Mental Health Design 201
Emerging Trends and Issues in Mental Health Planning and Design
AIA Academy of Architecture for Health
June 4, 2012

Troy, New York
St. Joseph’s Healthcare, London
Mental Health 201: Class Poll Question 1

How many Mental Health projects have you already worked on?

- 1
- 2
- 3
- 4-6
- 6 or more.
The largest project on which I've worked is:

- 16 beds
- 24 beds
- 50 beds
- 150 beds
- 300 beds or more
Important Current Issues in Mental Health Design

- Federal Funding, Parity and Health Reform
- Treatment Trends
- Patient Safety
- Co-location of Inpatient Types
- Comprehensive Psychiatric Emergency Programs (CPEP’s)
- Co-location of Inpatients and Outpatients
Funding Implications for Planning: The IMD Exclusion

• What do the initials mean?
  Institutions for Mental Diseases

• What is an IMD?
  Any facility with more than 16 beds providing psychiatric care for patients between the ages of 18 and 65 where more than 50% of the beds are licensed for such care. (This is the simple definition…it’s a federal regulation and of course it is more complex than this)

• When was the IMD adopted by Congress?
  For Social Security Insurance: in the 1930’s
  For Medicaid Payments: 1965

• Why a 16-bed rule?
  Adopted by Congress in the 1980’s after a Supreme Court ruling upholding the IMD as a concession to de-institutionalization.
Funding Implications for Planning: The IMD Exclusion

• But what about the equal protection clause in the 14th Amendment to the Constitution?
  Good question! The 14th Amendment only applies to the individual States, not the Federal Government itself. (But see Bolling v Sharpe (1954) for reverse incorporation and due process considerations.)

• Why should an architect care?
  Because it explains otherwise inexplicable organizational phenomena…and you’ll want to understand it as a constraint impacting facility planning.
Funding Implications for Planning: The IMD Exclusion

Case Study: The Hillside Hospital
Funding Implications for Planning: The IMD Exclusion

Case Study: Minnesota and Tennessee
Funding Implications for Planning: The IMD Exclusion

Case Study: Indianapolis
Funding Implications for Planning: The IMD Exclusion

Case Study: Vermont A, Fletcher Allen & Dartmouth Hitchcock
Funding Implications for Planning: The IMD Exclusion

Case Study: Vermont B, Rutland, Brattleboro, Berlin + RTF
Funding Implications for Planning: The IMD Exclusion

Case Study: Vermont B, The Scalable Hospital
Funding Implications for Planning: The IMD Exclusion

Case Study: Saint Peters Partners, Albany and Troy, NY
Funding Implications for Planning: Research, Reform and Parity

• Evidence-Based Practice
  ✓ Early detection and treatment
  ✓ Continuity of care
  ✓ Least restrictive environments
  ✓ Recovery
  ✓ Psycho-social rehabilitation
  ✓ Co-morbidity
  ✓ Palliative care
  ✓ Neuro-Psychiatric Convergence
Funding Implications for Planning: Research, Reform and Parity

- Health Care Reform
  - Increased covered care.
  - Less charity care.
  - Investments in early detection and treatment.
  - More continuity of care.
- Changes in Service Utilization
  - More ambulatory and outpatient care.
  - More transitional and residential treatment care (RTF)
  - More ED’s with CPEP’s
  - More Crisis Care/Residences
  - An eventual decrease in long-term care.
Funding Implications for Planning: Health Care Reform and Parity

- Parity
- ✓ Increased covered care.
- ✓ Investments in early detection and treatment.
- ✓ More continuity of care.
- ✓ More rehab care
- ✓ Changes in Service Utilization
  - o More ambulatory and outpatient care.
  - o More transitional and residential treatment care (RTF)
  - o More ED’s with CPEP’s
  - o More Crisis Care/Residences
  - o An eventual decrease in long-term care.
Q&A
Treatment Trends: Momentum Towards Active Treatment

- Psycho-Pharmacology
- Movement from Custodial Care to Palliative Care
- Seclusion and Restraint Reduction/Avoidance
- The Neuro-Psychiatric Convergence
  - Imaging
  - ECT
  - TMS
  - VNI
Treatment Trends: Seclusion and Restraint Avoidance

- What is Seclusion and Restrain?
- Why is it Used?
- Typical Patient Reactions
- Seclusion and Restraint Reduction/Avoidance: General Trends
- State of Pennsylvania Study
- Emergent Policy: Massachusetts, New York
- The “Halfway There” Planning Implications
- Proposed FGI Guidelines Changes
Treatment Trends: Seclusion and Restraint Avoidance

FGI Guidelines: Proposed Changes
Treatment Trends: Seclusion and Restraint Avoidance

Case Study: Comfort Room
Treatment Trends: Seclusion and Restraint Avoidance

Case Study: Snoezelen Room
Treatment Trends: ECT, TMS and VNI

- ECT: Electroconvulsive Therapy
- TMS: Transcranial Magnetic Stimulation
- VNI: Vagal Nerve Implant
Treatment Trends: ECT, TMS and VNI

Regulatory Guidance: Proposed FGI Guidelines Language
Treatment Trends: ECT, TMS and VNI

Case Study: TMS Equipment
Treatment Trends: Imaging

- Imaging as a diagnostic and treatment tool
- Utilization: Inpatients vs. Outpatients
- Implication for Paths of Travel
- Implementation Strategies
  - Research Facilities (McLean/Harvard)
  - Colocation with major academic medical center (Hillside Hospital)
  - Colocation with community-based imaging facility (West 5th Street Camus, Hamilton, ON)
Treatment Trends: Imaging

Case Study: St. Joseph's Health, Hamilton, Ontario
What is the largest potential risk to patients at your hospital?

- Self-harm
- Harm to others
- Escape
- Barricade
- Contraband
PATIENT SAFETY STANDARDS, MATERIALS AND SYSTEMS GUIDELINES

Recommended by the New York State Office of Mental Health

With respect to NYS-OMH operated facilities, these Guidelines apply solely to new construction and major renovation projects. Existing facilities should use these Guidelines as a reference document whenever they make improvements to existing facilities.

7th Edition
January 31, 2012

New York State Office of Mental Health
Developed in association with architecture +, Troy, NY

Design Guide for the Built Environment of Behavioral Health Facilities

May 2012 Edition 5.1

by James M. Hunt, AIA, NCARB and David M. Sino, ARM, CSP, CPHRM

Distributed by the National Association of Psychiatric Health Systems

www.naphs.org
Patient Safety: Guidelines

NAPHS
"Design Guide for the Built Environment of Behavioral Health Facilities: Edition 3.0"

New York State Office of Mental Health Patient Safety Standards:
http://www.omh.state.ny.us/omhweb/patient_safety_standards/guide.pdf
Patient Safety: Clinical Risk Assessment, Variables

- General Patient Diagnosis and Severity of Symptoms
- Specific Patient Diagnosis and Risk Assessment
- Average Length of Stay
- Staffing Levels and Unit Size
- Unit Geography
- Visibility and Points of Supervision
- Room Location
- Room Usage
  - Will Patients Be Alone in Room?
  - Will Patients Always be Supervised in Room?
Patient Safety: Clinical Risk Assessment, Risks Managed

- Self-Harm
  - Ligature
  - Laceration/Cutting
  - Jumping
  - Burning
  - Electrocution
  - Drowning
  - Pica/Hydrophilic
- Harm to Others
  - Weaponization
- Escape
- Barricade
- Contraband
## Patient Safety Risk Assessment/Feature Assignment

**Wake County Continuum of Care, Raleigh, NC**

<table>
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**Patient Safety: Clinical Risk Assessment**

**Process: Risk Assessment**

**Typical High Risk Areas:**
- Patient is difficult to manage, or risk of solitary and/or unsupervised use:
  - Patient Bedrooms
  - Bathroom/Toilet Rooms
  - Seclusion Rooms

*Special care should also be taken in on-unit patient spaces with ceilings with less than 9’-0” above finished floor.*

**Typical Medium Risk Areas:**
- Patient access is controlled, or use is supervised with no solitary unsupervised use.
  - Living Room
  - Dining Room
  - Group Room

**Typical Low Risk Areas:**
- No patient use or constantly supervised.
  - Medication Room
  - Offices
  - Clean and Soiled Utility Rooms
Patient Safety: The New Normal
Removable Stop (RDS)
Intastop Continuous Removable Doorstop provides emergency outward opening operation of doors that normally open inwards. Hinge has a hospital tip. Unlocks by key and swings open with integral grab handle.
Patient Safety: Product Evolution, Anti-Barricade

Wicket Door
C/S Acrovyn Patient Safety Door

Wicket Door
Hollow Metal Construction

Specialty Doors, Wicket Door
Wood Construction

General Notes | Anti-Barricade Hardware:
Primary door requires continuous hinges with hospital tips. Edge bevel may need to be increased. Edge strip is friction fit and has potential to come loose. Inner door lacks stop and rattles at dead bolt.
Patient Safety: Product Evolution, Anti-Barricade

SECURITY/PRIVACY SIDELITE DOOR

Security SideLite

Operable Security Panel
Patient Safety: Product Evolution, Door Hardware

Ligature Resistant Hardware

- Ligature Resistant Lever Set and Thumb Turn
- SPSL Series

http://townsteel.com

Mortise Locks MRX Series
- MRX-L

Ligature Resistant Privacy Bolt
Patient Safety: Product Evolution, Door Hardware
Patient Safety: Product Evolution, Door Hardware

Crescent Handle (CH)
Specify with 0.010” thick teflon pad to minimize possible ligature point between crescent handle and escutcheon plate.

“Wave”: Sargent BHW
**Patient Safety: Product Evolution, Glazing**

### Polycarbonate Glazing

![SABIC Innovative Plastics](www.sabic-ip.com)

FOR USE AS INNERMOST LITE OF EXTERIOR WINDOW

Sabic Lexan SL-4855

with NYS-OMH 15 yr Warranty (Substitute Lexan MR10 with Marguard II-UV coating for non-NYS projects)

1/2" thick

### Laminated Glazing

![Oldcastle](www.oldcastlebe.com)

FOR USE AS INNERMOST SURFACE OF EXTERIOR WINDOW

Oldcastle Building Envelope:

3/8" ArmorProtect 161000

No 1 surface: 5/32" heat-strengthened glass

No 2 surface: 0.090" DuPont 3/8" ArmorProtect 161000 Plus interlayer

No 3 surface: 5/32" heat-strengthened glass

No 4 surface: 3M Ultra 600 anti-spall film installed to edge of glass

Note: Maintenance: 3M film is scratchable and may be removed from the laminated glass panel and new film may be installed by trained maintenance staff. Curing time for film installation is two weeks minimum. Maintenance staff should be advised to keep spare stock that is fully cured to eliminate down time.
Patient Safety: Product Evolution, Windows
Patient Safety: Product Evolution, Door Sensors

DIVISION 08 | OPENINGS, DOOR HARDWARE

Top Door Alarm®

Door Top Alarm

Pressure Sensors and Photoelectric Sensor:
Photoelectric Sensor detects ligature ahead of pressure application. Pressure Sensors provide secondary back-up detection.

General Notes | Door Top Alarm
Two configurations of this product are accepted:
Configuration A: Combination of Door Top Alarm Pressure Strip and Alarm Light Sensor
Configuration B: Two sets of Alarm Light Sensors

Installation Notes | Pressure Activated Switch:
Electric transfer hinge required - refer to continuous hinges page in this document.
Alarm annunciation may be visual and/or audio, located at door and/or nurse’s station.

Top Door Alarm is a custom-manufactured alert system that can be installed on new or existing applications.

Pressure Sensors:
The system uses 2 pressure sensors, one mounted on each side of the door. The sensors are discreet and designed to replicate a seal so as not to draw attention to the unit.

Photoelectric Sensor:
Positioned on the door frame within an anti-ligature casing, the photoelectric sensor ensures maximum coverage by detecting the presence of any foreign object interrupting the thru-beam between the transmitter and receiver.
Patient Safety: Product Evolution, Door Sensors

DIVISION 08 | OPENINGS, DOOR HARDWARE

SEDATM Emergency Door Alarm

* SEDA pressure activated switch, mounted on face of a door, provides notification when a foreign object passes over the door and a downward pressure is applied. Notification is sent to a console indicating where a response is required.

Cautions:

Looping:
Extend continuous hinge past door on frame to eliminate ligature point

Looping:
Specify with end cap adaptor to eliminate ligature point

Looping:
Can be continuously looped end-to-end

Wedging:
Extend continuous hinge past door on frame to eliminate ligature point

Installation Notes | Pressure Activated Switch:
Electric transfer hinge required - refer to continuous hinges page in this document. Alarm annunciation may be visual and/or audio, located at door and/or nurse’s station. Install alarm reset at door - requires staff response to alarm location.

Patient Safety: Product Evolution, Self-Draining Grab Bar

NW Speciality - Security Bar (Horizontal and Vertical)

Avoid end to end tie-offs by running continuously from wall to wall or by adding sloping end caps as shown. The specifier must indicate how many end caps are needed to establish ligature resistant end conditions. Specify pre-drilled weep holes, 3/64" diameter maximum or use special draining end cap provided by Safebar.
Patient Safety: Product Evolution, Toilet Paper Dispenser

DIVISION 10 | SPECIALITIES | Toilet Accessories - Toilet Paper Dispenser

Ligature Resistant Surface Mounted Toilet Paper Dispenser

Ligature Resistant Recessed Toilet Paper Dispenser

Notes | Toilet Accessories:
Solid polymer housing with flexible neoprene spindle.
Single and double roll dispensers available for both recessed and surface mounted models.
Flexible neoprene spindles disengage from housing under pressure.

ENP-TPD01 Series

**Patient Safety: Product Evolution, Sprinklers**

**DIVISION 21 | FIRE SUPPRESSION | Sprinklers**

- **tyco**
  - [tyco-fire.com](http://tyco-fire.com)
  - Use with caution

- **Reliable**
  - [reliablesprinkler.com](http://reliablesprinkler.com)
  - Use with caution

**Star Sprinkler TFP PH2**

Star Sprinkler is a Division of Tyco Fire Suppression & Building Products

**Model XL Institutional Sprinklers**

- Model XL INST Pendant
- Model XL INST Horizontal Sidewall

**VIKING**

- [www.vikinggroupinc.com](http://www.vikinggroupinc.com)
- Trusted above all

**Institutional Flush Sprinklers**

- **VK410 Pendent Sprinkler**
  - Maintenance: The Viking heat sensor projects below the escutcheon plate. Damage to heat sensor will activate system

- **VK412 Sidewall Sprinkler**
  - Maintenance: The Viking heat sensor projects below the escutcheon plate. Damage to heat sensor will activate system

- **Ligature Notes| Sprinklers:**
  - A portion of the sprinkler heads shown project below the sprinkler head enclosure and is accessible to patients.

Patient Safety: Product Evolution, Sprinklers

TYCO Raven

Pendent & Horizontal Sidewall Sprinklers: Quick Response & Extended Coverage

http://tyco-fire.com/
Patient Safety: Product Evolution, Showers

**Suicide Prevention Shower Handle - SSK-1022E**

Configuration | Niekamp
---
When installed in conjunction with a quick release hand shower provide a diverter valve similar to the Niekamp or Oddball, or provide separate controls for both the shower head and the hand-held device.

Maintenance | Niekamp
This solution does not meet ADA criteria for graspability.

Maintenance | Niekamp
May be difficult to operate when wet.

**SP-10 Shower Mixing Valve**

Configuration | Oddball
When installed in conjunction with a quick release hand shower provide a diverter valve similar to the Niekamp or Oddball, or provide separate controls for both the shower head and the hand-held device.

Maintenance | Oddball
This solution does not meet ADA criteria for graspability.

Maintenance | Oddball
May be difficult to operate when wet.

**Speakman-BSP**

Anti-Ligature Shower Valve, Handle, & Escutcheon Plate
Patient Safety: Product Evolution, Showers

Brainwave Water Temperature Control

Configuration | Brainwave
Stainless steel face plate is to be used in all NYS OMH Facilities.
The Brainwave plastic cover is available and is accepted by some users, but should be used with caution.

Maintenance | Brainwave
The control buttons are plastic and potential to be damaged.
Patient Safety: Product Evolution, Lavatories

DIVISION 22 | PLUMBING | Lavatory Assembly

DESCRIPTION:
Proposed OMH Standard:
Niche mounted sink projecting from counter with integral pipe screening below.
Integral bowl with Kohler Laminar faucet and Infrared or Armstrong Brainwave controls. (Use Acorn's Hemispheric Bubbler and Hemispheric Push Button, Evans and Paul ENP-ALC with Brainwave Controls or Behavioral Safety Products SF370 as an Alternative)

Accepted by OMH

Activator

Sink & Counter
Acorn Meridian
Integral Countertop

Brainwave Temperature Controls

www.armstronginternational.com

www.acornena.com

Faucet

KOHLER
Laminar Faucet K-922

Configuration | Lavatories:
Use of sinks with engaged counters resists ligature only when engaged side to side by knee-walls or niches as shown Laminar Flow provides a controlled jet of water arching out of hole in wall. (Modify parts of Kohler Laminar Faucet Assembly K-9022).

Patient Safety: Product Evolution, Lavatories

DIVISION 22 | PLUMBING | Lavatory Basin Assembly System

Solid Surface Lavatory with Integral Bowl

Custom ligature resistant solid surface lavatory with integral bowl. Removable fully enclosed pipe enclosure / skirt with hexalobular pin-reject screws.

Install in niche only.

Conical Faucet ENP-ALCF

Configuration, Code & Regulations Notes | Lavatories:
Not all configurations shown above are ADA compliant. Provide a handicapped accessible configuration where handicapped accessibility is required. Exact profile and location of bowl within counter may be customized.

Patient Safety: Product Evolution, Toilets

DIVISION 22 | PLUMBING | Flushometers

Royal Optima 143 ES-S
Concealed, sensor activated flushometer - wall hung back spud

Regal 154
Concealed, push button flushometer - floor mounted back spud

LIGATURE:
Concealed Valves with Infrared controls and override reduce looping opportunities.

Illustration | Concealed flush valve assembly with remote infrared sensor
Illustration shows an American Standard Afwall Toilet with a Sloan Flush Valve (as shown on previous page).

Section through grab bar and flush valve access door, showing offset flush valve.
Listed manufacturers indicate ability to accomplish offset installations to avoid conflict with grab bars.
Verify with each manufacturer the specific requirements for offset plumbing extensions, access door sizes and positioning, and remote IR sensor connections and cover plate dimensions.
Provide access door with plaster frame to allow for door installation flush with adjacent tile.
Manufacturer supplied IR cover plate may be for surface mounting, and will require customization for flush installation.

Configuration & Installation Notes | Plumbing:
Access doors and Infrared (IR) sensor cover plates are to be fully recessed so that faces are flush with adjacent finish materials, to avoid exposed sharp corners, to avoid picking at edges and to avoid possible ligature points.
Offset concealed flush valve with recessed access door and remote IR sensor with recessed cover plate, all arranged to avoid conflict with ADA grab bars.

Patient Safety: Product Evolution, Toilets

**Zurn AquaSense AV**
ZER6140AV
AquaSense AV Concealed Sensor Operated Battery Powered Flush Valve with Exposed Back Spud for Water Closets

**Hydrotek 8000 Series**

**Zurn AquaSense AV**
ZER6152AV
AquaSense AV Concealed Sensor Operated Battery Powered Flush Valve for Water Closets

**HB8100-A1**
Concealed Sensor Operated AC Powered Flush Valve

**HB8100-B1**
Concealed Sensor Operated Battery Powered Flush Valve

Configuration & Installation Notes | Plumbing:
Access doors and Infrared (IR) sensor cover plates are to be fully recessed so that faces are flush with adjacent finish materials, to avoid exposed sharp corners, to avoid picking at edges and to avoid possible ligature points. Offset concealed flush valve with recessed access door and remote IR sensor with recessed cover plate, all arranged to avoid conflict with ADA grab bars.

Patient Safety: Product Evolution, Lighting

DIVISION 26 | ELECTRICAL, Light Fixtures
General Illumination
Wall Mounted - Surface Fixtures

Mighty Mac™ WCBU Series
Design Attributes:

Housing:
18 gauge Stainless Steel

Diffuser:
0.125”/0.375”/0.500” polycarbonate lens with tamper-resistant fasteners.

Light Source:
32T8 CF Lamps- dimmable

Approvals:
UL Listed for damp locations.

* Should be ordered with polycarbonate diffuser
Patient Safety: Product Evolution, Electrical Power

http://www.youtube.com/watch?v=cBjIEldOEml
Q&A
Mixing the Unmixable: The Why’s and How’s of Co-location

Flexibility:

- Embedded Reuse Options
- Flex Beds
- Flexible Floor Plate
- Anticipate Growth
- Template Units
- Co-location
Mixing the Unmixable: The Why’s and How’s of Co-location

Populations
• Adult: Civil
• Adult: Forensic
• Geriatric
• Children and Adolescents

Issues
• Stigma
• Safety
• Security

Opportunities
• Capital Costs
• Staffing Costs
• Quality & Diversity of Care
• Flexibility
Mixing the Unmixable: The Why’s and How’s of Co-location

Strategies
• Separate Entrances
  • Site
  • Building
• Visual Differentiation
• Securable Intermediate Zones
  • Shared Clinical Services Zones
  • Shared Specialized Activities Zones
• Discrete and Zoned Vertical Circulation
• Horizontal Movement of Support Services at Basement
• Discrete and Separate Outdoor Areas
Mixing the Unmixable: The Why’s and How’s of Co-location

Kings County Hospital Center
Basic Hospital Organization
3 Centers of Excellence "C-A-K"

Case Study: Kings County Medical Center
Mixing the Unmixable: The Why’s and How’s of Co-location

Case Study: Rochester Psychiatric Center
Mixing the Unmixable: The Why’s and How’s of Co-location

Case Study: West 5th Street Campus, Hamilton, Ontario
Mixing the Unmixable: The Why’s and How’s of Co-location

Case Study: Worcester Recovery Center and Hospital
Q&A
Planning and Organizing a CPEP: Kings County Hospital

Description:
- 180 new psychiatric beds
- Includes CPEP, outpatient services, ambulatory clinics, children's psychiatric services, research facilities, clinical and nursing administration, medical library, auditorium, power plant, and parking garage

Project Cost: $88 million
Planning and Organizing a CPEP: Kings County Hospital
Planning and Organizing a CPEP: Kings County Hospital

- External Flexibility: flexing into intake during peak hours
Planning and Organizing a CPEP: Kings County Hospital

- External Flexibility: flexing into intake during peak hours
- Entry: Hospital and CPEP
Planning and Organizing a CPEP: Kings County Hospital

- External Flexibility: flexing into intake during peak hours
- Entry: Hospital and CPEP
- Security and safety
Planning and Organizing a CPEP: Kings County Hospital

- External Flexibility: flexing into intake during peak hours
- Entry: Hospital and CPEP
- Security and safety
- Secure internal vertical circulation
Planning and Organizing a CPEP: Kings County Hospital

- External Flexibility: flexing into intake during peak hours
- Entry: Hospital and CPEP
- Security and safety
- Secure internal vertical circulation
- Separating adults and children
Planning and Organizing a CPEP: Kings County Hospital

- External Flexibility: flexing into intake during peak hours
- Entry: Hospital and CPEP
- Security and safety
- Secure internal vertical circulation
- Separating adults and children
- Internal flexibility
  1. Three changeable central zones
  2. Extended observation beds
  3. EOB day space as extended CPEP
  4. Waiting as extended CPEP
  5. Secure holding
Planning and Organizing a CPEP: Discharge to Outpatient

Case Study: Erie County Medical Center, Buffalo, NY
Q&A
Outpatient/Inpatient Colocation

Case Study: West 5th Street Campus, Hamilton, ON
Outpatient/Inpatient Colocation

Case Study: Kings County Medical Center
Case Study: Hillside Hospital Master Plan

Outpatient/Inpatient Colocation
Webinar Survey & CE Form

This concludes the AIA Continuing Education Systems Course.

Complete the online webinar survey and CE form at: http://www.zoomerang.com/Survey/WEB22FHWJFF74E

Learn about our other webinar offerings at: http://network.aia.org/events/webinars/
Important Current Issues in Mental Health Design

- Federal Funding, Parity and Health Reform
- Treatment Trends
- Patient Safety
- Co-location of Inpatient Types
- Comprehensive Psychiatric Emergency Programs (CPEP’s)
- Co-location of Inpatients and Outpatients
Mental Health Design 201
AIA Academy of Architecture for Health
June 4, 2012

Thank you!

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