

Standard 170-2021



ANSI/ASHRAE/ASHE Standard 170-2021, *Ventilation of Health Care Facilities*

Purpose

The purpose of this standard is to define ventilation system design requirements that provide environmental control in health care facilities.

Significance

Health care facilities serve a uniquely vulnerable population exposed to an elevated risk of health, fire, and safety hazard. These critical facilities typically operate 24/7, and the systems in these facilities must be carefully designed to be installed, operated and maintained in coordination with specialized building services, including emergency and normal power, plumbing and medical gas systems, automatic transport, fire protection and a myriad of IT systems, all within a limited building envelope. Globally, spending on health care is increasing overall as well as increasing as a percentage of GDP, indicating this sector should be a focus for building codes and other policies.

Scope

Standard 170 applies to new buildings, additions to existing buildings and certain alterations to existing buildings identified in the standard. Specifically, the requirement applies to patient care areas, resident care areas, and related support areas within health care facilities. The standard establishes design requirements for temperature, humidity, odor control, asepsis, and ventilation rates. The standard considers chemical, physical, and biological contaminants that can affect the delivery of medical care to patients and residents; the convalescence of patients and residents; and the safety of patients, residents, health care workers, and visitors. The standard does not constitute a design guide; it comprises a set of minimum design requirements for adoption by code-enforcing agencies.

Highlights

- ✓ Standard 170 originated with an agreement between ASHRAE and the Facility Guidelines Institute (FGI); the 2022 version of FGI Guidelines references Standard 170-2021.
- ✓ Standard 170 is referenced in the U.S. of Veterans Affairs HVAC design manual, alongside other ASHRAE Standards (90.1, 62.1, 52.2, 183, 110, 15, 34).
- ✓ The health care sector is one of the largest segments of the U.S. economy (18.2% of U.S. GDP) and of OECD countries (9.6% of GDP).^{1, 2}
- ✓ The average hospital in the U.S. uses more energy than any other category of commercial buildings, adding up to 327 trillion Btu and over \$6.5 billion in additional spending annually.^{3, 4}
- ✓ For wide-ranging guidance, refer the user to ASHRAE Handbook—HVAC Applications, HVAC Design Manual for Hospitals and Clinics and the proposed. ASHRAE Guideline 43, Operations Guideline for Ventilation of Health Care Facilities.

Changes and Improvements from Standard 170-2017

- ✓ Provides a more granular approach based on function of space, with specifications for over 80 room types.
- ✓ Improved alignment with the FGI documents: Guidelines for Design and Construction of Hospitals, Guidelines for Design and Construction of Outpatient Facilities, and Guidelines for Design and Construction of Residential Health, Care, and Support Facilities
- ✓ Extensively modified air filtration requirements.
- ✓ Improved guidance related to behavioral and mental health.
- ✓ Provided design guidance on unoccupied turndown, which can help save energy.

¹ Organization for Economic Cooperation and Development (OECD). 2022. Health Expenditure.
<https://www.oecd.org/health/health-expenditure.htm>

² Centers for Medicare & Medicaid Services (CMS). 2023. National Health Expenditure Data: Historical.
<https://www.cms.gov/files/document/highlights.pdf>

³ U.S. Energy Information Administration (eia). 2022. 2018 Commercial Buildings Energy Consumption Survey Consumption and Expenditures Highlights.

⁴ M. J. Eckelman et al. 2020. Health care pollution and public health damage in the United States: An update: Study examines health care pollution and public health damage in the United States. Health Affairs, vol. 39, no. 12, pp. 2071–2079.