KIRLIN

Best Practices for Healthcare Lighting

Cardiac Cath & EP Labs

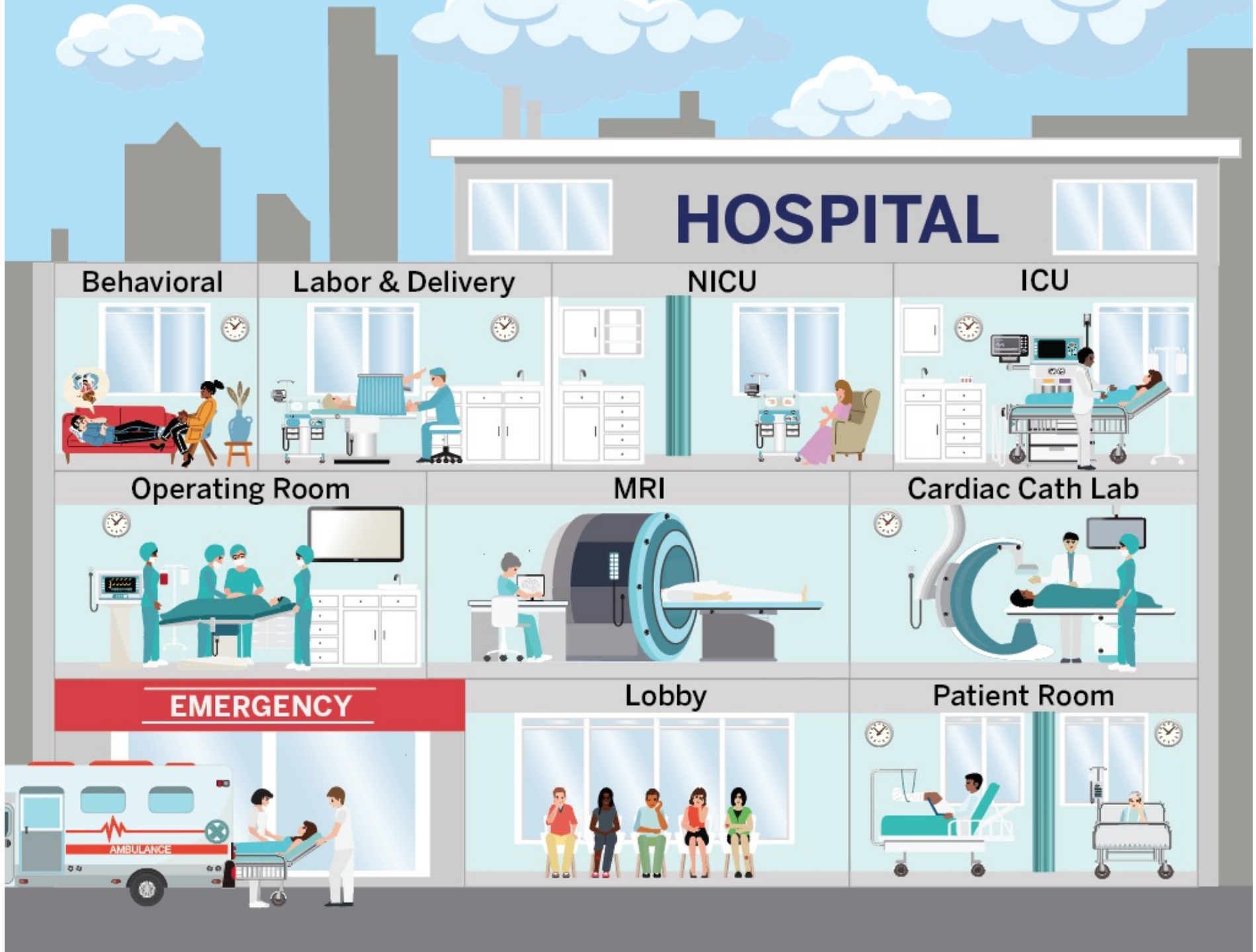
AMANDA
Marketing Director

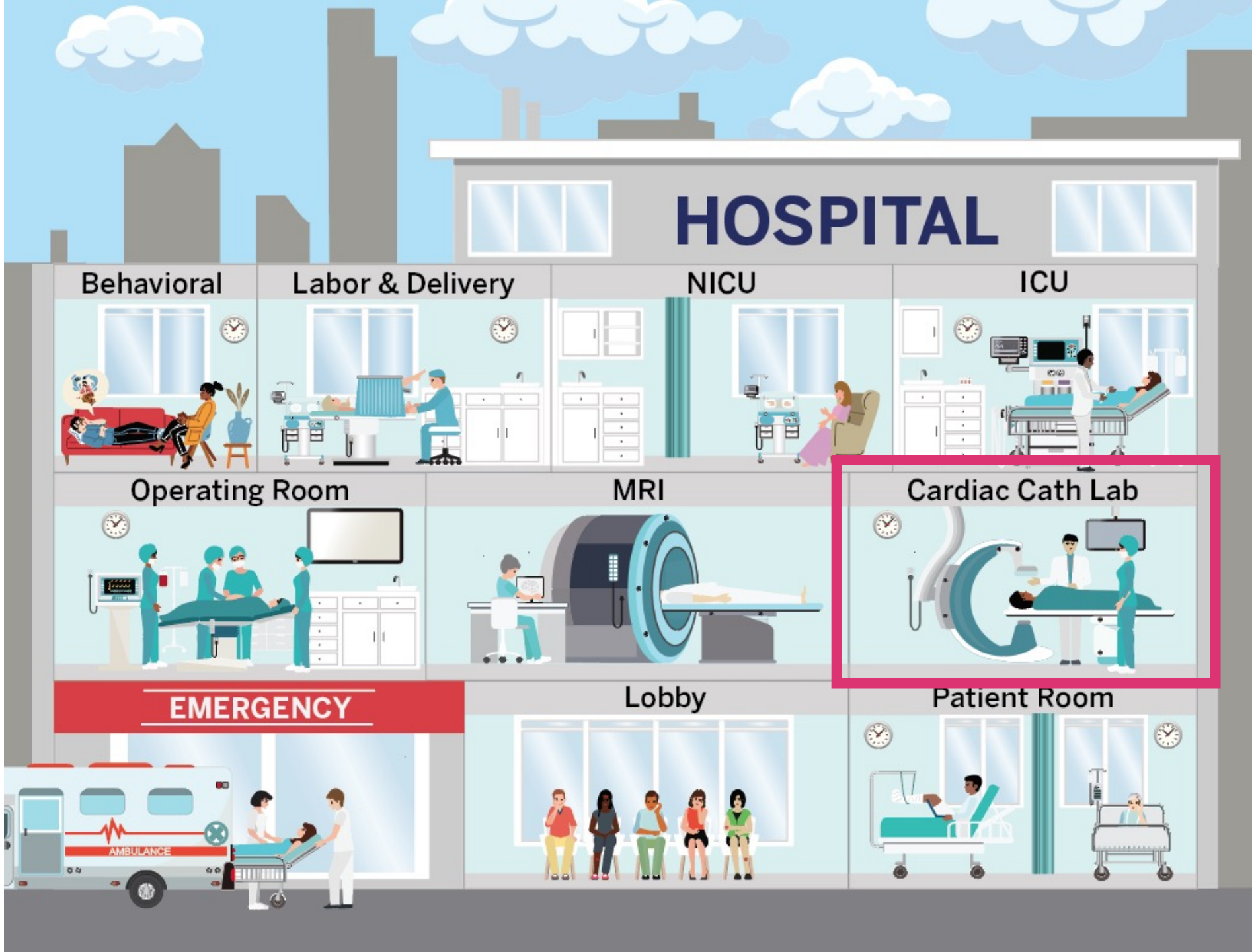
CHRIS
President

SCOTT
Regional Manager - Central

CHAD
National Sales Manager

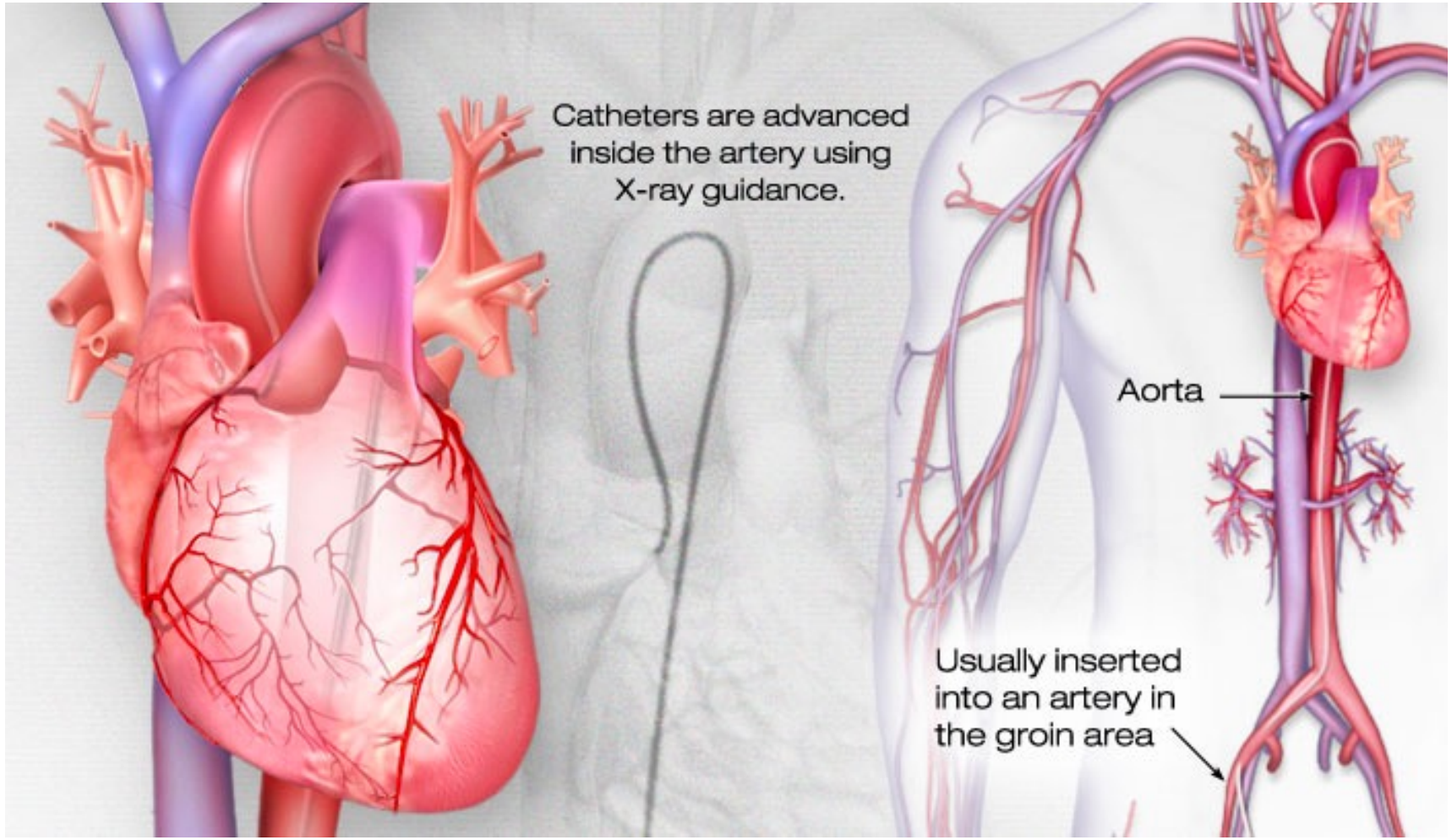
Key Focus Areas


HOSPITAL
Behavioral
Labor & Delivery
NICU
ICU
Operating Room
MRI
Cardiac Cath Lab
EMERGENCY
Lobby
Patient Room
AMBULANCE


HOSPITAL
Behavioral
Labor & Delivery
NICU
ICU
Operating Room
MRI
Cardiac Cath Lab
EMERGENCY
Lobby
Patient Room
AMBULANCE

What is a Cardiac Cath Lab?

- A specialized laboratory where doctors **diagnose** and **treat** heart conditions using **catheters** rather than surgical techniques
- The catheter is inserted into the patient's **groin**, **arm**, or **neck**



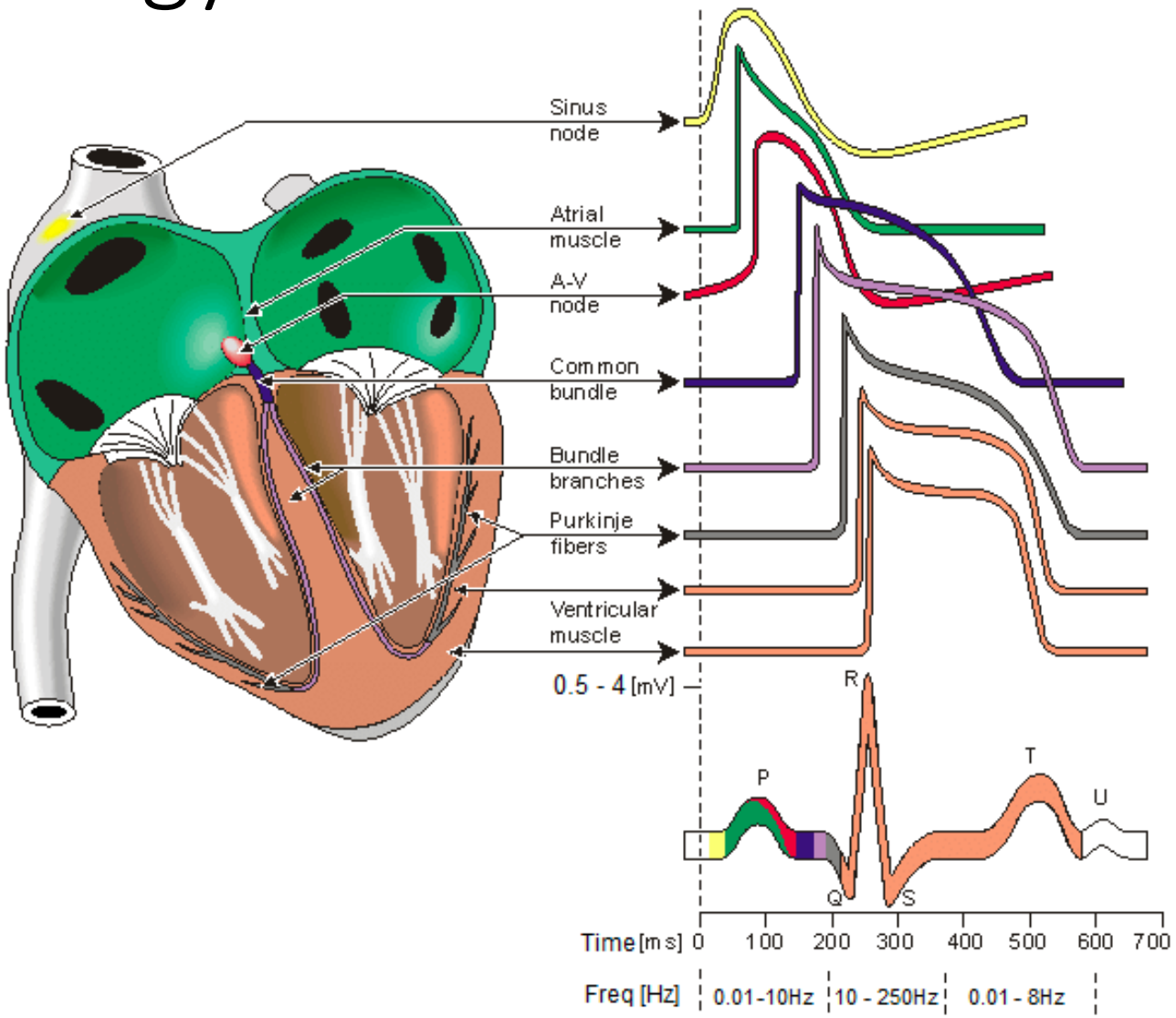
Sheath & Catheter Insertion via the Groin

Equipment in the Cardiac Cath Lab

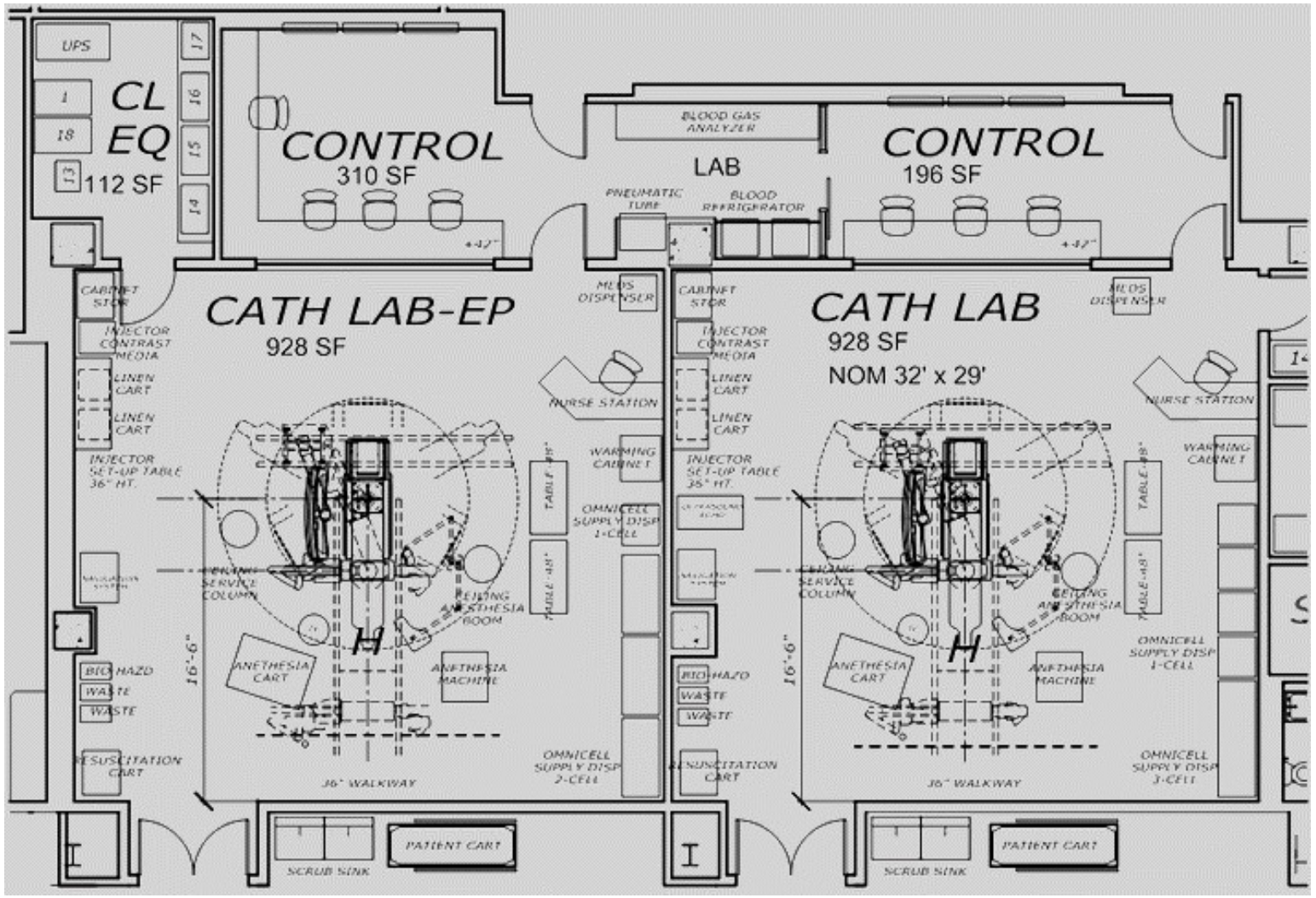
1. C-Arm
2. X-Ray Source Tube
3. Detector/Camera
4. Moving Catheterization Table
5. X-Ray Generator
6. Monitors
7. Control Handle
8. Control Pedal
9. Control Station / Room

What is an Electrophysiology Lab?

- A specialized laboratory with electrical monitoring equipment and X-Ray machinery used to **monitor** and **map** the heart's electrical system
- Three primary procedures in the EP Lab are:
  - Cardiac Mapping
  - Cardiac Ablation
  - Insertion of Pacemaker or ICD (Implantable Cardioverter Defibrillator)



Additional Equipment in the EP Lab



- The primary imaging system in the Cath and EP Labs will be similar or identical
- Often the rooms have the same footprint or floor plan, but the EP Lab requires:
  - 3D mapping system
  - Cardiac stimulator
  - RF generator
  - More carts & monitors
  - Greater cable management

Single-Plane vs. Bi-Plane

- Bi-Plane equipment uses detectors on two axes, for faster 3D imaging, which is helpful in neurovascular and cardiac procedures
- Heavier bi-plane systems require a floor mount and a unistrut ceiling, with greater structural support
- There is no clinical consensus on which improves outcomes

Single-Plane Equipment

Bi-Plane Equipment

Cath & EP Lab Lighting Needs

1

Enhanced Visual Acuity

- Provide precise surgical illumination of insertion site(s)
- Delivery high levels of ambient light for clinicians and staff when needed
- Enable variable light levels and static color options for enhanced monitor viewing

2

Improved Patient Comfort

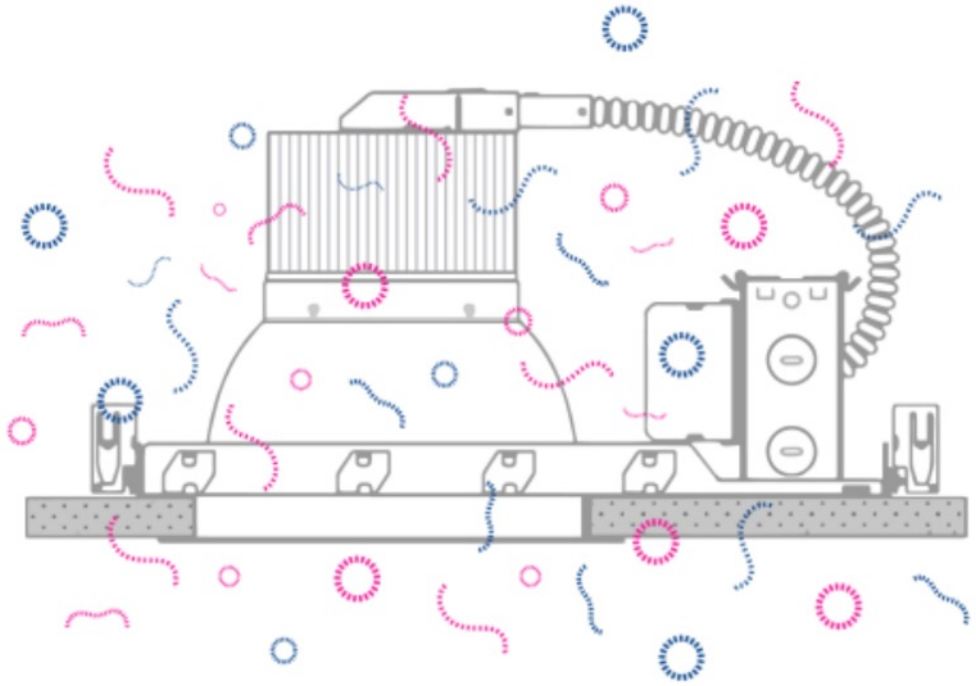
- Minimize imposing equipment over the patient (Cath Lab patients are **awake** for most procedures)
- Reduce glare for the patient with thoughtful lighting layout

3

A Safer Environment

- Reduce infection risk with sealed IP65 or IP66 fixtures
- Eliminate physical hazards associated with boom mounted exam lights

Infection in the Hospital



NON-KIRLIN DESIGN

THE PROBLEM

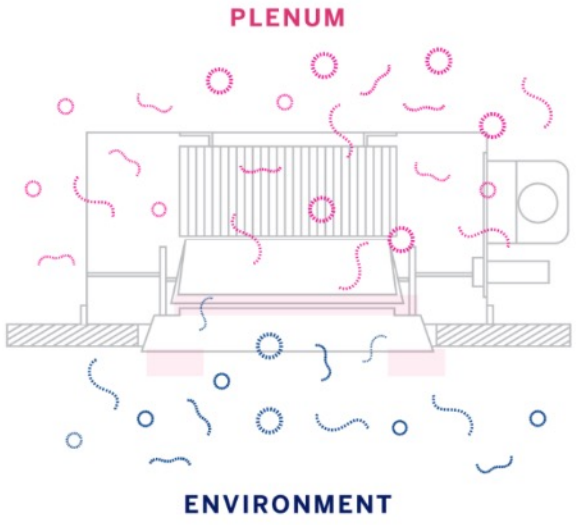
Without lensing, gasketing, or a sealed housing, pathogens and bacteria from the environment mix freely with pathogens and bacteria from the plenum, increasing the risk of widespread infection throughout the hospital.

Three Levels of Infection Control

1

LEVEL 1

Biogard™ Antimicrobial Finish

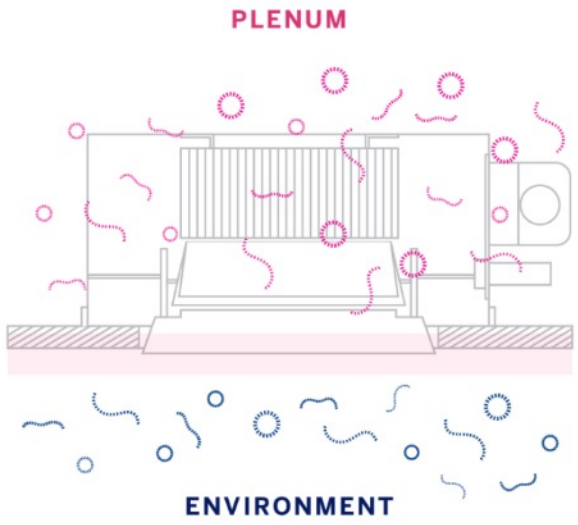


2

LEVEL 2

IP65 Sealed Trim

Biogard™ Antimicrobial Finish



3

LEVEL 3

ISO 5/Class 100 Sealed "Cleanroom" Fixture with IP65 Trim

Biogard™ Antimicrobial Finish

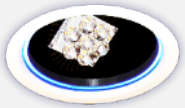
Kirlin Sealed & Antimicrobial Lighting Solutions

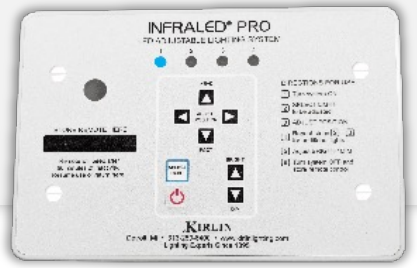
Motorized Exam

INFRALED PRO 45

INFRALED PRO 35

INFRALED PRO 25





Non-Motorized

Downlight – 4”, 6”, 7”, 8”

Exam Light – 7”, 8”

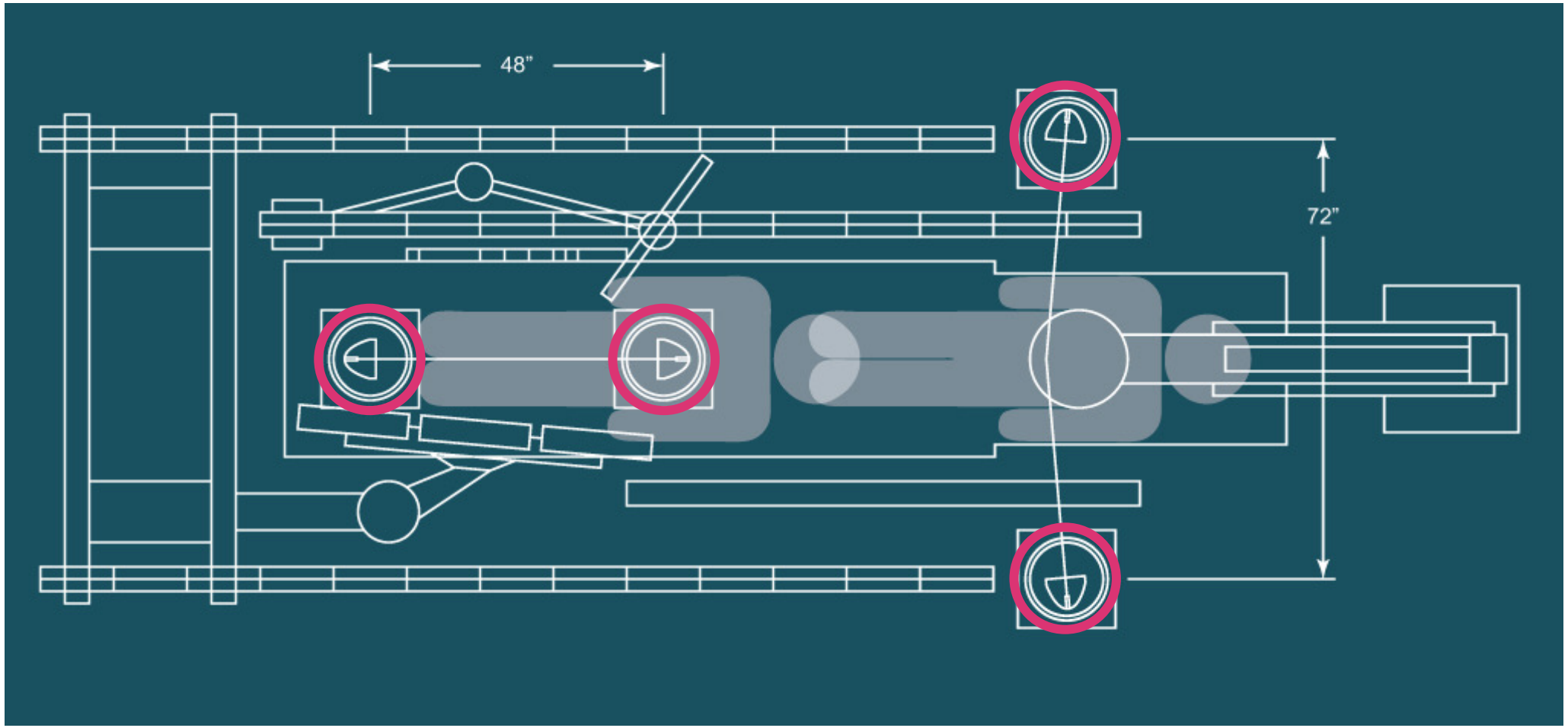
Adjustable Exam – 7”, 8”

Motorized Exam Lighting in the Cath & EP Lab

Showroom Video – See separate Clip

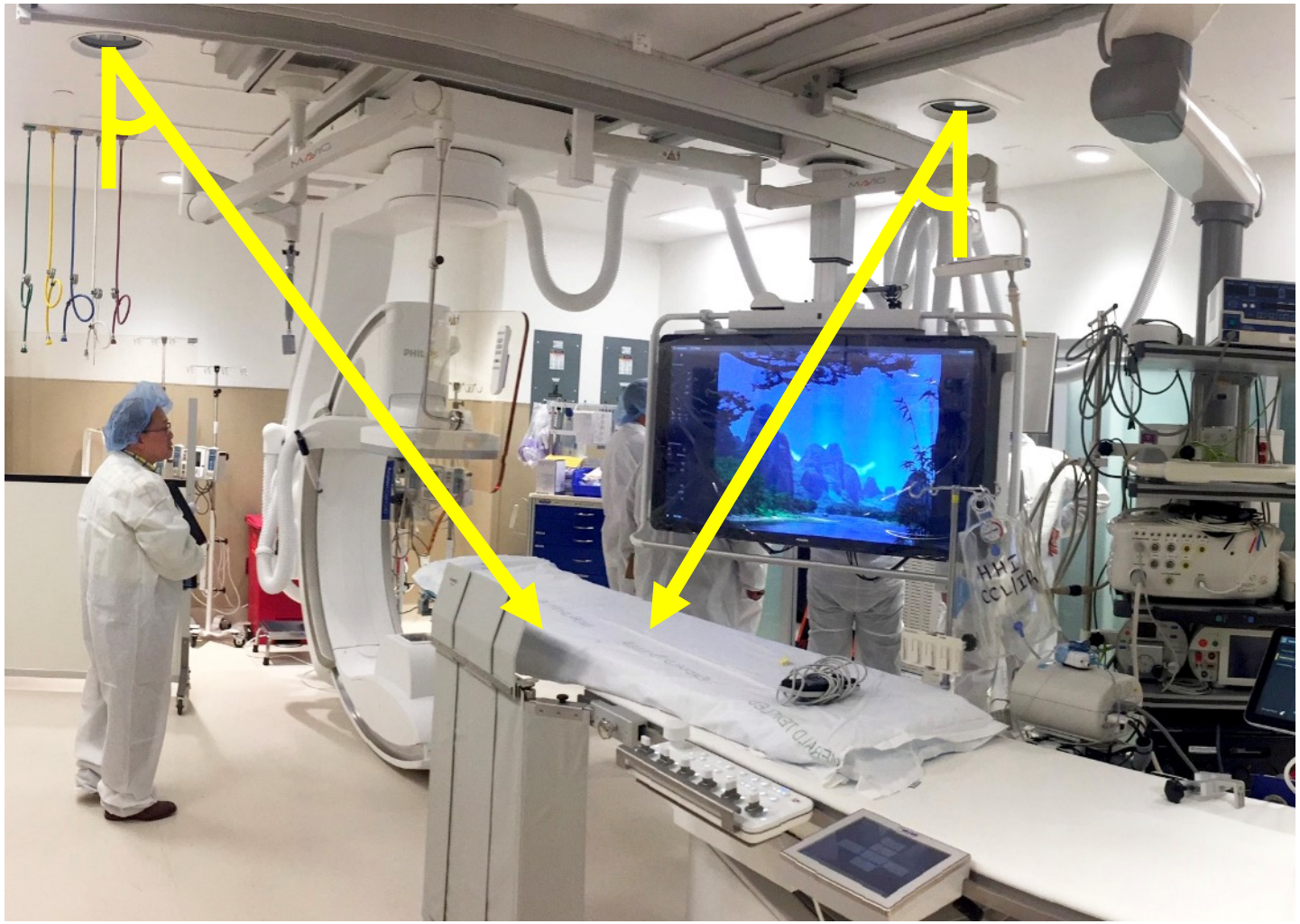
https://youtu.be/CfGLdepCF2g

Typical Fixture Locations for Cath Labs



Fixture Placement & Beam Angle

- Restricted plenum space and competing equipment can push the recessed exam lights to the perimeter
- When the lights are mounted over the patient table, a 35-degree angle may be sufficient
- Often, the 45 degrees offered by PRO 45 is the difference-maker



PRO 45: A Simple Solution for Cath Lab Lighting

Kirlin Lighting's INFRALED® PRO 45 provides ideal lighting for the Cardiac Cath & EP Lab

Enhanced Visual Acuity

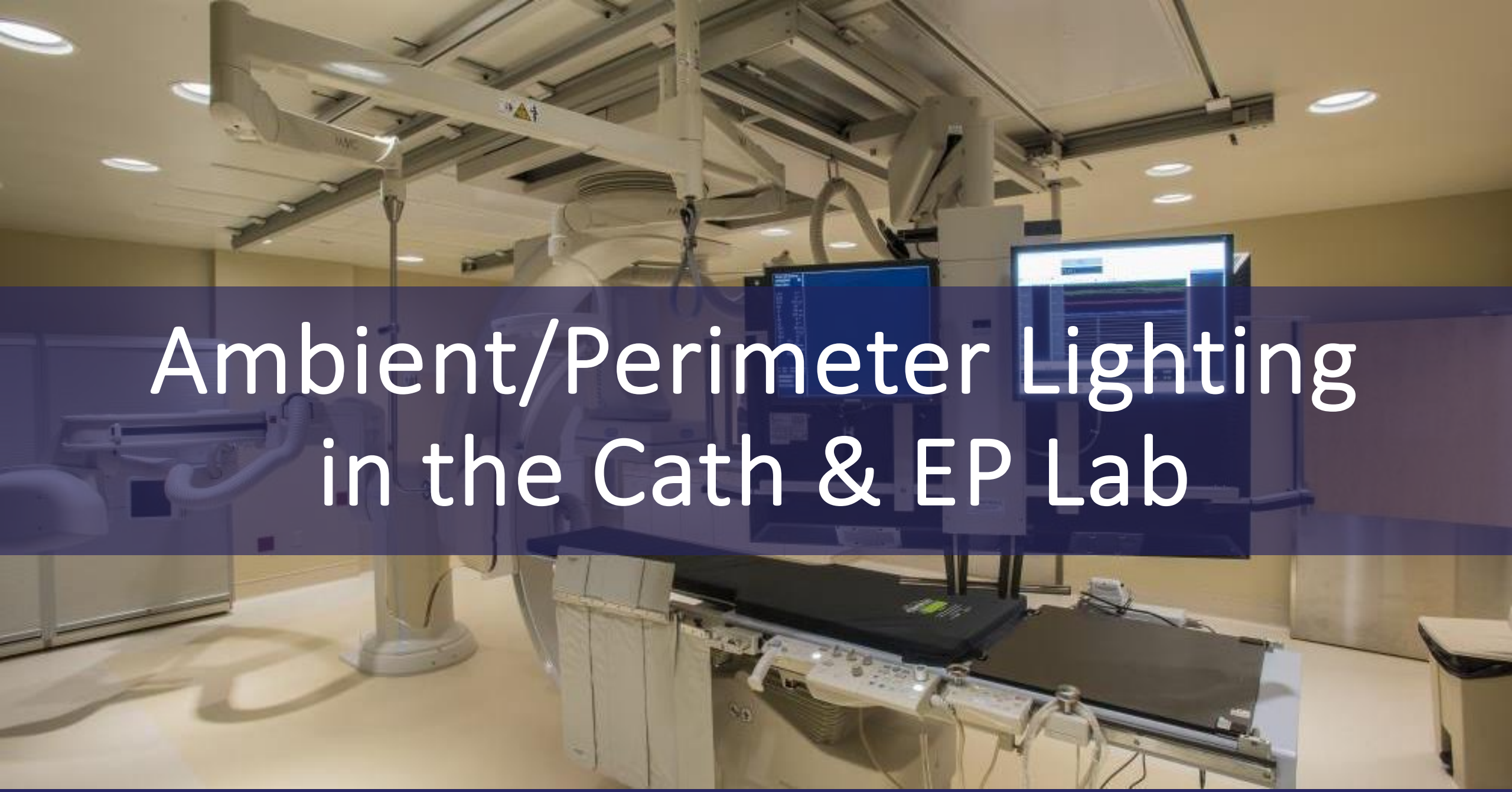
- 360° rotation and up to 45° tilt for illumination of patient table
- Fully dimmable & adjustable, with 95+ CRI

A Safer Environment

- Fully recessed with IP66 trim and sealed housing
- Sterile and easy to clean

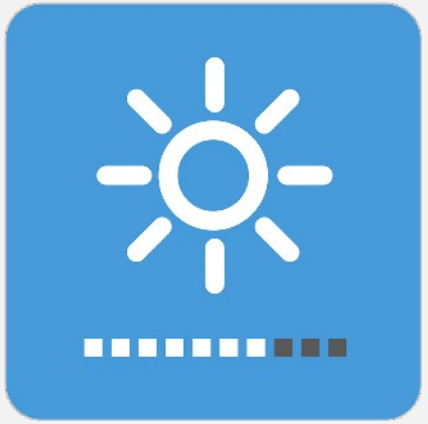
Improved Patient Comfort

- Replaces imposing boom lights



Ambient/Perimeter Lighting in the Cath & EP Lab

Ambient Lighting: Two Primary Goals



Sufficient Light Levels for Cath & EP Tasks (w/ Dimming!)

Sealed & Cleanroom Rated Fixtures for Infection Control

Sufficient Ambient Light Level

- General procedural area: 150 fc
- Scrub area: 75 fc
- Instrument Prep: 50fc

✓ Consistent, high light levels
✓ No shadow zones
✓ Dimmable for enhanced monitor viewing

Insufficient Ambient Light Level

x Inconsistent light levels – bright spots and dark spots
x Minimal illumination of patient table, other than boom lights

Cleanroom Lighting in the Cath Lab

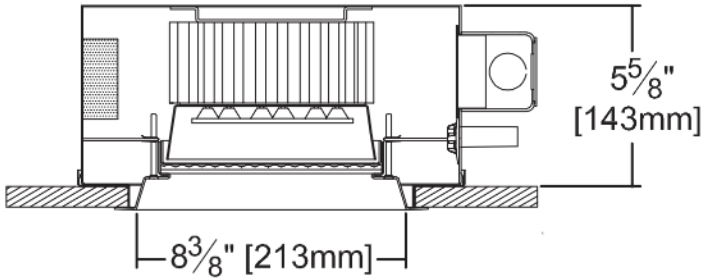
8” Sealed Downlight

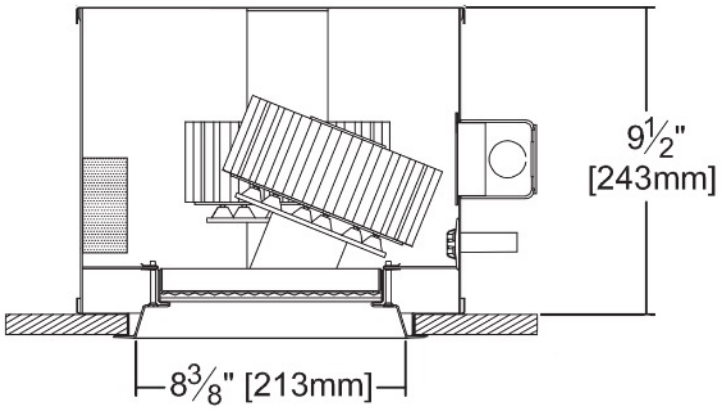
2500L to 6500L

- BioGard Antimicrobial Finish
- IP65 Ingress Protection
- ISO 5 / Class 100 Cleanroom
- Color-Specific Wavelengths

Fixed & Adjustable IP65 @ Tucson Medical Center

8” Perimeter Downlight





Recessed Luminaires for Ambient Cath/EP Lighting

4”

Downlight

1000L – 2500L

6”

Downlight

1000L – 6500L

7”

Downlight

1000L – 6500L

8”

Downlight
Adjustable

1000L – 6500L

Cath & EP Lab Vignettes

Sealed Ambient Lighting @ Cleveland Clinic

MRR-08555

Level 3 Cleanroom Downlight

3500L

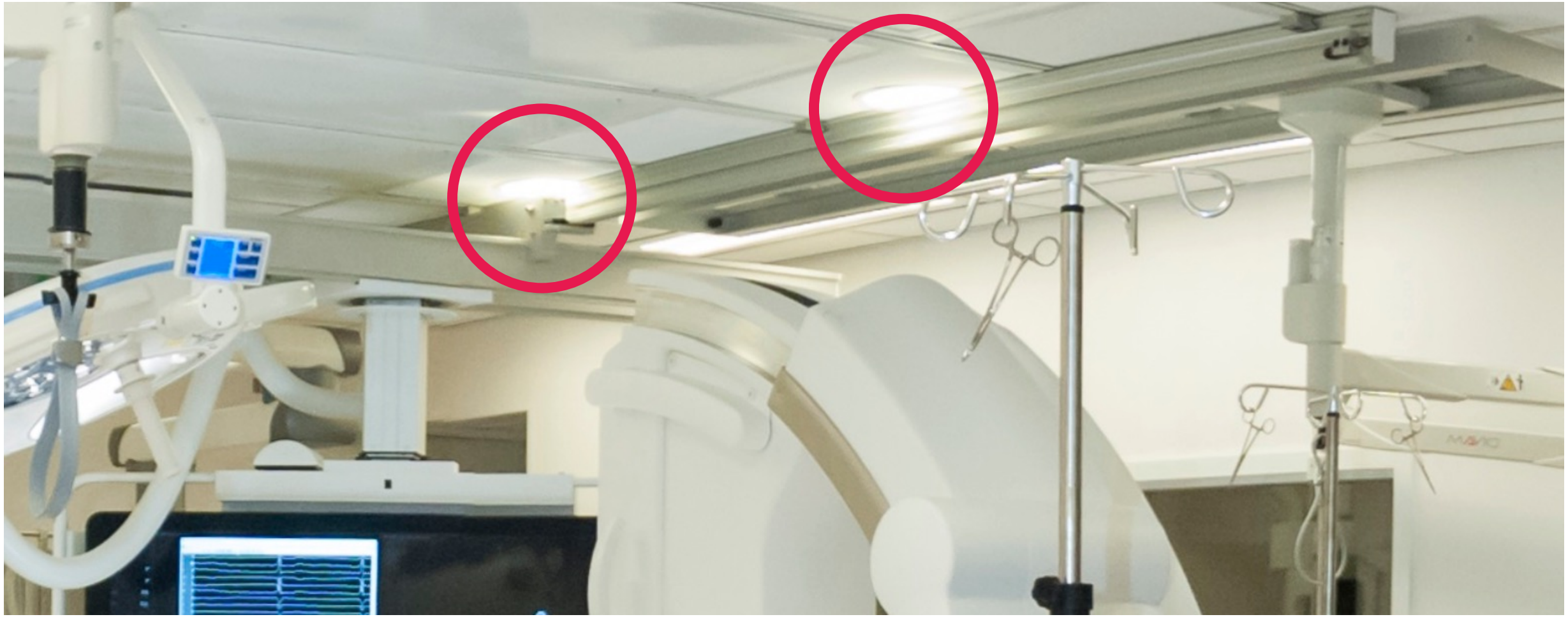
MFL

BioGard

IP65

ISO 5 CLASS 100 CLEANROOM

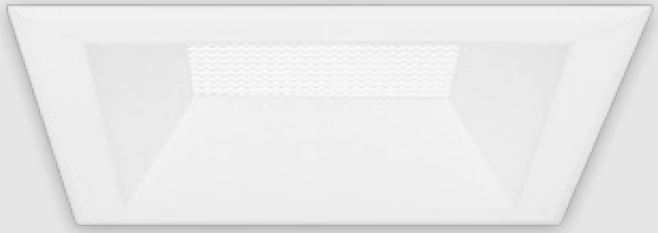
Managing Scarce Ceiling Real Estate



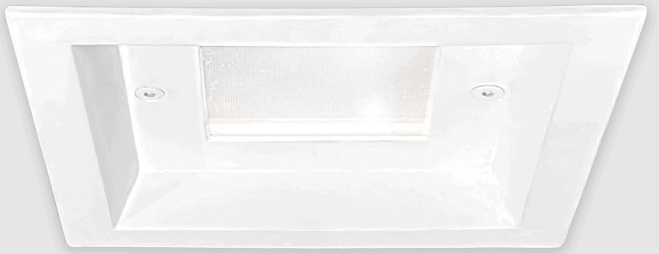
4-Light Motorized System @ Placentia Linda Hospital

(4) Motorized Exam Lights with Added 15° Pan

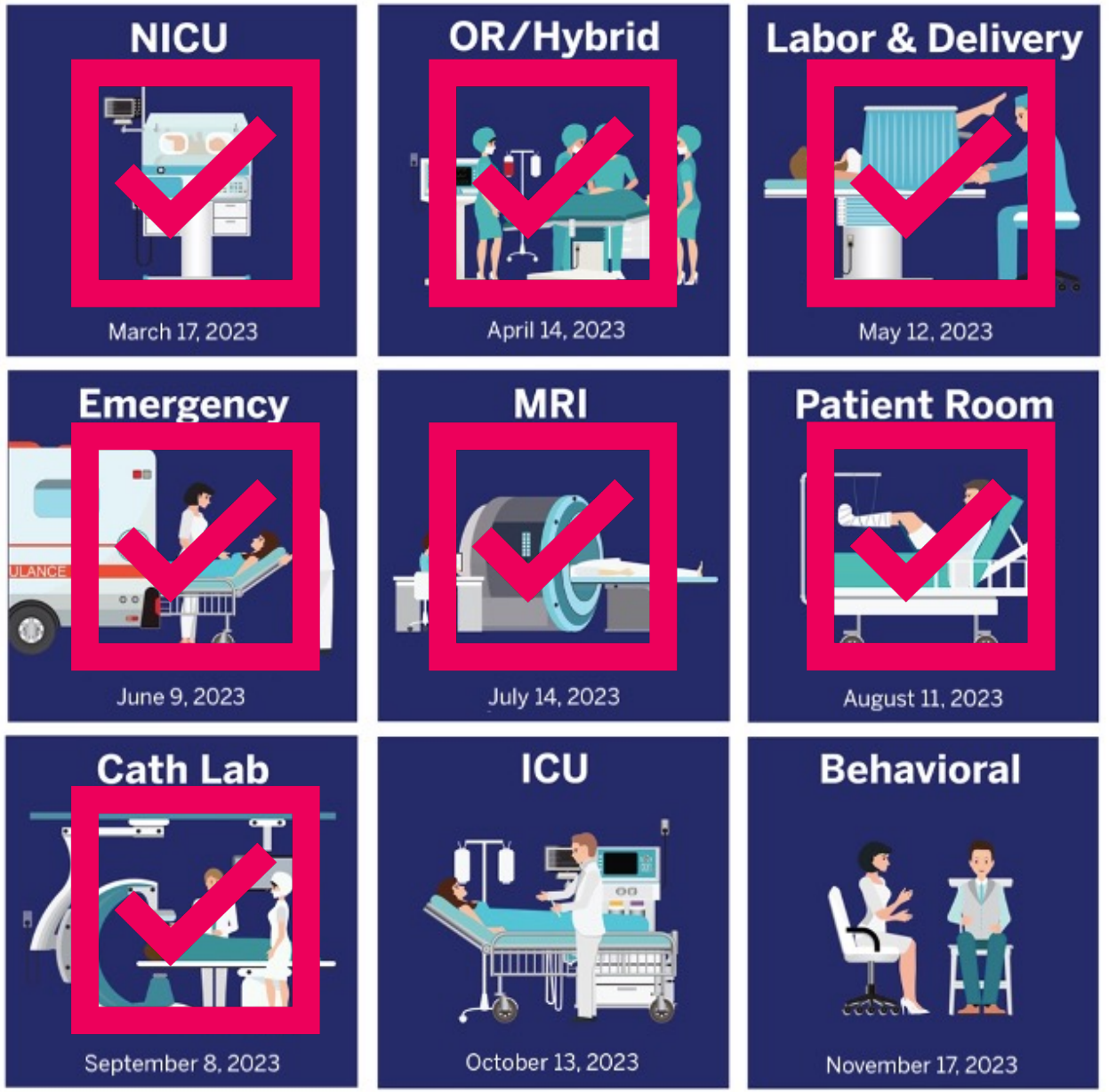
It’s Hip to be Square @ St. Clare’s Denville



4” Square Lensed Downlight
2000L



Join Us Every Month, or On Demand!




Questions?