BSR/ASHRAE/ASHE Addendum L
to ANSI/ASHRAE/ASHE Standard 170-2017

Public Review Draft

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

First Public Review (October 2019)
(Draft shows Proposed Changes to Current Standard)

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(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 offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Proposed Addendum L continues the process of reorganizing the standard into three components—Hospital, Outpatient, and Residential Health Care and Support in alignment with the FGI Guidelines' transition to three separate standards. Addendum L follows the continuing maintenance process in further coordination with FGI staff and 170 staff to result in a coordinated document for use by all stakeholders in the Healthcare Community.

This proposed addendum is 5 edits of definitions, 1 each edits in Chapters 7, 8 and 9 along with specific line (row) edits in Table 7.1. These edits incorporate Addenda 'a' & 'p'. Generally, the changes are as follows:

- *Incorporate Addendum 'a' updated filtration requirements to revised Table 7.1 rows affected.*
- *Incorporate Addendum 'p' updated unoccupied turndown requirements to revised Table 7.1 rows affected.*

Revise the space name definitions and process definitions, table organization, and subheadings to better correlate with the 2018 FGI Guidelines for Design and Construction of Hospitals, including the addition of paragraph numbers after each space name. These revised 2018 FGI paragraph numbers have been coordinated with FGI committee members and will be presented in italicized text to keep them as informative language.

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

Addendum L to 170-2017

Revise Section 3 as shown. The remainder of Section 3 is unchanged.

3. DEFINITIONS

[…]

invasive procedure*: a procedure that is performed in an aseptic surgical field and penetrates the protective surfaces of a patient's body (e.g., subcutaneous tissue, mucous membranes, cornea). An invasive procedure may fall into one or more of the following categories:

a. ~~c. generally requires~~ Requires entry into or opening of a sterile body cavity~~; and~~ (i.e., cranium, chest, abdomen, pelvis, joint spaces). ~~penetrates the protective surfaces of a patient's body (e.g., skin, mucous membranes, cornea);~~

b. ~~d. may involve~~ Involves insertion of an indwelling foreign body. ~~is performed in an aseptic surgical field (i.e., a procedure site);~~

c. Includes excision and grafting of burns that cover more than 20 percent of total body area.

d. Does not begin as an open procedure but has a recognized measurable risk of requiring conversion to an open procedure.

Informative Note: Invasive procedures are performed in locations suitable to the technical requirements of the procedure with consideration of infection control and anesthetic risks and goals. Accepted standards of patient care are used to determine where an invasive procedure is performed. "Invasive procedure" is a broad term commonly used to describe procedures ranging from a simple injection to a major surgical procedure. For the purposes of this document, the term is limited to the above description. The intent is to differentiate those procedures that carry a high risk of infection, either by exposure of a usually sterile body cavity to the external environment or by implantation of a foreign object(s) into a normally sterile site. Procedures performed through orifices normally colonized with bacteria and percutaneous procedures that do not involve an incision deeper than skin would not be included in this definition.

~~***invasive imaging procedure room:*** a room in which radio-graphic imaging is used and in which instruments or devices are inserted into patients through the skin or body orifice under sterile conditions for diagnosis and/or treatment.~~

[…]

invasive fluoroscopy: therapeutic or diagnostic invasive procedures that require fluoroscopic imaging (e.g., cardiac catheterization, interventional angiography, cardiac stenting, or implantation of devices). ***Note:*** These procedures are typically performed in a restricted or semi-restricted area, based on the classification of the imaging procedure being performed. Refer also to Class 2 Imaging Room for cardiac catheterization, interventional angiography and Class 3 for cardiac stenting, or implantation of devices.

[…]

~~***operating room (OR)*:*** a room in the surgical suite that meets the requirements of a restricted area and is designated and equipped for performing surgical or other invasive procedures. An aseptic field is required for all procedures performed in an OR. Any form of anesthesia may be administered in an OR if proper anesthesia gas administration devices are present and waste anesthesia gas disposal systems are provided.~~

operating room (OR): a room in the surgical suite that meets the requirements of a restricted area and is designated and equipped for performing invasive procedures.

[…]

procedure room*: a room designated for the performance of patient care that requires high-level disinfection or sterile instruments and some environmental controls but is not required to be performed with the environmental controls of an operating room. ~~procedures that do not meet the definition of "invasive procedure" and may be performed outside the restricted area of a surgical suite and may require the use of sterile instruments or supplies. Local anesthesia and minimal and moderate sedation may be administered in a procedure room as long as special ventilation or waste anesthesia gas disposal systems are not required for anesthetic agents used in these rooms.~~

[…]

Class 1 Imaging Room: diagnostic radiography, fluoroscopy, mammography, computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), nuclear medicine and other imaging modalities including services that use natural orifice entry and do not pierce or penetrate natural protective membranes.

Class 2 Imaging Room: diagnostic and therapeutic procedures such as coronary, neurological, or peripheral angiography including electrophysiology, cardiac catheterization and interventional angiography and similar procedures.

Class 3 Imaging Room: invasive procedures including cardiac stenting, implantation of devices in an Invasive Fluoroscopy and any other Class 2 procedure during which the patient will require physiological monitoring and is anticipated to require active life support.

Revise Section 7.1 as shown. The remainder of Section 7.1 is unchanged.

7.1 General Requirements. The following general requirements shall apply for space ventilation:

a. Spaces shall be ventilated according to Table 7.1.

[…]

7. Unless a higher ventilation rate is stipulated in Table 7.1 or elsewhere in this standard, wherever anesthetic gases are administered outside of an Operating Room, Procedure Room, Class 2 & Class 3 Imaging Rooms, ventilation shall be provided at a minimum rate of 2 Outdoor ach and 6 Total ach.

Informative Note: *refer to NFPA 99 for WAGD piping and gas scavenging requirements. Note: anesthetic gasses commonly refers to nitrous oxide and xenon, however, may also include halogenated volatile anesthetic agents such as desflurane, sevoflurane, and isoflurane.*

Revise Table 7.1 and Normative Notes for Table 7.1 as shown below. The remainder of Table 7.1 is unchanged.

Table 7.1 Design Parameters – Hospital Spaces

Function of Space (dd)	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)	Unoccupied Turndown	Minimum Filter Efficiencies (bb)	Design Relative Humidity (k), %	Design Temperature (l), °F/°C
DIAGNOSTIC AND TREATMENT									
~~Imaging (diagnostic and treatment)~~ Class 1 imaging room *(FGI 2.2-3.4.2.4(1)(b)(i))*	NR (yy)	2	6	NR	NR	Yes	MERV-A-8 / MERV-A-14	max 60	72–78/22–26
~~Interventional imaging procedure room (2.2-3.5.2)~~ Class 2 imaging room (d), (p) *(FGI 2.2-3.4.2.4(1)(b)(ii))*	Positive	3	15	NR	No	Yes	MERV-A-8 / MERV-A-14	max 60	70–75/21–24
Class 3 imaging room (m), (o) *(FGI 2.2-3.4.2.4(1)(b)(iii))*	Positive	4	20	NR	No	Yes	MERV-A-8 / MERV-A-16 (xx)	max 60	68–75/20–24
~~Interventional and intraoperative MRI procedure room (2.2-3.5.2)~~	~~Positive~~	~~3~~	~~15~~	~~NR~~	~~No~~	~~Yes~~	~~8/14~~	~~max 60~~	~~70–75/21–24~~
~~Nuclear medicine treatment procedure room (2.2-3.6.1)~~	~~Negative~~	~~2~~	~~6~~	~~Yes~~	~~NR~~	~~Yes~~	~~8/14~~	~~NR~~	~~70–75/21–24~~

Normative Notes for Table 7.1:

l. Systems shall be capable of maintaining the rooms within the range during normal operations. Lower or higher temperatures shall be permitted when occupants' ~~patients'~~ comfort and/or medical conditions require those conditions.

xx. See Section 7.4.1.c.

yy. Negative pressure is required if open mixing of isotopes or gaseous studies are performed as a part of nuclear treatment procedures within the imaging room. ***Informative Note****: open mixing of isotopes is typically performed in the hot lab.*

Revise Section 7.4.1 as shown below. The remainder of Section 7.4.1 is unchanged.

7.4.1 Operating Rooms, Operating/Surgical Cystoscopic Rooms, ~~and~~ Caesarean Delivery Rooms, and Class 3 Imaging Rooms. These rooms shall be maintained at a positive pressure with respect to all adjoining spaces at all times. A pressure differential shall be maintained at a value of at least +0.01 in. wc (2.5 Pa). Each room shall have individual temperature control. These rooms shall be provided with a primary supply diffuser array that is designed as follows:

[…]

c. In operating rooms or class 3 imaging rooms designated for orthopedic procedures, transplants, neuro-surgery, or dedicated burn unit procedures, HEPA filters shall be provided and located in the air terminal device.

Delete Section 7.4.3 as shown below.

~~**7.4.3 Imaging Procedure Rooms.** If invasive procedures occur in this type of room, ventilation shall be provided in accordance with the ventilation requirements for procedure rooms. If anesthetic gases are administered, ventilation shall be provided in accordance with the ventilation requirements for operating rooms.~~

Revise Section 8.1 as shown. The remainder of Section 8.1 is unchanged.

8.1 General Requirements. The following general requirements shall apply for space ventilation:

a. Spaces shall be ventilated according to Table 8.1.

[…]

7. Unless a higher ventilation rate is stipulated in Table 8.1 or elsewhere in this standard, wherever anesthetic gases are administered outside of an Operating Room, Procedure Room, Class 2 & Class 3 Imaging Rooms, ventilation shall be provided at a minimum rate of 2 Outdoor ach and 6 Total ach.

Informative Note: *refer to NFPA 99 for WAGD piping and gas scavenging requirements. Note: anesthetic gasses commonly refers to nitrous oxide and xenon, however, may also include halogenated volatile anesthetic agents such as desflurane, sevoflurane, and isoflurane.*

Revise Normative Note L for Table 8.1 as shown below.

Normative Notes for Table 8.1:

l. Systems shall be capable of maintaining the rooms within the range during normal operations. Lower or higher temperatures shall be permitted when occupants' ~~patients'~~ comfort and/or medical conditions require those conditions.

Deletes Section 8.4.3 as shown below.

~~**8.4.3 Imaging Procedure Rooms.** If invasive procedures occur in this type of room, ventilation shall be provided in accordance with the ventilation requirements for procedure rooms. If anesthetic gases are administered, ventilation shall be provided in accordance with the ventilation requirements for operating rooms.~~

Delete Section 9.4.3 as shown below.

~~**9.4.3 Imaging Procedure Rooms.** If invasive procedures occur in this type of room, ventilation shall be provided in accordance with the ventilation requirements for procedure rooms. If anesthetic gases are administered, ventilation shall be provided in accordance with the ventilation requirements for operating rooms.~~