ASHRAE/ASHE STANDARD

Ventilation of Health Care Facilities

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NOTE

When addenda, interpretations, or errata to this standard have been approved, they can be downloaded free of charge from the ASHRAE Web site at www.ashrae.org.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

ANSI/ASHRAE/ASHE Standard 170, Ventilation of Health Care Facilities, *is one of a family of documents that offers guidance, regulation, and mandates to designers of health care facilities. It is first and foremost a mandatory minimum requirement and, as such, may not offer the state-of-the-art best practice of health care ventilation design. Other publications, such as the* ASHRAE HVAC Design Manual for Hospitals and Clinics, *may provide more depth and detail for the designer. In addition, the health care designer must refer to any design requirements from the appropriate jurisdiction that has authority. Many jurisdictions use or refer to* Guidelines for Design and Construction of Hospitals and Health Care Facilities, *published by the American Institute of Architects (AIA). Where practical, the committee was cognizant of these other documents in the development of this standard.*

Ventilation design for health care spaces is a combination of tasks that leads to a set of documents used in construction. One such task requires medical planners to develop departmental programs of spaces. These programs include space names that suggest the use for which the space is intended, and health care ventilation designers depend upon these names to determine the ventilation parameters for their designs. This standard provides these ventilation parameters.

Without high-quality ventilation in health care facilities, patients, health care workers, and visitors can become infected through normal respiration of particles in the air. Poorly ventilated health care facilities are places where the likelihood of pathogenic particles occurring in the air is quite high. These air-transmitted pathogens can be found everywhere in poorly ventilated health care facilities, and although most individuals can cope using their healthy immune systems, some patients are susceptible to these pathogens or even to normal environmental air-borne organisms such as fungal spores. Because these organisms are found in higher concentrations in hospitals, additional care must be taken in design of the ventilation systems.

1. PURPOSE

The purpose of this standard is to define ventilation system design requirements that provide environmental control for comfort, asepsis, and odor in health care facilities.

2. SCOPE

2.1 The requirements in this standard apply to patient care areas and related support areas within health care facilities, including hospitals, nursing facilities, and outpatient facilities.

2.2 This standard applies to new buildings, additions to existing buildings, and those alterations to existing buildings that are identified within this standard.

2.3 This standard considers chemical, physical, and biological contaminants that can affect the delivery of medical care to patients; the convalescence of patients; and the safety of patients, health care workers, and visitors.

3. DEFINITIONS

addition: an extension or increase in floor area or height of a *building*, building system, or equipment.

airborne infection isolation (AII): the isolation of patients infected with organisms spread by airborne droplet nuclei less than 5 µm in diameter (see CDC [2003] in Informative Annex B: Bibliography). For the purposes of this standard, the abbreviation "AII" refers to the room that provides isolation.

airborne infection isolation room: a room that is designed according to the requirements of this standard and that is intended to provide *airborne infection isolation*.

alteration: a significant change in the function or size of a space, in the use of its systems, or in the use of its equipment, either through rearrangement, replacement, or addition. Routine maintenance and service shall not constitute an alteration.

authority having jurisdiction: the agent or agency responsible for enforcing this standard.

average velocity: the volumetric flow rate obtained by dividing the air quantity issuing from an air distribution device by the nominal face area of the device.

building: a structure that is wholly or partially enclosed within exterior walls and a roof, or within exterior and party walls and a roof, and that affords shelter to persons, animals, or property. In this standard, a building is a structure intended for use as a hospital or health care facility.

classification of surgeries:

> ***Class A surgery:*** provides minor surgical procedures performed under topical, local, or regional anesthesia without preoperative sedation. Excluded are intravenous, spinal, and epidural procedures, which are Class B or C surgeries.
>
> ***Class B surgery:*** provides minor or major surgical procedures performed in conjunction with oral, parenteral, or intravenous sedation or performed with the patient under analgesic or dissociative drugs.
>
> ***Class C surgery:*** provides major surgical procedures that require general or regional block anesthesia and/or support of vital bodily functions.

For more information on this method of classifying surgeries, see ACS (2000) in Informative Annex B: Bibliography.

equipment: devices for heating, ventilating, and/or air conditioning, including but not limited to furnaces, boilers, air conditioners, heat pumps, chillers, and heat exchangers.