Designers Lighting Forum

Behavioral Health Lighting Solutions:
Concepts, Guidelines, and Strategies
for Therapeutic Design

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Laurie Emery, LC, IES

As Healthcare Market Development Manager for Visa Lighting. Laurie supports specifiers through training for lighting solutions that enhance healthcare applications and improve patient well-being.

Laurie's background in architecture and electrical design led her to a career in lighting design when she discovered her true passion. This journey was enriched by educational opportunities with the Illuminating Engineering Society (IES), and by obtaining her LC credentials

Laurie continues to leverage her professional lighting design background at Visa Lighting through continual research of modern lighting technology and design trends in the healthcare market. This knowledge allows her to engage with design professionals to promote evidence-based design that encourages healing in healthcare environments.

Credit(s) earned on completion of this course will be reported to AIA CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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Learning Objectives

At the end of this course, participants will be able to:

1. Recognize the needs of various patient populations in behavioral health facilities and milieu that determine design concepts to diminish the stigma of mental health through aesthetic choices and control options

2. Identify the current safety guidelines and available standards that apply to lighting design in a behavioral health space

3. Evaluate luminaires and lighting design features that promote safe, therapeutic, patient-centered environments

4. Employ lighting design strategies that take salutogenesis into account during the design and application of lighting product selection

5. Reference real-world examples of successful behavioral health design strategies

Core Topics

1. Patient Needs

2. Standards and Guidelines

3. Therapeutic Design

4. Luminaire Design

5. Lighting Design

6. Applications

Patient Needs

- BH Settings

- Patient Populations

- Diagnosis

- Co-occurrence

- De-stigmatization

- Access to Care

Behavioral Health Settings

Hospitals

Psychiatric Hospitals

Residential Drug and Alcohol

Eating Disorder Recovery

Psychiatric Residential Centers

PHP (Day Programs)

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Diagnoses

- Anxiety Disorders
- Depression
- ADHD
- Autism Spectrum
- Neurodivergence
- Bipolar Disorder
- Borderline Personality Disorder
- Eating Disorders
- Obsessive-Compulsive Disorder
- Schizophrenia
- Addiction
- PTSD
- Suicidal Intent

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The Need is Great!

Mental Health in New York

1 in 5 U.S. adults experience mental illness each year.

2,802,000 adults in New York have a mental health condition.

📍 That's more than **10x** the population of Buffalo.

nami
National Alliance on Mental Illness

New York Mental Health Statistics:	• 145,000 adolescents (aged 12-17) have depression • 591,000 adults have a serious mental illness • 35.8% of adults reported symptoms of anxiety or depression in February 2021
On average, 1 person in the U.S. dies by suicide every 11 minutes:	• In New York, 1,723 lives were lost to suicide • 558,000 had thoughts of suicide last year
Shortage of Mental Health Professionals	• 4,102,718 people in New York live in a community that does not have enough mental professionals • 20.2% of adults that reported symptoms of anxiety or depression were unable to get needed counseling or therapy

These facts were compiled based on data available in February 2021. For full citations, visit: nami.org/mhpolicystats.

AIA LEDucation.org
CONTINUING EDUCATION

Comorbidity & Co-occurrence

25-45% of patients admitted for a medical condition also have a mental health condition

68% of people with a mental health condition also have a medical condition

Froedtert Health's Complexity
Intervention Unit
Milwaukee, WI
CannonDesign

Comorbidity & Co-occurrence

Co-morbidities are often unreported, so design must be therapeutic **at all times in all areas**.

Joint Commission: "Ligature points and [other environmental risks] must be identified and removed from **all areas of the hospital**"

Froedtert Health's Complexity
Intervention Unit
Milwaukee, WI
CannonDesign

What is the Joint Commission?

An accreditation award verifies that a healthcare provider meets the most rigorous quality and safety standards of care for their patients

The mission of The Joint Commission is to continuously improve health care for the public, in collaboration with other stakeholders, by evaluating healthcare organizations and inspiring them to excel in providing safe and effective care of the highest quality and value.

How do we address the community's needs and design?

- Access is in demand

- Standards continue to improve based on the studies

- Making the case to the client for better design decisions

When Budget is the Primary Concern:

When Safety is the Primary Concern:

Therapeutic Design!

Therapeutic design in mental health care is the idea that the **built environment** can be used as a **form of therapy** to support a patient's recovery.

Therapeutic Design!

Therapeutic design principles Include:

- **Autonomy**
- **Connection to the outside**
- **Safety**
- **Natural materials**

- **Biophilic palette**
- **Noise control / Acoustics**
- **Privacy**
- **Positive distraction**

Therapeutic Design Solutions

Virginia Treatment Center for Children
Richmond, VA
CannonDesign

Therapeutic Design Solutions

Virginia Treatment Center for Children
Richmond, VA
CannonDesign

Positive Distraction

Pine Rest Christian Mental
Health Services
Cutlerville, MI
BWBR

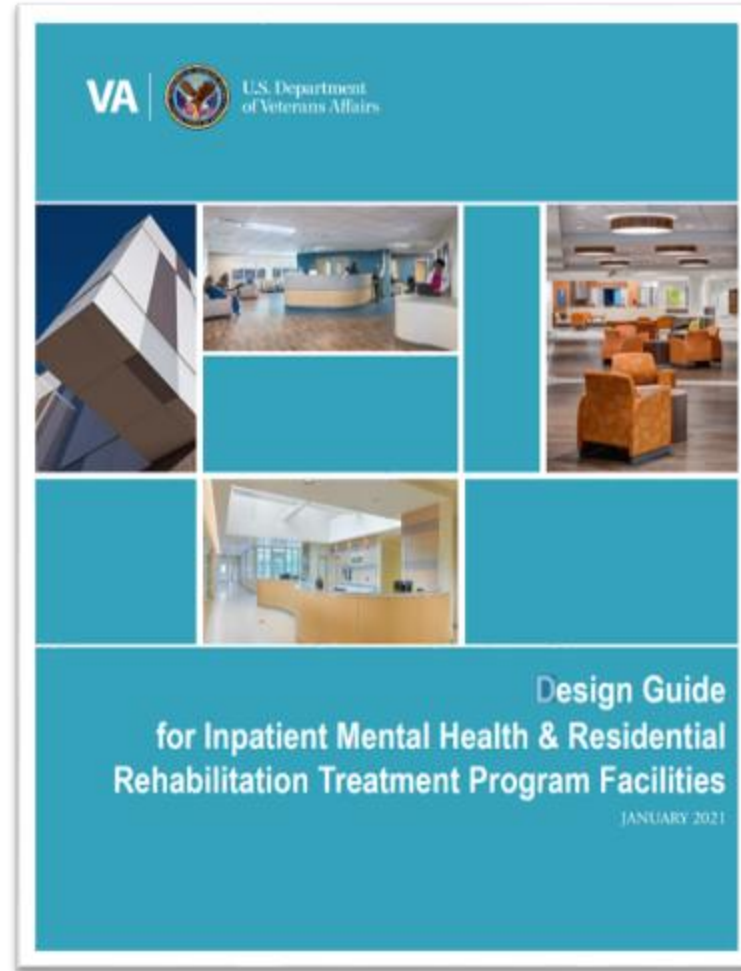# Standards & Guidelines

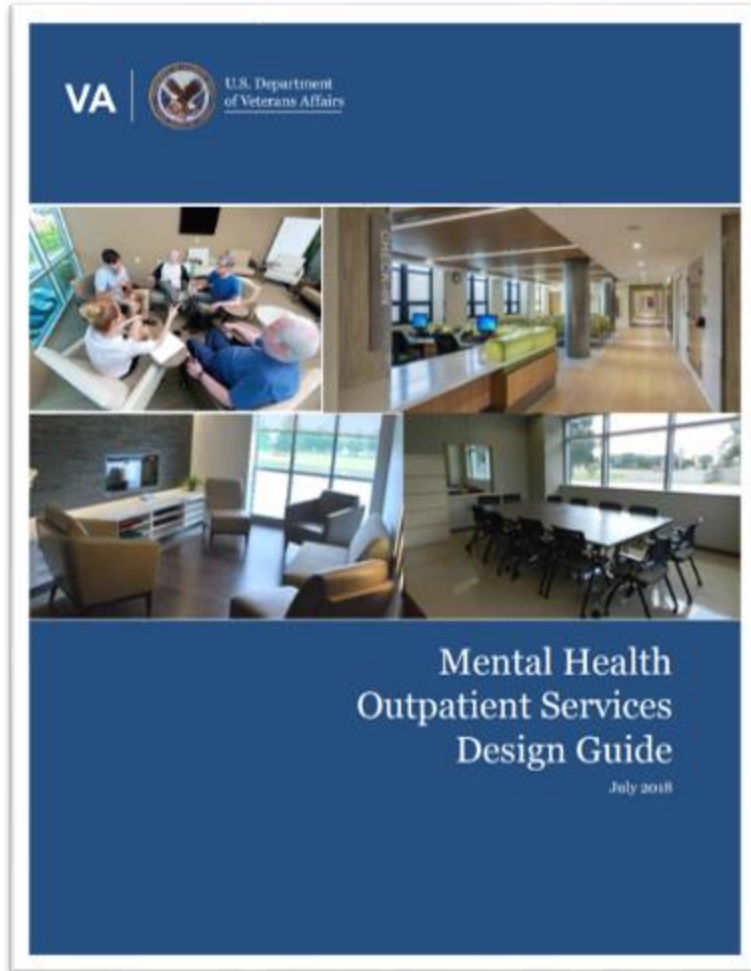- CHD
- VA
- BHFC / FGI
- NYS OMH

CHD – Design Research and BH Facilities
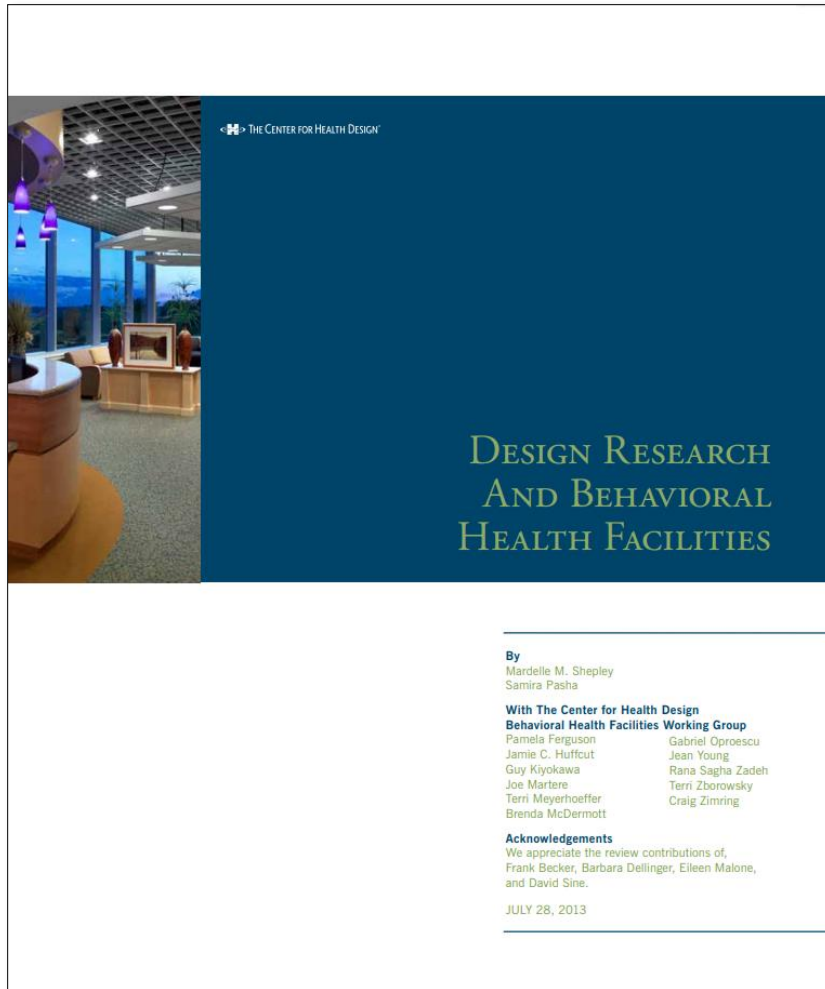
115 articles from 1960-2013

Consensus
- Control and choice
- Personal space
- Sensory concerns
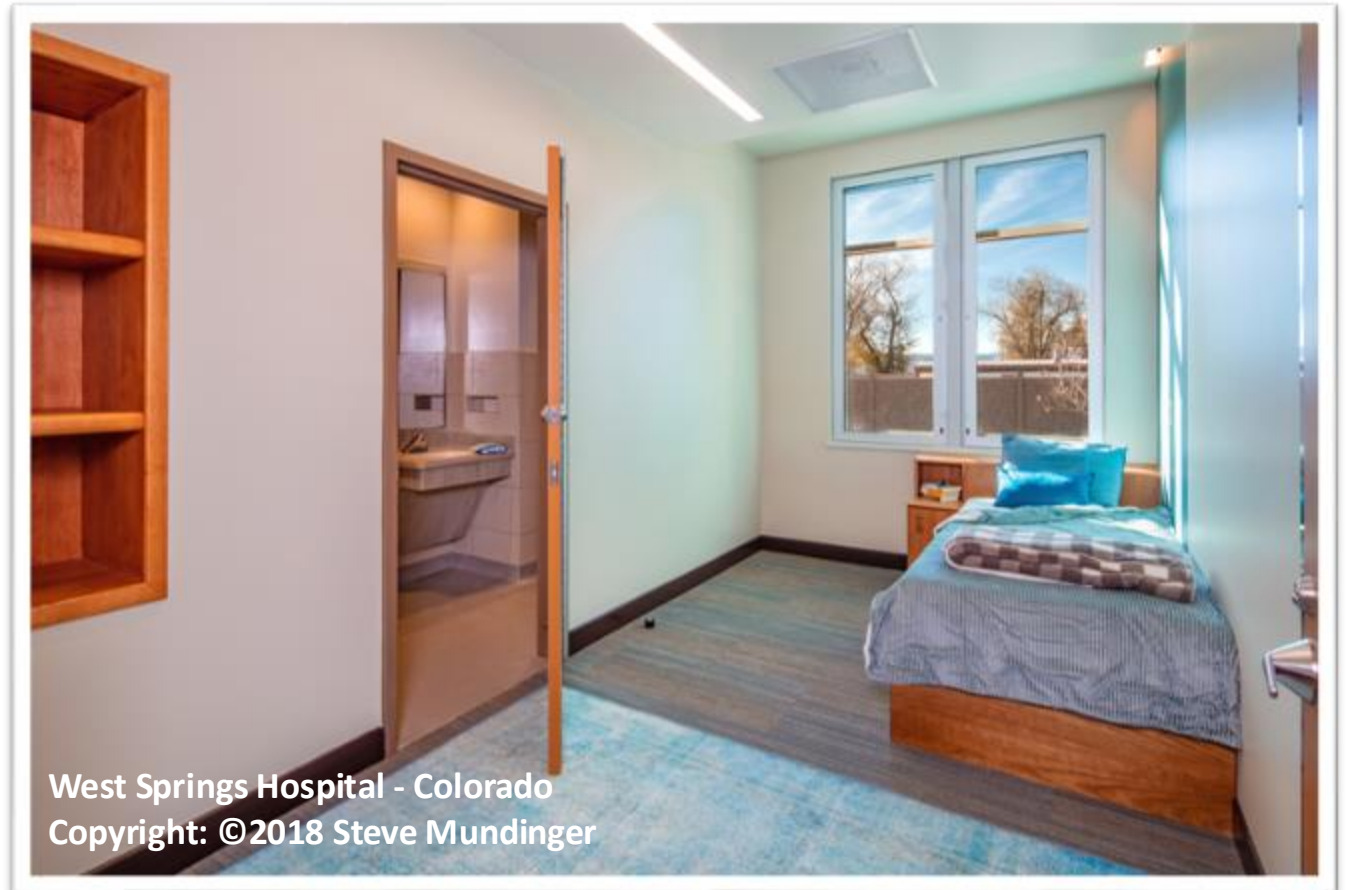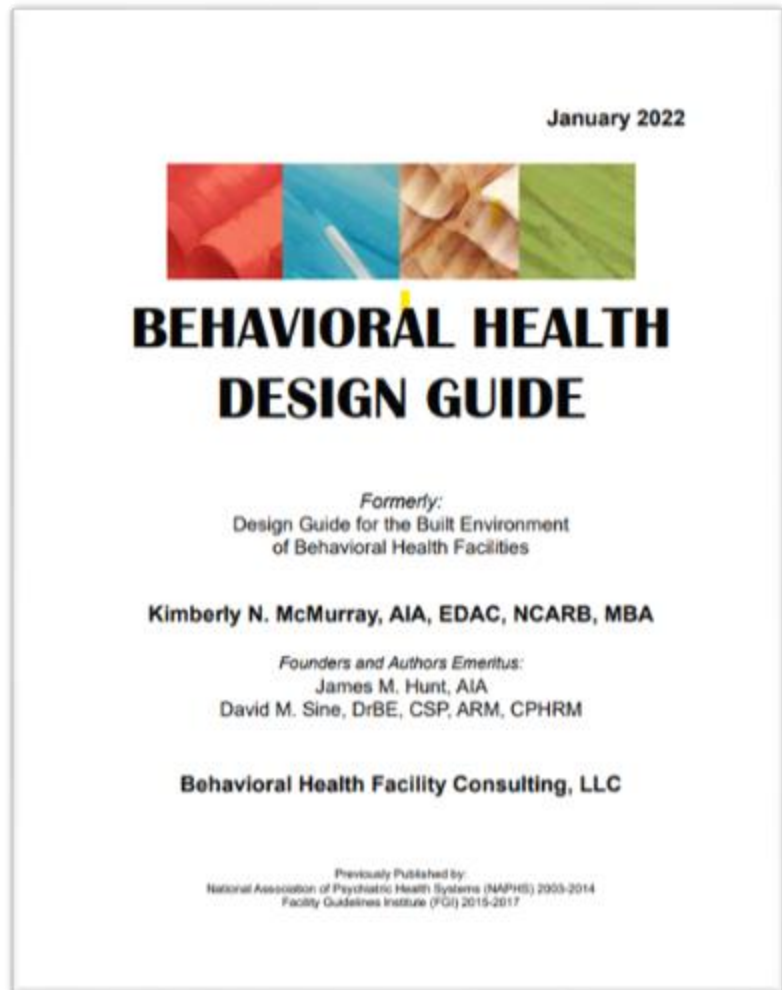- Spatial clarity
- Spatial comfort
- Style

VA Mental Health Facilities Design Guides

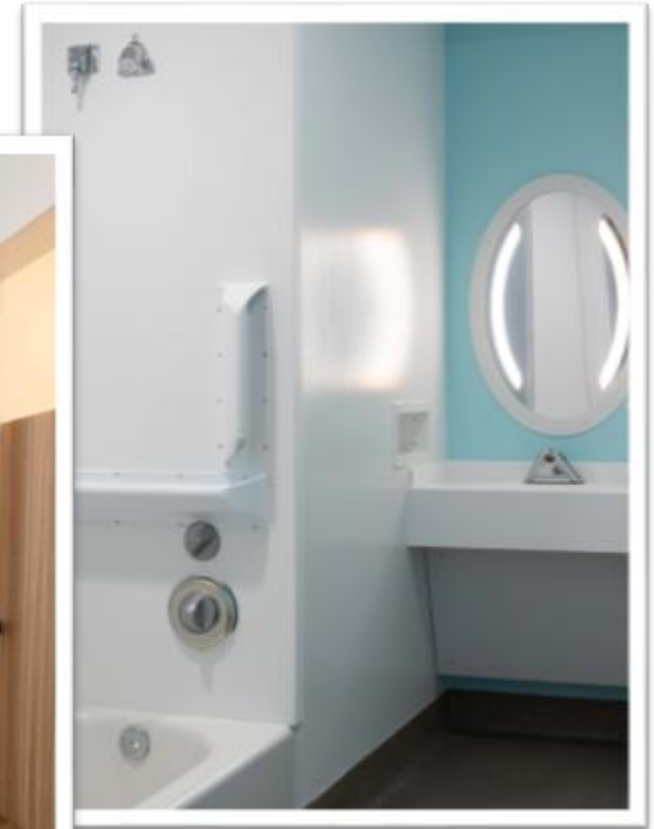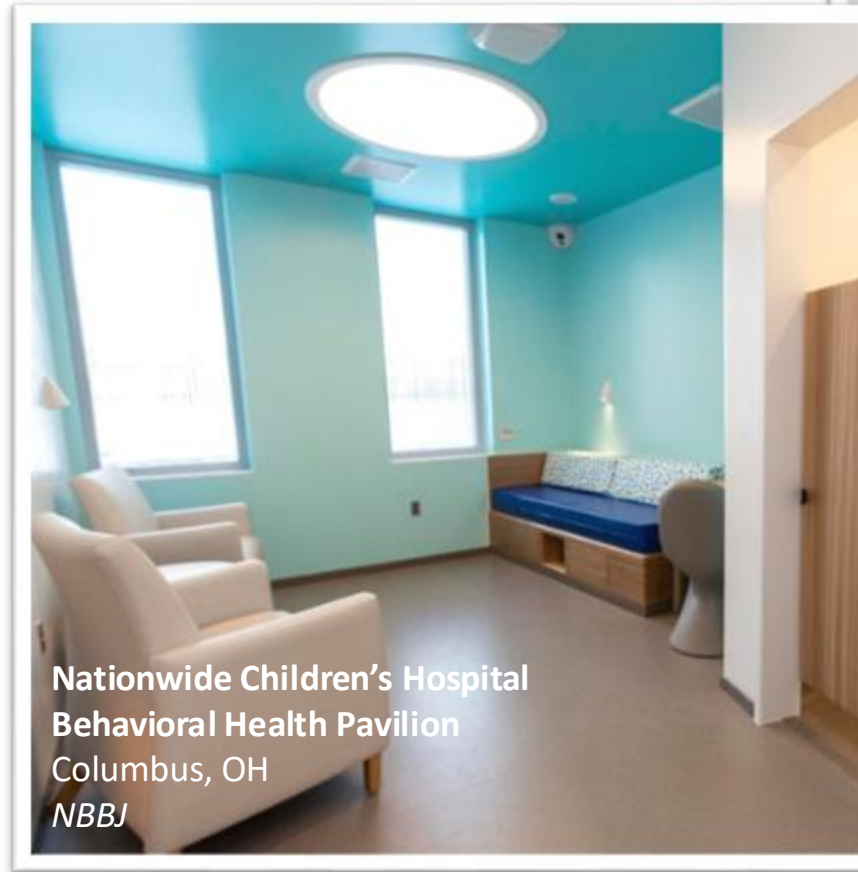# VA Mental Health Facilities Design Guide

VA Tampa Mental Health Clinic and Inpatient Rehab Facility
Tampa, FL
Leo A Daly

BHFC - Design Guide

West Springs Hospital - Colorado
Copyright: ©2018 Steve Mundinger

January 2022

BEHAVIORAL HEALTH DESIGN GUIDE

Formerly:
Design Guide for the Built Environment
of Behavioral Health Facilities

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James M. Hunt, AIA
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Behavioral Health Facility Consulting, LLC

Previously Published by:
National Association of Psychiatric Health Systems (NAPHS) 2003-2014
Facility Guidelines Institute (FGI) 2015-2017

Design Guides - FGI

Nationwide Children's Hospital
Behavioral Health Pavilion
Columbus, OH
NBBJ

New York State Office of Mental Health

Recommendations:

- High efficiency, LED
- Dimmable
- 1/8" thick polycarbonate lens (min)
- Durable housing
- Exposed fasteners
  - Tamper-resistant
  - Finished to match
- Maintenance:
  - Standard replacement parts
  - Minimize the number of security fasteners
- Flush with the substrate, gaps sealed

New York State Office of Mental Health

Typical High-Risk Areas
- Area with solitary and/or unsupervised patient use.

Typical Medium Risk Areas
- Patient access is controlled, or use is supervised with no solitary and/or unsupervised use.

Typical Low Risk Areas
- Staff only areas. No Patient Use.

New York State Office of Mental Health

Primary Criteria

- Ligature Resistance: Looping
- Ligature Resistance: Wedging
- Cutting
- Jumping
- Tamper Resistance
- Weaponization
- Contraband Storage
- PICA/Ingestion

Secondary Criteria

- Ligature Resistance: ligature + other objects
- Ligature Resistance: product installation
- Codes & Regulations
- Therapeutic Environment & Appearance
- Constructability
- Durability
- Maintenance Points
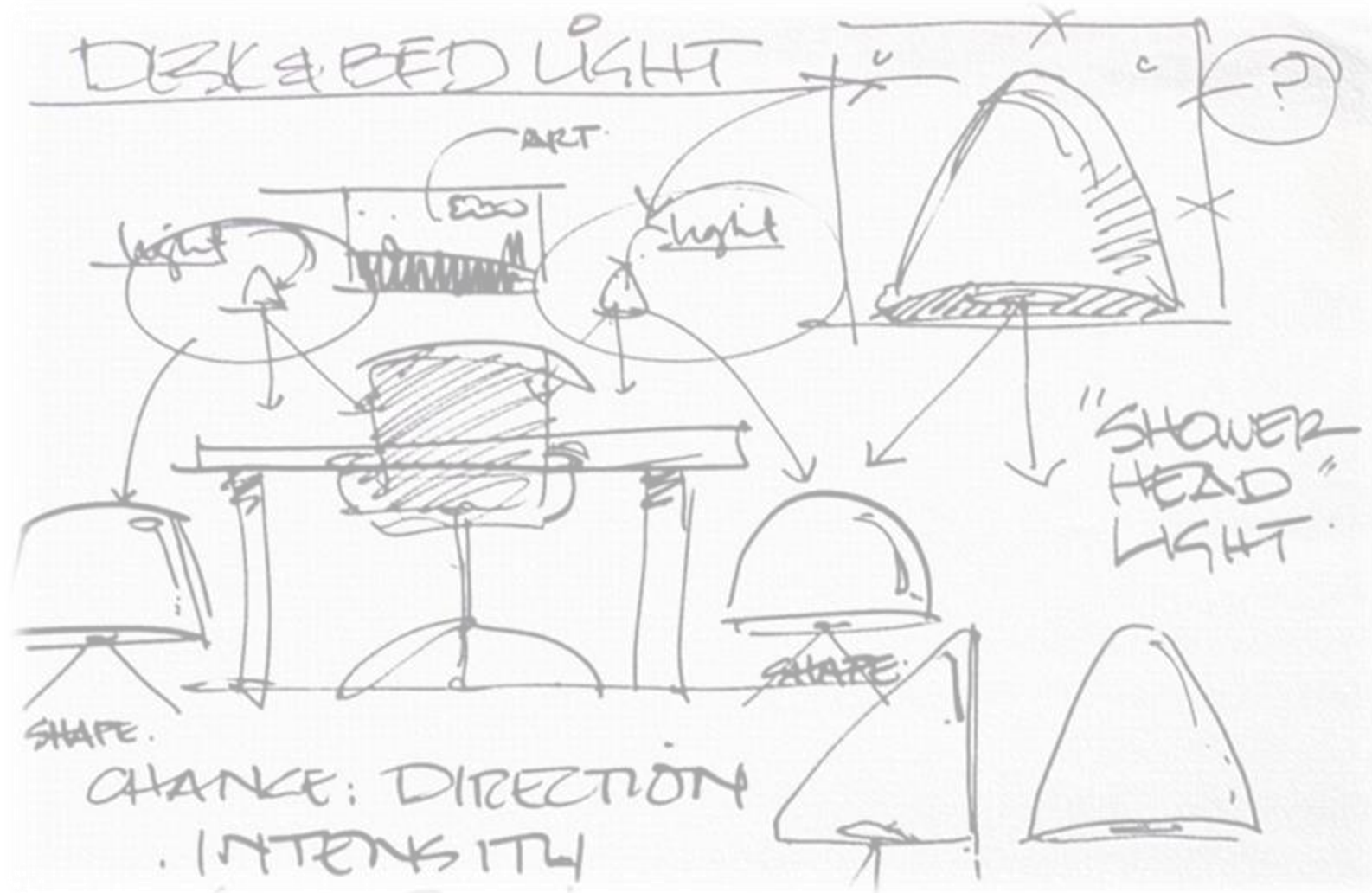
Luminaire Design

- Impact Resistance

- Tamper Resistance

- Ligature Resistance

- Materials

Impact Resistance

Impact Resistance – IK Ratings

IK ratings are defined as IKXX, where "XX" is a number from 0 to 10+ indicating the degrees of protection provided by electrical enclosures, including luminaires, against external mechanical impacts. The IK rating scale identifies the ability of an enclosure to resist impact energy levels measured in joules (J).

IEC 62262 specifies how the enclosure must be mounted for testing, the atmospheric conditions required, the quantity and distribution of the test impacts, and the impact hammer to be used for each level.

IK Code	Impact Size Protected Against (joules)	Description
IK0	-	No protection against any mechanical impact
IK1	0.15	Protection against a 200g object dropped from 7.5cm
IK2	0.2	Protection against a 200g object dropped from 10cm
IK3	0.35	Protection against a 200g object dropped from 17.5cm
IK4	0.5	Protection against a 200g object dropped from 25cm
IK5	0.7	Protection against a 200g object dropped from 35cm
IK6	1	Protection against a 500g object dropped from 20cm
IK7	2	Protection against a 500g object dropped from 40cm
IK8	5	Protection against a 1.7Kg object dropped from 29.5cm
IK9	10	Protection against a 5Kg object dropped from 20cm
IK10	20	Protection against a 5Kg object dropped from 40cm
IK10+	40	Protection against a 10Kg object dropped from 40cm

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Tamper Resistance

Ligature Resistance

Ligature: Points where a cord, rope, or bed sheet can be looped or tied to a fixture, which may result in self-harm or loss of life

Materials
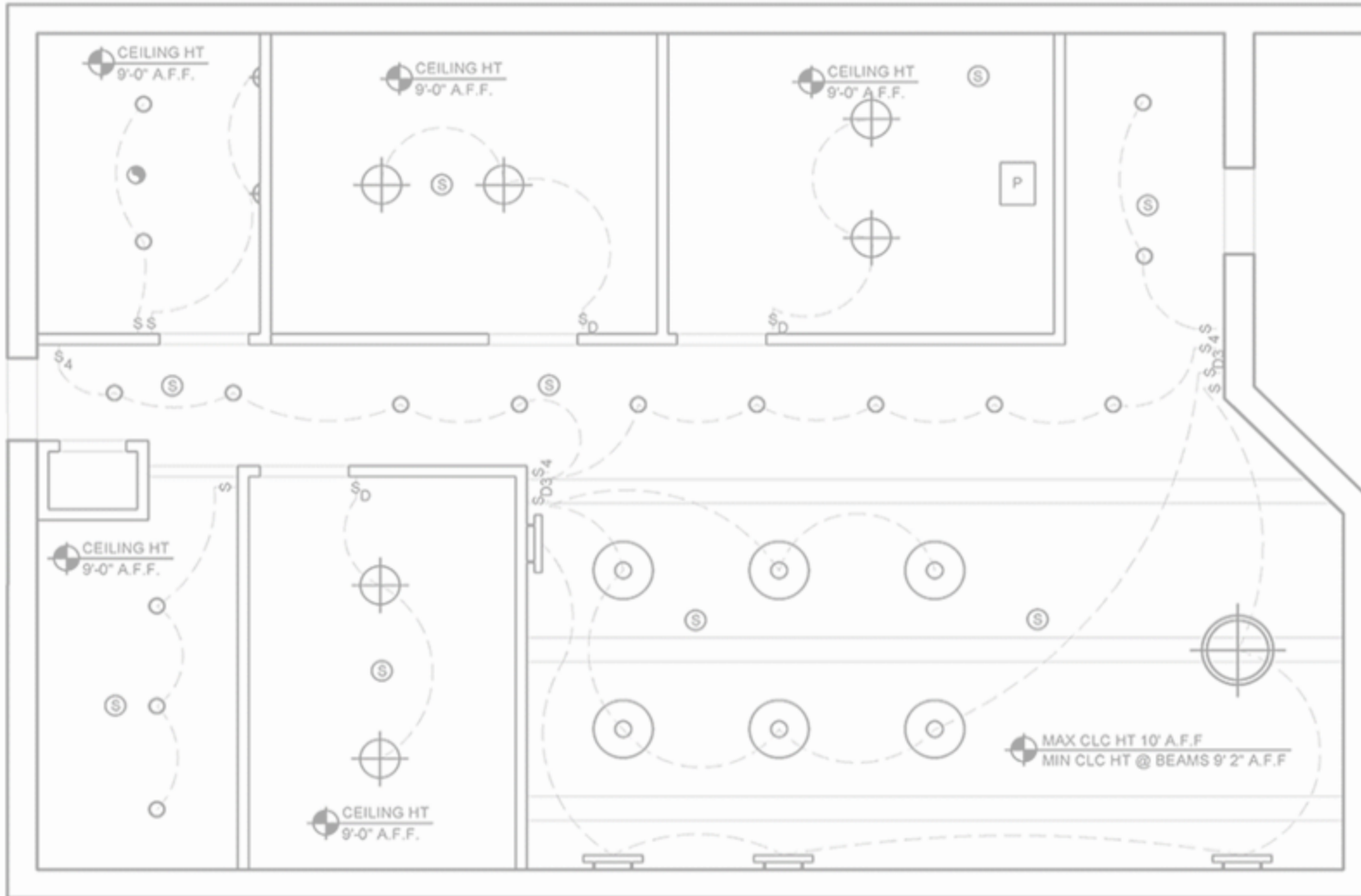
Clear Polycarbonate

Pick-resistant caulk

Tamper-resistant screws

Materials & Finishes

Lighting Design

Where to begin?

- Guidelines

- Environmental Safety

- Circadian Lighting

- Night Lights

Lighting Design

Guidelines...

- Access to daylight, nature/views

- Homelike, non-institutional feel

- Tranquility

- Privacy and autonomy

- Access to controls

- Exterior lighting

Rogers Behavioral Health – West Allis
Oconomowoc, WI
Ring&DuChateau Consulting Engineers

Lighting Design and Environmental Standards

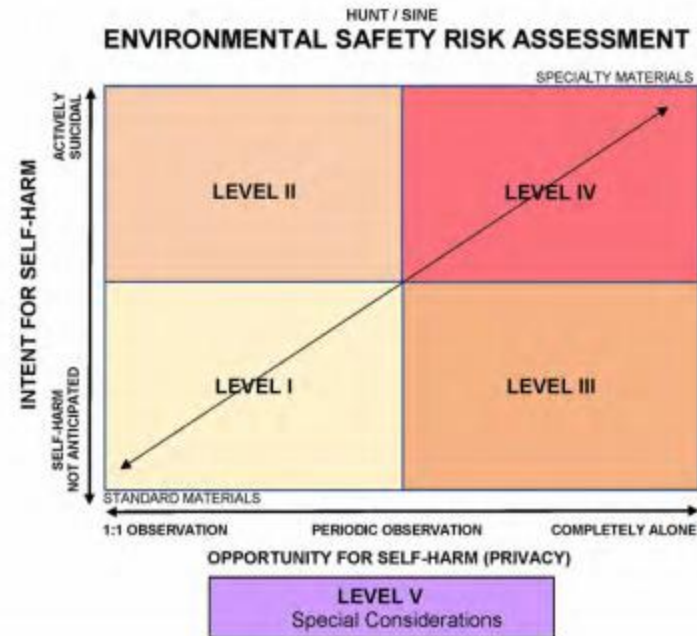**Level I:** Patients not allowed – staff areas

Level II: Areas behind self-closing and self-locking doors - patients highly supervised and not left alone

Level III: Not behind self-locking and self-locking doors - patients may spend time with minimal supervision
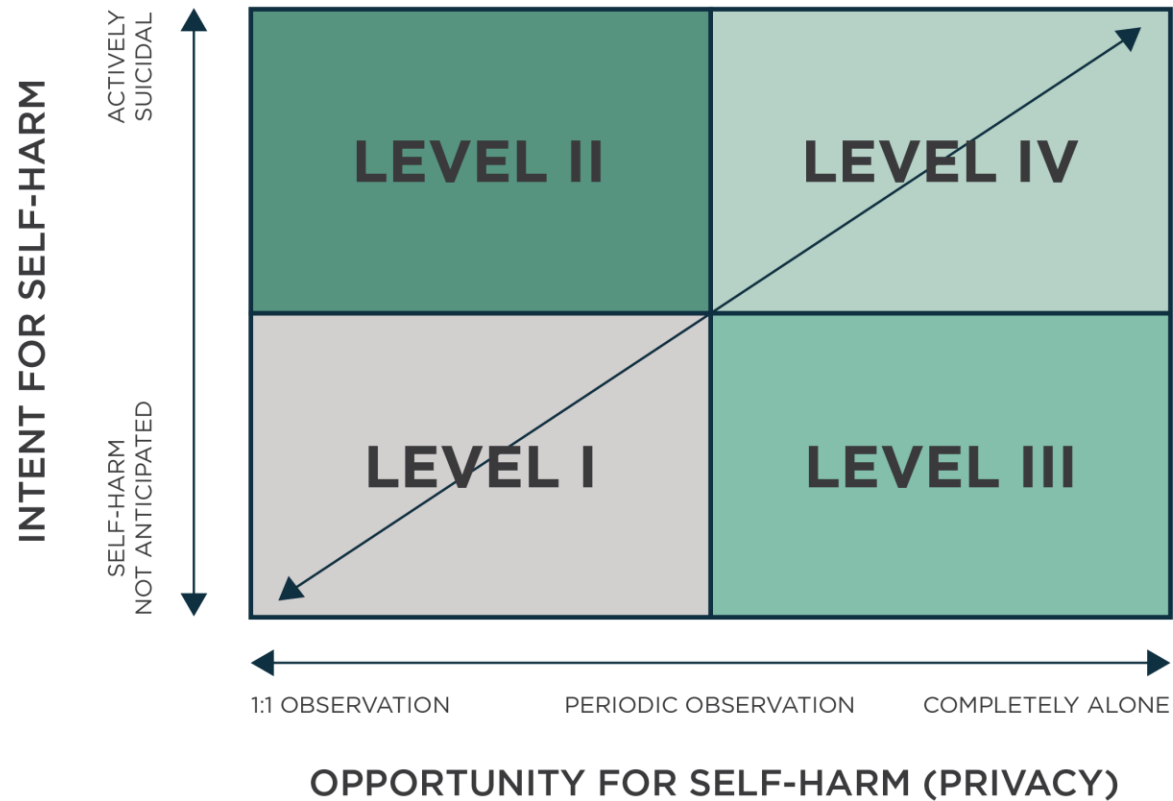
Level IV: Patients spend a great deal of time alone

Level V: Special

Environmental Risk Assessment

HUNT / SINE
ENVIRONMENTAL SAFETY RISK ASSESSMENT

SPECIALTY MATERIALS

LEVEL II

LEVEL IV

LEVEL I

LEVEL III

ACTIVELY SUICIDAL

SELF-HARM NOT ANTICIPATED

INTENT FOR SELF-HARM

STANDARD MATERIALS

1:1 OBSERVATION — PERIODIC OBSERVATION — COMPLETELY ALONE

OPPORTUNITY FOR SELF-HARM (PRIVACY)

LEVEL V
Special Considerations

Environmental Safety Risk Assessment

Level I – Patients not allowed
Staff-only meeting rooms, supply closets

Level II – Patients highly supervised
Activity rooms, group rooms, corridors

Level III – Minimal supervision
Day-rooms, lounges, open nurse stations

Level IV – Patients often alone
Patient rooms, patient bathrooms

Level V (outside the matrix) Admission
rooms, seclusion rooms, exam rooms

Environmental Safety Risk Assessment

Lighting Design

Welcoming...

- Access to daylight

- Nature/views

- Homelike

- Non-institutional feel
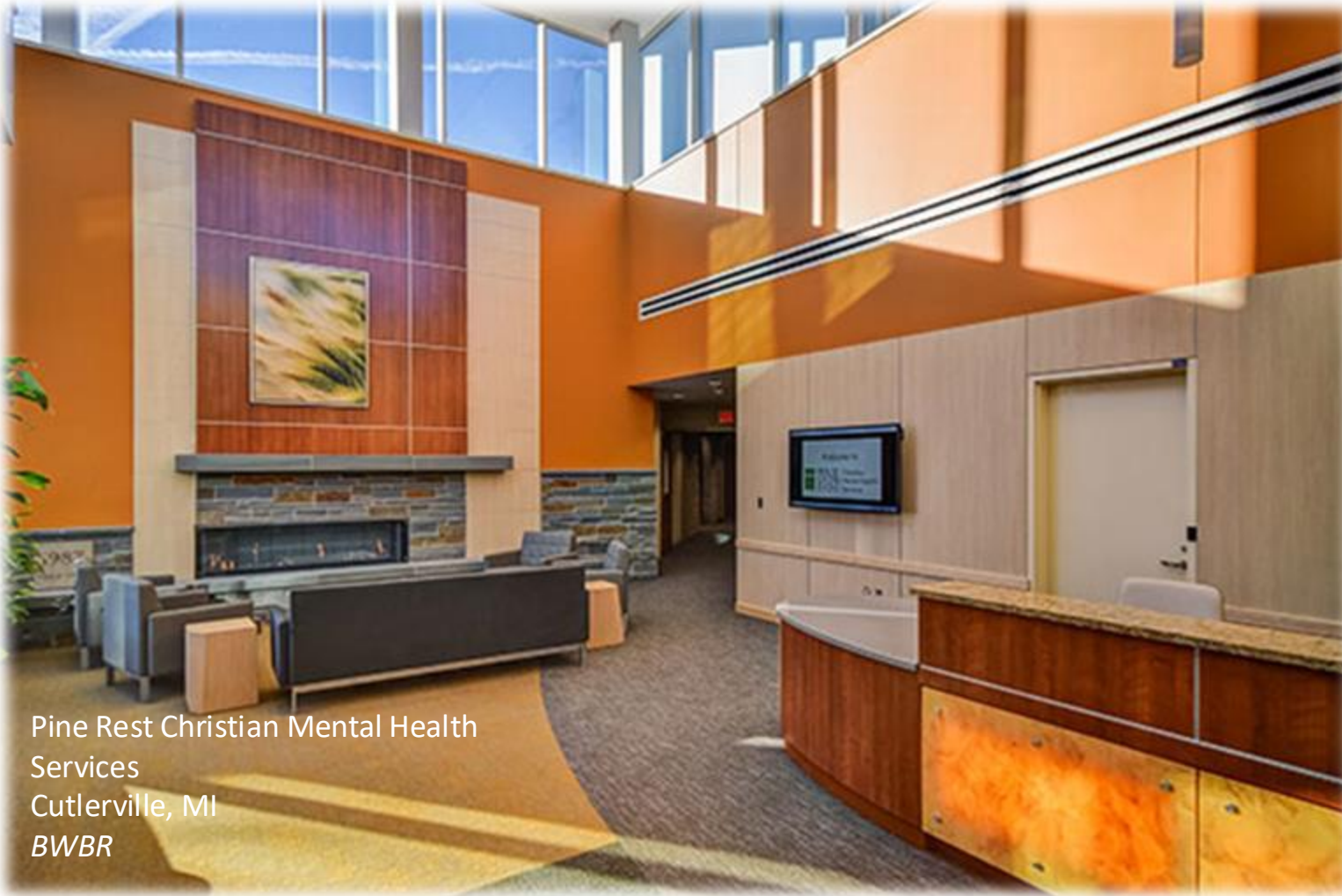
Pine Rest Christian Mental Health
Services
Cutlerville, MI
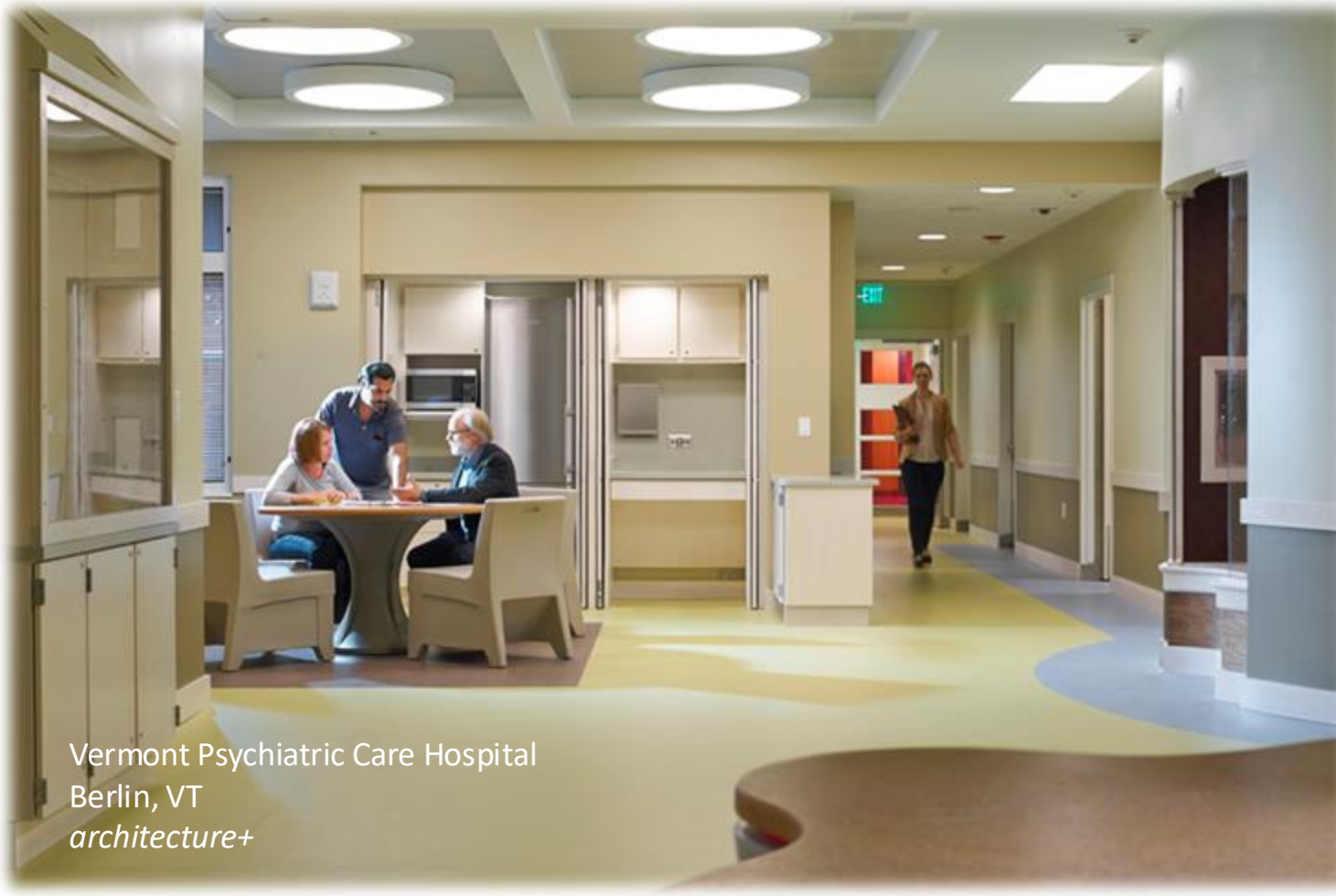*BWBR*

Lighting Design

Welcoming...

- Access to daylight

- Nature/views

- Homelike

- Non-institutional feel

Pine Rest Christian Mental Health Services
Cutlerville, MI
BWBR

Vermont Psychiatric Care Hospital
Berlin, VT
architecture+

Lighting Design

Variable Light Levels...

- Circadian Lighting

- Non-institutional feel

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Light Levels According to Zone

Patient Room
- General – 5FC
- Bathroom – 30FC
- Reading – 20FC

20 FC

5 FC

30 FC

LEDucation.org

Light Levels According to Zone

Group Therapy / Education
- General – 20FC
- Table Lighting – 50FC

20 FC

50 FC

Light Levels According to Zone

30 FC

5 FC

50 FC

50 FC

30 FC

Inpatient/Outpatient Behavioral
Health Hospital
Erlanger, KY
NK Architects

Halls & Corridors
- General – 5FC

Nurses Station
- General – 30FC
- Task – 50FC

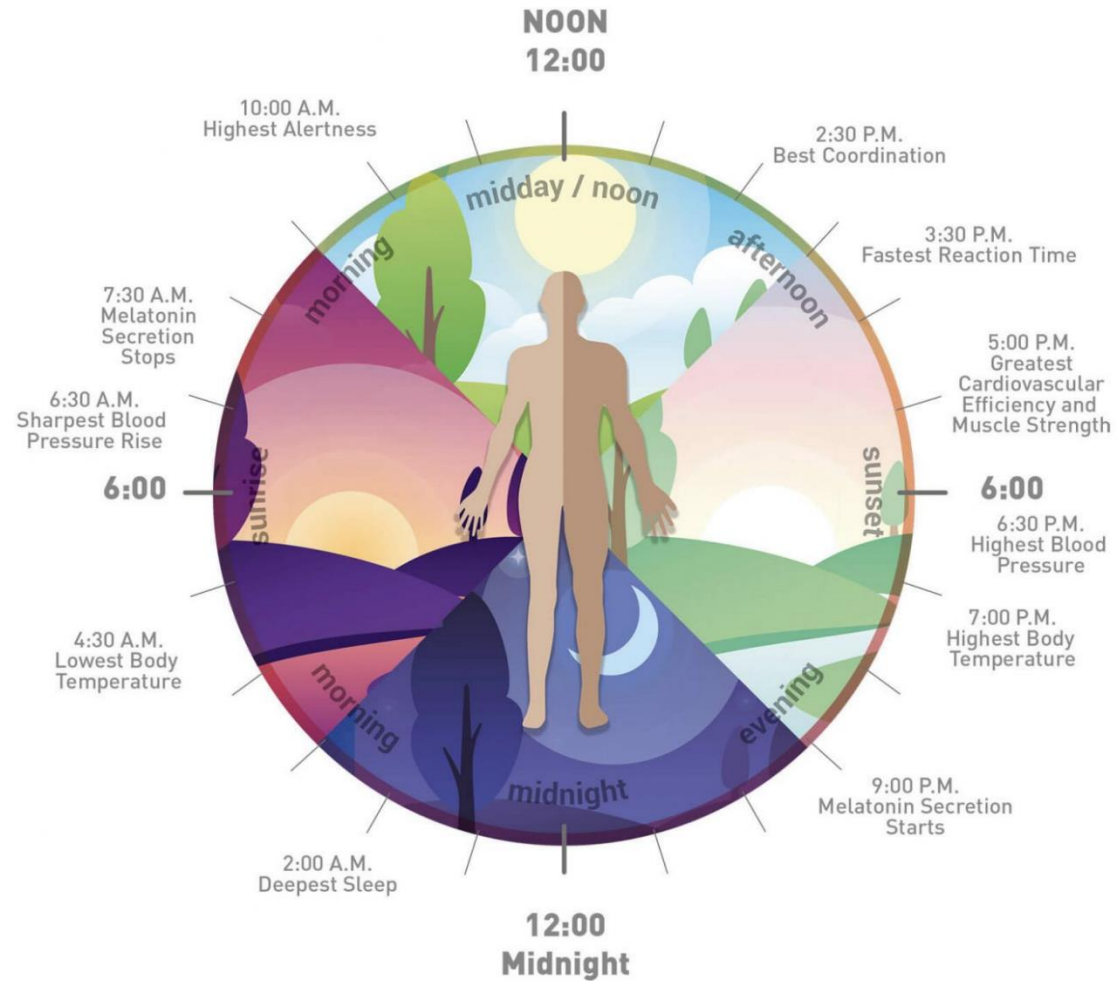**Dayrooms**
- General – 30FC
- Task – 50FC

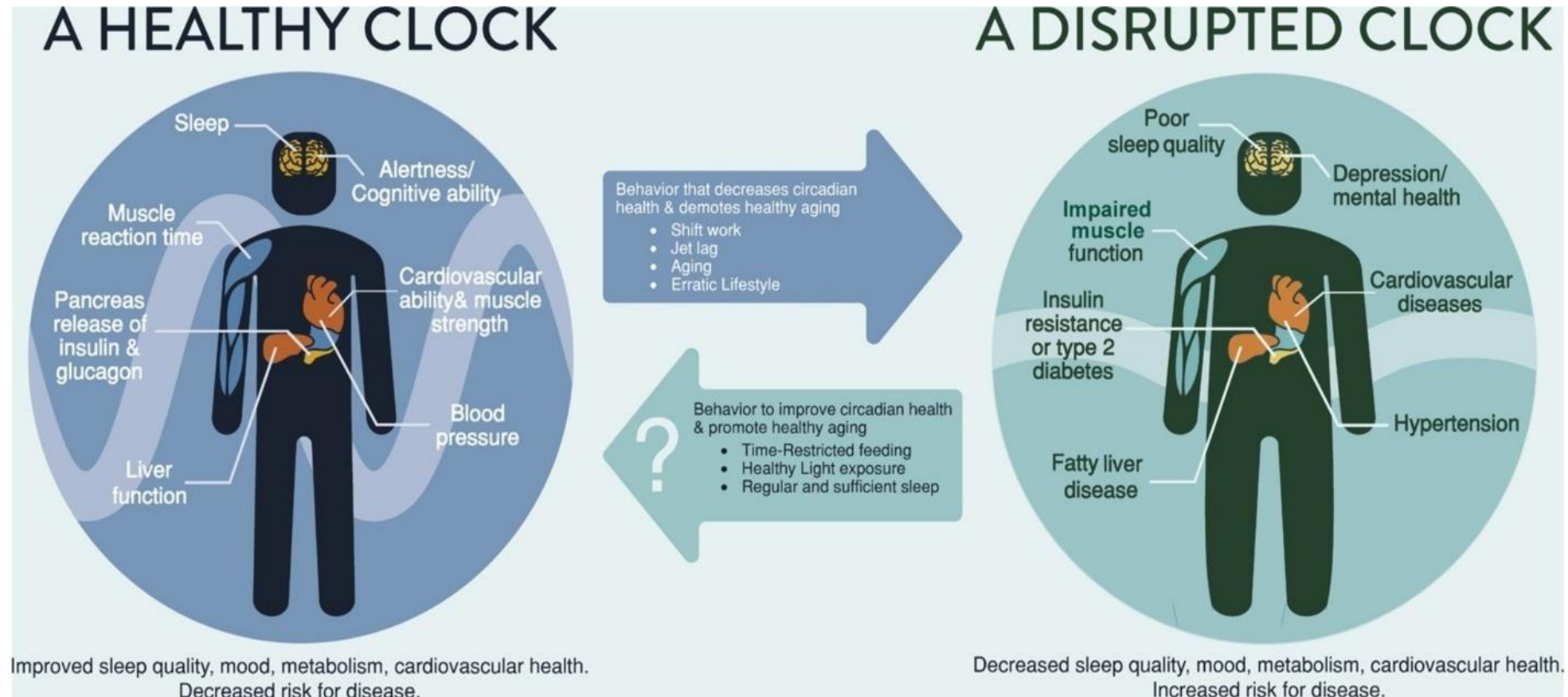# Circadian Lighting

Circadian Rhythm & Human Biology

Sleep, Circadian Rhythm & Mental Health

https://neurosciencenews.com/sleep-circadian-rhythm-mental-health-25633

Circadian Lighting

Swedish Medical Center-Ballard,
Behavioral Health Unit
Seattle, WA
ZGF

Circadian Lighting

Swedish Medical Center-Ballard,
Behavioral Health Unit
Seattle, WA
ZGF

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Circadian Lighting

Swedish Medical Center-Ballard,
Behavioral Health Unit
Seattle, WA
ZGF

Circadian Lighting

Aabenraa Psychiatric Hospital
Psychiatric Department
South Denmark
White Arkitektor

Circadian Lighting

Aabenraa Psychiatric Hospital
Psychiatric Department
South Denmark
White Arkitektor

Patient Outcomes:

200 staffers surveyed; 82 responded
65% said patients sleep better
77% said patients are more calm
57% reported fewer night-time disturbances
38% observed a reduction in drug consumption
44% noticed a reduction in physical force required
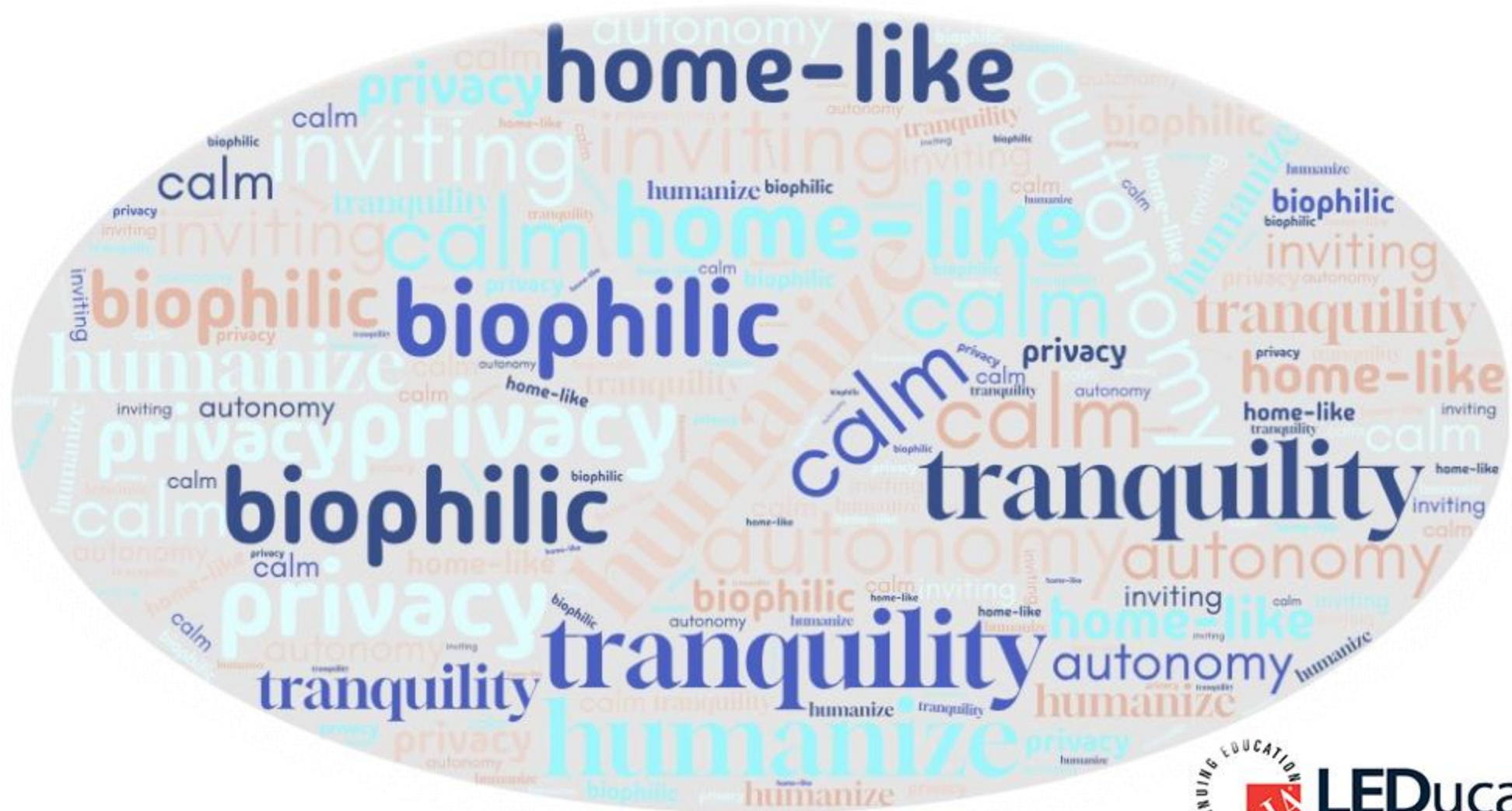*to handle disturbances*

Staff Outcomes:

54% feel more energized
47% said they are sleeping better
77% said they are satisfied with the new lights

Night Lighting
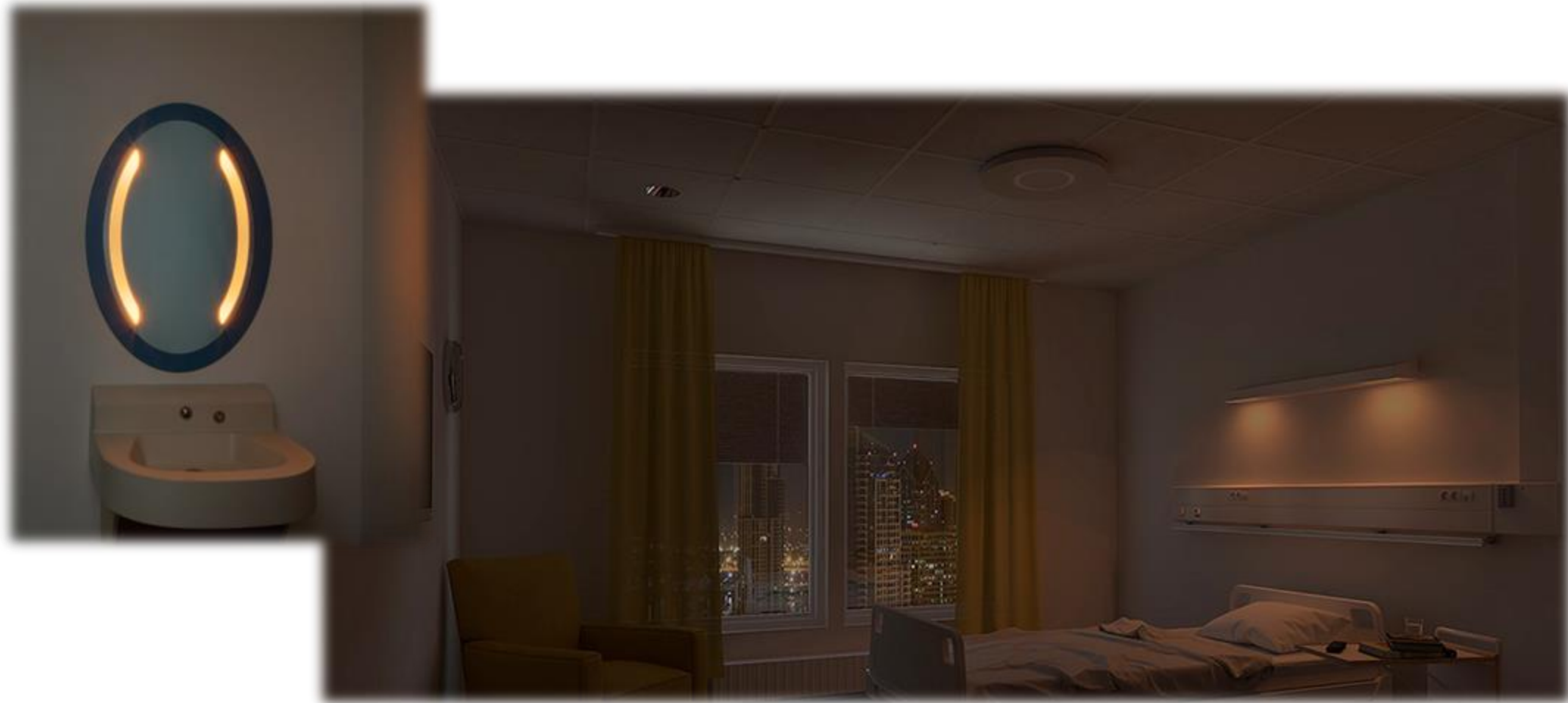
What does the application of these design principles look like...

Privacy and Autonomy

Vermont Psychiatric Care Hospital
Berlin, VT
architecture+

Calm and Inviting

Children's National Medical Center
Washington DC
Array Architects

LEDucation.org

Rogers Behavioral Health
Oconomowoc, WI
TWP Architecture

Tranquility

Eating Recovery Center
Willow
Denver, CO
Boulder Associates

Lessons Learned

- Co-occurrence

- Therapeutic design benefits everyone

- Study the patient population

- Homelike feel, autonomy, control

- Privacy, acoustics, organization, daylight, nature, socializing

- Design Collaboration

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Sutton North Room

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