated Spaces**
    - **Those spaces *not used for invasive or high-risk procedure areas*, not used for infection control isolation, and where loss of required air flow, temperature, humidity, and/or pressurization *would not result in harm, injury or death to patients, visitors or staff*.**

Develop Condition Indicators

- **Develop Condition Indicators**
  - **Physical characteristics and delivery performance of equipment**
  - **Ranges for operation**

- **Measurements/Observations of physical condition and delivery**
  - **Thermal comfort**
  - **Indoor air quality**
  - **Energy efficiency**

- **Monitor changes to provide advance indication of problems**

Table 5.1: Recommended Monitoring Frequencies

Function of Space(s)	Testing frequency for Temperature, Humidity, and Pressure [a]
Airborne Infection Isolation (AII) Room, Protective Environment (PE) Room, Combination AII/PE Room, Operating Room, Operating/surgical cystoscopic rooms, Critical care patient care, Neonatal intensive care, Wound intensive care (burn unit), Class 2 & 3 Imaging rooms, Pharmacy Services: Pharmacy Areas (USP-regulated), Sterile storage room (clean/sterile medical/surgical supplies), Cesarean Delivery room	Daily or as determined by the VMP
Continued care nursery, Newborn nursery, Nursery workroom, Emergency department public waiting area, Emergency department trauma/resuscitation room, Emergency service triage area, Labor/delivery/recovery (LDR), Labor/delivery/recovery/postpartum (LDRP), Laser eye room, Patient room, Phase 1 PACU and Phase II recovery, Radiology waiting rooms, Seclusion room, Treatment Room, Class 1 imaging room, Dialysis treatment area, General examination room, Hydrotherapy, Physical therapy, Special examination room, Treatment room, ECT procedure room, Nuclear medicine hot lab, Instrument processing room, Procedure room, Intermediate care patient room, Bronchoscopy, sputum collection, and pentamidine administration, Gastrointestinal endoscopy procedure room, Pharmacy Services: Pharmacy Areas (non-USP regulated)	Semiannually or as determined by the VMP
Laboratory work areas (all), Food and supply storage, Food preparation areas, Toilet Room, Clean assembly /workroom, Soiled workroom/decontamination room, Autopsy room, Clean linen storage room, Nonrefrigerated body holding room, additional spaces identified within the VMP. [b]	Annually or as determined by the VMP

a. Accuracy of sensors should be verified as determined within the VMP.
b. Not all spaces must be identified within the VMP.

Excursion response

- Excursions Happen
- Develop Responses
  - Base on Patient Impact
  - Base on Risk Ranking
- Document in VMP
  - Follow and document

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- **Section 6: Implementation**
  - **Excursion Variations**
    - **Recommended Actions**

Table 6.8.1 Thresholds for Response to Temporary Increase in Rh

Relative humidity ≤5% over upper limit		
> 6 hours continuously	> 12 hours continuously	> 4 hours continuously
• Facility engineer will take *corrective action* and adjust the mechanical system to bring the Rh down within acceptable range.	• Facility engineer will take *corrective action* and notify the leader or designee of the respective departments of the involved space. • The leader or designee will convene with the key	• Facility engineer will take *corrective action* and notify the leader or designee of the respective departments. • The leader or designee and key stakeholders will

Table 6.8.2 Thresholds for Response to Temporary Decrease in Rh

Relative humidity up to 5% below lower limit		Relative humidity >5% below lower limit
> 6 hours continuously	> 12 hours continuously	> 4 hours continuously
• Facility engineer will take *corrective action* and adjust the mechanical system to bring the Rh up	• Facility engineer will take *corrective action* and notify the leader or designee of the respective departments. • The leader or designee will	• Facility engineer will take *corrective action* and notify the leader or designee of the respective departments.

Create the VMP

- Ventilation Management Plan
- Defined and Published
- Should Include
  - Committee Members
  - Code References
  - Listing of Spaces
  - Control Indicators
  - Excursion Responses

Get Approval

- Each aspect of VMP needs committee approval

- Needs approval from Leadership

Educate Staff

- Educate Committee Members
- Educate Clinical Staff
- Educate Facility Staff

Maintain the VMP

- Requires regular maintenance and updates
- Evaluate condition indicators at committee meetings
- Update space listing
- Update operational requirements
- Update per construction/renovations/repairs

Questions?

- **Thank you for attending!**

Jonathan Flannery
jflannery@aha.org
501-813-2400

Dino Coliano
dinocoliano@gmail.com
469-783-6354

JF