



Best Practices for Healthcare Lighting

Emergency Department



CHRIS
VP Sales & Marketing



SCOTT
Regional Manager - Central



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National Sales Manager

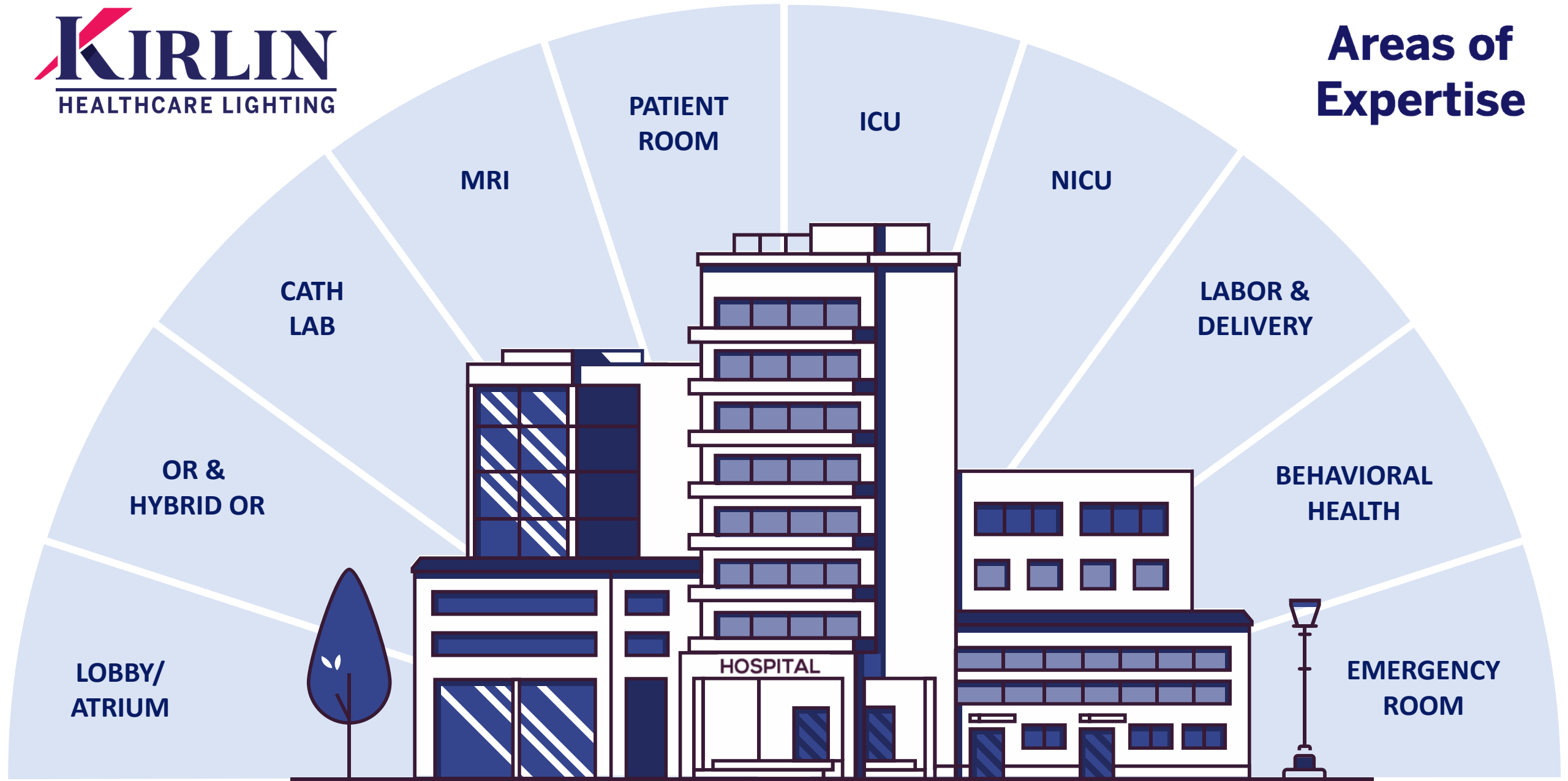


RICHARD
Regional Manager - West

Key Focus Areas



Areas of Expertise



LOBBY/
ATRIUM

OR &
HYBRID OR

CATH
LAB

MRI

PATIENT
ROOM

ICU

NICU

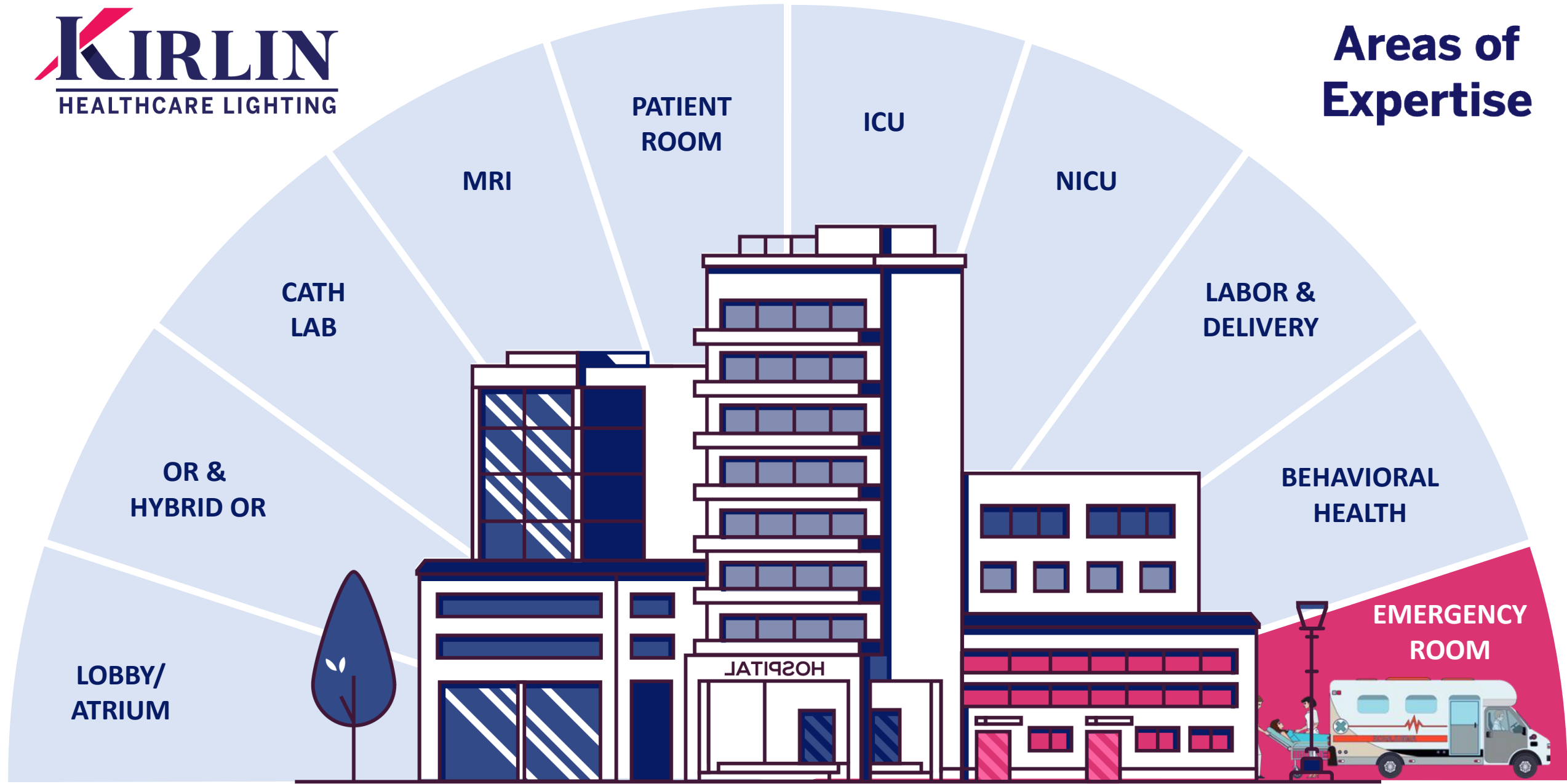
LABOR &
DELIVERY

BEHAVIORAL
HEALTH

EMERGENCY
ROOM

HOSPITAL

Areas of Expertise





“The Front Door of
the Hospital”

70%

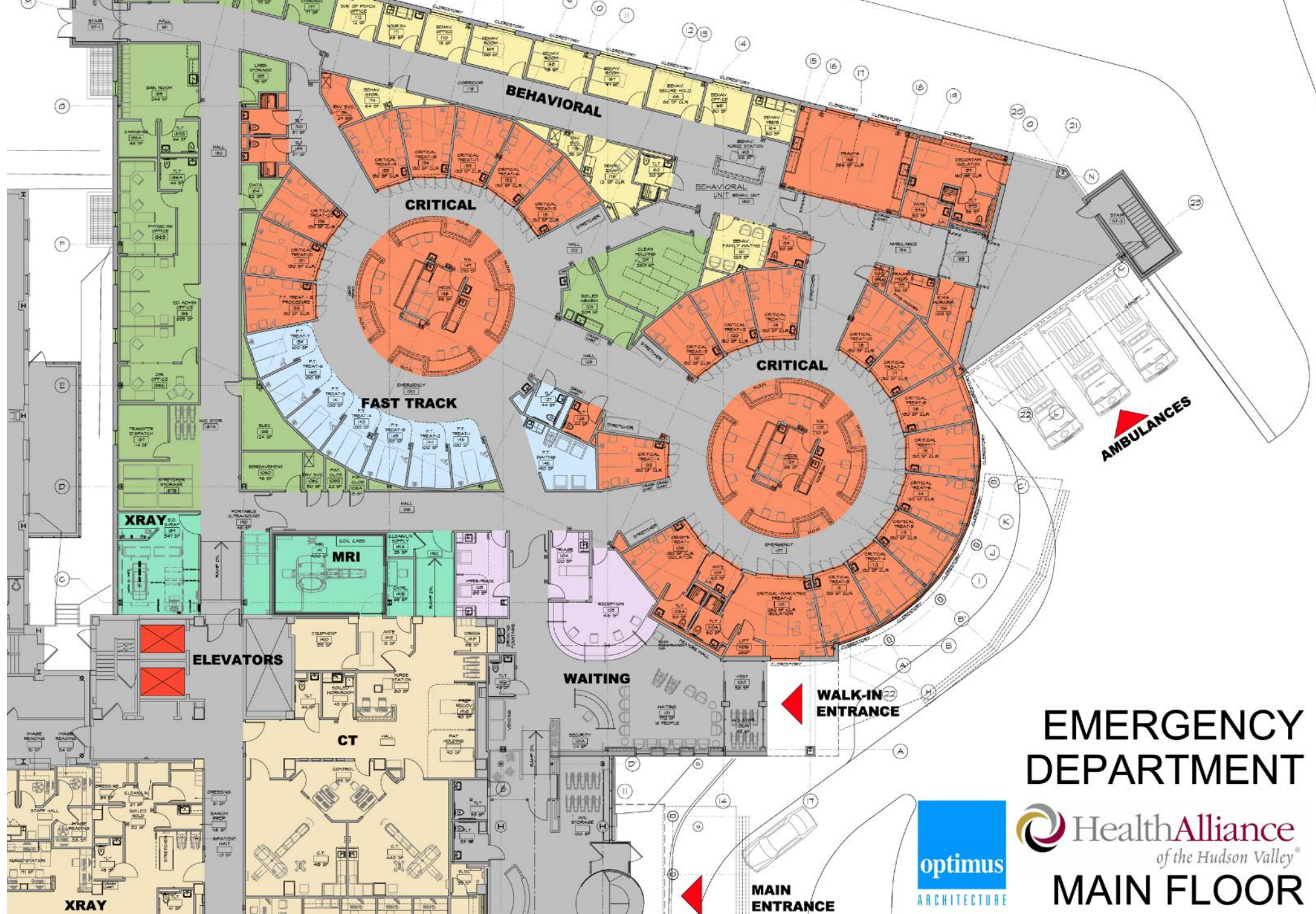
of all hospital
admissions in the
U.S. come through
the Emergency
Department



“**Not Just** the Front Door of the Hospital”

51%

of all hospital care in the U.S. is delivered in the Emergency Department



EMERGENCY DEPARTMENT

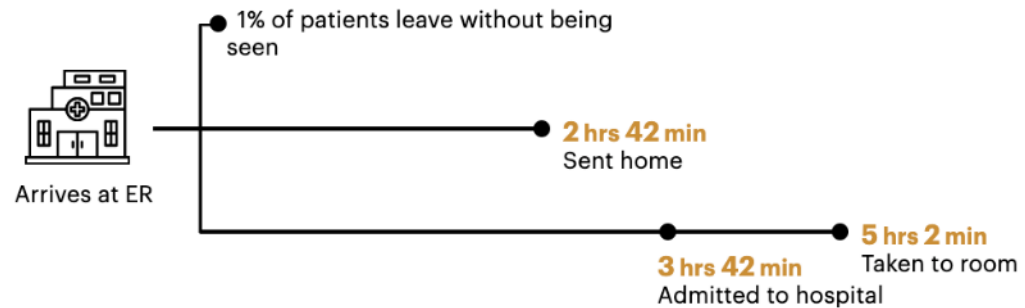
HealthAlliance
of the Hudson Valley®

MAIN FLOOR

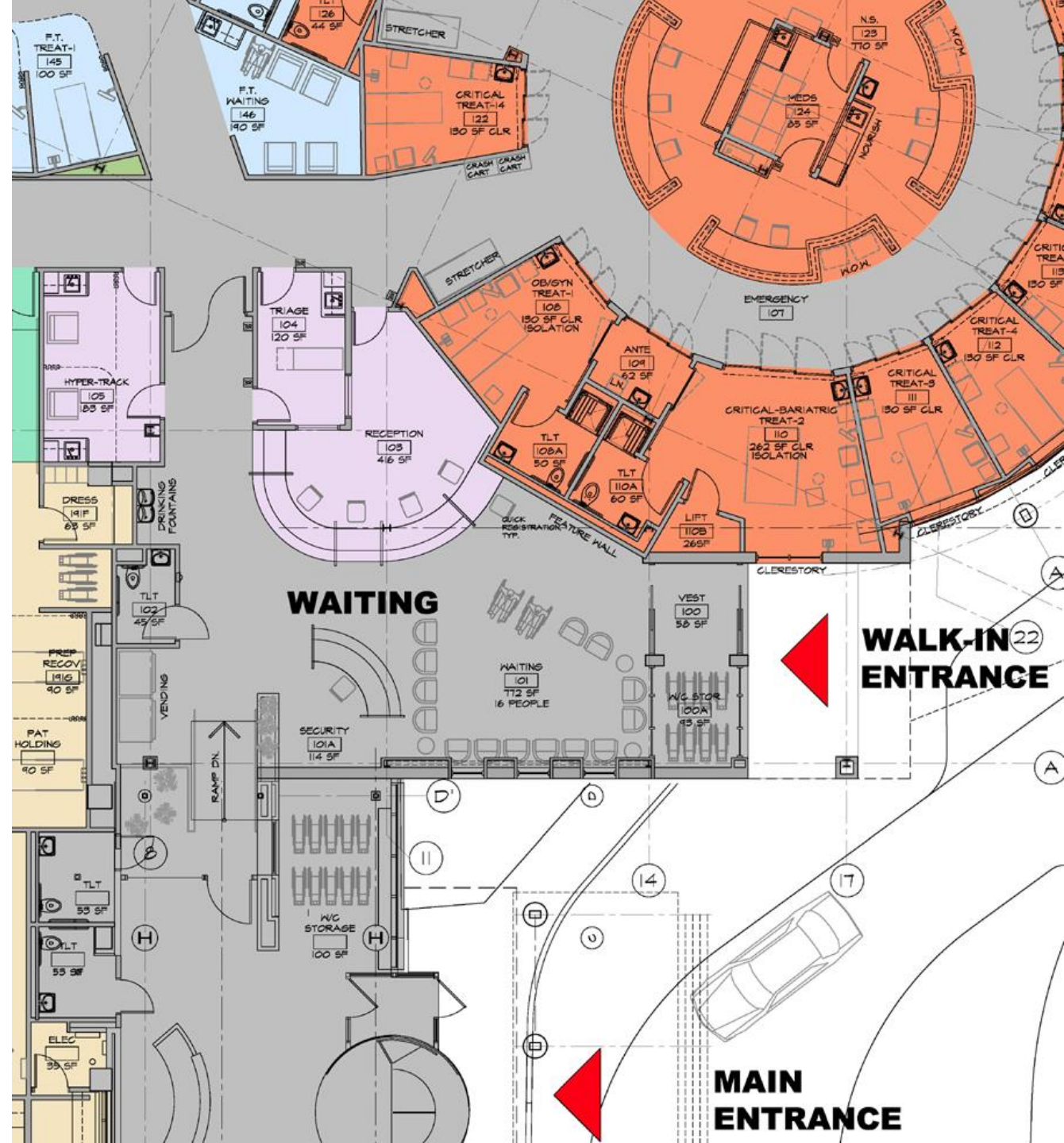


1. Intake & Triage

- Multiple patient entrances:
 - Main hospital entrance
 - Walk-in ER entrance
 - Ambulance entrance
- Reception area has direct access to triage and “hyper-track” triage room
 - One key performance metric for every ED is **wait time**
 - A second key performance metric is **transfer time** for those admitted



Source: ProPublica ER Inspector



Lighting Requirements for Intake

- Comforting, calming, and hospitality-oriented
- Warmer color temperatures
- High light levels and good color-rendering for rapid visual assessment
 - Who goes right to triage?
 - Who goes to the “hyper track”?



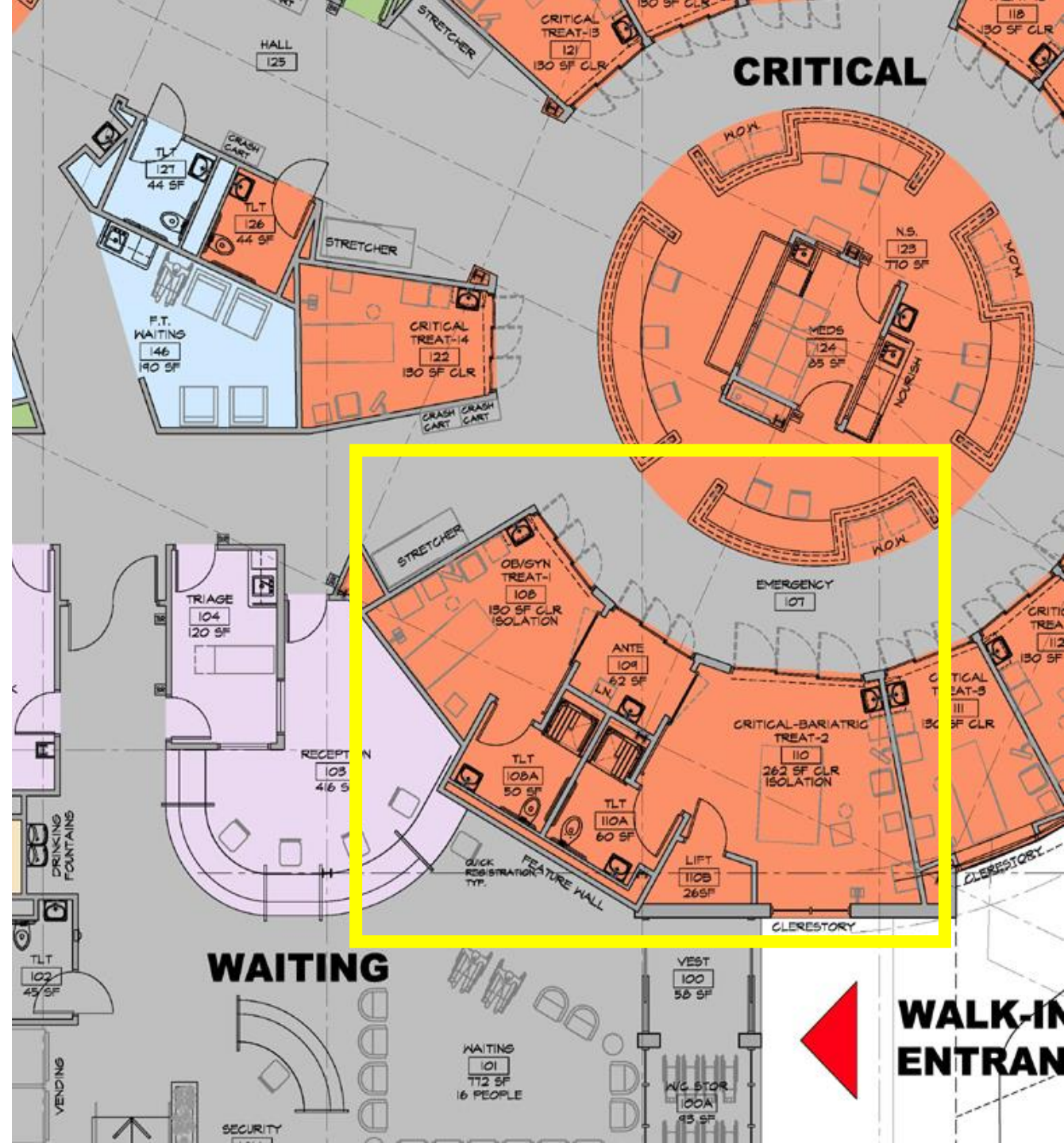
Lighting Requirements for Triage

- High light levels for visual diagnosis, rapid assessment, and re-location to most relevant treatment area
- Can be fully enclosed rooms or “bays” with privacy curtains
- Tend to be illuminated by 2x2s and 2x4s
- Goal of this space is **not treatment, just rapid triage**
- Area for improvement: color rendering!



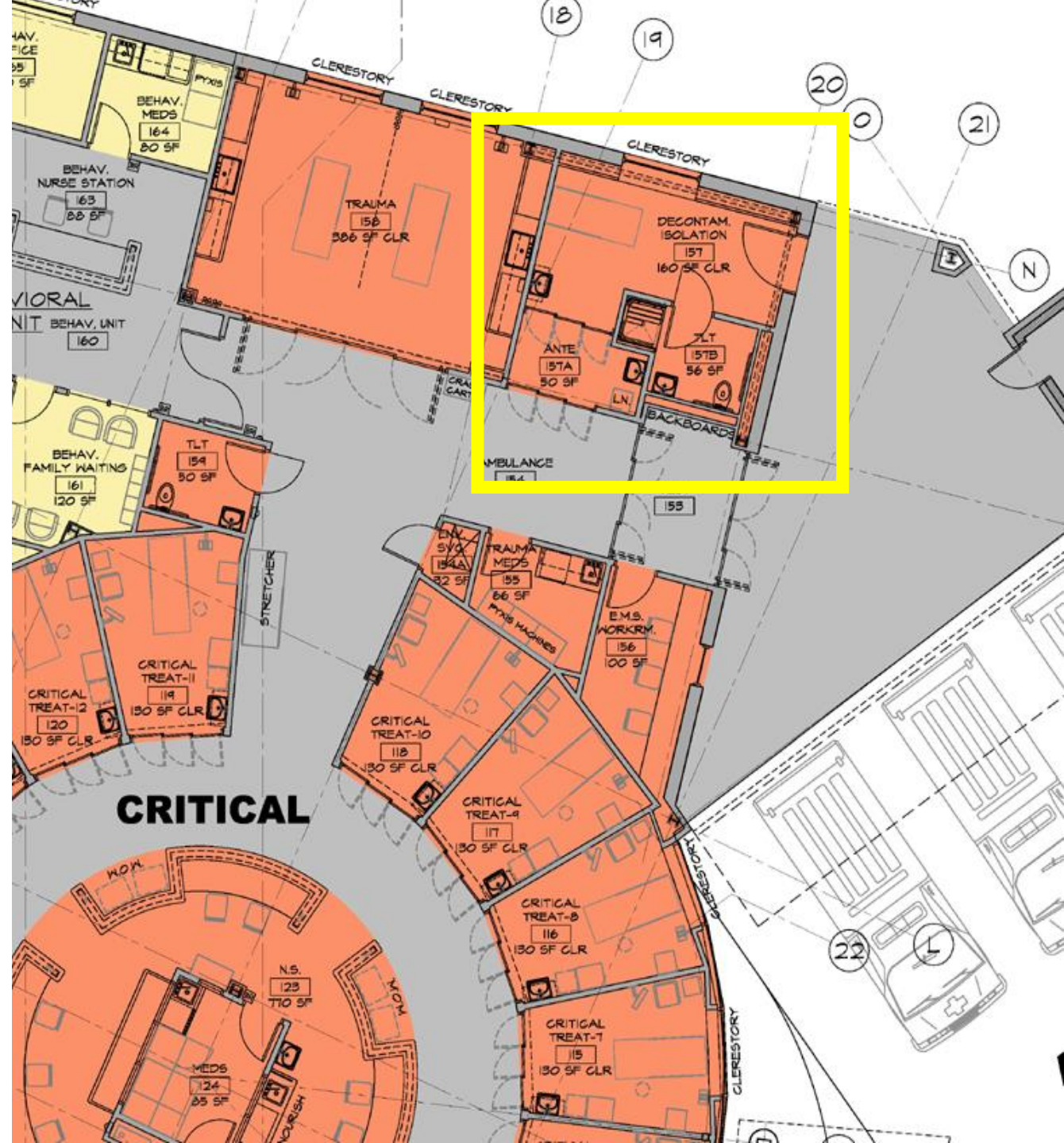
2. Isolation Rooms

- Easy Access for Infectious Patients
- Primary goal is to isolate patients who have symptoms of infectious disease, such as COVID-19, Ebola, etc.
- Isolation rooms are the only patient space in the ED with their own patient bathroom, and most have a negative-pressure **ante-room** where clinicians put on (and take off) PPE
- In this example, isolation rooms A & B are dual purpose:
 - Room A: OBGYN Treatment Room
 - Room B: Bariatric Treatment Room with Lift



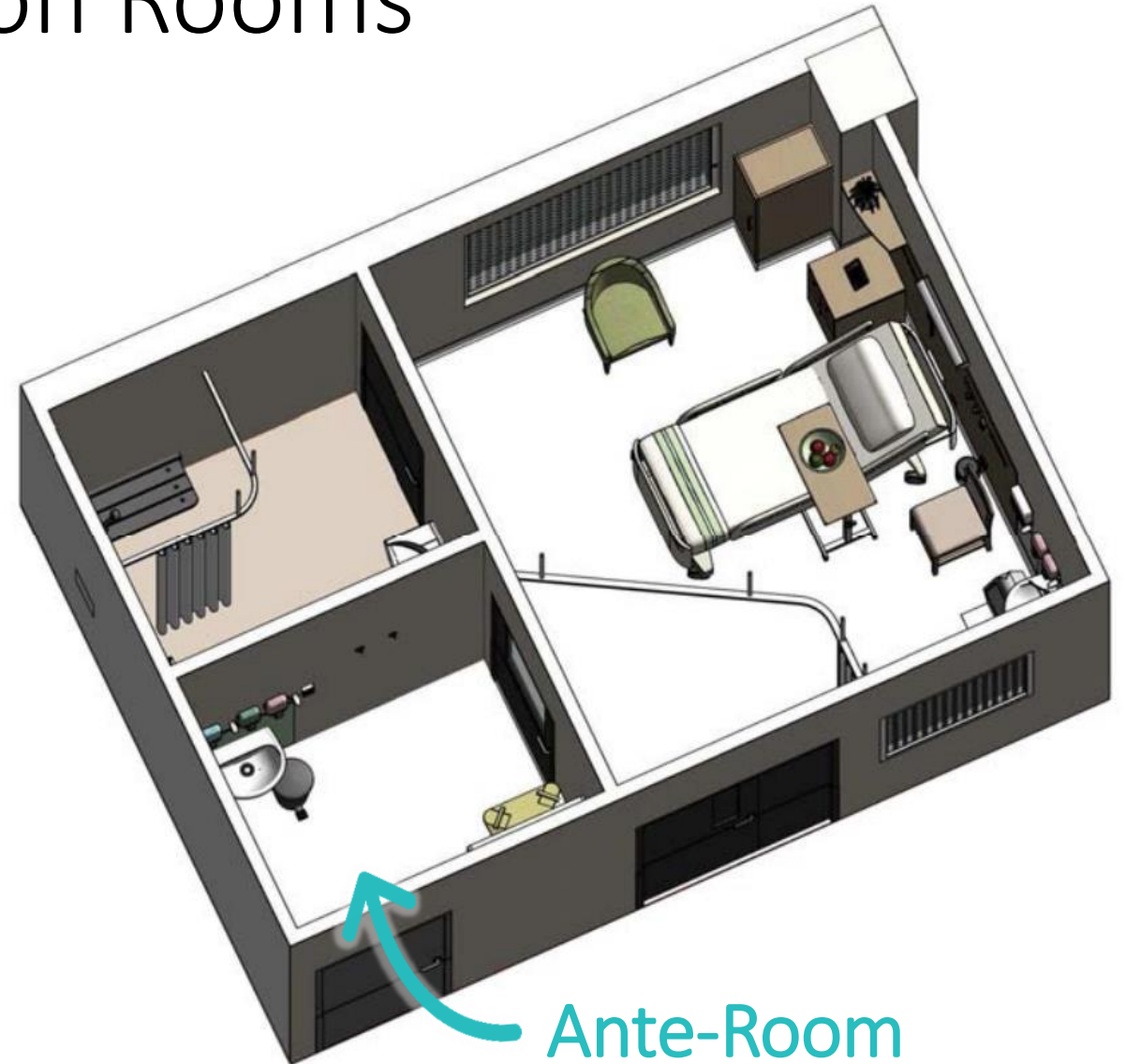
2. Isolation Rooms

- **Easy Access for Infectious Patients**
- Direct entrance door from ambulance bay for patients diagnosed as infectious by EMS workers
- Isolation Room C is a “general-purpose” isolation room, unlike A & B
- COVID-19 crisis has led to re-assessment of the number of isolation rooms or wards needed in an Emergency Department setting
 - In this example, only this 1 room has direct patient access that circumvents public waiting spaces.



Negative Pressure Isolation Rooms

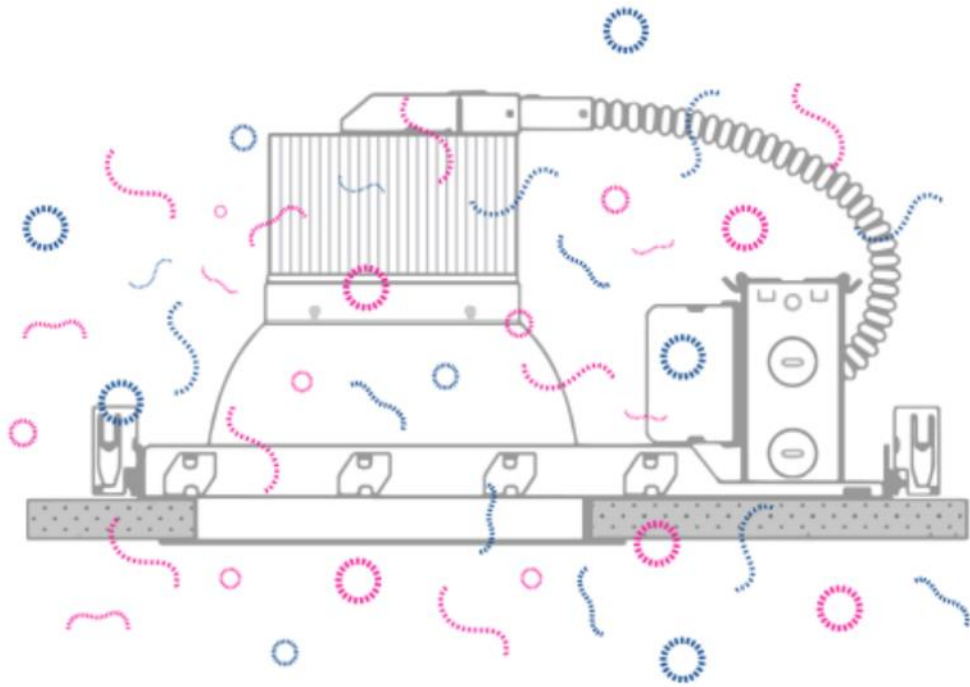
- Much like an Operating Room, these treatment areas are designed to reduce risk of airborne transmission of pathogens
- Located nearest to the entrance of Emergency Department to minimize contamination during patient transport
- **All perforations of ceiling and wall should be sealed**



Inside the Ante-Room: Buddy System



Infection in the Hospital



NON-KIRLIN DESIGN


THE PROBLEM

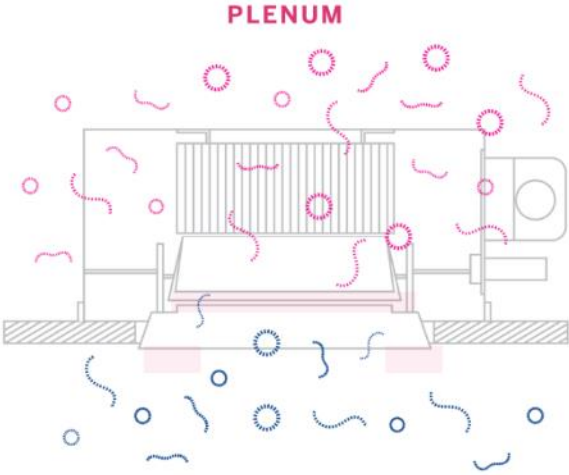
Without lensing, gasketing, or a sealed housing, pathogens and bacteria from the environment mix freely with pathogens and bacteria from the plenum, increasing the risk of widespread infection throughout the hospital.

Three Levels of Infection Control

1

LEVEL 1

 Biogard™ Antimicrobial Finish





PLENUM

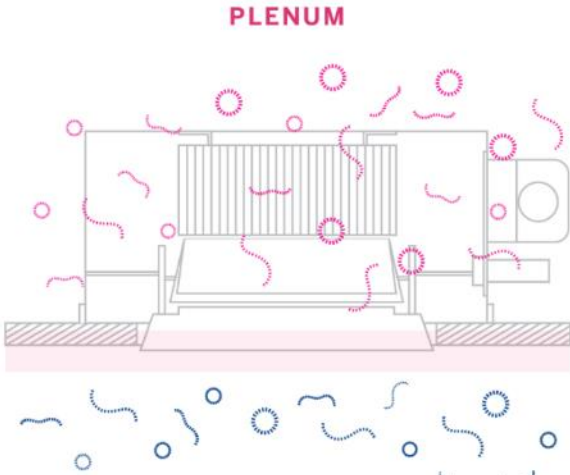
ENVIRONMENT

2

LEVEL 2

 IP65 Sealed Trim

 Biogard™ Antimicrobial Finish





PLENUM


ENVIRONMENT

3

LEVEL 3

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

 Biogard™ Antimicrobial Finish



PLENUM

ENVIRONMENT

Kirlin Sealed & Antimicrobial Lighting Solutions

Ambient



6" Downlight



7" Downlight, Exam Light



8" Downlight, Exam Light, Adj.



Clinical / Exam

INFRALED PRO 45



INFRALED PRO 35

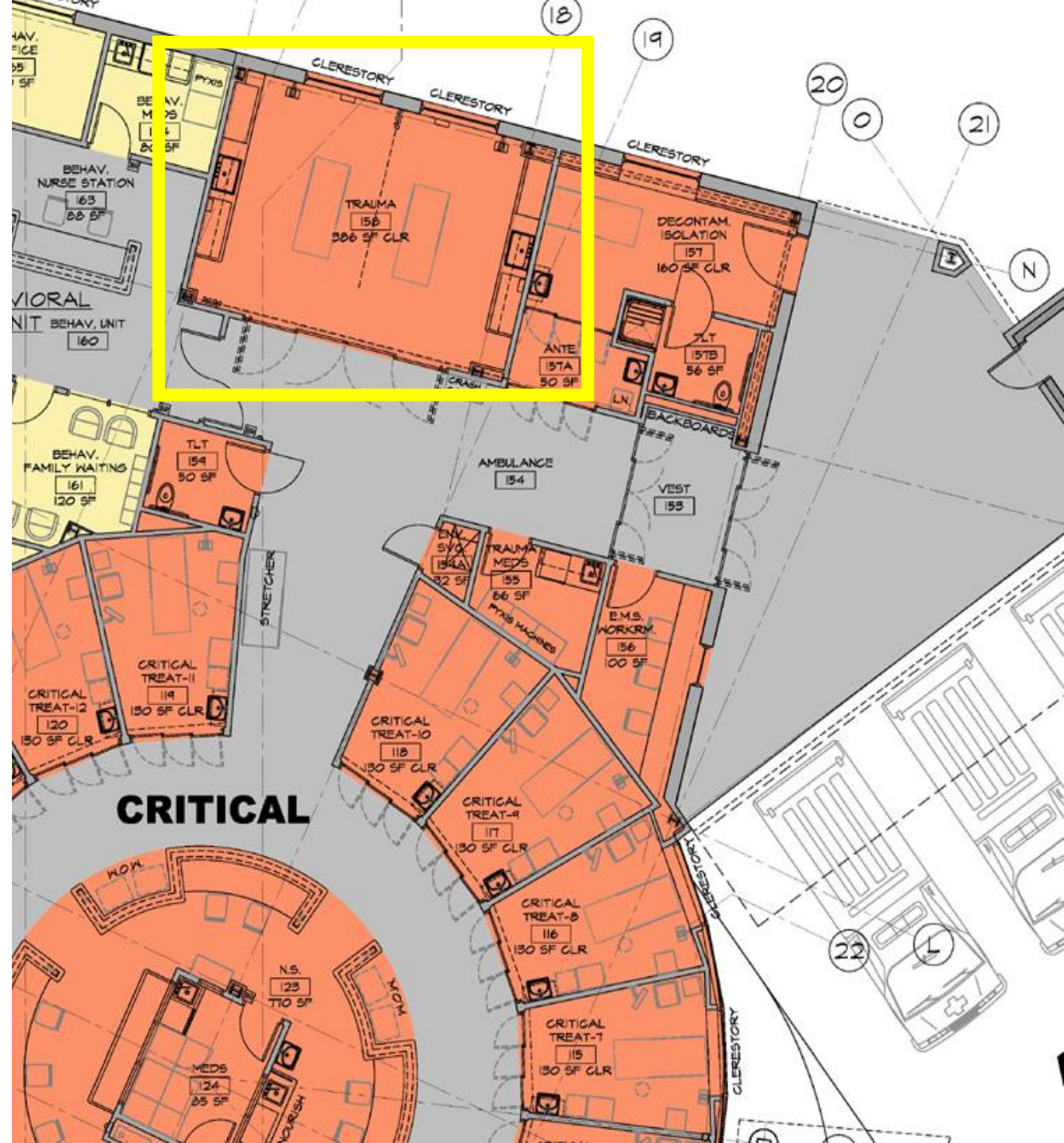


INFRALED PRO 25



3. Trauma Bay(s)

- Trauma is a surgical emergency involving a severely injured person
 - Gunshot wounds, car accidents, blunt force trauma, etc.
- “Golden Hour” principle: if a trauma patient can make it to an operating environment within 60 minutes of injury, mortality is reduced by 25%
 - Trauma bays in the ED are used to diagnose, treat, and stabilize trauma patients **within 30 minutes**
- Level 1 Trauma Centers provide 24/7 surgical support across all disciplines

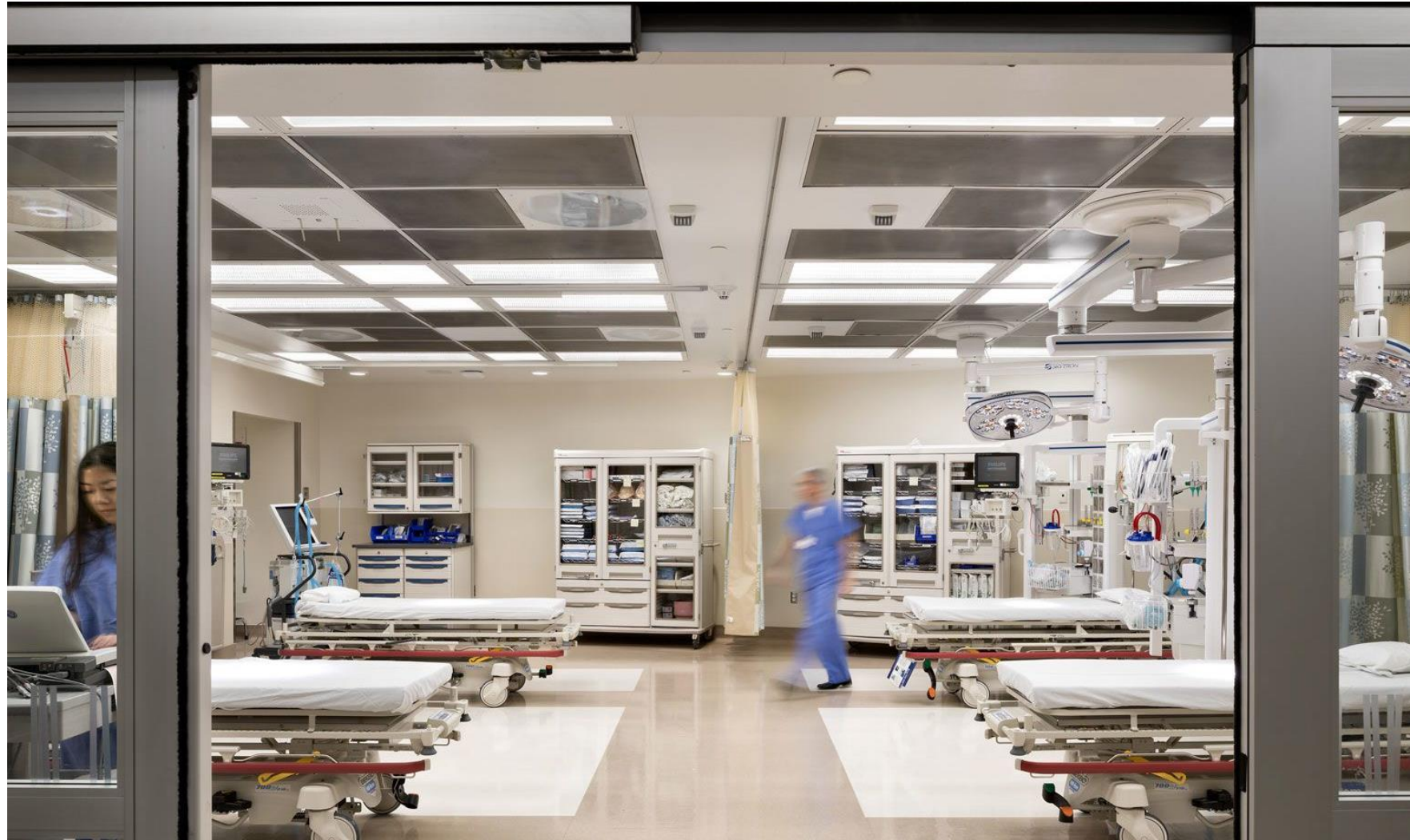


CLEANROOM-RATED PERIMETER AMBIENT DOWNLIGHTS



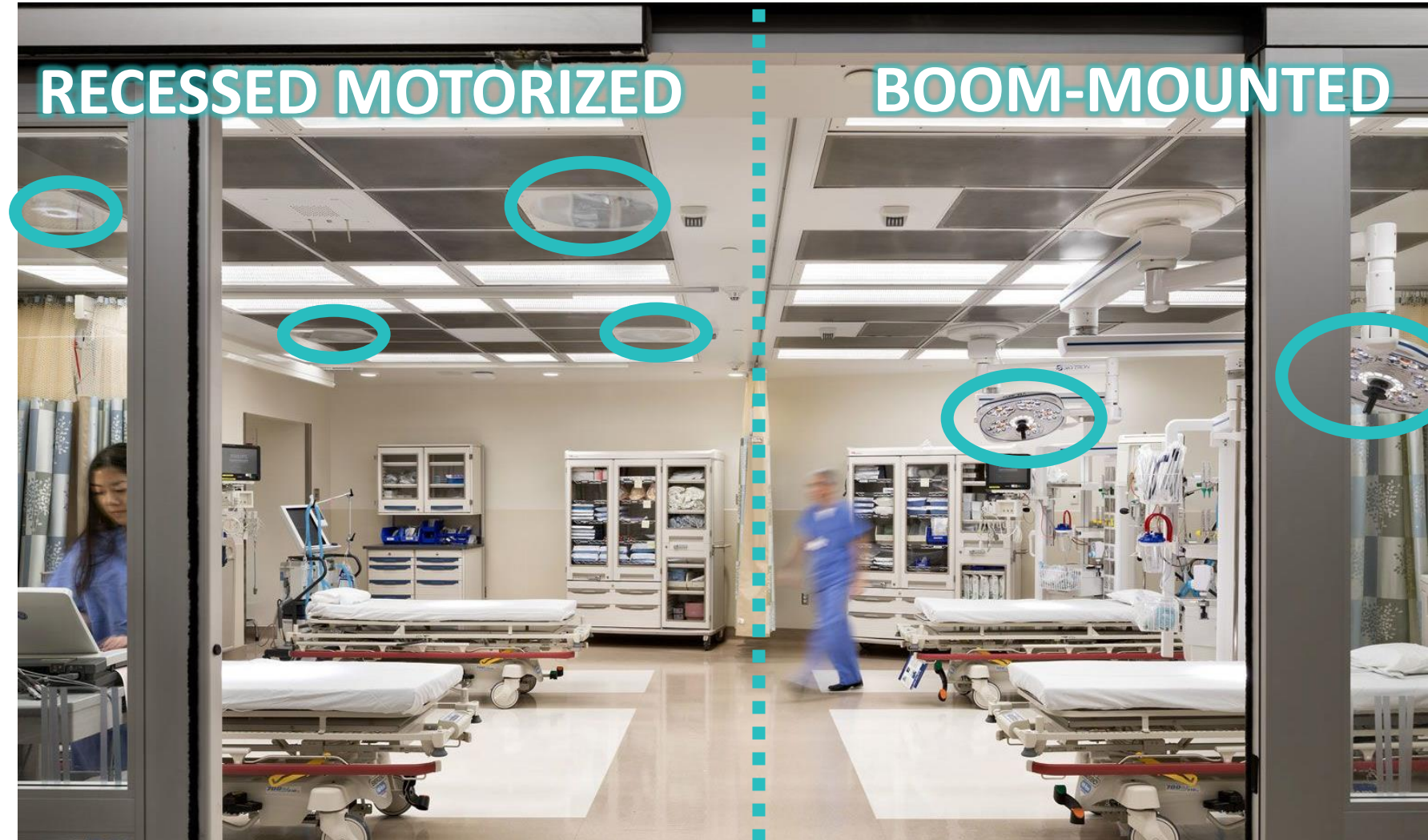
Lighting Requirements for Trauma Room

- Similar design to an operating theater
- Often support multiple patients
- Require sealed perimeter downlights for ambient lighting, sealed surgical troffers, and adjustable exam lights capable of illuminating **multiple trauma locations**



A Combined Approach to Clinical Lighting

- Use of **recessed motorized exam lights** enables instantaneous illumination of multiple sites.
- Single boom-mounted light does not.



PRO 45: Multiple Trauma Lighting

Kirlin Lighting's INFRALED® PRO 45 provides ideal lighting for Trauma bays in the Emergency Room

Enhanced Visual Acuity

- 360° rotation and up to 45° tilt for illumination of up to 4 sites (per controller)
- Fully dimmable & remote-adjustable

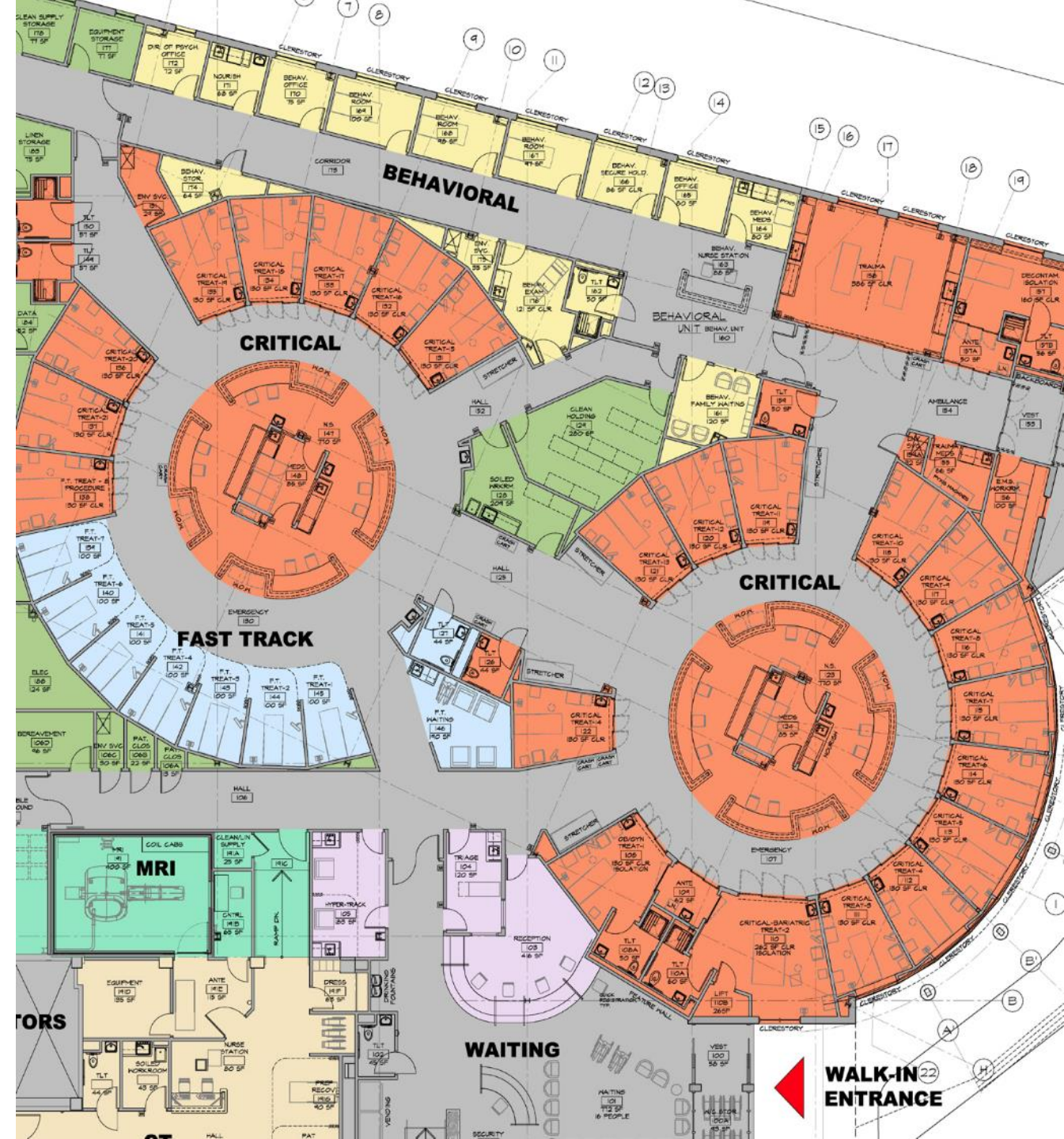
A Safer Environment

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



4. Critical Treatment

- The Critical Treatment section of this ED includes Isolation, Trauma, and Specialty rooms, but mainly consists of 20 **identical treatment bays** surrounding 2 nurses' stations
- Consistent layout and equipment ensure maximum flexibility of these bays
- This is where the majority of Emergency Room patients will be assessed and treated
- “Ribbon Design” optimizes visibility of bays from nurses' station



The Most Common Lighting Design for an ED Bay...

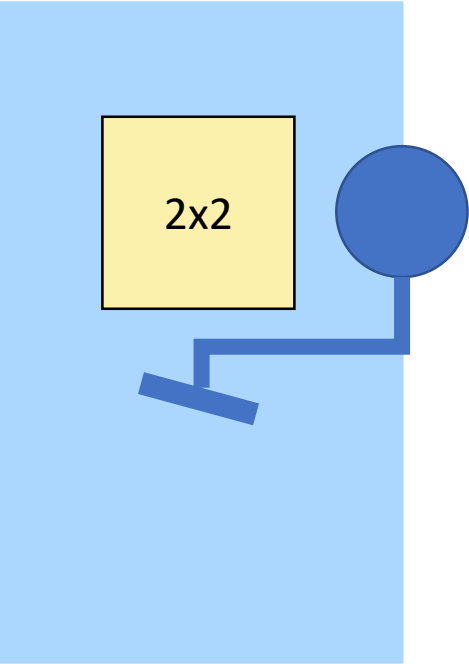


The Emergency Room Reality



We Can Do Better!

Troffer & Articulating Arm



General over-bed illumination and single-site adjustable exam lighting

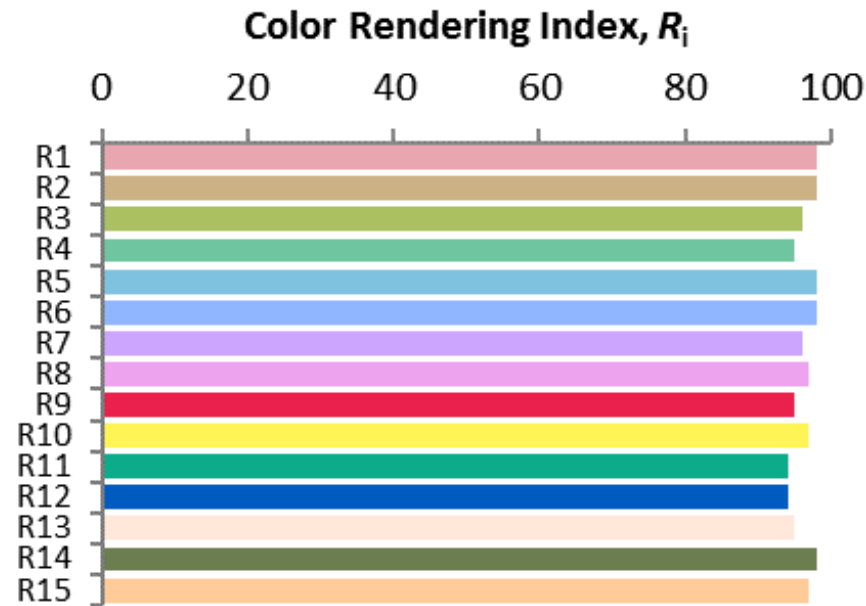
Exam Light & 2x PRO 25s



High-CRI over-bed illumination and multi-site sterile, recessed adjustable exam lighting

High CRI, Low COI, in Multiple Chromaticities

The difference is **95 CRI** with ultra-high **R6, R9, R13** and **R15** and a COI of 2.7



3 Chromaticities (Color Temperatures)

3500K

Mid-White

Labor/Delivery
NICU

4100K

Cool White

ICU
Cath Lab

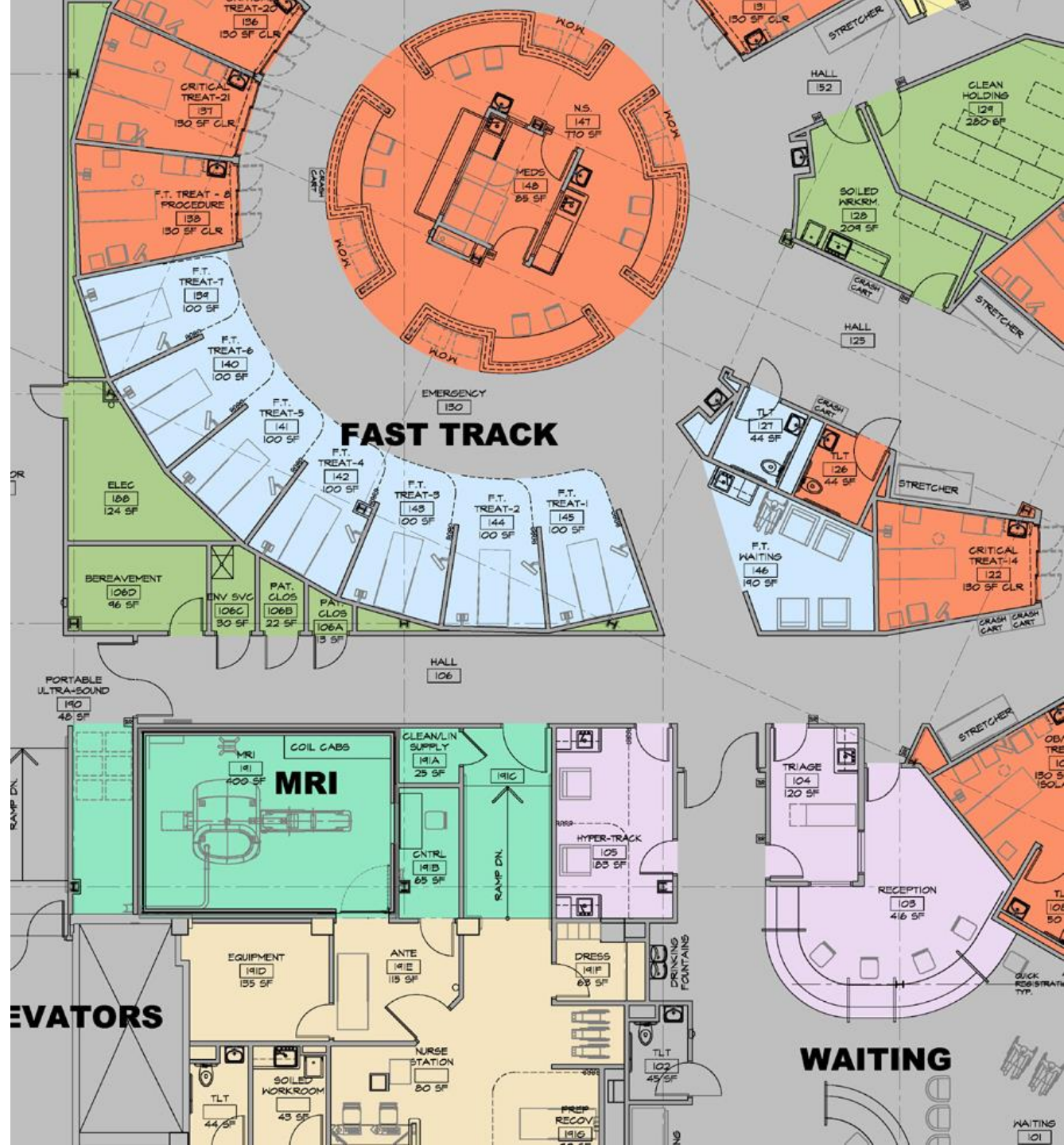
5000K

Ultra-Cool White

EP Lab
Hybrid OR

5. “Fast Track”

- “Fast Track” is a space-efficient and time-efficient care protocol for less severe illnesses and injuries
 - Low-acuity patients can be seen more rapidly and be discharged more rapidly
 - Separate “results waiting” area frees up chairs/beds while test results or scans are being prepared
- Generally lower-cost construction compared to critical or specialty bays, utilizing privacy curtains here rather than glass doors



Exam Pods @ Northwestern Memorial

- Single-occupancy pods for low-acuity patients with soothing cove lighting and “hidden” devices
- All equipment (other than gloves) sit behind smooth easy-to-clean remote-operated compartments
- Smooth surfaces + easy cleaning = **less infection!**



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Greater Design Flexibility

- Fast Track rooms often offer greater flexibility than critical care bays, as less equipment is required
- Soothing design features and natural light can calm patients who might experience anxiety in a more “clinical” emergency care space



Kirlin Exam Lighting for “Fast Track” Pods

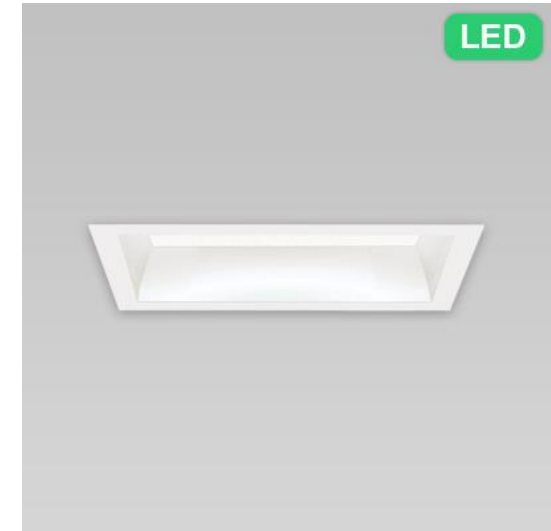
Narrow-beam fixed or adjustable high-color-rendering LED exam lights available in 5 color temperatures, up to 6500L



7" Fixed or Adjustable with
Regressed Lens



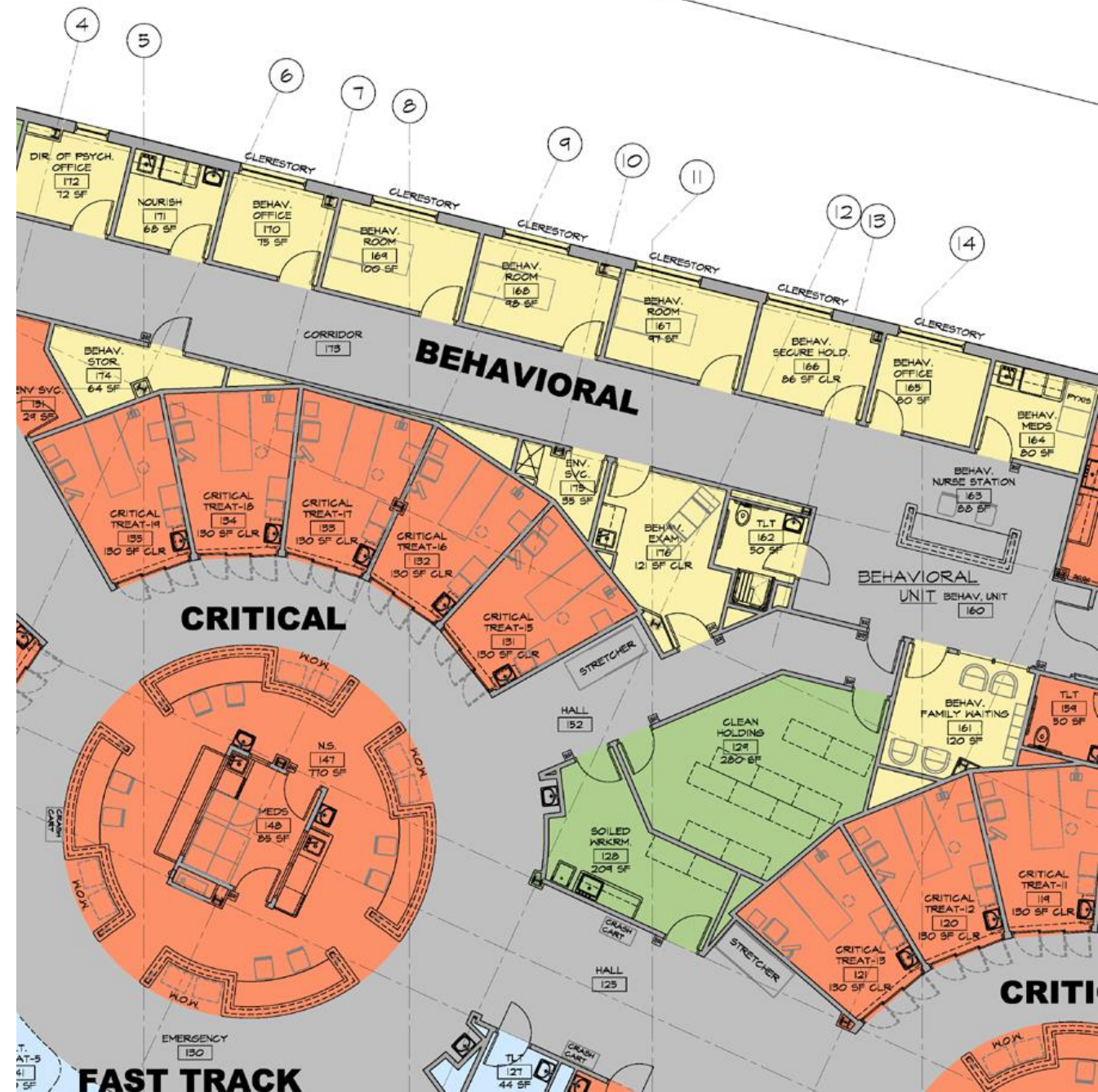
7" or 8" Fixed or Adjustable
with IP65-rated Trim/Lens



4"x9" or 5"x10" Dual Headed
Rectangular Exam

6. Behavioral

- Many patients who enter the hospital via the Emergency Department are suffering from mental health conditions, or are behaving erratically
 - These patients are taken to a “seclusion” room for observation and assessment
- Seclusion rooms require the same features and designs as mental health treatment rooms
 - Secured access
 - Anti-ligature fixtures and devices
 - Promote patient safety and comfort



Seclusion Rooms

- Traditionally, seclusion rooms have lacked the adjustable exam lighting present in other ED rooms
- Typical design with two behavioral-health flat panels is shown here in ED 17
- Rolling “garage door” separates medical equipment & devices from patient space when not in use (and proctored)



Seclusion Rooms



... but patients in these spaces have **all the same ailments & conditions** as patients in the rest of the ED

Kaiser Permanente ED Seclusion Room

2 Fixtures for Multiple Trauma Sites

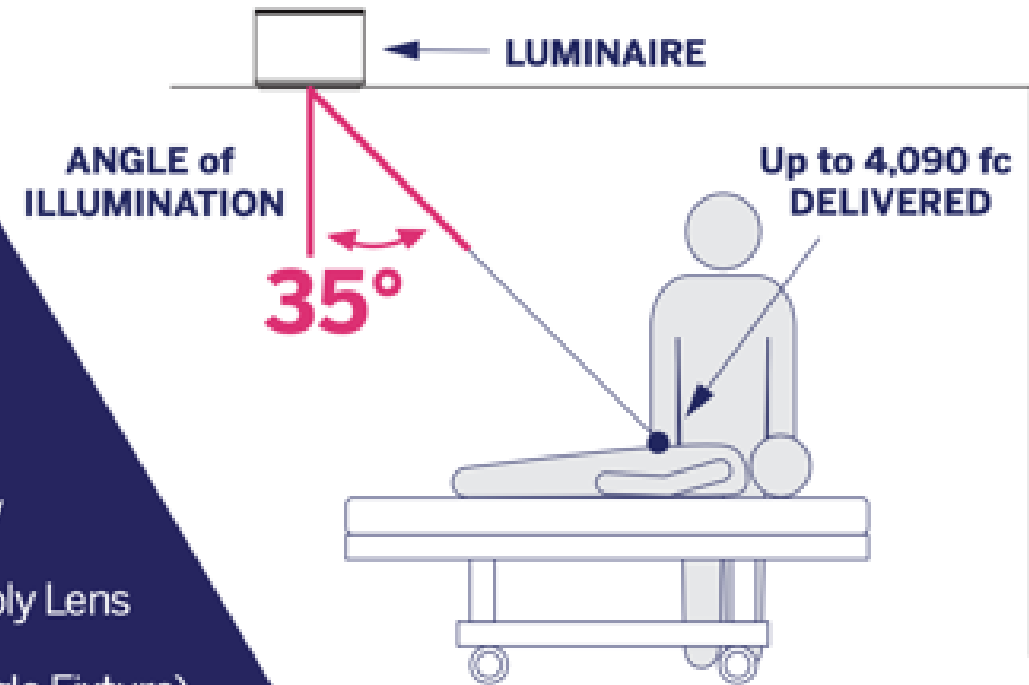


PRO 35V: IK10-Rated Motorized Exam Light

INFRALED® PRO



- 35° Tilt, 360° Rotation
- Fully Recessed System
- Ultimate Infection Control
- Cool LED Beams, 95+ CRI
- Wall and Remote Controlled
- Adjustable Direction & Intensity
- IK10 Impact Resistant Trim with Poly Lens
- 4,090 fc (44,024 lux) on Task (Single Fixture)



Recessed Downlights for Behavioral/Seclusion

6"



1000L - 2500L

7"



1000L - 2500L

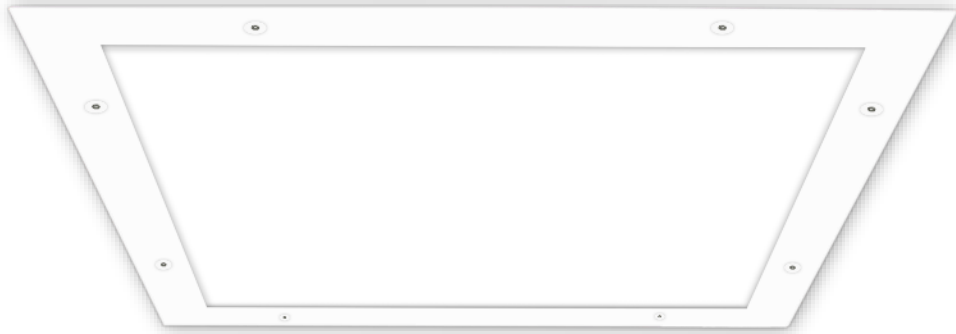
8"



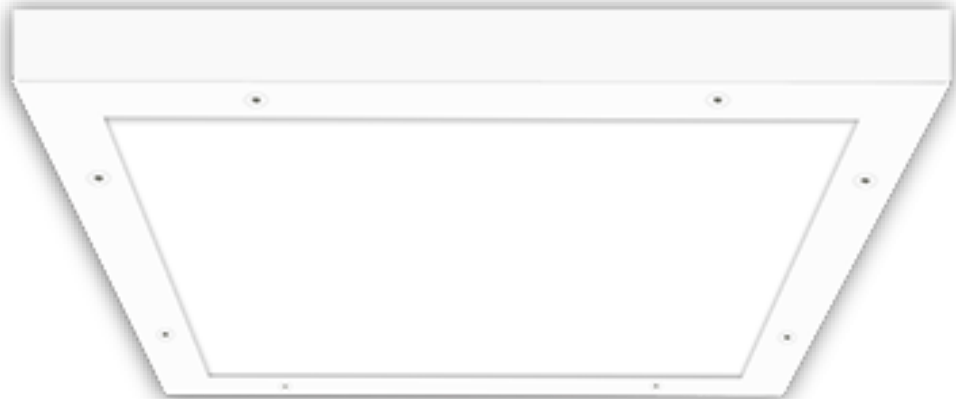
2500L - 6500L

IK10 Impact Resistant • Ligature-Resistant

White 2'x2' Panels for Behavioral/Seclusion




MRV-22865



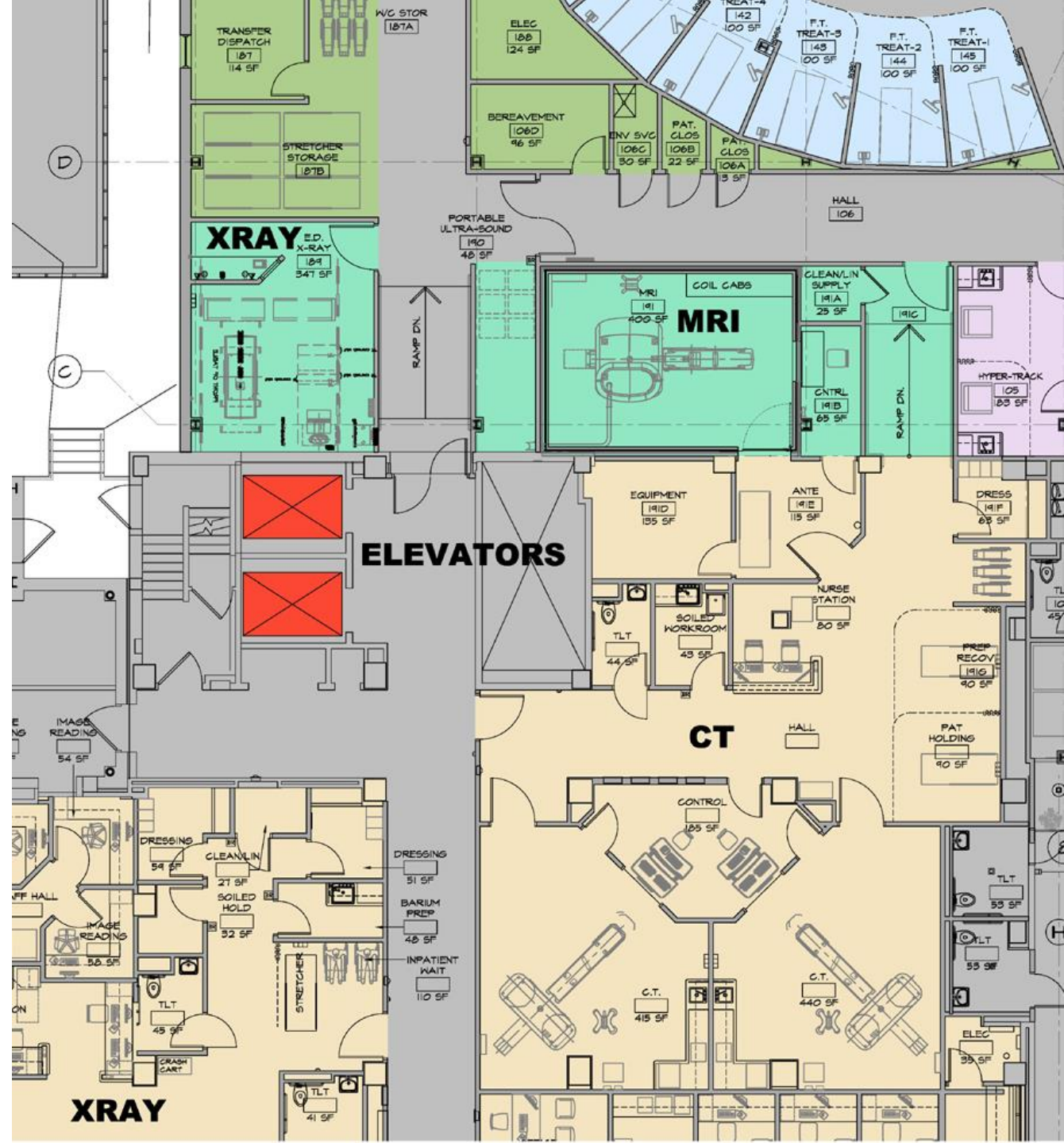
MSV-22866

Features

- Super shallow fixture depth
 - Surface: 2⁵/₈"
 - Recessed: 2³/₈"
- 1500L or 2500L output
- 0-10V or Triac dimming to 1% or 10%
- IK10 impact resistant with 0.22" poly environment-side
- Tamper-resistant hardware
- Infection Control:  Antimicrobial Finish
- CCT: 3500 K 4100 K
- 90+ CRI

7. Imaging

- Advanced imaging such as MRI and CT scans are often used in patients and situations where a physical exam is unreliable or impossible, such as:
 - Patients behaving erratically
 - Patients who are unable to describe symptoms
 - Trauma patients
 - Elderly patients
- While there is some concern regarding **overuse of imaging equipment** in the ED in recent years, MRI and CT scans are vital tools for diagnosing conditions like appendicitis, stroke, and tissue abnormalities



Two Advanced Imaging Techniques in ED

CT Scan



- ✓ Fastest diagnosis (15-30 second scan); no specialty lighting needed
- ✗ Exposure to radiation; Not as good for soft tissue diagnosis

MRI Scan



- ✓ Best diagnosis for soft tissue; no radiation exposure
- ✗ More costly; Specialty lighting, shielding, & equipment needed

SmartLED™ Lighting for MRI Scanners in the ED



The #1 Turn-Key MRI lighting system engineered to ensure **accurate scans** throughout the life of the magnet:

- **27 Fixtures:** Downlights, Adjustables, Wall Washers, Sconces, Surface Mounts, Scenic Panels, 2x2 White Panels
- SmartLED™ **Remote Driver Cabinet**
- SmartLED™ **RFI/EMI Filter** (Two Models)
- Emergency Power

Trusted by:



MASSACHUSETTS
GENERAL HOSPITAL



Wrap Up: Emergency Department Lighting

	CLINICAL	AMBIENT	WAYFINDING
ISOLATION			<p>N/A</p> <p>but make sure to optimize for wayfinding <u>to the ED!</u></p>
TRAUMA			
CRITICAL			
FAST TRACK			
BEHAVIORAL			
IMAGING	N/A		



Kirlin Customizable
Wayfinding LED Sconce
With Edge-Glow

Join Us Every Month, or On Demand!



ICU



September 18, 2020

Behavioral



October 16, 2020

OR/Hybrid



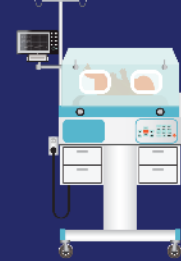
November 20, 2020

Labor & Delivery



December 18, 2020

NICU



January 15, 2021

Emergency



February 19, 2021

Cath Lab



March 19, 2021

MRI



April 16, 2021

Patient Room



May 21, 2021

Questions?