A Mat Response to Deinstitutionalization | A Model for Spatial Medicine

Dominic S. LiPuma

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A MAT RESPONSE TO DEINSTITUTIONALIZATION [a model for spatial medicine]
A Mat Response to Deinstitutionalization [a model for spatial medicine]

In an attempt to salvage the institution, this thesis adopts the Mat-building strategy and typology, coined by Alison Smithson in 1974, exploiting its inherent qualities as a minimal, flexible, and temporal framework, which best supports the unique program of a Community Mental Health Center (CMHC).

This is in response to the severed and contentious relationship between architecture and mental health, in regards to psychopathology. The two fields were estranged with the onset of deinstitutionalization, beginning in the 1960s, and the consequent abandonment of architectural issues has prevented their reconciliation. As a result, further social issues have manifested, with higher proportions of those considered mentally ill making up prison and homeless populations throughout the United States, in addition to an overall lack of proper mental health treatment. According to a 2012 report by the New York State Office of Mental Health, “Nearly 40% of adult New Yorkers with serious mental illness did not receive mental health treatment in the past year.” The problem has not been solved, but rather transferred somewhere else in what has been referred to as “transinstitutionalization.”

In response, this thesis proposes the realignment of architecture and psychopathology to create a more symbiotic relationship under the notion of “Spatial Medicine,” where architectural environments may elicit a placebo effect. It pulls from the shift in unfulfilled architectural strategies that were drawn out of a new understanding and approach to mental health in the 1960s, picking up where the ball was dropped following the proposals for Community Mental Health Centers (CMHCs) under the Community Mental Health Act of 1963, which was never fully realized. It also draws from Mat-building design during the same period, including Le Corbusier and Guillermo Jullian de la Fuente’s designs for the Venice Hospital.

The Mat typology as CMHC offers a solution to previously failed mental health typologies, like the Kirkbride asylum. The project exploits the Mat’s capacity to engage users through the perceptual and phenomenological aspects of sensation and affect. As a place of spatial medicine, it will amplify and imbue life into this historically mechanistic architecture by externalizing, or physicalizing, internal/psychic, or aphysical, conditions through architectural strategies implicit within the Mat typology, including the concepts of “theraserialization” and “hinged space.” The project surfaces the dormant, sensate qualities that the Mat building affords, catalyzing the capacity of architecture to act on its inhabitants’ perception, experience, and subjectivity with the ultimate goal of bettering one’s mental health and wellbeing.
Institutionalization

Kirkbride Plan - Asylum

Plan: New Jersey Lunatic Asylum, 1847

Deinstitutionalization

Community Mental Health Center

Plan Diagram: CMHC Study, 1967

Isolated
Exclusive
Disengagement

Mat-Collective

Association

Integrated
Inclusive
Engagement

Dissociation
“Buildings are inert objects, but our experience of them transcends the physical realm and extends into our deepest consciousness. Architecture, in particular, which moves beyond mere building, strives to enhance the human condition and promote emotional well-being through the manipulation of space, light, material, and form.”

A Mat Response to Deinstitutionalization
a model for spatial medicine

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Secondary Advisors: David Shanks, Tarek Rakha
Architectural Design Thesis
Fall 2015 - Spring 2016
Syracuse University School of Architecture
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I. Contention, Executive Summary
I. Architecture and Mental Health

The relationship between architecture and mental health, in regards to psychopathology, or mental illness, has been one of great contention. They have been estranged since the age of deinstitutionalization that began in the 1960s, and, with this abandonment of architectural issues, the two still have yet to be reconciled. As a result, further social issues have manifested, with higher proportions of the mentally ill making up prison and homeless populations throughout the United States, in addition to an overall lack of proper mental health treatment. According to a 2012 report by the New York State Office of Mental Health, “Nearly 40% of adult New Yorkers with serious mental illness did not receive mental health treatment in the past year.” The problem has not been solved, but rather transferred somewhere else in what has been referred to as “transinstitutionalization.”
II. Re-entering the progressive conversation of the 1960s

This thesis references the wave of new ideas for architecture’s response to mental health during the 1960s, based on a new understanding and approach to mental illness in society, with the proposals for Community Mental Health Centers (CMHCs). These facilities formed the architectural basis of the Community Mental Health Act of 1963, which was ultimately never fulfilled, marking the wave of deinstitutionalization and the closing of psychiatric hospitals without these CMHCs in place. Therefore, this thesis picks up where the ball was dropped back then, proposing a new architectural solution based on further research and insight that has since taken place.
III. Architectural issues specific to the mental health typology

The architectural typology of the asylum, based on the Kirkbride model, reflected society’s validation (and, therefore, more serious and humane treatment) of mental illness. However, the actual outcomes and depictions in popular movies have shown the admirable intentions of the Kirkbride model, based on monumental, symbolic, and hierarchical organizations of isolation, failed.

Due to these failures of both tested and proposed architectural solutions, in conjunction with the rise of pharmacology, a major shift in strategy from environmental and architectural treatment to biological treatment has taken place over the last half-century. This has left a “hole” within the field of architecture, leaving space for a new solution to be offered in regards to an architecture designed and built specifically for treating psychopathology.
IV. Mat Building: Strategy and Typology

An approach to architecture that also came out of this radical era of the 1960s was the “mat” building. Mat building involves the minimum organization necessary and a flexible, integrative typology that fosters engagement with the community and surrounding context in which it is located. However, in addition to utilizing the mat strategy, this thesis offers a new sensitivity to a temporal experience of program. The Mat-Collective Community Mental Health Center does not express a hierarchical representation of power, but rather reflects the user’s temporal experience as a result of an investigation of metrics, program, and place.
CONTENTION TO BE CHALLENGED

“Though they seem complementary, architecture and medicine are inherently mismatched.”

- Kelsey Campbell-Dollaghan on Imperfect Health: The Medicalization of Architecture, Giovanna Borasi, Mirko Zardini, 2012
MISMATCH

ARCHITECTURE  DIMENSIONAL ---> ENVIRONMENTAL

+ 

MEDICINE  ENVIRONMENTAL ---> PHARMACOLOGICAL
DIMENSIONALITY ---> ENVIRONMENTALITY

FIRMNESS, COMMODITY, DELIGHT

Vitruvian Man, Leonardo da Vinci, 1490
Francesco di Giorgio, human figure inscribed in a church plan, 1476
Bauentwurfslehre, Ernst Neufert, 1936

The Modular, Le Corbusier, 1948

Humanscale Body Measurements, Henry Dreyfuss Associates, 1974
DIMENSIONALITY ---> ENVIRONMENTALITY

and HEALTH?

O.M. Ungers, *City Metaphors*, 1976

Taichung Gateway Park Competition, Phase Shift Park diagram illustrating adverse effects of urban environment on human body, Philippe Rahm Architects and Catherine Mosbach
The Courtyard - Hospital

Plan: l'ospedale degli innocenti, Brunelleschi, 1419

Kirkbride Model - Asylum

Plan: New Jersey Lunatic Asylum, 1847

Ingestible Pill

chlorpromazine, 1951
MISMATCH

ARCHITECTURE + MEDICINE

DIMENSIONAL ----> ENVIRONMENTAL

ENVIRONMENTAL ----> PHARMACOLOGICAL
The history of the built environment’s response to treating psychopathology illustrates a discrepancy between intention and effect. Unlike the 19th century era of institutionalization, marked by the monumentality and isolation of old asylums, and, in response to today’s failed aftermath of deinstitutionalization, the Mat building strategy may provide an alternative solution to the successful care and treatment of those afflicted with serious mental illness.

The architecture of a mental health center should not symbolically or stylistically express its institutional nature, as a means of lessening the stigma associated with failed psychiatric hospitals. As Candilis, Josic, and Woods describe in diagramming their Mat project, the Berlin Free University (1964), “The external expression of differences in function and nostalgia for representative form also tend to segregate the [mental health center] into specialized disciplines only.” Therefore, “We seek rather a system giving the minimum organization necessary to an association of disciplines. The specific natures of different functions are accommodated within a general framework which expresses [mental health center].”

Utilizing this approach, the characteristics of Mat building, when applied to the design of a mental health center, may instill the client’s sense of autonomy, while also still maintaining safety and necessary surveillance, based on the seriousness of the client’s condition. It may provide essential flexibility and allow room for growth, accommodating the constant flux of patients coming in and out. The mental health clinic as Mat building may be less oppressive on the site, offering a means of co-habitation of multiple programs, while also providing greater opportunities for public interaction and contextual engagement with the surrounding community.
The institutionalization of mental illness marked the recognition of psychopathology as a valid condition deserving proper, humane care and treatment. This was reflected in the monumental architecture of “asylums,” following the “Kirkbride Plan” design model in the mid-19th century. State hospitals were constructed under this model, based on the tenets of “Moral Treatment,” throughout the United States. They were built in rural areas, away from the pollution and chaotic energy of industrialized, booming city centers, growing larger in scale to accommodate more and more patients. Yet, despite ideal intentions, asylums acquired a negative stigma due to poor conditions, involving overcrowding and inhumane treatment methods, acquiring names such as “madhouse” and “snake pit.”

These issues gained greater attention in the 1960s, which marked a period of newfound concern for and understanding of mental illness. With this societal shift in understanding, came a new design approach reflected in proposed Community Mental Health Center (CMHC) design studies. The Community Mental Health Act (CMHA) of 1963 was enacted, seeking to establish community-based care for the mentally ill through the federally-funded construction of CMHCs across the United States. This progressive thinking in architecture and design was also paralleled in the development of “Mat” building, coined by Alison Smithson.
The resulting period of deinstitutionalization, which saw the closing of state psychiatric hospitals, reduced the asylum population from its peak in 1955 at 558,000 to just 45,000 today.¹ However, the idealized intentions of the CMHA, which marked a societal shift in the understanding and treatment of mental illness towards community-based care, were never fully realized, mainly due to a lack of funding. As a result of the closing of state psychiatric hospitals and the release of patients with nowhere to go, a rise in both prison and homeless populations of those who qualify as mentally ill has taken place. This “transinstitutionalization” has not solved the problem but transferred it somewhere else, out of sight and out of mind.

This thesis aims to pick up where the ball was dropped during this radical period in the 1960s of unfulfilled design strategies for CMHCs, employing the integrated Mat building design approach as a new alternative to mental health architecture in today’s context of even greater understanding in the treatment of mental illness.

"The five points in common between muscle operation and an electric doorbell circuit: 1. volition: bell button, 2. motor center: battery, 3. nerve: wire, 4. motor end-plate: interpreter, 5. muscle: clapper." Fritz Kahn, 1926
II. Institutionalization and the Evolution of the Asylum Typology
“The Stone Cutter” (The Cure of Folly), Hieronymus Bosch (c. 1450-1516), Museo del Prado, Madrid, Spain
Public Hospital (for Persons of Insane and Disordered Minds), Williamsburg, Virginia, 1770

Considered the first public building in North America devoted to the treatment of the mentally ill.

2 story, brick masonry construction.

Contractor, Benjamin Powell, directed to provide yards for patients to walk and take in air. A fence was placed around the site.

24 patient “cells,” designed for security and isolation.

Building expanded with the adding of a female ward in 1821 and the addition of a third story in 1841. There were 300 patients by 1859, 400 in 1883, and 450 by 1885.
Sanborn Map, Williamsburg, VA, Jan. 1904
(The hospital burned down in 1885 and was replaced by the Eastern State Hospital shown in the map)
Panopticon, Jeremy Bentham, 1791

The Industrial Revolution in England created a wave of new ideas in building, among them Jeremy Bentham’s Panopticon. Bentham boasted of his enlightened architectural idea, writing, “Morals reformed—health preserved—industry invigorated—instruction diffused—public burthens lightened—Economy seated, as it were, upon a rock—the gordian knot of the poor-law not cut, but untied—all by a simple idea in Architecture!”

However, the Panopticon came to be known as a symbol and model for societal control, power, and surveillance. Michel Foucault describes this in *Discipline and Punish*, stating, “But the Panopticon must not be understood as a dream building: it is the diagram of a mechanism of power reduced to its ideal form.”
New Jersey Lunatic Asylum, Trenton, 1847

The first public mental hospital in the state of New Jersey.

Founded by Dorothea Dix, an advocate and activist for better, more humane treatment of the mentally ill.

Designed utilizing the model of the Kirkbride Plan: (developed by Thomas Story Kirkbride) a linear plan with corridor wings “en echelon” (staggered to allow each wing to receive ample natural light and air). This was based on the philosophy of “Moral Treatment.” The building itself was seen as part of the cure of mental illness.
St. Elizabeth’s Hospital, Washington, D.C., 1852

The first federally operated psychiatric hospital in the U.S.

At one point (in the 1950s), housed over 8,000 patients and employed 4,000 people.

Design guidelines based on the Kirkbride Plan: institutional, imposing, fortress-like, with extensive surrounding grounds.
Greystone, Morristown, New Jersey, 1872

Built to alleviate overcrowding at the New Jersey Lunatic Asylum in Trenton.

First built to house 350 patients, but throughout its multiple expansions it reached a peak of over 7,700 patients, suffering severe overcrowding.

Architect: Samuel Sloan

Design guidelines based on the Kirkbride Plan, separated by wards.
Buffalo State Hospital for the Insane, Buffalo, New York, 1871

Architects: Henry Hobson Richardson and Frederick Law Olmsted (designed the grounds).

Red sandstone and brick construction.

Style: “Romanesque Revival”

Design guidelines based on the Kirkbride Plan.
1. Public Hospital, Williamsburg, Virginia, 1770
2. New Jersey Lunatic Asylum, Trenton, 1847
3. St. Elizabeth's Hospital, Washington, D.C., 1852
4. Greystone, Morristown, New Jersey, 1872
5. Buffalo State Hospital for the Insane, Buffalo, New York, 1871

Scale: 1'-0" = 1/64"
Overview: Growth of the Asylum Typology

1.

2.

3.

4.

5.

Scale: 1'-0" = 1/256"
Critique

Failure of the Asylum Typology

What does it mean to say that a building does not “work”? 

1. “…if a building, regardless of purpose, collapses because of a poorly designed structure, crushing its inhabitants, pundits agree that the building did not work.”

2. “If a building is designed for a specific purpose, and that purpose can never be fulfilled because of errors in planning, discerning observers might reasonably agree that the building does not work.”

“Given that in the past three decades almost every industrialized country has rejected the confinement of the mentally ill in large-scale buildings, one could argue that linear plan hospitals did not work.”

Photos in the Worcester State Hospital, Worcester, Massachusetts, 1949, Herbert Gehr, Life Magazine
Asylum: Inside The Closed World Of State Mental Hospitals

Buffalo State Hospital, second floor interior corridor, 2008, Christopher Payne, *Asylum: Inside The Closed World Of State Mental Hospitals*
“Linear insane asylums are an extreme case of these changing fortunes over time: considered ideal at the time of their invention, they are now considered nearly useless.”

**Idea/Symbol**

Surveillance, Control, Confinement

**Architectural Translation (Typology)**

**Panopticon**

Fools’ Tower (Narrenturm), Isidor Canevale, Vienna, 1784

Architectural Transparency: secularization and decriminalization of the insane - therapeutic correction

**Asylum**

**Kirkbride Model**

**Organization**

(spatial and formal articulation)

**Sanatorium**

Otto Wagner Sanatorium at Steinhof, 1907

Sanatorium rather than asylum - medicalize and organize madness - mental regime that acted on the body to cleanse the mind - the campus intended to act therapeutically on its inmates in ways that did not require their attention and were deliberately hidden from view - patients were inmates, but did not perceive their confinement - ex. bars on windows were hidden within decorative lead mullions)

**Psychoanalysis - subconscious**

**Therapist Office**

- Talking

Psychoanalysis was understood as fundamentally unrelated to the physical environment - mental illness not associated with physical condition - focus not on space, but communicative therapy

**Biological Chemical Adjustment - Pharmacology**

**Prescription**

Medication

Pill

Artificial, temporary cure - relieve symptoms by means of adjusting the levels of specific neurotransmitters in the brain
Plan: New Jersey Lunatic Asylum, 1847

Panopticon, Jeremy Bentham, 1791

Tuberculosis - Modern Architecture Principles

Paimio TB Sanatorium, Alvar Aalto, 1932

Chlorpromazine, 1951

Corbusier’s Five Points
1926


2. Free plan, rather than rooms.

3. Window design freed from structural dependence: permits the long ribbon window.

4. Pilotis elevate the building off the ground.

5. Occupiable roof terrace, rather than pitched roof: restores the area of ground covered by the house.
<table>
<thead>
<tr>
<th>Idea/Symbol</th>
<th>Architectural Translation (Typology)</th>
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<tr>
<td>Minimal organization, flexible, temporal, sensate</td>
<td>Mat-Creative Community Mental Health Center</td>
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<td>Environmental, multisensory treatment inpatient/outpatient</td>
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</table>
This thesis exploits the inherent qualities of the Mat typology as a **minimal, flexible, and temporal** framework, which best supports the unique program of a community mental health center (CMHC). The capacity of this typology to engage its inhabitants through the perceptual and phenomenological aspects of **sensation** and **affect** will amplify and inbue life into this historically mechanistic architecture by externalizing, or physicalizing, internal/psychic, or aphysical, conditions. The project surfaces the dormant, sensate qualities that the mat typology may offer, catalyzing the capacity of architecture to act on its inhabitants’ perception, experience, and subjectivity with the ultimate goal of bettering one’s mental health and wellbeing. This is carried out under the notion of “**spatial medicine,**” by means of architectural strategies implicit within the Mat typology, including the design exploration of **theraserialization** and **hinged space.**
Spatial Scope/Activity: Institutionalized Patient

Perspective Vignettes: Film Stills from *One Flew Over the Cuckoo’s Nest* (1975) and *Girl, Interrupted* (1999)

New Jersey Lunatic Asylum, Trenton, 1847 (partial plan)

Movement

<table>
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<tr>
<th>Time (hours)</th>
<th>Level of Activity</th>
<th>Distance (mi)</th>
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<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0.2</td>
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<tr>
<td>3</td>
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Emotional State/Brain Activity/Awareness Level

1. Level of Activity
2. Distance (mi)
Spatial Scope/Activity: **Institutionalized Patient**

**Kirkbride Model Characteristics:**

Validated mental illness:
- expressed through the monumentality of the institutional, Victorian-era architecture of the asylum
- Intention: humane treatment, new therapeutic treatments, generate changes in public perception of mental illness (reduce stigma)

- Kirkbride Plan:
  - based on tenets of “Moral Treatment”
  - Linear plan
  - Central administration building flanked by two wings made up of tiered wards
  - hierarchical segregation of residents according to sex and symptoms of illness
  - Each wing subdivided by ward
  - more “excited” patients placed on lower floors, farthest from the central administrative structure
  - better behaved, more rational patients situated in the upper floors and closer to the administrative center
  - seclusion from suspected causes of illness
    - patients' asylum experience more comfortable and productive by isolating them from other patients with illnesses antagonistic to their own while still allowing fresh air, natural light, and views of the asylum grounds from all sides of each ward
    - place patients in a more natural environment away from the pollutants and hectic energy of urban centers
  - Extensive grounds with cultivated parks and farmland
  - Landscaped parks served to both stimulate and calm patients' minds with natural beauty
  - Farmland served to make the asylum more self-sufficient by providing readily available food and other farm products at a minimal cost to the state
    - Patients were encouraged to help work the farms and keep the grounds
    - structured occupation was meant to provide a sense of purpose and responsibility which, it was believed, would help regulate the mind as well as improve physical fitness
    - Patients encouraged to take part in recreations, games, and entertainments which would also engage their minds
Kirkbride Model
New Jersey Lunatic Asylum, Trenton, 1847

SPATIAL SCOPE

Kitchen/Dining
Group Therapy
Individual Therapy
Group Therapy
Recreation
Patient Room
Recreation
Patient Ward (Wing)
Spatial Scope/Activity: Ideal - Mat-Collective CMHC
Institutionalized Patient

Film Still: *One Flew Over the Cuckoo’s Nest*, 1975

Site Plan: New Jersey Lunatic Asylum, Trenton, NJ

Deinstitutionalized Patient

Plan Diagram: CMHC project proposal study

Site Plan: CMHC project proposal study

Mat-Collective Patient

Candilis, Josic, Woods – Berlin Free University sketch, 1964

Site Plan: Venice Hospital, 1964
1. Inpatient, Schizophrenia (high-risk)

The high-risk patient has access within a specific zone of the building with a higher level of security. In accordance with his treatment, he is slowly granted access to other areas of the center.

2. Inpatient, Bipolar Disorder (low risk)

A patient determined low-risk, after evaluation, is permitted access to all spaces designated for patient use under supervision, including those outdoors.
3. Outpatient, Major Depressive Disorder (MDD), released from inpatient treatment a week ago

An outpatient, recently admitted from the center, is now back in his parent’s home, a few miles from the center. He comes back for counseling/therapy sessions twice a week.

4. Outpatient, Bipolar Disorder, released from inpatient treatment two years ago

An outpatient, admitted from the center two years ago, has been living in his own apartment, five miles from the center. He now comes for counseling/therapy sessions once a month to check in.
III. Deinstitutionalization and Community Mental Health Centers
Deinstitutionalization as a Response to Failed Asylums and Mental Health Treatment Practices

1955: Congress passes the Mental Health Study Act appoints Joint Commission on Mental Illness and Mental Health

1961: Commission on Mental Illness and Mental Health issues report

1963: Community Mental Health Act (CMHA) signed by President John F. Kennedy provide grants to states for the establishment of local mental health centers, under the National Institute of Mental Health

Community-based care: (alternative to Institutionalization) - starts wave of Deinstitutionalization

(Only half of the proposed centers are built (none are fully funded), and no funding for long-term operation)

1965: Adoption of Medicaid - accelerates Deinstitutionalization

1970s: Under the Reagan administration, the remaining funding for the act is transferred to a mental health block grant for states

Present: Since the passing of the CMHA, 90% of beds devoted to mental health patients have been cut at state hospitals. This has resulted in a dramatic rise in the percent of mentally ill among the nursing home, prison, and homeless populations.
JFK signs the Community Mental Health Act of 1963, photo, Bill Allen, Associated Press
**CMHC: Strategies**

Psychiatric context implies an environment which:

1. maintains the social skills which the patient possesses
2. restores lost or damaged social skills
3. prevents the acquisition of bad or irrelevant habits while in the hospital
4. helps him to develop necessary and relevant new skills

**Criteria/Guidelines for Analysis:**

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<td>Patient Care Unit Teams</td>
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<td>Teaching, Research and Service and the</td>
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<td>Patient</td>
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A Project Could Involve Construction of a Single Facility for all Essential Elements of Service

A Project Could Involve Construction of a Network of Facilities for all Essential Elements of Service

A Project Could Involve Construction of a Single Element Within a Scattered Network of Services

A Project Could Involve Construction of an Element of Service to an Existing Facility of Service

Diagrams adapted from 1967 CMHC study
CMHC: Architectural Response/Concepts

The Community Mental Health Center is a Bridge between hospital and community, between illness and health.

Those most greatly in need of help require the greatest encouragement to seek help.

The Community Mental Health Center is for all People.

Program requirements are bound to change.

The mentally healthy individual is not merely free of disease; he is productive and creative.

The Community Mental Health Center should complement existing services, not replace them.

The Community Mental Health Center should court associations with other productive, social and cultural agencies.

Mental health requires opportunity for play and relaxation as a counterpoint to the pressures and constrictions of city life.
Mental illness does not entirely reside in the individual; a CMHC should treat social problems as well as personal illness.

People who need help need it now.

The program must not be a one track assembly line

Financing of the CMHC can follow a multiple resource pattern.

There must be no walls between the mental health center and the community.

The Community Mental Health Center should enhance the capacity of people to experience life.

The community and the hospital interpenetrate in the successful Community Mental Health Center.

Planning the form and function of the CMHC demands the teamwork of architects and mental health specialists.

Diagrams adapted from 1967 CMHC study
Security vs. Autonomy

“Globally, a third of all patients admitted for psychiatric care are involved in violent incidents.”1 Violence and aggression is usually a response to stress, and the architectural environment of psychiatric care facilities’ focus on security contributes to patients’ stress, thereby paradoxically making the environment less safe. Increasing a patient’s sense of autonomy and interaction with others reduces stress. The design of the built environment can cater to this by providing shared spaces with moveable furniture, sound-absorbing surfaces to reduce noise, and optimizing the amount of natural light and air in the building.

Gradient: Private to Public (Bed to Community)

Multiple Scales: Individual, Group, Community

Diagram: “Hierarchy of Human Association,” Alison and Peter Smithson

Community Flow
CMHC: Building Design Proposals

Case Study A, CMHC/metro-suburban-rural situation, David A McKinley Jr (AIA), AR Foley (MD), 1967
Case Study F, CMHC/heterogeneous urban situation, William W Caudill (FAIA), Alfred Paul Bay (MD), 1967
Aftermath of Deinstitutionalization - Statistics

In a recent article in the Journal of American Medical Association, titled, “Improving Long-term Psychiatric Care: Bring Back the Asylum,” the authors state, “This was the original meaning of psychiatric “asylum” – a protected place where safety, sanctuary, and long-term care for the mentally ill would be provided.” In today’s failed aftermath of deinstitutionalization, they say, “It is time to build them – again.”

“The asylum population in the US peaked at 558,000 in 1955, and since then a series of moves has reduced the number of patients in state-run mental hospitals to 45,000.”

“Given the doubling of the US population, this represents a 95% decline, bringing the per capita public psychiatric bed count to about the same as it was in 1850—14 per 100,000 people.”

“Approximately 10 million people in the U.S. have a serious mental illness.”

“Between 1998 and 2006, the number of mentally ill people incarcerated in federal, state, and local prisons and jails more than quadrupled to 1,264,300.”

“Since 2006, mental-illness rates in some county jails have increased by another 50 percent.”

“For every $2,000 to $3,000 per year spent on treating the mentally ill, $50,000 is saved on incarceration costs.”

“Prisoners with mental illness cost the nation an average of nearly $9 billion a year.”

“Severe mental disorders cost the nation $193.2 billion annually in lost earnings.”

Percentages of inmates with mental health problems (as of 2004)

- Federal Prisons: 44.8%
- State Prisons: 56.2%
- Local Jails: 64.2%
Environmental ➔ Biological Treatment

**Antidepressants**
(in millions)

![Graph showing the trend of antidepressant prescriptions in the United States from 2001 to 2011.](image)

**Antipsychotics**
(in millions)

![Graph showing the trend of antipsychotic prescriptions in the United States from 2001 to 2011.](image)

Source: IMS Health, a healthcare technology and information company
Aftermath of Deinstitutionalization - Statistics

Number of Conditions (officially-recognized disorders) listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM), published by the American Psychiatric Association.

Source: Mental Health Biomedical Research Centre, National Institute for Health Research, U.K.

DEINSTITUTIONALIZATION AND COMMUNITY MENTAL HEALTH CENTERS
Global adjustment for patients diagnosed with schizophrenia

Global adjustment is a score that factors symptoms, life adjustment, and work and social functioning. It's measured on a scale from 1-8. (The lower the score, the better the functioning).

These results represent the scores of schizophrenia patients assessed over a 15 year period by researchers Martin Harrow and Thomas Jobe in the Chicago area, comparing patients both on and not on antipsychotic medication.

![Bar chart showing global adjustment scores for patients on and not on antipsychotic medication.]

These results suggest that those schizophrenia patients who fare better tend to stop taking medication, or that patients who stop taking medication tend to fare better.

Aftermath of Deinstitutionalization - Statistics

Change in states’ spending on mental health (2009-2012)

Up to 30 percent of the homeless population is thought to be seriously mentally ill. This is five times the rate of the general population.
IV. Mat Building
Case Studies

Centraal Beheer, 1968-72

Ysbanpaad Orphange, 1961

School & Home for HIV Orphans, 2006-7

Venice Hospital, 1964-65
“How to Recognise and Read Mat-Building”  
- Alison Smithson, 1974

“Mat-building can be said to epitomise the anonymous collective; where the functions come to enrich the fabric, and the individual gains new freedoms of action through a new and shuffled order, based on interconnection, close-knit patterns of association, and possibilities for growth, diminution, and change.”
The 9m x 9m cellular module allows for flexibility and growth of the program. However, this singular scale results in restrictions within the building as well.
Cellular Modularity - Flexibility

Module: 9m x 9m (29.5 ft)
Ysbaanpad Orphanage, Aldo van Eyck, Amsterdam, 1961

Physical model, aerial photo

Photo, courtyard

Photo from “Team 10: In Search of a Utopia of the Present,” 2005

Built-in furniture within the plan, use of the circle for gathering spaces (social interaction), precedent from Anasazi “kiva” typology. Use of different scales for children and adolescents.
The plan blurs the boundary between interior and exterior space.
School & Home for HIV Orphans, Koji Tsutsui & Associates, Uganda, 2006-7

Separate program connected by interlocking roofscape. System allows for continued expansion and spatial flexibility.
Venice Hospital, Le Corbusier, Guillermo Jullian de la Fuente, 1964-65

Physical model, Atelier Jullian

Photomontage of Venice Hospital over the city. Atelier Jullian, third project, 1966

Model of third level patient cells
“...the psychological aspect of the spirits of the visitor plays a major therapeutic role, by creating around the patient an atmosphere which stimulates his will to live and transforms the hospital, a machine for healing, into a hospital for life.”” - Le Corbusier

**Strategies**

“Horizontal Hospital”

3 Levels:

1. **Ground/First Floor** - Liaison with the city, includes general services and public access
2. **Second Floor** - Medical Technology: preventive care, specialties, and rehabilitation
3. **Third Floor** - Area of hospitalization (individual patient rooms), visitors

**Modularity:**
2.96 m (~ 10 ft)

3 Scales:

1. **Unité Lit** (bed unit) and for ambulatory patients
2. **La Calle** (the street)
3. **Campiello** (small square) and **Le Jardin Suspendu** (the hanging garden) “where patients will find all required for their convalescence and progress in their return to society.”

## Mental Illness Spectrum

Based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)

<table>
<thead>
<tr>
<th>Personality disorders</th>
<th>Paraphilic disorders</th>
<th>Neurocognitive disorders</th>
<th>Substance-related and addictive disorders</th>
<th>Disruptive, impulse-control, and conduct disorders</th>
<th>Gender dysphoria</th>
<th>Sexual dysfunctions</th>
<th>Sleep–wake disorders</th>
<th>Feeding and eating disorders</th>
<th>Somatoform and related disorders</th>
<th>Dissociative disorders</th>
<th>Trauma- and stressor-related disorders</th>
<th>Obsessive-compulsive and related disorders</th>
<th>Depressive disorders</th>
<th>Anxiety disorders</th>
<th>Bipolar and related disorders</th>
<th>Schizophrenia spectrum and other psychotic disorders</th>
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<tbody>
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<td>Least Severe</td>
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</tbody>
</table>
Overview: Design Approach

Candilis, Josic, Woods - sketches for Berlin Free University, 1964

"The external expression of differences in function (are these as important as similarities?) and nostalgia for representative form also tend to segregate the university into specialized disciplines only."

Dissociation

"We seek rather a system giving the minimum organization necessary to an association of disciplines. The specific natures of different functions are accommodated within a general framework which expresses university."

Association
V. Proposed Site - Roosevelt Island, NYC
“Over the years, this bit of land just two miles long and 600 yards wide has served as a proving ground to test civic-minded and architectural ideas proposed in a spirit of experimentation. A quirky scrap of the city, Roosevelt Island boasts such amenities as an underground pneumatic tube system for transporting garbage and the first commissioned aerial tramway in the United States. In the 19th century, the island was home to an insane asylum, an almshouse, a prison, a charity hospital, and a smallpox hospital—warehouses for the human unwanted, kept safely segregated from the rest of the population by the treacherous currents of the East River.”

- Angela Riechers, archpaper.com, July 2012
Island?
History of Development - Roosevelt Island Evolution

Colonialism

Minnahanonck ("It’s nice to be here," "Long Island"), Canarsie Tribe

Varcken Eylandt (Hog Island), 1637
The Dutch raise hogs on the island

Manning’s Island, 1666
British take control

Blackwell’s Island, 1686

Manning’s son-in-law, Robert Blackwell, becomes owner

City of New York buys Blackwell’s Island, 1828
Welfare Island, 1921

NY State’s Urban Development Corporation (UDC) takes a 99-year lease of the island, 1969

Johnson-Burgee Plan (Unfinished), 1969-1970s

Roosevelt Island, 1973

Roosevelt Island, 2015 (present)

Roosevelt Island, Cornell Tech Campus, 2017
Map, 1879: Figure/Ground, Comparison of Scales - Central Park and Blackwells Island (now Roosevelt Island)

PROPOSED SITE - ROOSEVELT ISLAND, NYC
“Rem Koolhaas, German Martinez, and Richard Perlmutter designed New Welfare Island for the south end of Roosevelt Island (once known as Welfare Island). This theoretical project extended Manhattan's grid, in this case between Fiftieth and Fifty-ninth streets, onto the island, in a manner similar to that used for Koolhaas's and Zenghelis's Roosevelt Island Redevelopment competition entry. Each newly created lot was intended to support competing structures—formally, ideologically, and programmatically—corresponding to what they viewed as Manhattan's dominant characteristic. Just north of the "travelator," a moving pavement extending to the rivers, is a convention center. To its south, amid vacant lots reserved for future use, are Kazimir Malevich's "Architecton," an interior harbor housing a 1932 Norman Bel Geddes yacht, and a "Chinese" swimming pool. The New Welfare Hotel, a city within a city, which looks toward Manhattan, is situated at the bottom of the island.”

“At the top of the aerial view, the Queensboro Bridge passes through a convention center, a monumental gateway to Manhattan. Farther south, a tecton—a Suprematist device from the work of Kasimir Malevich—hovers over a streamlined Art Deco yacht designed in 1932 by Norman Bel Geddes. At the island's tip the six towers of the New Welfare Hotel rise up opposite a wandering fragment of Manhattan that includes Rockefeller Center and Times Square (including the proposed Sphinx Hotel, designed by Elia and Zoe Zenghelis). The New Welfare Hotel, designed by Koolhaas, Perlmutter, and Derrick Snare, is separately rendered in the third drawing; it is a center for dancing, dining, and general urban pleasure. Overall, Koolhaas writes, the Roosevelt Island project is intended as a visual interpretation and resuscitation of some of the themes that made Manhattan's architecture unique; its ability to fuse the popular with the metaphysical, the commercial with the sublime, the refined with the primitive.”
(MoMA), Rem Koolhaas, Zoe Zenghelis, New Welfare Island Project, Roosevelt Island, New York, NY, Aerial perspective, c. 1975-76
Usable island footprint, taking into account future flooding
Possible Sites

Taking into consideration FEMA’s study of future floodplains in conjunction with rising sea levels, Roosevelt Island is left with a much smaller buildable footprint. Therefore, site selection for the Mat-Collective Community Mental Health Center will be based on areas not at risk.

Extending Manhattan’s Grid

Delirious New York, Rem Koolhaas, 1978:
Mat view:
“The Grid’s two-dimensional discipline also creates undreamt-of freedom for three-dimensional anarchy. The Grid defines a new **balance between control and de-control** in which the city can be at the same time ordered and fluid, a metropolis of rigid chaos.”

---

Possible Sites - Open Spaces
Site Location

The Mat-Collective CMHC will be located within the “safe zone” on Southpoint Park, directly southwest of Cornell’s proposed tech campus. This site provides the opportunity for direct interaction and engagement within an active urban fabric. In association with Cornell, the building will provide educational support as a testing ground for research.
Roosevelt Bridge
Coler Goldwater Hospital
The Octagon
Safe Zone
Infrastructure: Transit

Proposed Ferry Terminal

A ferry terminal will provide infrastructural support for the Mat-Collective CMHC, while also integrating the larger NYC community, fostering public engagement and interaction directly on the site.

Proposed Ferry Network map diagram,
http://gothamist.com/2015/02/04/expanded_ferry_map_nyc.php
VI. Design
REMATCH

ARCHITECTURE + MEDICINE

DIMENSIONAL ----> ENVIRONMENTAL

ENVIRONMENTAL ----> PHARMACOLOGICAL
IMPLICATIONS OF MISMATCH

Rather than the hospital environment itself serving as a means of treatment, today’s hospitals are machines to produce treatment. Treatment is now a commodity, or product one buys.

Mental health treatment, more specifically, has been able to dissociate itself completely from architecture, being reduced to the size of a pill.
SHORTCOMINGS OF PHARMACOLOGY

Just as building systems regulate the negative “symptoms” associated with the environment (radiation, humidity, pollution, etc.), so too do pharmaceuticals regulate psychopathological symptoms. This regulation is a method of treatment and, unlike antibiotics, is not a cure. Furthermore, this system is inherently unsustainable.

The treatment of psychopathology through pharmacology reflects architecture’s machine-engaging process of normatization through standardization. In many respects it has fallen victim to today’s consumer culture and methods of mass-production.
HOW DO WE RECONCILE THIS DISCREPANCY BETWEEN ARCHITECTURE AND MEDICINE?
SPATIAL MEDICINE
(a placebo effect)

Is architecture supposed to cure us of our health problems or change the very behavior causing them? Can it do both (prevention and cure)?

How can architecture address the shortcomings of pharmacological treatment?

How can our environments naturally regulate our emotional and stress levels, limiting one’s potential to experience psychosis, without the need for artificial adjustment by means of pharmaceuticals or drugs?
CRITERIA for SPATIAL MEDICINE

Care vs. Cure

Shift from a hierarchial representation of power (means of control) to a temporal and sensate experience that emphasizes patient autonomy and holistic care, not just stabilizing/artificially correcting the symptoms.
THERASERIALIZATION

‘Therapeutic’ + ‘Serialize’

the continuum of indoor to outdoor space consciously designed in support of biophilic environmental design principles

It entails the interpretation of space as being serialized, as layered, collaged, superimposed, transparent, and fluid.

It is about the creation of serialized space from the public, to semi-public, to semi-private, to private.

The net effect is that the indoor and outdoor realms become transactive. Dematerialization yields the architectural equivalent to a building’s lungs expanding and contracting.

Source: Innovations in Hospital Architecture, Stephen Verderber, 2010
MASLOW’S HIERARCHY OF NEEDS

- **Self-Actualization**: achieving one’s full potential, including creative activities
- **Esteem**: prestige and feeling of accomplishment
- **Social**: intimate relationships, family, friends
- **Safety**: security of body, employment, resources, morality, family, health, property
- **Physiological**: breathing, food, water, sex, sleep, homeostasis, excretion

**Architectural Translation**
Human Brain
Previously Held Belief:
**Hardwired** - Fixed, Static

Today:
**Neuroplasticity** - The brain is dynamic and adaptive, continuing to change in response to one’s behavior, environment, and thinking
Building

**Hardwired** Construction - Fixed, Static

**Architectural plasticity** - the building is flexible, able to evolve and adapt in order to accommodate its users’ shifting needs/program at any given time.
Scale: 1'-0" = 3/64"
Bill (age 25): High-Risk Inpatient - Diagnosed with Schizophrenia

The high-risk patient has access within a specific zone of the building with a higher level of security. In accordance with his treatment, Bill is slowly granted access to other areas of the center. He is an active participant in his group therapy sessions and has found an interest in the community garden project with his fellow neighbors.

Sara (age 27): Low-Risk Inpatient - Diagnosed with Bipolar I Disorder

A patient determined low-risk, after evaluation, is permitted access to all spaces designated for patient use under supervision, including those outdoors. Sara begins her day on the large patient-level balconies framing Manhattan's 52nd and 53rd streets, where she likes to do yoga in the morning. After breakfast, she has a group therapy session and helps lead a music therapy session in the afternoon, as she has grown up playing the guitar. She also participates in a research study with Dr. Williams in the second level laboratory.

Dr. Samuel H. Williams (age 56): Psychiatrist, Professor/Researcher

Commutes to work via car, parking in the underground lot. He takes the elevator from underground up to the ground level cafeteria, where he grabs his morning coffee and bagel before making his way up to his second floor office. He sees 5-10 patients daily, providing therapy, while also overseeing a research lab, geared towards the study of mental health and environmental psychology.

Katy (age 23): First-year Graduate Student at Cornell Tech, Research Assistant in CMHC Laboratory

Katy commutes to Roosevelt Island via the new ferry, arriving at the Terminal and picking up a few items at the convenience store before heading to class at Cornell NYC Tech. After her morning classes on campus, Katy walks over to the library associated with the CMHC, checking out a book before heading up to a research lab on the second floor, where she will meet with Dr. Williams about her new assignment.

Rachel (age 17): High school student, tourist from Ohio

It's Rachel's first time visiting NYC and she's just taken the ferry from Manhattan to Roosevelt Island, headed to Four Freedoms Park.

Mary (age 62): Grandmother, mother, runs clothing store in downtown Manhattan

Mary is visiting her son, Tyler, who has been an inpatient at the CMHC for a little over a week. She brings along her grandson, Jack, who she is able to keep at the DayCare within the Center. Mary plans to spend some quality time with Tyler planting in the community garden.
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DAILY ROUTINE - SPATIAL SCOPE / ACTIVITY - PATIENT TYPE 1
Sara (age 27): Low-Risk Inpatient - Diagnosed with Bipolar I Disorder

[A patient determined low-risk, after evaluation, is permitted access to all spaces designated for patient use under supervision, including those outdoors. Sara begins her day on the large patient-level balconies framing Manhattan's 52nd and 53rd streets, where she likes to do yoga in the morning. After breakfast, she has a group therapy session and helps lead a music therapy session in the afternoon, as she has grown up playing the guitar. She also participates in a research study with Dr. Williams in the second level laboratory.]
MERGING SPATIAL SCOPES THROUGH OUTDOOR SPACE
Option 1 - Closed Condition
Scale: 1'-0" = 1/8"

SCALE 1: Bed Unit Module

Patient Sunroom
Option 3 - Flexible: “Hinged Space” - Open & Closed Conditions
Scale: 1'- 0" = 1/8"
Option 1 - Closed Condition
SCALE 1:  Bed Unit Module
Scale: 1'- 0" = 1/8"

Option 2 - Closed Condition
 SCALE: 1'- 0" = 1/8"

Option 3 - Flexible: "Hinged Space" - Open & Closed Conditions
SCALE 2:  Courtyard Module
CLOSED CONDITION
OPEN CONDITION
Dr. Samuel H. Williams (age 56):
Psychiatrist, Professor/Researcher

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DAILY ROUTINE - SPATIAL SCOPE / ACTIVITY - STUDENT
### Time (hours)

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<th>24</th>
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</thead>
</table>

### Emotional State/Brain Activity/Awareness Level

- **Sleep**
- **Wake Up**
- **Activity (Daily Routine)**
  - Head up to third floor patient level to visit son, Tyler.
  - Get ready.
  - Breakfast.
  - Get visitor's badge from main desk.
  - Work in the community garden.
  - Pick up Jack.
  - Dinner.
  - Errands.
  - Unwind.
  - Head back to Manhattan.

### Movement

- **Distance (mi)**
  - Level of Activity: Visitor

### User Types

#### Bill (age 25): High-Risk Inpatient - Diagnosed with Schizophrenia

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*Notes*

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Rachel (age 17): High school student, tourist from Ohio.

[It’s Rachel’s first time visiting NYC and she’s just taken the ferry from Manhattan to Roosevelt Island, headed to Four Freedoms Park.]
DAILY ROUTINE - SPATIAL SCOPE / ACTIVITY - COMBINED

Time (hours)

Emotional State/Brain Activity/Awareness Level

Distance (mi)

Level of Activity

Movement
[4:00 PM] - VIEW FROM INPATIENT LEVEL LOOKING ON INTERIOR COURTYARD

[11:30 AM] - VIEW FROM INPATIENT LEVEL BALCONY LOOKING ON INTERIOR COURTYARD
[12:00 PM] - VIEW FROM INPATIENT ROOM (OPEN-HINGED SPACE)
[11:00 AM] - VIEW FROM INPATIENT UNIT COURTYARD MODULE

[2:00 PM] - VIEW FROM INPATIENT ROOM (CLOSED-HINGED SPACE)
VII. Bibliography
REFERENCES


BIBLIOGRAPHY


Smithson, Alison. “How to Recognise and Read Mat-Building,” Architectural Design (AD), September 1974.


