



FGI 2018 Guidelines Update

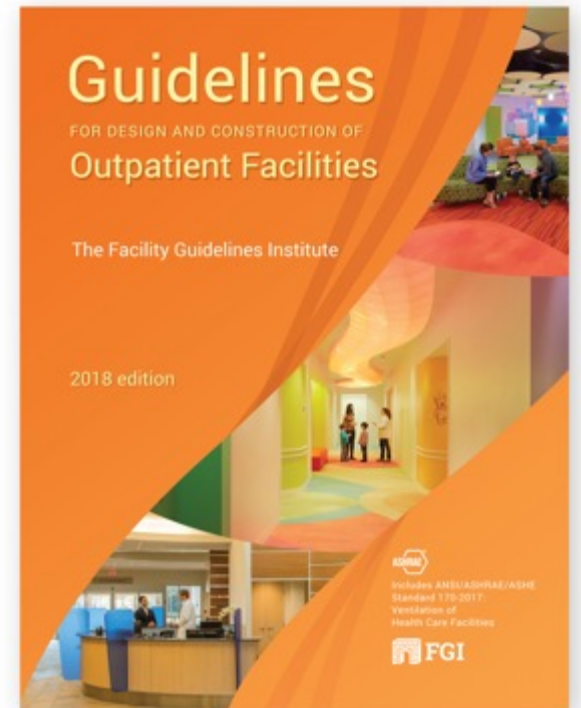
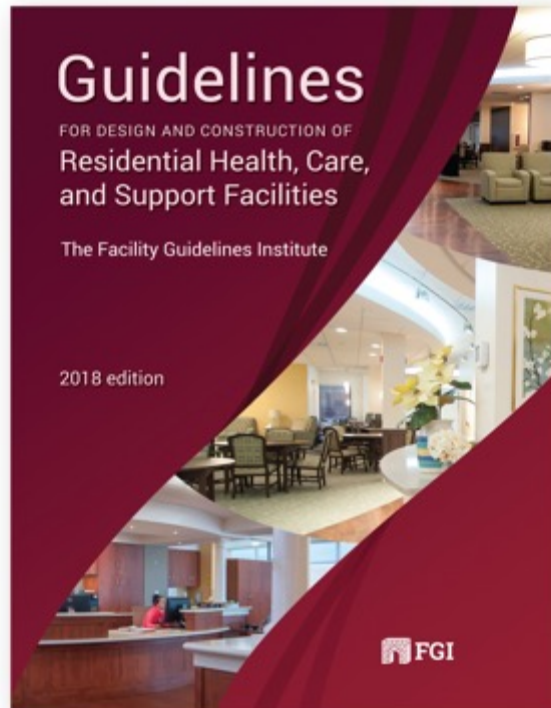
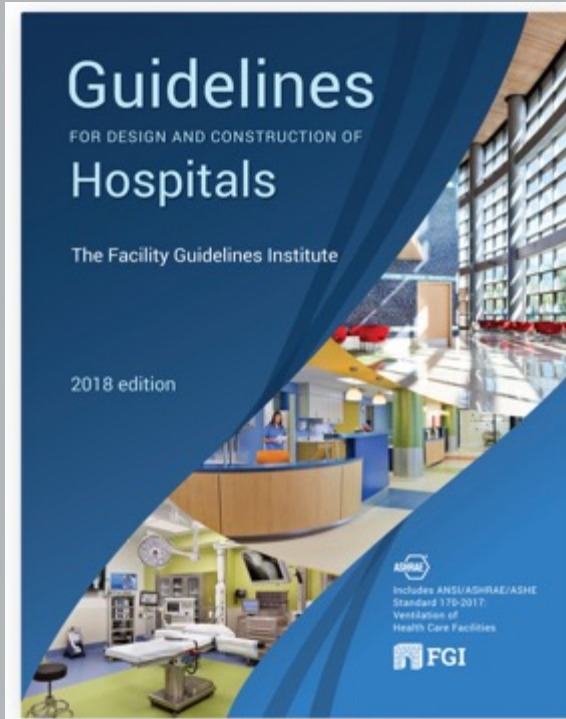
September 5, 2019

FACILITY GUIDELINES INSTITUTE

The keystone to health care planning, design, and construction



2018 *Guidelines Update* – Oklahoma Hospital Association



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2018 Guidelines for Design and Construction



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Today's objectives are...

- Provide a basic understanding of the process.
- Summarize the major changes in the 2018 *Guidelines*.



FGI Process Overview

Consensus-based process for *Guidelines* development using:

- Collective multidisciplinary experience
- Professional stakeholder consensus, including many AHJs (*no manufacturers vote on proposals*)
- Public review process
- Clinical and evidence-based research
- Continual improvement process



Every new edition of the FGI *Guidelines* is different and an “evolution” from previous editions.

FGI website: a way to keep current with FGI and *Guidelines* activities



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fgiguidelines.org

The screenshot shows the homepage of the Facility Guidelines Institute (FGI). At the top, the FGI logo is on the left, and the text 'FACILITY GUIDELINES INSTITUTE' and 'The keystone to health care planning, design, and construction' is on the right. Below this is a navigation bar with links for 'About FGI', 'Revision Process', 'Guidelines', 'Resources', and 'News & Updates'. The main content area is titled 'GUIDELINES' and features a grid of six categories: '2014 HOSPITAL / OUTPATIENT', '2014 RESIDENTIAL', '2010 EDITION', 'EARLIER EDITIONS', 'INTERPRETATIONS', and 'ADVISORY OPINIONS'. Below this is a yellow banner that says 'Submit Your Proposals' and 'Find out more'. The next section is 'Get your copy of the latest Guidelines edition.' with three book covers: 'Residential Health, Care, and Support Facilities', 'Hospitals and Outpatient Facilities', and 'TWO-BOOK SET: Hospitals and Outpatient Facilities AND Residential Health, Care, and Support Facilities'. Below that is a 'NEWS' section with four articles. At the bottom, there are 'Quick links', 'Contact', and 'Connect' sections. A 'Sign up' form is located in the bottom right corner, with a blue callout box pointing to it that says 'Sign up!'. The form has fields for 'First Name', 'Last Name', and 'Email', and a 'SIGN UP' button.

Sign up!



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FGI Resources

CONTACT FAQ



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About FGI Revision Process Guidelines Resources News & Updates

RESOURCES

Most of the research and knowledge we gather for each FGI Guidelines edition is incorporated into the documents. And some of it is published in papers and reports that can help you go beyond fundamentals to make reliable, longer-lasting decisions.

Search by: CATEGORY START DATE END DATE KEYWORD

2014 FGI Guidelines Update Series

- Updated Acoustic Criteria Address Noise Issue: FGI Guidelines 2014 Update Series #5
- Operating Room Requirements for 2014 and Beyond
- Medication Safety Zones

Beyond Fundamentals

- Design Guide for the Built Environment of Behavioral Health Facilities
- Beyond Fundamentals
- Sound Vibration Design Guidelines Sound & Vibration: Design Guidelines for Health Care Facilities

Education

- ASHRAE e-Learning Programs
- FGI Webinars
- 2014 FGI Guidelines program

FGI White Papers

- Common Mistakes in Designing Psychiatric Hospitals: An Update
- The Future of Health Care as Predicted Using Scenario Planning

FGI-Supported Research

- Designing for Patient Safety: Developing Methods to Integrate Patient Safety Concerns in the Design Process
- Current Views of Health Care Design and Construction: Practical Implications for Safer, Cleaner Environments
- Contribution of the Designed Environment to Fall Risk in Hospitals

Other Resources

- Room Ventilation and Airborne Disease Transmission
- Environment of Care and Health Care-Associated Infections



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Errata

Errata for the 2018 Guidelines for Design and Construction of Hospitals

Content Corrections

PAGE	SECTION	ERROR	CORRECTED TEXT
53	Table 1.2-6	<p>²In cases where greater speech privacy is required between patient care rooms when both room doors...</p> <p>⁴This is the performance required...</p>	<p>²This is the performance required</p> <p>⁴In cases where greater speech privacy is required between patient rooms when both patient <u>patient</u> room doors...</p>
67	2.1-1	<p>2.1-1 General</p> <p>...</p>	<p>2.1-1 General</p> <p>...</p> <p>2.1-1.1.4 Outpatient projects located in hospitals shall meet the requirements of the FGI Guidelines for Design and Construction of Outpatient Facilities.</p>
132	Table 2.1-2 Nurse Call Devices	<p>Procedure room/Class 2 imaging room Required stations: Both, Staff assistance Optional station: Emergency call</p> <p>Operating room/Class 3 imaging room Required stations: Both, Staff assistance</p> <p>Electroconvulsive therapy treatment room/pre-procedure and recovery patient care stations Required stations: Both, Staff assistance</p>	<p>Procedure room/Class 2 imaging room Required stations: Staff assistance, Emergency call Optional station: Nurse master</p> <p>Operating room/Class 3 imaging room Required stations: Staff assistance, Emergency call</p> <p>Electroconvulsive therapy treatment room/pre-procedure and recovery patient care stations Required stations: Staff assistance, Emergency call</p>
133	Table 2.1-3 Station Outlets	<p>Class 1 imaging room 1 oxygen, 1 vacuum, 1 medical air</p> <p>Operating room/Class 3 imaging room 2 oxygen, 5 vacuum, 1 medical air, 1 WAGD, 1 instrument air</p>	<p>Class 1 imaging room 1 oxygen, 1 vacuum</p> <p>Operating room/Class 3 imaging room 2 oxygen, 5 vacuum, 1 medical air, 1 WAGD</p>
152	2.2-2.8.2	<p>2.2-2.8.2 NICU Rooms and Areas</p> <p>...</p>	<p>2.2-2.8.2 NICU Rooms and Areas</p> <p>...</p> <p>2.2-2.8.2.6 Reserved</p> <p>2.2-2.8.2.7 Nurse call system. A nurse call system shall be provided in accordance with Section 2.1-8.5.1 (Call Systems).</p>

continued



FGI Bulletin

FGI Bulletin #7



May 16, 2018 | Category **FGI BULLETIN**

Errata Sheets Posted for 2018 Hospital and Outpatient Guidelines

The errata sheets prepared for all *Guidelines* editions are crucial to users of the documents. An errata sheet presents items that are errors in the published books, whether editorial oversights or discrepancies that were revealed after publication. The corrections shown in the errata sheets are considered part of the official documents and should be applied as part of the standards by all users, including authorities having jurisdiction.

Dated [errata sheets](#) are posted on the FGI website, and we recommend checking back periodically to make sure you have the most current version. We also will continue to let subscribers to the *FGI Bulletin* know when new errata sheets are posted. For the 2018 digital documents available on MADCAD, the goal is to identify corrections in the online version of the documents.

We appreciate hearing from *Guidelines* users who have questions about the content they use. This is often how errors are found. Write to us at info@fgiguidelines.org.

State Adoption Focus: Colorado



The State of Colorado recently adopted Chapter 4.1, Specific Requirements for Assisted Living Facilities, in the 2018 *Guidelines for Design and Construction of Residential Health, Care, and Support Facilities*. Adoption of the assisted living facility standards includes applicable cross-references found in the chapter. Exceptions to the *Guidelines* requirements are parking and elevator standards, which defer to local regulations.

For assisted living residences applying for a new license, application of



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FGI Interpretations

Health Guidelines Revision Committee

A committee of the Facility Guidelines Institute

www.fgiguidelines.org
info@fgiguidelines.org

David B. Uhaas, RA,
Chair

Douglas S. Erickson, FASHE, CHFM, HFDP, CHC
Facility Guidelines Institute
Chair Emeritus

Byron Burlingame, MS, RN, CNOR
ACRN

Christine Carr, MD, FACEP
Medical University of South Carolina

David Degenais
Wentworth-Douglass Hospital (ASHPE)

Richard D. Hermans, PE, HFDP
Dakin Applied (ASHRAE)

John Kouletis, AIA, EDAC
Bryan Langlands, AIA, ACHA, EDAC, LEED
NBBJ

Rebecca J. Lewis, FAIA, CID, FACHA
DSGW Architects

Charles S. Maggio, AIA, NCARB
CBRE | Healthcare

Jane M. Rohde, AIA, FIDA, ACHA, AAHID
JSR Associates

Wade Rudolph, CBET, CHFM
Mayo Clinic Health Systems Franciscan Healthcare

D. Paul Shackelford, Jr., MD, FACOG
Vidant Medical Center

Dana E. Swenson, PE, MBA
UMass Memorial Health Care System

Ellen Taylor, PhD, AIA, MBA, EDAC
Center for Health Design

Kirsten Waltz, AIA, EDAC, ACHA
Steffan Bradley Architects

John L. Williams
Washington State Department of Health

Paula Wright, RN, CIC
Massachusetts General Hospital

Heather B. Livingston
Director of Operations/Managing Editor, FGI

Yvonne Charwell
Associate Editor, FGI

Pamela James Blumgart
Consulting Editor, FGI

Chris Erickson
Administrative Manager, FGI

July 11, 2018

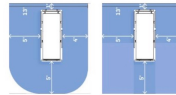
Richard Horeis, AIA
HDR, Inc.
Omaha, NE

Dear Mr. Horeis:

This letter is provided in response to your request for an interpretation of Section 2.2-2.6.2.2 (2) in the 2014 FGI Hospital/Outpatient *Guidelines*.

Question: In Section 2.2-2.6.2.2 (2), regarding clearances for critical care patient care stations, does the 5-foot clearance requirement at the foot of the bed only require clearance for the width of the bed itself, or is the clearance to be extended to include transfer side width (5 feet) and non-transfer side width (4 feet), such that the width of the clearance at the foot of the bed totals 14 feet?

Response: The clearance requirement at the foot of the bed is intended to create sufficient space for care of the patient. Space is needed around the corners of the bed to allow access and movement for equipment, staff, and family members. Staff must be able to easily move around the bed. As well, space is needed for IV and pain management systems, warmers, etc., and for use of patient lifts and gurneys. To accommodate these needs, the full dimension at the foot needs to be as wide as the clearances on the sides of the bed; however, the squared-off space this creates could be rounded off to accommodate structural or other non-movable encroachments. This response applies to all places in the *Guidelines* where clearance requirements are provided. The diagrams below may help clarify this response.

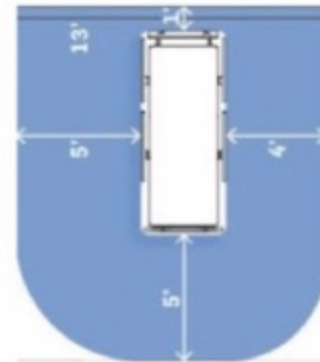


Radius Full area

This correspondence is neither intended, nor should it be relied upon, to provide professional consultation or services.

Sincerely,

Douglas S. Erickson, FASHE, CHFM, HFDP, CHC
Chair, HGRIC Interpretations Committee
314-800-7896
doug@fgiguidelines.org



Radius



Full area



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FGI Policy Statement Invasive vs Noninvasive



Advisory Opinion
 FGI Guidelines for Design and Construction Documents for
 Hospitals and Outpatient Facilities

Applying the FGI Guidelines to Spaces Where Invasive vs. Noninvasive Patient Care is Delivered

Each year, the Facility Guidelines Institute (FGI) receives numerous inquiries from designers, infection preventionists, and other clinical staff looking for guidance on where patient procedures can and cannot be performed in hospitals and outpatient facilities. Although FGI continues to strengthen our standards for new construction and renovation of areas where patient care is provided, the question of where patient procedures can be performed is not one the Guidelines for Design and Construction can precisely answer, nor is the Guidelines' language written with this intent.

The Guidelines require health care organizations to perform a functional program and a safety risk assessment during the planning and design phases of every project. One of the primary objectives of conducting these assessments is to actively engage clinicians, infection preventionists, and other care providers in the design process. The assessments challenge the project team, which includes clinical staff and designers, to consider how the built environment will support the organization's allocation of space for invasive and non-invasive procedures. In particular, the infection control risk assessment portion of the safety risk assessment is essential to ensure the care or renovated space will support infection prevention practices.

Using the Guidelines to determine design requirements for the types of procedures planned for a new or renovated space can be daunting. Depending on the procedure types, different floor/wall/ceiling surfaces, air exchange rates, and Classrooms as well as different locations for hand-washing or scrub stations and variable numbers of medical gas outlets may be required. To help decision-makers identify which spaces need which special physical environment features, the Guidelines provides a limited glossary definition of "invasive procedures" and, in the 2018 Hospital and Outpatient Guidelines document, a table (right)

Room Use	Room Type	Location	Surface
Exam or treatment room that requires high level disinfection and that does not require scrub stations or hand-washing stations	Exam room	Exam room	Cleaning, disinfectable and more resistant for decontamination table. Non-lead and non-ferrous materials. Ceiling: Acoustic with noise-reducing properties for air-sound control.
Procedure room	Procedure room	Procedure room	Cleaning, disinfectable and more resistant for decontamination table, wall, and ceiling. Also, wall and floor materials are resistant to corrosion, staining, and abrasion. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous.
Operating room	Operating room	Operating room	Cleaning, disinfectable and more resistant for decontamination table, floor, and the ceiling. Also, wall and floor materials are resistant to corrosion, staining, and abrasion. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous.

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that lists some basic procedures performed in examination/treatment, procedure, and operating rooms (this list is not exhaustive).

On one end of the spectrum is the operating room (OR) environment, which is classified as a "restricted area" and needs the maximum environmental control requirements. At the other end is the examination room or emergency department treatment room, where diagnoses and simple treatments are provided. Between these two room types is the procedure room, which is the space type most likely to present a conundrum to design teams and health care organization leaders—how should these rooms be classified and designed? The tricky part is determining when an OR may be required for procedures that otherwise could be safely performed in a procedure room. The 2018 table states that any procedure during which the patient will require physiological monitoring and is anticipated to require active life support must be done in an OR. "Active life support" was intended to mean that a machine is providing basic respiratory or circulatory functions (the patient is unable to either breathe and/or circulate blood on their own or unable to do so sufficiently to preclude physiologic damage). Respiratory assistance with general anesthesia or mechanical ventilation are examples of what the Health Guidelines Revision Committee intended by "active life support."

In the 2018 Guidelines for Design and Construction of Hospitals and Guidelines for Design and Construction of Outpatient Facilities, a new imaging room-classification system was introduced to help designers and clinicians determine what room types are needed for a new imaging facility. The imaging classes correspond with the exam/treatment, procedure, and operating room; Class 1 imaging rooms correspond with the exam/treatment, procedure, and operating room; Class 2 imaging rooms correspond with the exam/treatment, procedure, and operating room; Class 3 imaging rooms correspond with the exam/treatment, procedure, and operating room.

Room Use	Room Type	Location	Surface
Class 1 imaging room	Class 1 imaging room	Class 1 imaging room	Cleaning, disinfectable and more resistant for decontamination table, floor, wall, and ceiling. Also, wall and floor materials are resistant to corrosion, staining, and abrasion. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous.
Class 2 imaging room	Class 2 imaging room	Class 2 imaging room	Cleaning, disinfectable and more resistant for decontamination table, floor, wall, and ceiling. Also, wall and floor materials are resistant to corrosion, staining, and abrasion. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous.
Class 3 imaging room	Class 3 imaging room	Class 3 imaging room	Cleaning, disinfectable and more resistant for decontamination table, floor, wall, and ceiling. Also, wall and floor materials are resistant to corrosion, staining, and abrasion. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous. All surfaces shall be non-lead and non-ferrous.

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You must register to create an account that will allow you to access the FGI proposal platform. Please choose a login name and password that you will find easy to remember.

[Register Now!](#)

An Invitation to the 2022 *Guidelines* Revision Cycle Proposal Period (The proposal period will close on July 1, 2019, 4:00 am)

BACKGROUND: The FGI *Guidelines* documents provide fundamental, or baseline, requirements for the design and construction of included facility types, recommending minimum program, space, and equipment needs for clinical and support areas of hospitals, numerous outpatient facility types, and rehabilitation facilities as well as nursing homes, assisted living facilities, hospice facilities, independent living settings, adult day care facilities, and wellness centers. The documents also address minimum engineering design criteria for plumbing, electrical, and heating, ventilation, and air-conditioning (HVAC) systems. The Joint Commission, many federal agencies, and state authorities having jurisdiction use the *Guidelines* either as a code or a reference standard when reviewing, approving, and financing facility project plans; surveying, licensing, certifying, or accrediting newly constructed facilities; or developing their own codes.



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Defining differences of the *Guidelines*!



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Functional Program

- Owner driven
- Critical thinking and outcome driven
- Provision of executive summary
- Used by health care organization; updated accordingly
- Informs the physical space program
- Used by AHJ to evaluate design documents



Acoustic Requirements

“Unnecessary noise is the cruelest absence of care”

Florence Nightingale

The Six Key Topics

1. Site Exterior Noise
2. Acoustical Finishes and Details
3. Room Noise Levels
4. Sound Isolation & Speech Privacy
5. Electro-acoustics—Alarms, Sound Masking
6. Vibration



Elements of the SRA

- Falls (including noise causing poor sleep)
- Medication errors (noise and distraction)
- Behavioral health (noise reduction impact)
- Hospital-acquired infections
- Security
- Patient handling and movement
- Patient immobility (hospital only)

Infection
Control



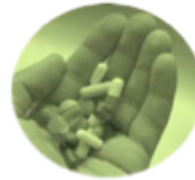
Patient
Handling



Falls



Medication
Safety



Behavioral
Health



Security



2018 Defining Minimum



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“Minimum” Guidelines Goals

- Multidisciplinary participation
- Not controlled by special interest, for-profit manufacturing
- Non-representational participation – every member expected to vote their conscience, not their organizational party line
- Rigorous consensus process
- Emphasis on evidence – importance of expert opinion
- Provide minimums – appendix references for beyond minimum and information for applying the requirements
- Matching design to function
- “Predicting” the future – staying flexible, contemporary

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Minimum is Difficult to Define

- Risk of being too minimal
(creates opportunity for harm)
- Consider risk/benefit for new minimums
- The minimum benchmark changes over time
- Cost is a reality in determining *Minimum Standards*



2018 Guidelines

- Split the standard into two parts:
 - Fundamental requirements – Minimum/baseline standards that can be adopted as code by AHJs.
 - Beyond Fundamentals – Emerging and/or best practices that exceed basic requirements
- Focus on primary care/outpatient facilities as the trend in health care delivery is continuing to move in that direction



2018 Guidelines



An overview of major topics that were addressed and some of the proposed changes discussed

Hospital and Outpatient Guidelines Major Topics Addressed

- Design of Telemedicine Services
- Emergency preparedness
- Design/clearances to accommodate patients of size
- Pre- and post-procedure patient care areas – flexibility to combine areas and correct ratios
- Procedure and operating room sizes that reflect space requirements for anesthesia team and equipment
- Classification system for imaging rooms

Hospital and Outpatient Guidelines Major Topics Addressed

- Guidance for when exam/treatment, procedure, and operating rooms are needed
 - Clearances and spatial relationships
 - Locations for procedure types
- Design of telemedicine spaces
- Sterile processing facilities
- Mobile/transportable medical unit revisions



Telemedicine Services

- Requires telemedicine space when clinical telemedicine services are provided
- May be a bay, cubicle, or room, permitted to be used for other purposes: e.g., patient room, physician's office, conference room
- Appendix recommendations on:
 - Room features
 - Placement of cameras and microphones
- Addresses privacy, acoustics, lighting, site identification (for reimbursement and orientation)



Emergency preparedness

- The design must provide space for resources needed to respond in an emergency.
- Design supports:
 - Sheltering in place
 - Continuance of service
- New appendix provides guidance on creating an emergency preparedness assessment, infrastructure assessment, and resiliency plan to absorb and recover from adverse events.



Accommodations for Patients of Size

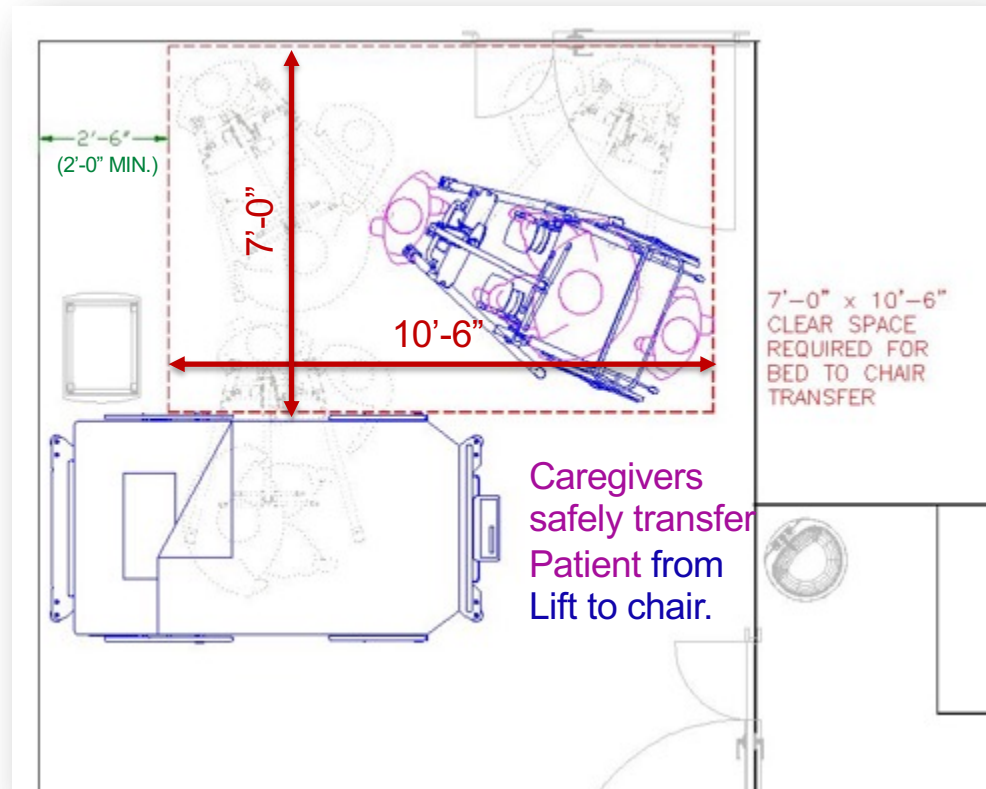
Determining “patient of size”:

- Patient’s weight
- Distribution of the patient’s weight throughout the body
- Patient’s height
- In the Hospital document: Bariatric nursing unit removed from facility chapters and accommodations for patients of size added as a common element to address the need for serving patients of size throughout a health care facility
- Accommodations for patients of size also added to Outpatient and Residential documents



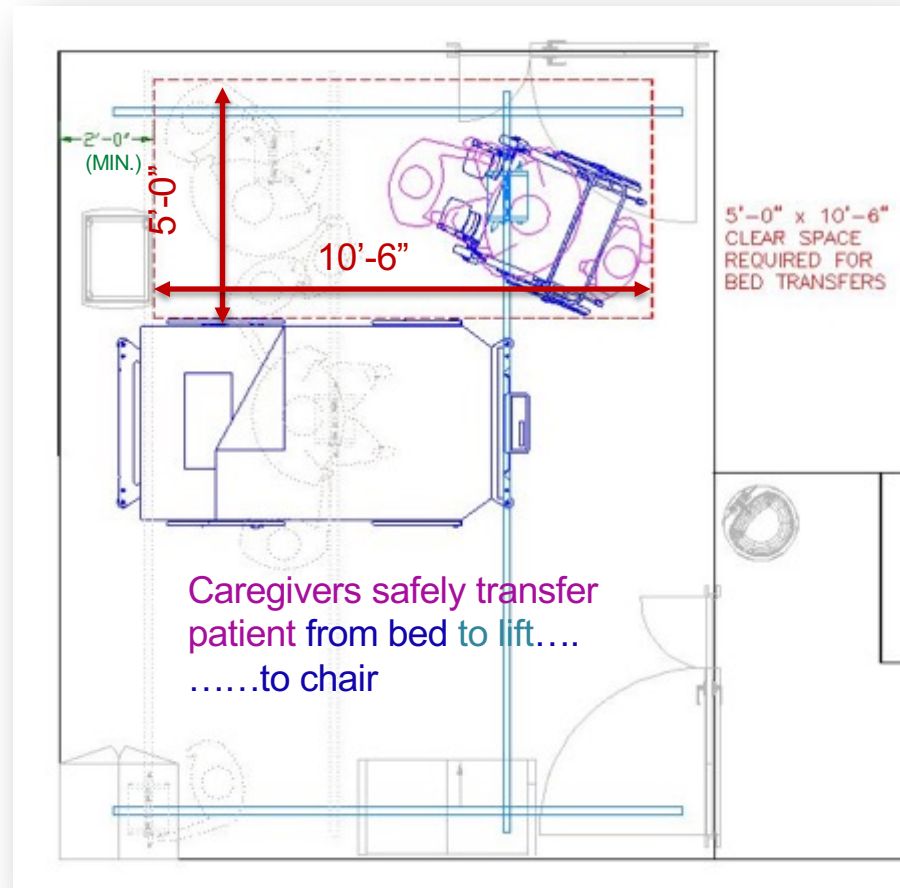
Patients of Size Environment

Minimum Clearances Required for Bed to Wheelchair Transfer Using Floor-based Full Body Sling



Patients of Size Environment

Minimum Clearances Required for Bed to Chair Transfer Using Ceiling Lift



Pre- and Post-Procedure Patient Care Areas

- Direct access to the semi-restricted area without crossing unrestricted public corridors
- Ability to combine all patient care stations (pre-, Phase I, Phase II) in one area
 - Must meet the most restrictive requirements
 - Where combined into one area, at least two patient care stations per procedure, operating, Class 2, or Class 3 imaging room



Pre- and Post-Procedure Patient Care Areas

Stations can be bays, cubicles, or single-patient rooms.

Clearances

- Bays (5 feet between gurneys, 3 feet between sides and adjacent walls, and 2 feet from foot of bed to the cubicle curtain)
- Cubicles (3 feet between sides and adjacent walls, 2 feet from foot of bed to the cubicle curtain)
- Where bays/cubicles face each other, need 8-foot aisle
- Room (3 feet between sides and foot to the wall)



Pre- and Post-Procedure Patient Care Areas

- If separate pre-procedure room
 - Minimum of one patient care station per imaging, procedure, or operating room
- Phase I PACU
 - One per operating room (was 1.5)
- Phase II recovery room
 - Minimum of one per imaging, procedure, or operating room



Invasive Procedure Definition

A procedure that is performed in an aseptic surgical field and penetrates the protective surfaces of a patient's body. May fall into one or more of the following categories:

- Requires entry into or opening a sterile body cavity
- Involves insertion of an indwelling foreign body
- Includes excision and grafting of burns that cover more than 20 percent of total body area
- Does not begin as an open procedure but has a risk, as determined by the physician, of requiring conversion to an open procedure



Why does it matter?



Definition of Invasive Procedure



Invasive –
Operating room



Patient care that may require sterile instruments but does not require OR environmental controls –
Procedure room



Non-invasive –
Exam room
Treatment room

Operating Rooms

Minimum clear floor area

- Hospitals: Still 400 sq. ft. or 600 sq. ft. for special procedures
- Outpatient: 255 sq. ft. unless general anesthesia administered, then 270 sq. ft.



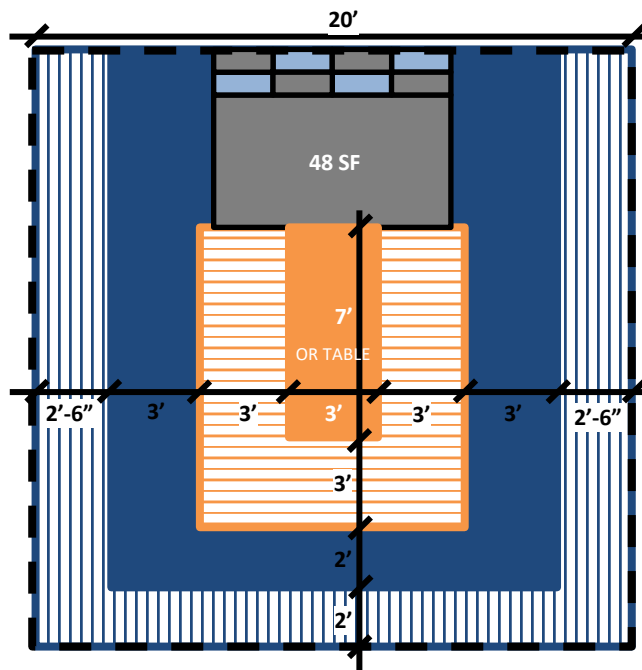
Operating Rooms

- Clearances for 400-sq-ft OR:
 - 8 feet 6 inches on each side
 - 6 feet at the head
 - 7 feet at the foot










Monolithic ceilings still required

Clearance Zone Diagram Hospital Operating Room



HOSPITAL OPERATING ROOM

-  Patient area
-  Sterile field where scrub and physician work
-  Circulation pathway where the circulator walks to perform duties. Cannot walk into sterile field.
-  Movable equipment zone where the required movable equipment is stored and provides for door swing and opening of fixed drawers or opening of door and drawers on carts
-  Anesthesia 6' x 8' work zone
-  Gray and White area is 2' area shared between anesthesia and circulator.
-  CFA Clear Floor Area - 400 SF

3' X 7' Gurney for planning purposes
 3' at Sides & Foot – Sterile Field
 3' at Sides, 2' at Foot – Circulation
 2'-6" at Sides, 2' at Foot – Equipment
 20' Minimum Width, 400 SF Minimum CFA

Procedure Room Definition

- For procedures that do NOT meet the glossary definition of “invasive procedure”
 - Can be performed outside the restricted space of the surgery department or facility
 - May require use of sterile instruments or supplies
 - Requires some environmental controls but not OR-level environmental controls

(Procedures performed in former Class A OR occur in procedure rooms.)

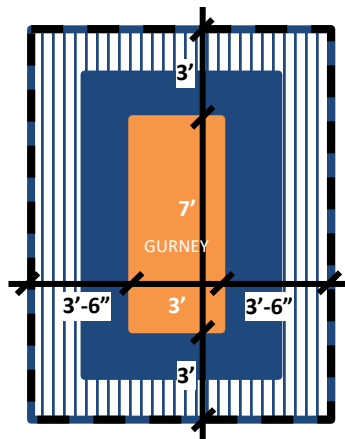


Procedure Room




- Semi-restricted area that is accessed from either semi-restricted or unrestricted corridor
- Space requirements
 - Clear floor area: reduced to 130 square feet
 - Clearances: 3 feet 6 inches on sides of table and 3 feet at head and foot of table
 - EXCEPTIONS where general anesthesia administered:
 - Clear floor area: 160 square feet
 - Clearances: 6 feet at head




Clearance Zone Diagram Procedure Room – Inpatient & Outpatient (NO Anesthesia Work Area)



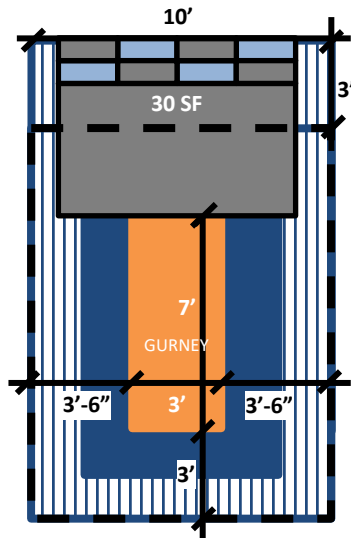
PROCEDURE ROOM ZONES WITHOUT ANESTHESIA WORK AREA

-  Patient area
-  Circulation pathway where the circulator walks to perform duties. Cannot walk into sterile field.
-  Movable equipment zone where the required movable equipment is stored and provides for door swing and opening of fixed drawers or opening of door and drawers on carts

 CFA Clear Floor Area - 130 SF

3'-0" Clearance at Head & Foot
3'-6" Clearance at Sides
130 SF CFA

Clearance Zone Diagram Procedure Room – Inpatient & Outpatient (Including Anesthesia Work Area)



PROCEDURE ROOM ZONES WITH ANESTHESIA WORK AREA

- Patient area
- Circulation pathway where the circulator walks to perform duties. Cannot walk into sterile field.
- Movable equipment zone where the required movable equipment is stored and provides for door swing and opening of fixed drawers or opening of door and drawers on carts
- Anesthesia 6' x 8' work zone
- Gray and White area is 2' area shared between anesthesia and circulator.
- CFA Clear Floor Area - 160 SF

3' X 7' Gurney for planning purposes
 6' x 8' Anesthesia Work Zone at Head
 2' x 8' at Perimeter, may serve as Circulation
3'-0" Clearance at Head & Foot, 3'-6" Clearance at Sides
130 SF + 30 SF (3' x 10') = 160 SF

Endoscopy

- **Endoscopy procedure rooms** shall meet the requirements for procedure rooms...except as follows:
 - Minimum clear floor area of 180 sq. ft. (reduced from 200)
 - Clearance of 5 feet at each side
 - Clearance of 3 feet 6 inches at head and foot
- **Endoscope processing room** is a semi-restricted area
 - Both decontamination and clean work areas with one-way traffic flow
 - Entrance and exit permitted to be from the procedure room



Endoscope Processing Room Design

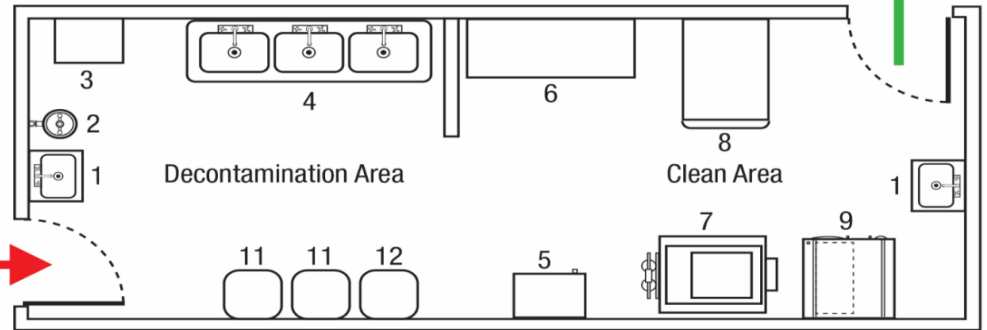
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FGI Guidelines

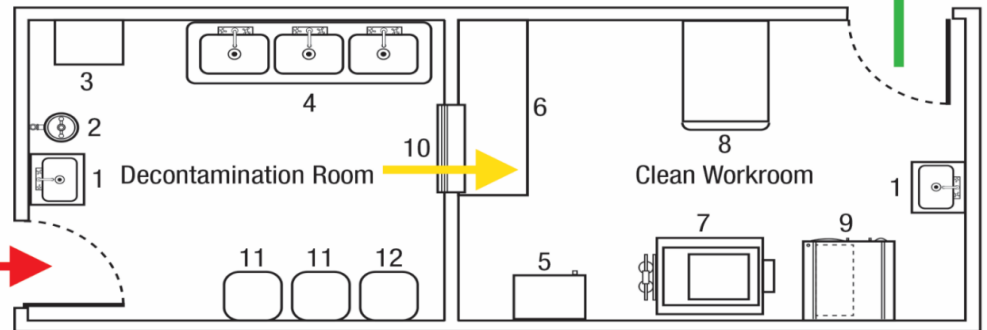
Designed to provide a **one-way traffic** of **contaminated** materials/instruments to **cleaned** materials/instruments to the sterilizer or mechanical processor.

Minimum clearance of 3 feet (91.44 cm) provided between the decontamination area and the clean work area.

Endoscopy Processing Room - One Room Design



Endoscopy Processing Room - Two Room Design: Decontamination Room and Clean Workroom



Classification of Imaging Room Types

Class 1 imaging room

- Diagnostic in nature (CT, MRI, fluoroscopy)
- Services that utilize natural orifice entry
- Accessed from an unrestricted area
- Basic environmental controls (ventilation, surfaces)



Classification of Imaging Room Types

Class 2 Imaging room

- Procedures:
 - Diagnostic and therapeutic
 - Electrophysiology
 - Endoscopic
- Accessed from an unrestricted or semi-restricted area
- Some environmental controls for procedures such as cardiac cath



Classification of Imaging Room Types

Class 3 imaging room and operating room

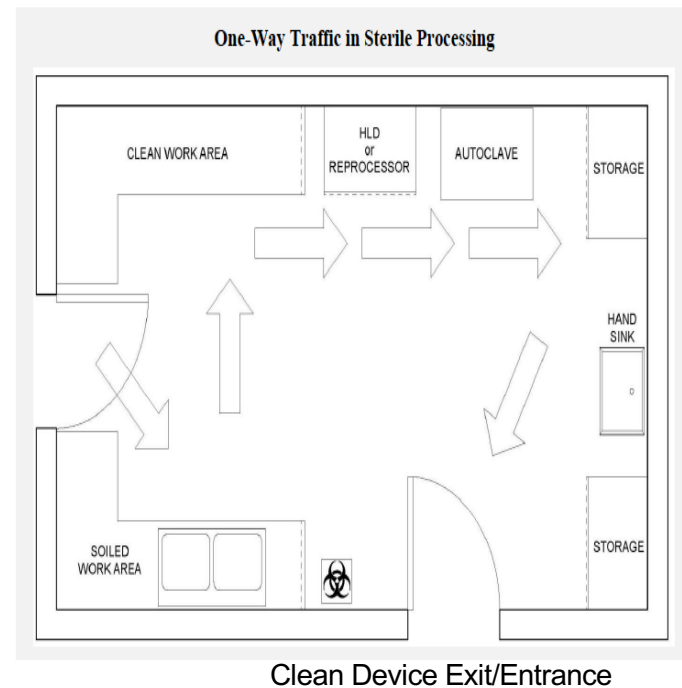
- Invasive procedures
- Any Class 2 procedure the physician identifies with a risk of needing conversion to an open procedure
- Accessed from a semi-restricted area
- Environmental controls of an operating room



Sterile Processing

Facilities outside a sterile processing department shall comply with all requirements for two-room sterile processing areas unless the equipment is limited to a table-top or similar-sized sterilizer, in which case a single room is acceptable.

Decontamination
Entrance



Sterile Processing

- Sterile processing areas shall:
 - Be a semi-restricted area
 - Support a one-way traffic pattern
 - Have at least two entrances
 - Consist of a decontamination room and a clean workroom, separated by a wall with a door or pass-through



Hospital Guidelines Other Notable Changes

- Single-bed CCU rooms
- Sexual assault forensic exam room
- Geriatric treatment room in ED
- Technology distribution room size



Critical Care Unit

- Each patient care station shall be a single-patient room.
- In renovation, cubicles would be permitted.



Sexual Assault Forensic Exam Room

If provided, must meet the requirements of a single-patient exam room. Exam room contains:

- Pelvic examination bed/table
- Lockable storage area for forensic collection kits
- Private toilet and shower
- Readily accessible consultation room



Geriatric Treatment Room in ED

Focus on reducing risk of patient falls

Provides brief guidance on:

- Surfaces & furnishings
- Flooring and furniture



Technology Distribution Room Size

All TDRs shall provide a minimum 3-foot clearance on all sides of the equipment rack(s).



Mobile/Transportable Medical Units

- Only applies to units being used on a temporary basis
- Does not apply to units placed into service as a result of:
 - Civil or local emergencies
 - Catastrophes
- Does not apply to modular/relocatable units



Mobile/Transportable Medical Units

- Designations for medical units
 - Class 1
 - Exam/Treatment room
 - Class 1 imaging room
 - Class 2
 - Procedure room
 - Class 2 imaging room
 - Class 3
 - Operating room
 - Class 3 imaging room



Outpatient Guidelines is now a separate book

Part 1: Introduction

Part 2: Outpatient Facility Types

Chapter 2.1: Common Elements for OP Facilities

Facility type chapters:

- Include chapter on freestanding emergency departments from Hospital book
- Mobile/transportable units will also be included in both the Outpatient and Hospital documents



Outpatient Guidelines

Common Elements

- Patient care and diagnostic areas (clinical rooms, telemedicine, imaging, etc.)
- Patient support areas (pharmacy, lab, linen, sterile processing)
- Building support areas (environmental services, waste management, materials management)
- Public and administrative areas
- Architectural details, surfaces, and furnishings
- Building systems
- Acoustic tables tailored for outpatient facilities



Outpatient Guidelines Other Notable Changes

- Two approaches to applying requirements to facility projects
- Attention to flexibility for small projects
- Acknowledgment some facilities may be part of larger buildings owned by others
- Adjustments to building system requirements
- Consistent waiting room requirements for outpatient facilities
- Mobile/transportable medical unit revisions



Ventilation Standards

They are a mess...here are the organizations with something to say about compliance.



The keystone to health care planning, design, and construction

ASHRAE 170 and the Guidelines

Hospital and Outpatient ventilation requirements

This section is a reprint of the 2017 ASHRAE Standard 170. FGI and ASHRAE have a partnership to work on the content together and to publish Standard 170 as a part of the *Guidelines*.



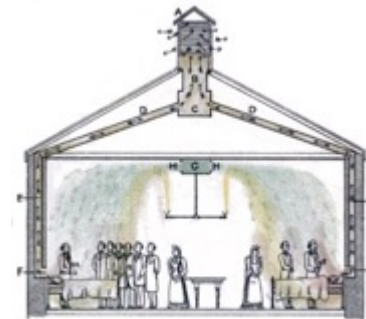
FGI



The keystone to health care planning, design, and construction

ASHRAE 170 and the Outpatient Guidelines

- Ambulatory surgery and endoscopy facilities shall comply with all of ASHRAE 170
- The following facility types only have to meet ventilation requirements for the spaces listed in ASHRAE 170, other spaces not listed do not have to comply with ASHRAE 170:
 - Imaging facilities with Class 2 and 3 imaging rooms
 - Infusion facilities
 - Dialysis facilities



ASHRAE 170 and the Outpatient Guidelines

- The following facility types do not have to comply with ASHRAE 170 but should follow local mechanical codes:
 - General and specialty medical services
 - Urgent care
 - Imaging facilities with Class 1 imaging rooms
 - Outpatient psychiatric facilities
 - Outpatient rehabilitation facilities
 - Dental facilities
 - Birth centers



ASHRAE 170

- Initial committee meetings in 2002
- First standard issued in 2008
- Updated through a continuous maintenance process
- New edition published every 4 years
- FGI and ASHRAE try to keep in sync with each other
- Included in the *Hospital and Outpatient Guidelines*



Continuous Maintenance Process

Under continuous maintenance procedures anyone may propose changes at any time. Each change will be considered by the appropriate Standing Standard Project Committee (SSPC) or Standing Guideline Project Committee (SGPC), according to a definite schedule, shown in Clause 2. The project committees may also propose changes



ASHRAE 170 – (2008 – 2013)

- Patient room total air changes per hour reduced from 6 to 4
- Endoscopy procedure room pressure relationship changed to no requirement
- Added language on fully ducted return or exhaust air systems
 - Any location where pressure relationship must be maintained
 - Recovery rooms, critical and intensive care areas, intermediate care areas, burn units
 - Patient care areas of inpatient facilities
- OR air change rate setback
- Switchable pressure systems are not permitted



ASHRAE 170 – (2013 – 2017)

- Exam room air changes per hour – reducing from 6 – 4
- Clarification of outpatient occupancy requirements
- OR classification
- Clarification of “recirculating room HVAC units”
- OR air distribution – primary diffuser array requirements
- Residential health care requirements
- Coordination of central sterile ventilation and OR humidity requirements with AAMI

Now onto our old “friend”...

CMS

CENTERS for MEDICARE & MEDICAID SERVICES



The keystone to health care planning, design, and construction

CMS Regulation for Ventilation

§482.41(c)(4) - There must be proper ventilation, light, and temperature controls in pharmaceutical, food preparation, and other appropriate areas.

- Interpretive Guidelines §482.41(c)(4)

Temperature, humidity and airflow in the operating rooms must be maintained within acceptable standards to inhibit bacterial growth and prevent infection, and promote patient comfort. Excessive humidity in the operating room is conducive to bacterial growth and compromises the integrity of wrapped sterile instruments and supplies. Each operating room should have separate temperature control. Acceptable standards such as from the Association of Operating Room Nurses (AORN) or the American Institute of Architects (AIA) should be incorporated into hospital policy.

CMS Regulation for Ventilation

§482.41(c)(4) - There must be proper ventilation, light, and temperature controls in pharmaceutical, food preparation, and other appropriate areas.

Survey Procedures §482.41(c)(4)

- Verify that the hospital is in compliance with ventilation requirements for patients with contagious airborne diseases, such as tuberculosis, patients receiving treatments with hazardous chemical, surgical areas, and other areas where hazardous materials are stored.
- Verify that each operating room has temperature and humidity control mechanisms.
- Review temperature and humidity tracking log(s) to ensure that appropriate temperature and humidity levels are maintained.

All bad roads lead to CMS...

The Main Issue: If you design to current Standard 170 requirements, CMS may require you to comply with the 2008 edition, without amendments, anyway. This is a potential problem when requirements of the 2008 edition have been relaxed or reduced by amendments to either the 2008 or 2013 edition. This is also a potential issue with states that have not adopted the current edition or addenda.



CMS referencing 2012 NFPA 99

Chapter 9 Heating, Ventilation, and Air Conditioning (HVAC)

Chapter 9 was added by a tentative interim amendment (TIA). See page 1.

9.1 Applicability.

9.1.1 This chapter shall apply to construction of new health care facilities, except as noted in 9.1.2 and 9.1.3.

9.1.2 This chapter shall also apply to the altered, renovated, or modernized portions of existing systems or individual components.

9.1.3 Existing construction or equipment shall be permitted to be continued in use when such use does not constitute a distinct hazard to life.



2.3.2 ASHRAE Publications. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329-2305

ASHRAE 170, *Ventilation of Health Care Facilities*, 2008.

ASHRAE 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, 2010.

ASHRAE Guideline 0, *The Commissioning Process*, 2005.

ASHRAE Guideline 1.1, *HVAC&R Technical Requirements for The Commissioning Process*, 2007.



CMS Application of ASHRAE 170

Addendum a – 2008

- » CMS could require 70°F - 75°F temperature range vs. 72°F to 78°F
- » While the addition of the word “patient” in front of “corridor” in Table 7.1 was intended to clarify that non-patient corridors do not need to meet these requirements, CMS could potentially apply these requirements to all corridors.

Addendum b – 2008

- » CMS could preclude the use of recirculating room HVAC units in laboratories (no chilled beams)
- » CMS could require positive pressure in endoscopy, ICU and Burn Unit rooms vs. no requirement
- » CMS could require 15 ACH of Total air vs. 6 in an endoscopy procedure room



CMS Application of ASHRAE 170

Addendum w – 2008

Gastrointestinal Endoscopy Procedure Room

- Positive pressure
- Reduces minimum Relative Humidity to 20%
- Requires space to be treated as Bronchoscopy if both procedures will be performed in the same space
- Changes differential pressure from Positive to No Requirement (N/R)
- CMS may not allow endoscopy and bronchoscopy procedures to be performed in the same room

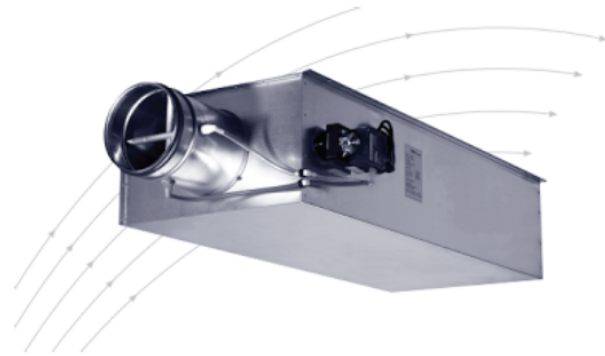


CMS Application of ASHRAE 170

Ducted Return Air Systems

In addition to spaces listed in Table 7.1 that have differential pressure requirements, these spaces also must be served by ducted return air systems:

- Recovery Rooms
- Critical and Intensive Care
- Intermediate Care
- Burn Unit



Q & A

Thank you for allowing me to join you today!



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