The 2018 FGI Guidelines

Demystifying Procedures, Operating, and Imaging Rooms

HCD 2017
Session E-94

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FGI GOALS AND DOCUMENTS

The FGI Guidelines is a minimum standard, consensus document that aids in the construction and design of health care facilities.

Use of research, science, and expert opinion to set criteria for health care and residential care facility design.

Provides a series of baseline requirements vetted through an open consensus process, enforceable by adopting federal and state agencies.

The Guidelines is a research-based document with various versions used in more than 35 states.
FGI ADOPTION STATUS MAP

7/14/17 (North Carolina in adoption process)
FGI LEADERSHIP AND COMMITTEES

Facility Guidelines Institute
   (10-person Board of Directors + FGI CEO)

Health Guidelines Revision Committee (HGRC)
   (Approx. 100-member multidisciplinary committee)

HGRC Steering Committee
   (16 members of the HGRC)

17 HGRC Focus and Task Groups

12 Specialty Subgroups
   (includes non-HGRC participants)
FGI HGRC COMMITTEE MAKEUP

Health Guidelines Revision Committee (approx. 100 members)

20% - Architects
18% - Medical professionals
16% - State AHJs
13% - Engineers
10% - HC administrators/HC org. reps
  8% - Federal AHJs (IHS, CMS, HUD, VA)
  7% - Infection control experts + NIH/CDC
  4% - Construction professionals
  4% - Interior designers
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 proposal and 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 MINIMUM STANDARD

Minimum standard: The *Guidelines* is considered to be minimum consensus requirements for the design and construction of new and renovated health care facilities.

Minimum is difficult to define...
- Risk of being too minimal
- Risk/benefit for new minimum
- The minimum benchmark changes over time

In many instances, health care organizations will need to exceed these guidelines to meet the clinical or staff needs for a safe and effective environment. A health care organization’s functional program must address the need to exceed the stated minimums (scalability).
MAJOR REVISIONS FOR 2018

HOSPITAL
• Adult and pediatric Critical Care positions are single-patient rooms (not NICU)

HOSPITAL & OUTPATIENT
• Option for combined pre- and post-procedure patient care areas
• New telemedicine guidance
• Revised chapter on mobile/transportable medical units
• “Patients of size” replaces “bariatric patients”; POS requirements placed in common elements to apply across facility types: Added clearances for lifts
• Two-room sterile processing now the minimum requirement; exception for use of table-top sterilizer only
MAJOR REVISIONS FOR 2018

OUTPATIENT

• Now standalone document, separate from Hospital Guidelines
• Two approaches to applying Outpatient requirements:
  – Project types comprehensively described in chapter
  – Project types that don’t fit neatly; can pick and choose relevant requirements
• Two new chapters:
  – General and specialty medical services facilities (flexibility for different facility types – formerly primary care/neighborhood clinic)
  – Freestanding imaging facilities
• Urgent care exam rooms more flexible; expanded infusion and cancer treatment facilities; increased flexibility in outpatient OR sizes; room sizes added for clinical areas in outpatient psych center
MAJOR REVISIONS FOR 2018

RESIDENTIAL

• Honed Residential material since inaugural publication
• Reduced circular cross-references
• Aligned content with new CMS rule requiring each resident room in a nursing home to have a dedicated bathroom with at least one toilet and sink; maximum capacity is two residents per room
• Refined acoustic requirements to better meet residential needs and added guidance based on acoustics research conducted in a continuing care retirement community
• Two new chapters:
  – Long-term substance abuse treatment facilities
  – Settings for individuals with Intellectual and/or developmental disabilities
HOT TOPICS FOR 2018

- Pre- and post-procedure patient care areas – flexibility to combine areas and correct ratios when doing so
- Endoscopy room size and scope processing
- System component room access from semi-restricted or unrestricted area outside the imaging room
- Procedure and operating room sizes that reflect space requirements for anesthesia team and equipment
- Classification system for imaging rooms
- Guidance for when exam/treatment, procedure, and operating rooms are needed
  - Clearances and spatial relationships
  - Locations for procedure types
ADDITIONAL REVISIONS
Combined Pre- and Post- Procedure Patient Care Stations

2.1-3.4.1.3 Layout
(1) Pre- and post-procedure patient care areas shall be designed to support how services are provided in the facility.
(2) The following arrangements shall be permitted provided all patient care stations combined in the same area meet the most restrictive requirements of the areas to be combined.
   (a) Combination of pre- and post-procedure patient care stations in one patient care area
   (b) Separate pre-procedure patient care area and post-procedure recovery area
   (c) Three areas: pre-procedure patient care, Phase I post-anesthesia care unit (PACU), and Phase II recovery area
• If separate pre-procedure room
  – Minimum of one patient care station per imaging, procedure, or operating room
• Phase I PACU
  – One per operating or Class 3 imaging room (was 1.5)
• Phase II recovery room
  – Minimum of one per procedure, operating, or Class 2 or Class 3 imaging room
• Where combined into one area, at least two patient care stations per procedure, operating, or Class 2 or Class 3 imaging room
ADDITIONAL REVISIONS
Surgical Department Areas

2.2-3.3 Surgical Services
2.2-3.3.1.1 Location and Layout
*(4) The surgical department shall be divided into three designated areas—unrestricted, semi-restricted and restricted—defined by the physical activities performed in each area.

**UNRESTRICTED**
- Waiting, Peri-op, SPD etc.
- Access by institution’s policy
- Street clothes
- Exam, Class 1 Imaging
- Procedure, Class 2 Imaging

**SEMI-RESTRICTED**
- OR Peripheral Support
- Authorized personnel
- Patient/Visitors accompanied
- Surgical attire
- Procedure, Class 2 Imaging

**RESTRICTED**
- OR, Hybrid OR
- Class 3 Imaging
- T30 April 4 + 5, 2017
- 2018 FGI Guidelines: A New Class Act
ADDITIONAL REVISIONS
System Component Room

*2.2-3.4.2.5 (1) (a) For Class 2 and Class 3 imaging rooms, the system component room shall be accessed only from a semi-restricted or unrestricted space outside the imaging room.

A2.2-3.4.2.5 (1)(a) System component room maintenance access. If equipment requires technicians to view the imaging equipment during maintenance, a window between the system component room and the imaging room or a closed-circuit video camera can be used to provide this access.
# CHANGES TO SURGERY SECTIONS

Clarification of **procedure room** and **operating room** requirements intended to support space for equipment and staff present for procedures provided

<table>
<thead>
<tr>
<th>Section/OP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2-3.3.2</td>
<td>Procedure Room</td>
</tr>
<tr>
<td>2.2-3.3.3</td>
<td>Operating Room</td>
</tr>
<tr>
<td>2.2-3.3.4</td>
<td>Hybrid Operating Room</td>
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</table>

New classification structure for **imaging rooms** based on procedures performed and environmental controls needed to allow flexibility in imaging room requirements as procedures and equipment change over time

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<td>2.2-3.4.1.2</td>
<td>Imaging Room Classification</td>
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WHEN IS IT APPROPRIATE TO USE, OR DESIGN,....

...a procedure room rather than an operating room?

...an imaging room that will meet operating room or procedure room standards?

**Non-invasive**
Exam room
Treatment room

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

**Invasive**
Operating room
2018 FGI PROCEDURES

An understanding of the following is required to inform the planning of diagnostic, surgical, and interventional spaces.

- Level of *invasiveness*, likelihood of infection
- Type of *sedation* used to conduct procedure
- Number of *staff* expected in the room during procedure
- *Equipment* needed to support procedure

Which, in turn, determine the design requirements:

- Room *classification*
  - Procedure room (formerly Class A)
  - Operating room (formerly Class B & C)
  - Type of Imaging room (new Class 1, 2, and 3)
- Room *size*
- Room *finishes*
- Room *Infrastructure (MEP systems)*
INVASIVE PROCEDURE

A procedure that is performed in an aseptic surgical field and penetrates the protective surfaces of a patient’s body (e.g., subcutaneous tissue, mucous membranes, cornea).

An invasive procedure may fall into one or more of the following categories:

- Requires entry into or opening a sterile body cavity (i.e., cranium, chest, abdomen, pelvis, joint spaces)
- 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 measurable risk of requiring conversion to an open procedure
PERCUTANEOUS PROCEDURE

General dislike of the term “minimally invasive,” which is contradictory terminology and has led to confusion as to when a procedure room versus an operating room is needed.

**Percutaneous Procedure** definition:
A procedure during which the skin is penetrated by a needle puncture or an incision that goes no deeper than the skin or subcutaneous space and may involve introduction of wires and catheters and/or insertion of an indwelling foreign body (temporary or permanent).
2018 GUIDELINES OBJECTIVE

- To make it easier for designers, health care facility owners/managers, and clinicians to know when and what type of room is acceptable
- To make it easier for designers to right-size procedure and operating rooms

Task group concerns and discussions included increasing patient acuity and complexity of outpatient surgical procedures, growing number of 23-hour-stay post-procedure outpatient services, and need for consistency and standards for environments.

Inpatient Operating Room
- Minimum 400 SF
- Minimum 20’ width

Outpatient Operating Room

?
### THREE MAJOR TYPES OF ROOMS....

<table>
<thead>
<tr>
<th>Procedure Room Type</th>
<th>Imaging Room Type</th>
<th>Use</th>
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<tbody>
<tr>
<td>1 Exam/ Treatment Room</td>
<td>Class 1 Imaging Room</td>
<td>A room designated for the performance of patient care that may require high-level disinfected or sterile instruments but is <strong>not required to be performed with the environmental controls of a procedure room.</strong></td>
</tr>
<tr>
<td>2 Procedure Room</td>
<td>Class 2 Imaging Room</td>
<td>A room designated for the performance of patient care that requires high-level disinfection or sterile instruments and some environmental controls <strong>but is not required to be performed with the environmental controls of an operating room.</strong></td>
</tr>
<tr>
<td>3 Operating Room</td>
<td>Class 3 Imaging room (Hybrid OR)</td>
<td>A room that meets the requirements of a restricted area, is designated and equipped for performing surgical or other invasive procedures, and has the <strong>environmental controls for an OR as indicated in ASHRAE 170.</strong> An aseptic field is required for all procedures performed in an OR.</td>
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2018 GUIDELINES MINIMUM ROOM SIZES

- **OP Exam**: 80 SF
- **Hospital Exam**: 120 SF
- **Procedure Room (WITHOUT Need for Anesthesia Equip)**: 130 SF
- **Procedure Room (WITH Need for Anesthesia Equip)**: 160 SF
- **Anesthesia Work Area**: 48 SF (6' x 8')

- **Outpatient OR (WITHOUT Need for Anesthesia Equip)**: 255 SF 15'
- **Outpatient OR (WITH Need for Anesthesia Equip)**: 270 SF
- **Hospital OR (ALWAYS PLANNED for WITH Anesthesia Equip)**: 400 SF 20'
- **Hybrid**: 600 SF
Operative phase architectural plan layout.

(A) is the anesthesia area with up to three anesthesiologists (faculty, fellow, and resident).

(B) is the surgeon area with the attending surgeon, surgical fellow, medical student, and scrub nurse.

Photo of operative phase of cardiothoracic surgery.
STUDY BY AMERICAN SOCIETY OF ANESTHESIOLOGISTS w/ CLEMSON
Observations of 10 Cardiothoracic Operations - Overall

1,080 disruptions categorized into:

• **Physical layout** (31%)
• General interruptions (24%)
• Usability concerns (20%)
• Communication issues (15%)
• Environmental hazards (9%)
• Equipment failures (1%)

Frequency of incidents with **Physical Layout**:

• Inadequate use of space (158)
• Wrongful positioning of furniture (81)
• Wrongful positioning of equipment (65)

Other Categories:

• Spilling, dropping of items (117)
• Shift changes (70)
• Slips or falls (62)
• Exposure to sharps (6)
Realizing Improved Patient Care through Human-centered Operating Room Design: A Human Factors Methodology for Observing Flow Disruptions in the Cardiothoracic Operating Room

doi:10.1097/ALN.0b013e31829f68cf
STUDY BY AMERICAN SOCIETY OF ANESTHESIOLOGISTS w/ CLEMSON
Observations of 10 Cardiothoracic Operations – By Phase

Pre-operative:

# 1 Physical layout (152)
  • Inadequate use of space (65)
  • Positioning of furniture (44)
  • Positioning of equipment (28)

Operative:

# 1 General Interruptions (154)

# 2 Physical layout (145)
  • Inadequate use of space (82)

Post-operative:

# 1 Physical layout
  • Positioning of equipment (14)

Anesthesiologists:

# 1 Physical layout (92)
# 2 Usability issues (69)
# 3 General interruptions (47)
What is the minimum SF required for an Anesthesia Work Area?
CLEARANCE ZONE DIAGRAM
Establishing the Anesthesia Work Area

Patient area

3’ X 7’ Gurney for planning purposes
CLEARANCE ZONE DIAGRAM
Establishing the Anesthesia Work Area

- Anesthesia Machine
- Chair
- Anesthesia Cart

3’ X 7’ Gurney for planning purposes
CLEARANCE ZONE DIAGRAM
Establishing the Anesthesia Work Area

3’ X 7’ Gurney for planning purposes
6’ x 8’ Anesthesia Work Zone at Head
CLEARANCE ZONE DIAGRAM
Establishing the Anesthesia Work Area

The anesthesia work zone is a 6' x 8' space at the head of the table, but when the anesthesia care provider(s) are not actively setting up sedation of the patient 2' at the top of that zone can be used as part of the circulator pathway.

Any room (Exam, Treatment, or Imaging rooms) where general anesthesia will be administered using an anesthesia machine and supply carts shall have 48 square feet at the head of the table, gurney, or chair for an anesthesia work zone.

- Gray and White area is 2' area shared between anesthesia and circulator.

6' x 8' Anesthesia Work Zone at Head
2' x 8' at Perimeter, may serve as Circulation
## ROOM CLASSIFICATION

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Use</th>
<th>Environmental Controls</th>
<th>Surfaces</th>
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| **Exam Room or Treatment Room** | Patient care that may require high-level disinfected or sterile instruments but does not require the environmental controls of a procedure room | **Location** Access from an unrestricted area  
**Ventilation** (excerpted from ASHRAE 170)  
4 total ACH for general exam room  
6 total ACH for exam rooms programmed for use by patients with undiagnosed gastrointestinal symptoms, respiratory symptoms, or skin symptoms  
No pressure requirement  
Standard diffuser and return array | **Ceilings:** Cleanable with routine housekeeping equipment  
**Floor:** No special requirement  
**Walls:** No special requirement |
| **Procedure Room**         | Patient care that requires high-level disinfection or sterile instruments and some environmental controls but does not require the environmental controls of an operating room | **Location** Access from an unrestricted or a semi-restricted area  
**Ventilation** (excerpted from ASHRAE 170)  
15 ACH / Positive pressure  
Standard diffuser and return array | **Ceilings:** Smooth and without crevices, scrubbable, non-absorptive, non-perforated; capable of withstanding cleaning chemicals; without crevices; lay-in ceiling permitted if gasketed or each ceiling tile weighs at least one pound per square foot and no perforated, tegular, serrated, or highly textured tiles. Lay-in ceiling permitted if gasketed or each ceiling tile weighs at least 1lb/SF  
**Floor and wall base assemblies for cystoscopy, urology, and endoscopy procedure rooms:** Monolithic with an integral coved wall base that is carried up the wall a minimum of 6’  
**Wall finishes for endoscopy:** Free of fissures, open joints, or crevices that may retain or permit passage of dirt particles |
| **Operating Room**         | Invasive procedures*  
Any procedure during which the patient will require physiological monitoring and is anticipated to require active life support | **Location** Access from a semi-restricted area  
**Ventilation** (excerpted from ASHRAE 170)  
20 total ACH / Positive pressure  
Primary supply diffuser array extend a minimum of 12’ beyond the footprint of the surgical table on each side  
At least two low sidewall return or exhaust grilles spaced at opposite corners or as far apart as possible | **Ceilings:** Monolithic, scrubbable, capable of withstanding cleaning and/or disinfecting chemicals, gasketed access openings  
**Floor and wall base assemblies:** Monolithic with an integral coved wall base that is carried up the wall a minimum of 6’  
**Wall finishes:** Free of fissures, open joints, or crevices that may retain or permit passage of dirt particles |
EXAMINATION ROOM

A room with a bed, stretcher, or examination table and capability for periodic monitoring (e.g., measurement of blood pressure or pulse oximetry) in which procedures that do not require a specialized suite can be performed (e.g., pelvic examination).

TREATMENT ROOM

A standard patient room in an emergency department (ED) or urgent care center that may be used for a variety of functions, including patient examination and various treatments or procedures, including wound packing, suture placement, or casting. This room may contain specialized equipment as identified in the functional program.
## Room Classification

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No pressure requirement  
Standard diffuser and return array | Ceilings: Cleanable with routine housekeeping equipment  
Floor: No special requirement  
Walls: No special requirement |

### Specifications

- **OP Exam**
  - 80 SF

- **Hospital Exam**
  - 120 SF
PROCEDURE ROOM

A room designated for the performance of patient care that requires high-level disinfection or sterile instruments and some environmental controls but is not required to be performed with the environmental controls of an operating room.
# ROOM CLASSIFICATION

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CLEARANCE ZONE DIAGRAM
PROCEDURE ROOM – INPATIENT & OUTPATIENT
(WITHOUT Need for Anesthesia Equipment)

PROCEDURE ROOM ZONES W/O NEED FOR ANESTHESIA EQUIP

- Patient area

3’ X 7’ Gurney for planning purposes
CLEARANCE ZONE DIAGRAM
PROCEDURE ROOM – INPATIENT & OUTPATIENT
(WITHOUT Need for Anesthesia Equipment)

**PROCEDURE ROOM ZONES W/O NEED FOR ANESTHESIA EQUIP**

- **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

**GURNEY**

- **3’ Clearance at Head & Foot**
- **3’-6” Clearance at Sides**

**130 SF CFA**
CLEARANCE ZONE DIAGRAM
PROCEDURE ROOM – INPATIENT & OUTPATIENT
(WITH Need for Anesthesia Equipment)

- **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 - 130 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

160 SF
2018 GUIDELINES MINIMUM ROOM SIZES
Exam, Treatment & Procedure Rooms

- 80 SF
  OP Exam

- 100 SF
  Hospital Exam

- 130 SF
  Procedure Room (WITHOUT Need for Anesthesia Equip)

- 48 SF
  Anesthesia Work Area (6’ x 8’)

- 160 SF
  Procedure Room (WITH Need for Anesthesia Equip)
2018 GUIDELINES MINIMUM ROOM SIZES
Operating Rooms

- **Outpatient OR (WITHOUT Need for Anesthesia Equip)**
  - 255 SF
  - 15’

- **Outpatient OR (WITH Need for Anesthesia Equip)**
  - 270 SF
  - 48 SF

- **Hospital OR (ALWAYS PLANNED for WITH Anesthesia Equip)**
  - 400 SF
  - 48 SF

- **Hybrid or Specialty**
  - 600 SF
  - 20’

OPERATING ROOM

A room that meets the requirements of a restricted area, is designated and equipped for performing surgical or other invasive procedures, and has the environmental controls for an OR as indicated in ASHRAE 170. An aseptic field is required for all procedures performed in an OR.
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Wall finishes for endoscopy: Free of fissures, open joints, or crevices that may retain or permit passage of dirt particles |
| Operating Room       | Invasive procedures*  
Any procedure during which the patient will require physiological monitoring and is anticipated to require active life support | Accessed from a semi-restricted area | 20 total ACH / Positive pressure  
Primary supply diffuser array extend a minimum of 12' beyond the footprint of the surgical table on each side  
At least two low sidewall return or exhaust grilles spaced at opposite corners or as far apart as possible | Ceilings: Monolithic, scrubbable, capable of withstanding cleaning and/or disinfecting chemicals, gasketed access openings  
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CLEARANCE ZONE DIAGRAM
OPERATING ROOM - INPATIENT

INPATIENT OPERATING ROOM

Patient area

3’ X 7’ Gurney for planning purposes
CLEARANCE ZONE DIAGRAM
OPERATING ROOM - INPATIENT

INPATIENT OPERATING ROOM

- Patient area
- Sterile field where scrub and physician work

3’ X 7’ Gurney for planning purposes
3’ at Sides & Foot – Sterile Field
CLEARANCE ZONE DIAGRAM
OPERATING ROOM - INPATIENT

INPATIENT 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.
- Anesthesia 6’ x 8’ work zone
- Gray and White area is 2’ area shared between anesthesia and circulator.

3’ X 7’ Gurney for planning purposes
   3’ at Sides & Foot – Sterile Field
   3’ at Sides, 2’ at Foot – Circulation
INPATIENT 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**
Revised text in 2018 FGI in order to acknowledge inevitable encroachments and other intrusions to space.

**Fixed encroachments into the min. CFA shall be permitted** to be included when determining minimum CFA requirements for an OR as long as:

1) There are no encroachments into the sterile field
2) The encroachments **do not extend more than 12 inches** into minimum CFA outside the sterile field
3) The encroachment width along each wall **does not exceed 10 percent** of the length of that wall
OPERATING ROOM - OUTPATIENT
WITHOUT Need for Anesthesia Equipment

Procedures (100s of) that may be performed in an OR environment but may only require Local Anesthesia (numbing medication), and do not necessarily have need for extensive anesthesia equipment:

- Small excision
- Cosmetic procedures
- Eyebrow lift
- Blepharoplasty
- Podiatry
- Hammertoe correction

Procedures that are typically performed in an OR environment but may only require Local w/ Sedation (MAC – Monitored Anesthesia Care) and do not necessarily have need for anesthesia extensive equipment:

- Carpal tunnel
- Cataract removal
- Cystoscopy
- Hysteroscopy
- Bunionectomy
- Hand procedures
- Excisions of small mass
CLEARANCE ZONE DIAGRAM
OPERATING ROOM – OUTPATIENT
(WITHOUT Need for Anesthesia Equipment)

OUTPATIENT OR ZONES W/O NEED FOR ANESTHIA EQUIPMENT

- Patient area
- Sterile field where scrub and physician work
- Circulation pathway and movable equipment zone
- CFA Clear Floor Area – 255 SF

3’ X 7’ Gurney for planning purposes
3’ at Sides & 3’ Foot & Head – Sterile Field
3’ at Sides & 2’ Foot – Circ. & Equip
15’ Minimum Width, 255 SF Minimum CFA
OPERATING ROOM - OUTPATIENT
WITH Need for Anesthesia Equipment

Procedures that are typically performed in an OR environment but could use general medication propofol or mask, but have a greater risk of requiring emergency care where access to full anesthesia care and equipment is advised:

• Breast augmentation
• Mini tummy tuck
• Knee arthroscopy
• Laparoscopy
• Cysto with holmium laser lithotripsy

Procedures that are typically performed in an OR environment requiring “intubation” or using gas anesthesia (sevoflurane) requiring anesthesia machine with vent capability:

• Extended abdominoplasty
• Shoulder arthroscopy
• Partial knee replacement
• Spinal fusion
• Pediatric tonsillectomy
CLEARANCE ZONE DIAGRAM
OPERATING ROOM – OUTPATIENT
(WITH Need for Anesthesia Equipment)

OUTPATIENT OR ZONES WITH NEED FOR ANESTHIA EQUIPMENT

- Patient area
- Sterile field where scrub and physician work
- Circulation pathway and movable equipment zone
- CFA Clear Floor Area - 270 SF

3’ X 7’ Gurney for planning purposes
3’ at Sides & 3’ Foot & Head – Sterile Field
6’ x 8’ Anesthesia Work Zone at Head
3’ at Sides & 2’ at Foot – Circ. & Equip
15’ Minimum Width, 270 SF Minimum CFA
2018 GUIDELINES MINIMUM ROOM SIZES
Operating Rooms

Hospital OR
(ALWAYS PLANNED for WITH Anesthesia Equip)

400 SF
20’

Hybrid

48 SF

600 SF

Outpatient OR
(WITHOUT Need for Anesthesia Equip)

255 SF
15’

Outpatient OR
(WITH Need for Anesthesia Equip)

270 SF

48 SF

An imaging room is a room in which imaging services are provided.

Depending on what takes place within the imaging room, the room maybe used for diagnostic, therapeutic, or invasive procedures, and as such should be designed to the same standards as required for those same procedures to take place in non-imaging settings.

Proposed new classification system for Imaging rooms.
## IMAGING ROOM CLASSIFICATION

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Use</th>
<th>Environmental Controls</th>
<th>Surfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class 1 Imaging Room</strong></td>
<td>• Diagnostic radiography, fluoroscopy, mammography, computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), and other imaging modalities</td>
<td><strong>Accessed from an unrestricted area</strong></td>
<td><strong>Ceilings:</strong> Cleanable with routine housekeeping equipment; lay-in ceiling permitted</td>
</tr>
<tr>
<td></td>
<td>• Services that utilize natural orifice entry and do not pierce or penetrate natural protective membranes</td>
<td><strong>6 total ACH</strong></td>
<td><strong>Floor:</strong> Cleanable and wear-resistant for the location; stable, firm, and slip-resistant</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>No pressure requirement</strong> <strong>Standard diffuser and return array</strong></td>
<td><strong>Walls:</strong> Washable</td>
</tr>
<tr>
<td><strong>Class 2 Imaging Room</strong></td>
<td>• Diagnostic and therapeutic procedures such as coronary, neurological, or peripheral angiography</td>
<td><strong>Accessed from an unrestricted or a semi-restricted area</strong></td>
<td><strong>Floor and wall base assemblies:</strong> Monolithic floor with integral coved wall base carried up the wall a minimum of 6 inches</td>
</tr>
<tr>
<td></td>
<td>• Electrophysiology procedures</td>
<td><strong>15 total ACH</strong></td>
<td><strong>Wall finishes:</strong> Washable; free of fissures, open joints, or crevices</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Positive pressure for catheterization</strong></td>
<td><strong>Ceiling:</strong> Monolithic, scrubbable, capable of withstanding cleaning and/or disinfecting chemicals, gasketed access openings</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>No pressure requirements for other rooms</strong></td>
<td><strong>Flooring:</strong> Cleanable and wear-resistant for the location; stable, firm, and slip-resistant</td>
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<td><strong>Standard diffuser and return array</strong></td>
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<tr>
<td><strong>Class 3 Imaging room</strong></td>
<td><strong>Invasive</strong> procedures*</td>
<td><strong>20 total ACH</strong></td>
<td><strong>Wall finishes:</strong> Washable; free of fissures, open joints, or crevices</td>
</tr>
<tr>
<td>(Hybrid Operating Room)</td>
<td>• Any Class 2 procedure during which the patient will require physiological monitoring and is anticipated to require active life support</td>
<td><strong>Primary supply diffuser array extend a minimum of 12’ beyond the footprint of the surgical table on each side</strong></td>
<td><strong>Ceiling:</strong> Monolithic, scrubbable, capable of withstanding cleaning and/or disinfecting chemicals, gasketed access openings</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>At least two low sidewall return or exhaust grilles spaced at opposite corners or as far apart as possible</strong></td>
<td><strong>Flooring:</strong> Cleanable and wear-resistant for the location; stable, firm, and slip-resistant</td>
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**IMAGING ROOM CLASSIFICATION**

- **Class 1 Imaging Room**
  - Diagnostic radiography, fluoroscopy, mammography, computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), and other imaging modalities
  - Services that utilize natural orifice entry and do not pierce or penetrate natural protective membranes

- **Class 2 Imaging Room**
  - Diagnostic and therapeutic procedures such as coronary, neurological, or peripheral angiography
  - Electrophysiology procedures

- **Class 3 Imaging Room (Hybrid Operating Room)**
  - Invasive procedures*
  - Any Class 2 procedure during which the patient will require physiological monitoring and is anticipated to require active life support

*(Hybrid Operating Room)*
### COMPARISON

**Exam/Treatment Room & Class 1 Imaging Room**

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<th>Room Type</th>
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<th>Environmental Controls</th>
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</table>
| Class 1 Imaging Room  | Diagnostic radiography, fluoroscopy, mammography, computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), and other imaging modalities  
                        | Services that utilize natural orifice entry and do not pierce or penetrate natural protective membranes  
                        | Accessed from an unrestricted area  
                        | 6 total ACH  
                        | No pressure requirement  
                        | Standard diffuser and return array  
                        | Ceilings: Cleanable with routine housekeeping equipment; lay-in ceiling permitted  
                        | Floor: Cleanable and wear-resistant for the location; stable, firm, and slip-resistant  
                        | Walls: Washable                                                                                                                                  |
| Exam Room orTreatment Room| Patient care that may require high-level disinfected or sterile instruments but does not require the environmental controls of a procedure room                                                                 | 4 total ACH for general exam room  
                        | 6 total ACH for exam rooms programmed for use by patients with undiagnosed gastrointestinal symptoms, respiratory symptoms, or skin symptoms  
                        | No pressure requirement  
                        | Standard diffuser and return array  
                        | Ceilings: Cleanable with routine housekeeping equipment  
                        | Floor: No special requirement  
                        | Walls: No special requirement                                                                                                                      |
## COMPARISON
### Procedure Room & Class 2 Imaging Room

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Use</th>
<th>Environmental Controls</th>
<th>Surfaces</th>
</tr>
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</table>
| Class 2 Imaging Room | Diagnostic and therapeutic procedures such as coronary, neurological, or peripheral angiography, Electrophysiology procedures | **Location**: Accessed from an **unrestricted** or a **semi-restricted** area | **Ceiling**: Smooth and without crevices, scrubbable, non-absorptive, non-perforated; capable of withstanding cleaning chemicals; without crevices; lay-in ceiling permitted if gasketed or each ceiling tile weighs at least one pound per square foot and no perforated, tegular, serrated, or highly textured tiles  
**Flooring**: Cleanable and wear-resistant for the location; stable, firm, and slip-resistant  
**Floor and wall base assemblies**: Monolithic floor with integral coved wall base carried up the wall a minimum of 6 inches  
**Wall finishes**: Washable; free of fissures, open joints, or crevices |
| Procedure Room | Patient care that requires high-level disinfection or sterile instruments and some environmental controls but does not require the environmental controls of an operating room | **15 total ACH**  
Positive pressure for catheterization  
No pressure requirements for other rooms  
Standard diffuser and return array | **Ceilings**: Smooth and without crevices, scrubbable, non-absorptive, non-perforated; capable of withstanding cleaning chemicals; without crevices; lay-in ceiling permitted if gasketed or each ceiling tile weighs at least one pound per square foot and no perforated, tegular, serrated, or highly textured tiles. Lay-in ceiling permitted if gasketed or each ceiling tile weighs at least 1lb/SF  
**Floor and wall base assemblies for cystoscopy, urology, and endoscopy procedure rooms**: Monolithic with an integral coved wall base that is carried up the wall a minimum of 6’  
**Wall finishes for endoscopy**: Free of fissures, open joints, or crevices that may retain or permit passage of dirt particles |
HYBRID OPERATING ROOM

A room that **meets the definition of an operating room** and is also equipped to **enable diagnostic imaging before, during, and after surgical procedures**.

Imaging equipment is **permanently installed in the room** and may include MRI, fixed single-plane and bi-plane tomographic imaging systems, and computed tomography equipment.

**Note:**
Use of portable imaging technology does not make an OR a hybrid operating room.
## COMPARISON
### Operating Room & Class 3 Imaging Room

<table>
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<tr>
<th>Room Type</th>
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<th>Environmental Controls</th>
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</table>
| **Class 3 Imaging room**  
(Hybrid Operating Room) | Invasive procedures*  
Any **Class 2 procedure** during which the patient will require physiological monitoring and is anticipated to require active life support | **Location**  
Accessed from a semi-restricted area  
**Ventilation (excerpted from ASHRAE 170)**  
20 total ACH, Positive pressure  
Primary supply diffuser array extend a minimum of 12’ beyond the footprint of the surgical table on each side  
At least two low sidewall return or exhaust grilles spaced at opposite corners or as far apart as possible | **Surfaces**  
**Ceiling:** Monolithic, scrubbable, capable of withstanding cleaning and/or disinfecting chemicals, gasketed access openings  
**Flooring:** Cleanable and wear-resistant for the location; stable, firm, and slip-resistant  
**Floor and wall base assemblies:** Monolithic floor with integral coved wall base carried up the wall a minimum of 6 inches  
**Wall finishes:** Washable; free of fissures, open joints, or crevices  
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**Floor and wall base assemblies:** Monolithic with an integral coved wall base that is carried up the wall a minimum of 6’  
**Wall finishes:** Free of fissures, open joints, or crevices that may retain or permit passage of dirt particles |
| **Operating Room** | Invasive procedures*  
Any **procedure** during which the patient will require physiological monitoring and is anticipated to require active life support |  |  |
THREE MAJOR TYPES OF ROOMS....

<table>
<thead>
<tr>
<th>Procedure Room Type</th>
<th>Imaging Room Type</th>
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</tr>
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<tr>
<td>Exam/ Treatment Room</td>
<td>Class 1 Imaging Room</td>
<td>A room designated for the performance of patient care that may require high-level disinfected or sterile instruments but is <strong>not required to be performed with the environmental controls of a procedure room.</strong></td>
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<td>Procedure Room</td>
<td>Class 2 Imaging Room</td>
<td>A room designated for the performance of patient care that may require high-level disinfected or sterile instruments and some environmental controls but is <strong>not required to be performed with the environmental controls of an operating room.</strong></td>
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</tr>
<tr>
<td>Operating Room</td>
<td>Class 3 Imaging Room (Hybrid OR)</td>
<td>A room that meets the requirements of a restricted area, is designated and equipped for performing surgical or other invasive procedures, and has the <strong>environmental controls for an OR as indicated in ASHRAE 170.</strong> An aseptic field is required for all procedures performed in an OR.</td>
</tr>
</tbody>
</table>
## 2018 FGI PROCEDURES – SUMMARY

### Type of Room

<table>
<thead>
<tr>
<th></th>
<th>Level of Invasiveness</th>
<th>Risk of Infection</th>
<th>Sterility of Environment</th>
<th>Infrastructure Room Finishes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non Invasive</td>
<td>Low</td>
<td>Low, 4-6 ACH</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Limited</td>
<td></td>
<td>15 ACH</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Invasive, Any</td>
<td>High</td>
<td>High, 20 ACH</td>
<td>High</td>
</tr>
</tbody>
</table>
## 2018 FGI PROCEDURES – SUMMARY

### Size of Room

<table>
<thead>
<tr>
<th>Number of Staff Req’d</th>
<th>Type of Sedation</th>
<th>Amount of Equipment</th>
<th>Minimum Room Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>None</td>
<td>Limited</td>
<td>80-120 SF</td>
</tr>
<tr>
<td>Varies, may be General</td>
<td>General Anesthesia</td>
<td>High</td>
<td>130-160 SF</td>
</tr>
<tr>
<td>High</td>
<td>General Anesthesia</td>
<td>High</td>
<td>255-270 SF OP 400 SF IP</td>
</tr>
</tbody>
</table>
QUESTIONS?

Bryan Langlands  AIA, ACHA, EDAC, LEED GA  blanglands@nbbj.com

Byron Burlingame  MS, RN, BSN, CNOR  bburlingame@aorn.org