



Schizophrenic Architecture

An Ecological Hypothesis
for A New Mental Ecosystem

SCHIZOPHRENIA

WHAT IS IT?



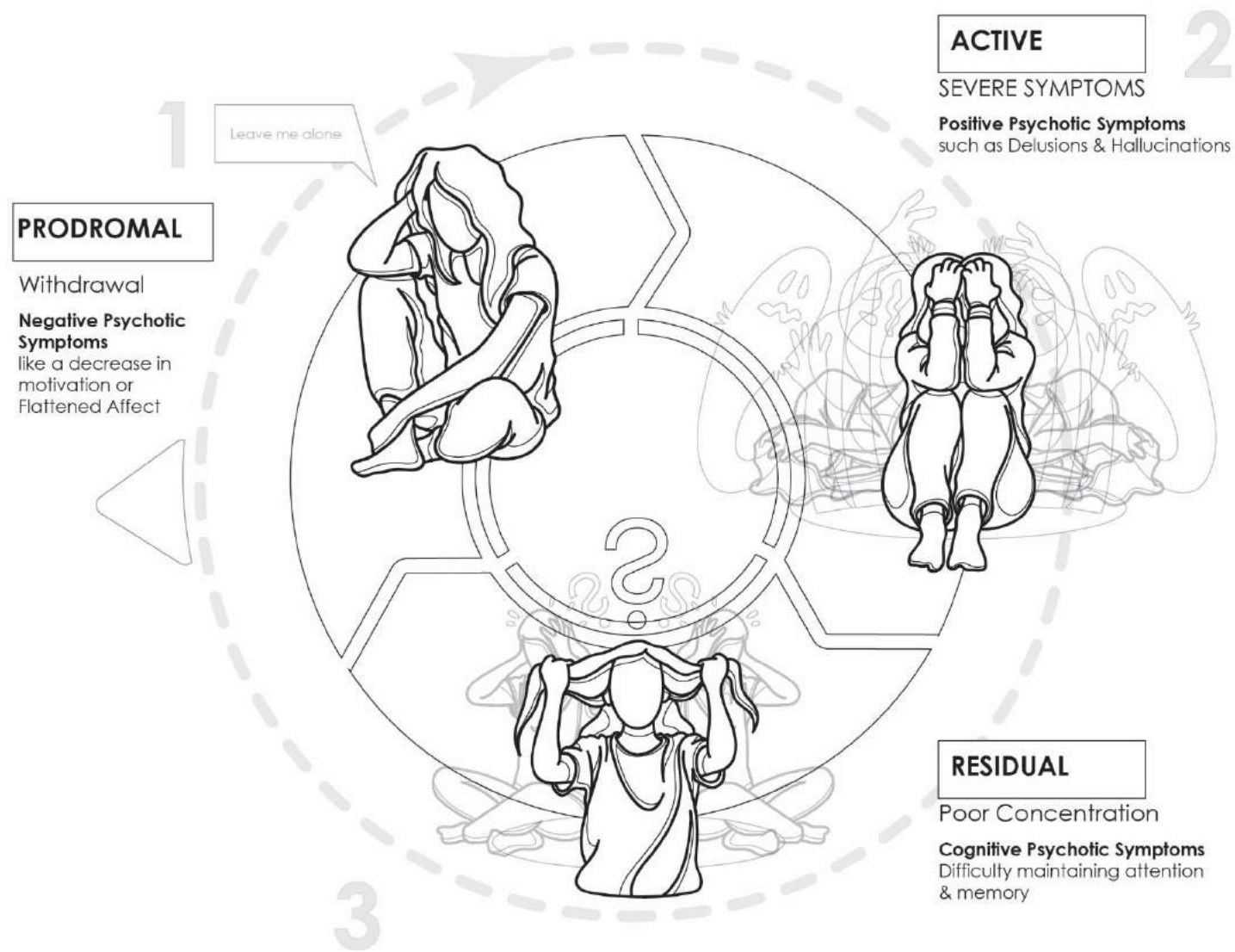
WHAT IS IT?

A chronic brain disorder affecting millions of people worldwide. It describes a scattered or fragmented pattern of thinking. It is actually a **SYNDROME**, so there are a lot of symptoms associated with it, and as a result, different patients may experience different symptoms.

SCHIZOPHRENIA

SYMPTOMS, STRUCTURE, & REHABILITATION

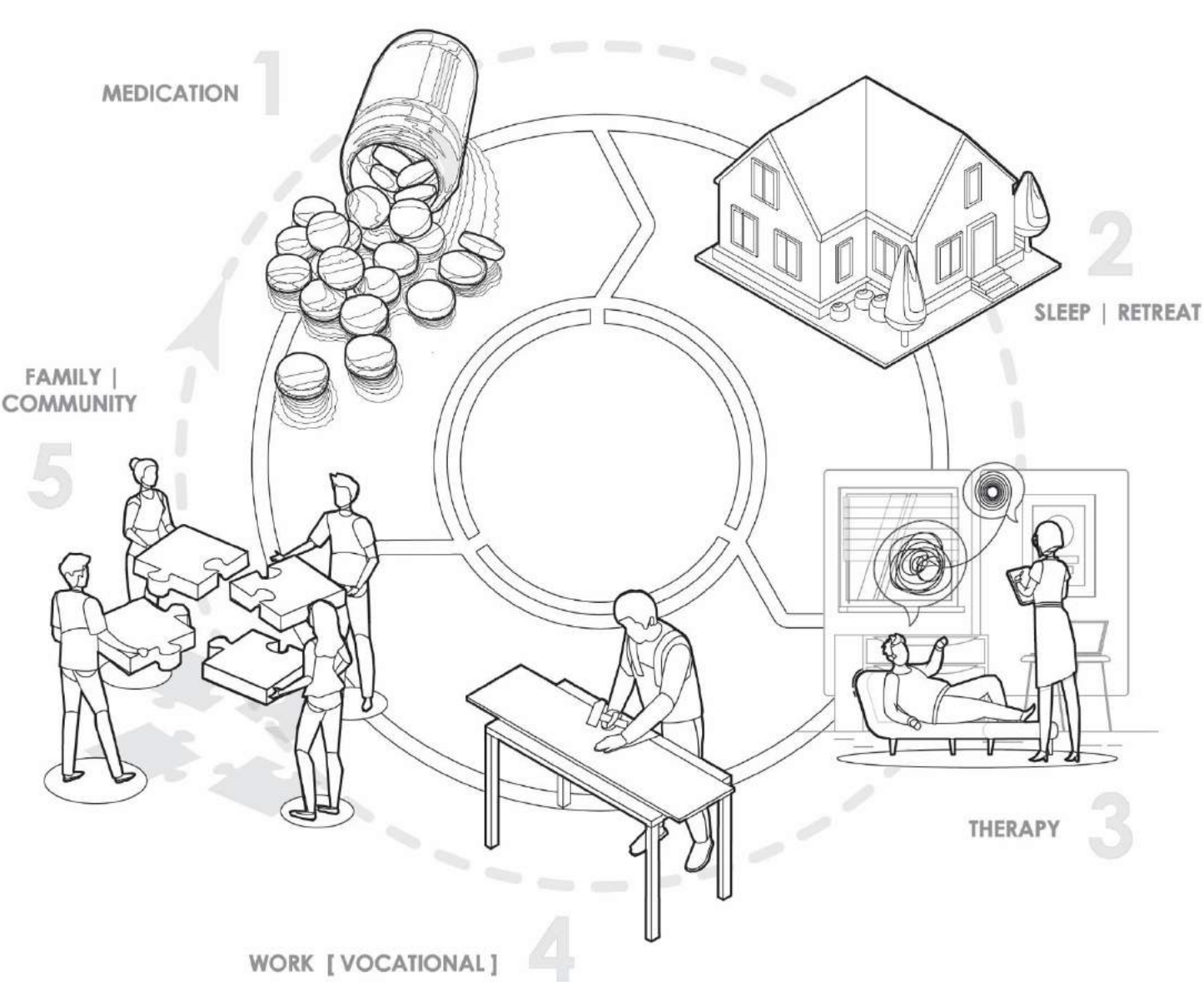
SYNDROME



THE PHASES

The cyclic symptoms of schizophrenia and their phases demonstrated. They mostly follow this order, but sometimes may also vary.

PSYCHOSOCIAL REHABILITATION



STRUCTURE | CULTURE

A holistic approach designed to help people with chronic mental health disease. The goal of psychosocial rehabilitation is to teach emotional, cognitive, and social skills to help those diagnosed with schizophrenia to reintegrate into their communities.

THE DOPAMINE HYPOTHESIS

THE COMMON PATHWAY TO DYSFUNCTION

Dopamine is a neurotransmitter made in the brain, it acts as a chemical messenger between neurons to control our movement, feelings and emotions which may affect our motivation to repeat or enact certain behaviors just to name a few. In patients with schizophrenia, many studies have shown that dopamine in overactive or underactive quantities can trigger its development or onset.

NEGATIVE SYMPTOMS

Mesocortical Pathway

Over-activity of the Mesocortical pathway **induces Negative & Cognitive Symptoms** when there is **decreased D1 receptor stimulation**

Aim of Treatment:

INCREASE

Dopamine Neurotransmission

POSITIVE SYMPTOMS

Mesolimbic Pathway

Over-activity in the Mesolimbic Pathway **induces Positive Symptoms** of Schizophrenia when there is **increased D2 receptor stimulation**

Aim of Treatment:

SLOW DOWN

Dopamine Neurotransmission

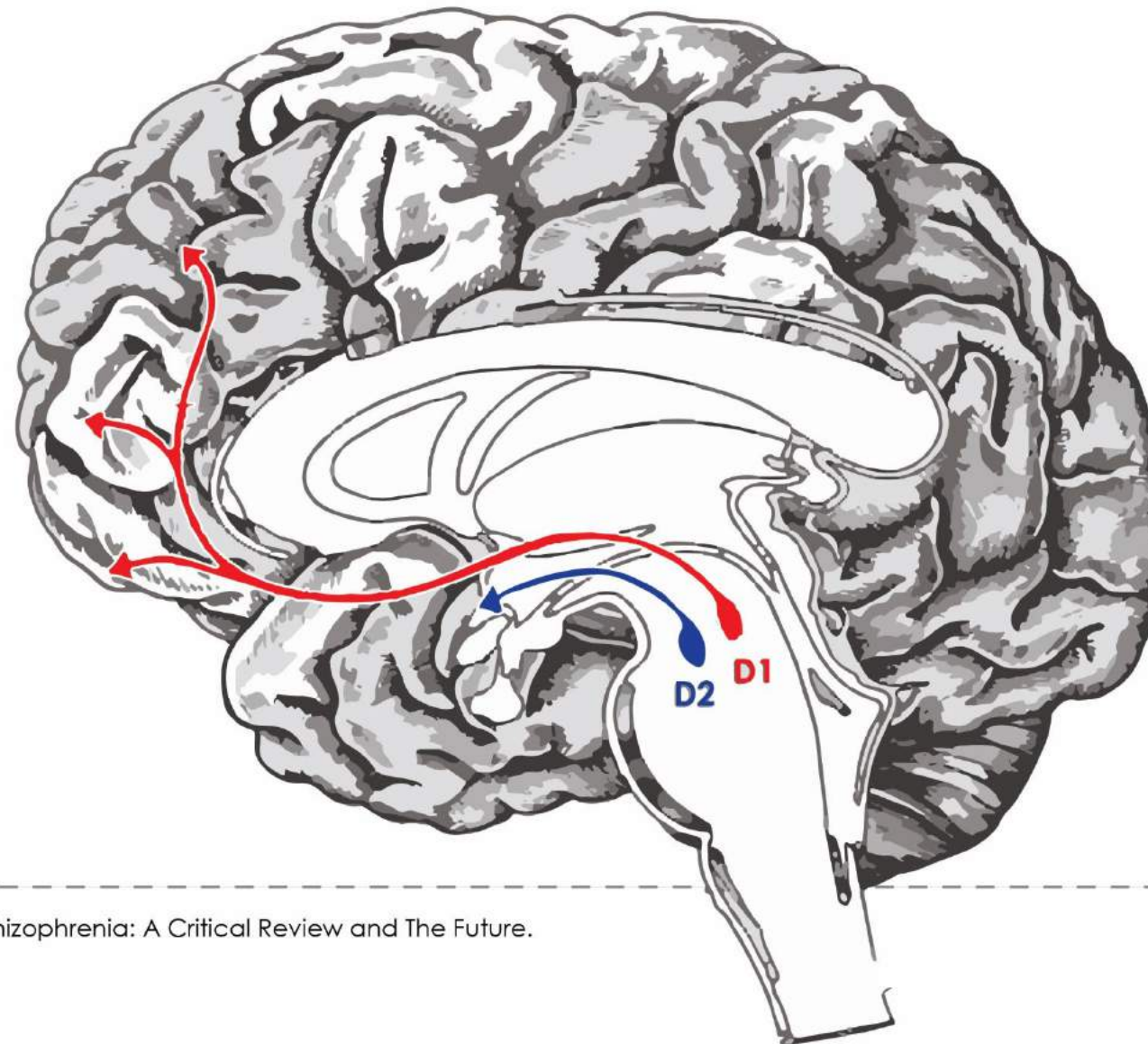


Photo Credit: Image Adapted from (2016). Neuroinflammation in Schizophrenia: A Critical Review and The Future.
Illustration redrawn by Krystol Austin, Assoc. AIA

Ideal treatment regimen should increase stimulation in the Mesocortical Pathway while decreasing the activation of Mesolimbic Pathway

SITUATION

THE PATHOLOGY OF SCHIZOPHRENIA



URBANISM X SCHIZOPHRENIA

It's common sense that a "manufactured" environment would affect our psychological wellbeing, and while the pathology of schizophrenia is formally unknown, it's been well documented since the 1900's that urbanism is the locus of the schizophrenic epidemic. To many, this provides evidence that cities are universally bad for our mental health (Bell 2016).

The effect of architecture and urbanicity on our phenomenological experiences are often casually overlooked as causal factors as opposed to the actual genesis of it. With rapid urbanization comes a decrease in socialization and human contact with nature.

This brings about questions on the role architecture plays in our mental health, while the link between these two are becoming clearer. Literature on Schizophrenia and the unsavory effects of poor city living are typically found separately.

BRIDGING THE GAP

THESIS PROPOSITION



Sketch Illustration by redrawn by Krystol Austin, Assoc. AIA

SCHIZOPHRENIC ARCHITECTURE

As a profession, we should be deeply concerned about what is happening to the human psyche when such a deep defining part our evolutionary experience is being rapidly diminished. (Gullone, 2000). This challenge calls for us to not only document, but re-engineer the way we think about living.

For my thesis proposal Schizophrenic Architecture, I pro-port to stand in the gap between the two [architects and psychologists]. Rurality has more to offer than its trans-locality to urbanism; biophilic design should be made a necessary component of architecture. For me;

“It’s no longer about nature’s place in human society, but humanity’s place in nature and the intrinsic benefits that can have in preserving and maintaining our mental health.”

OBJECTIVE

THESIS PROPOSITION



Photo Credit: Rapid Design Illustration by Krystol Austin, Assoc. AIA

SCHIZOPHRENIC ARCHITECTURE

As such, this thesis aims to develop a biophilic design series of prototypes for the treatment, management, or prevention of Schizophrenia through the architectonics of Forest Therapy.

“An Ecological Hypothesis for a New Mental Ecosystem”



DISCLAIMER

Once Triggered Schizophrenia requires consistent treatment and lifelong medication, however, this thesis is proposing to reduce the amount of medication required for an existing prognosis.

Simultaneously, it aims to prevent the development of the disease in psychologically healthy individuals living in urban conditions.

A SALUTOGENIC APPROACH

BIOPHILIA AS A HEALING ENVIRONMENT (TERRIN BRIGHT GREEN LLC, 2014)



Image depicting a participant of Forest Therapy otherwise known as Forest Bathing in Japan

Due to the fact that the natural environment has shaped our cognitive and emotional apparatus, it may be possible to naturally relegate dopamine levels in persons with Schizophrenia without the use of medication.

Nature when made in reference to this thesis will always focus on the environmental considerations of a Forest.

The **14 Patterns of Biophilic Design** (Terrapin Bright Green, 2014) is an existing outline for improving mental health and well being. By intersecting this knowledge with identified research on schizophrenia, a design toolkit for this disease was established.

NATURE IN THE SPACE



1. Visual Connection with Nature

A view to elements of nature, living systems and natural processes.

2. Non-Visual Connection with Nature

Auditory, haptic, olfactory, or gustatory stimuli that engender a deliberate and positive reference to nature, living systems or natural processes.

3. Non-Rhythmic Sensory Stimuli

Stochastic and ephemeral connections with nature that may be analyzed statistically but may not be predicted precisely.

4. Thermal & Airflow Variability

Subtle changes in air temperature, relative humidity, airflow across the skin, and surface temperatures that mimic natural environments.

5. Presence of Water

A condition that enhances the experience of a place through the seeing, hearing or touching of water.

6. Dynamic & Diffuse Light

Leveraging varying intensities of light and shadow that change over time to create conditions that occur in nature.

7. Connection with Natural Systems

Awareness of natural processes, especially seasonal and temporal changes characteristic of a healthy ecosystem.

NATURAL ANALOGUES



8. Biomorphic Forms & Patterns

Symbolic references to contoured, patterned, textured or numerical arrangements that persist in nature.

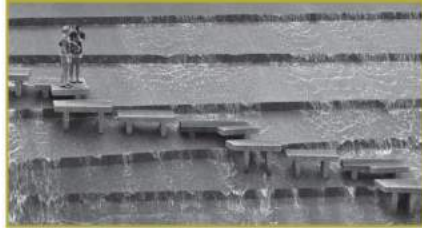
9. Material Connection with Nature

Material and elements from nature that, through minimal processing, reflect the local ecology or geology to create a distinct sense of place.

10. Complexity & Order

Rich sensory information that adheres to a spatial hierarchy similar to those encountered in nature.

NATURE OF THE SPACE



11. Prospect

An unimpeded view over a distance for surveillance and planning.

12. Refuge

A place for withdrawal, from environmental conditions or the main flow of activity, in which the individual is protected from behind and overhead.

13. Mystery

The promise of more information achieved through partially obscured views or other sensory devices that entice the individual to travel deeper into the environment.

14. Risk/Peril

An identifiable threat coupled with a reliable safeguard.

KEY

Major Focus Areas for this Thesis adapts work from the 14 Patterns of Biophilic Design (TBG, 2014).

CRITERIA OF EVALUATION

BIOPHILIA, SCHIZOPHRENIA & FOREST THERAPY

Central Question: *What are the Architectonics of Forest Therapy?*



VISUAL CONNECTION TO NATURE



INDIRECT

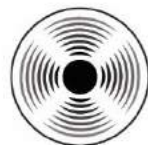
DIRECT

SHADE

DIFFUSED

LIGHT

The view of nature through natural light is critical to our psyche. Not only is it essential to perceive and then to evaluate our surroundings, but it lowers blood pressure, increases cognitive performance and regulates sleep. (Terrapin Bright Green, 2014)



NON - VISUAL CONNECTIONS



ANIMALS

WATER

ANIMALS

SOUND

Auditory, hap-tic, or olfactory stimuli engender a deliberate and positive reference to nature, its living systems and natural processes. Nature's sounds can reduce blood pressure and stress hormones, which improves our feelings and positively impacts our cognitive functions (Terrapin Bright Green, 2014)

REDISCOVERING THE INTUITIVELY OBVIOUS

BIOPHILIA

SCHIZOPHRENIA

POSITIVE PSYCHOTIC SYMPTOMS

NEGATIVE PSYCHOTIC SYMPTOMS

COGNITIVE PSYCHOTIC SYMPTOMS

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POSITIVE PSYCHOTIC SYMPTOMS

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COGNITIVE PSYCHOTIC SYMPTOMS

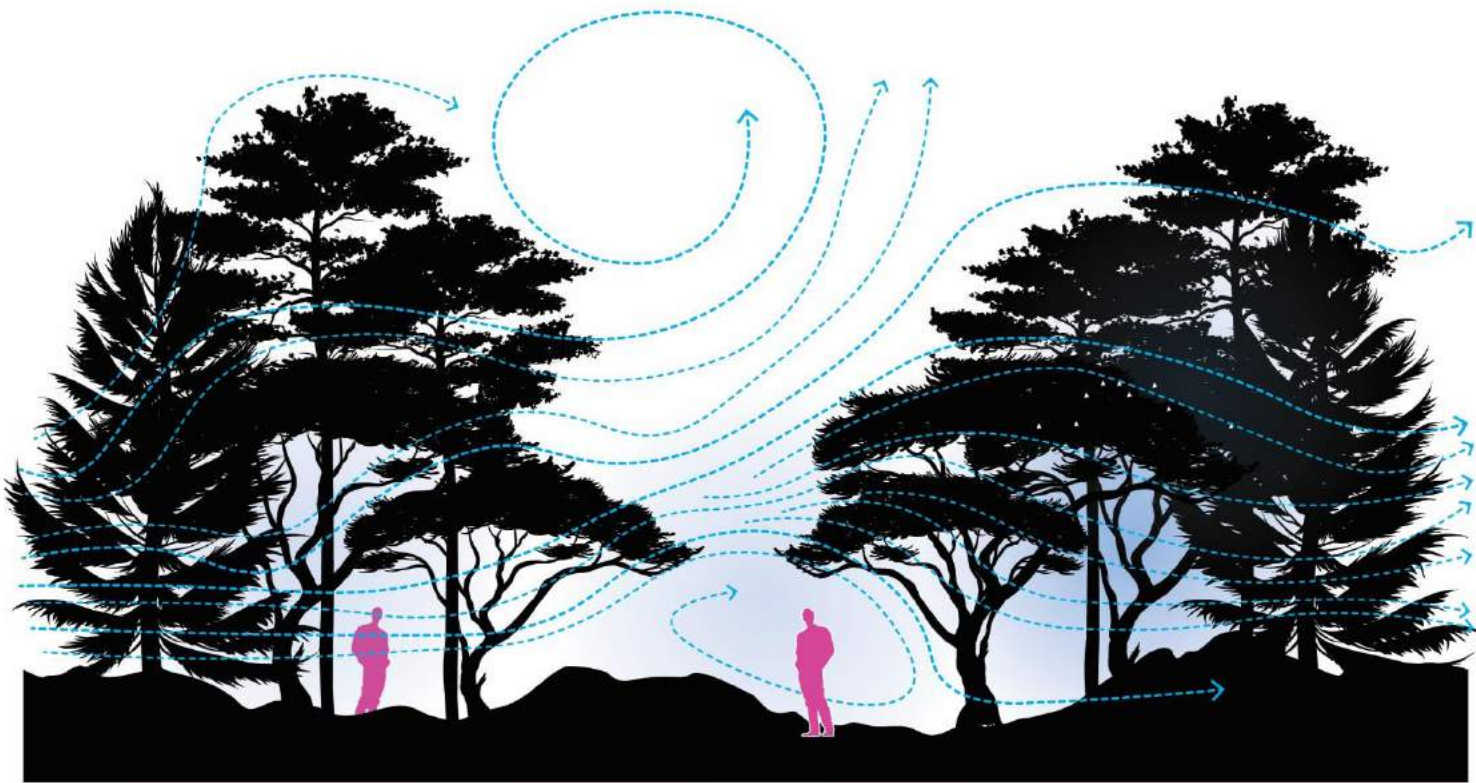
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THERMAL CONTROL & AIRFLOW



UPWASH

TURBULENT

DOWNWASH

WIND

Subtle changes in air temperature, relative humidity, airflow across the skin, creates ideal areas for place-making through improved perceptions of temporal and spatial pleasure (Terrapin Bright Green, 2014)



FRACTALS | BIOMORPHIC FORMS



GOLDEN RATIO

An infinite complex series of patterns, symbolic references to contoured, patterned, textured or numerical arrangements that persist in nature are called fractals. The ability to perceive something as infinite as a forest, lowers avolition and improves depressive moods.

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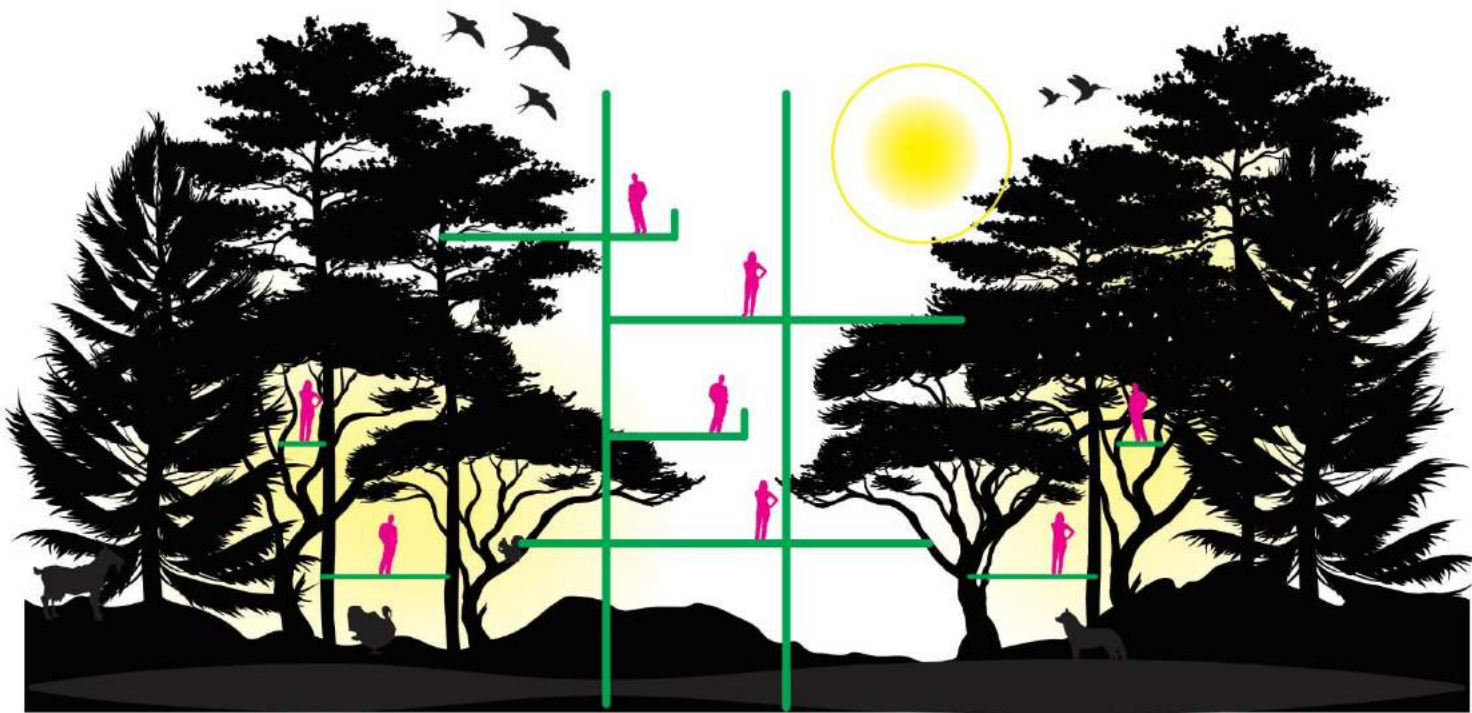
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RAISE OR ELEVATE



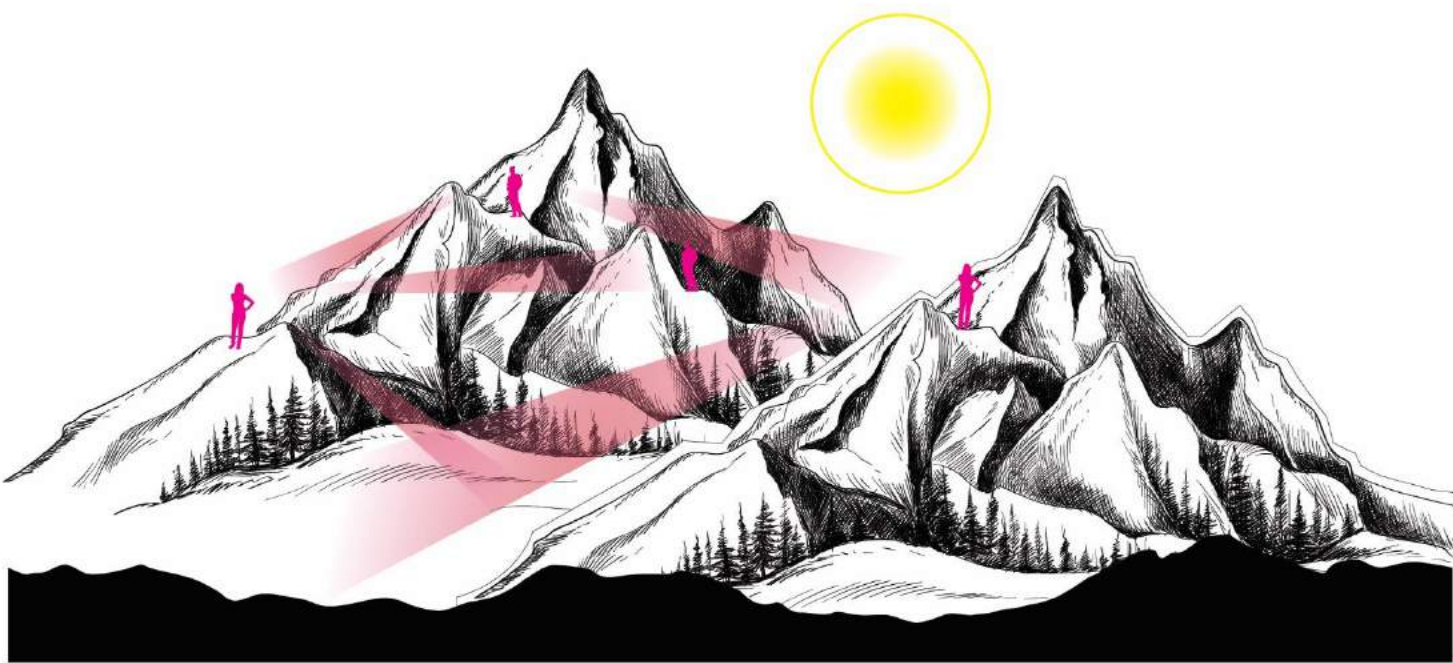
HEIGHT

HEIGHT

Freshest most purified air is found at the top or highest points of nature. Viewing nature at high altitudes I rejuvenates the body and lowers consistent negative feelings and emotions.



PROSPECT OR VIEWS



VEIWS | PANORAMAS

PEAKS

TRANQUILITY

When a patient is in a vulnerable state and uncomfortable in his/her surroundings, a savanna landscape overhead, open, elevated or distant views can offer a sense of calm, safety and control. It also reduces boredom, irritation and fatigue. This is known formerly known as the Biophilic Prospect Pattern. (Yu, 2016)

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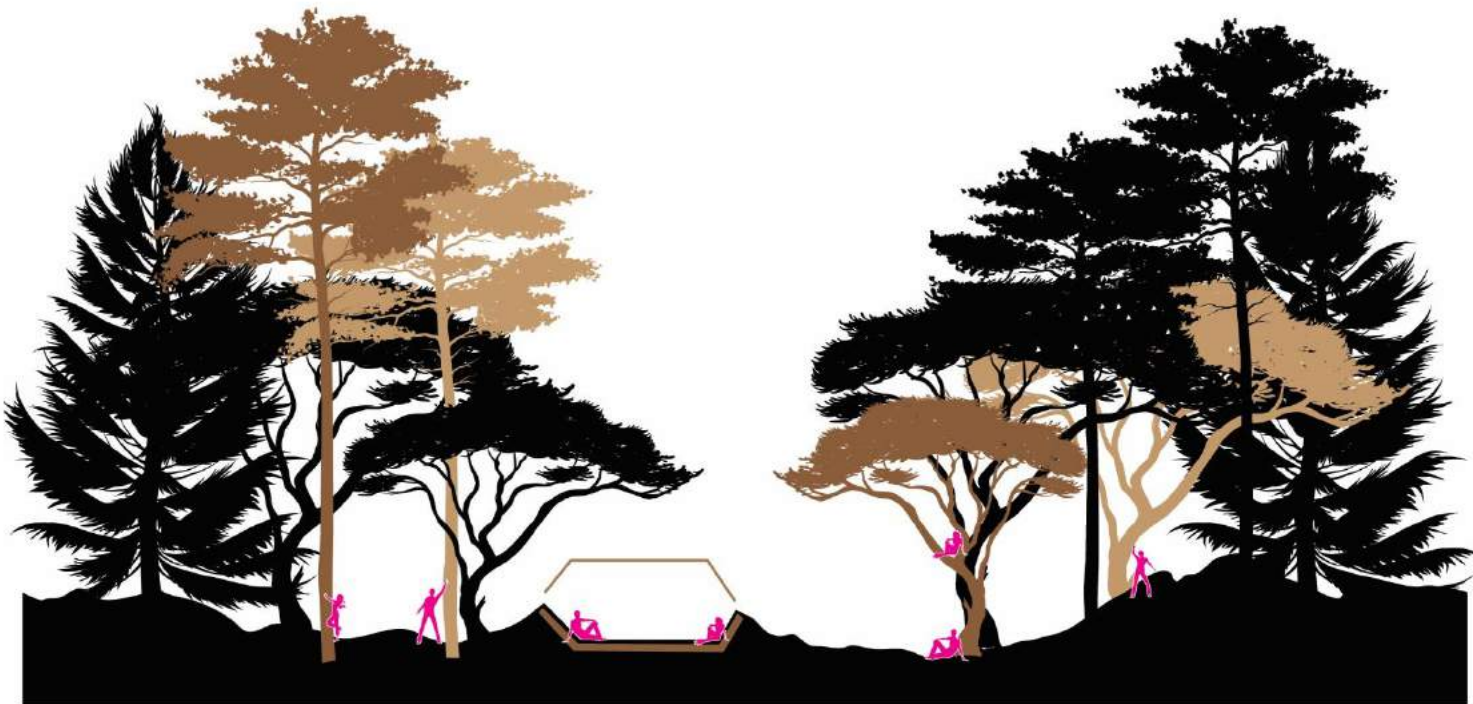
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BIOPHILIA, SCHIZOPHRENIA & FOREST THERAPY

Central Question: *What are the Architectonics of Forest Therapy?*



MATERIAL CONNECTION



TREES | LEAFS

GROUNDING

TREES | LEAFS



WATER THERAPY



WATER

REDISCOVERING THE INTUITIVELY OBVIOUS

WIND

Material connects with nature, barefoot, hand or otherwise feels grounding and gives a general sense of shelter and safety. This is of particular importance to the Paranoid Version of Schizophrenia. This largely reduces negative psychotic effects while improving cognition.

TRANQUILITY

The presence of water brings humans to a calm and meditative state. The touch, feel, smell and taste of water or humidity in copious amounts can leave one feeling inspired, while heightening the powers of your other senses.

BIOPHILIA

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EVALUATION GAP

PANOCEPTION X SCHIZOPHRENIA

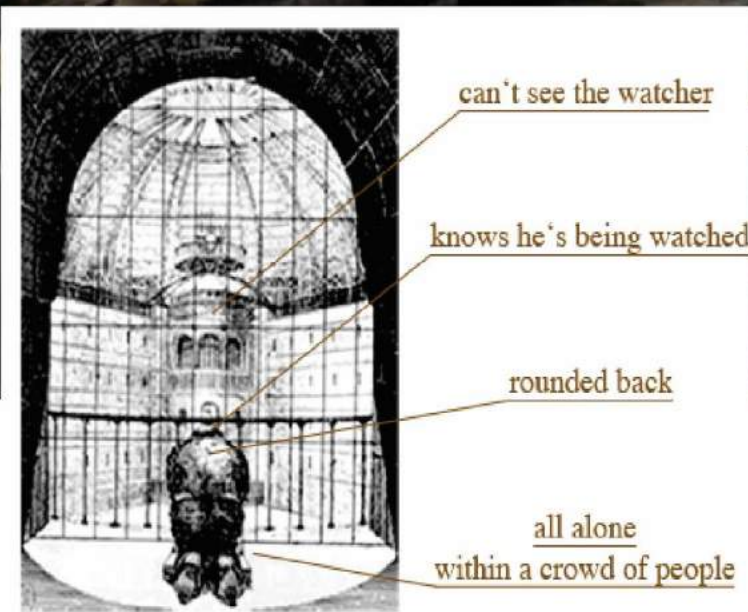
As the Criteria of Evaluation developed, it was noted that there was a treatment gap in the design apparatus. The salutogenic approach using the Biophilic Hypothesis accounted for the negative and cognitive psychotic effects, however none of them accounted for the positive psychotic effects.

Due to the fact that person's with schizophrenia struggle with medication and regimen compliance as a result of delusions about not having the disease; this portion of the hypothesis was developed by introducing the idea of Panoception.

At the core of Panoception is the idea of central inspection. Essentially, there are some activities that are best executed when humans think they are being overseen. This technique may be used to reduce the likelihood of a patient not adhering treatment requirements.

Originally introduced by Bentham, it was eventually incorporated into the design of a panoceptic prison where the person being watched, cant see the watcher, and as a result maintains compliance with the specified program. Due to the circular nature of the concept, this idea was coupled with treatment programs for community and socialization.

Research Question: *How can treatment for Positive Psychotic Effects be incorporated into the design apparatus?*

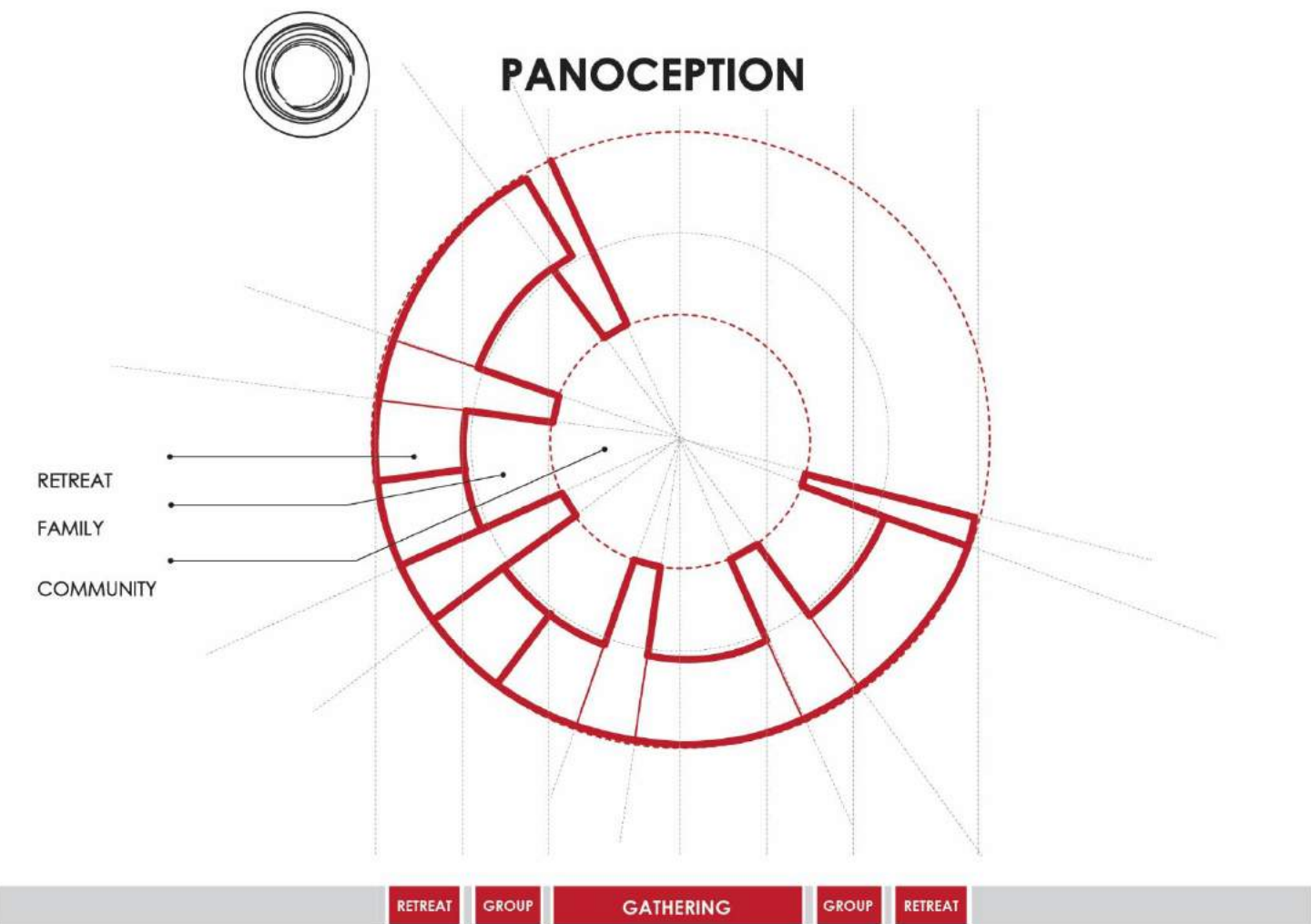


PhotoCredit: The abandoned Presidio Modelo complex in 1995 Photograph: The Guardian

PhotoCredit: The abandoned Presidio Modelo complex in 1995 sketch source: The Guardian

CRITERIA OF EVALUATION

PANOCEPTIC HYPOTHESIS



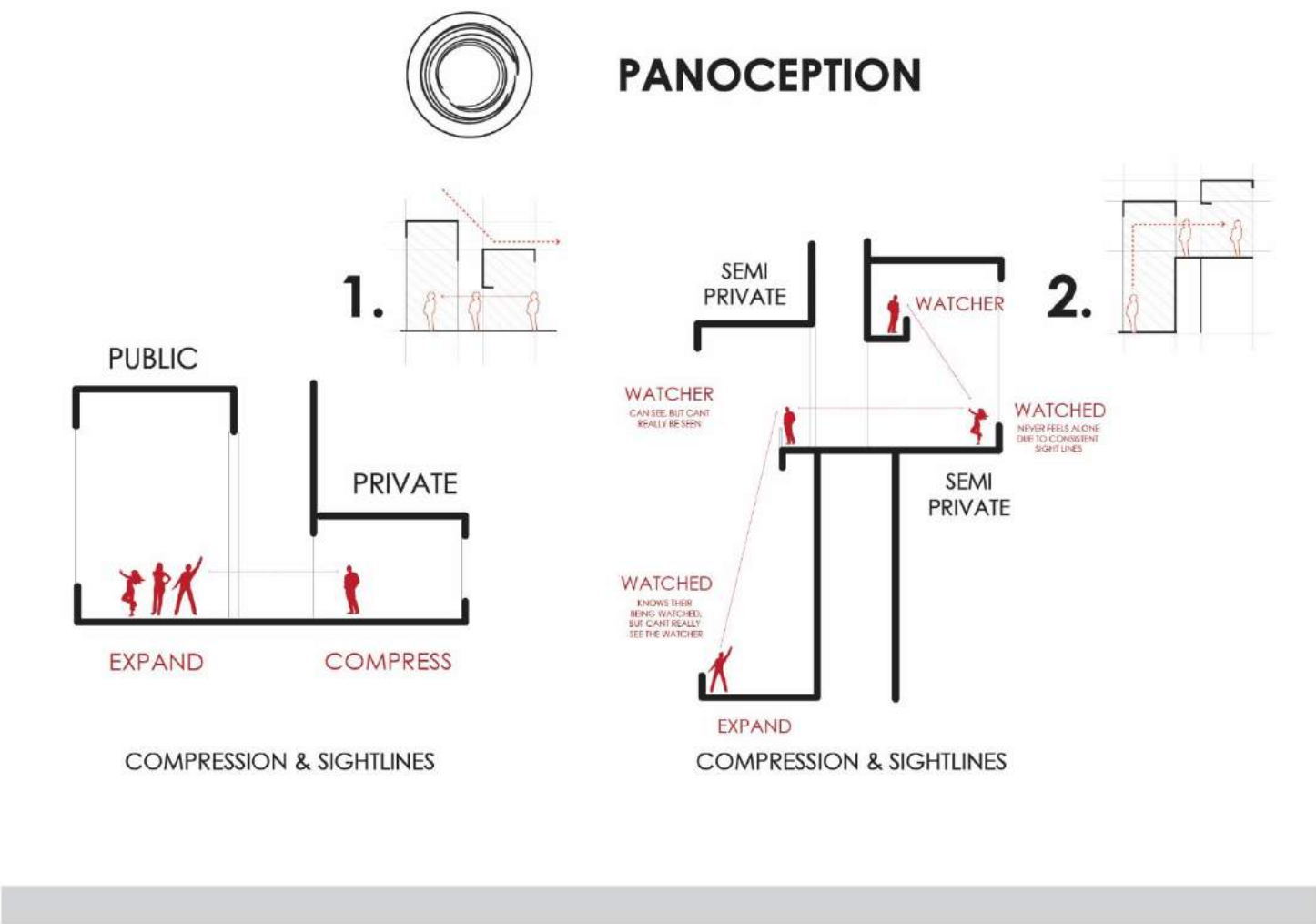
PLAN

Designing in circularity allows for a multiplex & layered approach which denote areas of privacy, social interaction and community. This may be intersected with psychosocial techniques of rehabilitation and culture to maintain the undertone of perceived surveillance. Maintaining sight-lines are especially critical for medication compliance which will combat positive psychotic symptoms.

SCHIZOPHRENIA

POSITIVE PSYCHOTIC SYMPTOMS	NEGATIVE PSYCHOTIC SYMPTOMS	COGNITIVE PSYCHOTIC SYMPTOMS
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Research Question: *How can treatment be incorporated into the design apparatus?*



SECTION

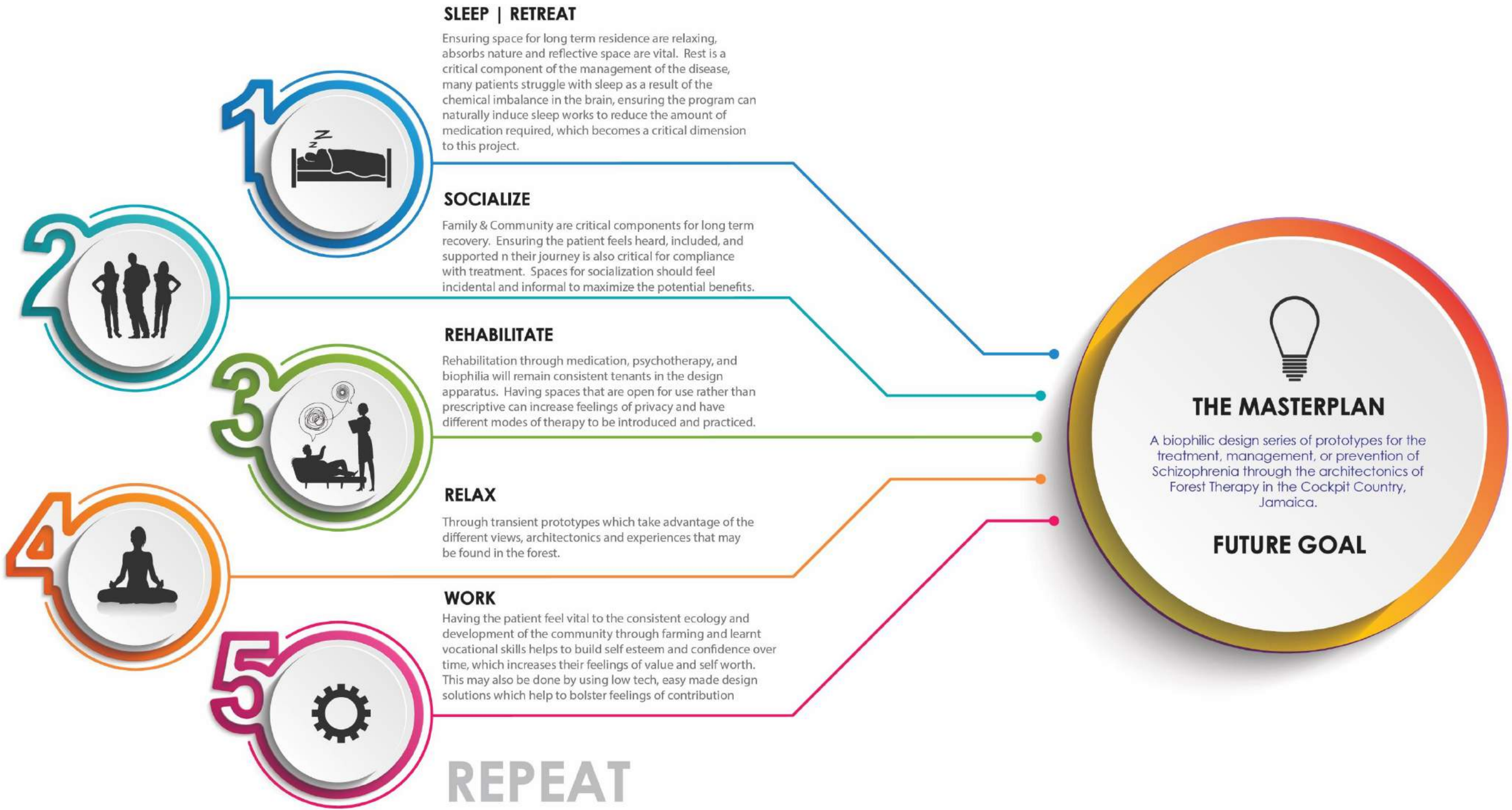
Designing in circularity and playing with the levels in section are critical for medication compliance which will combat positive psychotic symptoms, as the patient never really knows when they are being watched, even in times when they may perceive themselves to be the "watcher".

SCHIZOPHRENIA

POSITIVE PSYCHOTIC SYMPTOMS	NEGATIVE PSYCHOTIC SYMPTOMS	COGNITIVE PSYCHOTIC SYMPTOMS
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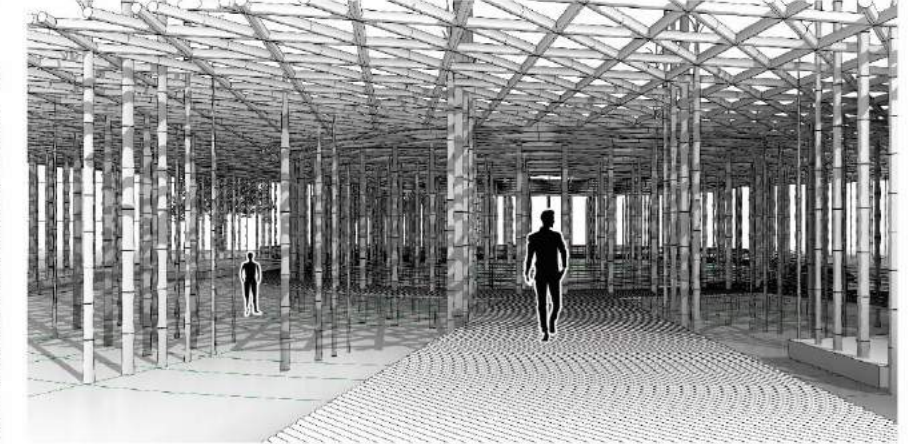
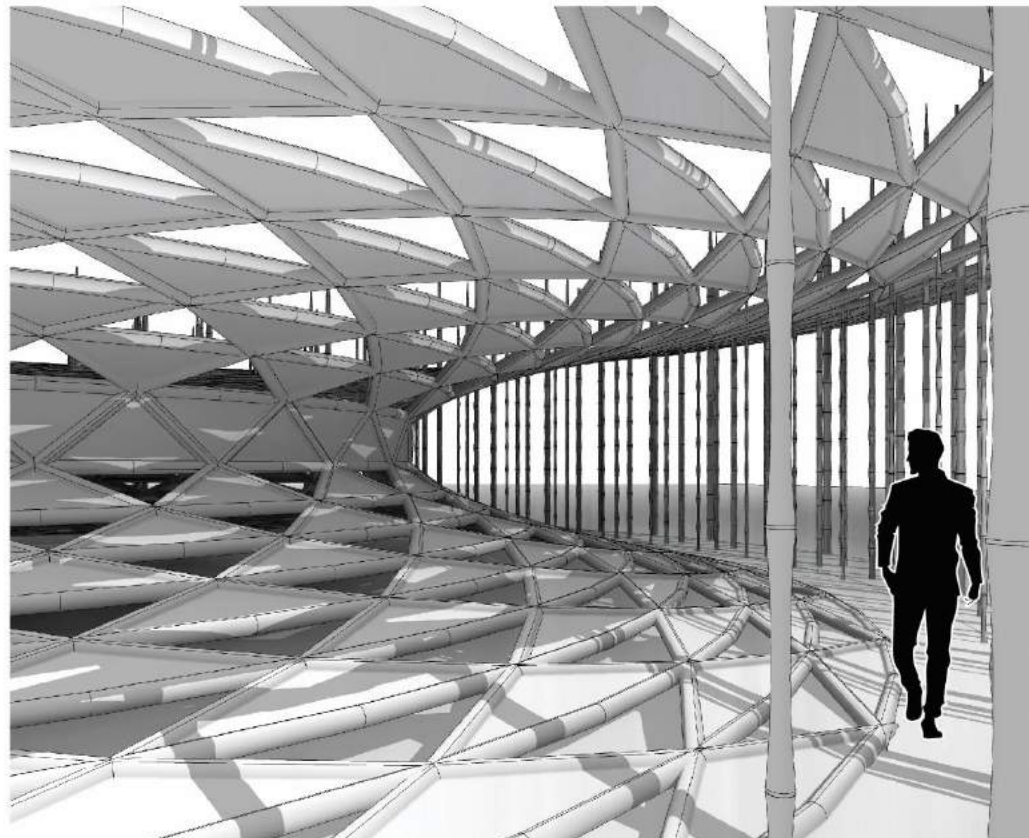
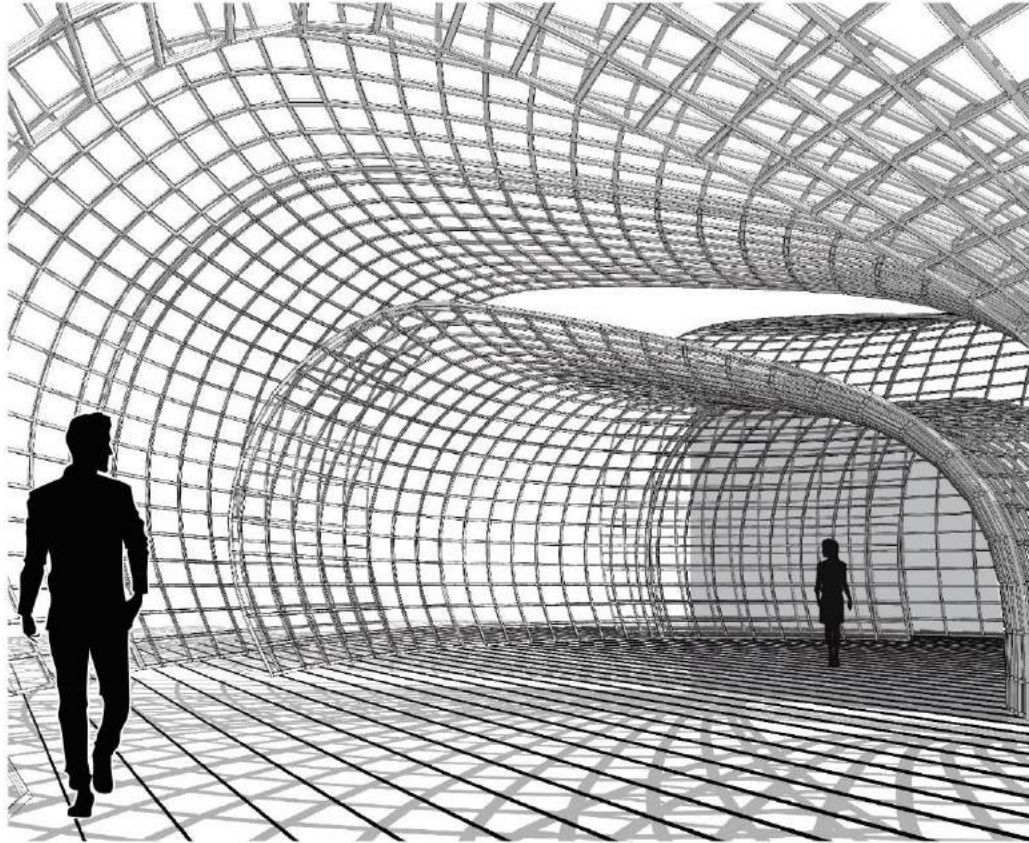
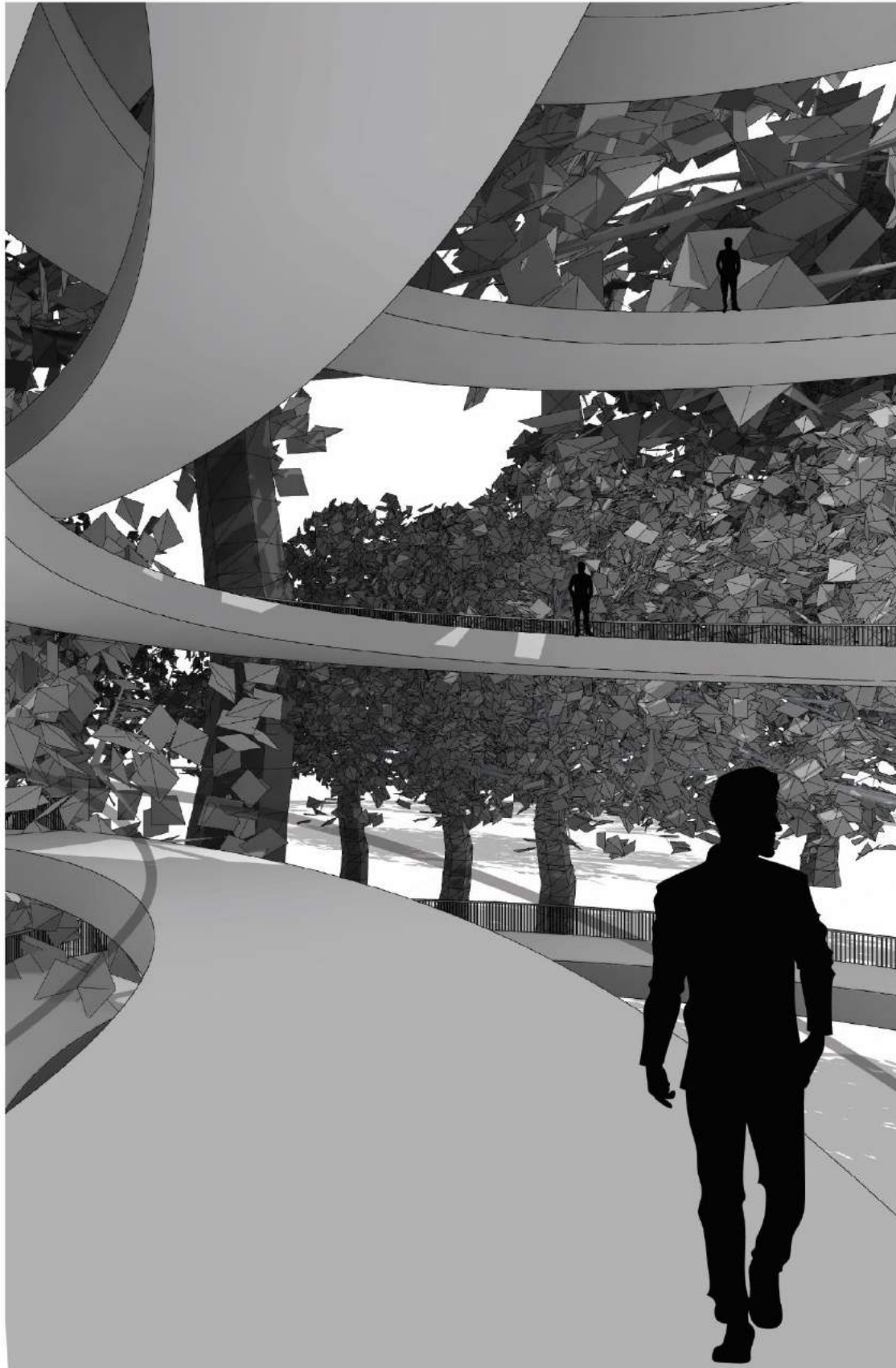
THE CONCEPT

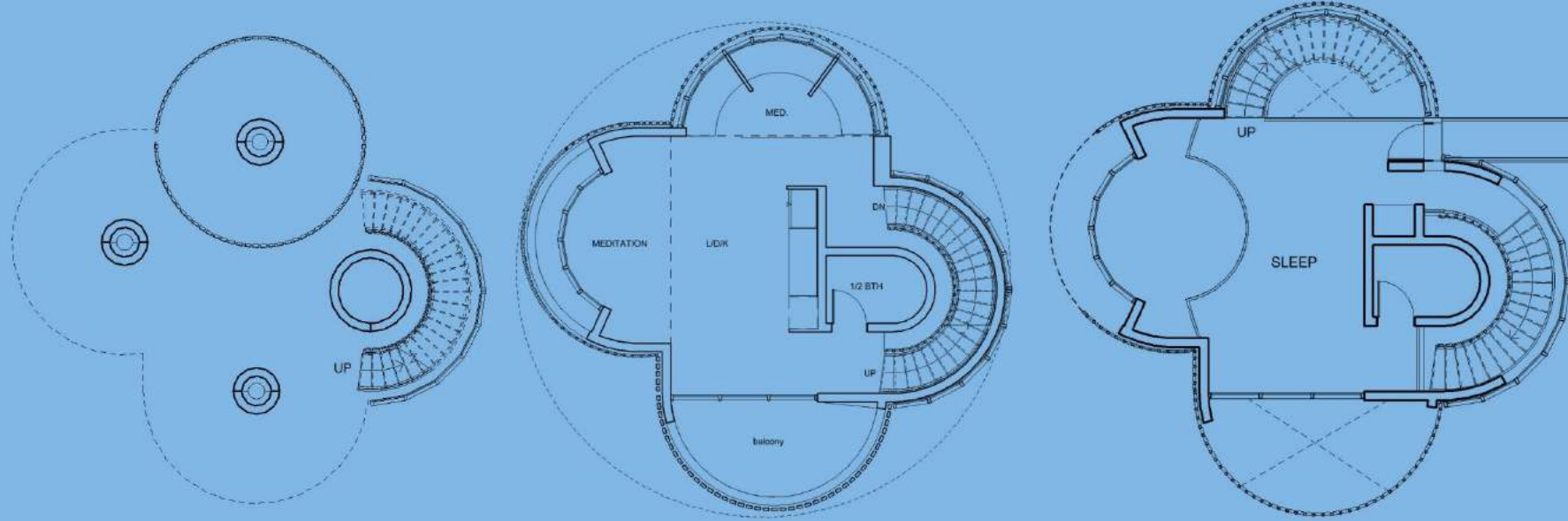
PROGRAM X TREATMENT



RAPID DESIGN INVESTIGATION

TESTING THE CRITERIA OF EVALUATION





DESIGN DEVELOPMENT

TESTING THE CRITERIA OF EVALUATION



DESIGN DEVELOPMENT

TESTING THE CRITERIA OF EVALUATION



DESIGN DEVELOPMENT

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