

FINAL ARCHITECTURAL DESIGN STUDIO

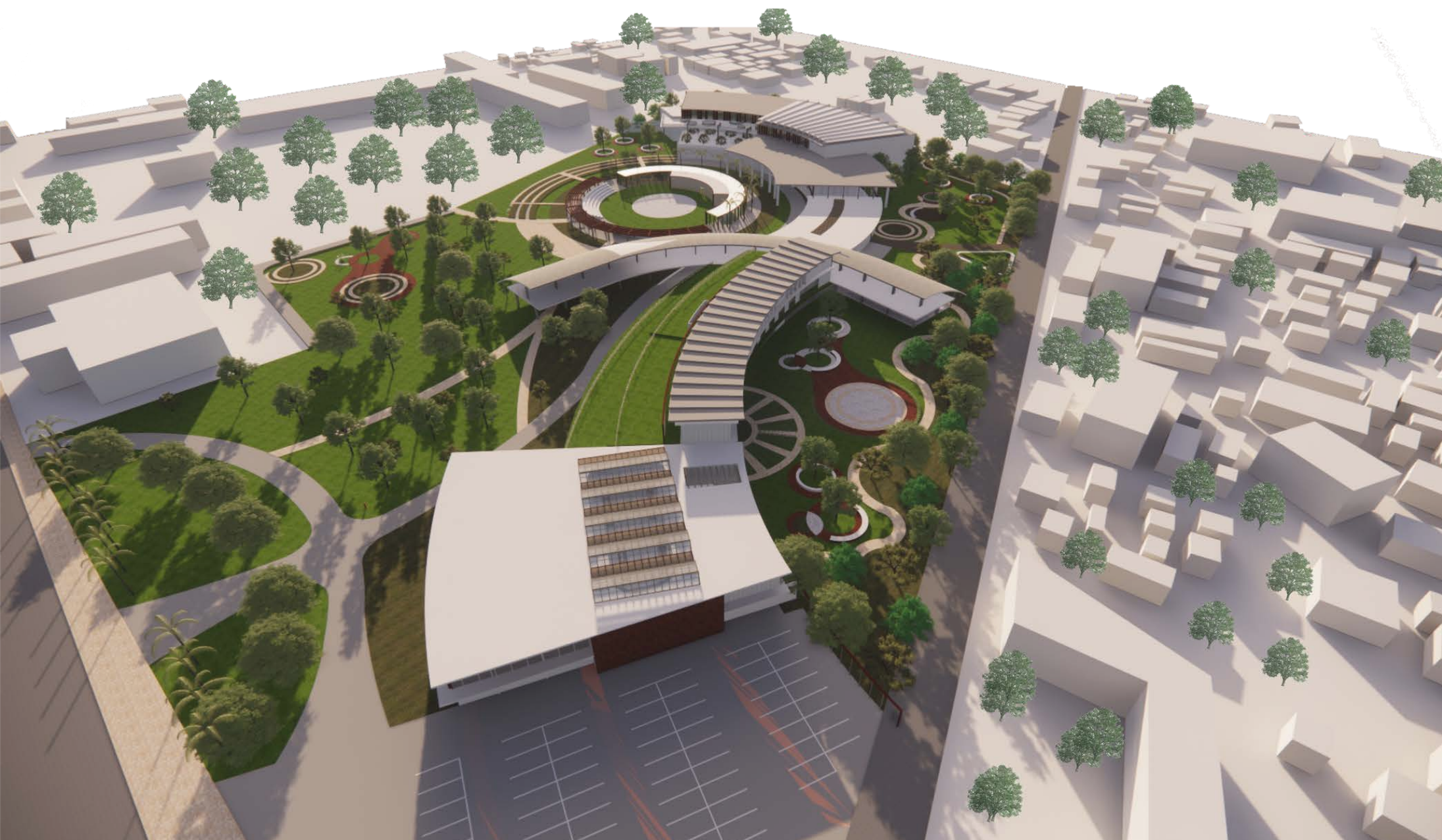
International Undergraduate Program in
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Design Of Mental Rehabilitation Center Through Salutogenic Approach In West Nusa Tenggara



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design report

Final Architectural Design Studio
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Design Of Mental Rehabilitation Center Through Salutogenic Approach

In West Nusa Tenggara

Supervisor

Arif Budi Sholihah, S.T., M.Sc., Ph.D.



Department of Architecture
Universitas Islam Indonesia
Faculty of Civil Engineering and Planning



AUTHENTICATION SHEET

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Design Of Mental Rehabilitation Center Through Salutogenic Approach In West Nusa Tenggara

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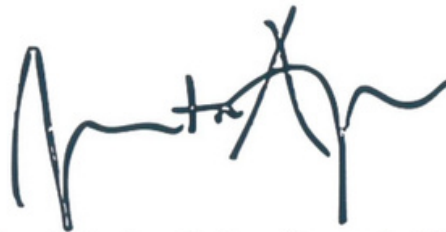
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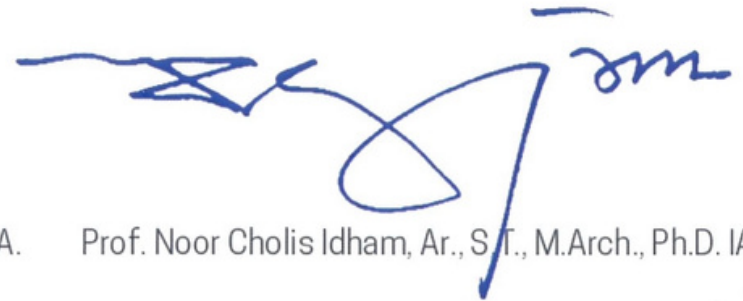
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I hereby state that the design work I have produced is entirely original to me, is not the product of plagiarism, and does not include any writing that has been previously published or submitted for a bachelor's degree at a university, with the exception of writing that is cited in this manuscript and listed in the list of references.

Yogyakarta, 1 August 2022

Author



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18512196

FOREWORD

Alhamdulillah Rabbil'Alamin, Praise and gratitude to Allah SWT for His mercy, guidance, taufiq, and abundance of love, so that the author is given the convenience in completing his final project entitled "Design Of Mental Rehabilitation Center Through Salutogenic Approach In West Nusa Tenggara".

The author would like to express her deepest gratitude for the help, guidance, and suggestions that have been given so that the writing of this final project can be completed to:

1. Allah SWT, for his countless mercy and guidance, that the author is given the ease during the process of finishing the final project.
2. Author's family, Mr. Aries Munandar, Mrs. Dara Wahyuni, sisters, and brother, for their endless love and never-ending support for the author every day.
3. Author's Sister, Luqyana Salsabila A., for her biggest support so that the author is able to complete this thesis.
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7. All lecturers and staff of the Department of Architecture, Universitas Islam Indonesia for the knowledge and experience provided during the architectural school.
8. All friends from ArchIP'18, fellow students of Universitas Islam Indonesia, and the author's bestfriends who have supported the completion of this Final Project.
9. All parties who cannot be written one by one who also took part in completing this Final Project.

The author realizes that the writing of this thesis is far from perfect and there are many shortcomings. Therefore, with all humility, the author expects constructive criticism and suggestions.

Wassalamualaikum warahmatullahi wabarakatuh

Yogyakarta, 1 August 2022
Author

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18512196

DESIGN PREMISE

The design of Rehabilitation Center in West Nusa Tenggara is one of the way in giving contributions toward mental health awareness through architecture.

The design is a development of the salutogenic approach in an effort to provide a safe and comfortable place for people with mental illness. The increasing cases of mental health issue and poor facilities for people in need of rehabilitation were become the basis for carrying out the design.

To achieve a rehabilitation center that is comfortable, adequate, safe, and provides protection for patients, one of the ways that can be done is designing by developing the salutogenic architecture and building comfortable spaces and physical areas that provide a healing nuance for the users.

Apart from being a place of healing for people with severe mental illness, some part of the rehabilitation center is also intended for the public facilities which aims to provide a healing dimension that is integrated with urban area design thus improve the mental health and well-being of the community. This rehabilitation center is intended not only as a means of healing but also prevention, because prevention is always better than cure.

Keywords: *Mental Health. Salutogenic. Rehabilitation Center.*

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1. **INTRODUCTION.**



MENTAL HEALTH; A GLOBAL AND NATIONAL CONCERN

Mental health has become a global and national concern for very a long time. Yet, the issue regarding mental health is still a taboo for some people. In Indonesia, the stigma against people with mental health disorders is still very strong. In fact, based on the data from The National Institute of Health Research and Development (Litbangkes), there are at least 450,000 families in Indonesia who suffer from schizophrenia (long-term mental disorder). There are many factors that cause people who suffer from mental disorders choose to remain silent nor seek professionals treatment. Among the contributing factors, one that is still very common in society is labeling, exclusion, and stereotypes against people with mental health disorders.

The problem leads to a worse case, where based on the data from Riskesdas in 2018, Among people aged >15, the data reveals there are 12 million people who experience depression, and 19 million people who suffer from mental emotional disorders. Beside that, limited access to mental health facilities in Indonesia still become an issue. According to the Indonesian Ministry of Health, there are at least 90% of people with mental health disorders do not have access to adequate care.



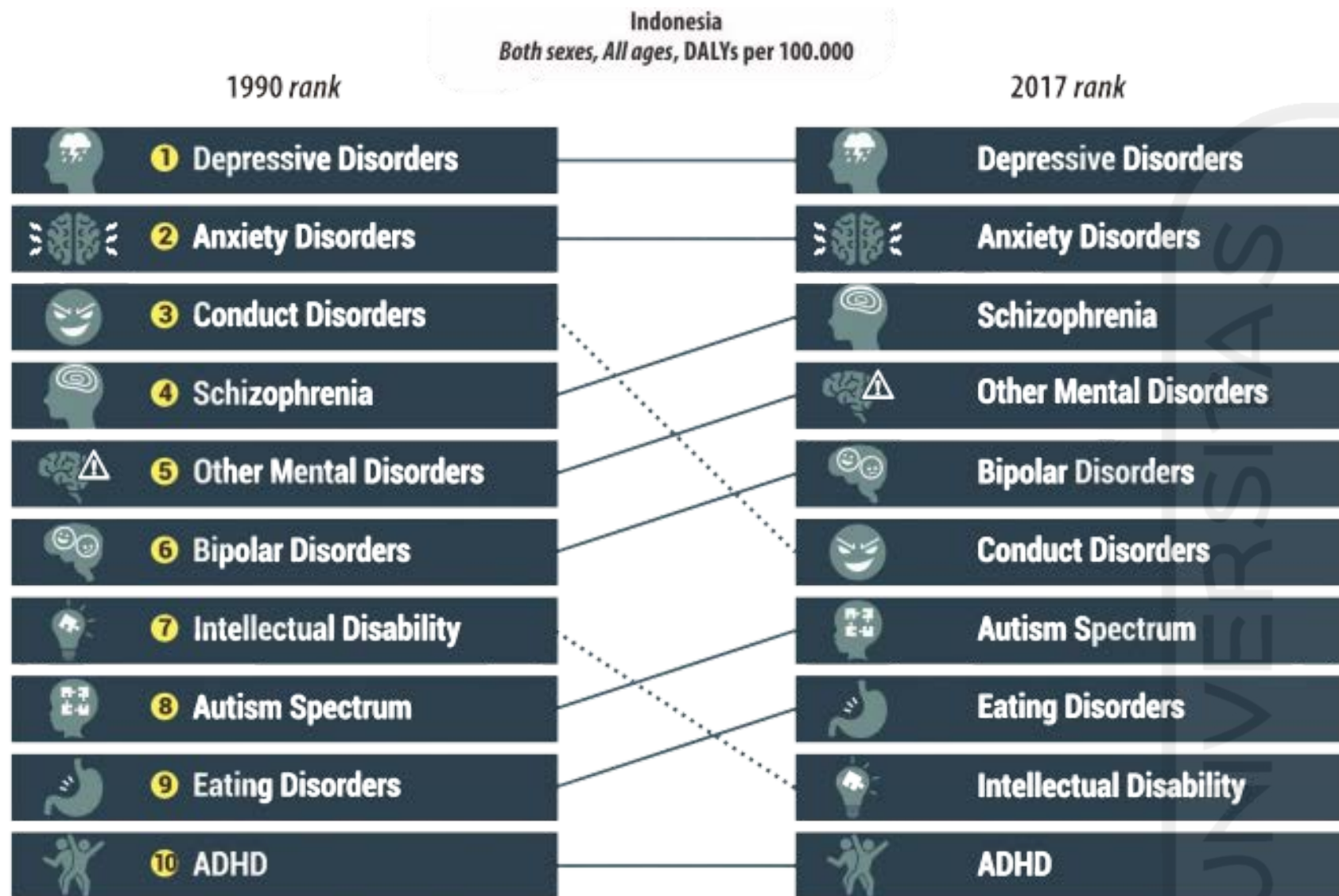
PANDEMIC AND MENTAL HEALTH

Concern about mental health has also gotten worse since 2020. Person's mental health issue is one of the most intense reactions following the covid-19 pandemic. Many recent studies (e.g. Fiorillo and Gorwood, 2020; Ridlo, 2020; Talevi, et al., 2020) have shown that various problem that have occurred due to the shifting changes of pandemic are considered to be a new source of stress for the community. In Indonesia, there were approximately 277,000 cases of mental health disorders during the pandemic.

The changes of social interaction in becoming more minimized leads to the increase of loneliness feeling. Thus may be the risk factors for mental disorders such as schizophrenia and major depression.

If anxiety persists, it can worsen mental health conditions and lead to serious disorders, such as anxiety disorders, obsessive-compulsive disorder, stress, and trauma bonding disorder. (e.g. Fiorillo and Gorwood, 2020; Ridlo, 2020; Talevi, et al., 2020)

In public health, there is a measurement unit to measure the burden of a disorder which called DALYs. DALYs (Disability-Adjusted Life Year) are the number of years lost to a healthy life due to premature death, illness or disability.



People with mental health problems are divided into 2 types:

- **Orang Dengan Masalah Kejiwan (ODMK)**; people who have physical, mental, social, growth and development problems, and/or quality of life so that they are at risk of mental disorders.
- **Orang Dengan Gangguan Jiwa (ODGJ)**; people who experience disabilities in thoughts, behavior, and feelings that are manifested in the form of a set of symptoms and/or significant behavioral changes and can cause suffering and obstacles in carrying out human functions.

Pengentasan Pemasungan ODGJ Jadi Perhatian Serious Pemprop NTB

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WEST NUSA TENGGARA AND MENTAL ILLNESS CASES

West nusa tenggara (NTB) is one of the provinces in Indonesia with the highest number of mental disorders. Cases of 'pasung' or shackled for severe mental disorders are also still common. Pasung is a wooden frame that is attached to the legs, arms, or neck. Generally used for people who have mental disorders. This kind of treatment violates the human rights. The shackles that bind people with mental disorders will automatically make them isolated. It will potentially trigger them to the feeling abandoned, low self-esteem, hopeless, and can lead to revenge.

16 Tahun Dipasung, Warga NTB Itu Kini Lumpuh

Farukh - detikNews

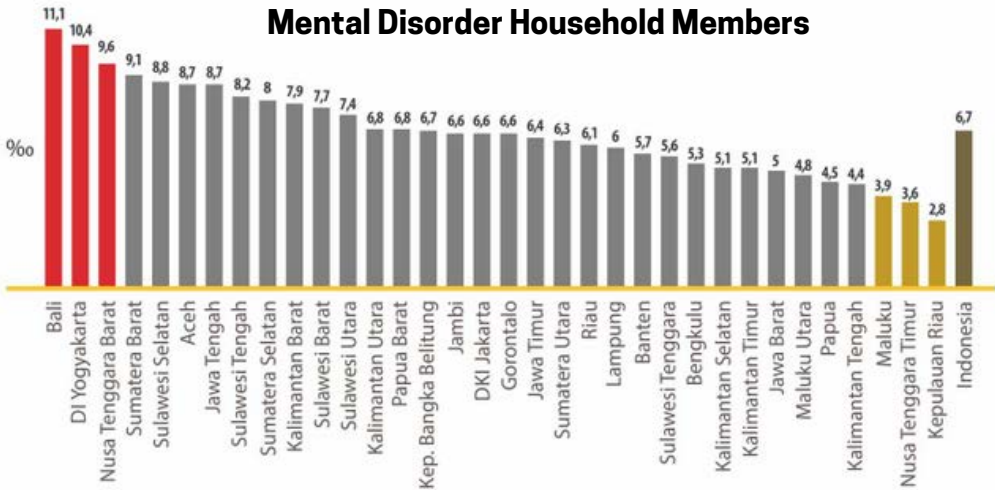
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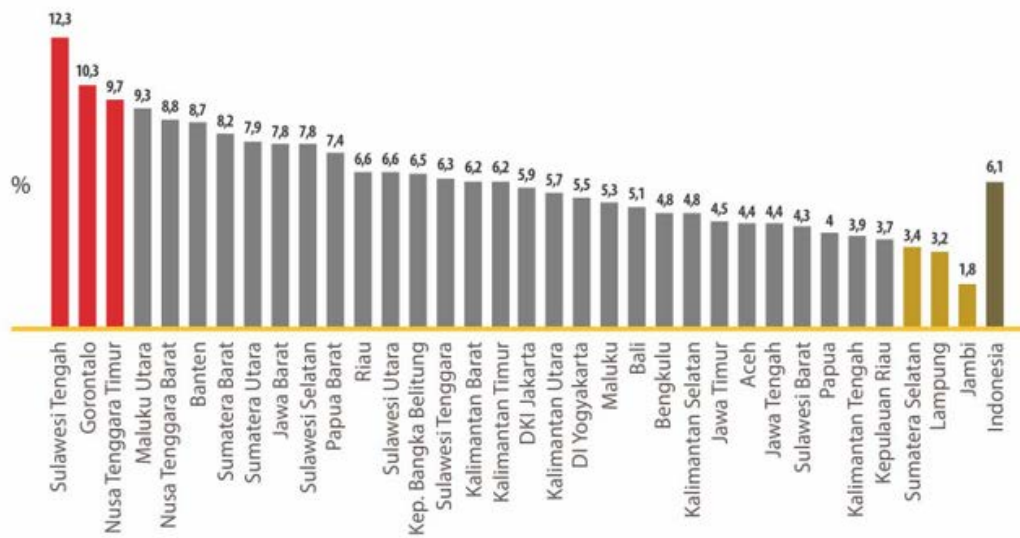
BAGIKAN



Household Prevalence (per mile) With Schizophrenia/Psychosis Mental Disorder Household Members



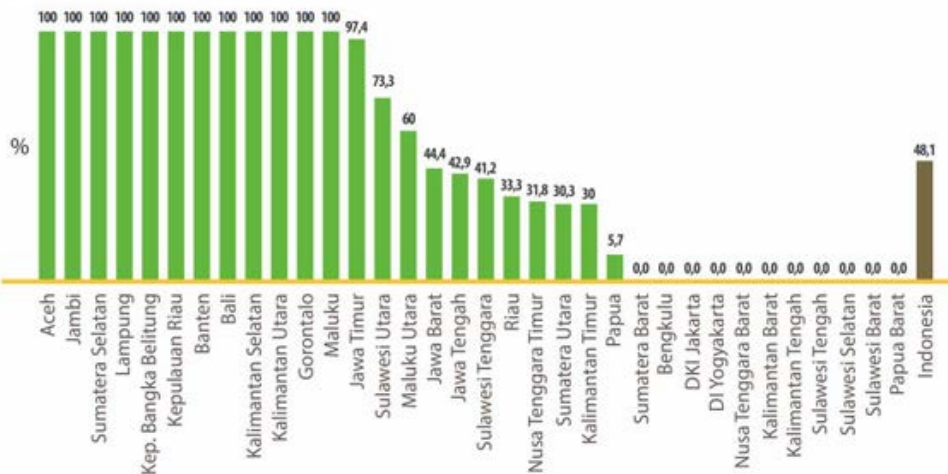
The number of mental disorders cases in Indonesia based on the results of the 2018 Basic Health Research (Riskesdas) have increased. It can be seen from the prevalence increase of households with mental disorder people or ODGJ (Orang Dengan Gangguan Jiwa) in Indonesia. There was an increase in the number to 7 per mil of households. This means that per 1000 households there are 7 households with ODGJ, so the number is estimated to be around 450 thousand severe ODGJ. Where West Nusa Tenggara occupies the third position as the province with the highest cases. (Figure 5)



Moreover, research shows that depressive disorders can be experienced by all age groups. The results of Riskesdas 2018 show that depressive disorders have started to occur since the adolescent age range (15-24 years). Based on the prevalence of depression in the population aged > 15 years by province, NTB is in fifth place.

Gambar 9. Indikator Cakupan Kabupaten/Kota Memiliki Puskesmas yang Menyelenggarakan Upaya Kesehatan Jiwa

Sumber: Direktorat Jenderal P2P, 2019



With such a high number of cases, provincial mental health services are still inadequate. In 2019, the indicator coverage of districts/cities which public-health centers (puskesmas) carry out mental health service, West Nusa Tenggara province does not yet have a health center with mental health services so that it has not reached the set indicators.

3. Potential for rehabilitation centers in Mataram City

West Nusa Tenggara Province is a province inhabited by three tribes, which are Mbojo Tribe, the Samawa Tribe and the Sasak Tribe. The three tribes in NTB have different mottos and philosophies of life and culture, but each contains noble values and is rooted in the life of its people. The Mbojo tribe has a cultural value system of Maja Labo Dahu, the Sumbawa tribe has a Sabalong Samalewa culture, and the Sasak tribe is famous for its culture of Patut, Patuh, Patju.

1. Maja Labo Dahu

philosophically "Maja Labo Dahu" means: First, Maja; conceptualized as a human moral attitude to feel 'embarrassed' against actions that deviate, or violate the law both religious law, state law and socio-cultural ethics that reflect the local wisdom of a community.

2. Patut, Patuh, Patju

Patut means is good, commendable, and things that are not excessive. Patuh means harmony, obedience, peace, tolerance, mutual respect. Patju means diligent, active, never give up.

3. Sabalong Samawa

Sabalong Samalewa for the Sumbawa people is an embodiment in achieving a harmonious life between residents and their environment through the realization of local values and the practice of respecting other inhabitants of the earth so that they are not destroyed.



Based on the three philosophies above, the construction of this rehabilitation center & community garden is an embodiment not to ignore the rights of the mentally ill, but to respect them. For this reason, volunteer-based activities will also be held at this rehabilitation center as a manifestation of a harmonious, obedient, peaceful society, mutual respect and tolerance, as well as increasing awareness about mental health.

On the other hand, the implementation of the sabalong samawa philosophy is carried out by applying a salutogenic approach that highlights the relationship between humans and their environment.

This facility has the potential to reduce the problem of inappropriate treatment of mental disorder people that often occurs and increase awareness of mental health issues in order to improve individual welfare and people's living standards through a subtle approach. This facility is a development of the idea of therapeutic architecture by adapting to the local context. It is hoped that if this facility is successful and can function properly, it can become a reference for similar facilities that want to be developed elsewhere.

4. Salutogenic Approach

Today, there are growing movements toward the use of Salutogenic approach in designing healthcare facilities. The salutogenic approach is carried out to present therapeutic benefits through designs in an effort to help the healing process of mental disordered people. The application of this approach in building design will be adapted to the local context and through this approach is expected to promote a happier and healthier environment for the users.

PROBLEM FORMULATION

Based on the background of the problems described, the following problem formulations are obtained:

GENERAL PROBLEM

1. How to design a Rehabilitation Center that can support the healing process for patients with mental disorders?

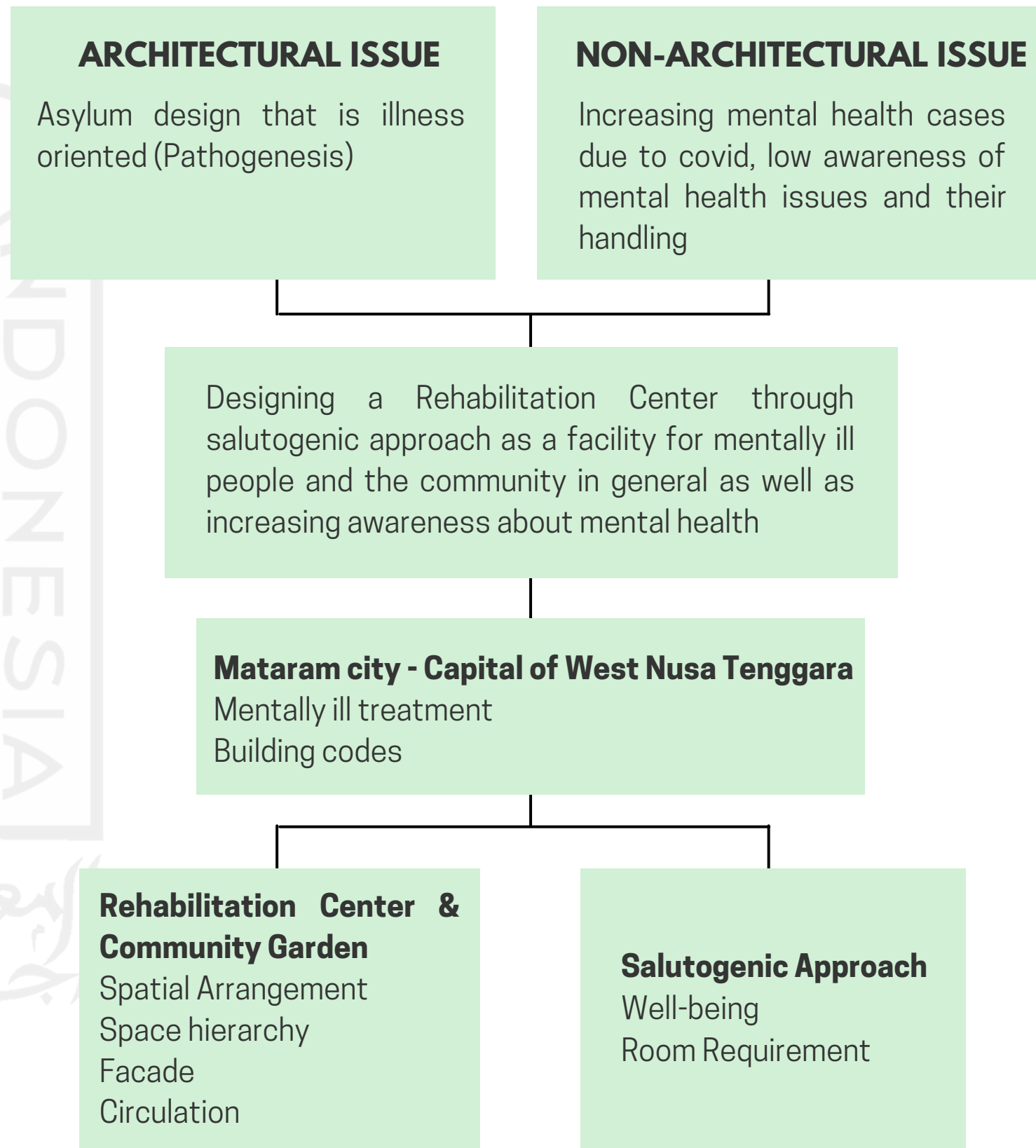
SPECIFIC PROBLEM

1. How to design a spatial layout of Rehabilitation Center that provide comfort as well as safety for the users?

2. How to design building form and facade of rehabilitation center as a response for the local context?

3. How to apply salutogenic approach in rehabilitation center design?

PROBLEM THINKING



METHODS

1. Data Collection

The data that are needed before designing is the secondary data, such as:

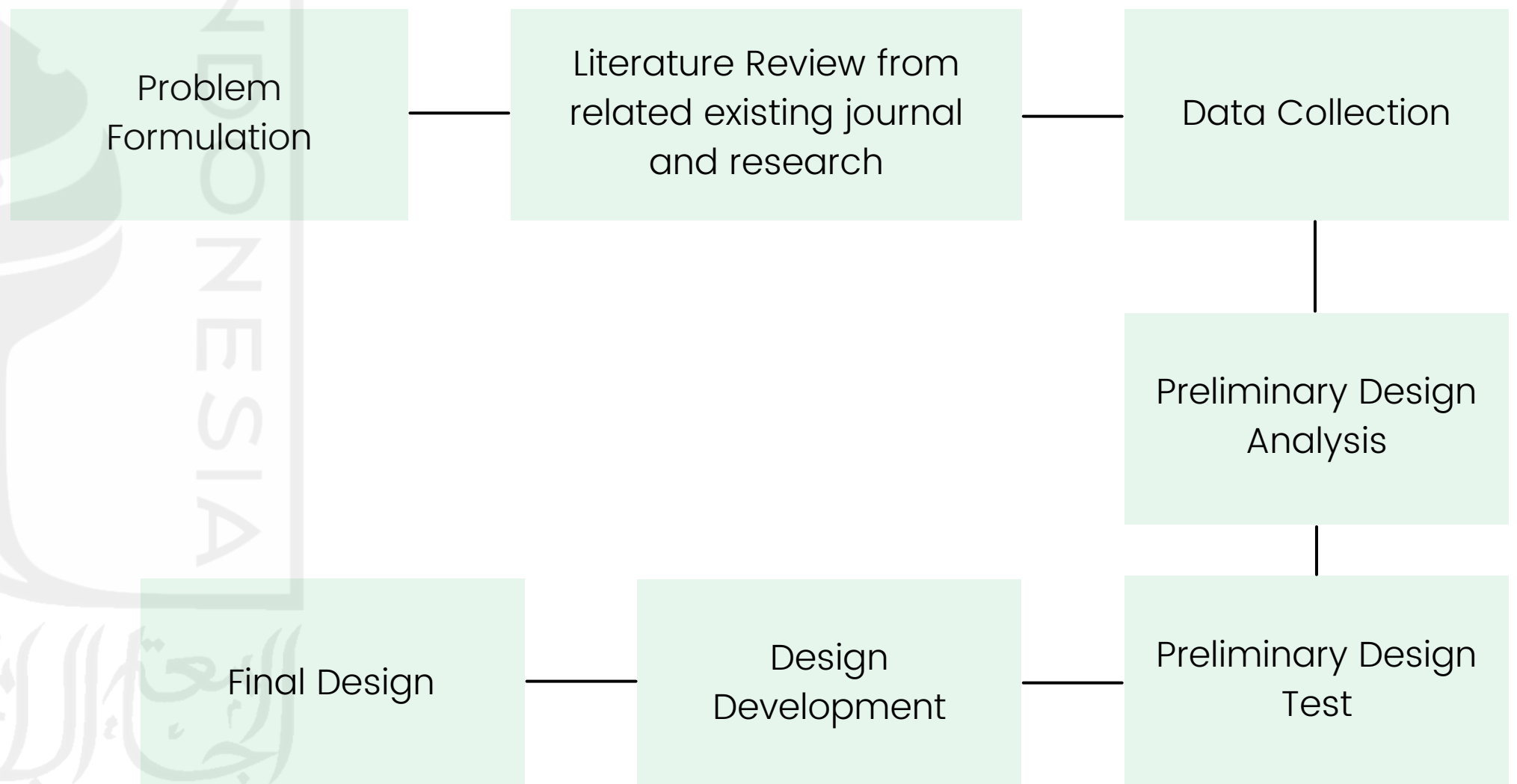
- Precedent Study
- Literature review
- Building Standard For HealthCare facilities

Secondary data collection is carried out by studying literature to find references through books and the internet regarding existing problems and relevant matters needed. The literature used is valid sources that can be accounted for such as journals, books, and internet sources from the official websites of the Government and the Ministry of the Republic of Indonesia and in the relevant period.

THE OBJECTIVE

1. creating an environment for adequate healing and provide comfort, as well as safety for users in Rehabilitation Center.
2. Embody architectural quality at the rehabilitation center.
3. Provide healing environment for mentally ill people through architecture.

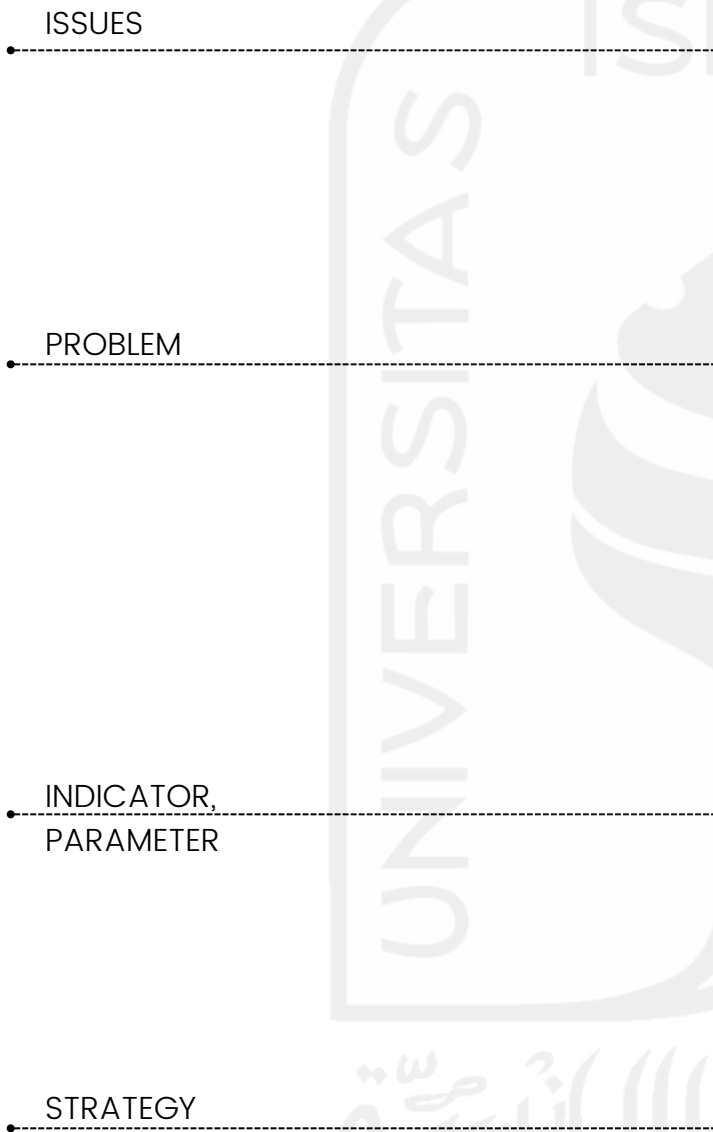
DESIGN SCHEME

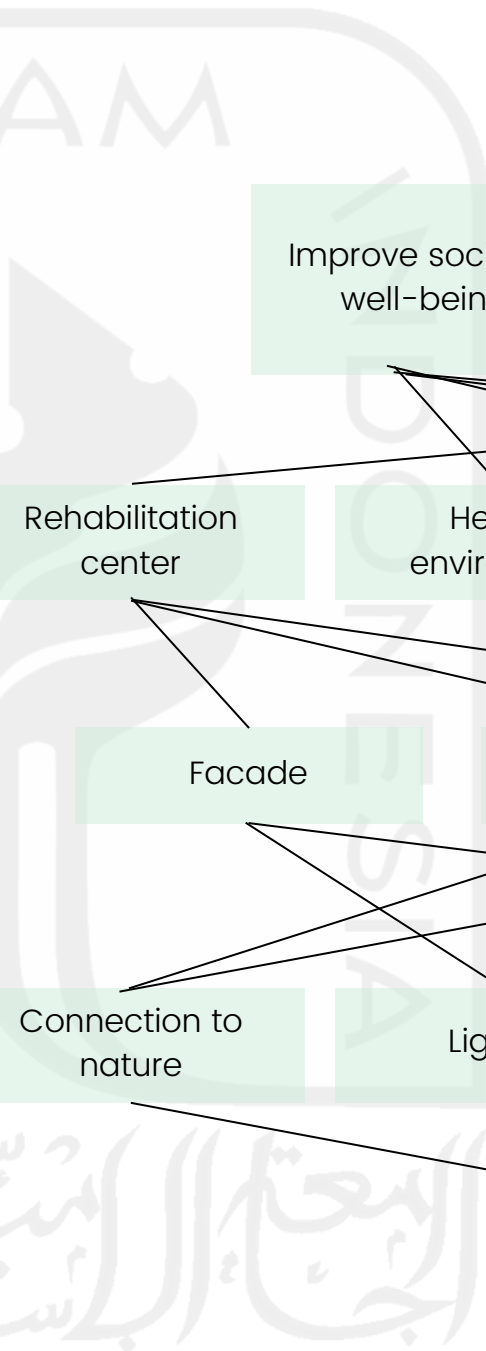
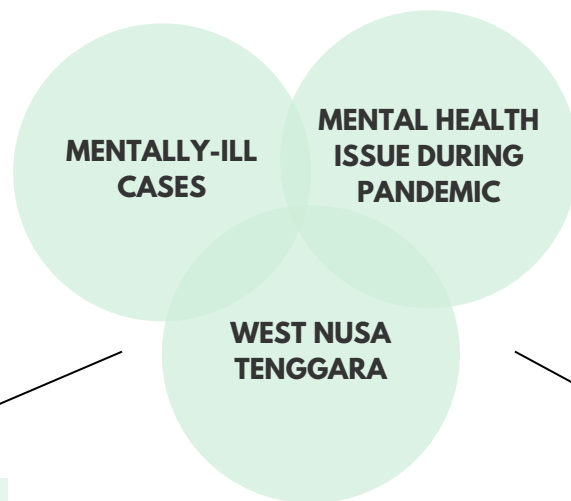


DESIGN SCHEME

The design scheme starts by defining the problem occurred within the area and examine it into a more specific problems. Then define the need of the society and formulate the architectural solution. Studies are being conducted to find out the design strategy as well as variable of the needed approach and their parameters. To achieve the intended indicators, building typology and the site context should be studied.

The next step is to create the predesign model and apply the result of the previous study analysis. Preliminary design evaluation is done by referring to the assessment question from the related literature to see the success of the design. Design then developed to to improve the final design.





Improve society's well-being

Proper treatment and facilities for mentally-ill

Rehabilitation center

Healing environment

Universal Design

healthy building

Social support

Facade

Spatial organization

Landscape

Movement

Connection to nature

Lighting

Community involvement

Sensory design

Healthy air circulation

Schematic design

Design evaluation

Design development



DESIGN FRAMEWORK

Study	Architectural Aspect	Criteria
Mental Rehabilitation Center	Building Typology	Great connection to nature, promote patient's wellbeing
	Location	Located in the environment that has the healing potential
	Room Configuration	Privacy hierarchy
Healing Environment	Landscape	Natural setting in a normal way
	Social Space	Encourage social interaction
Site Study	neighborhood context	Create a space for various user Improve community's health
Salutogenic Approach	Light control	Abundant of sun beam is necessary
	Air and humidity control	Health air circulation
	Meaningful space	adequate resources at their disposal and that they trust

Problem

Hypothesis

How to design a spatial layout of Rehabilitation Center that provide comfort as well as safety for the users?

Space design that encourage the good habbit for the user providing good lighting, natural elements that provide comfort

How to design building form and facade of rehabilitation center as a response for the local context?

Designing a rehabilitation center with public space as facilities for community around the site

How to apply salutogenic approach in rehabilitation center design?

Designing a space that improve one's sense of coherence (SoC)

ORIGINALITY & NOVELTY

Title Description	Concept	Difference
Design of Drug Rehabilitation Center Yogyakarta with Therapeutic Community Method (Salviandy Dhanizar, 2020)	Rehabilitation center for drug abuse using therapeutic community method to help the healing process of drug abuse.	Different approach and different type of mental health concern.
Pre-school Education and Nature-based Child Care in Surabaya (N Ardella, 2020)	Pre-School Education and Nature-Based Child Care as an educational facility as well as child care. The deepening of the character of the space is chosen to support the learning and play area so as to improve the quality of the area and space to suit the child's character.	Different building typology and target user.
Rehabilitation Center for Patients with Neurological Disorders in Purwokerto With an Ecological Architecture Approach	A recovery facility for people with neurological disorders by using an ecological architectural approach that is reciprocal between humans and the environment to reduce the patient's stress level.	Different approach and type of the mental health concern.



2. LITERATURE REVIEW.

SALUTOGENIC & PATHOGENIC

Salutogenesis comes from the words salut (health) and genesis (origin) which means 'origin of health', is an approach that focuses on the factors that support a person's health and well-being. A further definition of Salutogenesis is given by Antonovsky (1979) in his book Health, Stress, and Coping who describes in detail the theory of salutogenesis. He stated that one's life experiences help to form a Sense of Coherence. Sense of coherence is the way a person perceives and views the world, and is considered as an adaptive dispositional orientation that enables coping with adverse experience. Salutogenic focuses on how the design of a space can promote the mental health and well-being of the people in it, not on how the space deals with symptoms of illness (Mazuch, 2017). In contrast to pathogenesis, salutogenesis refers to a scientific orientation that focuses on the study of the origin of health and its constituent elements, not on disease and its risk factors.

Instead of focusing on variables that promote health and recovery, the pathogenic approach places more attention on understanding the causes and effects of disease. The pathogenic paradigm's limiting premise is that through studying illness, we may better understand and improve health.

As Antonovsky defined the term salutogenic he introduces tends to be used to refer to topics in the field of psychology and health, the sociology of health, and behavioral medicine; the term has now been broadly adopted as a term to describe contemporary approaches to psychiatry, integrative medicine, nursing, and healthcare architecture. The method has massively promoted for emergency care and healthcare architecture where the framework is adapted and used as a reference in decision making.

In his own words, "Given the ubiquity of pathogens—microbiological, chemical, physical, psychological, social, and cultural—it seems to me self-evident that everyone should succumb to this bombardment and constantly be dying" (Antonovsky 1979, p. 13). Antonovsky's view was that, indeed, most people are able to maintain their health and lead fulfilling lives the majority of the time despite the pathologic assault of all these health-threatening variables. Antonovsky's main concern was how this was feasible.



Salutogenic Orientation

Pathogenic Orientation

In salutogenic model, the emphasis is put on the factors which cause global well-being.

the focus is on causes of disease. Accordingly, the disease control strategies target these causes e.g. smoking, overweight and so on.

Psychosocially supportive design stimulates and engages people, both mentally and socially, and supports an individual's sense of coherence.

Clinical practice in hospitals focuses mainly on treating illness while often neglecting a patient's psychological, social and spiritual needs.

Disease health series

The dichotomy of health and disease

someone's background

A person's diagnosis or illness

Beneficial Factors (Salutary)

Risk factor

Triggers of stress and tension can be pathogenic (disease causing), neutral, or beneficial.

Stress is pathogenic (cause disease)

Active adaptation

Another undiscovered form of treatment with extraordinary benefit

SALUTOGENIC ARCHITECTURE

1. Antonovsky's Theory of Salutogenesis

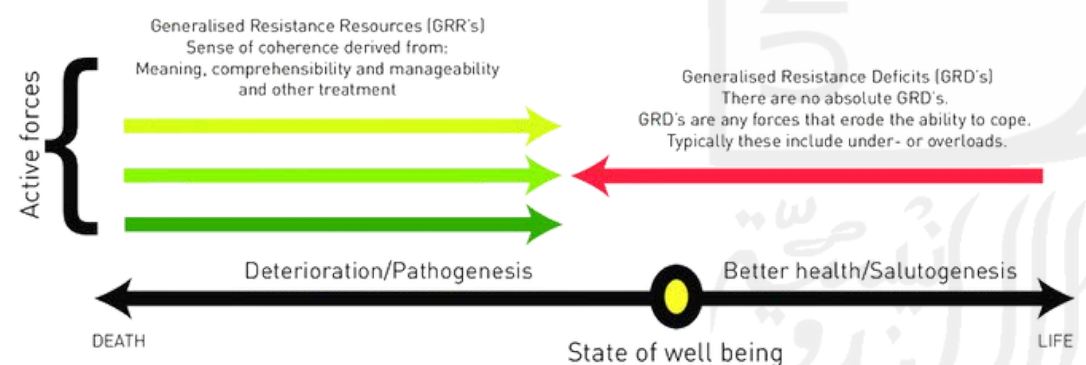
Salutogenesis is an approach to medical treatment and healthcare that pays more attention on the origins of health, instead of the source of disease—which is common in traditional study called pathogenesis. Therefore, it is clear that architecture could have a direct impact on health (Golembiewski, 2016). Antonovsky's salutogenic theory offers an approachable underlying rationale for figuring out the health and well-being benefits of design (Golembiewski, 2016) that go beyond environmental medicine.

Instead of focusing on the illnesses that threaten life, the salutogenic principle looks in the opposite direction, towards a more vibrant sense of well-being; towards more robust and better health, and a greater emphasis on wellness promotion and recovery oriented. By using the focus of healing on the patient, the healing process will have a positive influence on the mental condition of the patient, so that their physical condition will also follow.

The term salutogenesis is then used more widely, including in the field of architecture. Architect Alan Dilani suggested applying Antonovsky's salutogenic concepts to the architectural planning of healthcare institutions in the 1990s, so that the term not limited only to medical treatment and research. In order to develop Psychosocially Supportive Design, a theory and framework that improves health through the design of the physical environment,

he proposed using Antonovsky's salutogenic theory. Salutogenic here is not the opposite of orthodox medicine, rather it is complementary. Both orthodox medicine and salutogenic principles are health-oriented, therefore the salutogenic intervention ideal for supporting sensible health objectives. The interventions are effective because they provide insight into environmental approaches to complicated health problems, speed up the natural process of healing, and promote health before illness or infirmity ever takes hold. This prevents disease or infirmity from ever taking root.

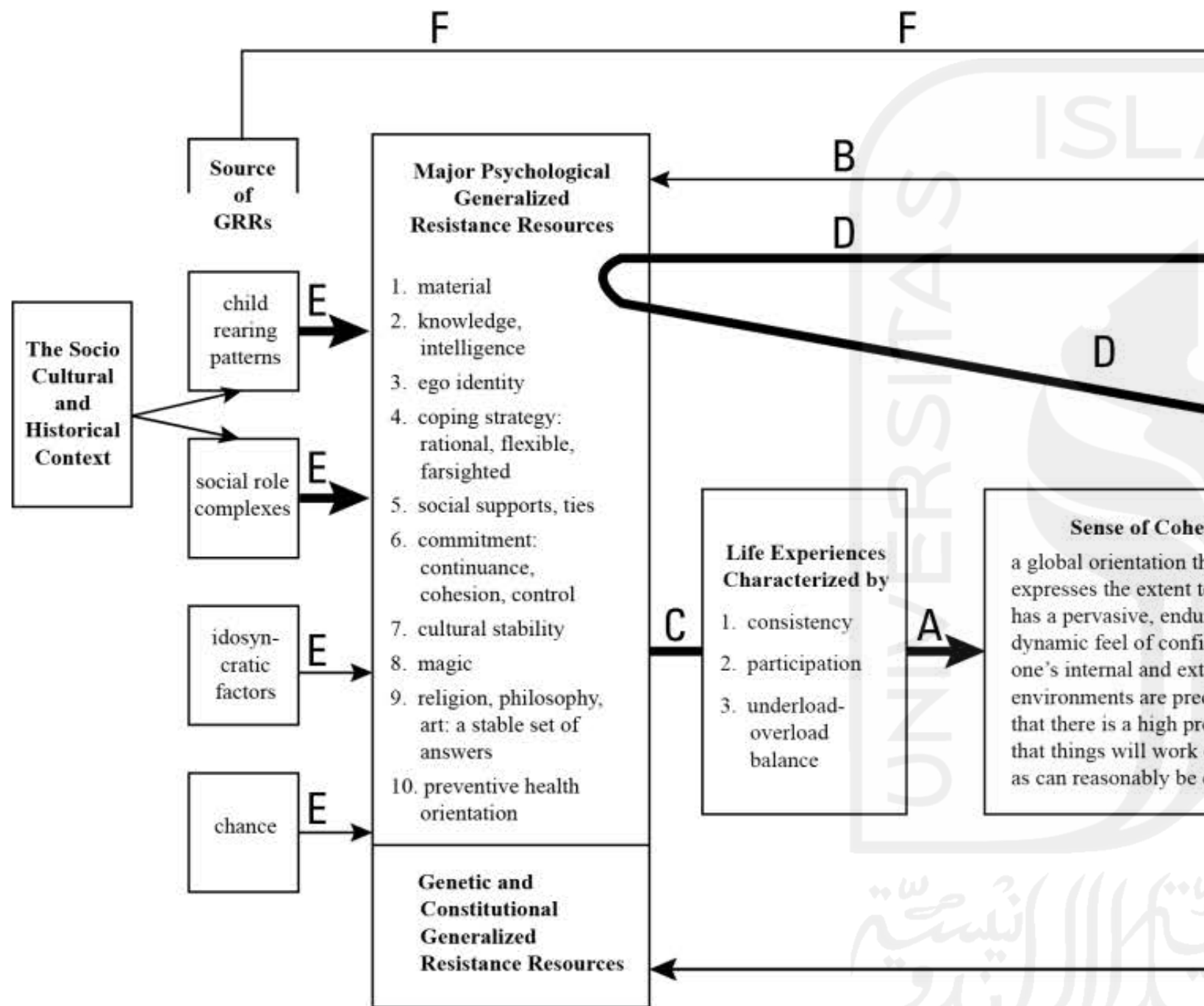
The theory provides the view that disease and health are different things but in the same continuum in the form of an effort to maintain human health (state of well-being), and each is influenced by Generalized Resistance Deficits (GRDs) and Generalized Resistance Resources (GRRs) (Golembiewski, 2016).

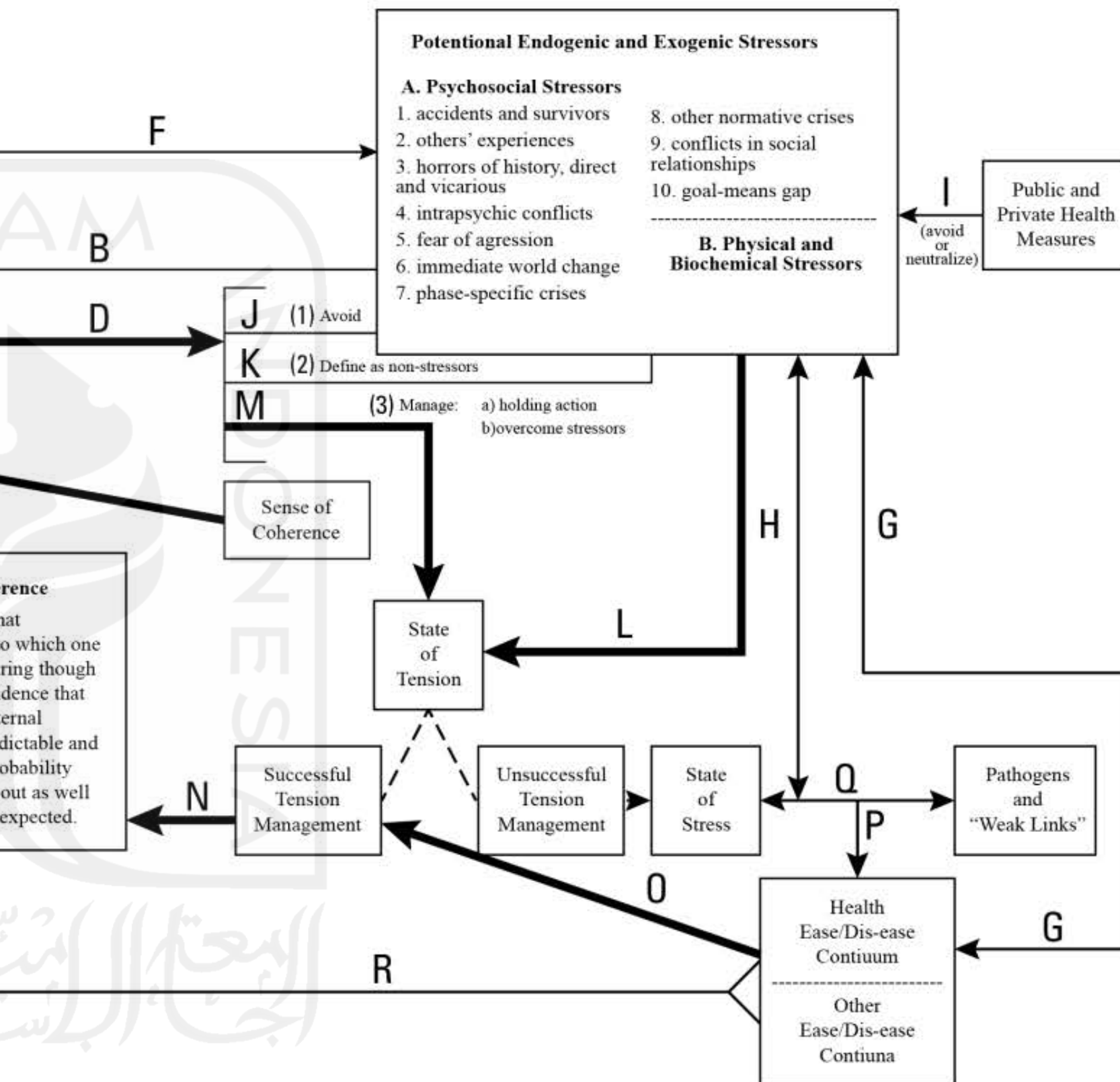


An important focus in salutogenic theory is the translation of GRR into a sense of coherence (SOC) as a form of resistance to GRD for better health. The theory describe that health outcomes improve when a sense of coherence is fostered. Whilst in fact, a sense of coherence (SOC) itself depends on the net resources that support meaning, comprehensibility, or manageability. Simply said, those three factors enable us to optimize the challenges we face in life. They aid us in coping. (Golembiewski, 2012)

SOC Factors	Definition
Manageability	<p>"The extent to which one perceives the stimuli that confront one, deriving from the internal and external environments, as making cognitive sense, as information that is ordered, consistent, structured, and clear, rather than noise-chaotic, disordered, random, accidental, inexplicable" (16).</p> <p>A person is capable of making meaning of their circumstances, issues, or difficulties.</p>

Meaningfulness	<p>"The extent to which one perceives that resources are at one's disposal which are adequate to meet the demands posed by the stimuli that bombard one... resources under one's own control or resources controlled by legitimate others-spouses, friends, colleagues, God, history..." (18).</p> <p>A person can cope when faced with a tough or unpleasant scenario if they have access to enough resources they can trust.</p>
Comprehensibility	<p>"The extent to which one feels that life makes sense emotionally, that at least some of the problems and demands posed by living are worth investing energy in, are worthy of commitment and engagement, are challenges that are 'welcome' rather than burdens that one would much rather do without" (18).</p> <p>A person can cope when faced with a tough or unpleasant scenario if they have access to enough resources they can trust.</p>





Source: Yosep, 2011

2. Salutogenic Approach In Architecture

Salutogenesis is an approach to comprehending the full range of health and disease, independent of particular and detail. As that is the level on which it functions, the salutogenic concept not only intended to enhance health but also to support in all other human endeavors. In this sense, salutogenic interventions assist individuals help themselves, to get the most out of their life, and to be their best selves. They achieve this through improving architectural and other interventions rather than by improving people. Salutogenic techniques, therefore, go beyond medicine in order to optimize our efforts, assist us in achieving our goals, and meet our ever-changing demands in order to enhance our situation. This comprehensive effort is viewed as the cornerstone for sustaining and promoting one's health. (Golembiewski, 2013)

Salutogenic helps with manageability, comprehensibility and meaningfulness, and their collective synthesis: the sense of coherence (SOC). SOC has several elements when translated into architectural elements such as:

a) Comprehensibility:

Ensuring that the perception presented helps the patient's perception process. This can be done by showing the textures and materials used, controlling the size of the room and the number of patients and expressing environmental features in a normal way.

b) Manageability:

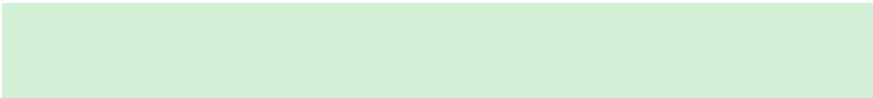
Providing an opportunity for the patient to control his environment thoroughly and independently, this can be done by providing access to open window openings and carry out activities as usual to the patient's psychomotor facilities.

c) Meaningfulness:

Increasing the value of the environment on the patient, can be done by providing an aesthetically valuable space and memory for the patient through special personal items to maybe even interact with other living things (animals and plants).

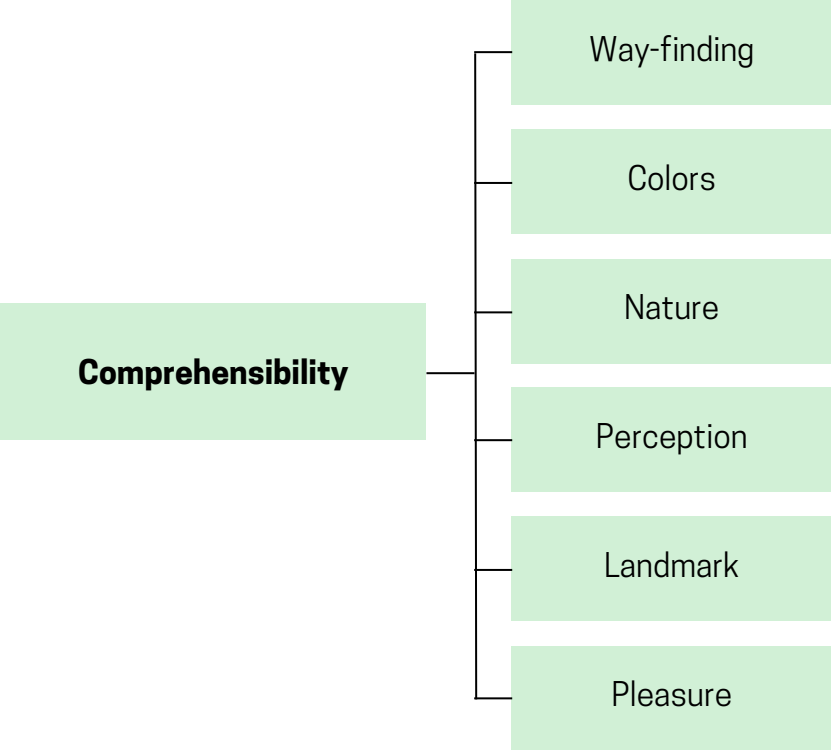
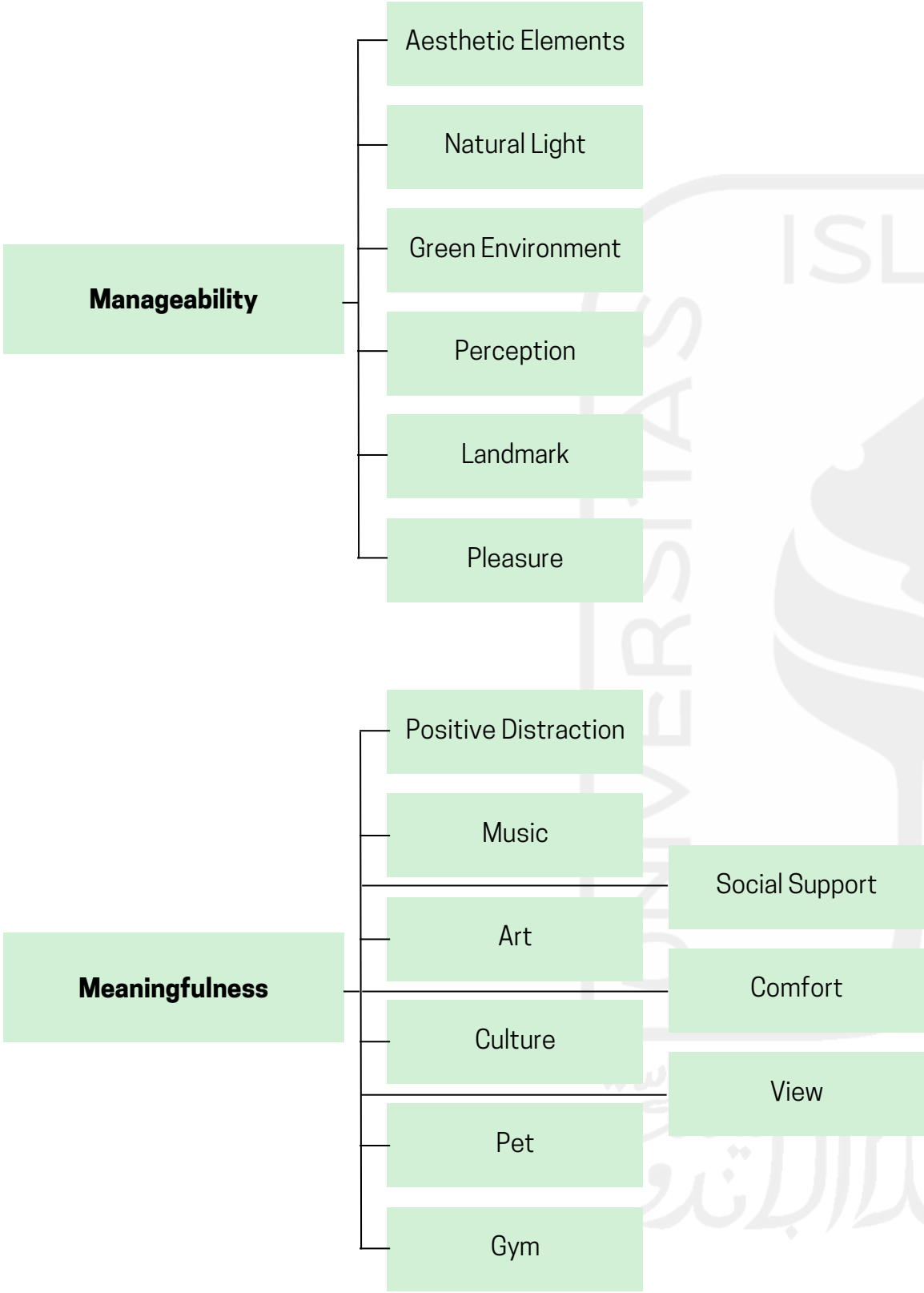


Comprehensibility	Comprehensibility is structured into design through the following design values: readability, simplicity and predictability.
Manageability	<p>In architecture, manageability resources are improved by:</p> <ul style="list-style-type: none">▪ Functionality, ‘fit-for-purpose’ design▪ Barrier-free accessibility and universal design▪ Person-centred design▪ The design of positive affordances▪ Forgiving design▪ Safety by design
Meaningfulness	<p>In architecture, meaningfulness can are improved by:</p> <ul style="list-style-type: none">▪ Design for the greater good▪ Creating the conditions for positive narratives (often this entails identifying and eliminating design meaninglessness)▪ Modelling meaningful symbolic expressions▪ Providing for meaningful engagement▪ Creating a design for positive choices



2. Salutogenic Design Models

The notion of the application of Antonovsky's principles in the field of architecture, specifically to the healthcare facilities design was first initiated by architect Alan Dilani in the 1990s. Dilani conducted an extensive research of how to transform from pathogenic approachh to a salutogenic approach manifests in the built environment. According to his research, the salutogenic theory can be translated into environmental design factors that will improve a person's sense of coherence.



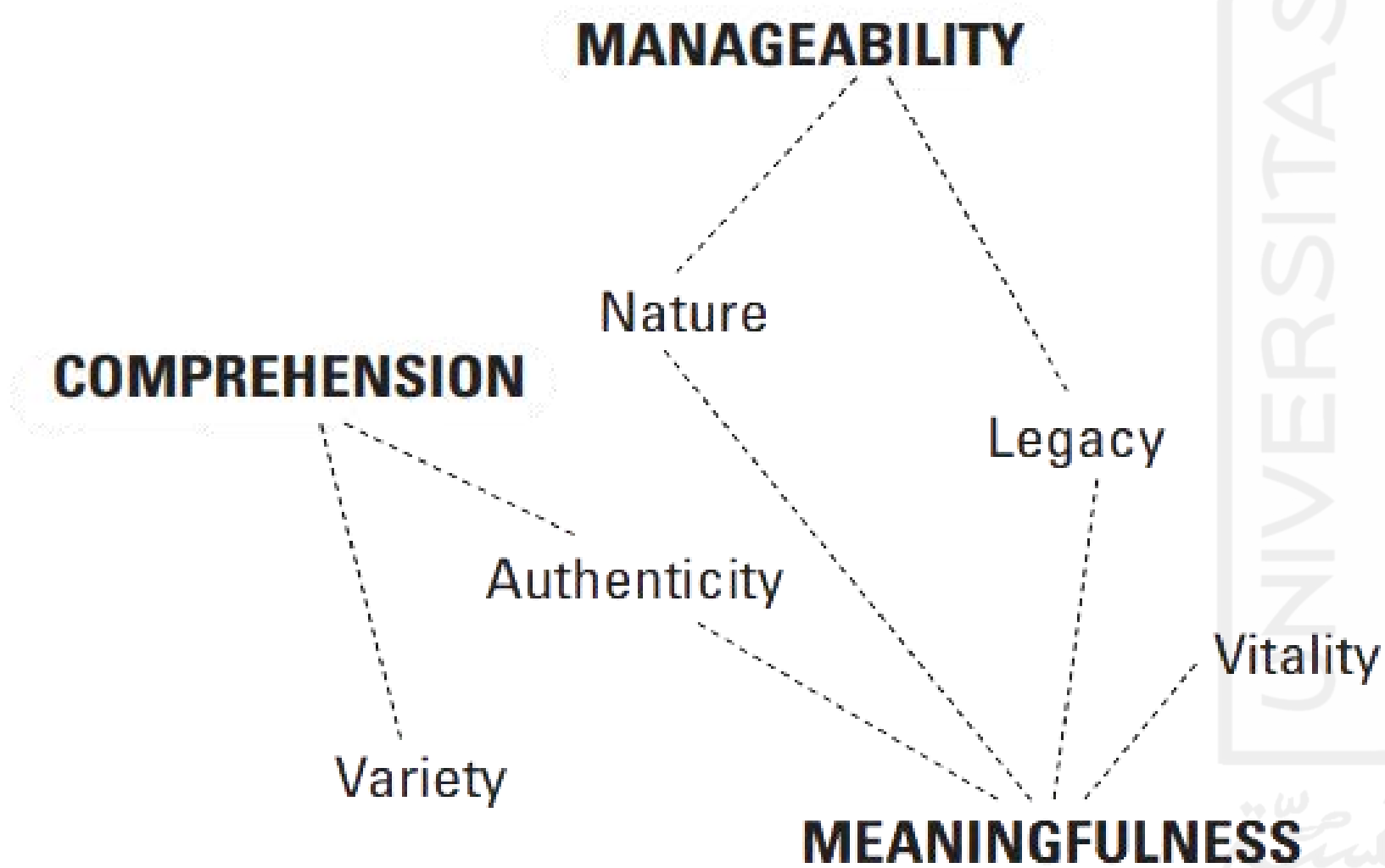
3. Salutogenic Design Method and Evaluation

Farrow and Vanderkaay developed five "vital signs" used to evaluate or to observe and reflect upon a project (architectural works) through their extensive research on communication, adult learning, and urban design. These signs can also be thought of as an interpretation of comprehensibility, manageability, and meaningfulness. Diversity, vitality, variety, authenticity, and legacy are the vital signs identified by Vanderkaay. She subsequently created a set of questions to assess if or how the essential indications are represented in a design.

Vital Sign	Evaluation Question
Variety	<ul style="list-style-type: none">Does the design support diverse activities and provide visual interest?Does it promote a sense of discovery?does it reveal a sense of humor and encourages creative talents? Does it tell a story about people as individuals?
Vitality	<ul style="list-style-type: none">Does the design convey energy and stimulate social interaction?Does it make us feel energetic and social?

Nature	<ul style="list-style-type: none">Does the design make connections with the natural world?Does the design incorporate views or experiences with living things, growing things or water?
Authenticity	<ul style="list-style-type: none">Does the design convey locally-inspired character?Does it have roots in the community?Does it reflect the value and aspirations of people who work and live there?Does it reflect human scale?
Legacy	<ul style="list-style-type: none">Is it a design that is beyond "sustainable" in terms of advancing longterm health and prosperity?Does it make use of natural systems to generate healthier water, air or land use?

The vital signs that Vanderkaay identifies relates with Antonovsky's theory. Connections between Antonovsky's sense of coherence factors and Vanderkaay vital signs is presented below:



4. General Principles of Salutogenic Approach

Two important principles of Salutogenic approach are social support and nature. (Karaca, 2018).

Social Support

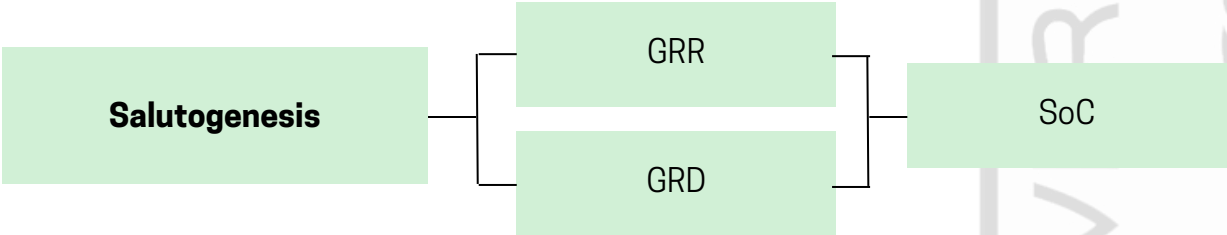
- Several potential salutogenic design recommendations for enhancing social connection and support;
- Designing an attractive place for communal use and gathering,
- Designing spaces for participation in social and cultural activities,
- To incorporate a variety of activities for various groups (for children, elderly, women etc),
- Offering a variety of public spaces for people to use and enjoy, such as parks, gardens, terraces, squares, verges, and river banks, both in and around residential areas and commercial areas (C. Brown & Grant, 2007; Vaandrager & Kennedy, 2017),
- Parks and recreation areas with a high quality
- Play area that are friendly and secure
- Pedestrian-friendly sidewalks, socially beneficial street design
- Public places that encourage more people to do physical move and exercise.

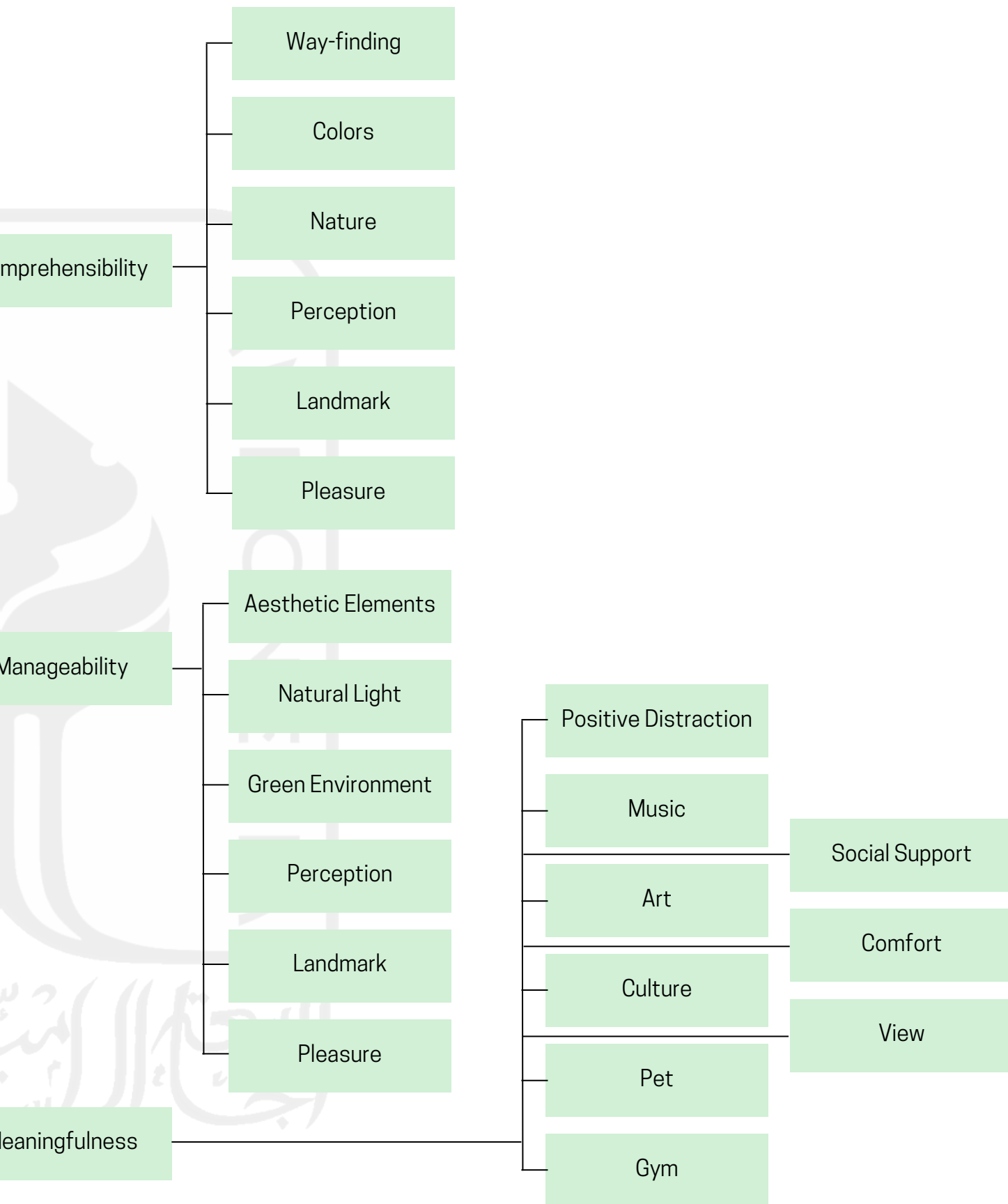
Nature

Several potential designs for promoting healthful engagement with natural places;

- Safeguarding nature
- Designing adaptable green areas that can accommodate various age groups and the population's changing demands.
- Designing green places to promote exercise
- Designing areas for open-air activities
- Designing areas that are secure and appealing (Limstrand, 2008 McCormack, Rock, Toohey, & Hignell, 2010; Wendel-Vos, Droomers, Kremers, Brug, & van Lenthe, 2007).
- Consider the needs of patients, visitors, and employees when designing healthcare facilities to create settings that have a connection to nature and green spaces.
- locations where people can enjoy the outdoors and the scenery (Irvine, Warber, Devine-Wright, & Gaston, 2013; Peschardt, Schipperijn, & Stigsdotter, 2012)
- Giving children access to sports and unstructured activities, such as climbing trees (Irvine et al., 2013; Peschardt et al., 2013; Peschardt et al., 2012)
- Improve the urban agriculture (creating edible gardens, community gardens)

SALUTOGENIC ARCHITECTURE VARIABLE





BUILDING TYPOLOGY STUDY

REHABILITATION CENTER

Understanding Rehabilitation according to Howard A. Rust's opinion is a service effort and functional recovery techniques as full as possible both physically, mentally, socially, and economically. This rehabilitation includes a combination of various technical skills and special facilities aimed at achieving physical recovery, psychological adjustment, counseling, personal and work guidance and placement.

Rehabilitation is a coordinated effort consisting of medical, social, educational and vocational efforts, to retrain a person to achieve functional abilities at the highest possible level. Meanwhile, medical rehabilitation is efforts that are made medically, especially to reduce invalidity or prevent worsening of existing invalidity. Rehabilitative health services are activities and/or a series of activities to return former patients into the community so that they can function again as community members who are useful for themselves and the community to the maximum extent possible according to their abilities.

Physical Requirements for Rehabilitation The physical requirements of mental rehabilitation centers also refer to the requirements of mental hospitals. This is done because the physical requirements of a mental hospital should not be much different from mental rehabilitation, so the only difference is in the service program.

1. General Physical Requirements

Spatial planning has an intensive role and interaction with patients or other actors so that there are certain requirements that must be met (According to the regulation of the Minister of Health of the Republic of Indonesia concerning Hospital Environmental Health, Ministry of Health, RI 1996, taken from the thesis Nico Jaya Lumban Gaol) requirements include:

a. The floor is made of waterproof material, flat surface, not slippery and easy to clean.

b. Wall

1) The surface of the wall must be flat and light in color, painted on the wall and easy to clean.

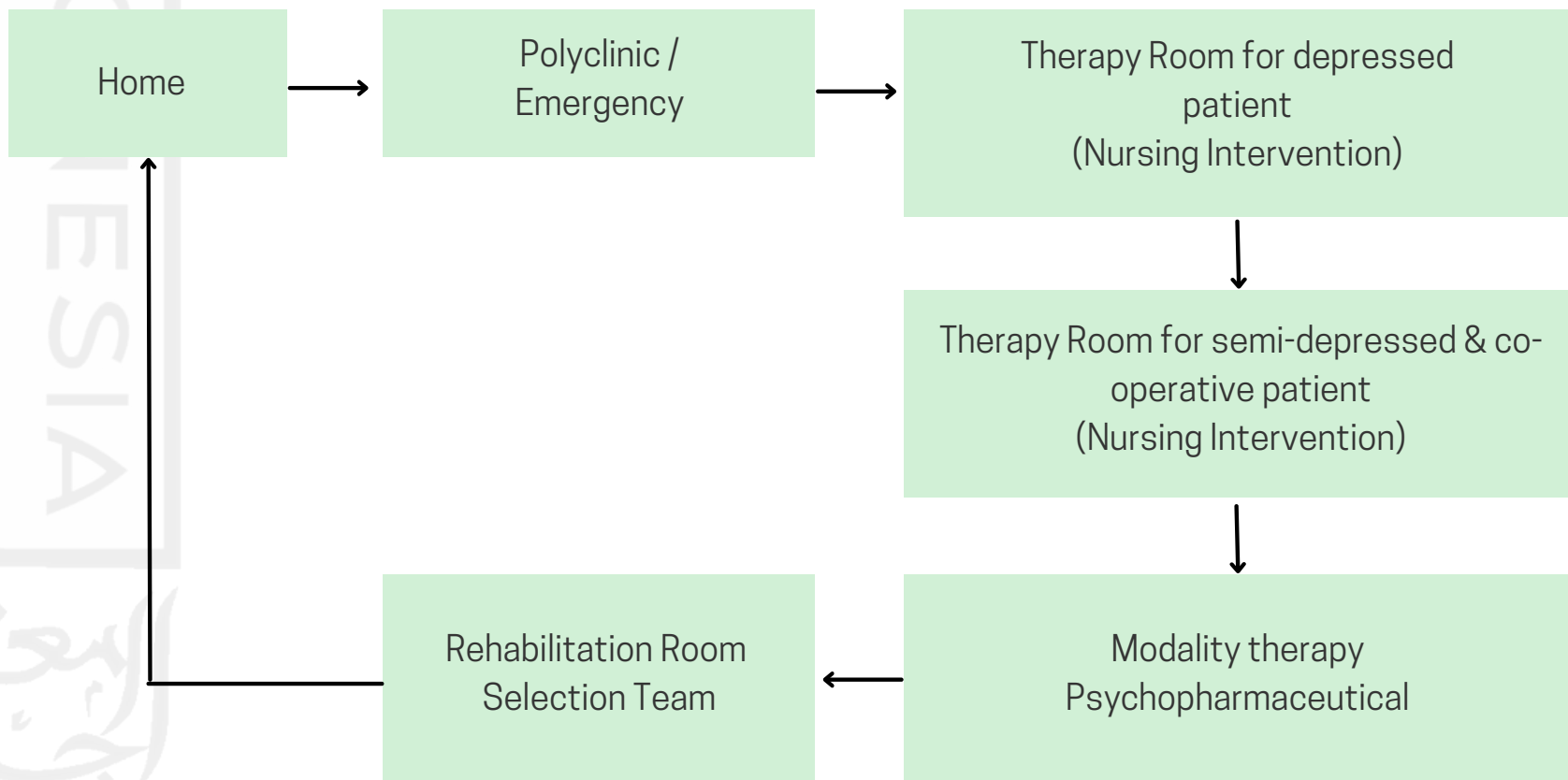
2) Wall surfaces that are always exposed to water must be made of water-resistant materials.



c. 1) Strong ceiling, light in color and easy to clean. 2) Minimum height of 2.5m from the floor and not too high. 3) The wooden frame on the ceiling is made of termite-resistant material. d. Doors 1) Strong enough to withstand the entry of insects, rats, and nuisance animals, when using paint it is required to use termite repellent. 2) The material is made of safe materials and designed to be more flexible so that the patient does not feel pressured or confined in the room. 3) The door handle is installed on the outside of the room so that it can be controlled by social workers. 4) Iron trellis is placed on the outside of the room. e. Windows Requirements are similar to doors, but window panes must be made of a safe material such as acrylic. f. Appearance of Building Masses The mass formation as a whole must eliminate the gloomy impression that can have a depressing effect on the patient.

Rehabilitation refers to a process at removing – or reducing as far as possible – restrictions on the activities of people with disabilities and at enabling them to become more independent and to enjoy the highest possible quality of life in physical, psychological, social, professional and spatial terms.

1.1 Patient Flow Overview to the Rehabilitation Center



BUILDING TYPOLOGY STUDY

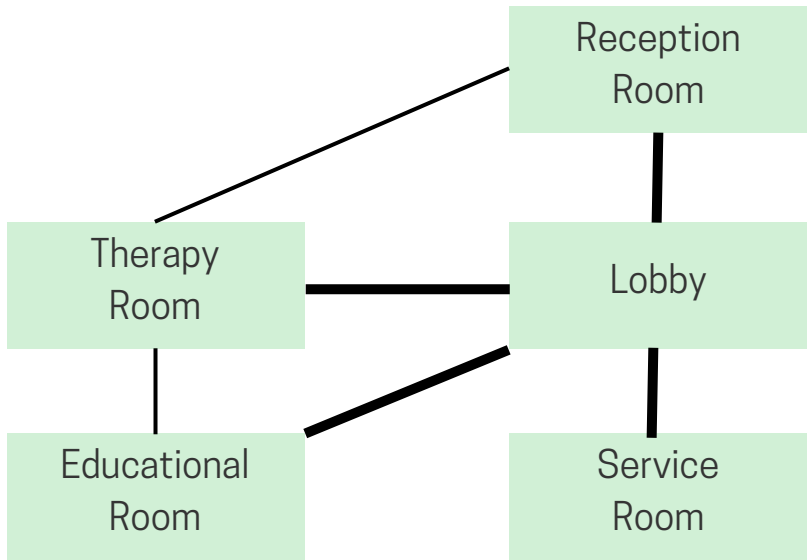
1.2 Study of the spatial elements of mental rehabilitation center

Physical supervision can be done through the building/space that surrounds it. The elements in the room must be able to minimize the patient from the possibility of being injured or injuring himself and things that endanger himself. The space elements mentioned are floors, walls, ceilings, doors, windows, and room furniture. Rifqi (2014) conducted a study on space elements in inpatient facilities for mental patients. A review of the spatial elements was obtained from the Psychiatric Hospital Service Standards (MOH RI, 2009) and Guidelines for Mental Hospital Infrastructure (Puji, 2012) as well as the results of research by Saraswati & Haryangsah (2003).

Table 2. Comparison of the criteria for the material of space elements

Space Elements	Designs		Conclusions
	Saraswati & Haryangsah (2003)	Depkes RI (2009), Puji (2012)	
Ceilings	High ceilings		High ceilings
Wall	Wall which gives “calming” impression		Wall which gives “calming” impression
Floors	non-slip floors		non-slip floors
Furnitures	non-sharp design, no sharp corners	Tables/permanent furnitures (built in), no acute angle	no sharp shapes, permanent
Doors	Use sliding doors	The patient’s room door opens outwards	Sliding doors and doors which open outwards can be used as safe types of doors
Windows	Wide windows with trellis	The window shutters open outwards	Wide windows, open outwards

(Source: Saraswati & Haryangsah, 2003; Depkes RI, 2009; Puji, 2012)



1.2.1 Reception Room

Table 1. Room requirement and size of the reception room

Room Name	Room size (standard)
Lobby	300m ²
Registration room	10m ²
Waiting room	55m ²
Examination room	13m ² (26m ²)
Initial observation room	13m ² (26m ²)
Laboratory	14m ²
Living room	85m ²
Doctor room	10m ²
Nurse room	30m ²
Guard/supervisor room	7m ²
Lavatory	3m ² (12m ²)
Warehouse	9m ²

BUILDING TYPOLOGY STUDY

1.2.2 Physical/ Medical Therapy Room

Table 2. Room requirement and size of the therapy room

Room Name	Room size (standard)
Medical examination room	13m ² (52m ²)
Indoor gym	100m ²
Sports field	100
Doctor's room	17m ²
Sports coach room	9m ²
Nurse room	35m ²
Lounge	85m ²
Guard/supervisor room	7m ²
Relaxation/meditation room	85m ²
Locker room	85m ²
Warehouse	9m ²
Bathroom	3m ² (12m ²)

1.2.3 Educational Room

Table 3. Room requirement and size of educational room

Room Name	Room size (standard)
Skill Class	60m ²
Art Class	60m ²
Waiting room	60m ²
Initial observation room	250m ² (26m ²)
Laboratory	30m ²
Living room	3m ²
Doctor room	9m ²
Nurse room	7m ²

BUILDING TYPOLOGY STUDY

1.2.4 Inpatient Ward

Table 4. Room requirement and size of inpatient ward

Room Name	Room size (standard)		
Men’s ward	I	II	III
Bedroom	560	280	280
Dining Room	240	120	120
Communal Room	240	120	120
Kitchen	10	10	10
Laundry Room	30	15	15
Restroom	3/48	3/24	3/24
Warehouse	9		
Security Room	7		
Women’s ward	I	II	III
Bedroom	140	70	70
Dining Room	60	30	30
Communal Room	60	30	30
Kitchen	10	10	10
Laundry Room	3/12	3/6	3/6
Restroom	11	6	6
Warehouse	9		
Security Room	7		
Living Room	1000		

1.2.5 Office Area

Table 5. Room requirement and size of office area

Room Name	Room size (standard)
Lobby	90m ²
TU room	50m ²
Administration room	50m ²
Living room	30m ²
Director room	5m ²
Manager room	10m ²
Meeting room	54m ²
Conference/Seminar room	360m ²
Restroom	3m ² (18m ²)
Management room	8m ²
Nurse room	175m ²
Mushola	30m ²
Dining room	75m ²
Kitchen	21m ²
Storage	9m ²

PRECEDENT STUDIES



Helsingør Psychiatric Hospital

Planning In the construction of Psychiatric Hospital Helsingør, the architect and his team not only conducted an analysis of the program and client needs, but they also conducted interviews with staff, patients, and families.

This mental hospital is organized to provide the best conditions in mental health care. Effectively minimize the distance traveled by each room, while at the same time providing a section for individual or communal. So that users are expected to feel like at home.



- The design shows an openness where during the day and night, the patient can enjoy the overall view of the outside. The staff remains on duty to look after the patient without making the patient feel supervised.
- Each patient's room faces a different view, some facing the lake, and some facing the hills. Among these various functions, there is a collective space surrounded by offices and patient rooms.

PRECEDENT STUDIES

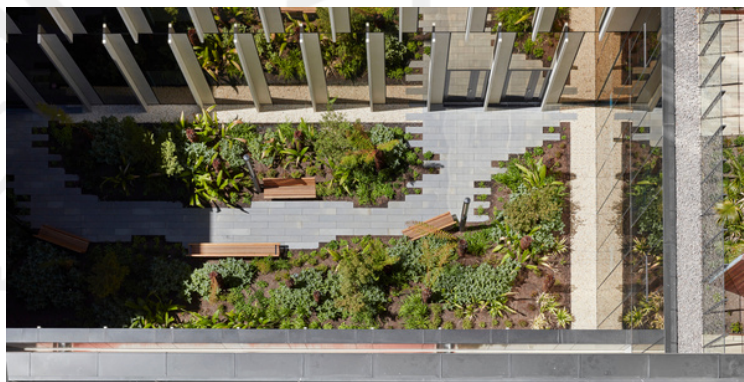


Kemang Medical Center

interwoven plaster concrete panel and colored glass combined to form a pattern for building façade that interacts with its surroundings. Along with imitating the neighborhood, which is dominated by bland business buildings with colorful commercial signboards, it also improves the clinic's interior by creating a different color glow in each room.

1. Chromotherapy and the concept of colored glass façade are related. Natural healing practices include the use of color to restore harmony to the body's energy wherever it may be out of balance—whether it physically, emotionally, spiritually, or mentally.

2. The enormous opening on the roof, which filters natural light throughout the structure, also creates a sensual environment. A connection between people and environment is made possible by the expansive garden's abundance of mature trees.



BENDIGO HOSPITAL

The building and landscape are taken into account as one cohesive unit in the design. The landscape is drawn inward to create inner calm sanctuaries while the architectural form reaches out and frames the garden setting. A garden that can be seen from within the mental health ward offers a visual link to the outside world.

APPLIED VALUE

- The utilization of natural lighting throughout the building
- Natural element inside the building
- Inner yard provide connection for the patient to the nature

PRECEDENT STUDIES



Mother and Baby Care Center by Atelier Zundel & Cristea

The ambience, in the image of traditional Japanese pavilions shown above, centers around a piece of nature, thereby creating a contemplative setting.

The continuous, covered walkway linking the three entities, providing a smooth transition between interior and exterior, is an element that reflects this specific spatial relationship.

COMMUNITY GARDEN

Community interaction is a key function of parks, open spaces, and gardens in cities. Working cooperatively with individuals and groups to enhance their local environment is what this method entails. Public officials can directly include their constituents in the continuous design, development, and maintenance of gardens and open spaces through community involvement. Residents who are informed and involved in the process feel more a part of their communities.

By giving locals a place to get involved in and feel a part of their communities, open spaces promote community engagement. Additionally, they offer a feeling of place and crucial attributes that improve both communal and individual well-being. The architect attempts to create a design that can support and sustain the city's urban park systems by having a thorough understanding of the social advantages of parks and open spaces.

Parks can be gardens.

Parks can include modern and cutting-edge features like public gardens, community gardens, skateboard parks, and natural spaces in addition to grass and trees. Urban parks can be made more varied by using a variety of vegetation types.

Educational Gardens



Boundary Ville RC

Biodiversity Gardens



Commonwealth Secondary School

Edible Gardens



Admiralty Zone 10 RN – Hydroglen

Herb and Spice Gardens



Leng Kee CC Sky Community Garden

PRECEDENT STUDIES

Greenhouse as a Home by BIAS Architect

This greenhouse design is one of the bright ideas to make a green house which is also a vertical garden as a means of education for the community.

The materials and structures in greenhouses are constructed to divide climatic regions, and the distribution of water and energy flows is technologically controlled.

The architect conducted research to integrate plants and programming, and the results allow people to bridge "Greenhouse as home" and experience an integrated variety of climate, scenery, and activities. They can also gain an understanding of the various interdependencies, which is crucial for starting and growing a sustainable culture.





3. DESIGN STRATEGY

Design Of Mental Rehabilitation Center Through
Salutogenic Approach In West Nusa Tenggara

INITIAL DESIGN



Mental Rehabilitation Center

Healing Environment

Mental rehabilitation center will be designed with the consideration of the need of targeted users and the local context with the application of salutogenic approach as the main methods. The targeted users are includes the mental disorder (ODGJ) and people with mental problem (ODMK); those who have the potential to develop mental disorders. This rehabilitation center is designed not only to cure the illness, but also to develop the user's health and well-being. The design will stick to the principle of salutogenic architecture, which are comprehensibility, manageability, and meaningfulness.

the aim is to create a rehabilitation center that provide healing environment in order to promote the user's health with the following design strategy:

Material & Textures

The use of various material to create sensory experience that boost the recovery process.

Colors

The use of particular color type for different room function. Cool colors because these colors give the impression of peace, calm and relieve.

Community Involvement

Volunteer-based or community activities to reduce stress by gardening and visiting green public space

Connection to Nature

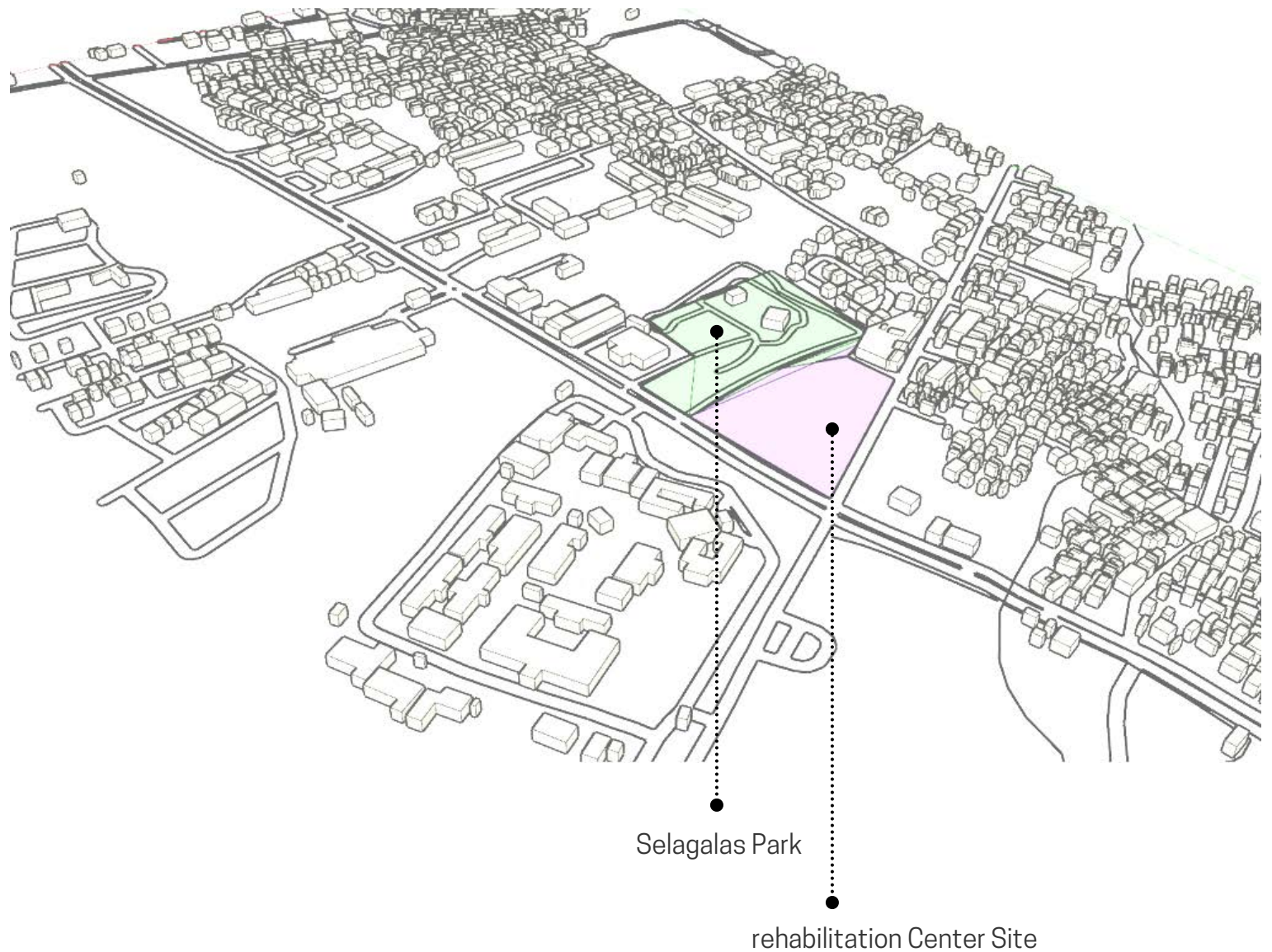
Providing a large opening and green element to the design. Utilize natural element such as sunlight and fresh air.

Valuable Place

aesthetically valuable space and memory for the patient such as garden and praying room.

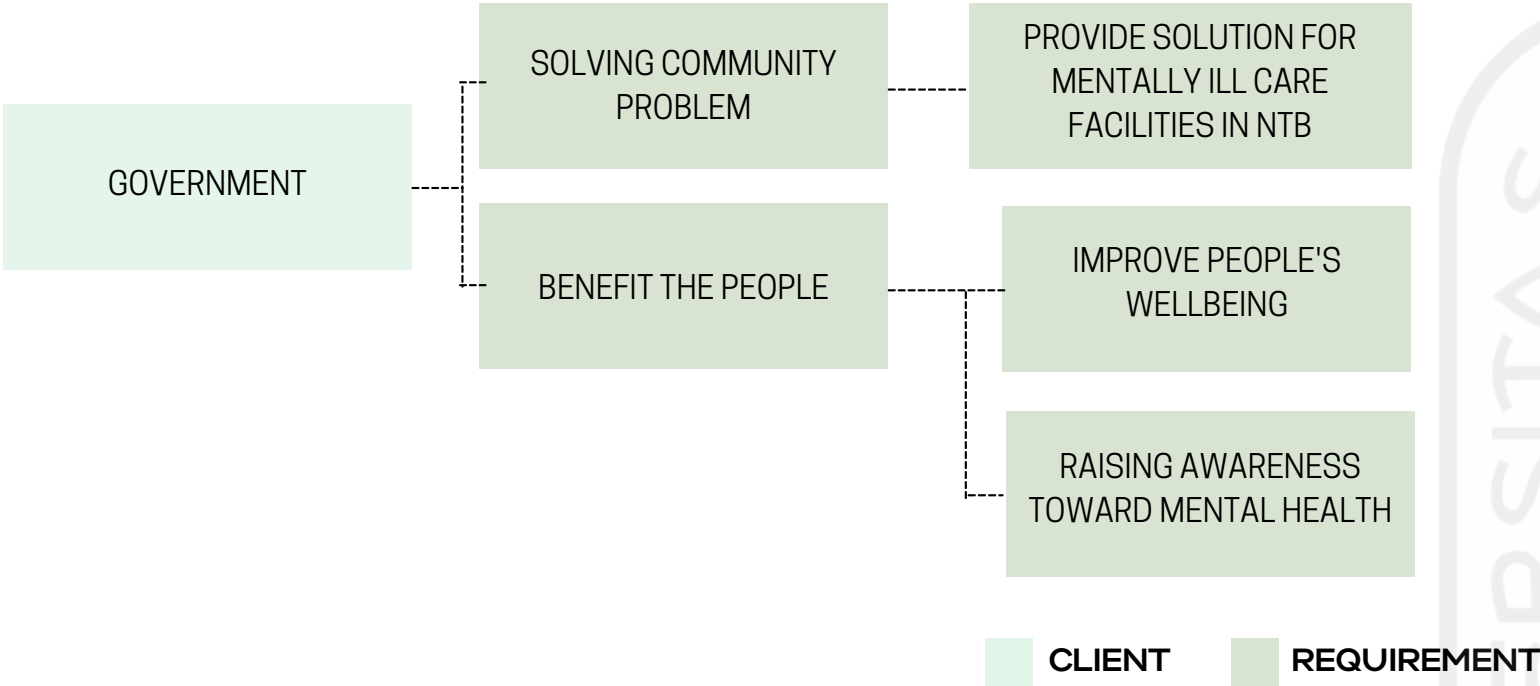
Intervention To Selagalas Park

Integrating Selagalas Park as part of Rehabilitation Center design. Selagalas Park as existing urban green park will be maintained and developed to create the healing environment. The park will be slightly developed into community garden. The goal is to provide a better facilities for the people that can boost their mental health while at the same time maintaining the existing park..



Client

The client of this rehabilitation center is the government. The design itself need to be a solution to solve the province problem; the increasing case of mental health and lack of care facilities for the mentally ill.



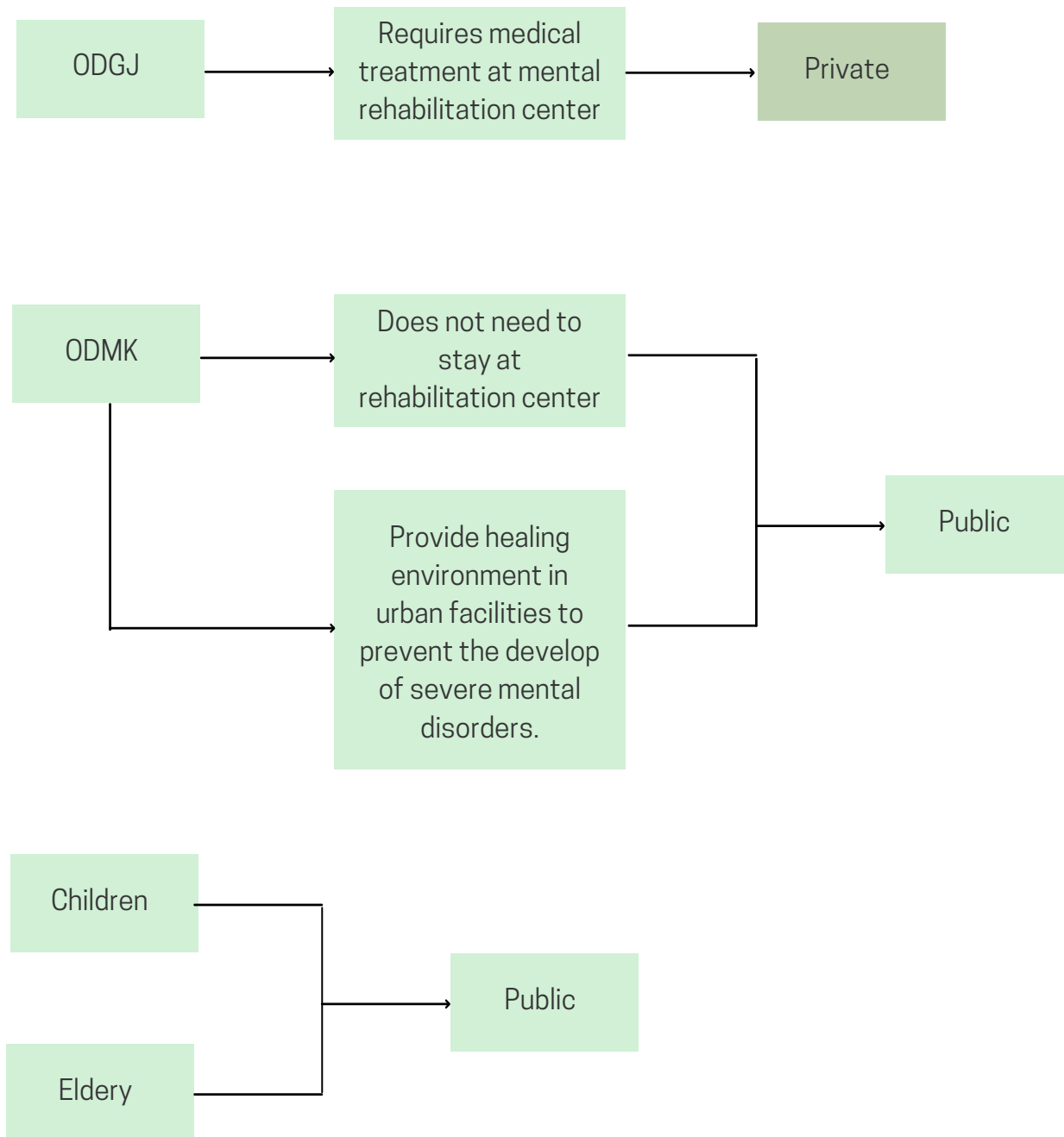
User

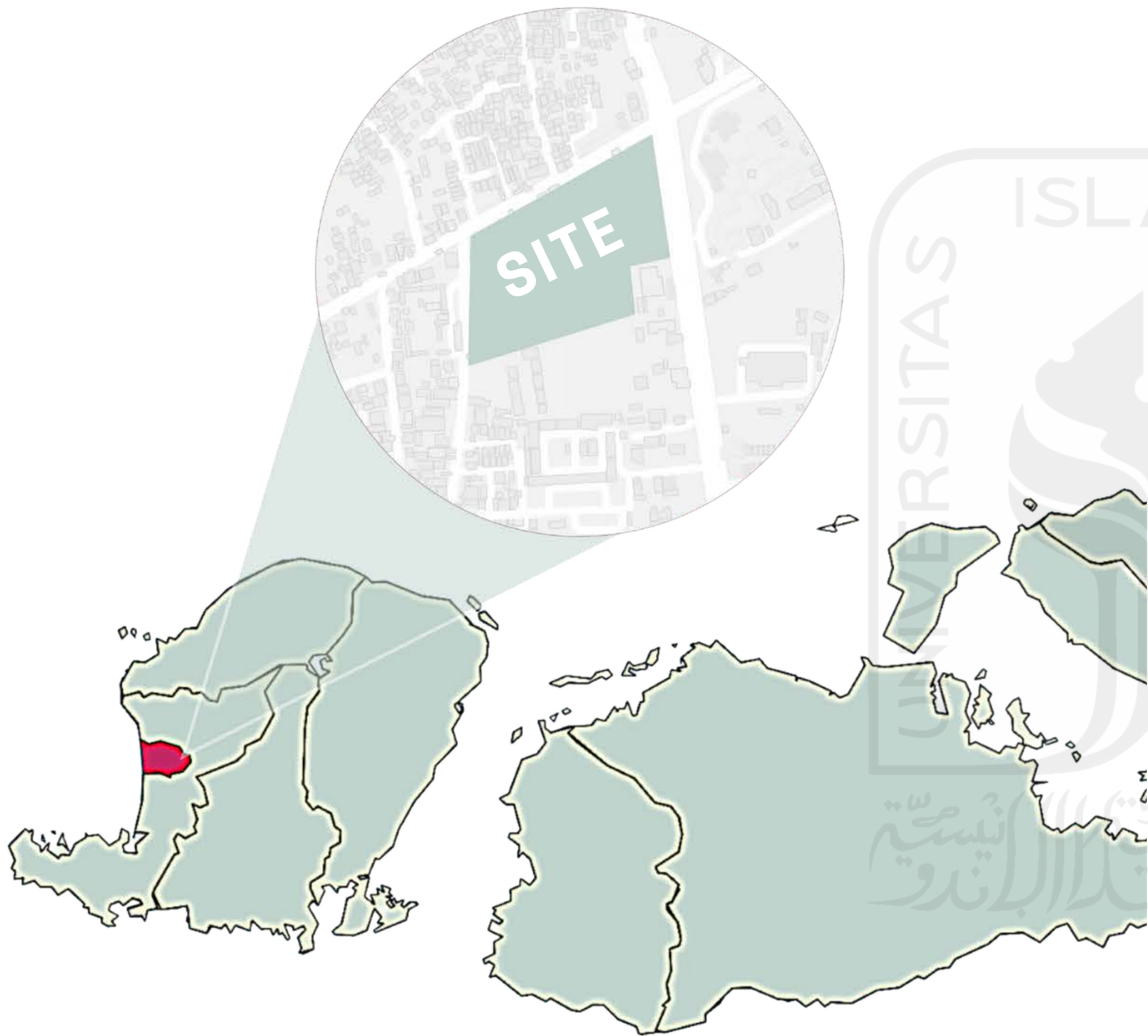
The main users of the rehabilitation center is mentally ill people which is divided into two type; ODGJ and ODMK.

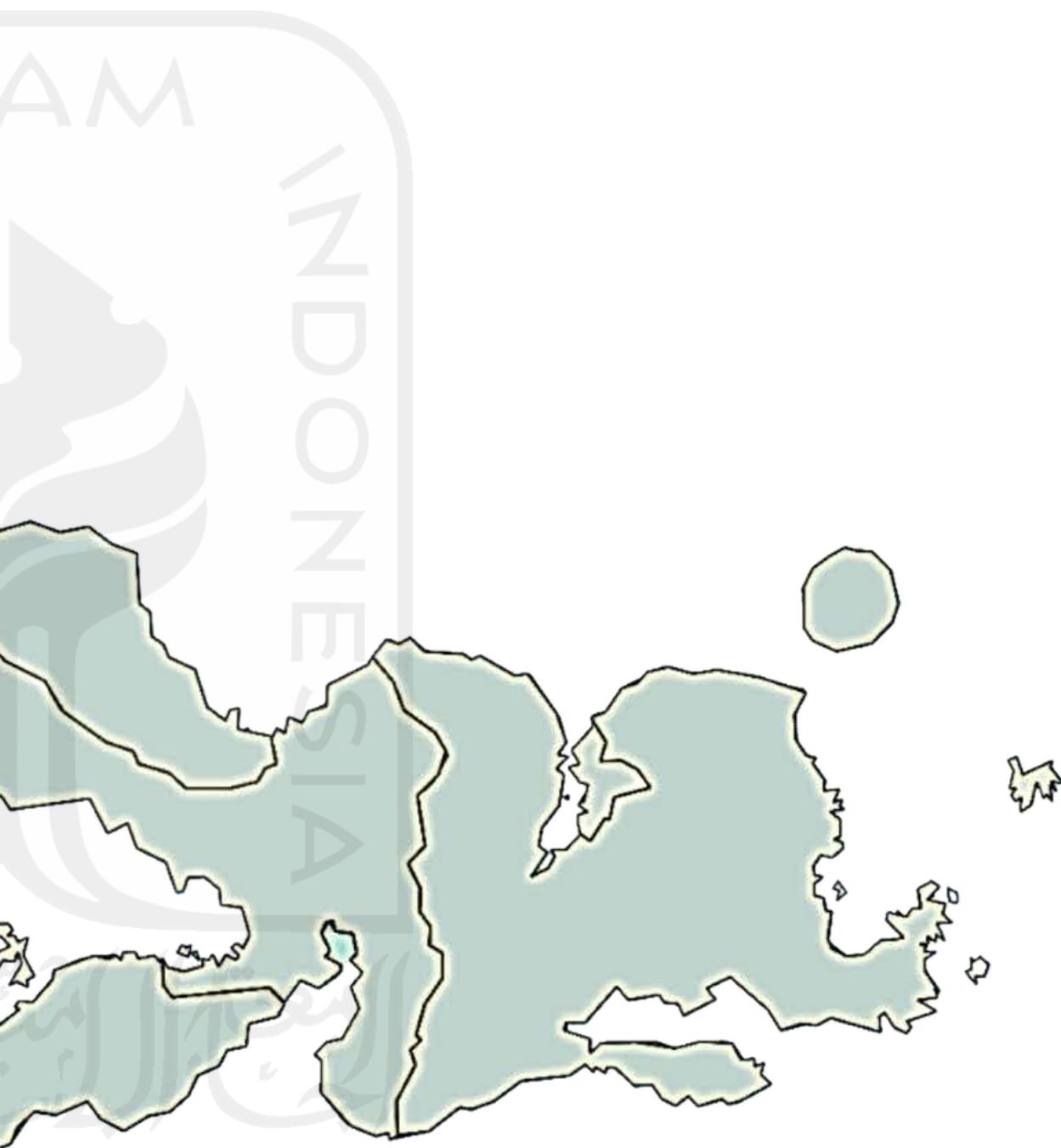
ODGJ
people who experience disabilities in thoughts, behavior, and feelings that form behavioral changes and can cause suffering and obstacles in carrying out human functions.

ODMK
people who have physical, mental, social, growth, and development problems, or quality of life so that they are at risk of mental disorders.

Meanwhile from the public user, they will be divided into children and elderly.







Mataram, West Nusa Tenggara

Mataram is the capital city of West Nusa Tenggara; a province in Indonesia with the total area of area of 61.30 km². The city of Mataram consists of 6 sub-districts including Ampenan, Cakranegara, Mataram, Sandubaya, Sekarbela, and Selaparang.

The boundaries of the Mataram City area are as follows:

North : Gunung Sari District, West Lombok Regency

East : Narmada District, West Lombok Regency

South : Labu Api District, West Lombok Regency

West : Lombok Strait





Site Location

The site is located on Jl. Ahmad Yani, Selagalas Village, Sandubaya District, Mataram City. The site is located in an urban neighborhood in Mataram City.

Housed by a variety of buildings, this site offers a connection with the large green public park on its adjacency, which is one of the main considerations in site selection to create a healing atmosphere, apart from its strategic location and in front of a mental hospital.

There are four main street circulations, two of which are facing directly to the site.



SDN 30 CAKRANEGARA



SMAN 6 MATARAM

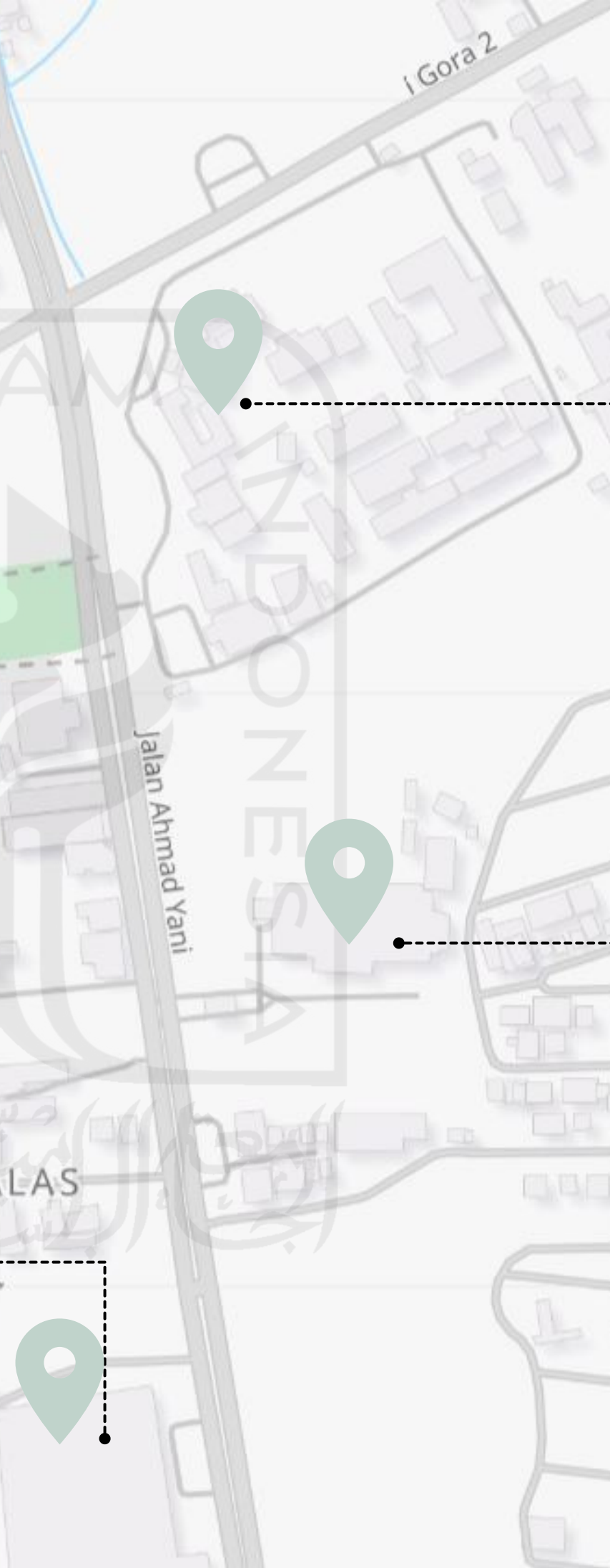


The site is located in a strategic area where around it there are various levels of schools from elementary, junior high, to high school which are also targets for improving well-being. Various ages ranging from students to the elderly who live in local residential areas can take advantage of the public facilities of the rehabilitation center.



SMPN 12 MATARAM





PSYCHIATRIC HOSPITAL MUTIARA SUKMA

Its location in front of the psychiatric hospital is one of the site's strengths that makes the rehabilitation center complementary to the psychiatric hospital. This is also in accordance with one of the requirements for the rehabilitation center to be located close to the hospital.



HARAPAN KELUARGA HOSPITAL



MACRO CONDITION MAP

MICRO CONDITION MAP

Majelis Taklim (MT)
Tarbiyatul Quro

Selagalas Public Park

2

3

1

Two major roads border the site, which are frequently congested during peak hours, special events, or on holidays. There is also pedestrian access going through the site. The Selagalas Park on the side have several existing vegetation.

1



The southwest part of the site is vacant land used for agriculture

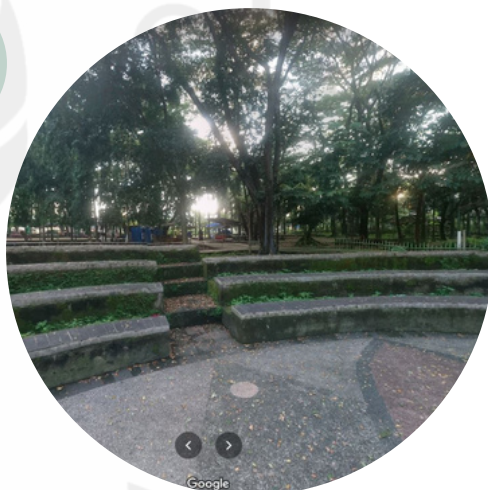
2



Most of the western part of the site is a shopping area filled with shop houses and settlement area



3



The site area includes a city park area with an existing amphitheater in it, as well as various kinds of existing vegetation

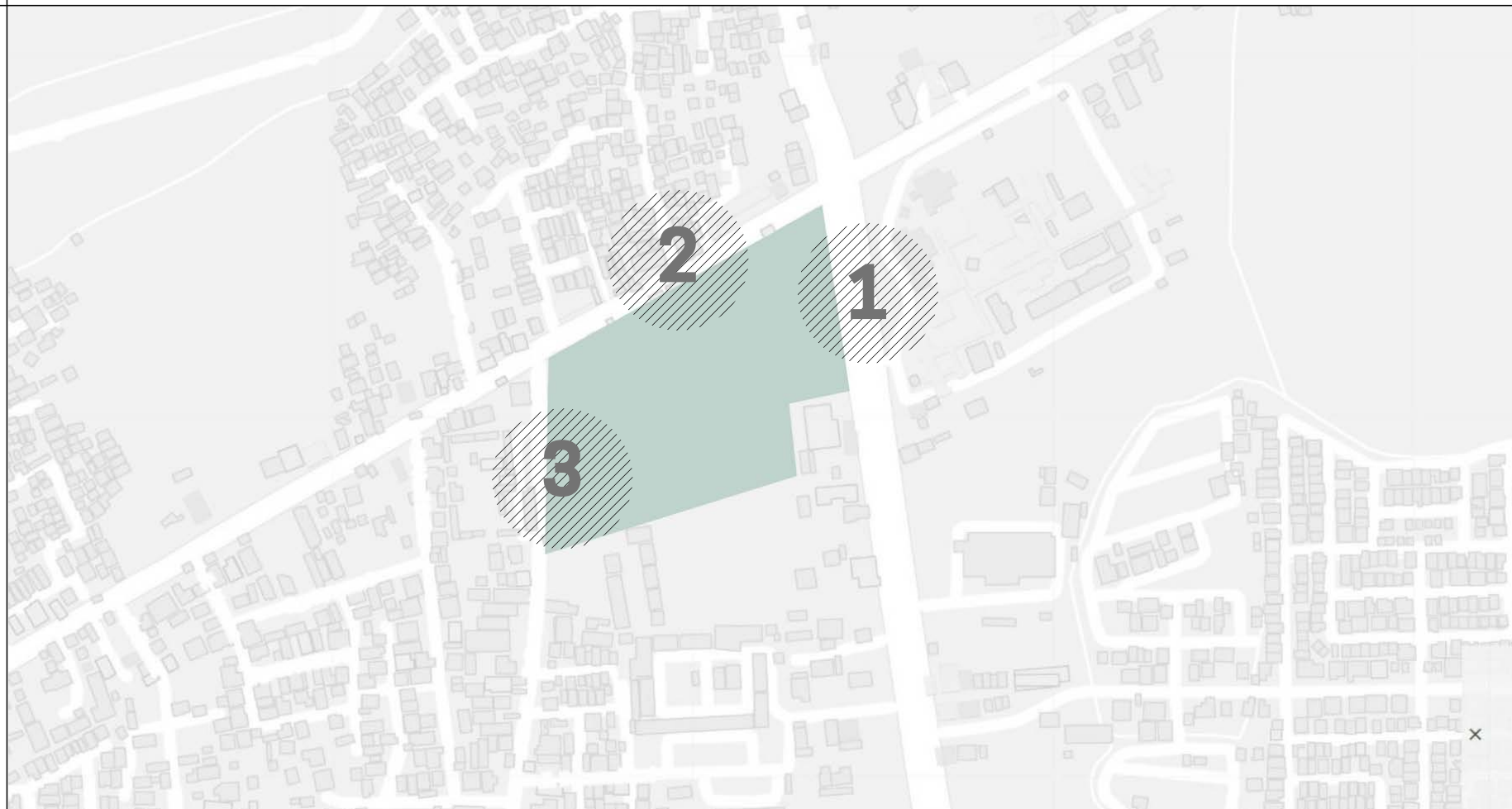


4



The northern part of the site is agricultural land





Jl. Ahmad Yani, Selagalas, Kec.
Sandubaya, Mataram City, West Nusa
Tenggara 83236

A. Building Codes and Regulation

Area : 42,000 sqm

Building Coverage ratio (KDB) : max 70%

Building Floor Area Ratio (KLB) : max 3.5

Green Coefficient (KDH) : min. 20%

KDB
70%

KLB
3.5

KDH
20%

FH
5

1



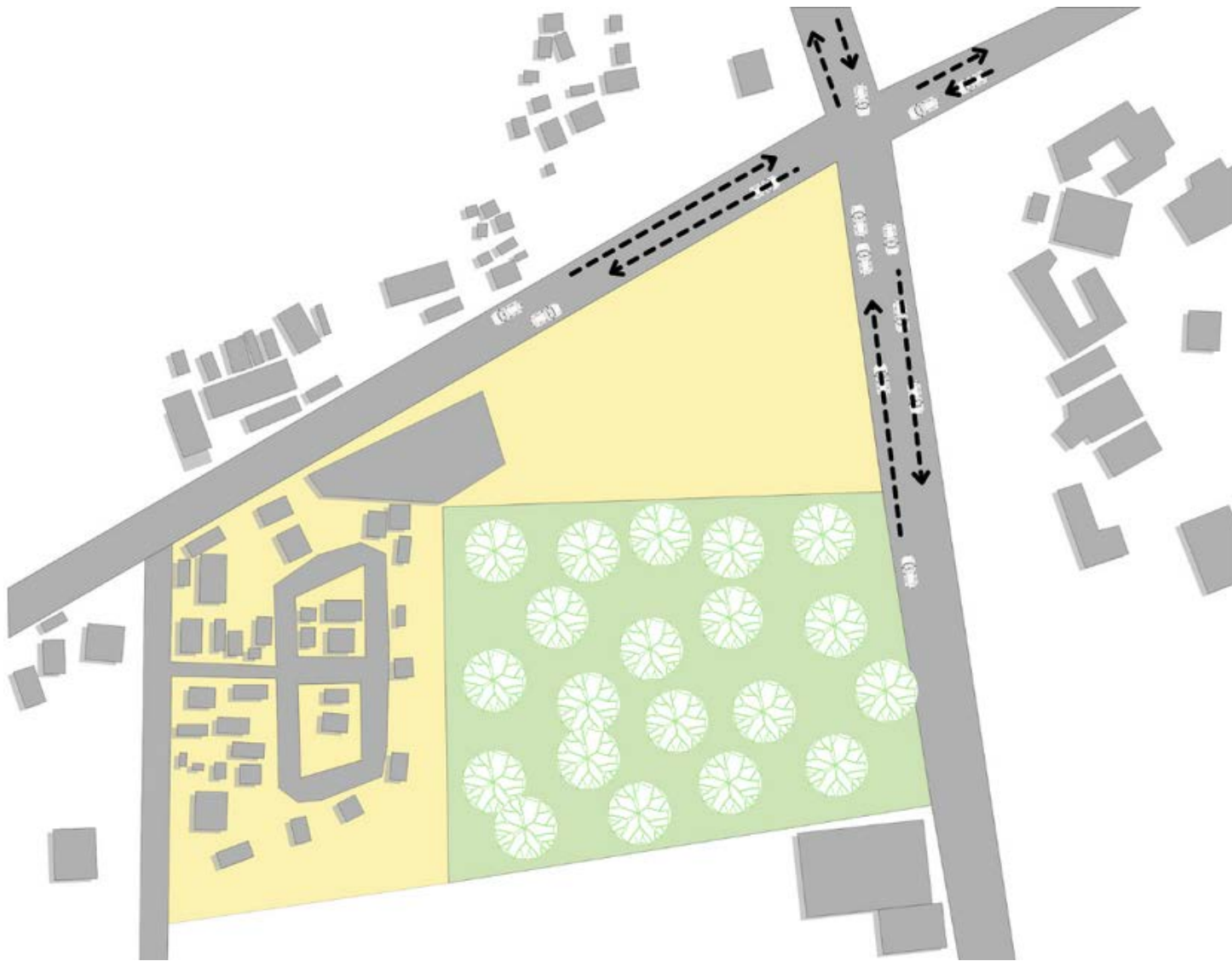
2



3



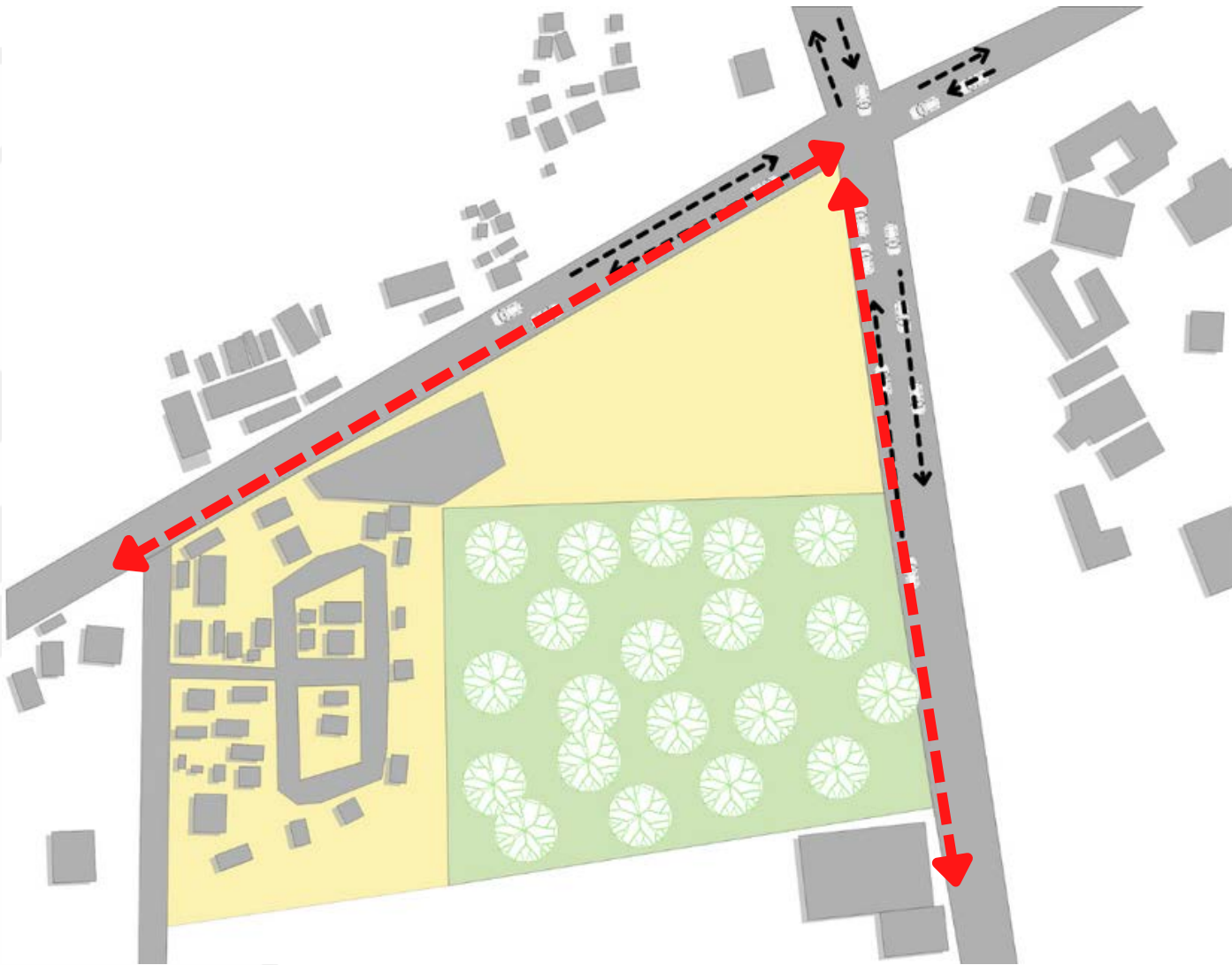
Vehicle Circulation



The site is located right at the intersection area, making it prone to traffic noise during peak hours, but this intersection area is not too crowded and a zoning strategy on the site will be carried out so that the private area has more peace and is located far from the noise source.



Pedestrian and user circulation



Pedestrian easily found anywhere around the site area. The pedestrian is provided along the side of Ahmad Yani St. and Gora 1 St. with the approximate length of the pedestrian is 2.5 meters.

F. SITE AREA

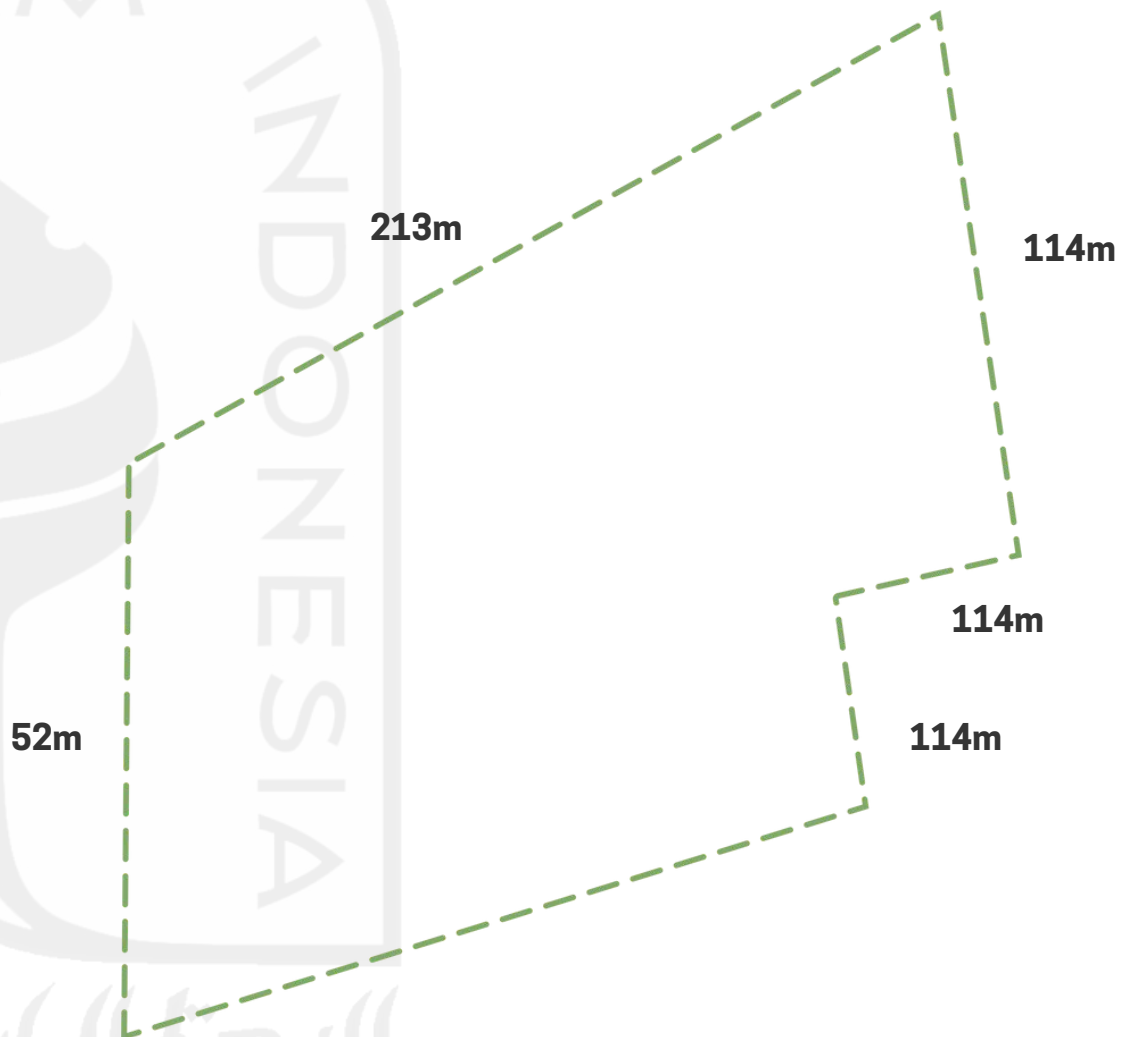


The total area of the site is 42,114.53 m²

The existing site area is divided into two types of function namely public park and residential area. Residential area where there is several settlement as well as empty land. Meanwhile, the existing public park is Selagalas Park.



F. SITE ENGINEERING



Area : 42,000 sqm

Building Coverage Ratio (KDB) : 70%
= Total site area X KDB
= 42000 X 70%
=29.400

Building Floor Area Ration (KLB) : 3.5
= Total site area X KLB
= 42000 X 3.5
for moderate density area
=147.000

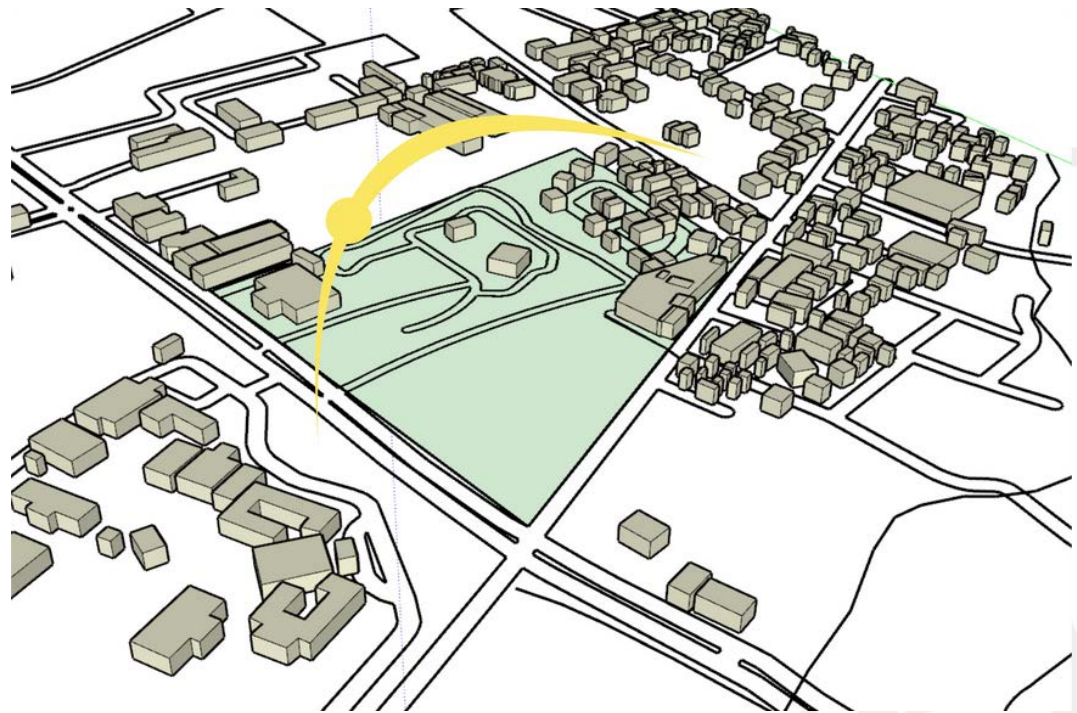
Floor Height = KLB/KDB
=147.000 / 29.400
= 5 Floor

Green Coefficient (KDH) : 20%
(minimum)
= Total site area X KDH
= 42.000 X 20%
= 8.400 m²

ENVIRONMENTAL ANALYSIS

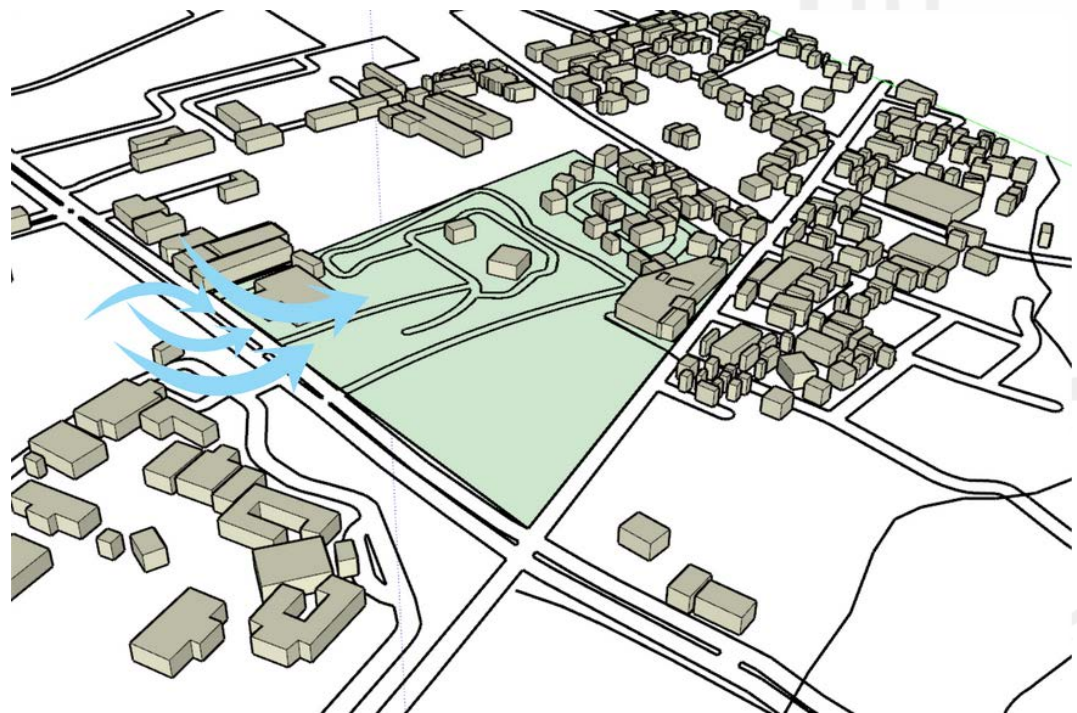
SUN

The sun rises in the east and sets in the west, making the plane in that direction receive the most sunlight. The orientation of the building will be made to face the south-north direction so that direct solar radiation can be minimized.



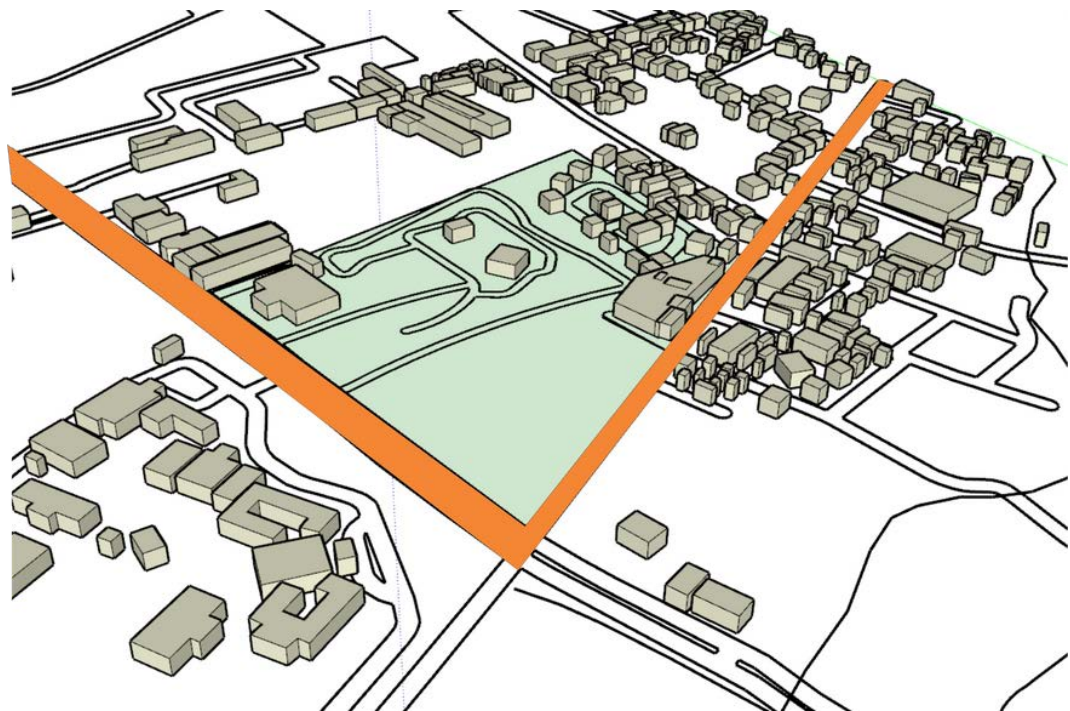
WIND

Over the course of the year, there is a substantial seasonal shift in the wind's direction, which is from south to north. From May 13 to October 28—5.5 months during which there is more wind—average wind speeds exceed 6.1 miles per hour. In Mataram, August is the windiest month of the year, with an average hourly wind speed of 7.6 miles per hour. The more tranquil period of the year lasts from October 28 to May 13 for 6.5 months. Mataram experiences the least amount of wind during the year in March, when it blows an average of 4.8 miles per hour.



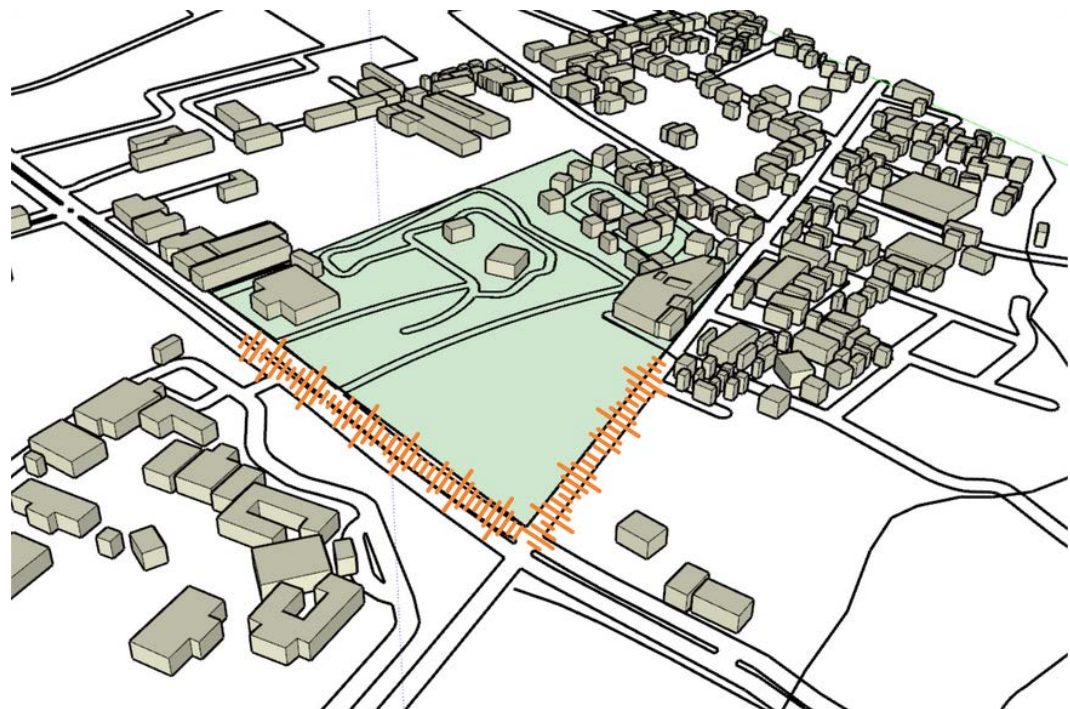
ACCESS

The site are facing two street so it can be accessed through two ways namely from Ahmad Yani St. and Gora 1 St. with pedestrian access along the side of both streets.



NOISE

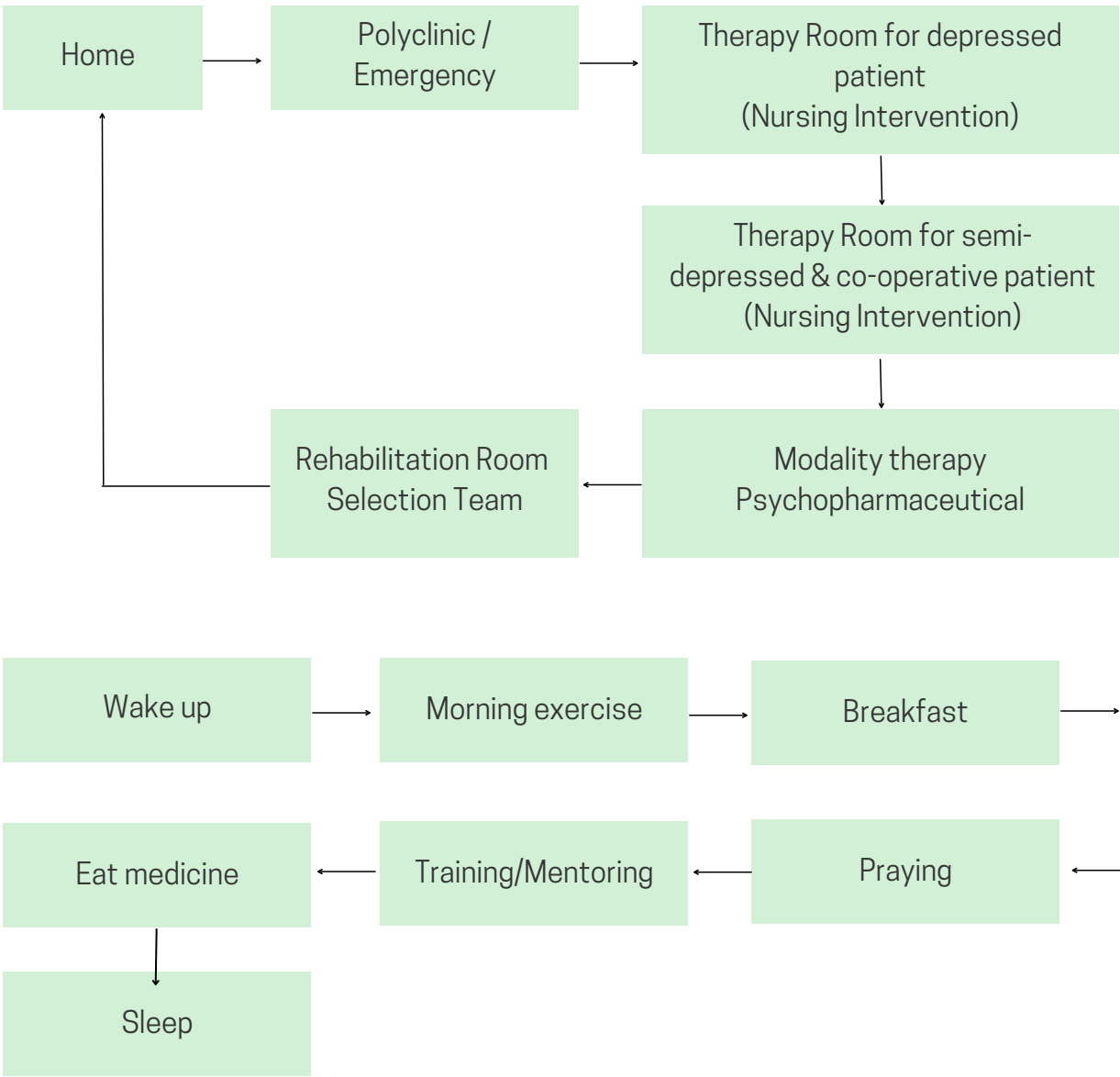
The main source of the noise are mostly come from the street, as Ahmad Yani St. is a medium density area, so that a lot of transport through it and generate noise. While Gora 1 St. is a low density road with few transports passing through it.



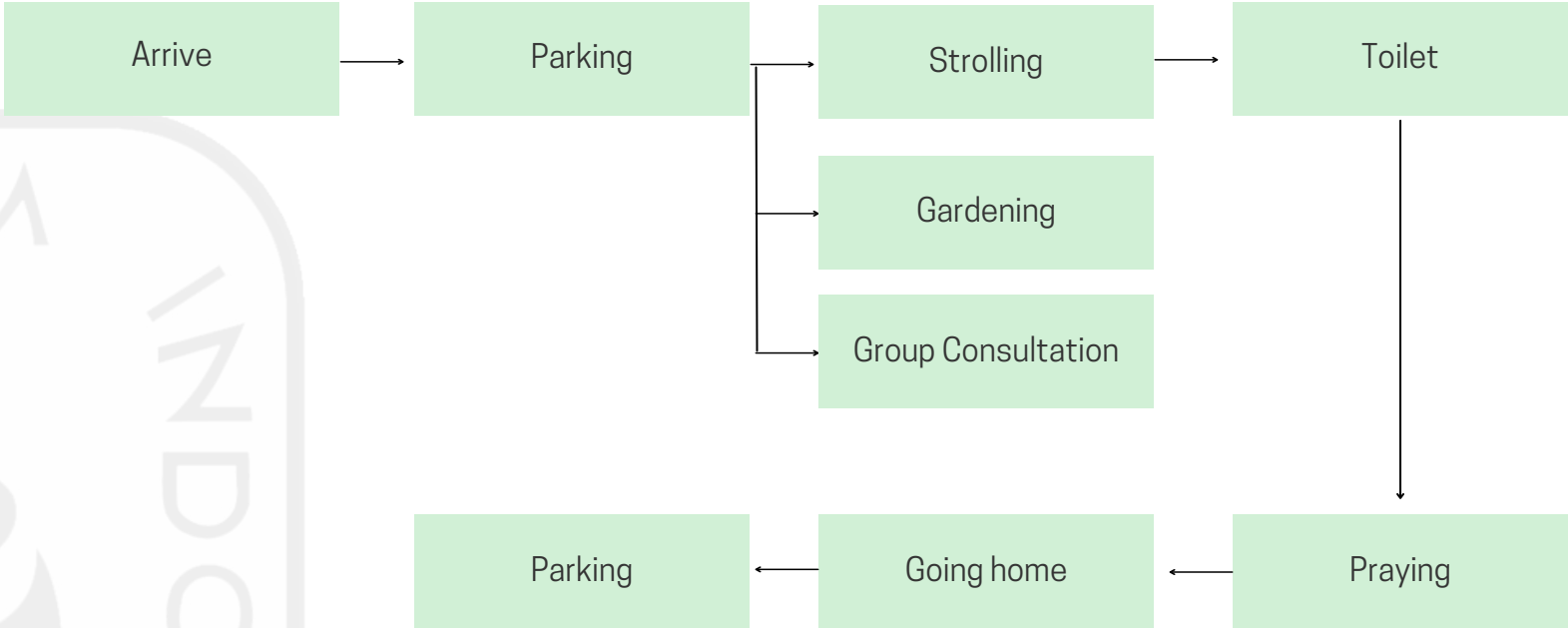
Activity Pattern Analysis

The analytical data for the target user activities, the space needs, and the space requirements that support the activities within building are displayed in the next figures. The information was obtained from observations, and literature study

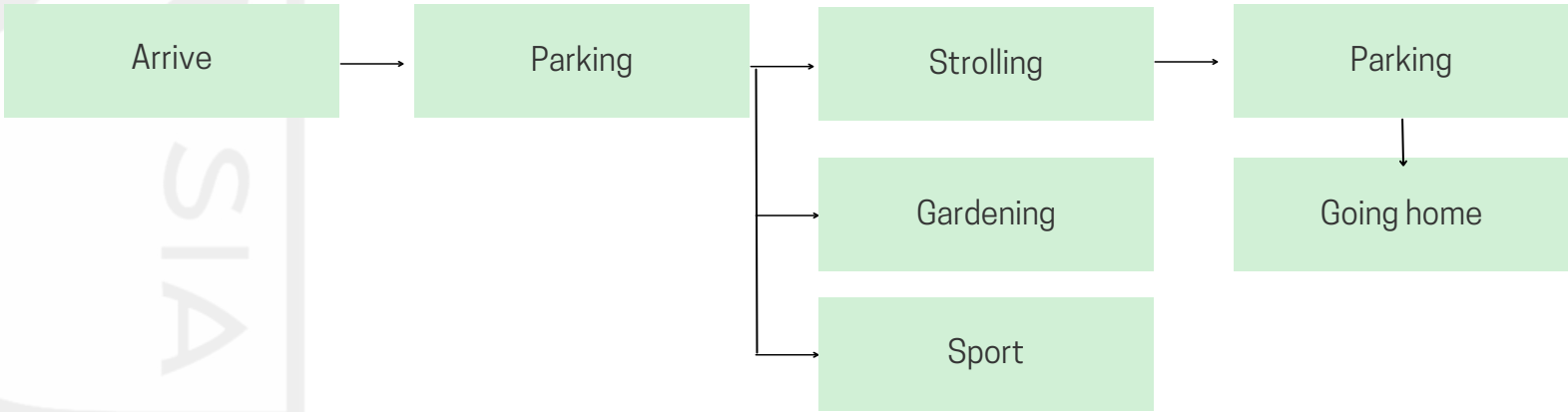
ODGJ (Scheme)



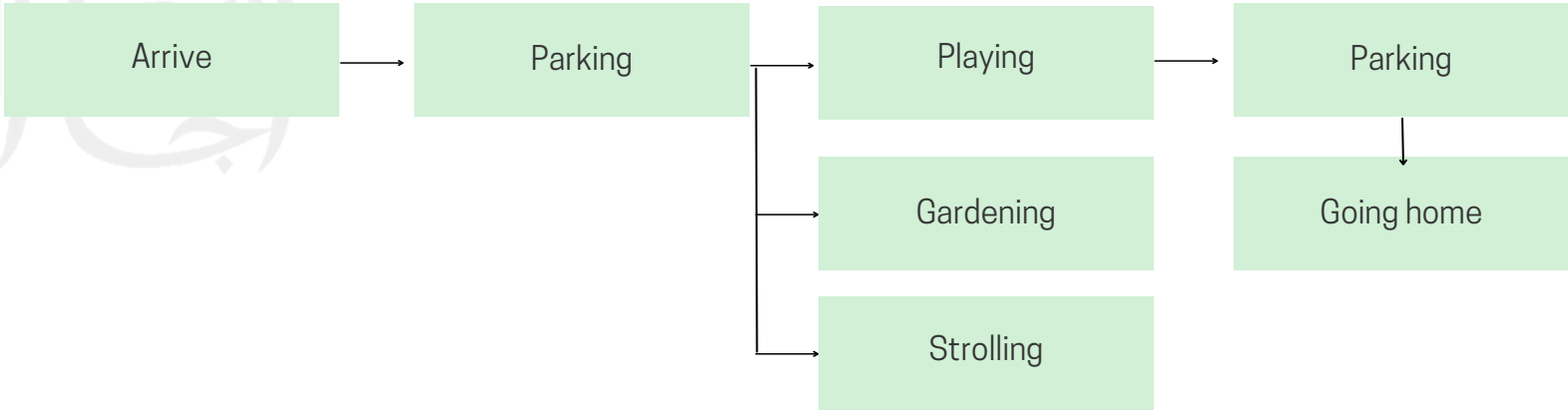
ODMK (Scheme)



Elderly (Scheme)



Children (Scheme)





Jl. Gora 1

Jl. Gora 1

GANTANGAN
TAMAN...



Coffee Lombok
Top rated



Jl. Ahma



● **COOPERATIVE INPATIENT**

● **PARKING**

● **MEDICAL TREATMENT AREA**

● **EXISTING DROP OFF POINT**

● **SEMI DEPRESSED INPATIENT**

● **PARK AND COMMUNITY GARDEN**

● **DEPRESSED INPATIENT**

More exposed to the public area to prepare the cooperative patient for going back to their 'normal' life.

Reachable for 3 categories of patient wards (depressed, semi depressed, cooperative)

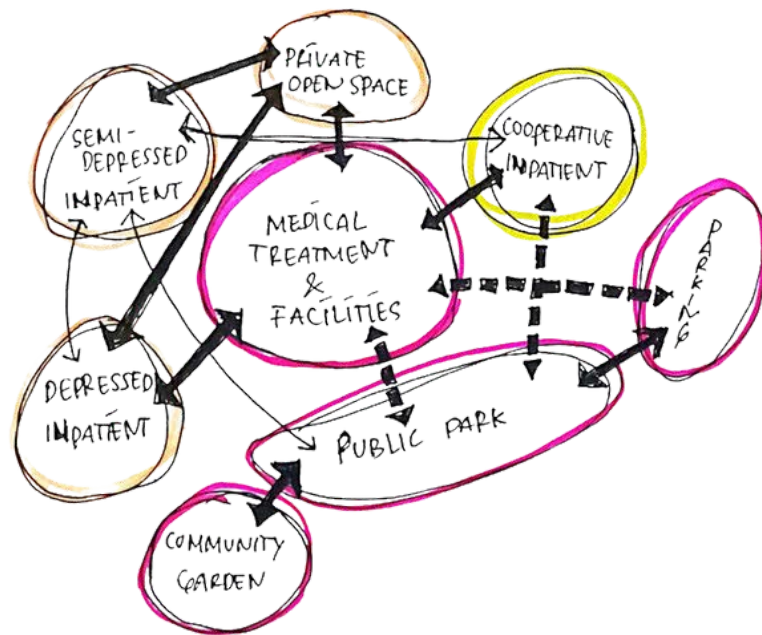
New idea to integrate a rehabilitation center with public park as the heart of the site, eliminating the negative stigma of cruel asylum.

Depressed patient require more privacy placed at the back of the site with furthest distance from the source of noise (streets).

The flow of mass surrounding the garden has the potential to provide direct access to outdoor spaces and views for the entire building mass.

SITE ZONING

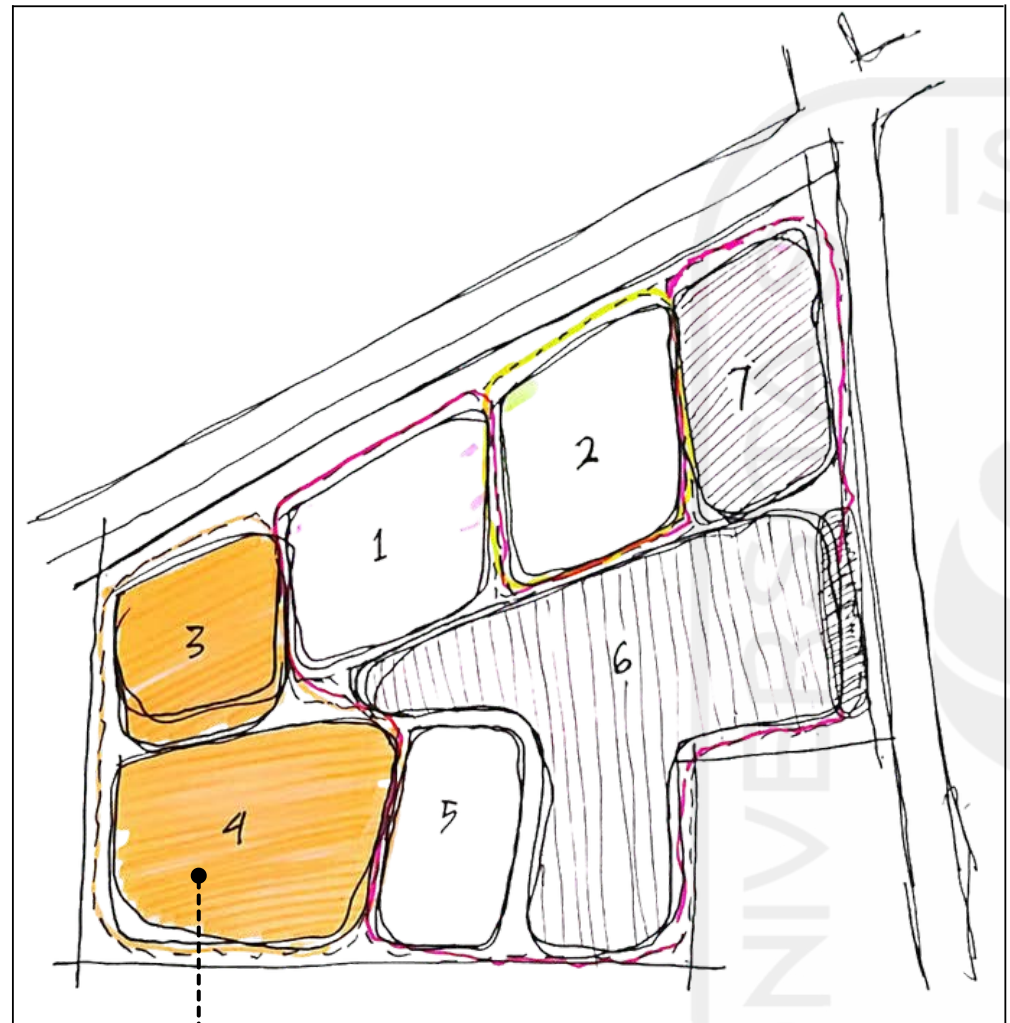
Zoning that utilizes the existing Selagalas park to be redesigned as a park and community to prevent cutting of existing trees. Open green areas touch all parts of the building to maximize the presence of connection with nature.



Considerations:

- Considering privacy hierarchy
- Placement of severe patients at the farthest distance from the sound source
- Cooperative patients can interact directly with the public
- Easy access of medical buildings from other buildings
- The longest facade of the building will be facing north-south
- Utilizing wind direction for building circulation
- Easy access parking

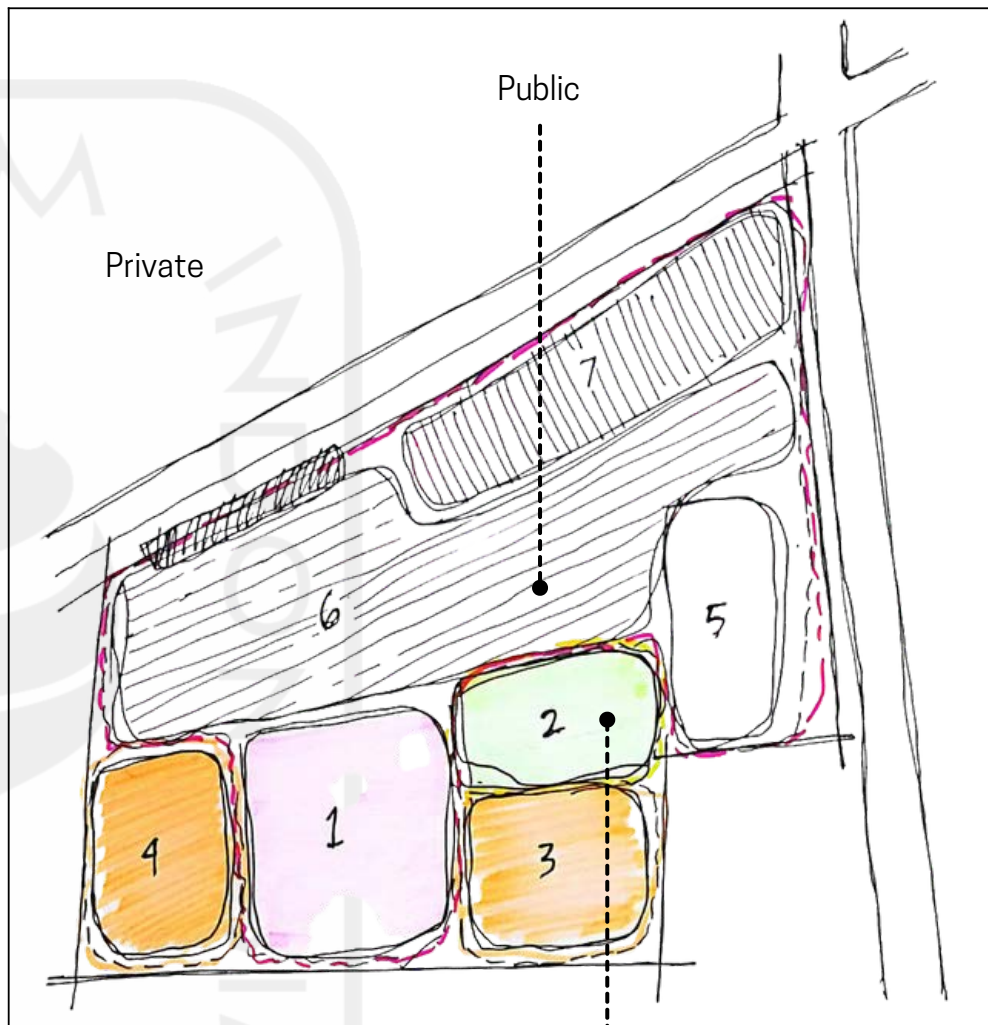
ALTERNATIVE 1



Private

- 1: Medical Treatment & Facilities
- 2: Cooperative Patient
- 3: Semi Depressed patient
- 4: Depressed Patient
- 5: Community Garden
- 6: Urban Park
- 7: Public Park

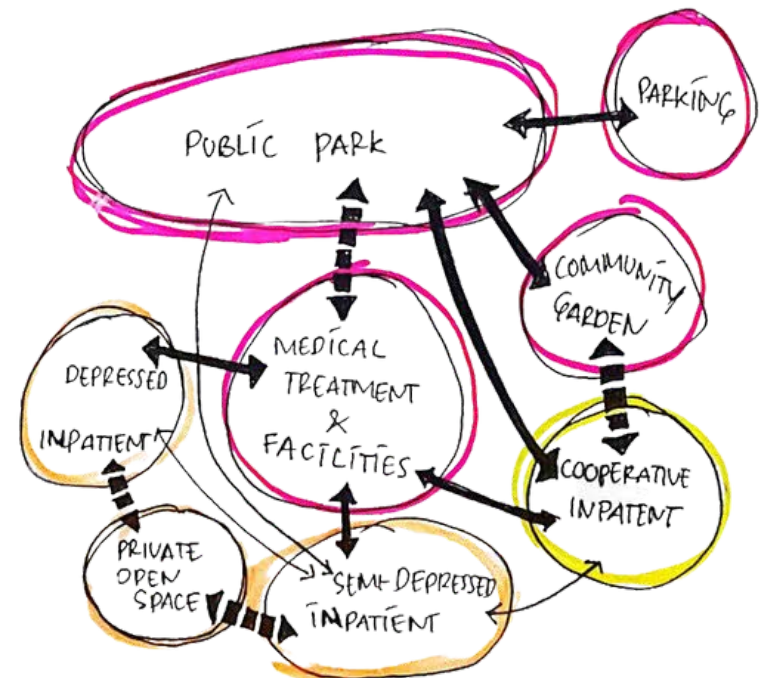
ALTERNATIVE 2



- 1:** Medical Treatment & Facilities
- 2:** Cooperative Patient
- 3:** Semi Depressed patient
- 4:** Depressed Patient
- 5:** Community Garden
- 6:** Urban Park
- 7:** Public Park

Semi Private

Zoning which is the placement of the building mass at the furthest distance from the sound source, by providing more flexible circulation because it provides access from 2 parts of the site.



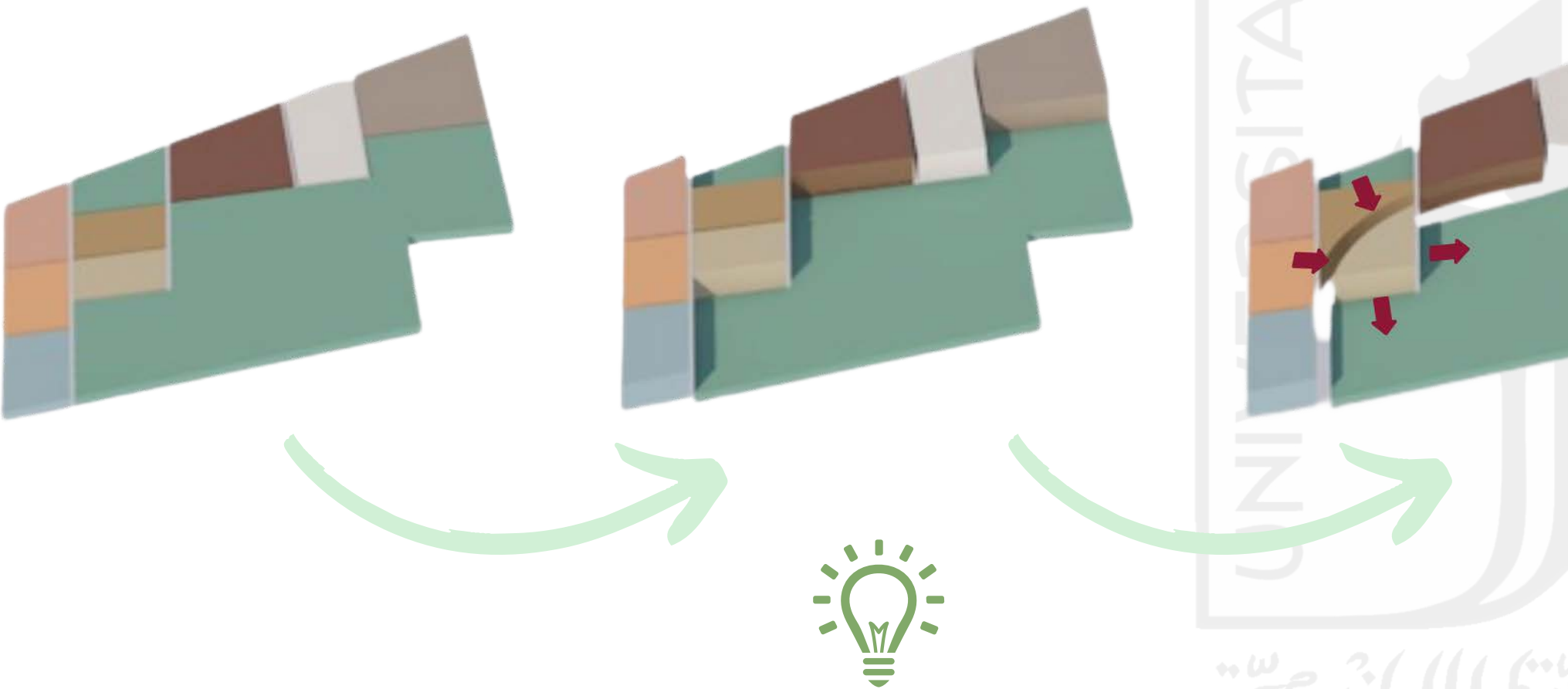
Considerations:

- Mobility is more flexible because it has two accesses
- The building is located far from the sound source
- Medical building and facilities are accessible from other building
- The longest facade of the building faces north and south

The site is divided into several sections based on space requirements and the relationship between spaces

The division between mass and open space is one of the important elements in salutogenic to maximize the connection between the building and the open space

The mass of the garden transition between a rehab and public space

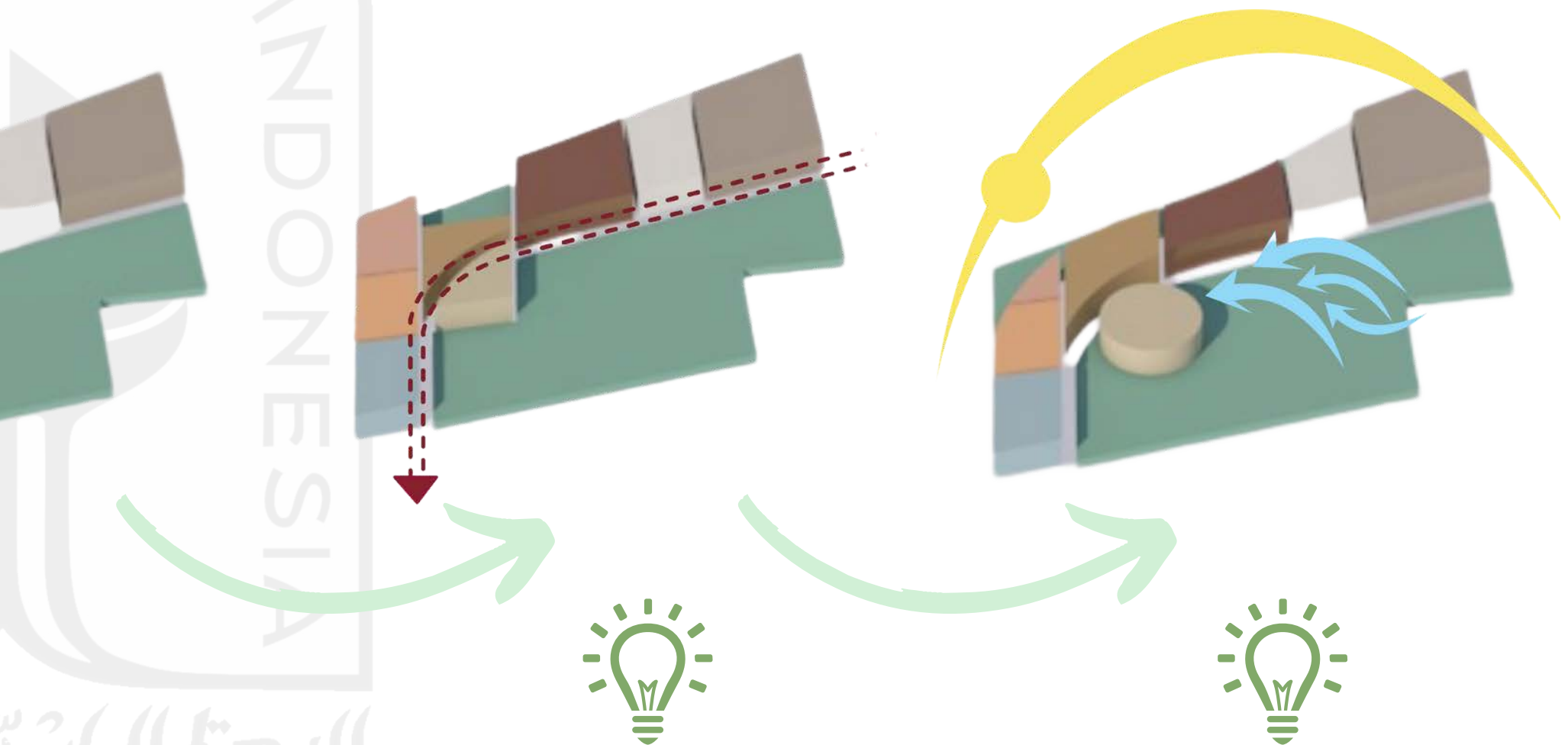


Salutogenic Principle: Meaningfulness
Keywords: Connection To Nature

building as a
rehabilitation center

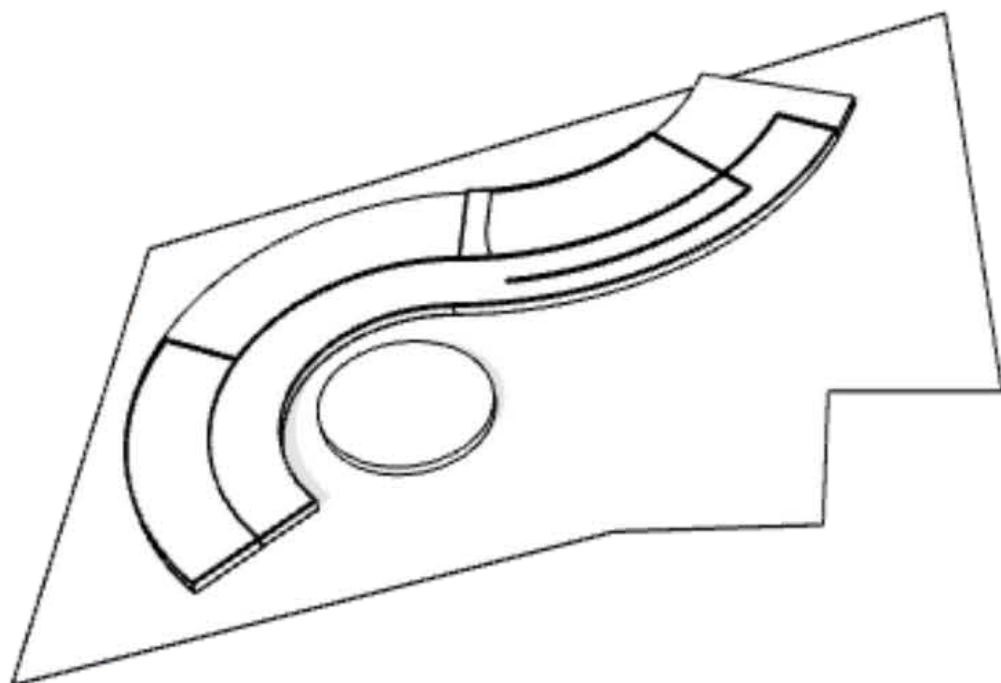
Making the main circulation from the front of
the site to the back for easy access to all parts
of the building and adjusting the orientation of
the site

Adjustment of the building mass to be more curvy
and dynamic in order to generate the perception
of freedom and flexibility

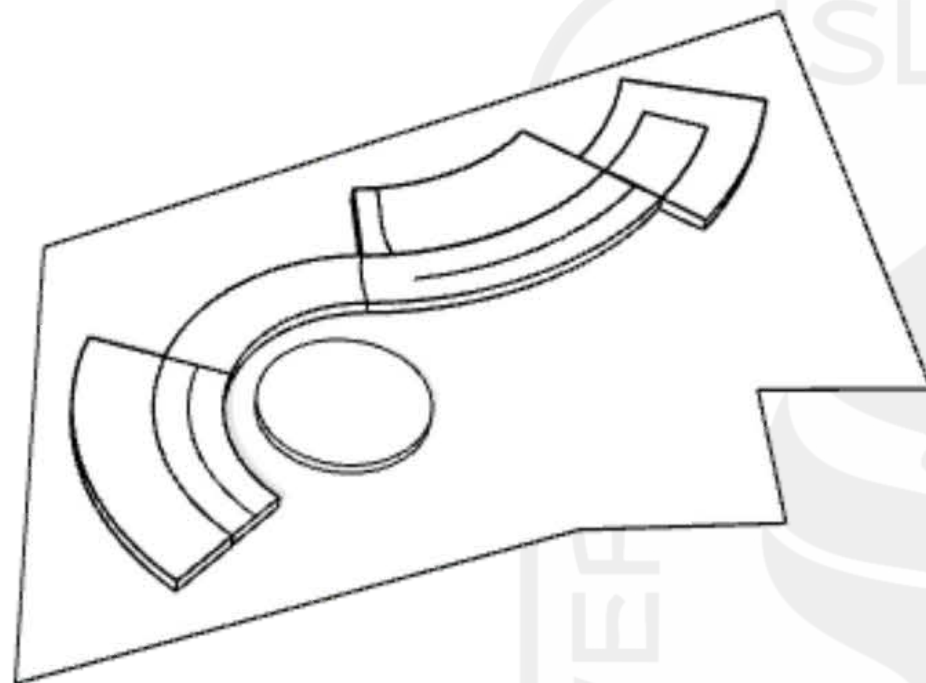


Salutogenic Principle: Manageability
Keywords: Clear Circulation

Salutogenic Principle: Comprehensibility
Keywords: Freedom and Flexibility

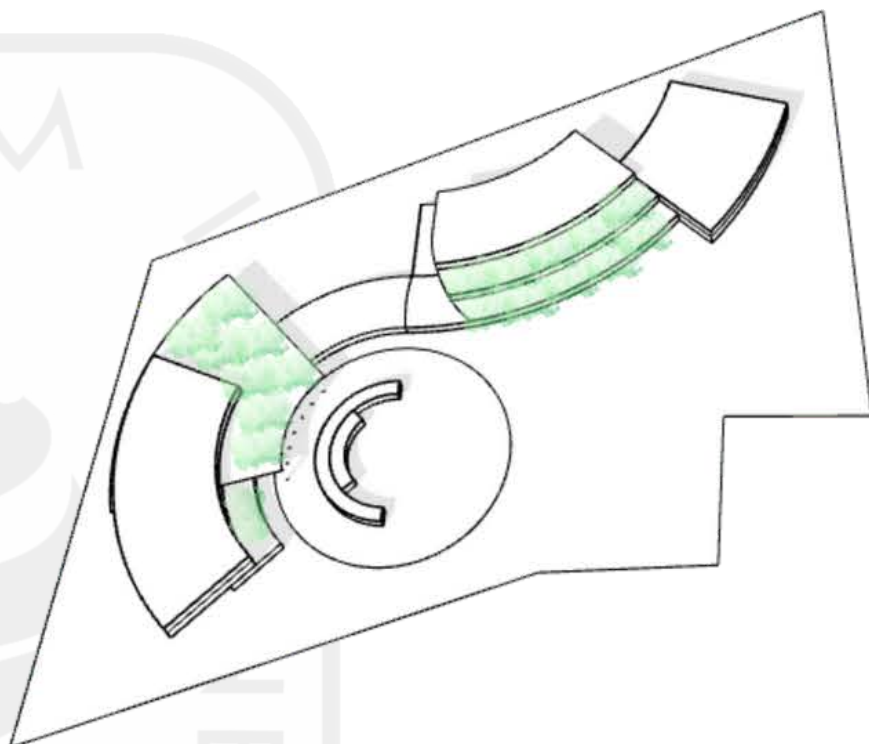


The mass is formed based on zoning which is carried out considering the space requirements and the relationship between them



Adjustment of the mass according to space function needs

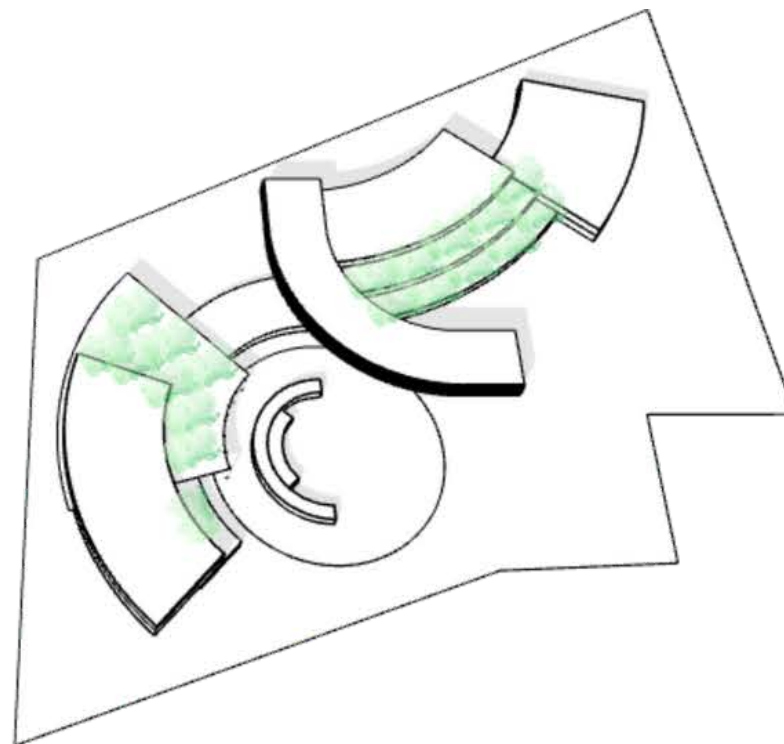




Removal of some part to create opening and for greeneries within the mass. Encouraging green and healthy building.



Salutogenic Principle: Meaningfulness
Keywords: Connection to Nature



Provision of a stand-out arch mass as a liaison between the rehabilitation center and the public. Used as a gathering area and group counseling for the public

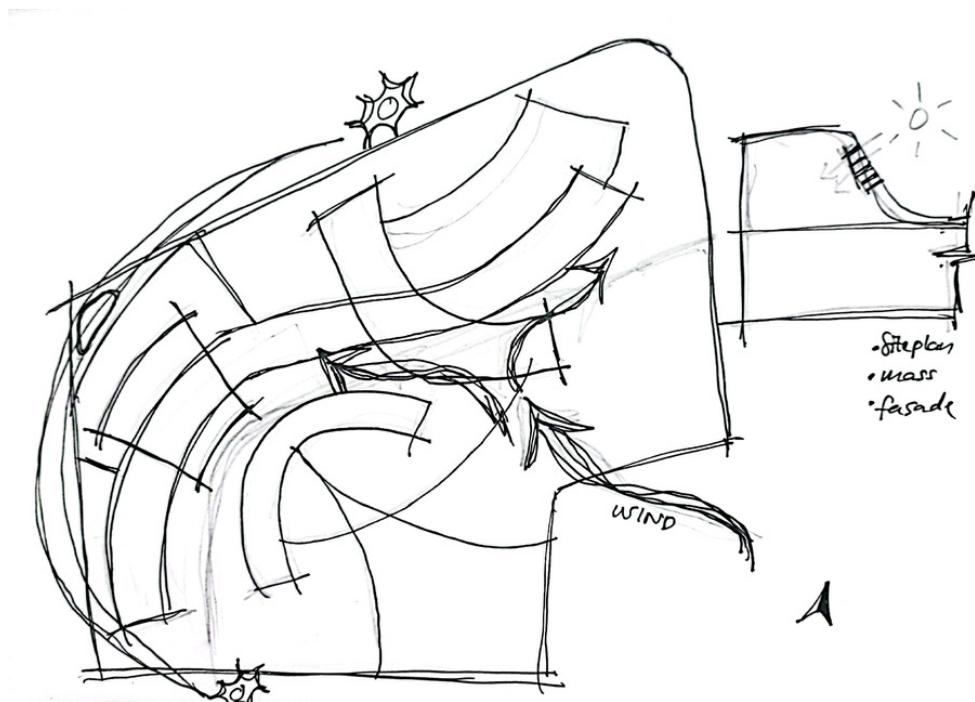
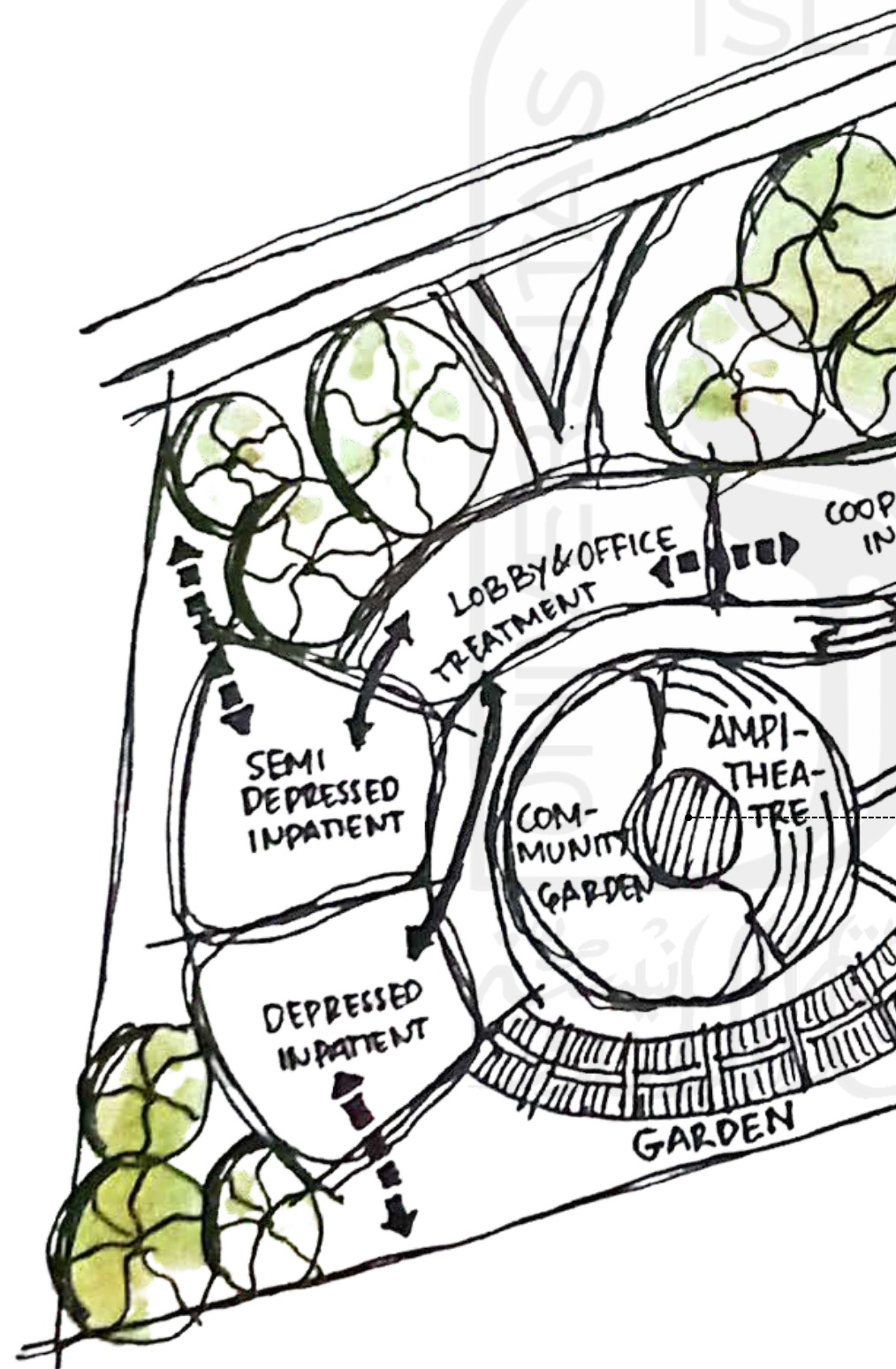


Salutogenic Principle: Comprehensibility
Keywords: Positive Distraction

SITE DEVELOPMENT

FROM ALTERNATIVE 1

The biggest consideration for choosing the alternative one is to preserve the existing vegetation of Selagalas park, while the building configuration also considering the most effective circulation and privacy needs.





Pathway connecting from front to back in case of emergency ambulance access

Entrance access

Communal space as the heart of the site

General Room Requirement

These are the general room requirement for the rehabilitation center, the result is from analyzing user's activity and several secondary sources. There are several main space requirement in general presented in the below figure:

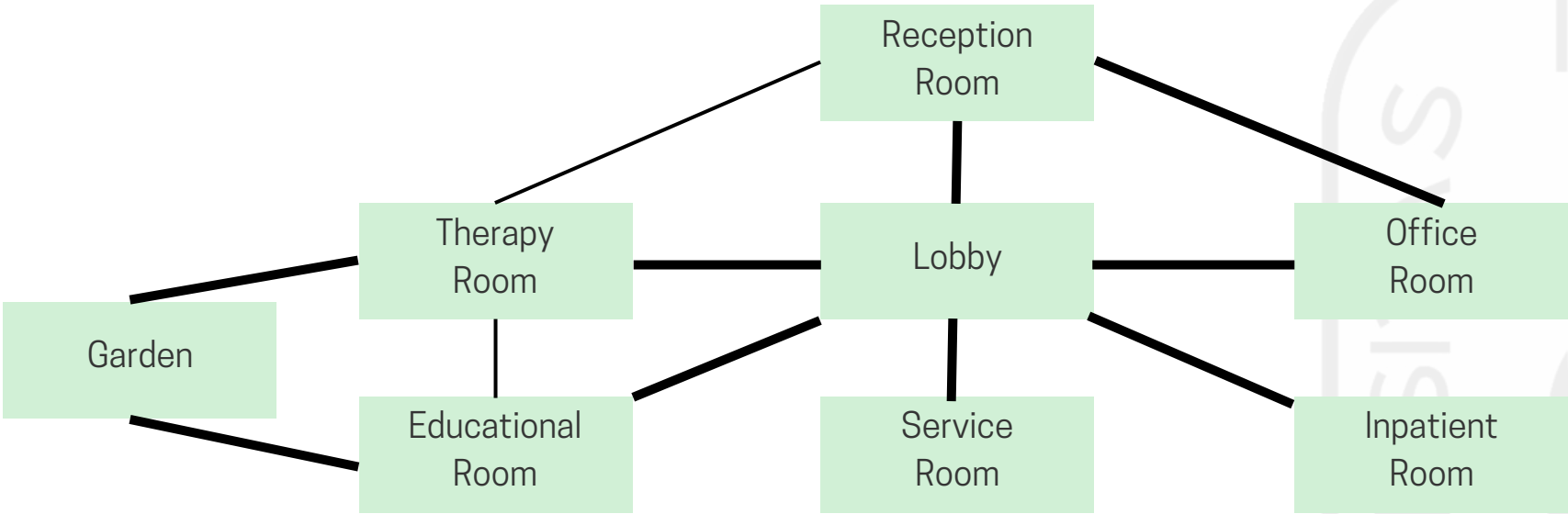


Table 1. Room requirement and size of the reception room

Room Name	Capacity	Number of rooms	Room size (standard)
Lobby	110	1	300m ²
Registration room	2	1	10m ²
Waiting room	20	1	55m ²
Examination room	3	2	13m ² (26m ²)
Initial observation room	3	2	13m ² (26m ²)
Laboratory	4	1	14m ²
Living room	30	1	85m ²
Doctor room	2	1	10m ²
Nurse room	8	1	30m ²
Guard/supervisor room	2	1	7m ²
Lavatory	1	4	3m ² (12m ²)
Warehouse	2	1	9m ²
Total			584m²

General Room Requirement

Table 2. Room requirement and size of the therapy room

Room Name	Capacity	Number of rooms	Room size (standard)
Medical examination room	3	4	13m ² (52m ²)
Indoor gym	30	1	100m ²
Sports field	30	1	100
Doctor's room	2	1	17m ²
Sports coach room	1	1	9m ²
Nurse room	9	1	35m ²
Lounge	30	1	85m ²
Guard/supervisor room	2	1	7m ²
Relaxation/meditation room	30	1	85m ²
Locker room	30	1	85m ²
Warehouse	2	1	9m ²
Bathroom	1	4	3m ² (12m ²)
Total			596m ²

1

Table 3. Room requirement and size of educational room

Room Name	Capacity	Number of rooms	Room size (standard)
Skill Class	15	1	60m ²
Art Class	15	1	60m ²
Waiting room	15	1	60m ²
Initial observation room	60	1	250m ² (26m ²)
Laboratory	6	1	30m ²
Living room	1	6	3m ²
Doctor room	2	1	9m ²
Nurse room	2	1	7m ²
Total			494m²

Table 4. Room requirement and size of inpatient ward

Room Name	Capacity			Number of rooms			Room size (standard)		
Men's ward	I	II	III	I	II	III	I	II	III
Bedroom	11	11	11	8	4	4	560	280	280
Dining Room	88	44	44	1	1	1	240	120	120
Communal Room	88	44	44	1	1	1	240	120	120
Kitchen	2	2	2	1	1	1	10	10	10
Laundry Room	11	6	6	1	1	1	30	15	15
Restroom	1	1	1	16	8	8	3/48	3/24	3/24
Warehouse	2			1			9		
Security Room	2			1			7		
Women's ward	I	II	III	I	II	III	I	II	III
Bedroom	11	11	11	2	1	1	140	70	70
Dining Room	22	11	11	1	1	1	60	30	30
Communal Room	22	11	11	1	1	1	60	30	30
Kitchen	2	2	2	1	1	1	10	10	10
Laundry Room	5	3	3	4	2	2	3/12	3/6	3/6
Restroom	1	1	1	1	1	1	11	6	6
Warehouse	2			1			9		
Security Room	2			1			7		
Living Room	30			11			1000		
Total							1421	1753	721
Overall Total							3895		

Table 5. Room requirement and size of office area

Room Name	Capacity	Number of rooms	Room size (standard)
Lobby	40	1	90m ²
TU room	11	1	50m ²
Administration room	11	1	50m ²
Living room	10	1	30m ²
Director room	1	1	5m ²
Manager room	2	2	10m ²
Meeting room	15	1	54m ²
Conference/Seminar room	100	1	360m ²
Restroom	1	6	3m ² (18m ²)
Management room	2	1	8m ²
Nurse room	48	1	175m ²
Mushola	10	1	30m ²
Dining room	20	1	75m ²
Kitchen	5	1	21m ²
Storage	2	1	9m ²
Total			985m ²

General Room Requirement

ROOM	AREA	NOTE
Reception Room	584 sqm	
Therapy Room	596 sqm	
Educational Room	494 sqm	
Office Room	985 sqm	
Impatient ward	3895 sqm	
Service area	1271 sqm	
	7825 sqm	
	+20% = ~9390 sqm	



Comprehensibility

Keyword: Clear Layout

Registration



Examination



Treatment



Inpatient

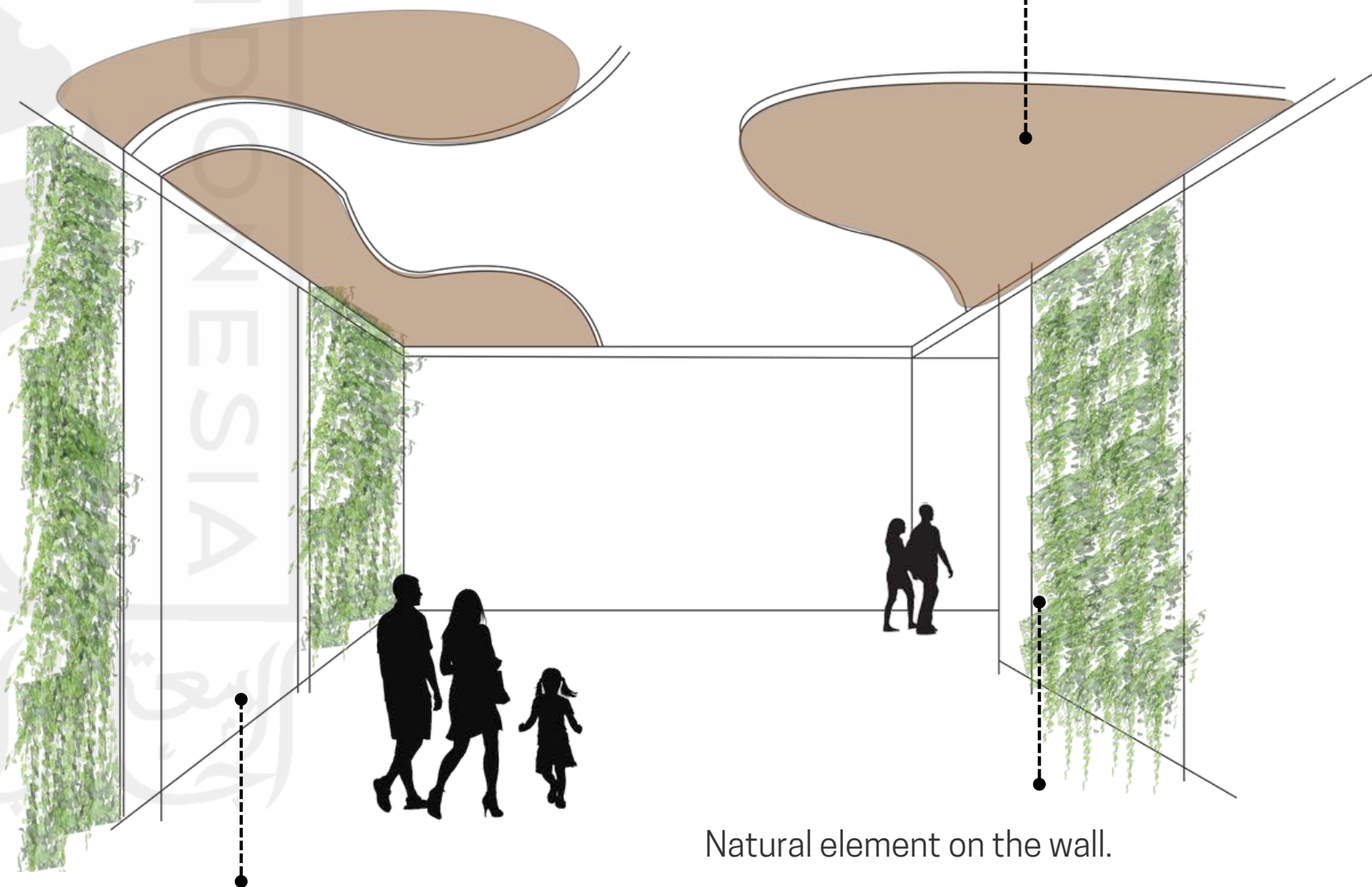


1

Registration

First impression matters.

Ceilings are made fluid giving the same impression of the exterior. Using wood to generate a warm feelings.



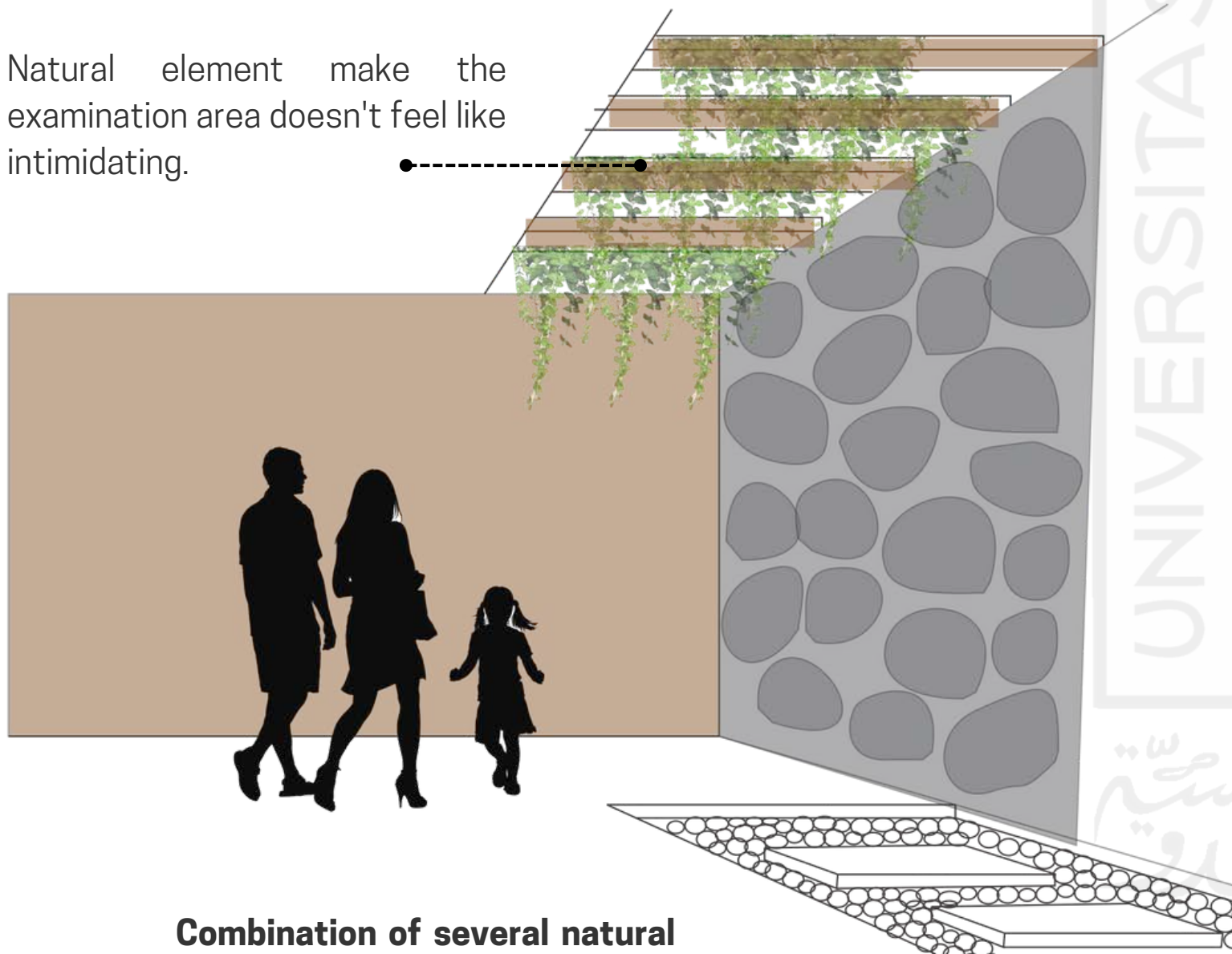
Transparent material make the outdoor nuance visible from the inside.

Natural element on the wall.

2

Examination

Natural element make the examination area doesn't feel like intimidating.



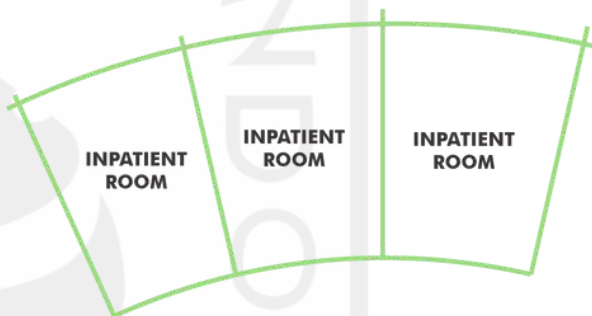
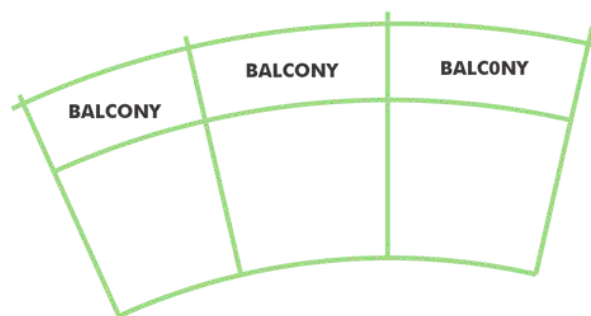
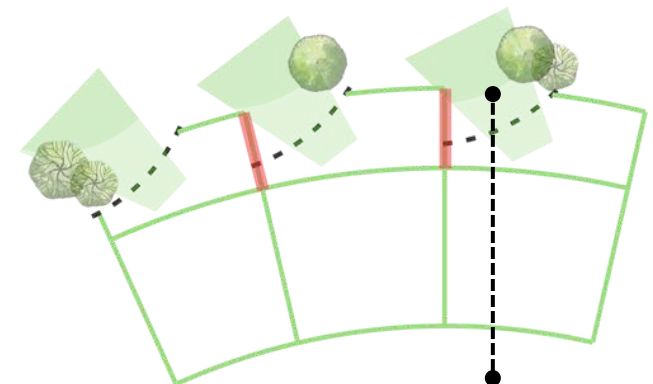
Combination of several natural materials to show textures.

3

Inpatient

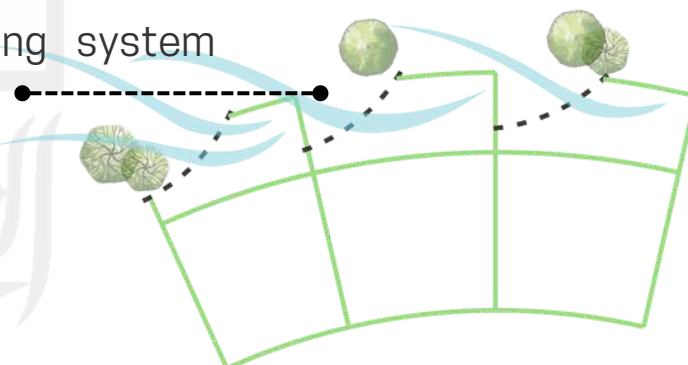
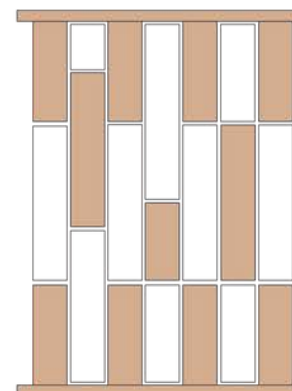
Each room is divided consisting of bedroom and balcony

Removal of some part diagonally providing view area yet still maintain the privacy



Sight line limited by the next wall for privacy

The opening will provide good air circulation and passive cooling system for the room



Removed area covered with pattern that has void in it yet still protecting as a wall/

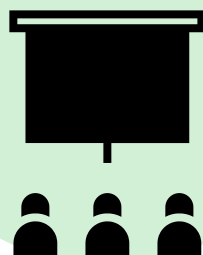
4

Treatment & Therapy

PSYCHOTHERAPY
(Consultation & Counseling)



SEMINAR



ART THERAPY



GROUP THERAPY



RELIGIOUS THERAPY



GARDENING



MEDITATION



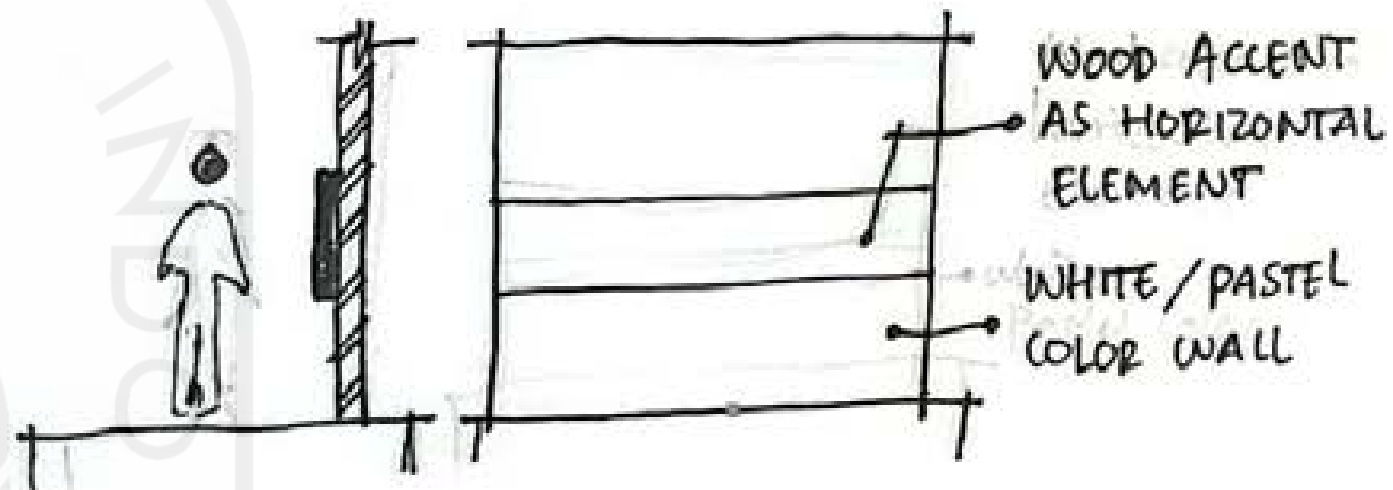
GYMNASTICS



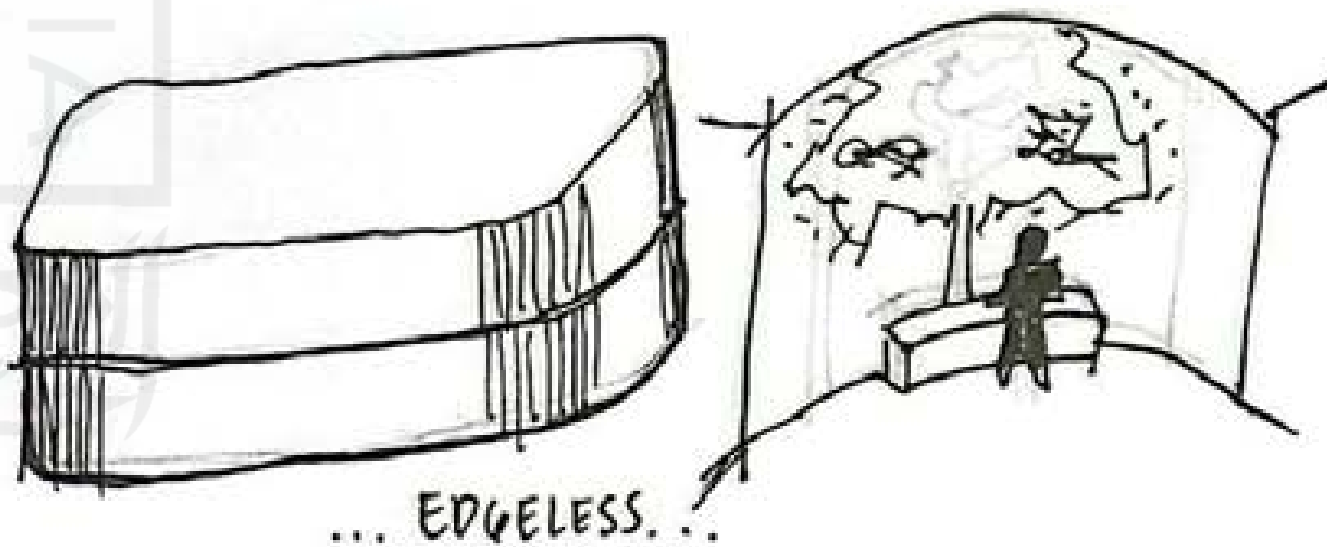
COOKING

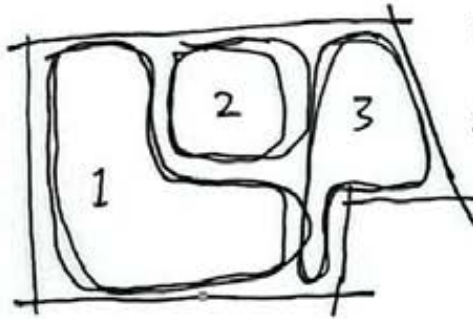


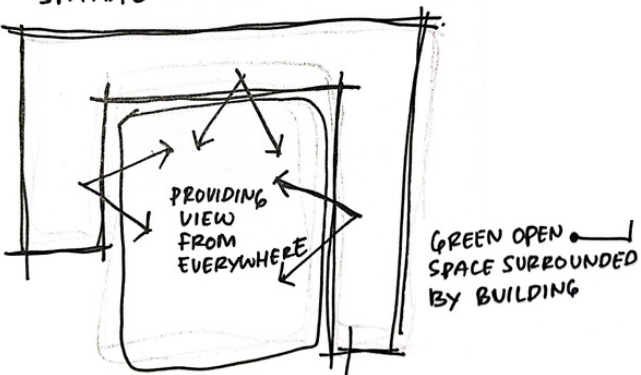
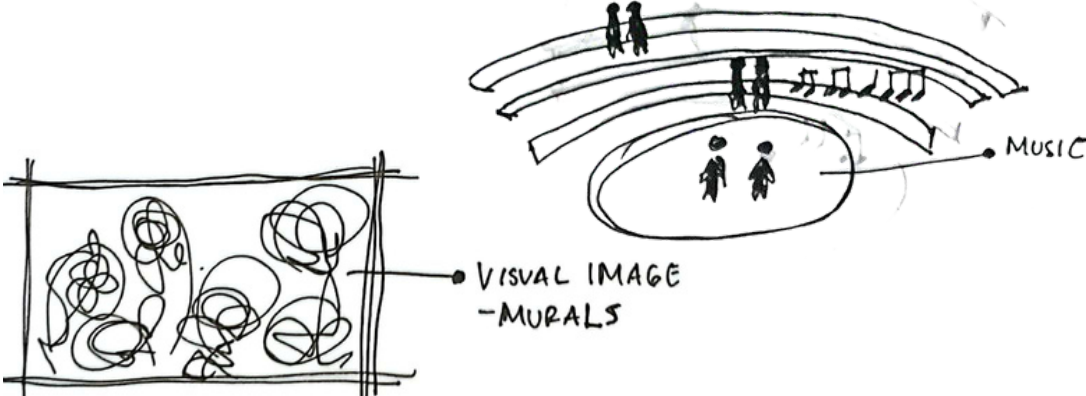
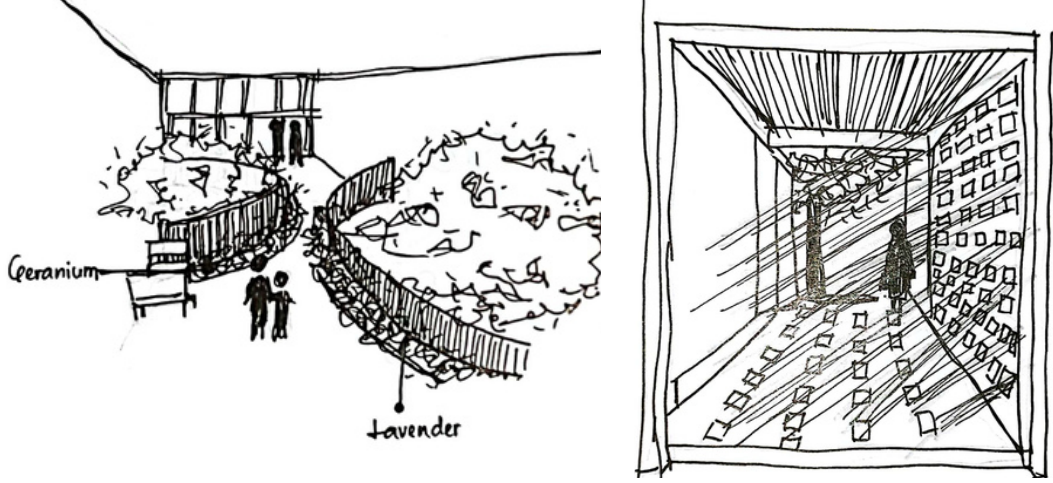
Keyword : Neutral material and colors choice



Keyword : Perception in freedom and flexibility



Manageability	Keywords Barrier-free design	
	Keyword: Wide Opening (Apply transparency, used in communal area and shares facilities)	
	Keyword: Tranquil	<p>ZONING PRIORITY</p>  <ul style="list-style-type: none">1: QUIET Suitable for private area2: SEMI-QUIET Suitable for semi-private area3: NON-QUIET Suitable for public area

<p>Meaningfulness</p>	<p>Providing view</p>	<p>SPATIAL LAYOUT</p> 
	<p>Connection to Nature</p>	
	<p>Positive distraction</p>	
	<p>Sensory Design</p>	

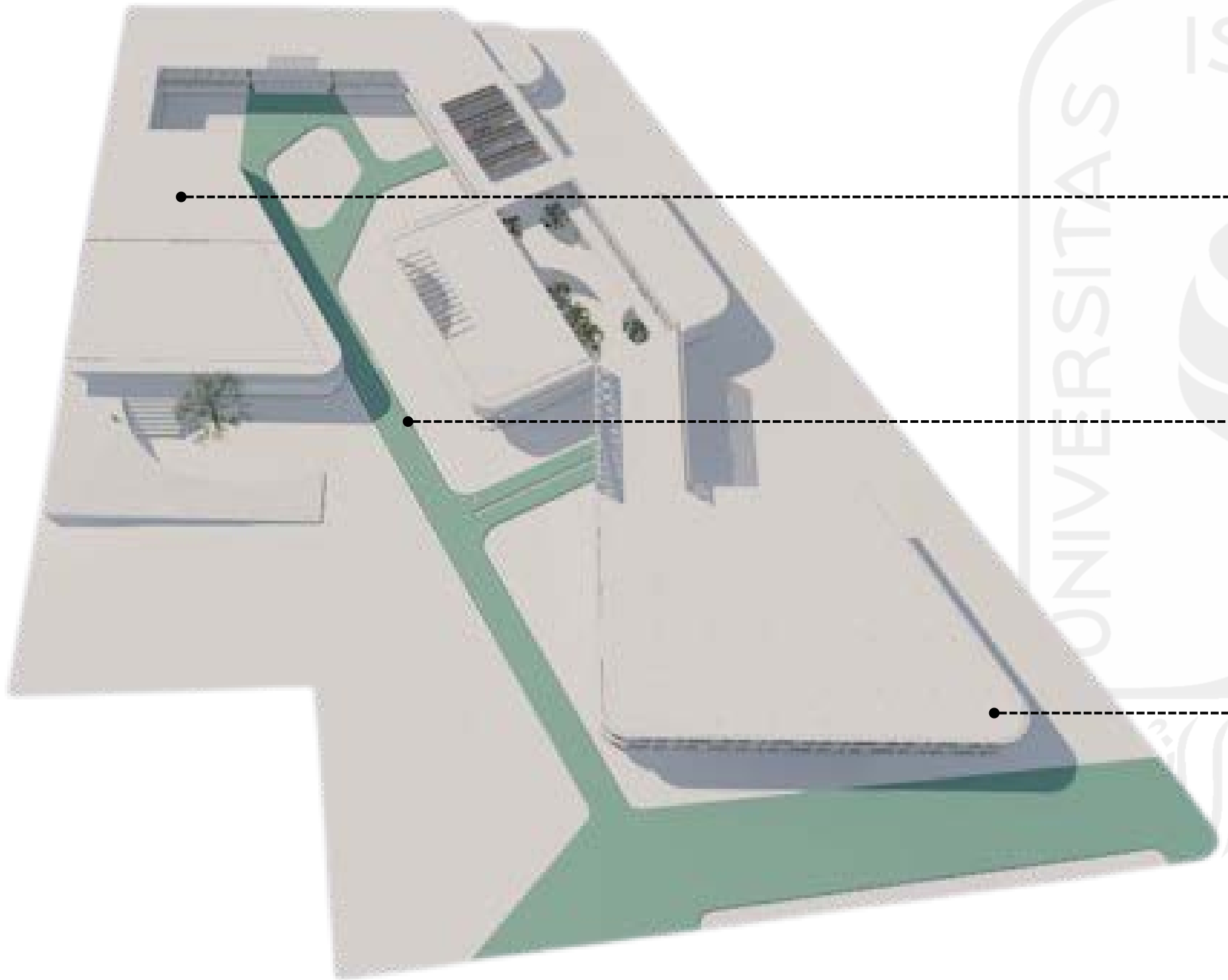




4. SCHEMATIC DESIGN

Design Of Mental Rehabilitation Center Through
Salutogenic Approach In West Nusa Tenggara

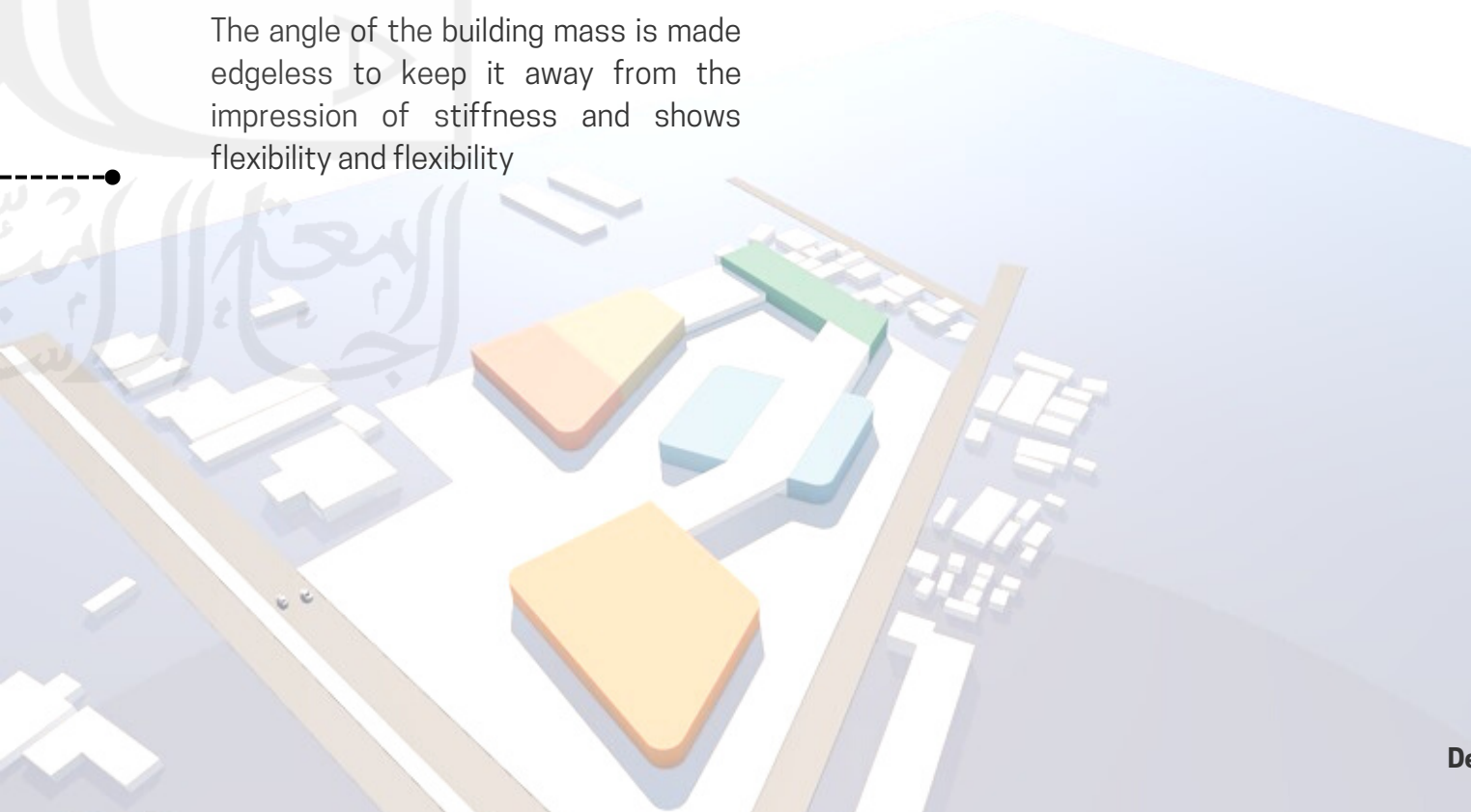
ALTERNATIVE 1



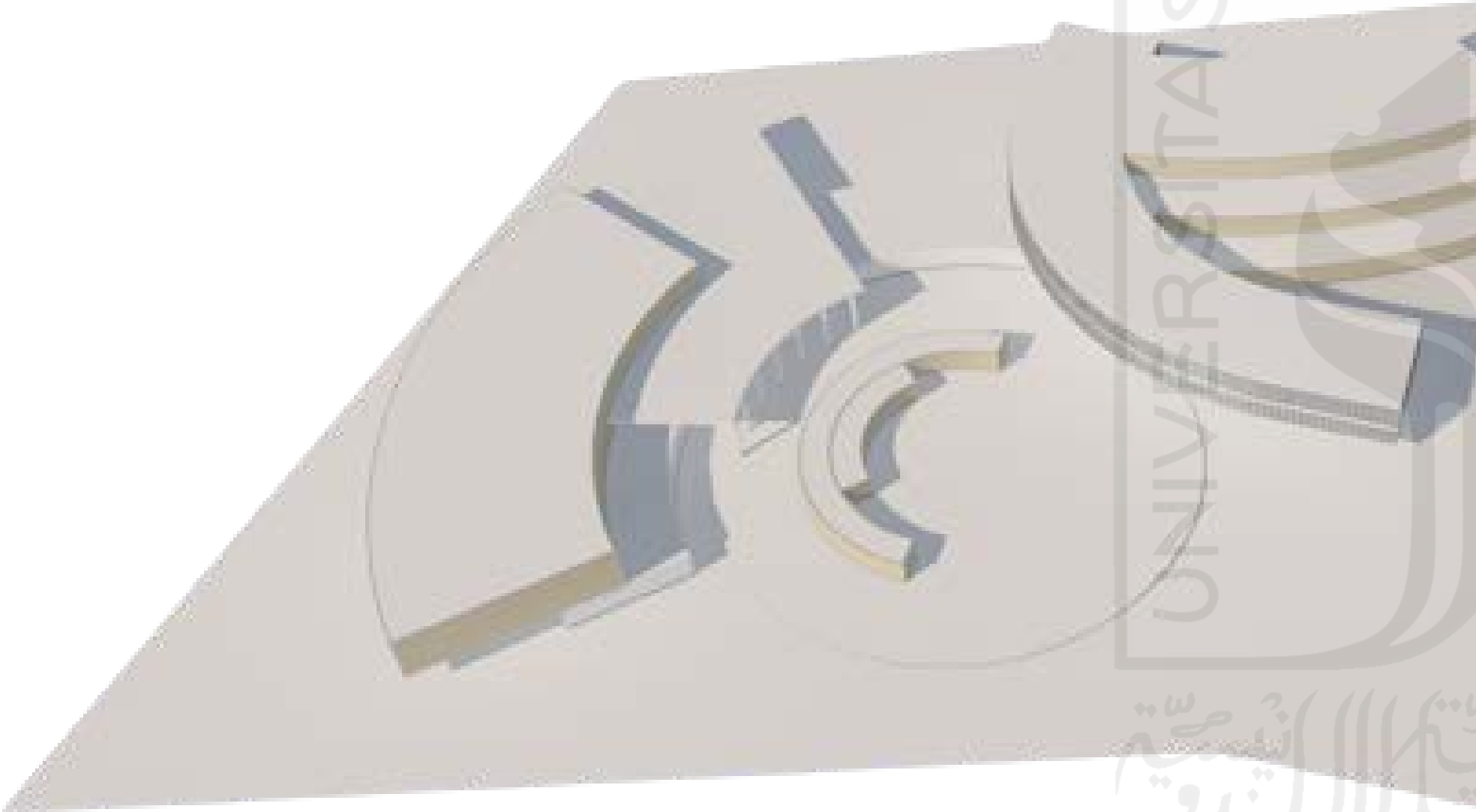
There is a privacy hierarchy where depressed patients are at the very back of the site and private areas (for depressed patient)

The mass of the building is broken down so that air circulation in the building is smooth and can create a healthy building

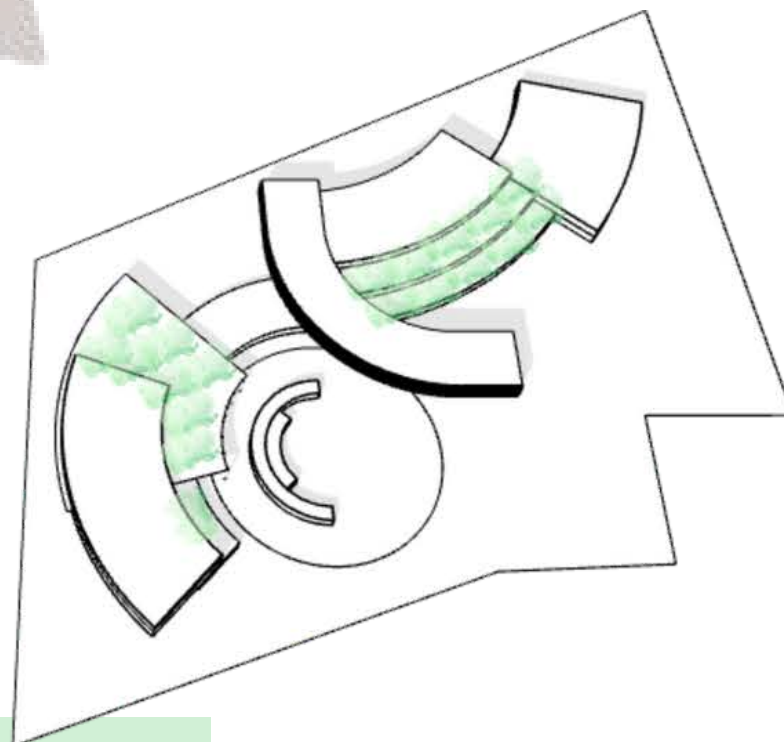
The angle of the building mass is made edgeless to keep it away from the impression of stiffness and shows flexibility and flexibility

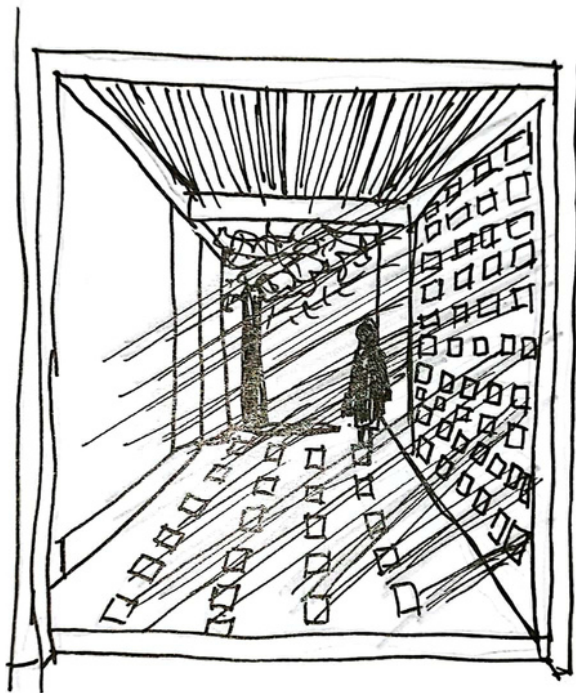


ALTERNATIVE 2

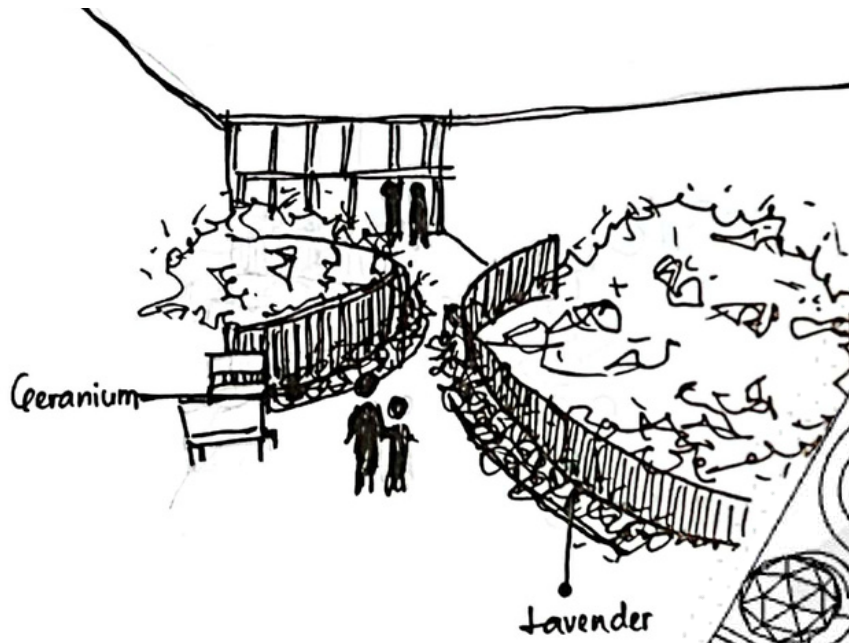
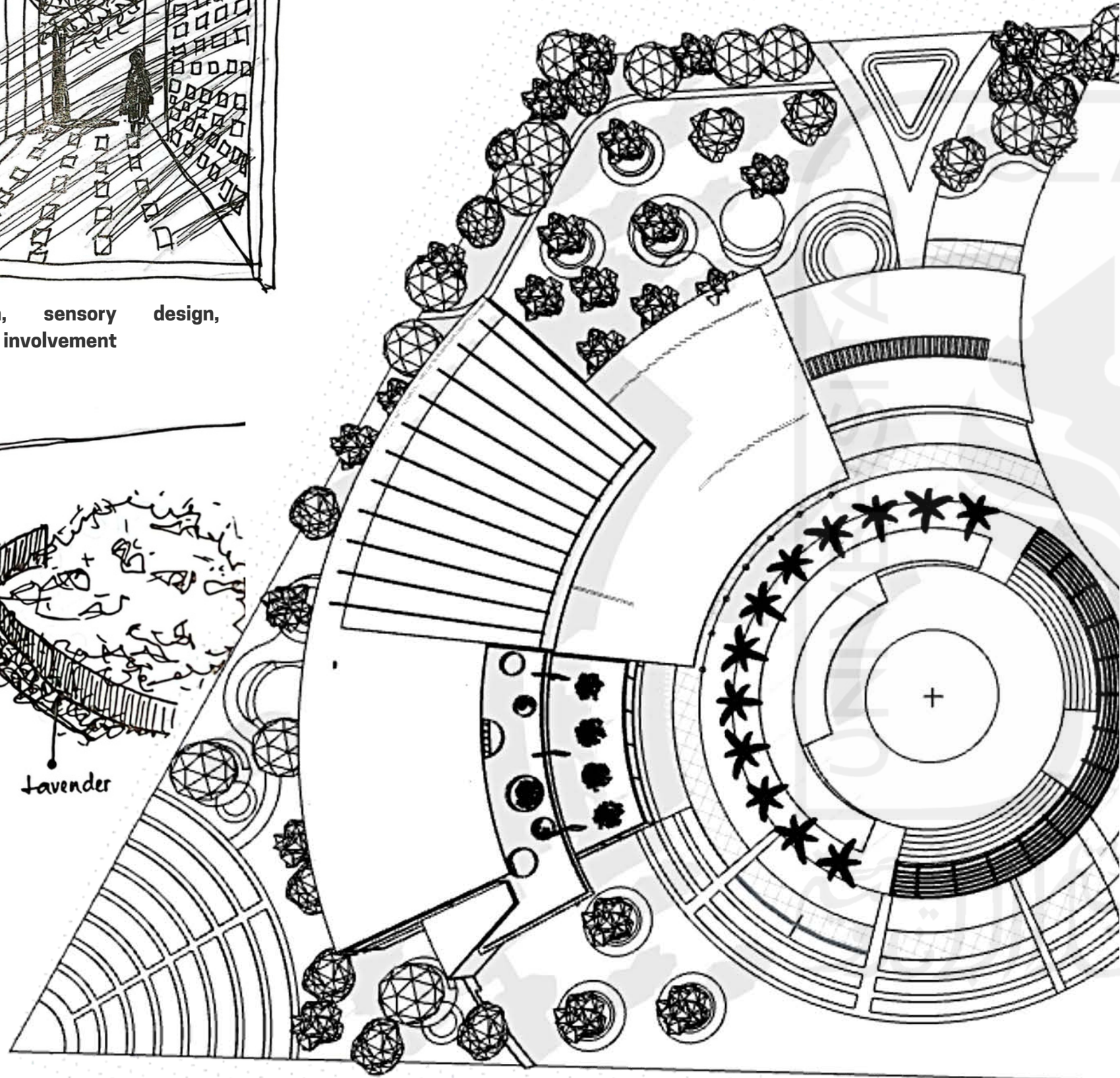


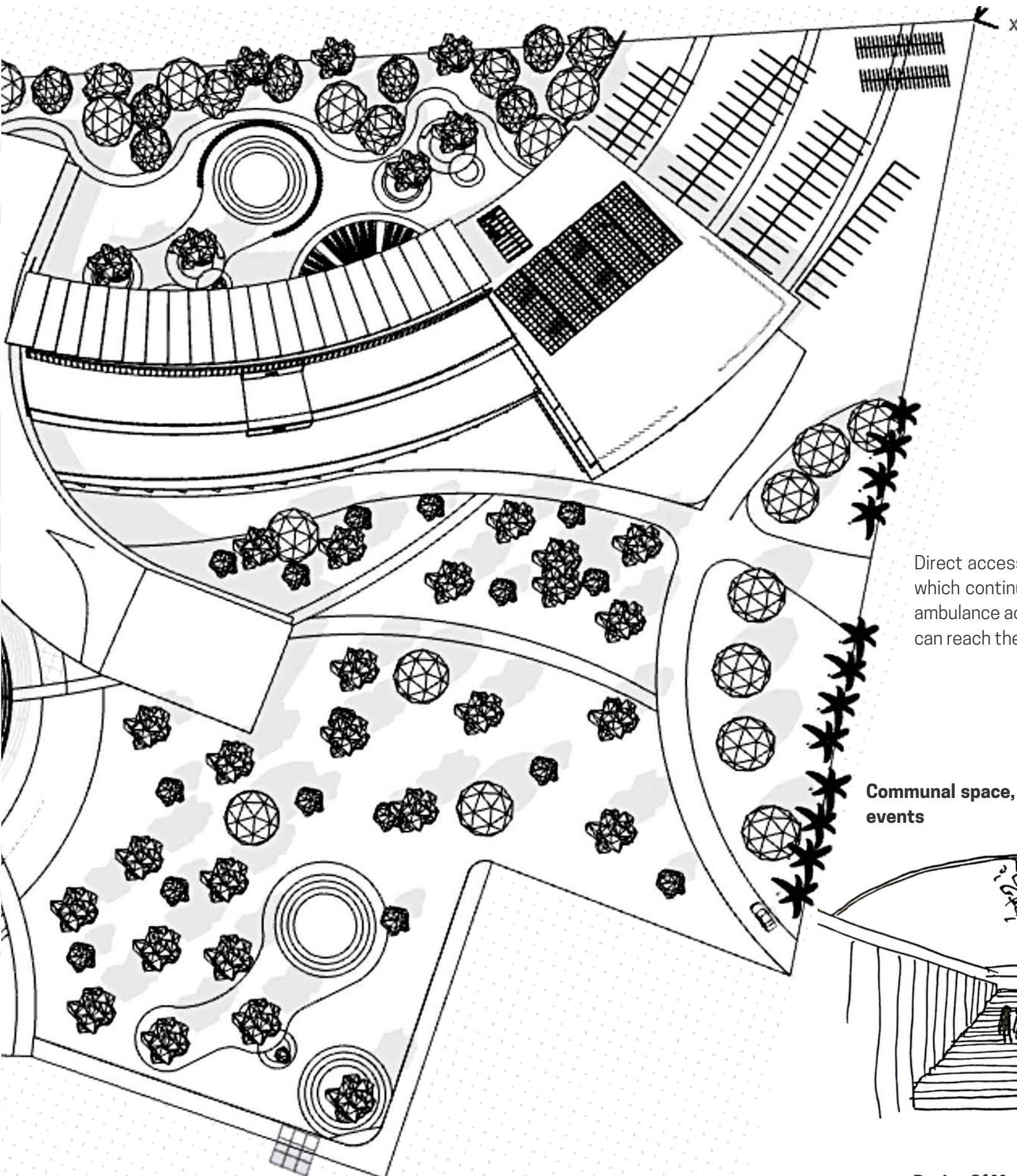
- Exclusive rehabilitation center area of public facilities
- Better privacy for rehab patients
- Building masses close together and at the farthest distance from the sound source
- The angle of the building mass is made edgeless to keep it away from the impression of stiffness and shows flexibility and flexibility
- The masses are arranged with the long sections oriented in the north-south direction
- Easier and more flexible access allows entering the site from both directions





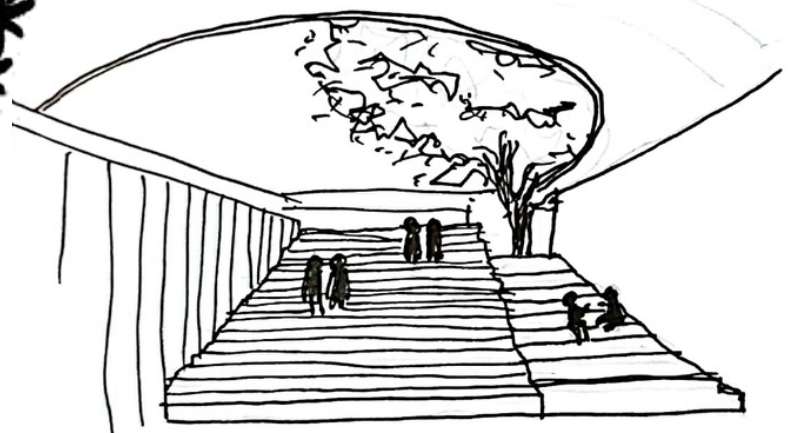
Community garden, sensory design, education, community involvement



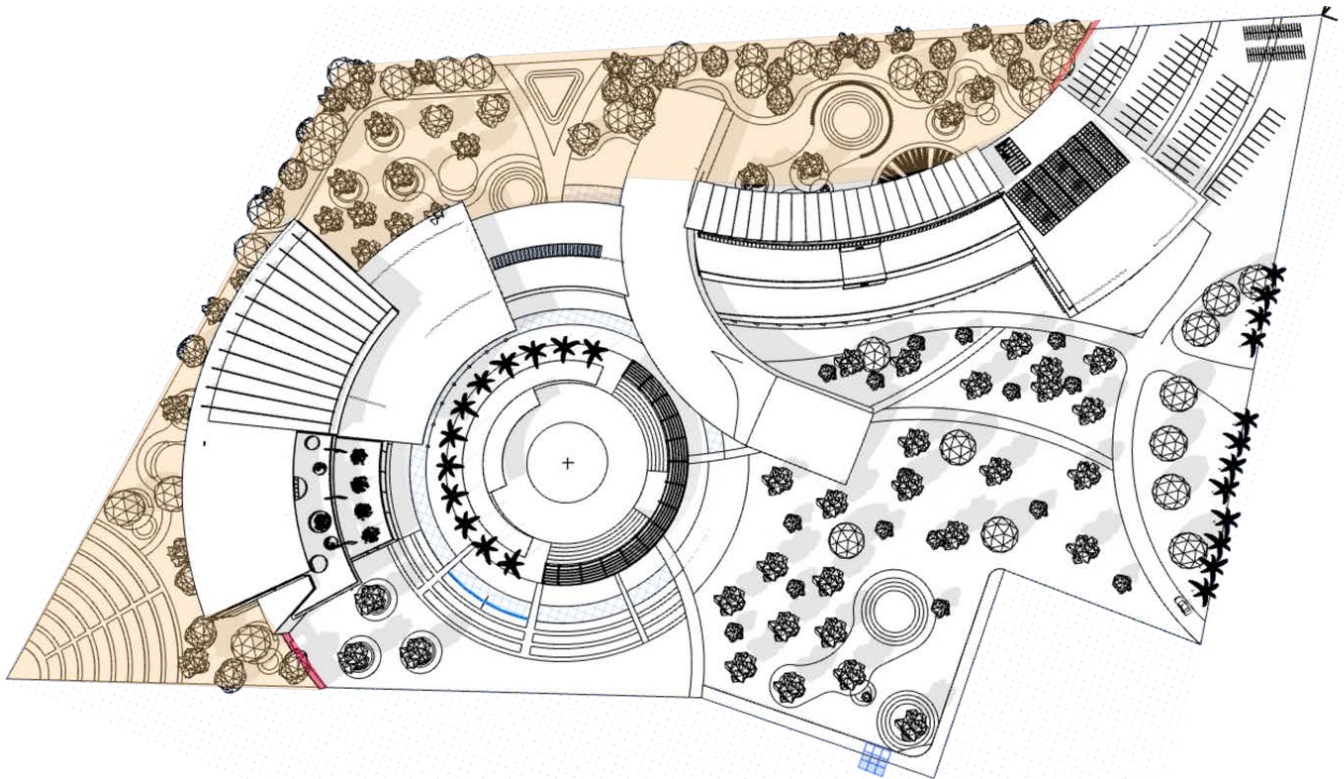


Direct access from the street in front of the site which continues to the rear. It is also used as an ambulance access during an emergency so that it can reach the entire building.

Communal space, flexibility, adjustable to any events

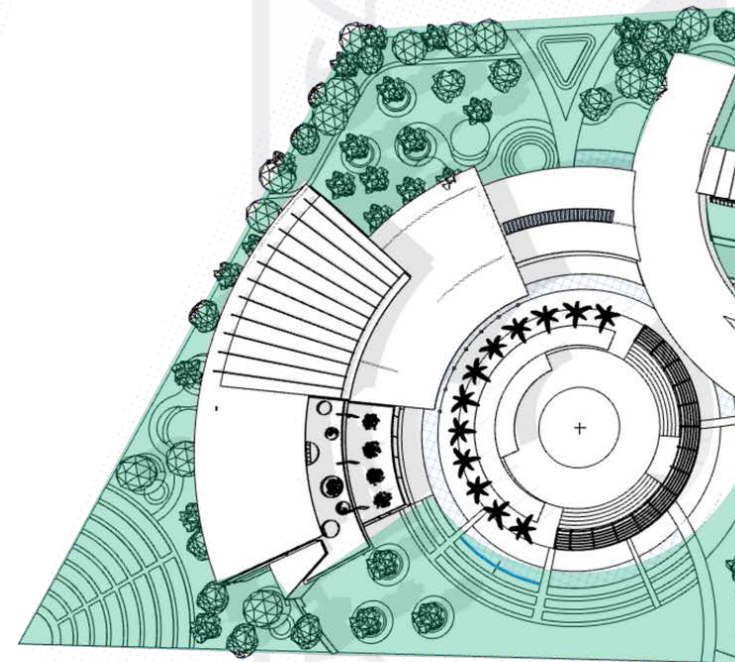


ZONING



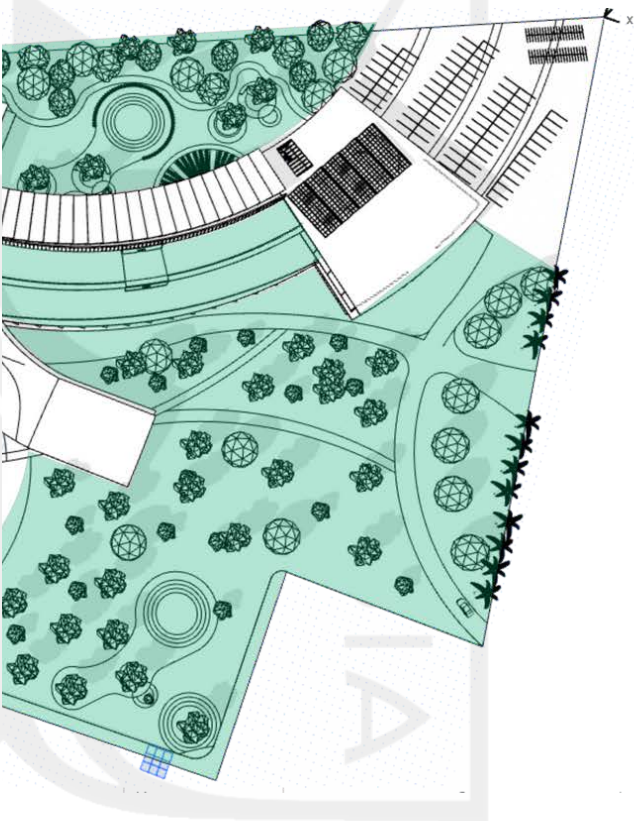
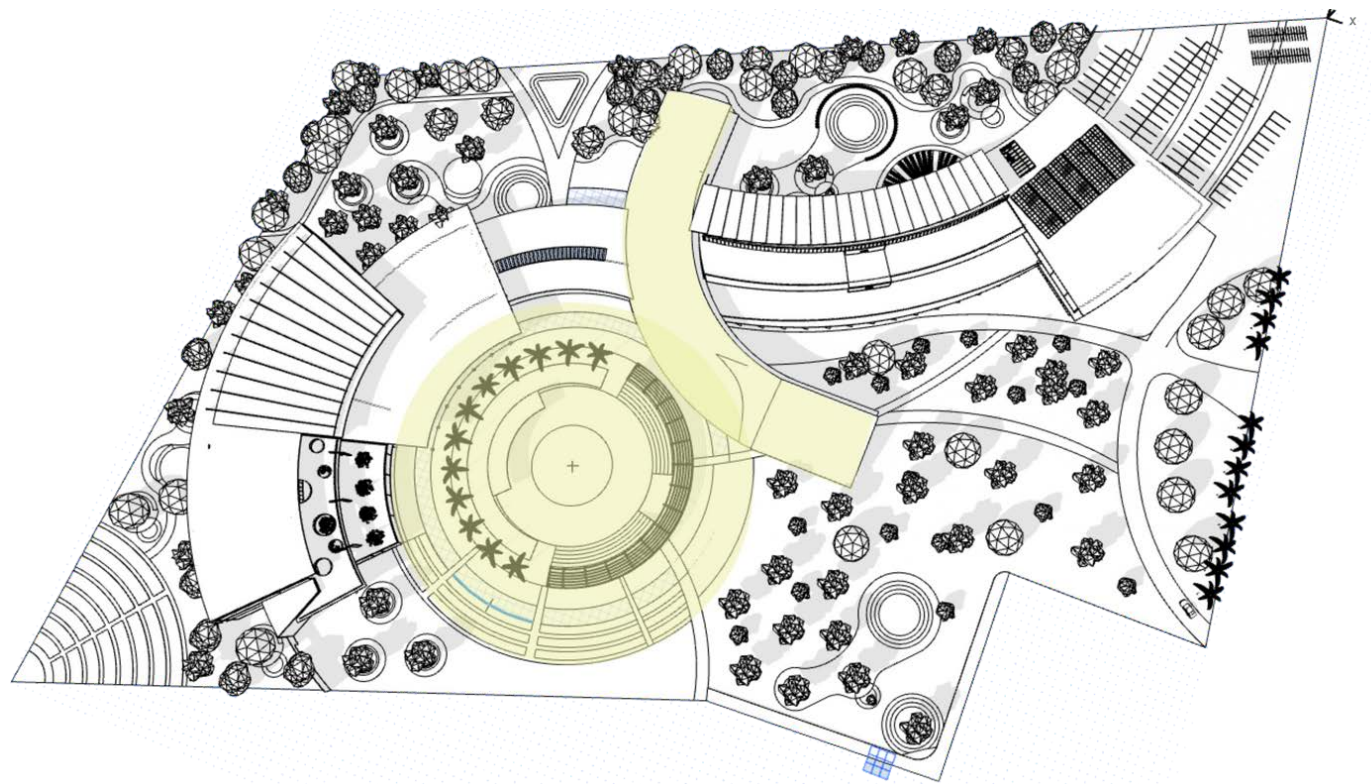
The open space are divided into two; Private and Public zone, for patient only and for public use.

GREEN AREA



The greeneries around the building create a healing environment for patients.

COMMUNAL AREA



the building aided to provide
for the users

Communal area as the heart of the site, can be
used for group therapy.

BUILDING DESIGN



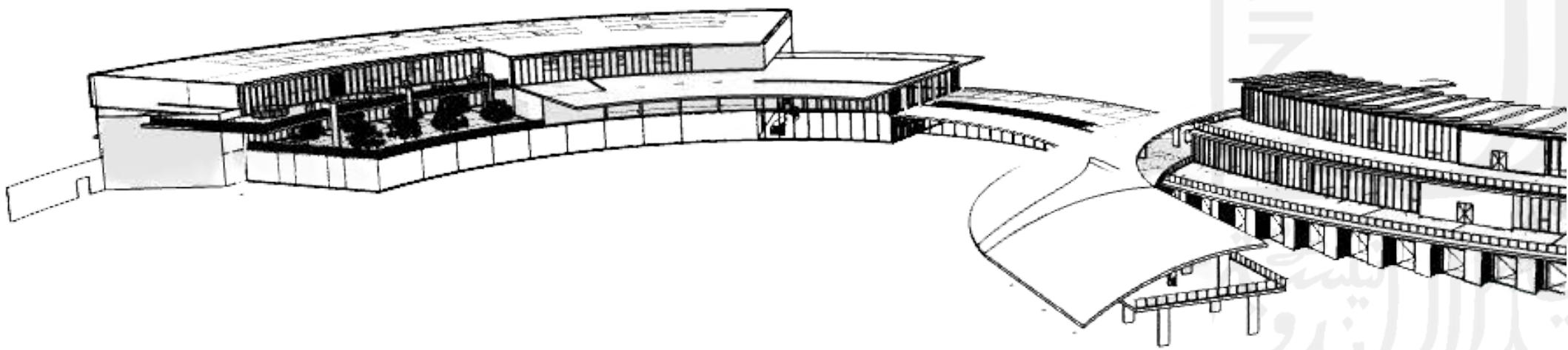


**Design Of Mental Rehabilitation Center Through
Salutogenic Approach In West Nusa Tenggara**

BUILDING ENVELOPE EXTERIOR DESIGN

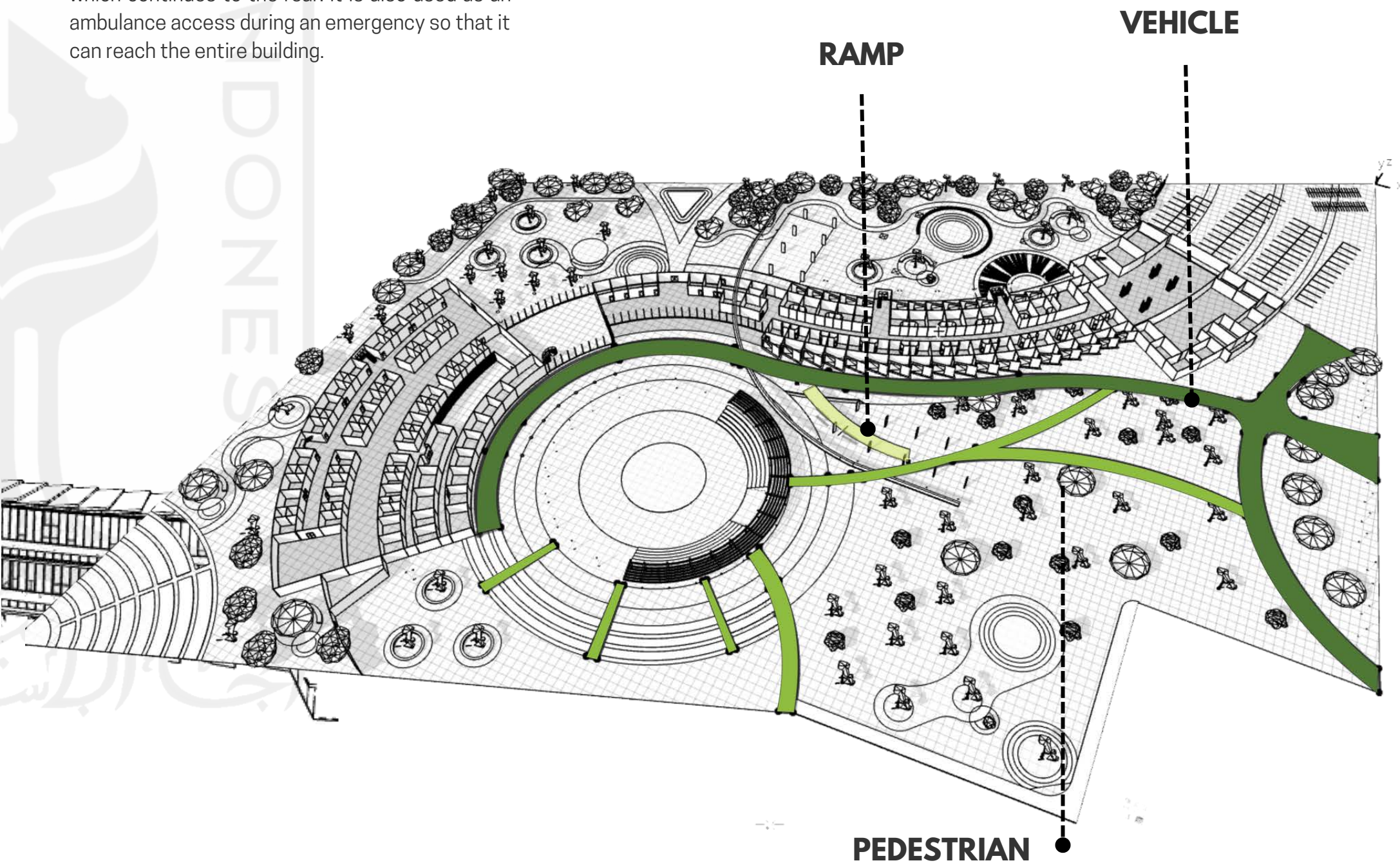
FROM ALTERNATIVE 2

The building envelope is made fluid so it doesn't give a stiff impression from the outside, and gives the impression of flexibility and freedom from the outside.

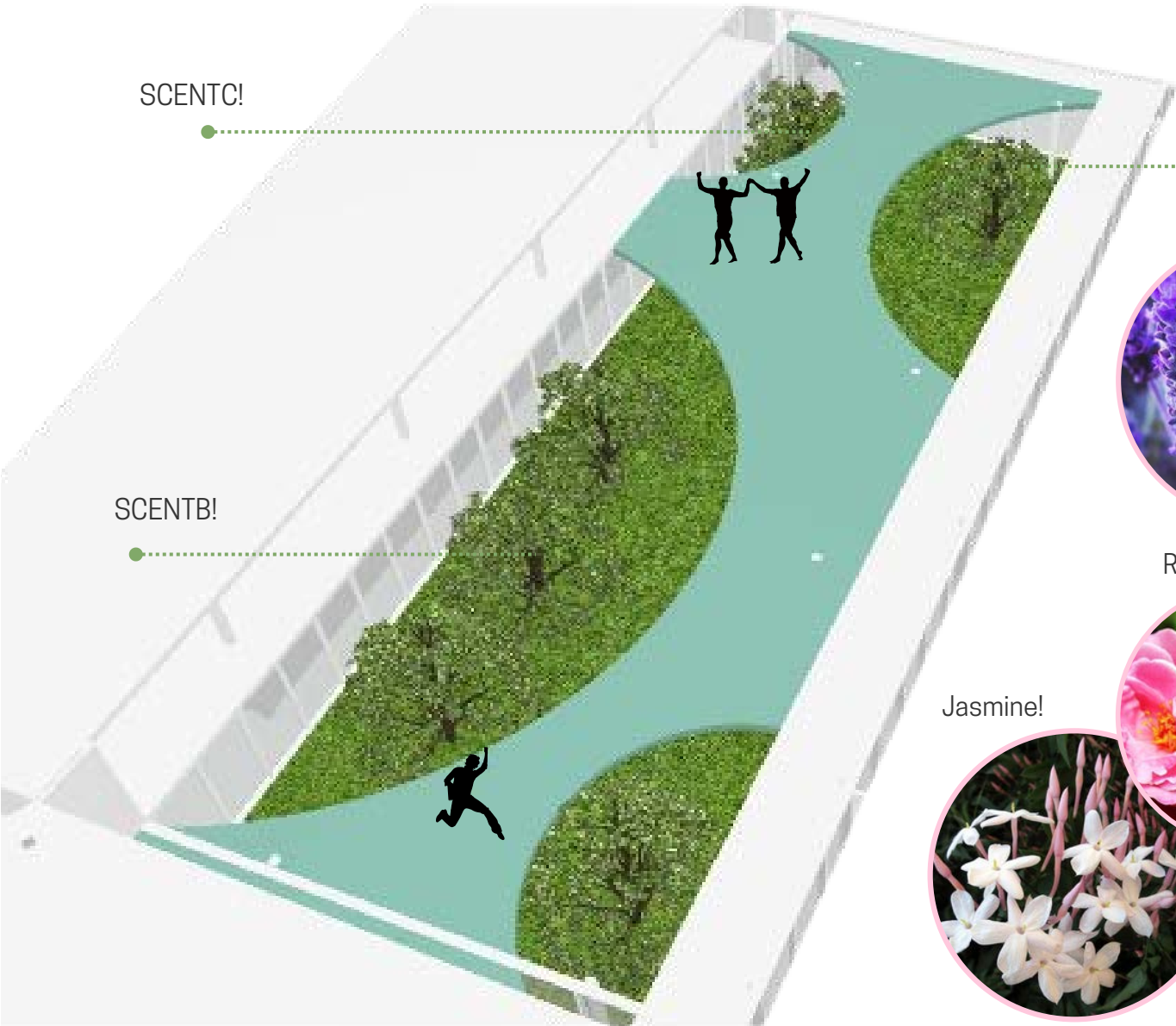


BUILDING ACCESS

Direct access from the street in front of the site which continues to the rear. It is also used as an ambulance access during an emergency so that it can reach the entire building.



Inner yard for the user to feel their connection with nature, pathway at the upper stories act as communal area as well as giving shadow to the ground floor.



SCENTA!

Lavender!



Dianthus caryophyllus



Rose!



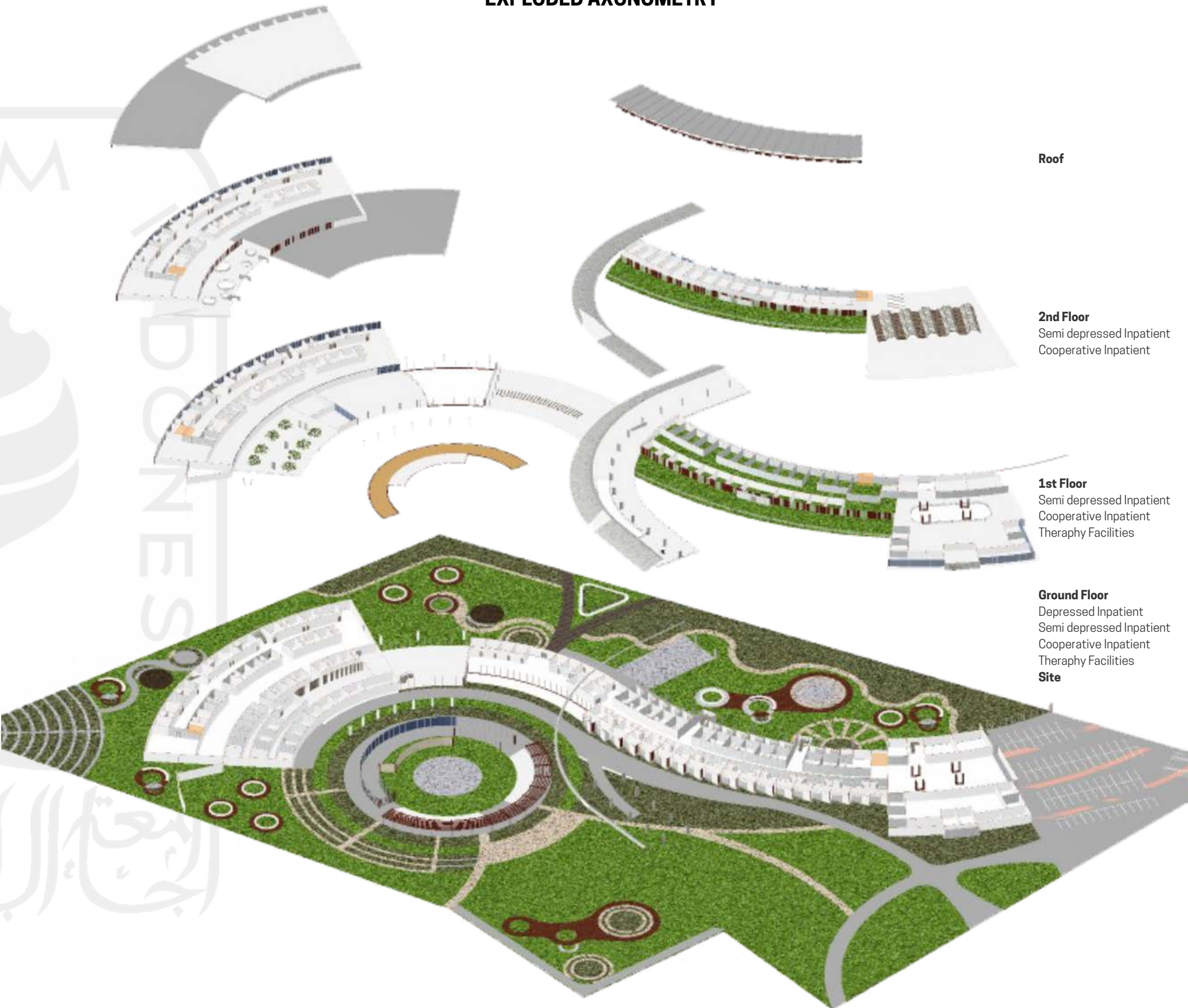
Geranium!



Jasmine!



EXPLODED AXONOMETRY



SALUTOGENIC APPROACH

COMPREHENSIBILITY

Ensuring that the perception presented helps the patient's perception process. This can be done by showing the textures and materials used, controlling the size of the room and the number of patients and expressing environmental features in a normal way.

Open plan

The building is designed with an open plan concept in most circulation spaces to facilitate way-finding, provide simplicity, and improve user readability in viewing circulation.



Colors and material

The materials used are mostly neutral in color to give the impression of calm, but also play with color patterns and natural materials.



Scale and elevation

High and low ceilings are varies within the building, the higher one to provide the feeling of freedom, and at the other hand the patient also need a more intimate interaction.



MANAGEABILITY

Providing an opportunity for the patient to control his environment thoroughly and independently, this can be done by providing access to open window openings and carry out activities as usual to the patient's psychomotor facilities

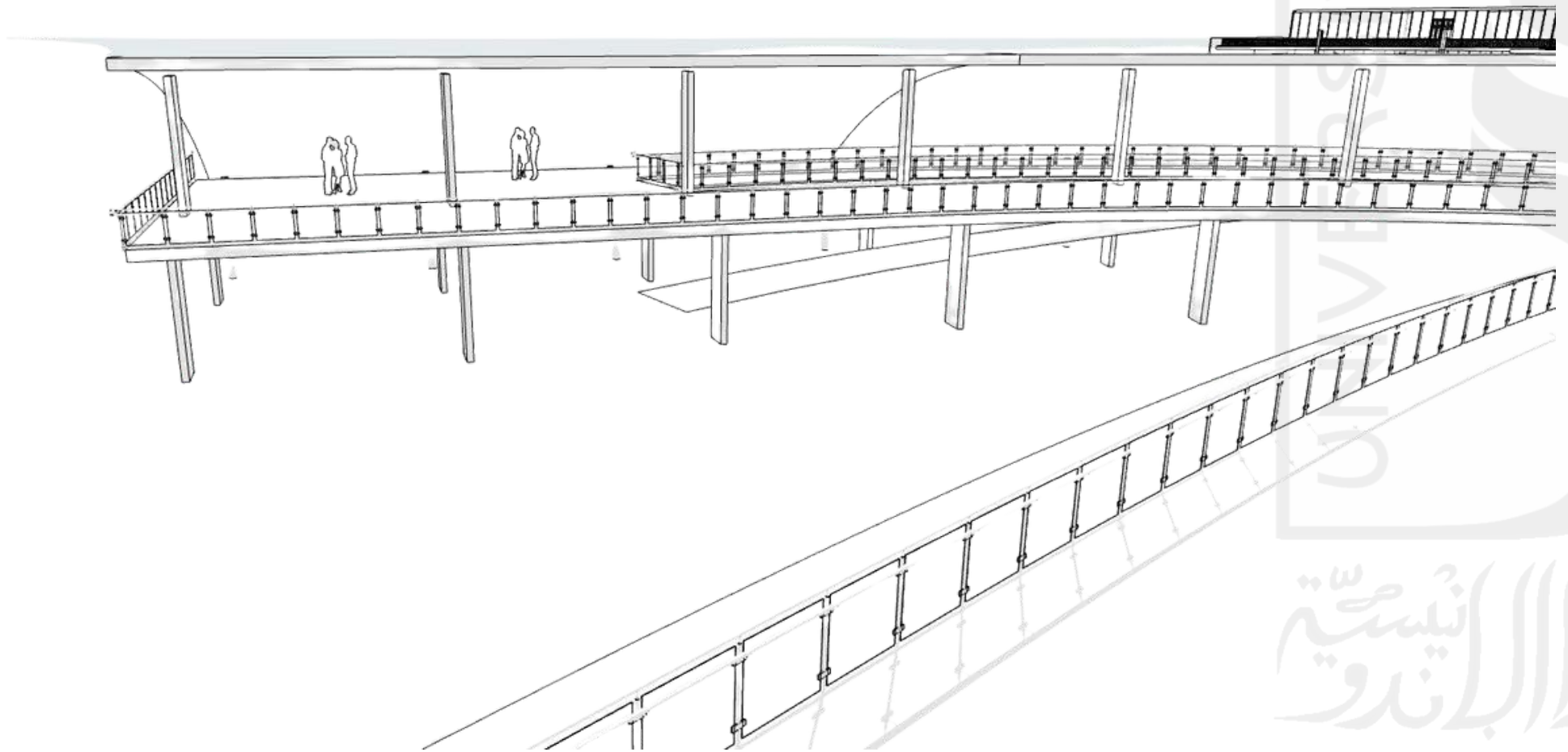
Wide Opening

The building envelope use transparency to provide a good view and the feeling of connection to the nature and surrounding



Barrier-free Design

Barrier free design allows for an inclusive environment where persons with disabilities are also able to independently do anything and anywhere. Barrier free indirectly encourages each individual to be active in their physical mobility.



Encourage Movement

Apart from universal design, the building also encourages movement through the communal space and shared facilities provided for the patient to actively do something they like.



Natural Light



Humans capture memories with their senses. The design of the rehabilitation center is made so that every corner has a memory. Some are carried out with strategies that make the human senses play an active role, such as the play of light and shadow, as well as the sense of smell.

Connection to Nature



MEANINGFULNESS

Increasing the value of the environment on the patient, can be done by providing an aesthetically valuable space and memory for the patient through special personal items to maybe even interact with other living things (animals and plants).

Positive Distraction



Provide flexibility for patients to do activities they are interested in. Some outdoor spaces are designed to be adjustable, such as to hold discussions, pottery classes, musical performances, etc.



Design Of Mental Rehabilitation Center Through Salutogenic Approach In West Nusa Tenggara





5. FINAL DESIGN

Design Of Mental Rehabilitation Center Through
Salutogenic Approach In West Nusa Tenggara

FINAL DESIGN

PROPERTY SIZE

TOTAL SITE AREA
42,000 sqm

Building Coverage Ratio

Based on local laws and regulations, the maximum limit of Building Coverage Ratio is 70%. Having the total site area of 42,000 sqm, the BCR of the site will be around 29,400 sqm. The designed building coverage itself is **7,600 sqm** and therefore in accordance with the law.

BCR
70%

Floor Coefficient Ratio

Based on local laws and regulations, the Floor Coefficient Ratio is 3.5, means that the building's total floor area should be less than 147,000 sqm. The designed building total floor itself is **12,600sqm** and therefore in accordance with the law.

FCR
3.5

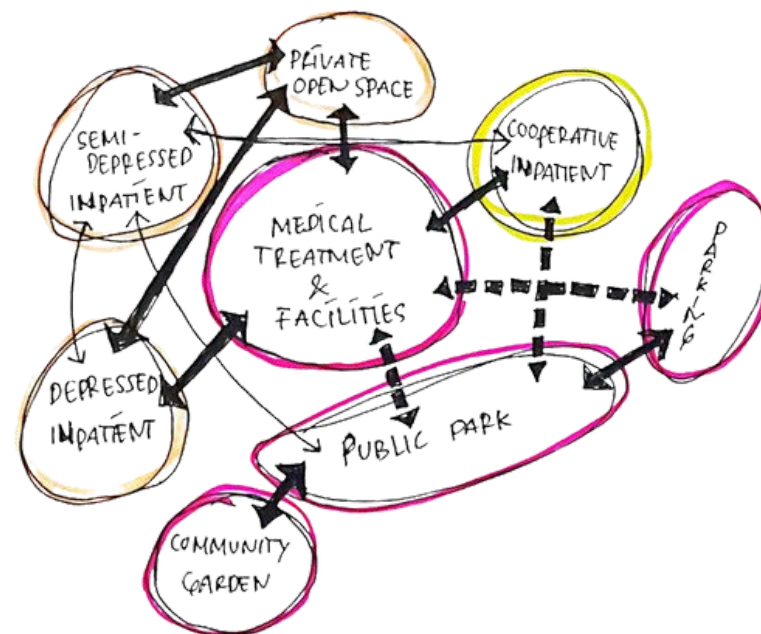
Green Coverage Ratio

The minimum Green Coverage Ratio of the site is 20% of the total site area, while the designed site has XX sqm of total green area preserved, or XX% of the total site.

GCR
20%

SPATIAL PROGRAMMING & ZONING

The spatial arrangement of the building is mainly driven by the privacy need of each users. There are three types of mentally disorder people with different kind of privacy need, which are depressed patient, semi-depressed patient, and cooperative patient. The depressed patient and semi-depressed patient requires more privacy for their treatment and therefore are placed at the back of the site, with Lobby and public cafeteria in the middle as the transition between depressed and semi-depressed patient to cooperative patient. The cooperative patient are considered to have almost achieved freedom and independence so that they can interact normally with the public, therefore their placement is closer to the public zone. But despite all their needs, each category is provided with a private open area that can only be accessed by the rehabilitation patients, and closed to the public.

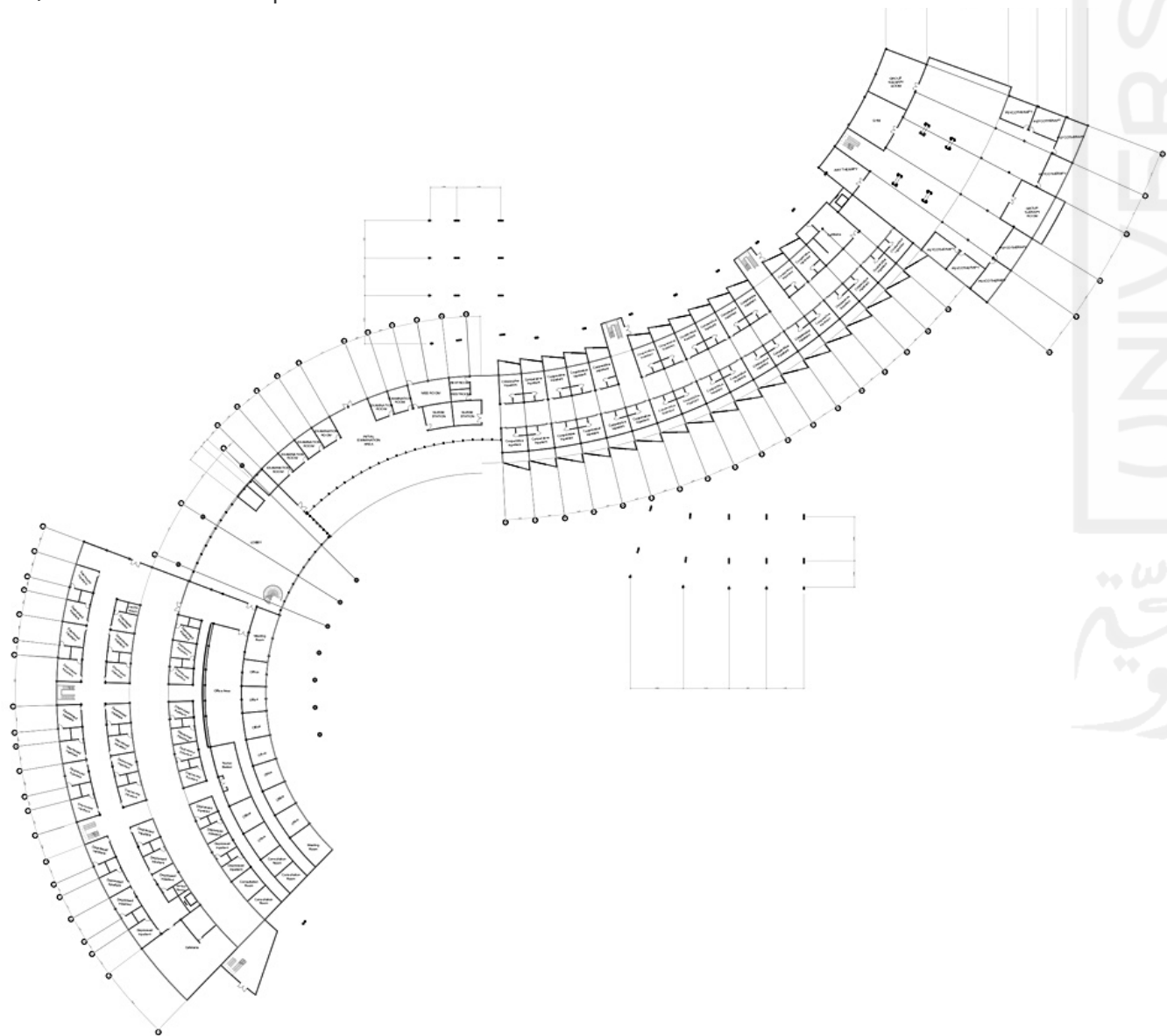


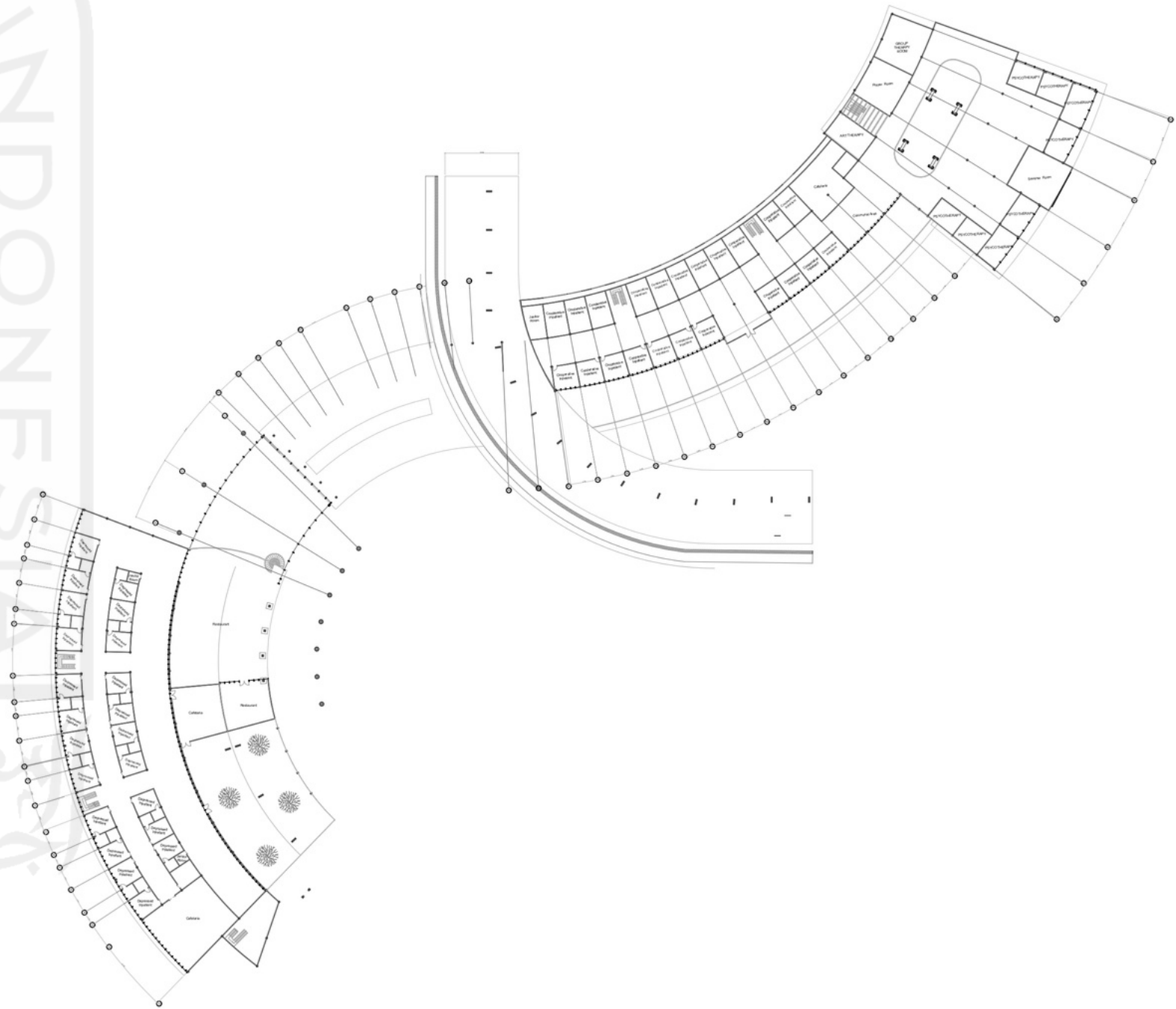
Moreover, as the main goal of the rehabilitation center is to reach more targets (not only to cure the sick, but also to prevent the community from developing mental health issues), the rehabilitation center is integrated with a public park with a community garden and public gathering space as the heart of the site. There, the community can enjoy the garden atmosphere and gather together, as well as enjoy the facilities provided and support positive activities such as; group discussion, group therapy, jogging or other physical activities, gardening, enjoying the natural atmosphere, etc.

Based on the spatial programming, it resulted in this building design. The building is a unified mass with the main concept of flowing and fluidity, but inside it is categorized as four different main functions. The first function is Lobby and reception, the second function is Depressed & semi-depressed inpatient, the third function is cooperative inpatient, and the fourth is therapy and support facilities.

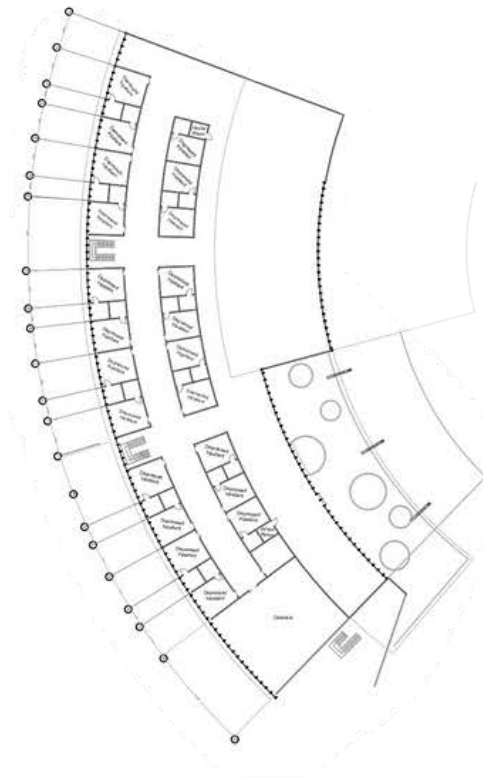
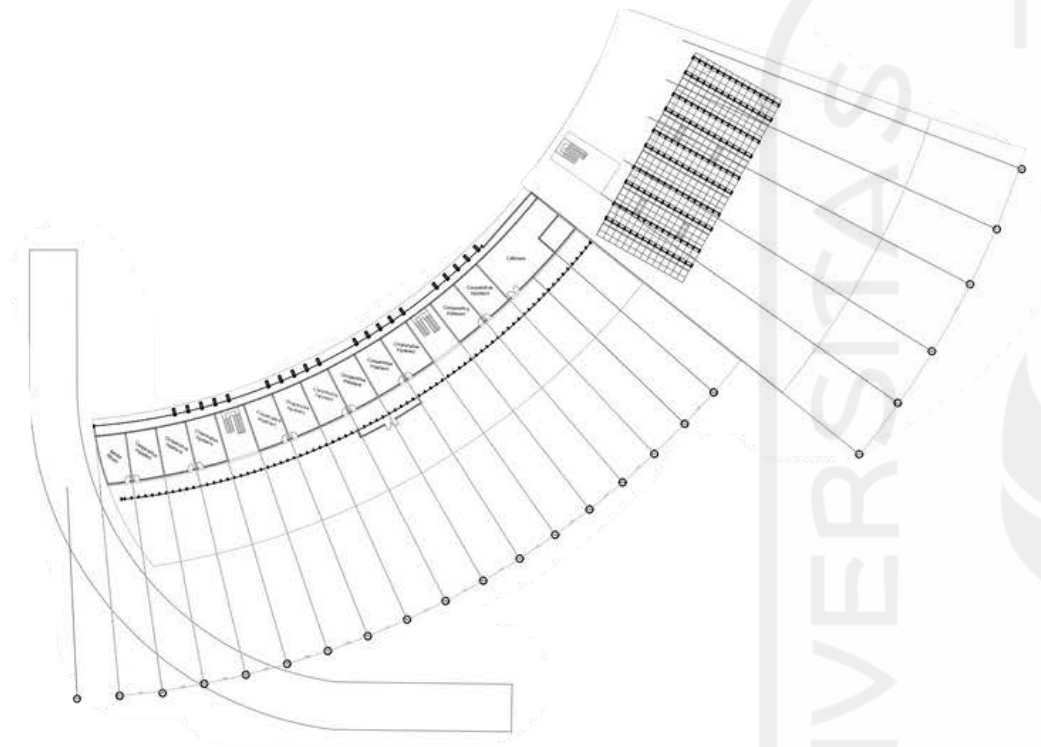
Starting from the ground floor, the patient will first enter the lobby of the building. The lobby is made continuously up to the second floor with a total height of 8 meters to create extensive spacious space and main passive cooling design. This is necessary to free the patient from the perception that rehabilitation is a 'confinement' upon first entering the building.

The lobby is connected to the building's public cafeteria which is on the first floor. The two functions are made close together because they are public zones. Cafeteria and lobby are places where family or relatives who visit patients can gather and meet, other than in the patient's room.

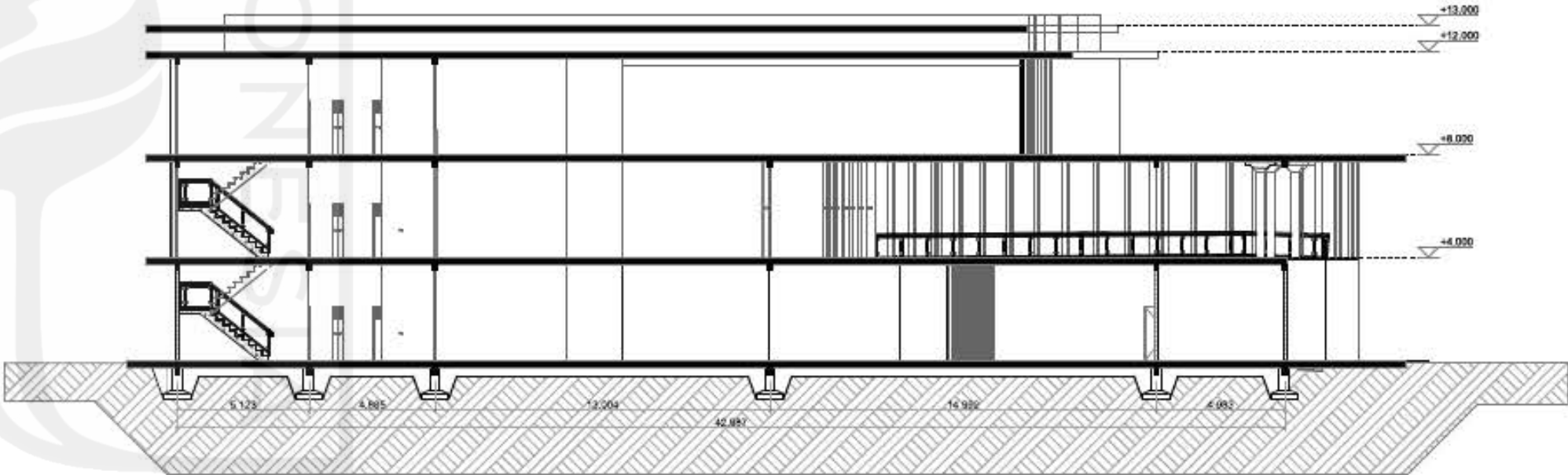




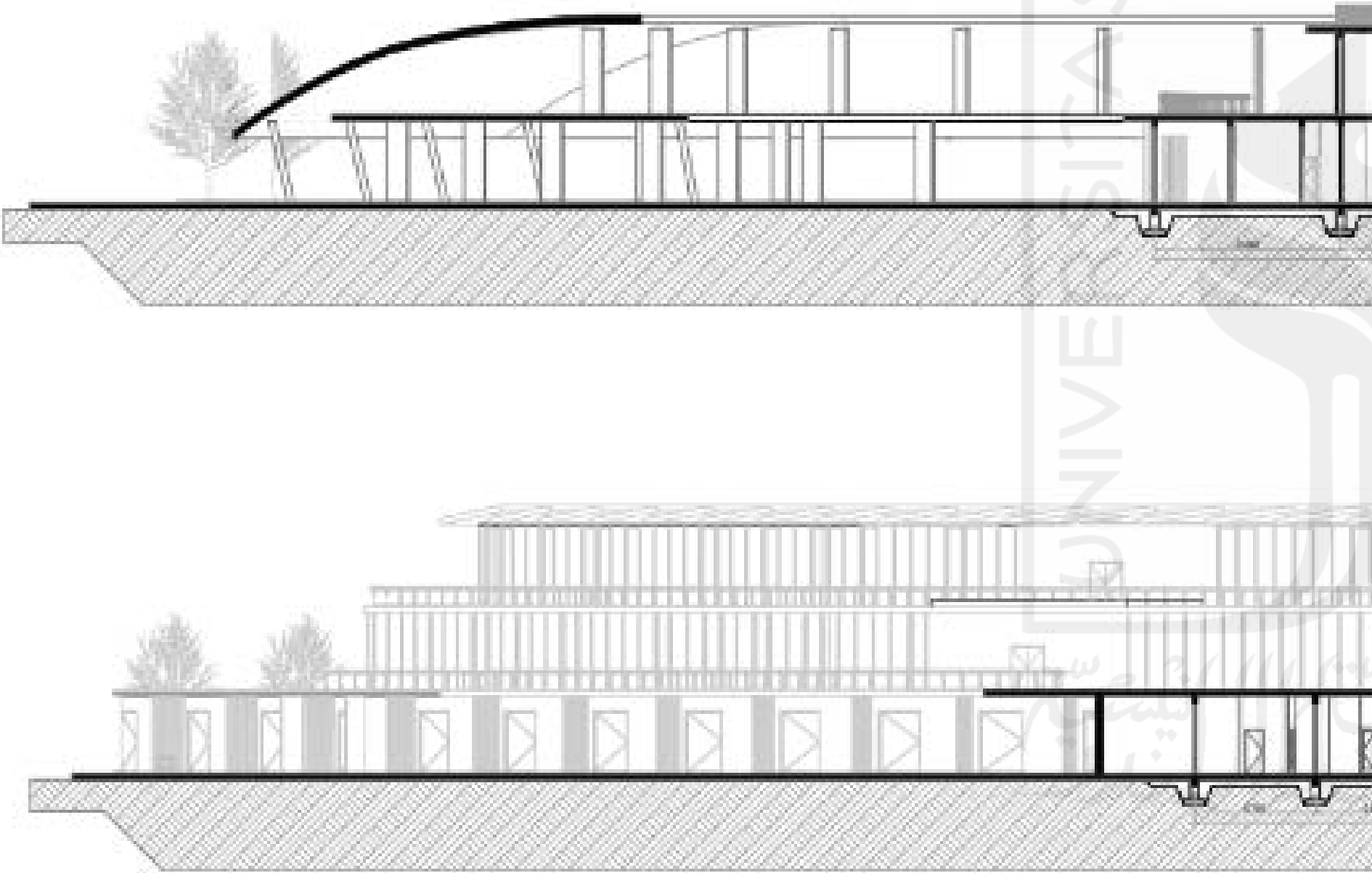
The second floor consists of a patient inpatient ward, equipped with a nurse station at the end and an accessible green roof as a place for patients to gather and carry out activities such as workshops and gardening, as well as a viewing area.

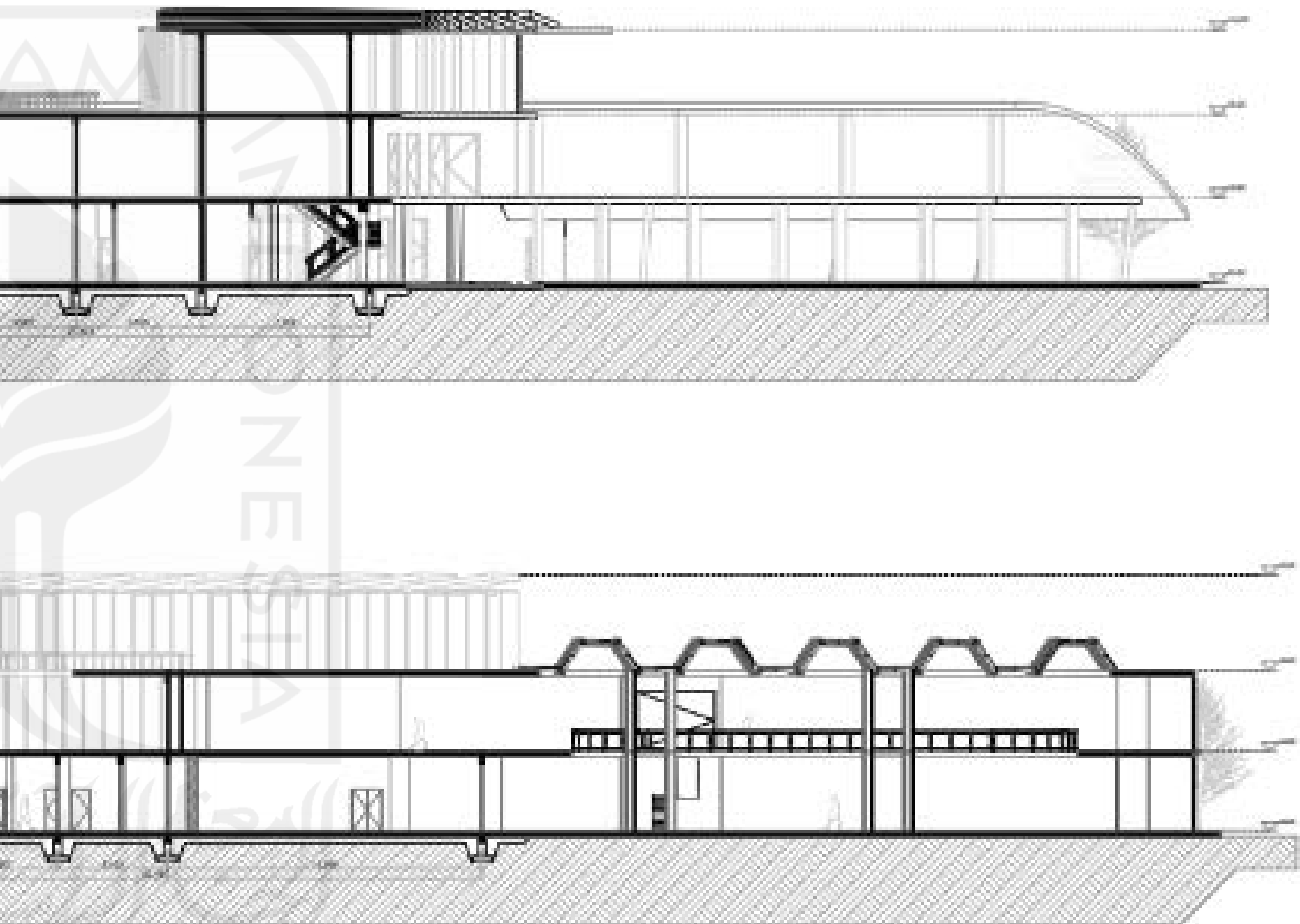


BUILDING SECTION



BUILDING SECTION





SITE PLAN

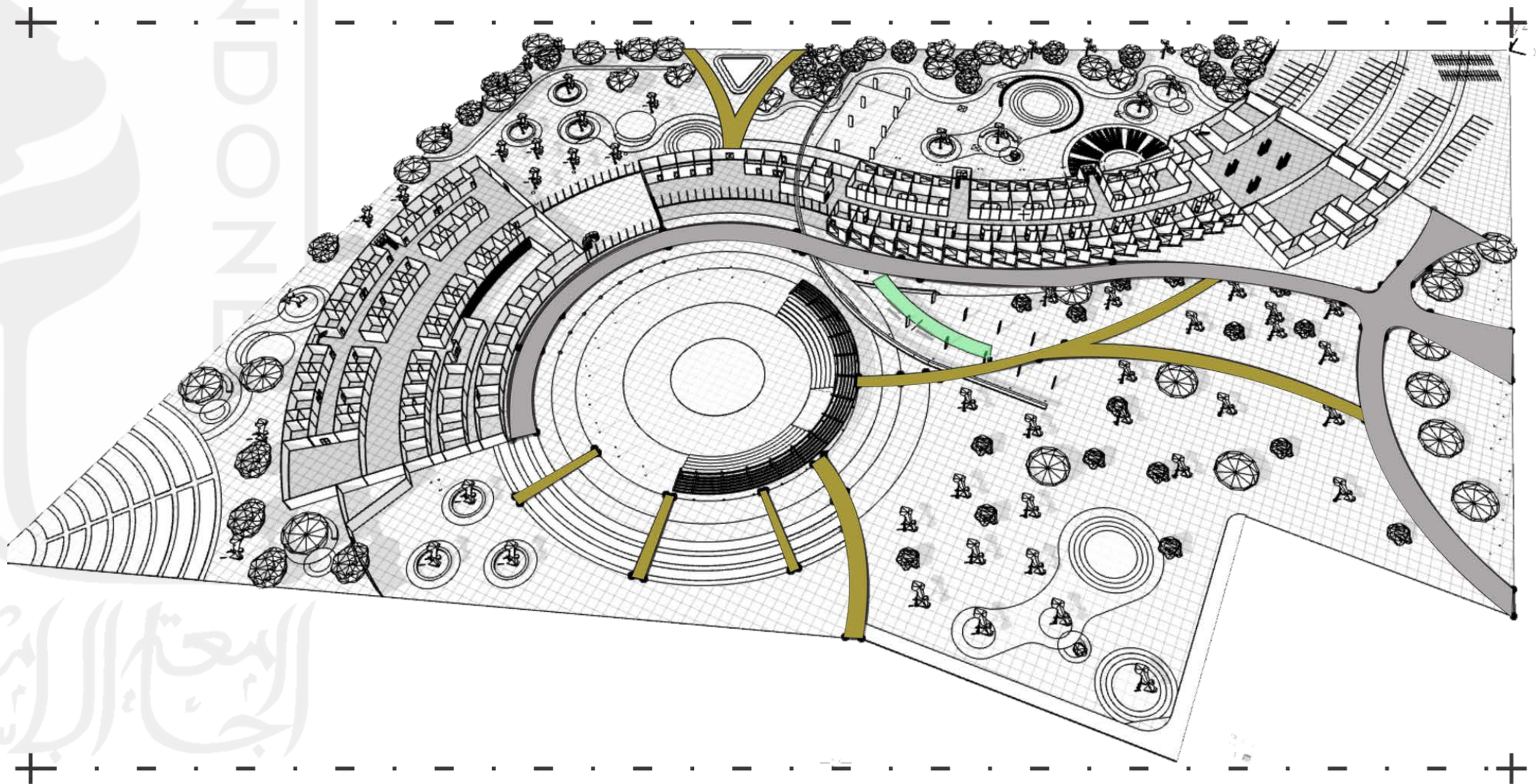


The green area is made around the site with all parts of the building having direct access to the open space. Green area is divided into two; public and private to provide the best experience for patients by providing options, as well as safety reasons for depressed and semi-depressed patients. The section which was previously a Selagalas park was not given excessive pavement to preserve the existing vegetation.

SOFTSCAPE AND HARDSCAPE

In the landscape design in some parts there are spots such as mini stages that can be used to do exercise, training activities, and workshops such as pottery classes.

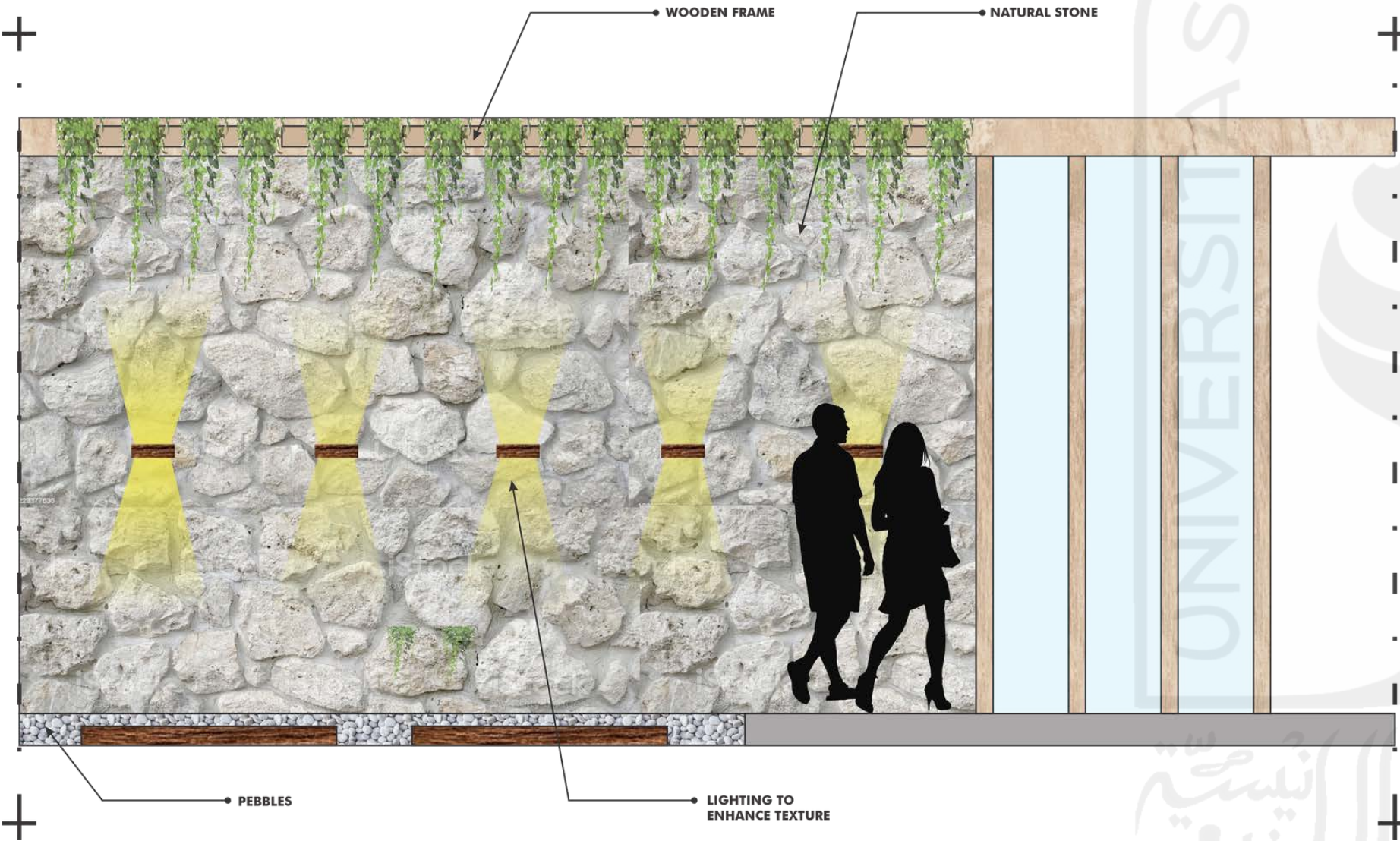
Parking lot with a total capacity of 160 vehicles including 80 cars and 80 motorbikes



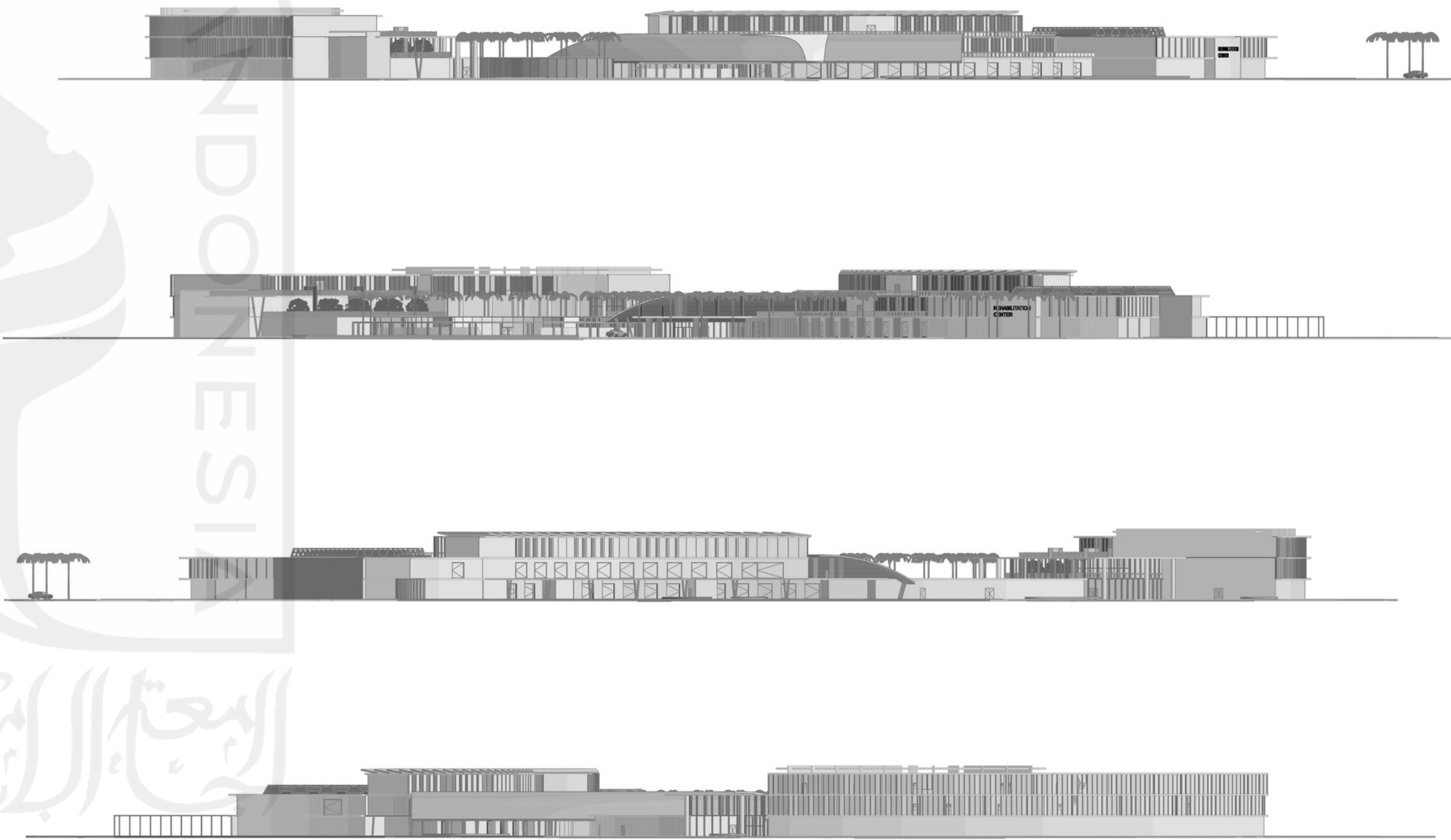
Amphitheater and community garden as the heart of the site as a center for communal activities for the visitors.

In order to maintain and improve the site quality, the design is minimizing the hardening on the green area

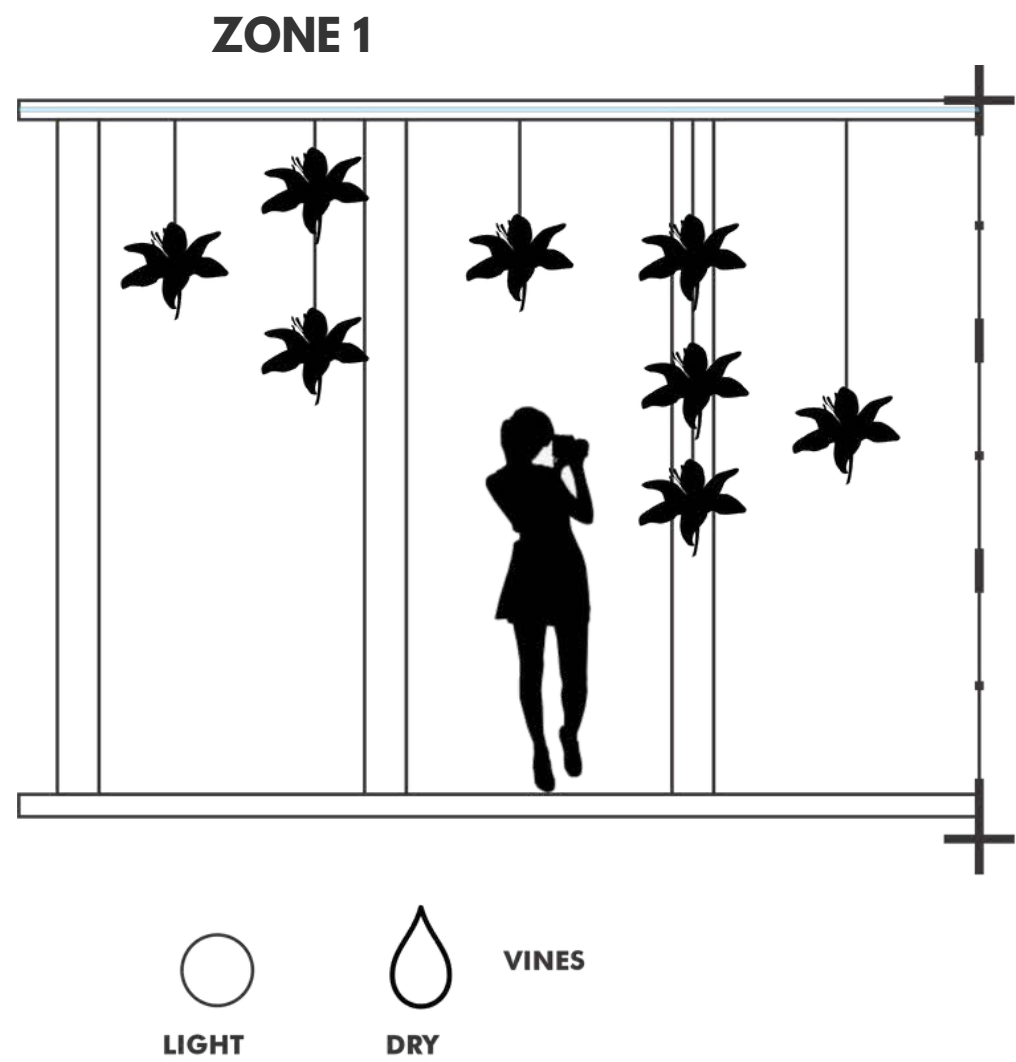
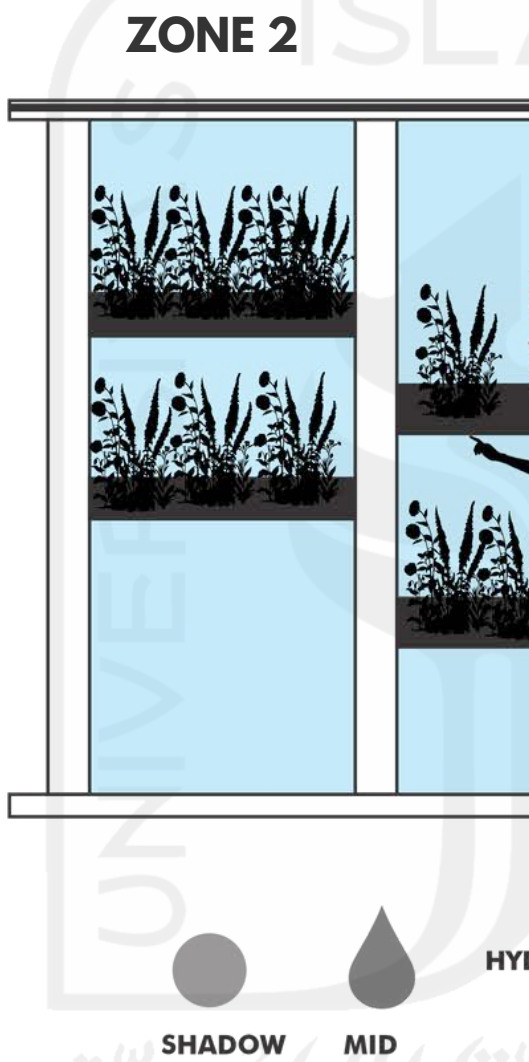
PARTIAL SECTION



ELEVATION



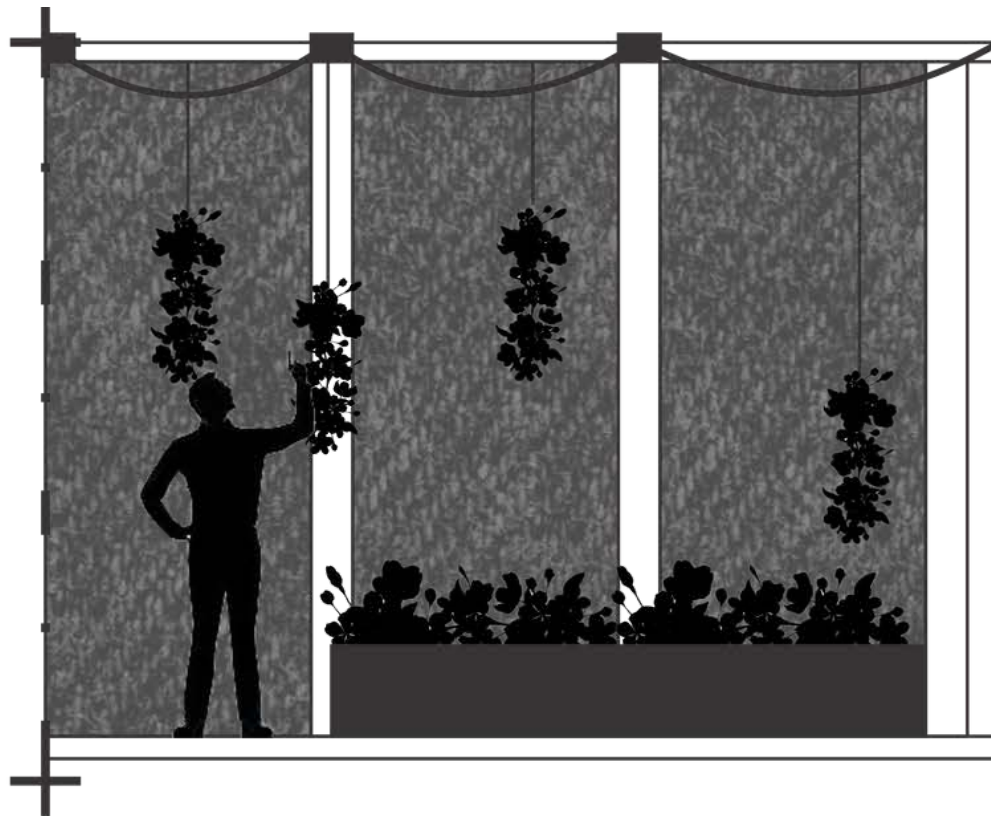
COMMUNITY GARDEN





HYDROPHONIC

ZONE 3



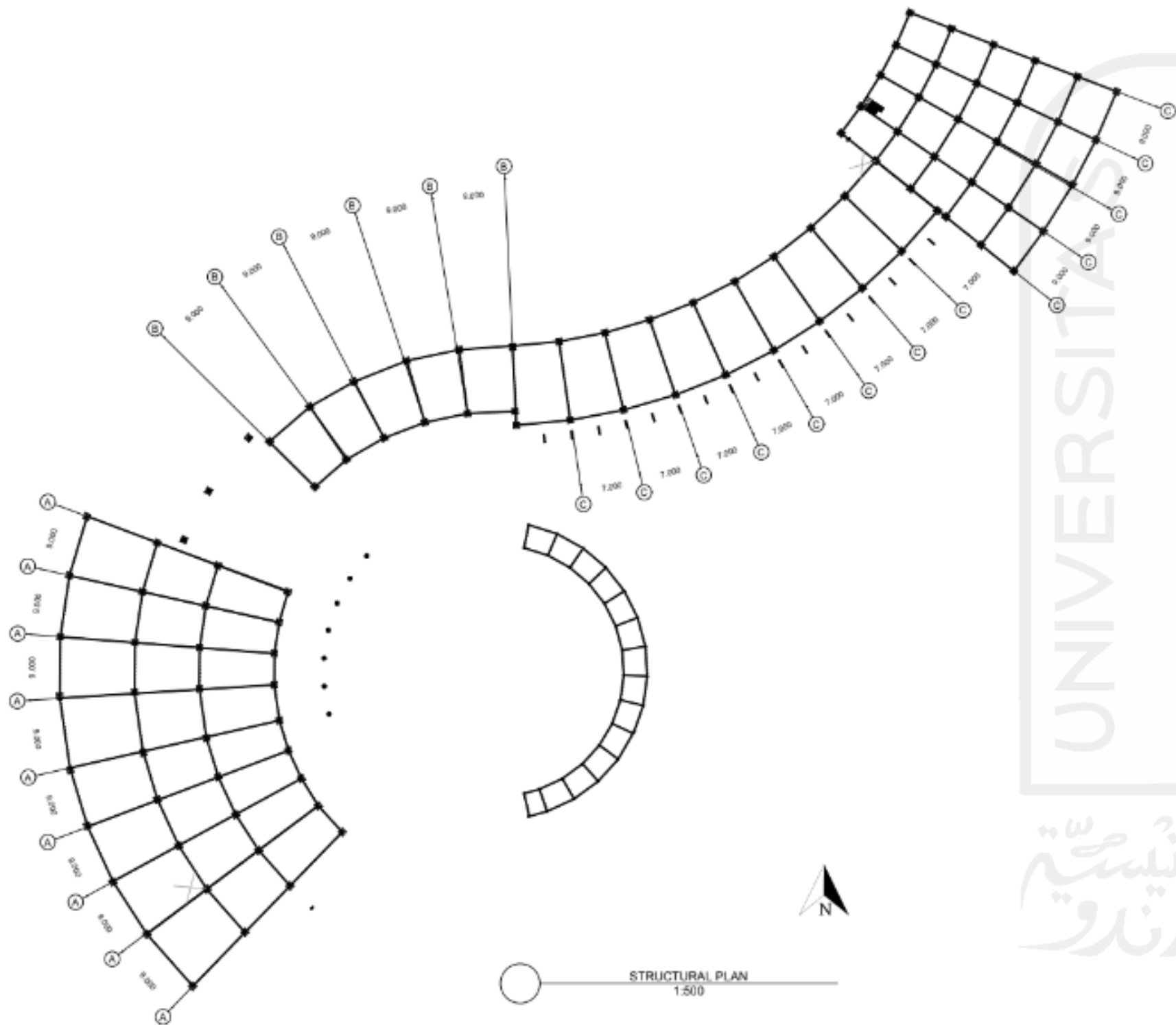
DARK



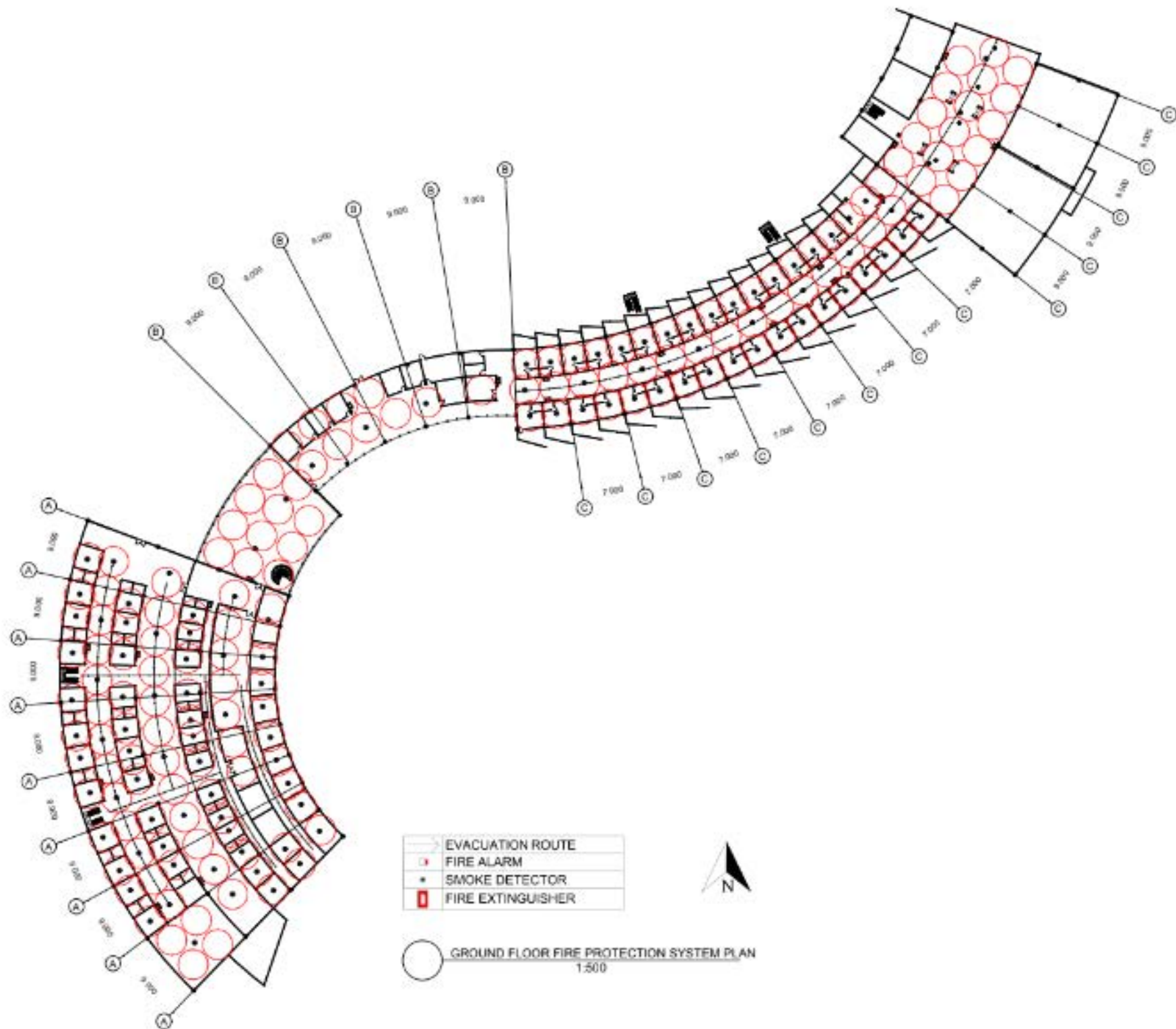
HUMID

MUSHROOM

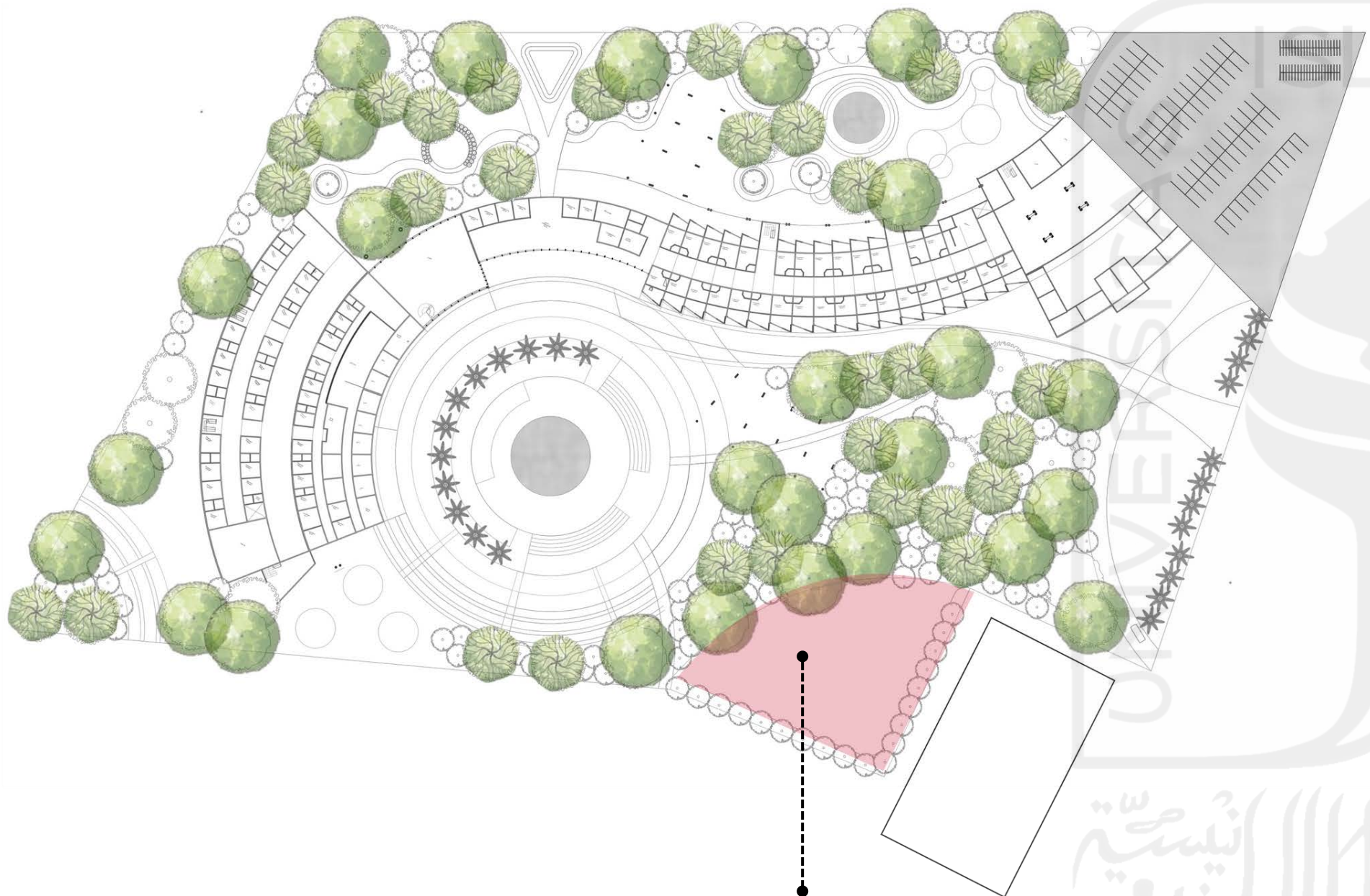
STRUCTURE



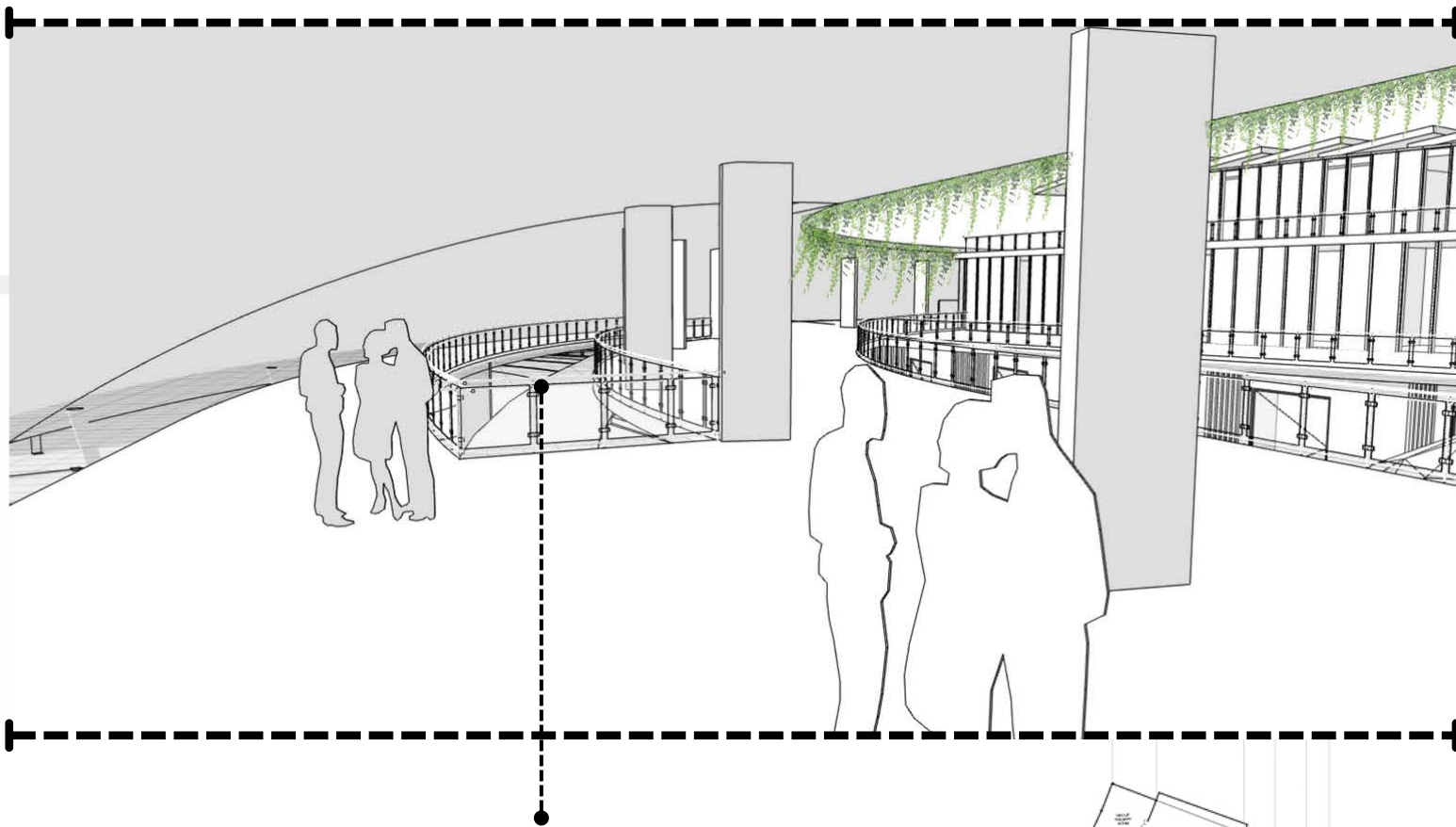
MECHANICAL AND ELECTRICAL SYSTEM



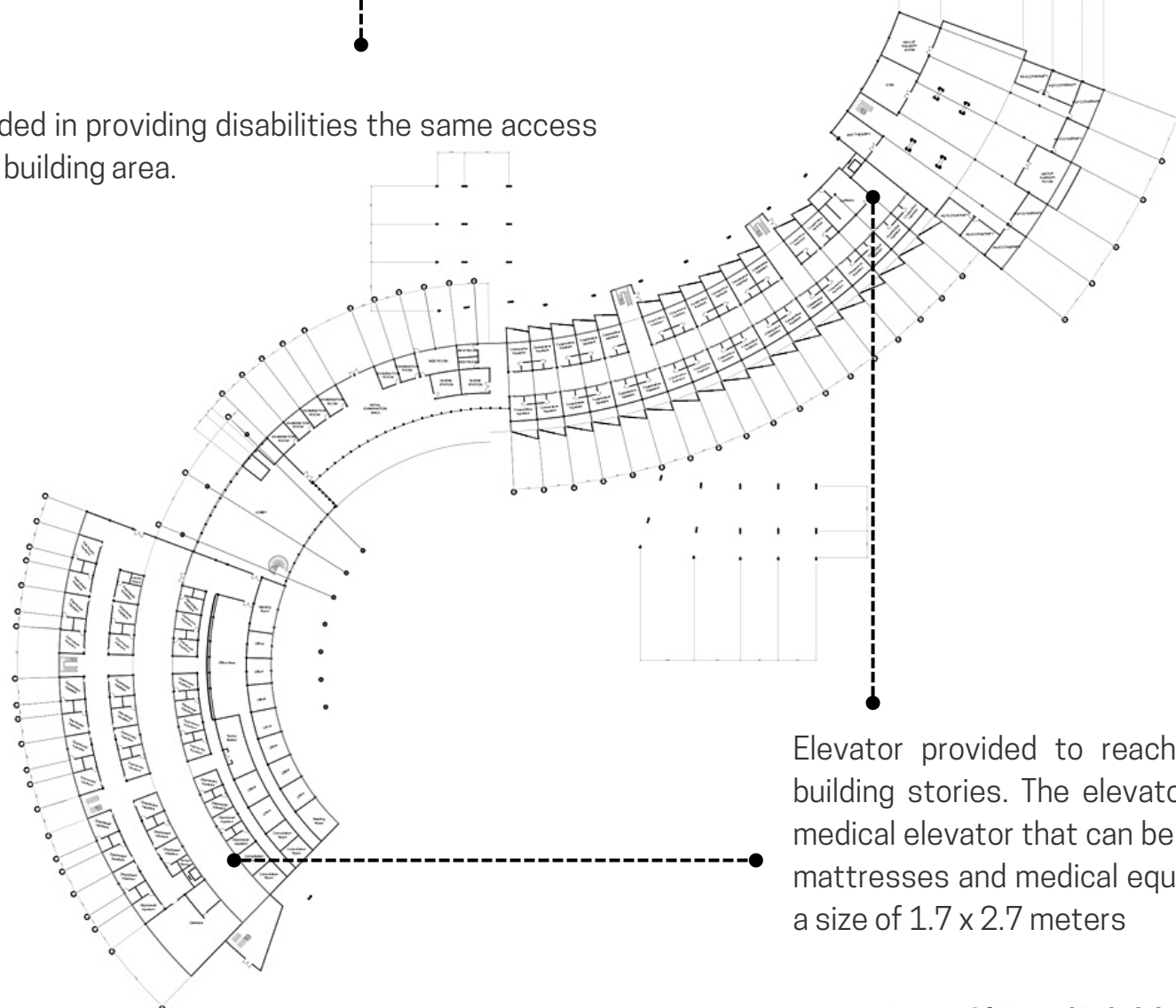
INCLUSIVE AND SAFETY



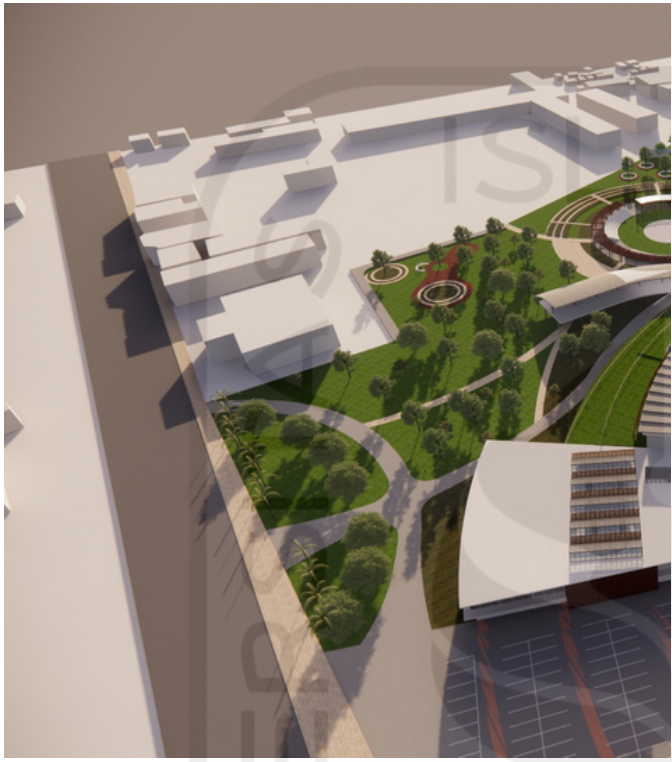
The children's play area is located in a part of the site that does not have direct access to the road (covered by a building) for safety reasons.

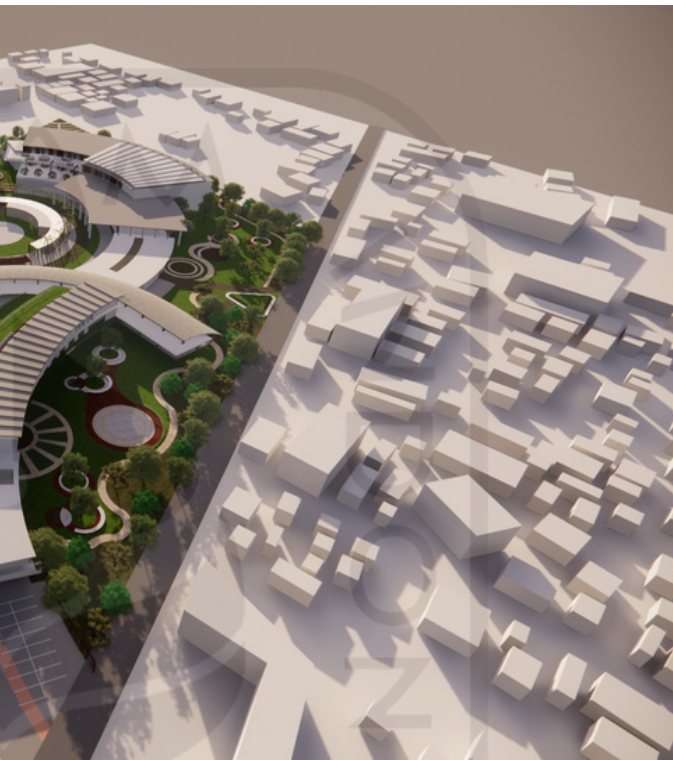
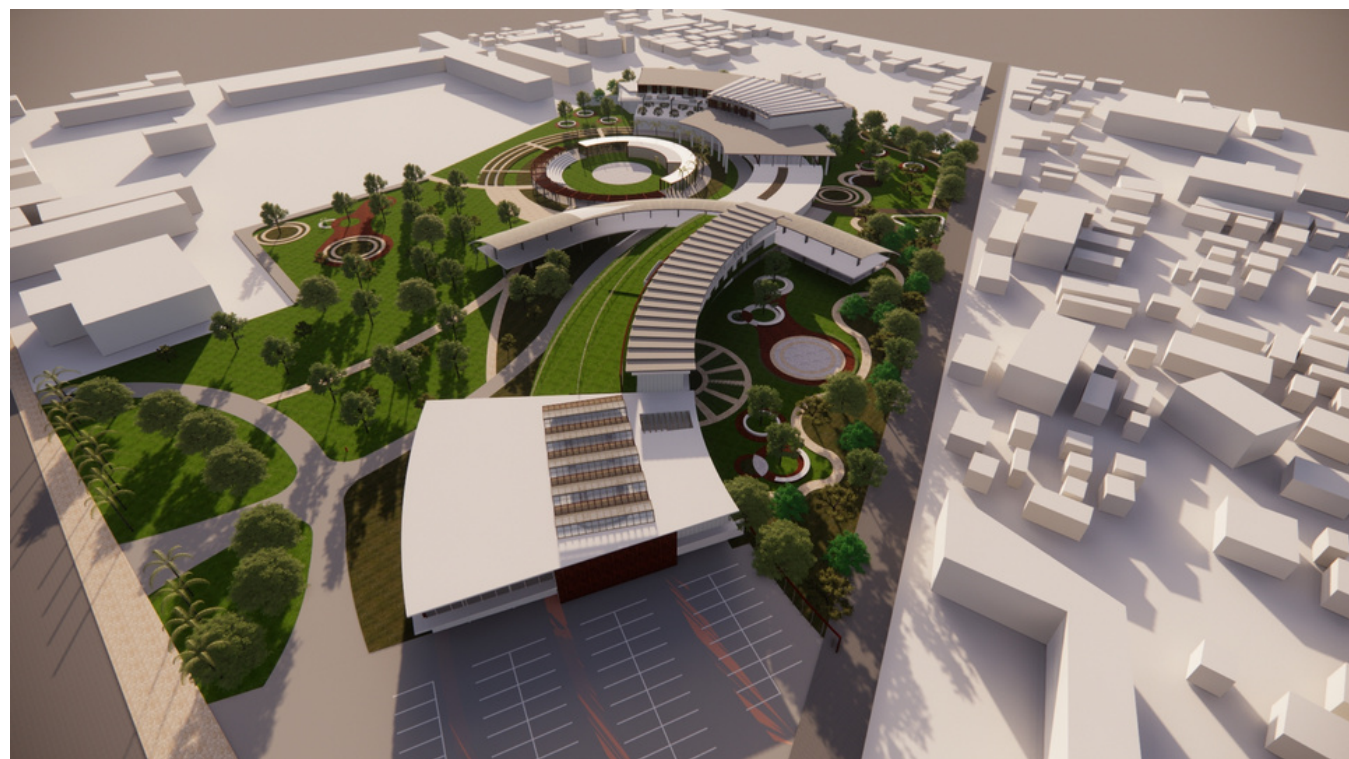


ramp provided in providing disabilities the same access to site and building area.



Elevator provided to reach the whole building stories. The elevator used is a medical elevator that can be loaded with mattresses and medical equipment with a size of 1.7 x 2.7 meters









6. REFLECTION

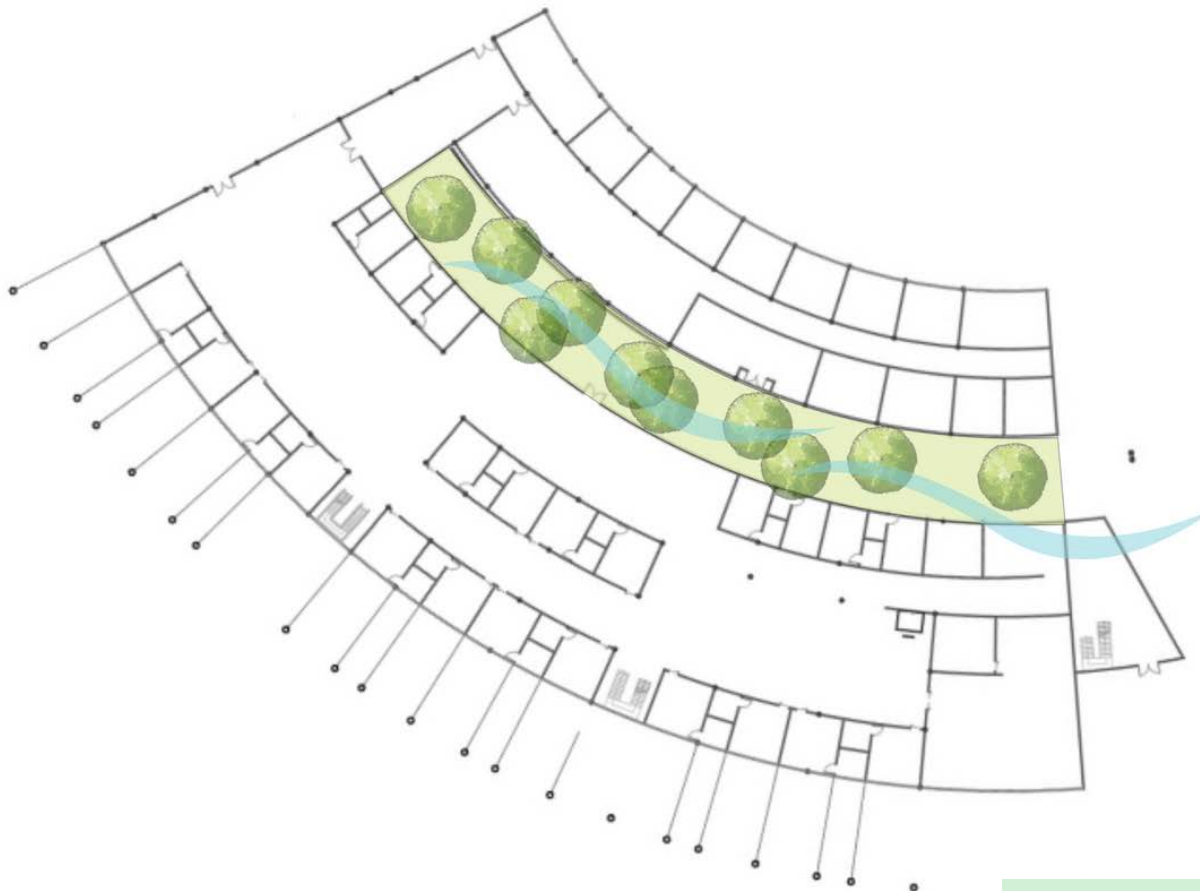
6.1 LAYOUT FOR INPATIENT WARD

QUESTION/COMMENTS

In the Inpatient Ward area in the southwest building, the design layout are made with 2 corridors thus created a building that has the potential to create a poor air circulation, and makes the patient not have a direct connection with the outdoor area.

The initial consideration of creating the layout of the inpatient ward as the resulted design is to maximize the space use and increase the capacity of inpatient ward in the first floor as the depressed patient are intended to be placed only in the first floor considering the safety reason (suicide attempt, aggression, etc). Another reason is that the depressed patients are mostly more into medical treatment in their room, and require the supervision of professional staff to accompany them going outside, so the direct connection of outdoor spaces seems enough by providing it in the building mass level. But it is true that the layout has the potential in creating the poor air circulation which supposed to be a crucial part for a healthy building and salutogenic principle, and therefore the design improvements were made.

The layout of the building was changed to two rows of inpatient rooms, and what was previously the third row of rooms was converted into an inner court as a communal place and also an 'air well' for the building, so that each inpatient room on that floor gets a good air circulation.

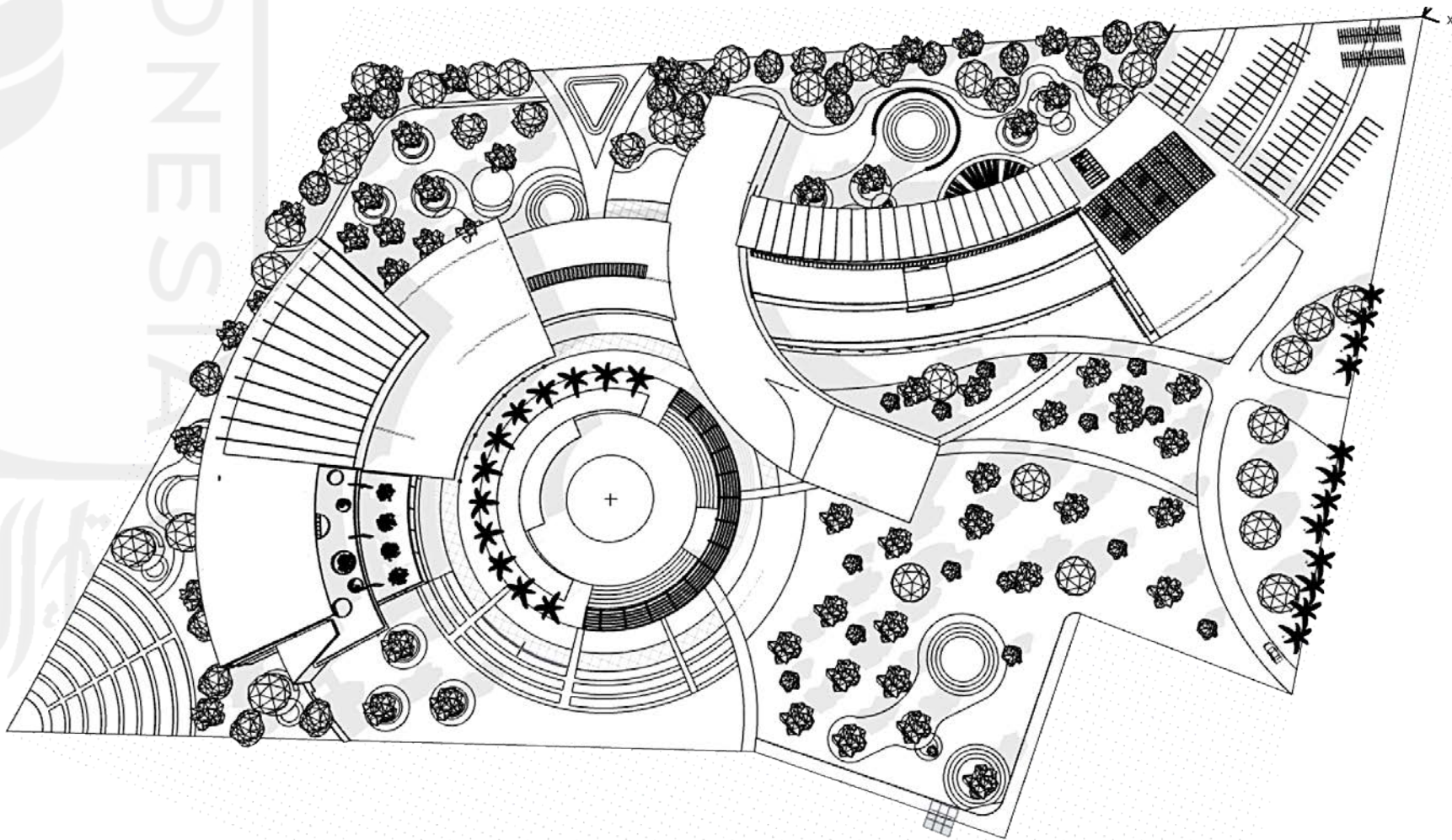


6.2 MASS COMPOSITION

QUESTION/COMMENTS

The orientation of the curved section on the composition of the building mass gives the impression of disrespect at the center of the site (Amphitheatre and community garden)

The mass design has a contrasting pop-up element so that the building period is not boring but still has a harmonious impression. To prevent the impression of disrespect from the human scale, the design of the covering or roof is changed from wood roof to transparent roof so that it doesn't look massive and provides sight feasibilities from above. In addition, a sense of enclosure in urban areas is given through the trees, texture, and human scale size seating area in park spots.



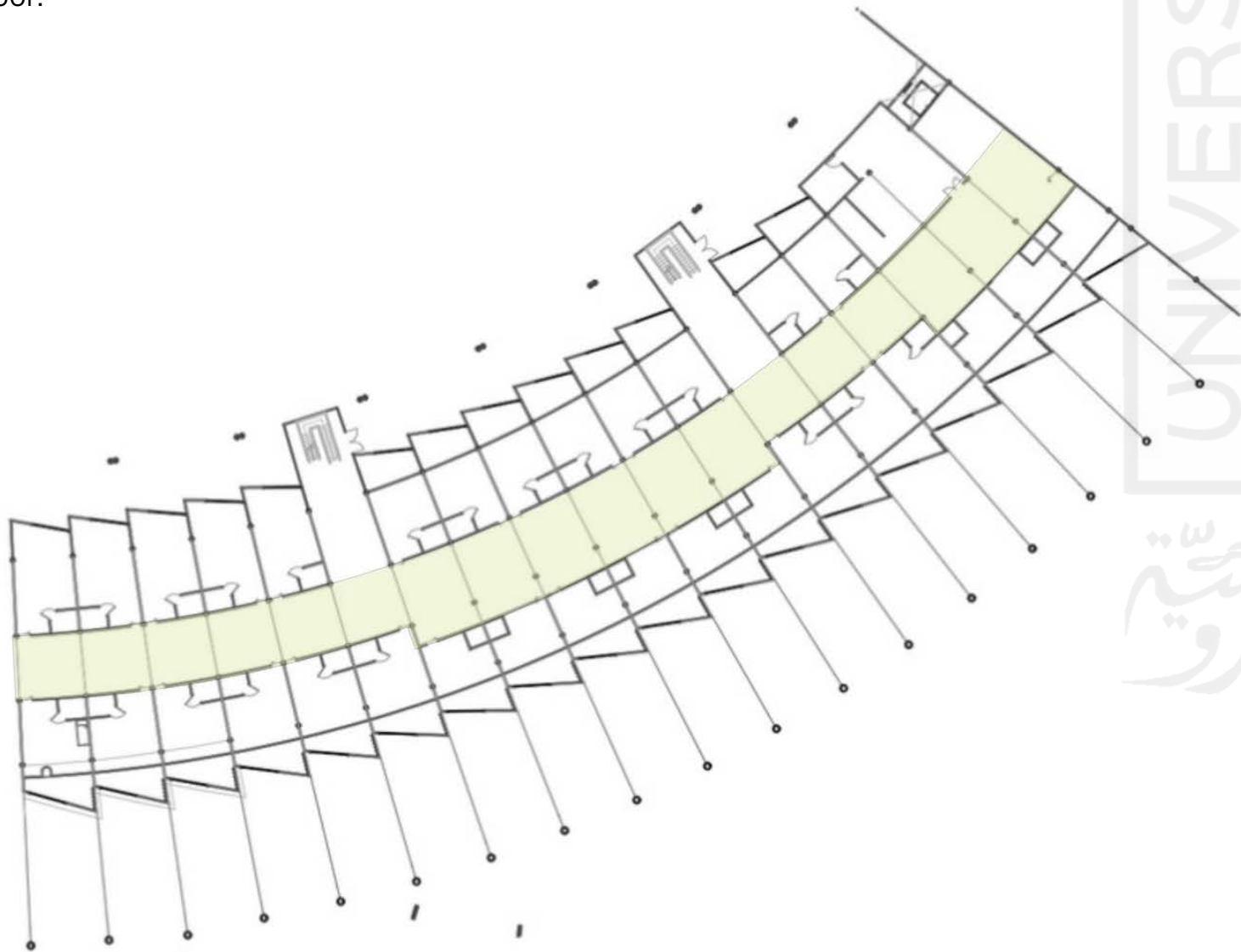
6.3 CORRIDOR DESIGN

QUESTION/COMMENTS

Corridor designs in buildings that are monotonous and look narrow and curved will generate anxiety of what will be in front of me and can trigger people with claustrophobia (fear of confined spaces)

Revisi dan development dilakukan pada desain koridor bangunan untuk mencegah hal tersebut terjadi dengan memberi perbedaan luas pada particular distance membuatnya lebih dinamis dan menaruh ruang ruang komunal in between untuk memberi kesan lebih hidup didalamnya.

Pasien yang berjalan sepanjang koridor tidak akan merasa unsure dan cemas akan ruang sempit and what might be in front of them karena dalam selang beberapa jarak mereka akan melihat ruang ruang komunal maupun tanaman taman indoor.

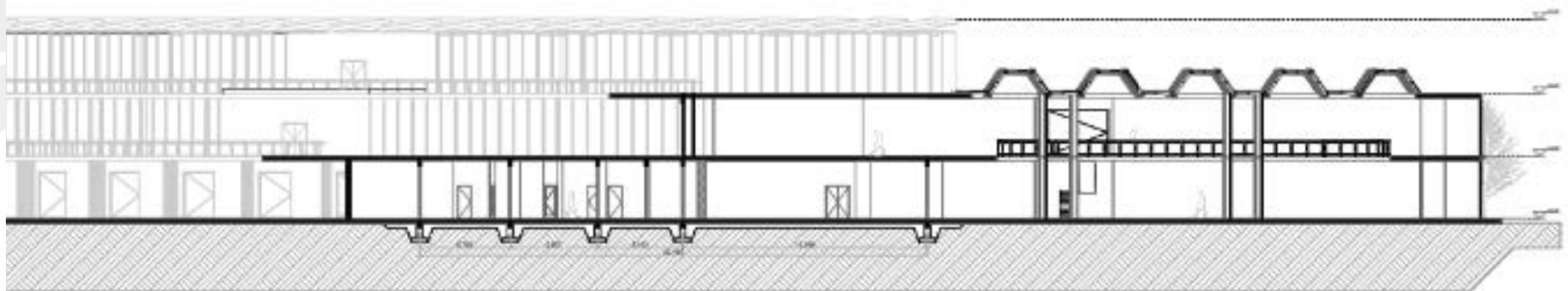
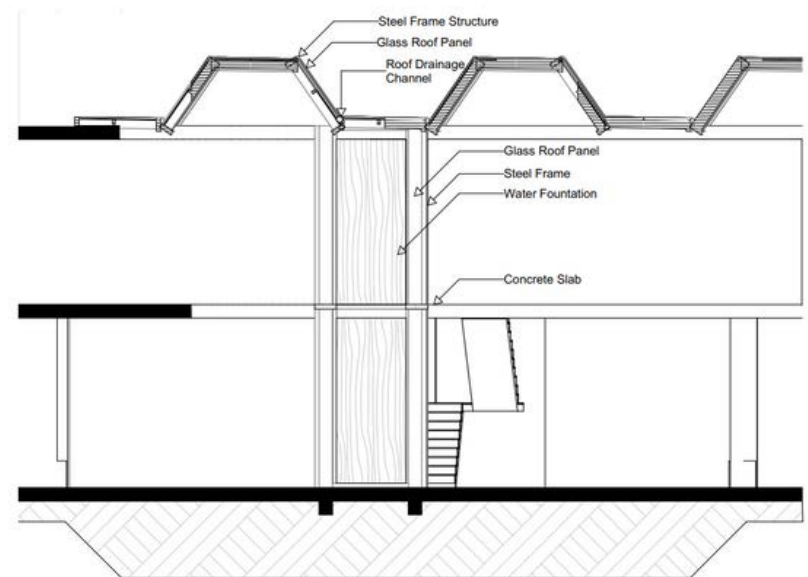


6.4 THERMAL CONTROL OF THE ROOF

QUESTION/COMMENTS

The glass material on the roof will cause direct sunlight and cause thermal discomfort

The roof design on the public facilities part of the building is given a transparent roof to provide sufficient lighting during the daytime and boost patient productivity. The design of small pool and fountains can provide a passive cooling system in the room as well as the presence of vegetation on the atrium floor that provides shading on a human scale so the user will have enough comfort. In addition, efforts to minimize solar radiation are also carried out by using filtered glass as a glass material on the roof.



ROOF DETAIL 1
1:50

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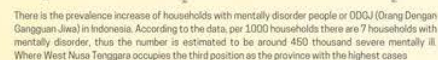
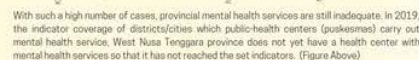
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7. ATTACHEMENT

Design Of Mental Rehabilitation Center Through
Salutogenic Approach In West Nusa Tenggara

IN WEST NUSA TENGGARA

Household Prevalence (per mile) With Schizophrenia/Psychosis
Mental Disorder Household Members

In NTB, there are still many cases of people with mental disorders (ODGJ) who do not get good treatment and are even put in shackles. In fact, people with mental disorders should get medical intervention as early as possible. By procrastinating to get treatment, it will make things worse.

Proportion of households with members of a schizophrenic / psychosis mental disorder who have ever been put in shackles within three months (2018)



ARCHITECTURAL ISSUE

NON-ARCHITECTURAL ISSUE

Designing a Rehabilitation Center through salutogenic approach as a facility for mentally ill people and the community in general as well as increasing awareness about mental health

Mataram city - Capital of West Nusa Tenggara
Mentally ill treatment
Building codes

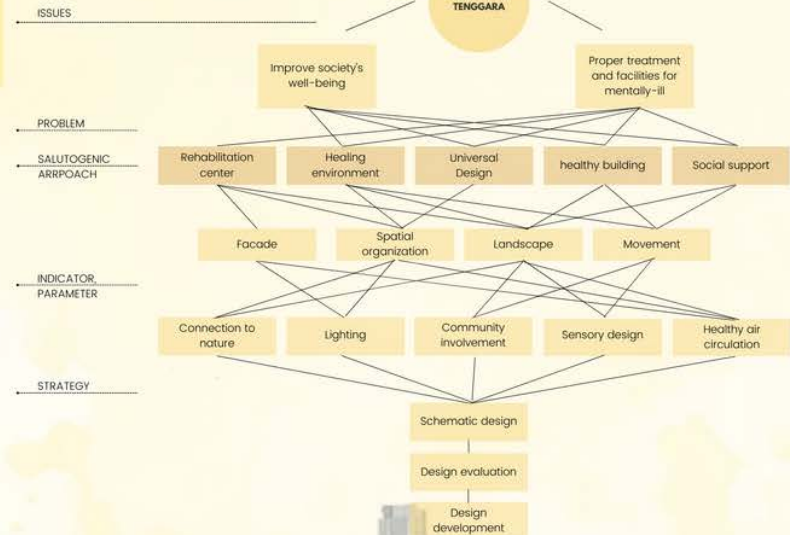
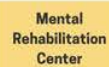
- Rehabilitation Center
- Community Garden
- Spatial Arrangement
- Space hierarchy
- Facade
- Circulation

Salutogenic Approach
Well-being

MENTALLY-ILL CASES

MENTAL HEALTH ISSUE DURING PANDEMIC

WEST NUSA



Mental rehabilitation center will be designed with the consideration of the need of targeted users and the local context with the application of salutogenic approach as the main methods. The targeted users are includes the mental disorder (ODGJ) and people with mental problem (ODMK); those who have the potential to develop mental disorders. This rehabilitation center is designed not only to cure the illness, but also to develop the user's health and well-being. The design will stick to the principle of salutogenic architecture, which are comprehensibility, manageability, and meaningfulness.

Healing Environment

the aim is to create a rehabilitation center that provide healing environment in order to promote the user's health with the following design strategy:

Material & Textures

The use of various material to create sensory experience that boost the recovery process.

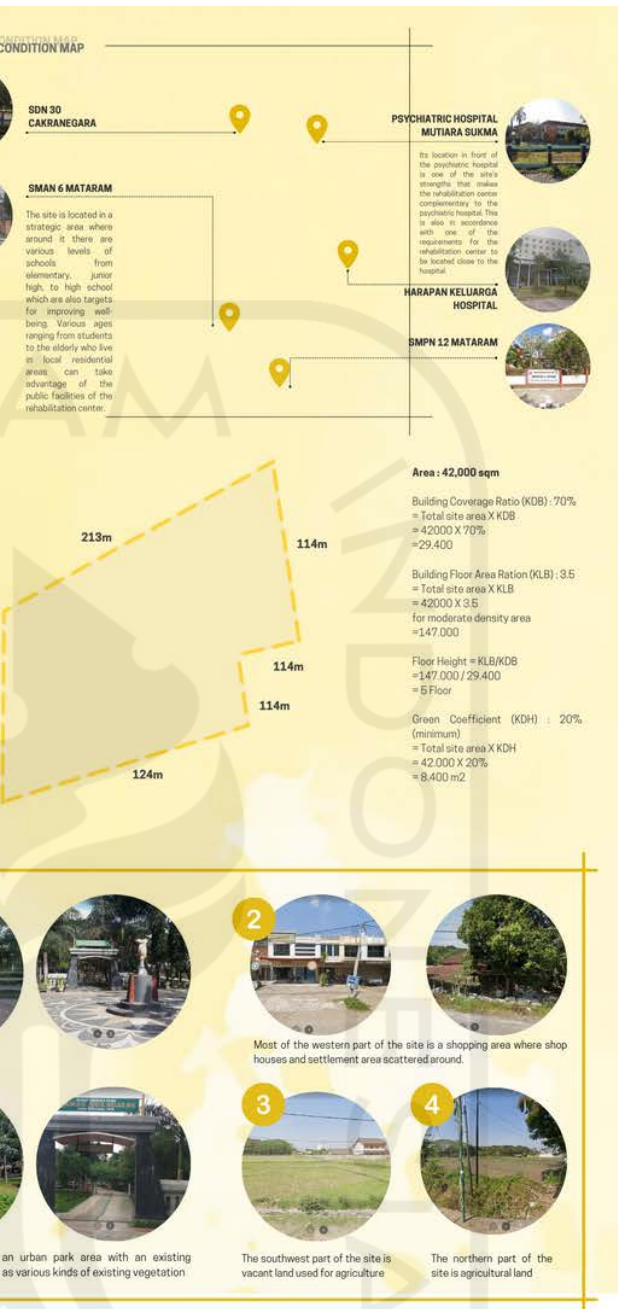
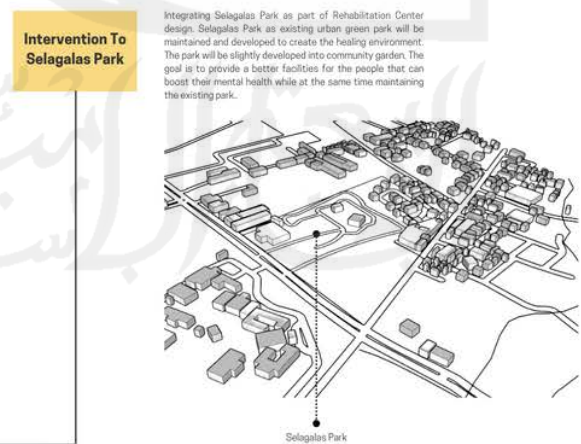
Colors
The use of particular color type for different room function. Cool colors because these colors give the impression of peace, calm and relieve.

Community Involvement
Volunteer-based or community activities to reduce stress by gardening and visiting green public space

Connection to Nature

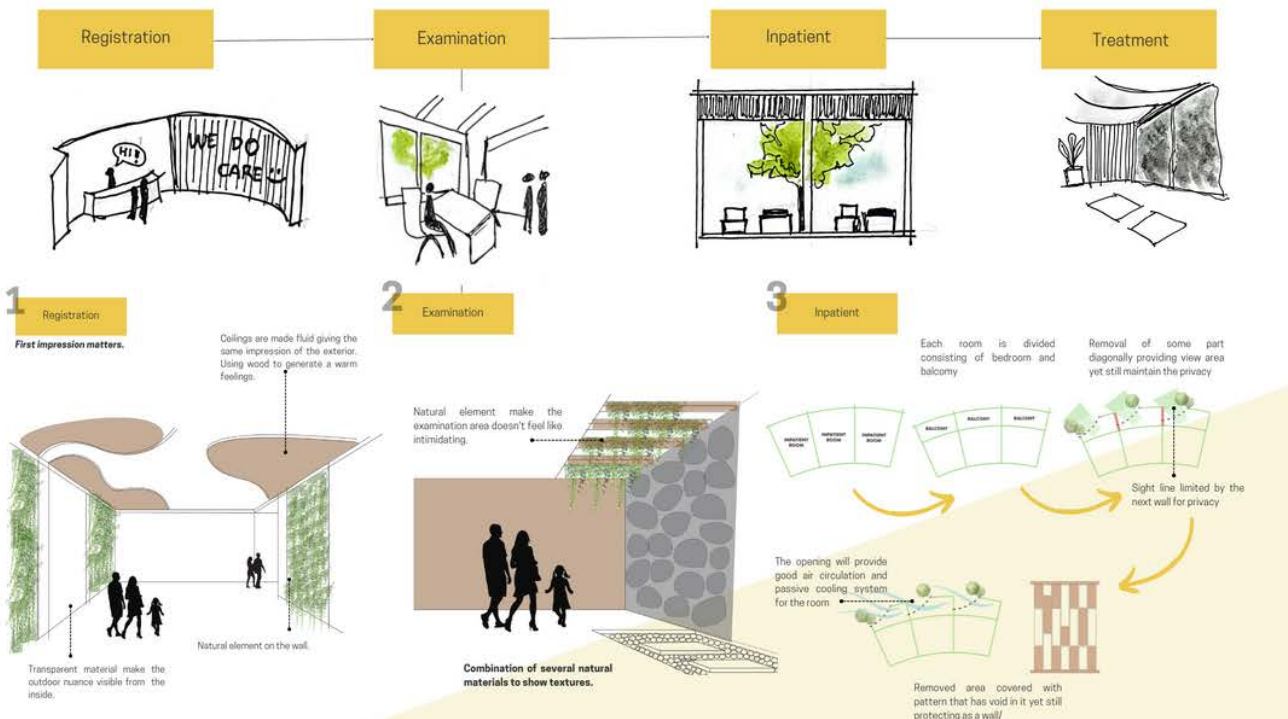
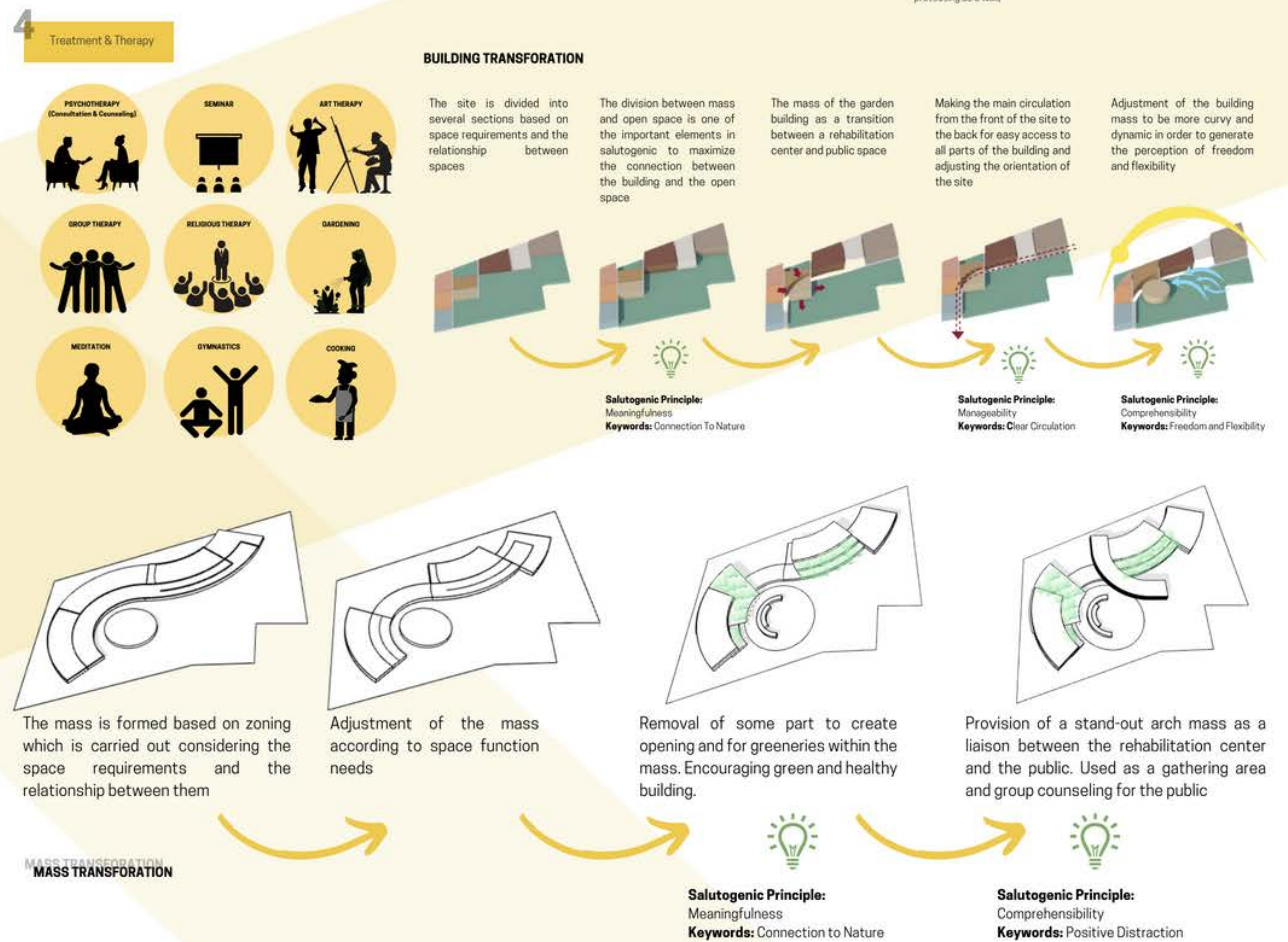
Providing a large opening and green element to the design. Utilize natural element such as sunlight and fresh air.

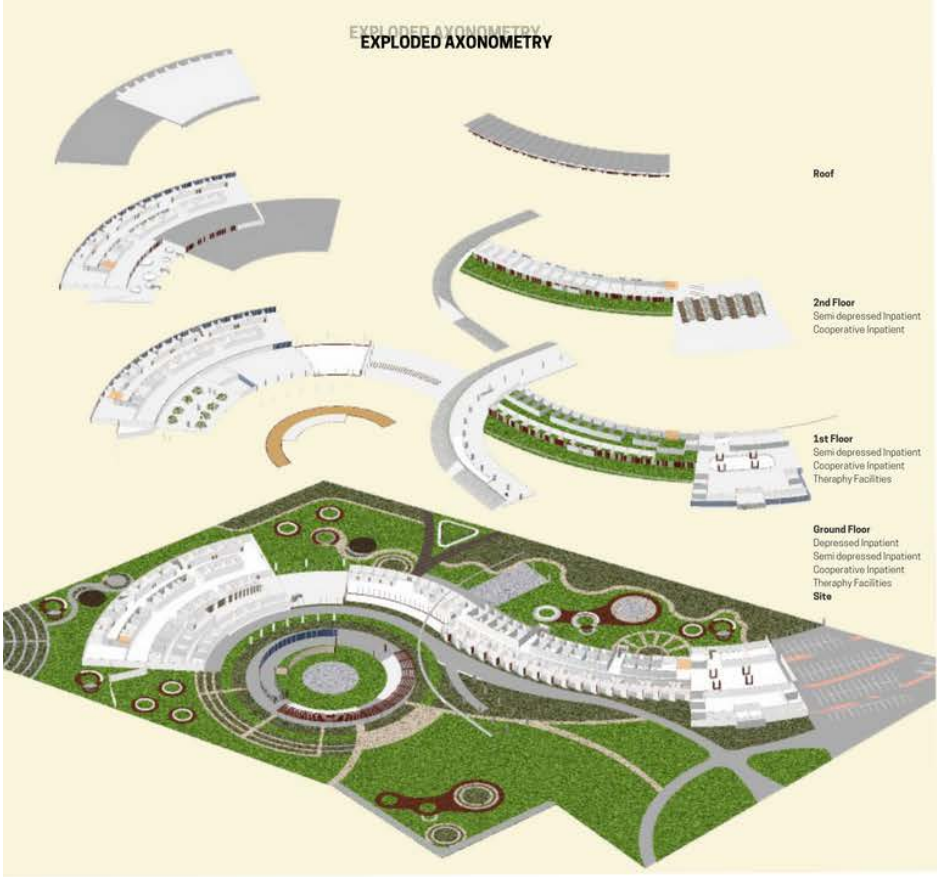
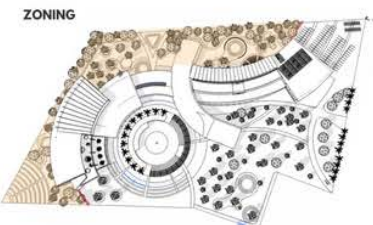
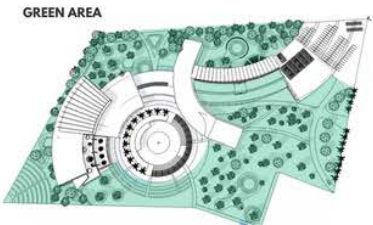
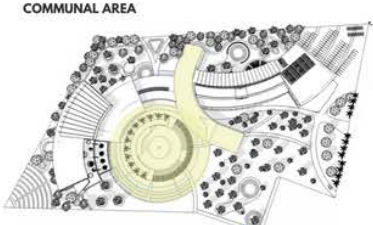
Valuable Place
aesthetically valuable space and memory for the patient such as garden and praying room.



SALUTOGENIC ARCHITECTURE: Comprehensibility

USERS FLOW





COMPREHENSIBILITY

Ensuring that the perception presented helps the patient's perception process be done by showing the textures and materials used, controlling the size of the number of patients and expressing environmental features in a normal way.

Open plan

The building is designed with an open plan concept in most circulation spaces to facilitate way-finding, provide simplicity, and improve user readability in viewing circulation.



Colors and material

The materials used are mostly neutral colors to create the impression of calm, but also patterns and natural materials.



MANAGEABILITY

Providing an opportunity for the patient to control his environment through independently, this can be done by providing access to open window openings and activities as usual to the patient's psychomotor facilities.

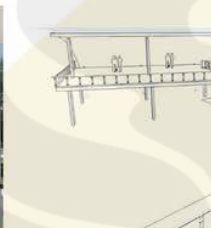
Wide Opening

The building envelope use transparency to provide a good view and the feeling of connection to the nature and surrounding.



Barrier-free Design

Barrier free design allows for an environment where people with disabilities are also able to independently move and indirectly encourages each individual.

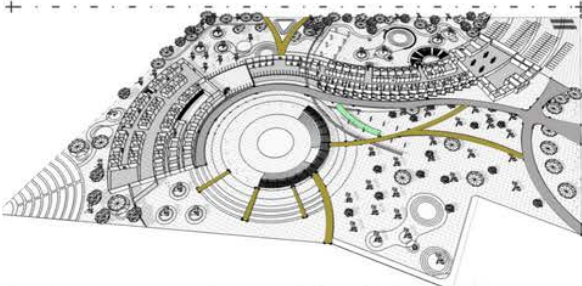


SITE PLAN



The green area is made around the site with all parts of the building having direct access to the open space. Green area is divided into two; public and private to provide the best experience for patients by providing options, as well as safety reasons for depressed and semi-depressed patients. The section which was previously a Selagelas park was not given excessive pavement to preserve the existing vegetation.

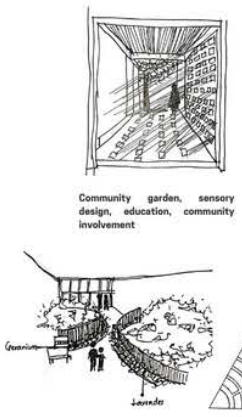
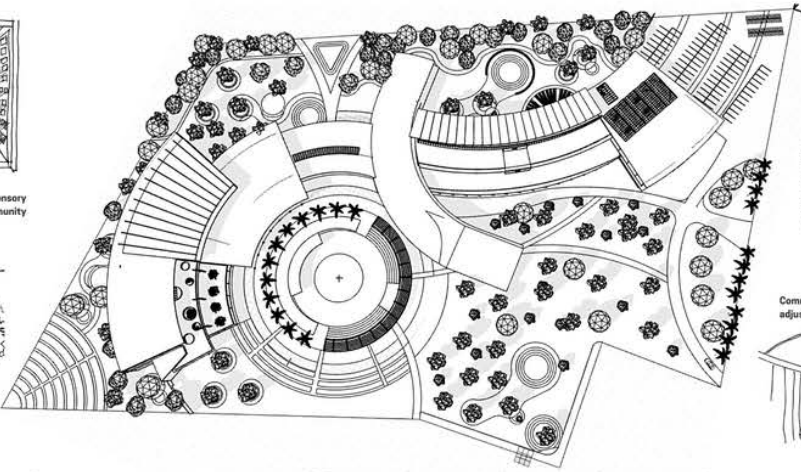
In the landscape design in some parts there are spots such as mini stages that can be used to do exercise, training activities, and workshops such as pottery classes.



Amphitheater and community garden as the heart of the site as a center for communal activities for the visitors.

Parking lot with a total capacity of 160 vehicles including 80 cars and 80 motorbikes.

In order to maintain and improve the site quality, the design is minimizing the hardening on the green area.



Direct access from the street in front of the site which continues to the rear. It is also used as an ambulance access during an emergency so that it can reach the entire building.

Communal space, flexibility, adjustable to any events



ess. This can
he room and
ay.

al in color to give
play with color



roughly and
nd carry out

clusive environment where persons with
dently do anything and anywhere. Barrier free
at to be active in their physical mobility.



Scale and elevation

High and low ceilings are varies within the building, the higher one to provide the feeling of freedom, and at the other hand the patient also need a more intimate interaction.



Encourage Movement

Apart from universal design, the building also encourages movement through the communal space and shared facilities provided for the patient to actively do something they like.



Natural Light



Connection to Nature



Humans capture memories with their senses. The design of the rehabilitation center is made so that every corner has a memory. Some are carried out with strategies that make the human senses play an active role, such as the play of light and shadow, as well as the sense of smell.

MEANINGFULNESS Increasing the value of the environment on the patient, can be done by providing an aesthetically valuable space and memory for the patient through special personal items to maybe even interact with other living things (animals and plants).

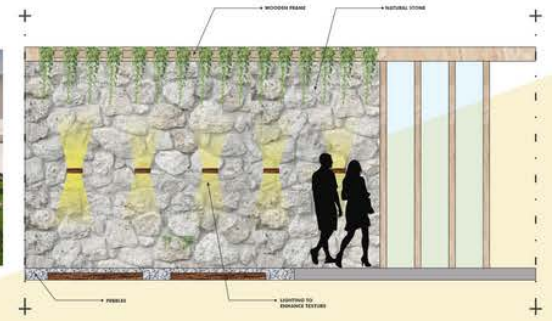
Positive Distraction



Offer memories



Provide flexibility for patients to do activities they are interested in. Some outdoor spaces are designed to be adjustable, such as to hold discussions, pottery classes, musical performances, etc.



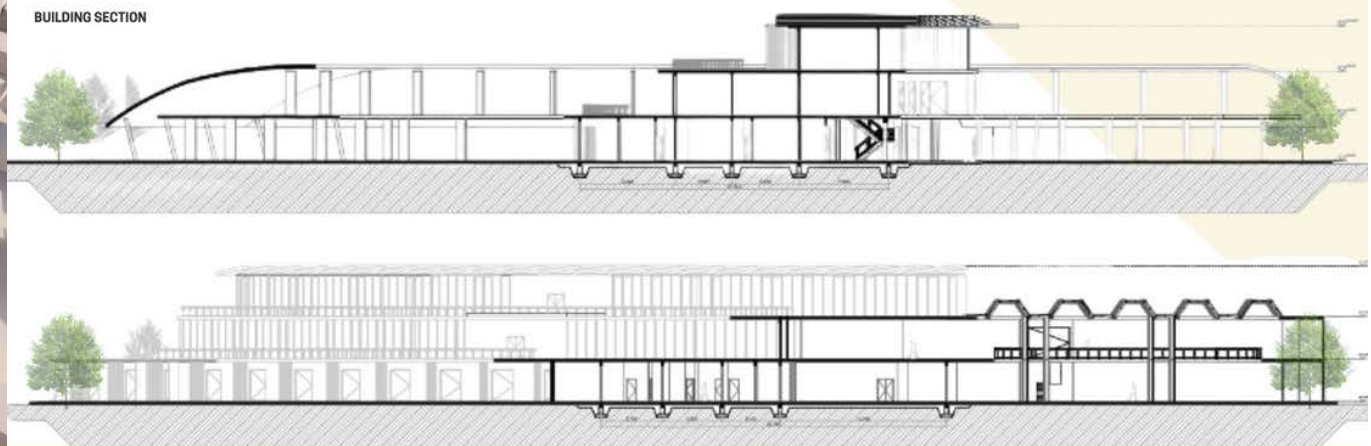
Balcony for the user to feel their connection with nature, pathway at the upper stories act as communal area.



BUILDING RENDER



BUILDING SECTION



Studio
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Jury
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**Design Of Mental Rehabilitation Center Through
Salutogenic Approach In West Nusa Tenggara**



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