



# **FGI 2018 Guidelines Update**

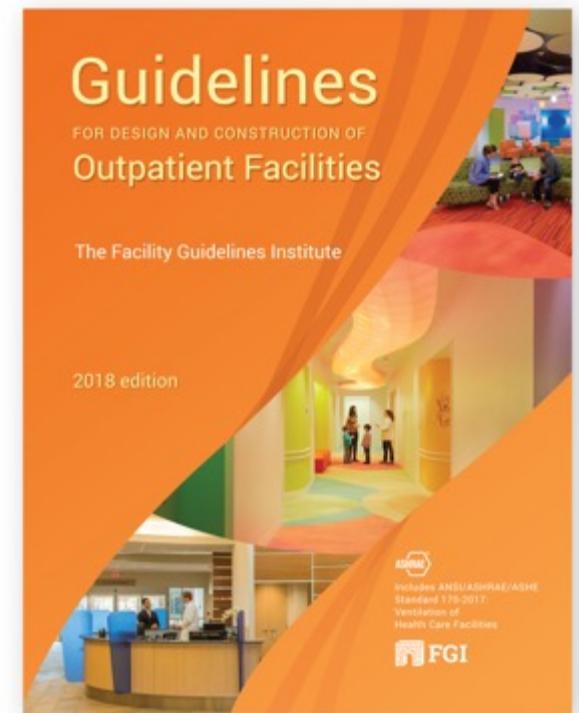
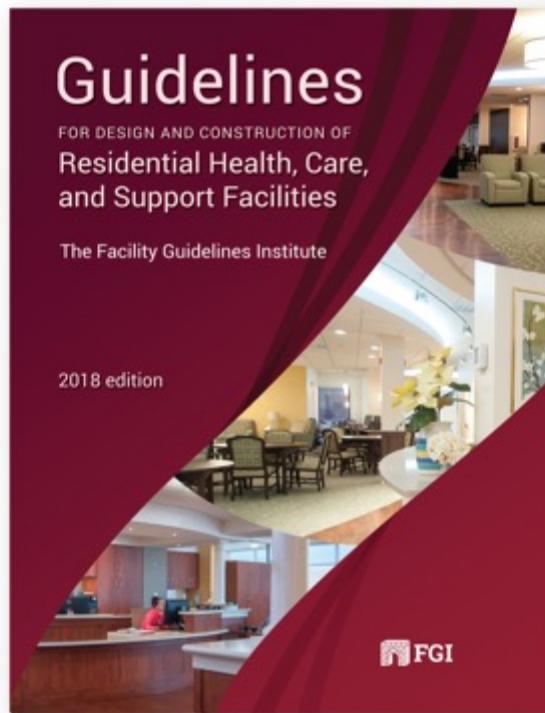
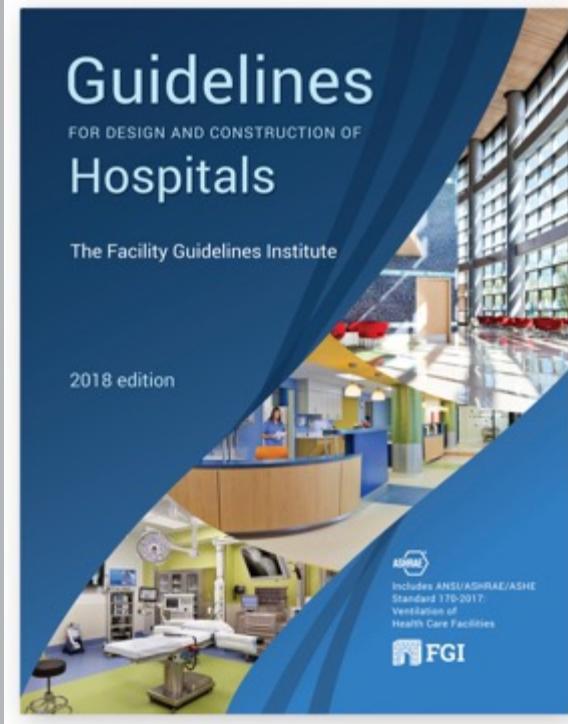
September 5, 2019

**FACILITY GUIDELINES INSTITUTE**

The keystone to health care planning, design, and construction



# 2018 Guidelines Update – Oklahoma Hospital Association



## FACILITY GUIDELINES INSTITUTE

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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*.



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# 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 fgiguidelines.org. At the top, there's a navigation bar with links for 'About FGI', 'Revision Process', 'Guidelines', 'Resources', and 'News & Updates'. Below the navigation is a search bar and a contact link. The main header 'FACILITY GUIDELINES INSTITUTE' is prominently displayed, with the tagline 'The keystone to health care planning, design, and construction' underneath. A large section titled 'GUIDELINES' features six categories with icons: '2014 HOSPITAL / OUTPATIENT', '2014 RESIDENTIAL', '2010 EDITION', 'EARLIER EDITIONS', 'INTERPRETATIONS', and 'ADVISORY OPINIONS'. Below this is a yellow banner with a 'Submit Your Proposals' button and a 'Find out more' link. A red call-to-action button says 'Get your copy of the latest Guidelines edition.' It shows three book covers: 'Residential Health, Care, and Support Facilities', 'Hospitals and Outpatient Facilities', and a 'TWO-BOOK SET: Hospitals and Outpatient Facilities AND Residential Health, Care, and Support Facilities'. The 'NEWS' section at the bottom has four items: 'FGI to Publish Design Guide for Behavioral Health Facilities', 'Future of Healthcare Report Now Available', 'First Formal Interpretation of 2014 Hospital and Outpatient Guidelines Posted', and 'Updated Errata Sheets Posted for 2014 FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities'. At the very bottom, there's a 'Quick links' section with links to 'ABOUT FGI', 'REVISION PROCESS', 'GUIDELINES', 'RESOURCES', and 'NEWS & UPDATES'. To the right, there's a 'Contact' section with links to 'E-MAIL US', 'Connect' (with a 'LinkedIn' icon), and a 'Sign up' form. The 'Sign up' form includes fields for 'First Name', 'Last Name', 'Email', and a 'SIGN UP!' button. A blue circle highlights the 'Sign up' form, and a blue arrow points from it to a large blue-outlined box containing the text 'Sign up!'

Sign up!



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# FGI Resources



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A horizontal navigation bar with links: About FGI, Revision Process, Guidelines, **Resources**, and 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:

2014 FGI Guidelines Update Series	Beyond Fundamentals	Education
Updated Acoustic Criteria Address Noise Issue: FGI Guidelines 2014 Update Series #5	Design Guide for the Built Environment of Behavioral Health Facilities	ASHE e-Learning Programs
Operating Room Requirements for 2014 and Beyond	Beyond Fundamentals	FGI Webinars
Medication Safety Zones	Sound Vibration Design Guidelines Sound & Vibration: Design Guidelines for Health Care Facilities	2014 FGI Guidelines program

FGI White Papers	FGI-Supported Research	Other Resources
Common Mistakes in Designing Psychiatric Hospitals: An Update	Designing for Patient Safety: Developing Methods to Integrate Patient Safety Concerns in the Design Process	Room Ventilation and Airborne Disease Transmission
The Future of Health Care as Predicted Using Scenario Planning	Current Views of Health Care Design and Construction: Practical Implications for Safer, Cleaner Environments	Environment of Care and Health Care-Associated Infections
	Contribution of the Designed Environment to Fall Risk in Hospitals	



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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	<sup>4</sup> In cases where greater speech privacy is required between patient <del>care</del> rooms when both room doors... <sup>4</sup> This is the performance required...	<sup>2</sup> This is the performance required <sup>4</sup> In cases where greater speech privacy is required between patient rooms when both patient <u>patient</u> room doors...
67	2.1-1	<b>2.1-1 General</b> ...	<b>2.1-1 General</b> ... <b>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.</b>
132	Table 2.1-2 Nurse Call Devices	<b>Procedure room/Class 2 imaging room</b> <i>Required stations: <del>Bath</del>, Staff assistance Optional station: <del>Emergency call</del></i>  <b>Operating room/Class 3 imaging room</b> <i>Required stations: <del>Bath</del>, Staff assistance</i>  <b>Electroconvulsive therapy treatment room/pre-procedure and recovery patient care stations</b> <i>Required stations: <del>Bath</del>, Staff assistance</i>	<b>Procedure room/Class 2 imaging room</b> <i>Required stations: Staff assistance, <u>Emergency call</u> Optional station: <u>Nurse master</u></i>  <b>Operating room/Class 3 imaging room</b> <i>Required stations: Staff assistance, <u>Emergency call</u></i>  <b>Electroconvulsive therapy treatment room/pre-procedure and recovery patient care stations</b> <i>Required stations: Staff assistance, <u>Emergency call</u></i>
133	Table 2.1-3 Station Outlets	<b>Class 1 imaging room</b> 1 oxygen, 1 vacuum, <del>1 medical air</del>  <b>Operating room/Class 3 imaging room</b> 2 oxygen, 5 vacuum, 1 medical air, 1 WAGD, <del>1 instrument air</del>	<b>Class 1 imaging room</b> 1 oxygen, 1 vacuum  <b>Operating room/Class 3 imaging room</b> 2 oxygen, 5 vacuum, 1 medical air, 1 WAGD
152	2.2-2.8.2	<b>2.2-2.8.2 NICU Rooms and Areas</b> ...	<b>2.2-2.8.2 NICU Rooms and Areas</b> ... <b>2.2-2.8.2.6 Reserved</b> <b>2.2-2.8.2.7 Nurse call system.</b> A nurse call system shall be provided in accordance with Section 2.1-8.5.1 (Call Systems).

*continued*



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# 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](mailto: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](http://www.fgiguidelines.org)  
info@fgiguidelines.org

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Douglas S. Erickson, FASHE, CHFM, HFDP, CHC  
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July 11, 2018

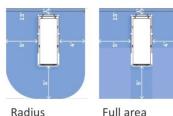
Richard Horeis, AIA  
HDR, Inc.  
Omaha, NE

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?

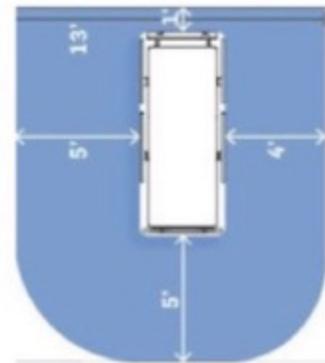
**Response:** The clearance requirement at the foot of the bed is intended to create sufficient space for care of the patient. Space is needed around the corners of the bed to allow access and movement for equipment, staff, and family members. Staff must be able to easily move around the bed. As well, 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.



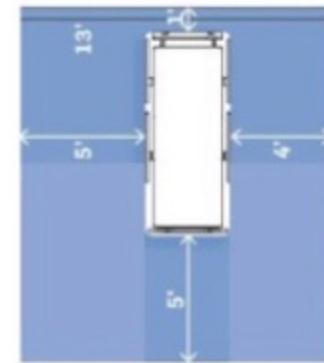
This correspondence is neither intended, nor should it be relied upon, to provide professional consultation or services.

Sincerely,

Douglas S. Erickson, FASHE, CHFM, HFDP, CHC  
Chair, HGRC Interpretations Committee  
314-806-7896  
[doug@fgiguidelines.org](mailto:doug@fgiguidelines.org)



Radius



Full area

# 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 Guideline language written with this intent.

The Guideline requires 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 two-driven 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 space 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 new 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 floors, ceiling heights, air exchange rates, and clearances as well as different locations for hand-washing or scrub stations and variable numbers of medical gowns, personal protective equipment may be required. To help ensure that users can identify which spaces need which special physical environment features, the Guideline provides a limited glossary definition of "invasive procedure" and, in the 2018 Hospital and Outpatient Facility documents, a table (right).

Classification/Treatment, Procedures, and Operating Room Classification*					
Area	Use	Design Requirements			
		Area Type	Location	Surfaces	
Operating room	Patient care that requires the use of aseptic technique and sterile equipment, such as clean rooms, ORs, and procedure rooms. These rooms require the most stringent environmental controls and are the most expensive to construct and maintain.	Isolated	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Operating, clean and non-contaminated surfaces; wall-to-wall carpeting prohibited.	
Procedure room	Patient care that requires the use of aseptic technique or the use of aseptic technique in conjunction with minimal environmental controls. These rooms are the least expensive to construct and maintain.	Isolated	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Operating, clean and non-contaminated surfaces; wall-to-wall carpeting prohibited.	
Operating room	Invasive procedures* that require the use of aseptic technique and sterile equipment, such as clean rooms, ORs, and procedure rooms. These rooms require the most stringent environmental controls and are the most expensive to construct and maintain.	Isolated	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Operating, clean and non-contaminated surfaces; wall-to-wall carpeting prohibited.	

\*This table includes a short description of what clinical services are performed in these space types and a summary of basic applicable requirements the space should have in the 2018 Guidelines for Design and Construction of Hospitals. The table can be used to quickly determine where specific types of procedures or operating rooms are required for specific "treatment areas" (operating rooms).

Other design requirements that apply to these room types include, but are not limited to, ventilation, lighting, and sound transmission requirements. See 1.1.2.1.1 and 1.1.2.1.2 for more information on these requirements. For specific requirements for these room types, see Section 1.1.2.1.2.3.3 for the specific locations in the hospital and health system for lighting requirements and Section 1.1.2.1.2.3.3 for acoustic design for noise transmission requirements.

\*Invasive procedure is defined in the glossary.

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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 diagnostic and simple treatments are performed. Between these two room types is the procedure room, which is the type of space likely to provide a common area to do minor tests and treatments when an OR, which may be required for procedures that otherwise could be safely performed in a procedure room. The 2018 edition 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 breath 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 determine what room types are needed for a new imaging facility. The imaging classes correspond with the exam/treatment, procedure, and operating room for diagnostic procedures. Class 1 imaging rooms for minimally invasive procedures, and Class 3 imaging rooms, which are ORs with mobile or built-in medical equipment (the latter is defined as a hybrid OR), for invasive procedures (i.e., surgery). Like the categories of the procedure rooms in the FGI table, the distinction between when a Class 2 and a Class 3 imaging room is needed is the most difficult to determine. The 2018 edition also includes a table (left) to help users understand the differences between these imaging room types.

While guidance is provided in the Guideline for newly

Classification of Room Types for Imaging Services*					
Area	Use	Area Type		Design Requirements	
		Class 1 Imaging room	Class 2 Imaging room	Class 3 Imaging room	Surfaces
	Diagnostic and therapeutic procedures, such as mammograms, ultrasounds, magnetic resonance imaging, and other diagnostic procedures.	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Operating, clean and non-contaminated surfaces; wall-to-wall carpeting prohibited.
	Diagnostic and therapeutic procedures, such as mammograms, ultrasounds, magnetic resonance imaging, and other diagnostic procedures.	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Accessed through a separate entrance; located in a separate building or wing; located in a separate area of the hospital or medical facility.	Operating, clean and non-contaminated surfaces; wall-to-wall carpeting prohibited.
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\*This table includes a short description of the imaging services performed in these room types and a summary of basic applicable requirements the space should have in the 2018 Guidelines for Design and Construction of Hospitals. The table can be used to quickly determine where specific types of imaging services are required for specific "treatment areas" (imaging rooms).

Other design requirements that apply to these imaging room types include, but are not limited to, ventilation, lighting, and sound transmission requirements. See 1.1.2.1.1 and 1.1.2.1.2 for more information on these requirements. For specific requirements for these room types, see Section 1.1.2.1.2.3.3 for the specific locations in the hospital and health system for lighting requirements and Section 1.1.2.1.2.3.3 for acoustic design for noise transmission requirements.

\*Imaging procedure is defined in the glossary.

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# Be a part of the *Guidelines* success – get involved!

The image shows a user interface for a website. On the left, there is a white rectangular area containing a 'Login' form. The form has the title 'Login' at the top, followed by the sub-instruction 'Sign In to your account'. Below this are two input fields: the first is labeled 'Username / E-mail' and the second is labeled 'Password', both preceded by small icons. At the bottom of this section are two buttons: a red 'Login' button on the left and a blue 'Forgot password?' link on the right. To the right of this white area is a large red rectangular box with the title 'Sign up' at the top. The text inside the red box reads: '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.' At the bottom of this red box is a red 'Register Now!' button.

## 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 cruellest absence of care”*

Florence Nightingale

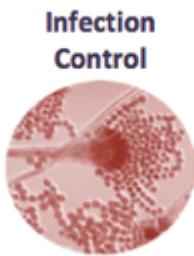
## The Six Key Topics

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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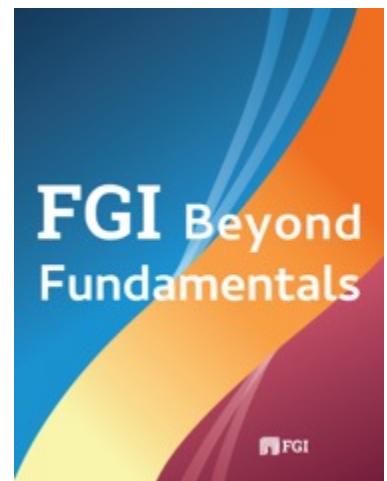
# Minimum is Difficult to Define

- 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



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# 2018 Guidelines



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



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# 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



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# 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.



Architectural Record



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# Accommodations for Patients of Size

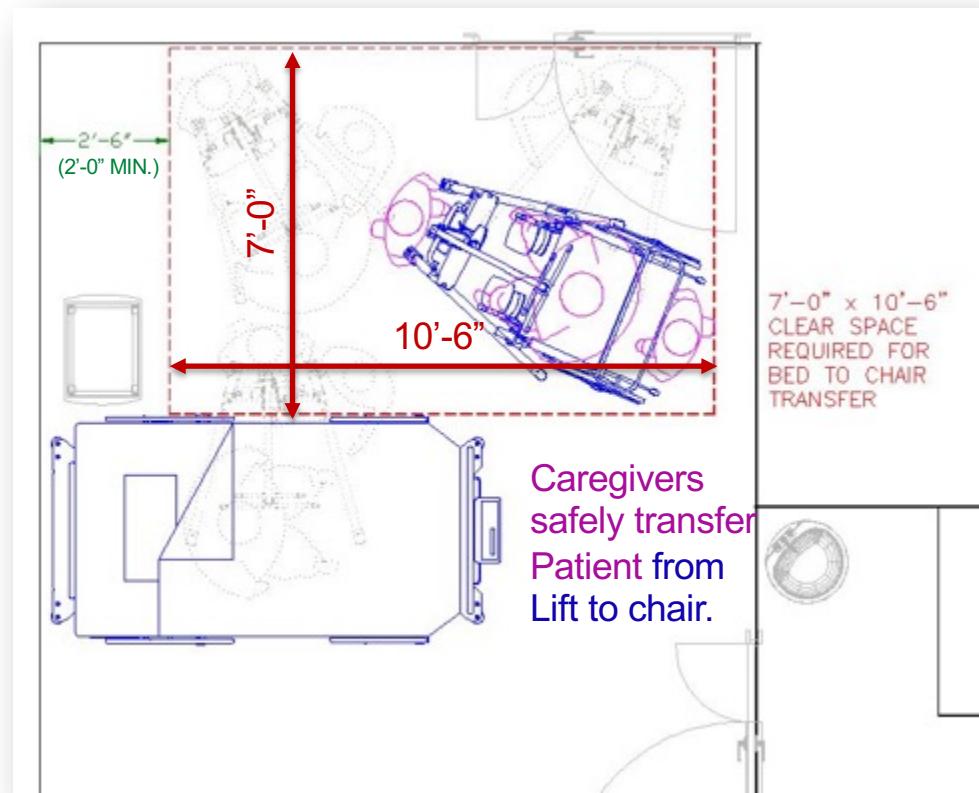
Determining “patient of size”:

- 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



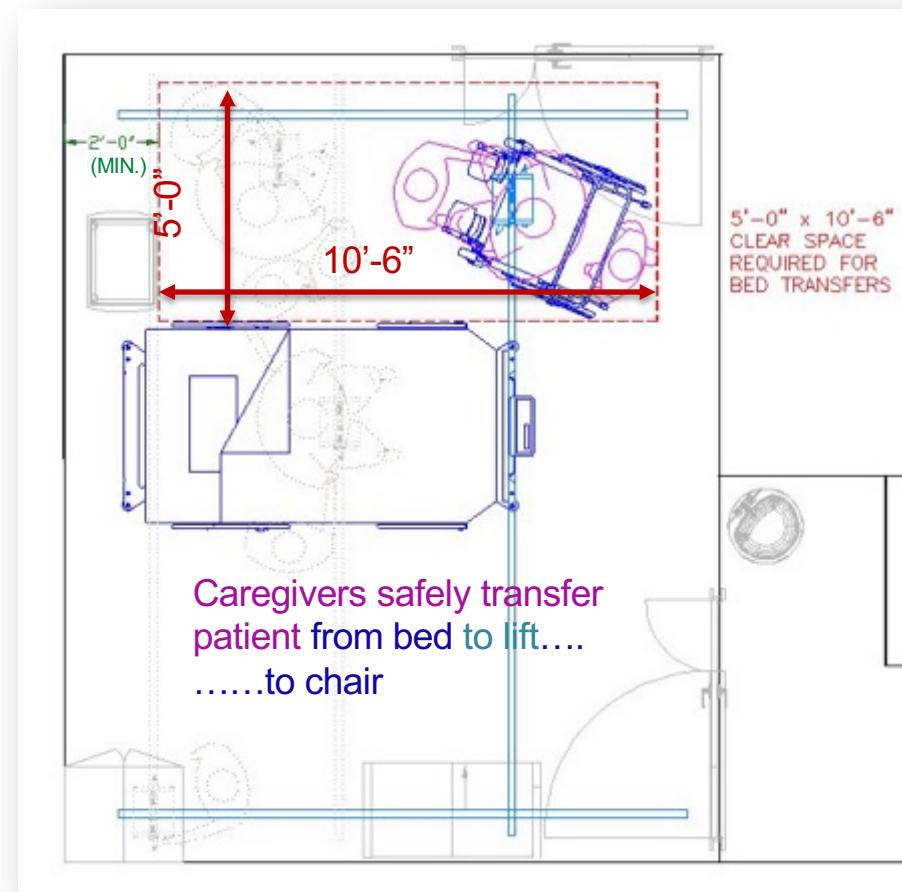
# Patients of Size Environment

## 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



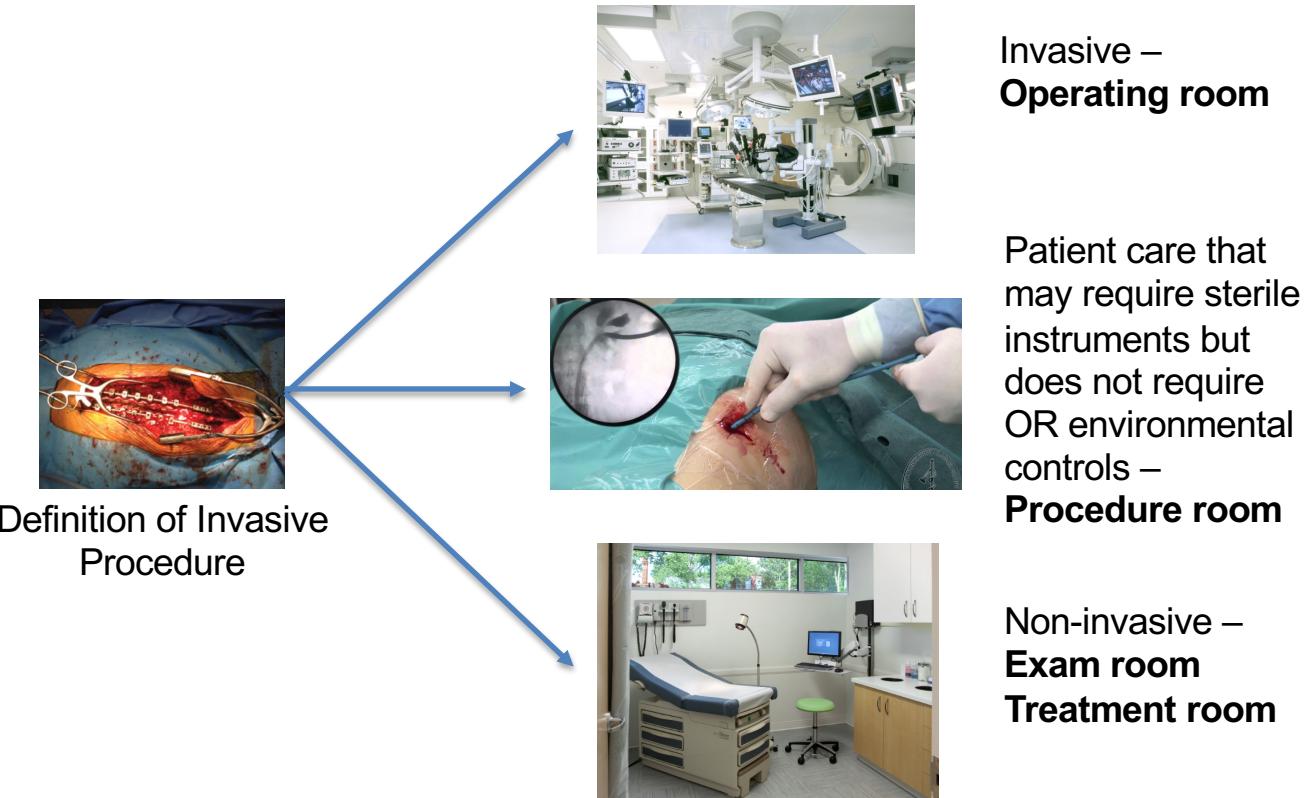
# Invasive Procedure Definition

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?



# 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.



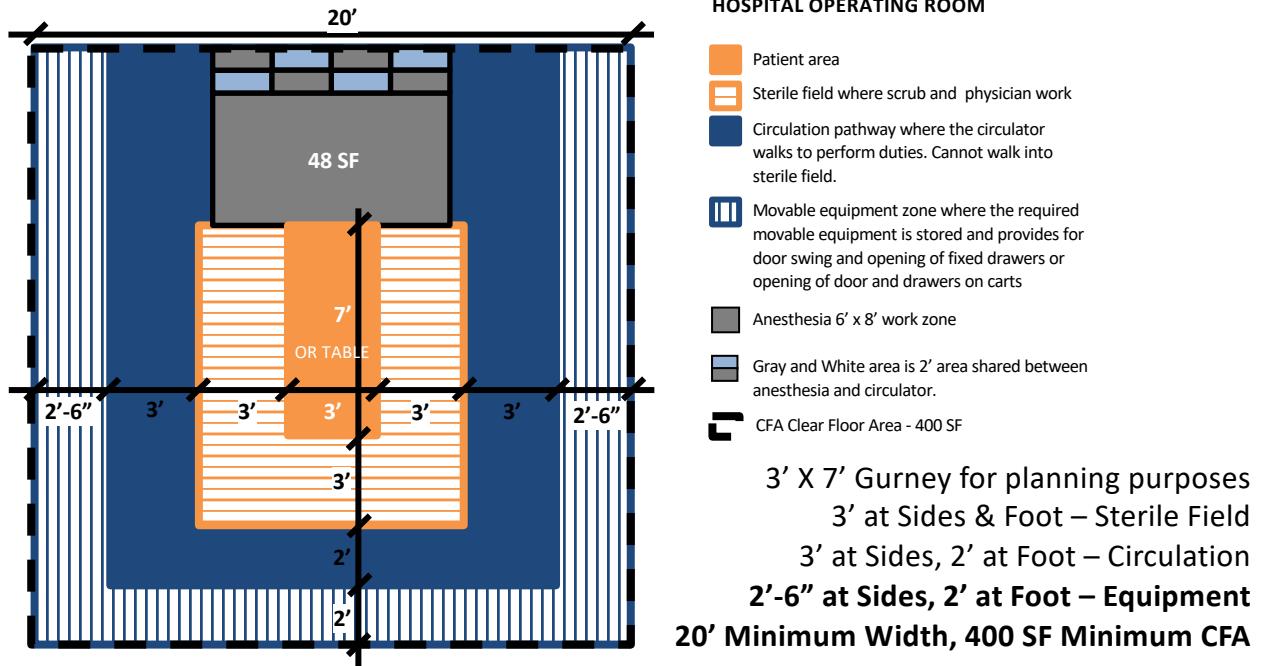
# Operating Rooms

- 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



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# 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.)



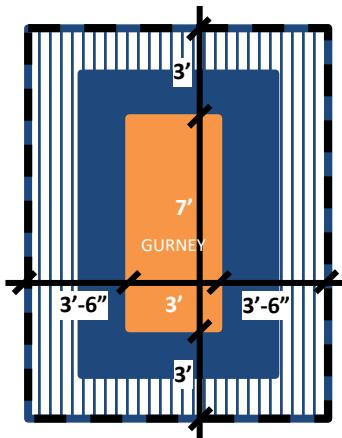
# Procedure Room

- 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

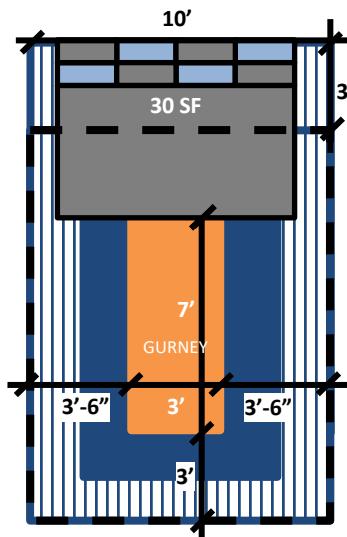
- Patient area
- Circulation pathway where the circulator walks to perform duties. Cannot walk into sterile field.
- Movable equipment zone where the required movable equipment is stored and provides for door swing and opening of fixed drawers or opening of door and drawers on carts

 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

- [Orange square] Patient area
- [Dark Blue square] Circulation pathway where the circulator walks to perform duties. Cannot walk into sterile field.
- [Blue square with vertical lines] 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
- [Grey square] Anesthesia 6' x 8' work zone
- [Light Blue square] Gray and White area is 2' area shared between anesthesia and circulator.
- [Black square with curved arrow] 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**  
 **$130\text{ SF} + 30\text{ SF} (3'\times 10') = 160\text{ SF}$**

# 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

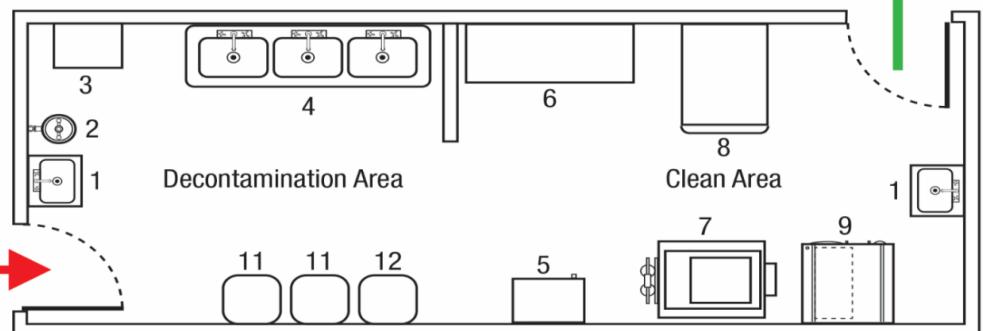
Reprinted with permission from *Guidelines for Perioperative Practice*. Copyright © 2016, AORN, Inc, 2170 S. Parker Road, Suite 400, Denver, CO 80231. All rights reserved.

## FGI Guidelines

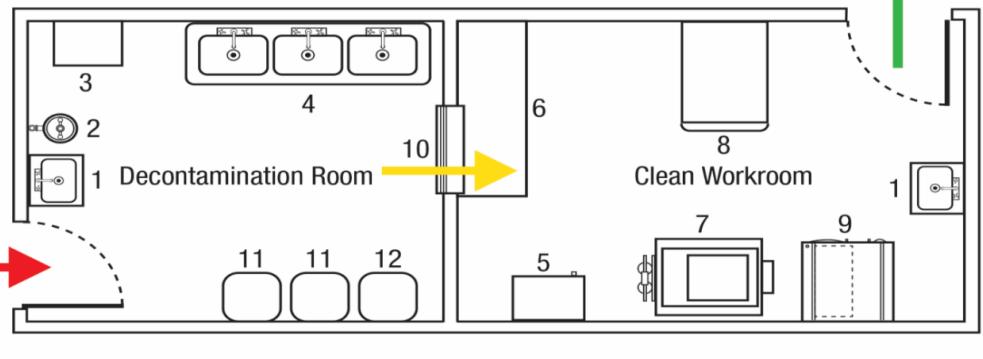
Designed to provide a **one-way traffic** of **contaminated** materials/instruments to **cleaned** materials/instruments to the sterilizer or mechanical processor.

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



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# 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

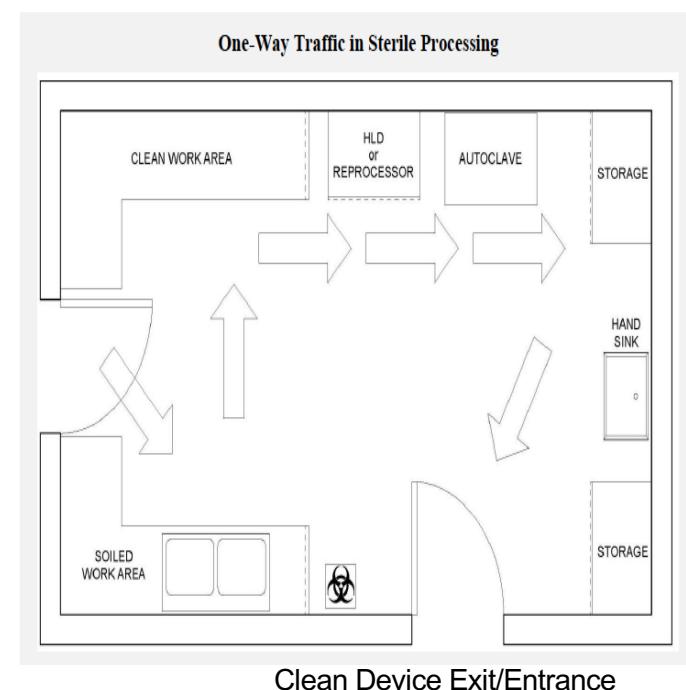
- Invasive procedures
- Any Class 2 procedure the physician identifies with a risk of needing conversion to an open procedure
- Accessed from a semi-restricted area
- Environmental controls of an operating room



# 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



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# 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



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# 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



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# **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.



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# ASHRAE 170 and the Guidelines

## Hospital and Outpatient ventilation requirements

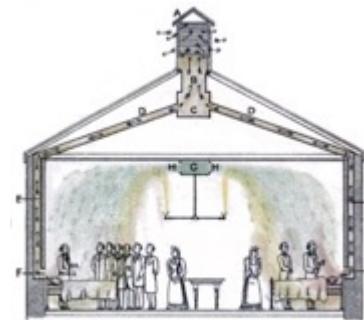
This section is a reprint of the 2017 ASHRAE Standard 170. FGI and ASHRAE have a partnership to work on the content together and to publish Standard 170 as a part of the *Guidelines*.



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# 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



1 | PGI

# 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



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# 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



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Now onto our old “friend”...



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# 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 AHSRAE Publications.** American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1791 Tulie 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



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# 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



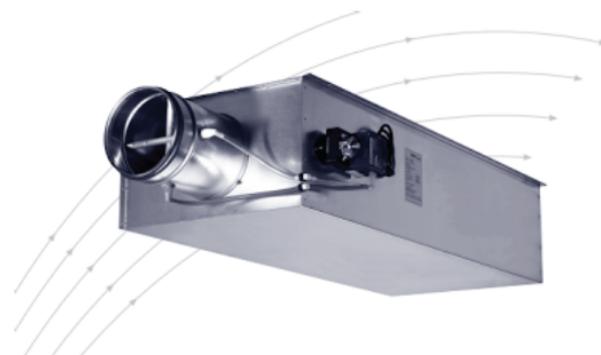
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# CMS Application of ASHRAE 170

## 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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