BUILDING PERFORMANCE & TECHNOLOGY LABORATORY

FINAL ARCHITECTURAL DESIGN STUDIO

Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in , Yogyakarta



STUDENT
Nurdianti| 20512155

SUPERVISING LECTURER
Prof.Noor Cholis Idham S.T., M.Arch., Ph.D., IAI

UNIVERSITAS ISLAM INDONESIA

UNDERGRADUATE ARCHITECTURE PROGRAM

ARCHITECTURE UNIVERSITAS ISLAM INDONESIA

Final Architectural Design Studio
Studio Akhir Desain Arsitektur

BUILDING PERFORMANCE & TECHNOLOGY LABORATORY



Desain Pusat Kesehatan Jiwa dengan Pendekatan Arsitektur Biofilik untuk Mengoptimalkan Konektivitas Indoor-Outdoor di , Yogyakarta



STUDENT
Nurdianti| 20512155

SUPERVISING LECTURER
Prof.Noor Cholis Idham S.T., M.Arch., Ph.D., IAI

UNIVERSITAS ISLAM INDONESIA

UNDERGRADUATE ARCHITECTURE PROGRAM

6 YEARS 1987-2023 · ARCHITECTURE UNIVERSITAS ISLAM INDONESIA · UNGGUL · KAAB Korea Architectural Accrediting Board · CANBERRA ACCORD · BOARD OF ARCHITECTS MALAYSIA LEMBAGA ARKITEK MALAYSIA · RIBA

Lembar Pengesahan

Studio Akhir Desain Arsitektur yang Berjudul
Final Architectural Design Studio Entitled

Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in , Yogyakarta
Desain Pusat Kesehatan Jiwa dengan Pendekatan Arsitektur Biofilik untuk Mengoptimalkan Konektivitas Indoor-Outdoor di , Yogyakarta

Nama Lengkap Mahasiswa — **:Nurdianti**
Student's Full Name

Nomor Mahasiswa — **: 20512155**
Student's Identification

Telah Diuji dan Disetujui pada — **: Yogyakarta, 21 Agustus 2024**
Has been evaluated and agreed on

Dosen Pembimbing	**Penguji 01**	**Penguji 02**
Supervisor	*Jury 01*	*Jury 02*
Prof.Noor Cholis Idham S.T., M.Arch., Ph.D., IAI	Johanita Anggia Rini, S.T., M.T., Ph.D.	Ir. Hanif Budiman, M.T., Ph.D

Diketahui Oleh:
Acknowledge By:
Ketua Program Studi Sarjana Arsitektur
Head of Architecture Undergraduate Program

Ir. Hanif Budiman, M.T., Ph.D

Catatan Dosen Pembimbing

Berikut ini adalah penilaian buku laporan Studio Akhir Desain Arsitektur:

Nama Lengkap Mahasiswa :Nurdianti
Student's Full Name

Nomor Mahasiswa : 20512155
Student's Identification

Judul Laporan :
Title

Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in , Yogyakarta

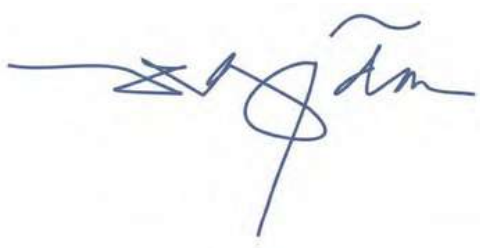
Desain Pusat Kesehatan Jiwa dengan Pendekatan Arsitektur Biofilik untuk Mengoptimalkan Konektivitas Indoor-Outdoor di , Yogyakarta

Kualitas Pada Buku Laporan Studio Akhir Desain Arsitektur :
Sedang, Baik, Baik Sekali *) Lingkari Salah Satu

Sehingga,
Direkomendasikan / tidak direkomendasikan *) Lingkari Salah Satu
Untuk menjadi acuan produk laporan Studio Akhir Desain Arsitektur

Yogyakarta, 21 Agustus 2024
Yogyakarta, 21 August 2024

Dosen Pembimbing
Supervisor



Prof.Noor Cholis Idham S.T., M.Arch., Ph.D., IAI

ORIGINALITY DECLARATION

Full Name	:	Nurdianti
Student ID Number	:	20512155
Study Program	:	International Undergraduate Program in Architecture
Faculty	:	Civil Engineering and Planning
Title	:	**Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in , Yogyakarta**

I declare that all parts of this work are my own work which is referred to and there is no assistance from other parties, either in whole or in part in the process of making it. I also declare that there is no conflict of intellectual property rights or this work and submit it to the Department of Architecture, Islamic University of Indonesia to be used for educational and publication purposes.

Yogyakarta, Augustus 21th, 2024

Author



Nurdianti

FOREWORD

Assalamu'alaikum Warahmatullahi Wabarakatuh
Bismillahirrahmanirrahim

Praise be to ALLAH SWT, God Almighty for all His grace and gifts, so that the author can complete the Final Architecture Design Studio Report (FADS) "Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in Sleman, Yogyakarta". I would like to express my gratitude to our beloved Prophet Muhammad SAW and his family and friends. The writing of this Bachelor Final Project is one of the requirements for graduation in obtaining a Strata-1 (S1) degree in the Architecture study program, Islamic University of Indonesia. So it is hoped that this report can increase knowledge for the reader. And the author would like to thank all those who helped in the learning process and preparation of this report, namely:

Abstract

This research discusses the design of a mental health center with a biophilic architecture approach to optimize indoor and outdoor connectivity in, Yogyakarta. The main focus of this study is on the integration of biophilic architecture principles in the building design, with the aim of improving the mental well-being of occupants and facilitating healing. Through the analysis and development of design concepts that are appropriate to the local context and user needs, it is hoped that the results of this research can provide guidance for the development of an environmentally friendly and sustainable mental health center.

keywords : "Mental Health Center, "Biophilic Architecture Approach," and "Optimizing Indoor-Outdoor Connectivity."

Abstrak

Penelitian ini membahas desain pusat kesehatan mental dengan pendekatan arsitektur biofilik untuk mengoptimalkan konektivitas dalam dan luar ruangan di Yogyakarta. Fokus utama studi ini adalah pada integrasi prinsip-prinsip arsitektur biofilik dalam desain bangunan, dengan tujuan meningkatkan kesejahteraan mental penghuni dan memfasilitasi penyembuhan. Melalui analisis dan pengembangan konsep desain yang sesuai dengan konteks lokal dan kebutuhan pengguna, diharapkan hasil penelitian ini dapat memberikan panduan untuk pengembangan pusat kesehatan mental yang ramah lingkungan dan berkelanjutan.

Kata kunci: "Pusat Kesehatan Mental," "Pendekatan Arsitektur Biofilik," dan "Optimalisasi Konektivitas Dalam-Luar Ruangan."

List of Contents.

Chapter 1
Introduction

1.1 TITLE

1.2 DESIGN PREMISE

1.3 BACKGROUND

- 1.3.1 Mental health issues
- 1.3.2 Mental health facility
- 1.3.3 Biophilic Architecture
- 1.3.4 Indoor-Outdoor Connectivity

1.4 PRECEDENT

- 1.4.1 California Academy of Sciences in San Francisco
- 1.4.2 Maggie's Centre
- 1.4.3 KANEKA Wellness Center / Kengo Kuma

1.5 PROBLEM FORMULATION & PURPOSE

- 1.5.1 PROBLEM FORMULATION
- 1.5.2 GOALS

1.6 ORIGINALITY & NOVELTY

1.7 DESIGN METHODS

1.8 THOUGHT PROCESS

Chapter 2
Initial Study

2.1MENTAL HEALTH CENTER TYPOLOGY

- 2.1.1 Mental HealthKit Center

2.2 BIOFILIK DESIGN THEORY AND LITERATUR REVIEW

- 2.2.1 Biophilic Design

2.3 DESIGN STUDY OPTIMIZING INDOOR-OUTDOOR CONNECTIVITY IN TROPICAL CLIMATE LITERATURE REVIEW

- 2.3.1 Indoor-Outdoor Connectivity
- 2.3.2 Open Space and Therapeutic Garden
- 2.3.3 Flexibility and Adaptability
- 2.3.4 Integration with the Environment

2.4 PRECEDENT REVIEWS

- 2.4.1 California Academy of Sciences in San Francisco
- 2.4.2 Maggie's Centre
- 2.4.3 KANEKA Wellness Center / Kengo Kuma

2.4 SITE STUDY

Chapter 3

Design Concept for Mental Health Center: Enhancing Biophilic, Maximizing Indoor-Outdoor Connections, and Ensuring Safety

3.1 BRIEFING FUNCTION

3.1 .2 USER ACTIVITY ANALYSIS

3.2 PROPERTY SIZE TO DETERMINE THE SIZE OF BUILDING MASSES

3.3 ZONING RELATED TO PRIVACY, SECURITY, AND EFFECTIVE TREATMENT

3.4 MANAGING ACCESS TO MAINTAIN SECURITY AND PRIVACY

3.5 MANAGING ACCESS TO MAINTAIN SECURITY

3.6 ZONING PLANNING RELATED PLACE GREEN AREA EFFECTIVE TREATMENT

3.7 MANAGING ACCESS TO MAINTAIN SECURITY FOR PATIENT

3.8 SITE FINISHING RELATED TO ZONING

3.9 BUILDING MASS CONFIGURATIN RELATED SECURITY AND EFFECTIVE TREATMENT

3.10 BUILDING MASS CONFIGURATION TO RESPON SUN AND WIND

3.11 ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

3.12 FINISHING ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

3.13 BUILDING MASS INPATIENT UNIT RESPONSS TO SUN AND WIND DIRECTION

3.14 ROOF FOR INPATIENT UNIT TO ACHIEVE THERMAL AIRFLOW VARIABILITY &EFFECTIVE TREATMENT

3.15 ROOF FOR INPATIENT UNIT TO ACHIEVE THERMAL & AIRFLOW VARIABILITY

3.16 ROOF FOR INPATIENT UNIT TO ACHIEVE HEALING PROCESS, THERMAL AND AIRFLOW VARIABILITY.

3.17 ROOF FOR INPATIENT UNIT TO ACHIEVE EFFECTIVE TREETMENT

3.18 ROOF STRUCTURE INPATIENT UNIT

3.19 PATIENT BEDS TO ACHIEVE EFFECTIVE CARE THROUGH THE USE OF MATERIALS AND COLORS

3.20 BUILDING MASSING THERAPHY MASS TO ACHIEVE EFFECTIVE TREETMENT

3.21 ORGANIZATION OF FUNCTIONAL SPACES THERAPY UNIT : MAXIMIZING INDOOR AND OUTDOOR CONNECTIVITY WITH VISUAL AND ACOUSTIC INTEGRATION

3.22 BUILDING MASS RESPONSS TO SUN AND WIND DIRECTION

3.23 ROOF FOR THERAPHY TO ACHIEVE THERMAL AIRFLOW

3.24 WATER FALL CONCEPT RELATED ACUSTIC FOR ACHIEVE EFFECTIVE TREETMENT

3.25 ROOF STRUCTURE THERAPHY UNIT RELATED TO MATERIAL FOR ACHIEVE EFFECTIVE TREETMENT

3.26 3D VISUALIZATIN THERAPHY UNIT RELATED EFFECTIVE TREETMENT

3.27 BUILDING MASSING REHABILTATION MASS TO ACHIEVE EFFECTIVE TREETMENT

3.28 ORGANIZATION OF FUNCTIONAL SPACES THERAPY UNIT : MAXIMIZING INDOOR AND OUTDOOR CONNECTIVITY WITH VISUAL

3.29 BUILDING MASS RESPONSS TO SUN AND WIND DIRECTION

3.30 ROOF FOR THERAPHY TO ACHIEVE THERMAL AIRFLOW

3.31 3D VISUALIZATINREHABILITATION UNIT RELATED EFFECTIVE TREETMENT

3.32 GARDEN THERAPY SPACE ORGANIZATION FOR EFFECTIVE TREATMENT

3.33 DESIGN CHEKLIST RELATED TO CONCEPT

Chapter 4
Result Study

4.1 BRIEFING FUNCTION AND CONCEPT

4.2 SITE CONSIDERING PRIVACY, SECURITY, CIRCULATION, AND EFFECTIVE TREATMENT.

4.3 INPATIENT UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

- Roof garden
- Roof garden implenetation
- inner courtyard
- inner courtyard implenetation
- Mini garden around the building
- Facade using plywood
- Facade using plywood implenetation
- window, direct visual access to mini garden
- Thermal & Airflow Variability
- Inpatient unit implements safety concept

4.4 OUTPATIENT UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

- Roof garden
- Roof garden implenetation
- Water fountain
- iWater fountain implenetation
- Mini garden around the building
- window, direct visual access to mini garden
- Outpatient unit implements connctiviti with nature
- Facade using plywood
- Thermal & Airflow Variability

4.5 REHABILITATION UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

- Facade using plywood
- courtyard area
- sawtooth roof implementation
- fountain in courtyard area
- Rehabilitation unit implements fountain in courtyard
- window, direct visual access to Courtyard
- Rehabilitation unit implements safety concept
- Water implements fountain in raining sesion

4.6 THERAPEUTIC GARDEN

- Therapeutic garden in middle
- fountain in the center of the garden
- gardening area on garden
- Flower area on garden

Chapter 5
Design Evaluation

5.1 GUIDELINE DESAIN EVALUATION

5.2 EXPLANATION AND INFORMATION RELATED TO THE MASS OF THE SUPPORTIVE BUILDING

- Supportif Building Management & Staff Area
- Supportif Building Service Area

5.3 IMPROVE ENTRANCE AND DROP-OFF AREA DESIGN FOR MENTAL HEALTH CENTER.

5.4 REFINE CIRCULATION AREAS TO EACH BUILDING MASS AND SHADE AREAS FOR SITTING IN THE GARDEN.

5.5 DROP OFF CIRCULATION

5.6 KITCHEN AREA AND CANTEEN MORE BIGGER

5.7 TECHNICAL DETAILS ON ROOF GARDEN STRUCTURE AND LAYERS.

5.8 ENHANCE SAFETY FEATURES FOR ROOFTOP AREAS IN MENTAL HEALTH CENTER

5.9 SHOW THAT THE BUILDING HAS DIRECT VISUAL ACCESS TO THE OUTSIDE AREA IN TECHNICAL DRAWING

Chapter 6
Attachment

6.1 PLAGIARISM CHECK RESULT

6.2 ARCHITECTURAL PRESENTATION BOARD (APREB)

6.3 REFERENCE LIST

List of Images.

Figure 1.1. Data provinsi gangguan jiwa berat (source: Infodatin Kemenkes.com)

Figure 1.2. Balai Rehabilitasi Sosial Bina Karya dan Laras (BRSBKL) (source: Google maps.com)

Figure 1.4.1 California Academy of Sciences in San Francisco(source: archdaily.com)

Figure 1.4.2 Maggie's Centre(source: archdaily.com)

Figure 1.4.3 KANEKA Wellness Center / Kengo Kuma(source: archdaily.com)

Figure 2.31 Optimizing the View by Widening the Openings Source: Sunlight as Formgiver for Architecture, 1986

Figure 2.3.2 Building massing concepts Source: earnupstairs

Figure 2.3.3 Wind catcher hanger to imitate the sound of bamboo Source: Pinterest

Figure 2.3.3 Textures Natural Material Source: Nicol Caranen

Figure 2.3.4 Building air temperature Source:Archimonaarch

Figure 2.3.5 Airflow Across Source:Archimonaarch

Figure 2.3.6 Cross ventilation optimizes ventilation Source: pinterset

Figure 2.3 .7 Prsence of water source: pinterset

Figure 2.3 .8 Bamboo material source: pinterset

Figure 2.4.1 Radial konsentris circulation (Source: wilson 2011)

Figure 2.4.2 Color for physocology (Source: Inam sara 2017)

Figure2.4.3 Medical Examintaion Rooms: sourch :perplexity.a

Figure2.5.1 California Academy of Sciences in San Francisco(source: archdaily.com)

Figure 2.5.2 Sky Light Technology (source: Personal Document)

Figure 2.5.3 Maggie's Centre(source: archdaily.com)

Figure 2.5.4 Maggie's Centre structured (source: archdaily.com)

Figure 2.5.5 KANEKA Wellness Center / Kengo Kuma(source: archdaily.com)

Figure 2.5.6 KANEKA Wellness Center / Kengo Kuma(source: archdaily.com)

Figure 2.6.1 surrounding site data (source: author)

Figure 2.6.2 surrounding site data (source: author)

Figure 3.3.1 Zoning Related to Privacy, Security, and Effective Treatment(source: Author)

Figure 3.4.1 Managing Access to Maintain Security and Privacy (source: Author)

Figure 3.4.2 Hallway main access connection (source: Author)

Figure 3.5.1 staff circulation (source: Author)

Figure 3.5.3 Patient circulation (source: Author)

Figure 3.5.2 Guest circulation (source: Author)

Figure 3.6.1 place green area for Effective Treatment (source: Author)

Figure 3.6.2 visual potential (source: Author)

Figure 3.6.3 visualization wire fance (source: Author)

Figure 3.7.1 Managing Access to Maintain Security for patient (source: Author)

Figure 3.8.1 Site Finishing Related to Zoning (source: Author)

Figure 3.9.1 Building mass configuration related security and Effective Treatment (source: Author)

Figure 3.10.1 Building mass configuration to respon sun & wind (source: Author)

Figure 3.11.2 Building mass Inpatient Unit Related security & psychology (source: Author)

Figure 3.11.3 Building mass Alternative Inpatient Unit Related security & physosolghy (source: Author)

Figure 3.12.1 Building mass finishing Inpatient Unit Related security & psychology (source: Author)

Figure 3.12.2 Building mass finishing Inpatient Unit Related security & psychology (source: Author)

Figure 3.13.1 inpatient unit Building response to sun and wind direction (source: Author)

Figure 3.13.2 shading to increasing sun heat (source: Author)

Figure 3.14.1 Alternative Roof for inpatient unit to achieve Thermal Airflow Variability &Effective Treatment (source: Author)

Figure 3.15.1 Roof for inpatient unit to achieve Thermal & Airflow Variability (source: Author)

Figure 3.16.1 Roof for inpatient unit to achieve Thermal & Airflow Variability (source: Author)

Figure 3.17.1 Roof for inpatient unit to achieve effective treetment (source: Author)

Figure 3.18.1 Schematic Roof Structure Inpatient unit (source: Author)

Figure 3.19.1 Schematic Patient beds to achieve effective care through the use of materials and colors(source: Author)

Figure 3.20.1 Building massing theraphy mass to achieve effective treetment(source: Author)

Figure 3.21.1 BOrganization of Functional Spaces Therapy Unit(source: Author)

Figure 3.22.1 Building mass responss to sun and wind direction (source: Author)

Figure 3.23.1 Roof for Theraphy to achieve Thermal Airflow(source: Author)

Figure 3.24.1 water fall concept related acustic for achieve effective treetment(source: Author)

Figure 3.25.1 Roof Structure theraphy unit related to material for achieve effective treetment (source: Author)

Figure 3.26.1 3D VISUALIZATIN THERAPHY UNIT Related effective treetment (source: Author)

Figure 3.27.1 Building massing Rehabilitation mass to achieve effective treetment (source: Author)

Figure 3.28.1 Organization of Functional Spaces Therapy Unit : Maximizing Indoor and Outdoor Connectivity with Visual (source: Author)

Figure 3.29.1 Building mass responss to sun and wind direction (source: Author)

Figure 3.30.1 Roof for Theraphy to achieve Thermal Airflow (source: Author)

Figure 3.31.1 3D Visualization rehabilitation UNIT Related effective treetment (source: Author)

Figure 3.32.1 Garden Therapy Space Organization for Effective Treatment (source: Author)

Figure 4.1.1 Mental helath center (source: Author)

Figure 4.2.1 Site Related to Zoning: Considering Privacy, Security, Circulation, and Effective Treatment**.** (source: Author)

Figure 4.3.1 Inpatient unit implements biophilic &Indoor and Outdoor Connectivity concept (source: Author)

Figure 4.3.2 Roof garden implementation (source: Author)

Figure 4.3.3 Roof garden structural (source: Author)

Figure 4.3.4 inner courtyard visualization (source: Author)

Figure 4.3.5 fountain structure (source: Author)

Figure 4.3.6 Mini garden around the building (source: Author)

Figure 4.3.7 Mini garden sitting area (source: Author)

Figure 4.3.8 Facade using plywood (source: Author)

Figure 4.3.9 Facade structural (source: Author)

Figure 4.3.10 window, direct visual access to mini garden (source: Author)

Figure 4.3.11 Thermal & Airflow Variability (source: Author)

Figure 4.3.12 Inpatient unit implements safety concept (source: Author)

Figure 4.4.1 Outpatient unit implements biophilic &Indoor and Outdoor Connectivity concept (source: Author)

Figure 4.4.2 Roof garden implementation (source: Author)

Figure 4.4.3 Roof garden structural (source: Author)

Figure 4.4.4 water fountain visualization (source: Author)

Figure 4.4.5 Water fountain in different view (source: Author)

Figure 4.4.6 fountain structure (source: Author)

Figure 4.4.7 Mini garden around the building (source: Author)

Figure 4.4.8 window, direct visual access to garden(source: Author)

Figure 4.4.9 Outpatient unit implements connctiviti with nature(source: Author)

Figure 4.4.10 Facade using plywood (source: Author)

Figure 4.4.11 Thermal & Airflow Variability (source: Author)

Figure 4.5.1 Rehabilitation unit implements biophilic &Indoor and Outdoor Connectivity concept (source: Author)

Figure 4.5.2 Facade using plywood (source: Author)

Figure 4.5.3 Thermal & Airflow Variability (source: Author)

Figure 4.5.4 courtyard area (source: Author)

Figure 4.5.5 roof construction (source: Author)

Figure 4.5.6 fountain in courtyard area (source: Author)

Figure 4.5.7 construction fountain in courtyard area (source: Author)

Figure 4.5.8 window, direct visual access to Courtyard (source: Author)

Figure 4.5.9 Rehabilitation unit implements safety concept (source: Author)

Figure 4.5.10 Water implements fountain in raining sesion (source: Author)

Figure 4.6.1 Therapeutic garden in middle (source: Author)

Figure 4.6.2 fountain in the center of the garden (source: Author)

Figure 4.6.3 gardening area on garden (source: Author)

Figure 4.6.4 Flower area on garden (source: Author)

Figure 5.2.1 Plan Management & staff Area (source: Author)

Figure 5.2.2 Elevation Management & staff Area (source: Author)

Figure 5.2.3 Plan Kitchen and service area (source: Author)

Figure 5.2.4 Elevation Kitchen and service area (source: Author)

Figure 5.3.1 Before revision entrance and drop-off area design (source: Author)

Figure 5.3.2 After revision entrance and drop-off area design (source: Author)

Figure 5.4.1 Before revision circulation areas to each building mass (source: Author)

Figure 5.4.2 After revision circulation areas to each building mass (source: Author)

Figure 5.5.1 Before drop off circulation (source: Author)

Figure 5.5.2 After revision circulation areas to each building mass (source: Author)

Figure 5.6.1 Before kitchen area and canteen more bigger (source: Author)

Figure 5.6.2 After kitchen area and canteen more bigger (source: Author)

Figure 5.7.1 Before add technical details on roof garden structure and layers. (source: Author)

Figure 5.7.2 After add technical details on roof garden structure and layers. (source: Author)

Figure 5.8.1 Before enhance safety features for rooftop areas in mental health center (source: Author)

Figure 5.8.2 After enhance safety features for rooftop areas in mental health center (source: Author)

Figure 5.9.1 Before show that the building has direct visual access to the outside area in technical drawing (source: Author)

List of Diagram Table

Diagram 1.7.1 Design method (source: Author)

Diagram 1.8.1 Thought Process diagram (source: Author)

Diagram 2.1.1 Secondary Room Need (source: Author)

Table 2.1.1 Analysis Patient Visit Schedule 1 Week (source: Author)

Table 2.1.2 Room Standards (source: Department of Veterans Affairs)

Table 2.2.1 Biophilic Design Indicators (source: helpguide.orgr)

Table 2.2.2 Pattern of Biophillic Design (source: Terrapin Bright Green (2014))

Table 2.3.1 Architectural aspects related to biophilic (source: Author)

Diagram 2.4.1 Therapy rooms (Source: Tambunan & Mufida, 2019)

Table 2.4.1 Room Qualification (Source: author)

Table 2.4.2 Classification of Depressive Disorders (Source: author)

Diagram 2.6.1 Precipitation and Temperature(source:https://www.drought.gov/)

Diagram 2.6.2 Precipitation and Temperature(source:https://www.drought.gov/)

Diagram 3.1.1 Three aspects of building concept (source: Author)

Table 3.1.1 User Activity Analysis (source: Author)

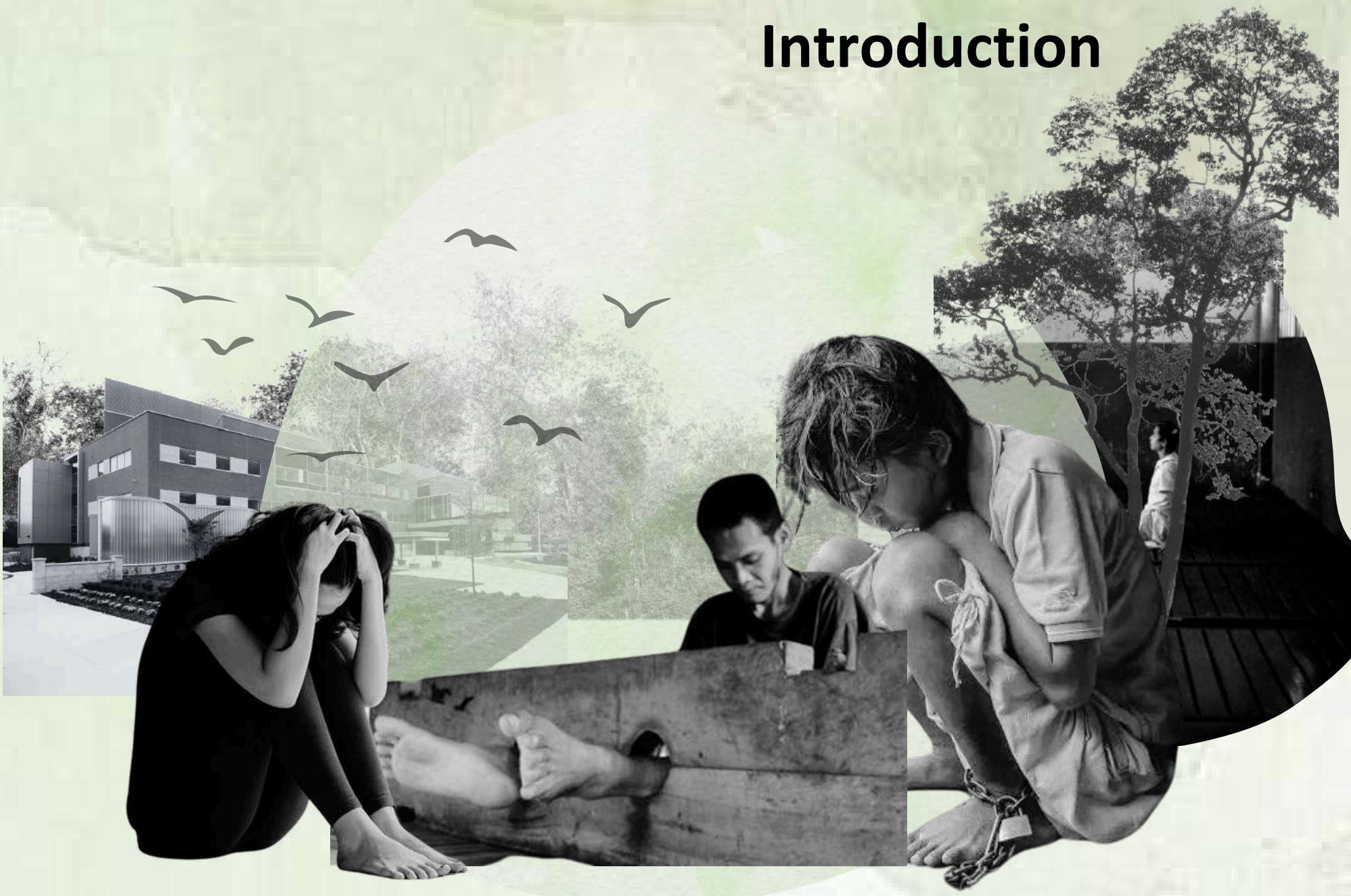
Diagram 3.1.2 User Activity Analysis (source: Author)

Table 3.2.1 Property Size (source: Author)

Table 3.33.1 Design cheklist related to concept (source: Author)

Diagram 4.1.1 Three aspects of building concept (source: Author)

Chapter 1
Introduction





TITLE

DESIGN PREMISE

BACKGROUND

PRECEDENT

PROBLEM FORMULATION & PURPOSE

ORIGINALITY & NOVELTY

DESIGN METHODS

THOUGHT PROCESS

1.1 Title

1.1.1 Mental Health Center

A mental health center called a Depression Rehabilitation Center is designed to help depressed people recover or heal.

The organization's goal is to provide depressed patients with complete support and care so that they can recover physically, emotionally, and psychologically.

1.1.2 Biophilic Architecture

Biophilic architecture is a design approach that integrates natural elements into a built environment. It uses natural light, eco-friendly materials, open spaces, and other natural elements to create an environment that is calming and promotes the physical and mental well-being of its occupants. The concept is applied in mental health centers for-

improve the well-being of patients. This involves the design of a calming environment with an emphasis on the use of open spaces, therapy gardens, and eco-friendly materials. Integration of green therapies such as therapeutic gardening is also considered. Mental health centers also pay attention to air and water quality to create a holistically healthy environment for patient recovery.

1.1.3 Optimizing Indoor-Outdoor Connectivity

Optimizing Indoor-Outdoor Connectivity is a concept of biophilic architecture that aims to properly integrate green outdoor areas with indoor areas of buildings. This is done by creating a strong connection between indoor and outdoor spaces,-

thereby allowing residents to feel the presence of nature and reap its benefits, such as natural light, fresh air, and natural scenery, which can improve their physical and mental well-being.

1.2
DESIGN PREMISE

The importance of the title "Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in Yogyakarta" is underscored by data released by the Yogyakarta Ministry of Health, which indicates that Yogyakarta ranks second in the prevalence of severe mental disorders. This highlights the urgency of having a well-designed mental health center to provide effective services and meet the community's need for quality mental health care. In this context, the biophilic architecture approach becomes relevant as it emphasizes the relationship between humans and nature in building design.

By applying biophilic principles, the mental health center can create a pleasant environment conducive to mental healing, tailored to the occupants' needs. Optimizing the connection between indoor and outdoor spaces is also crucial, as a strong link between the interior and exterior environments can enhance occupants' well-being and expedite the healing process. Therefore, a mental health center design that addresses these aspects is expected to greatly benefit the people of Yogyakarta in need of mental health care.

1.3
Background

1.3.1 Mental health issues

Depression is common in many sectors of life. Indonesia has a substantial rate of depression cases; in 2023, Indonesia reported 9,162,886 cases of depression, and the data reveals that these cases do not rule out the possibility of continuing to climb over time. (Anwar, 2023).

Ogyakarta, one of Indonesia's most populous cities, is not immune to this problem. According to the 2018 Basic Health Research (Riskesdas) conducted by the Indonesian Ministry of Health, DIY has the highest level of mental health problems in Indonesia. According to data from the Yogyakarta Health Office in 2019, out of a total population of 3.594 million, 12,784 were ODGJ ('Afif, 2023). The most serious case of depression in Yogyakarta is the high frequency of suicide, especially among young individuals aged 18 to 24. (Suryanto, 2021) see Figure 1.1.



Figure 1.1. Data provinsi gangguan jiwa berat (source: Infodatin Kemenkes.com)

1.3.2 Mental health facility



Figure 1.2. Balai Rehabilitasi Sosial Bina Karya dan Laras (BRSBKL) (source: Google maps.com)

The Depression Rehabilitation Center is a mental health hospital that provides rehabilitation or recovery services to those suffering from depression. The rehabilitation or healing procedure at the Depression Rehabilitation Center is a slow one. To achieve success in the rehabilitation process, both medical and social, it is necessary to pay attention to the comfort aspects of building users. The rehabilitation process will be hampered if the psychological condition of building users is not optimal due to the stress felt due to the discomfort of the surroundings. (Belakang et al., 2017).

However, existing Jogja mental health facilities continue to struggle to provide a physical setting conducive to healing. Many mental health facilities lack architectural designs that consider patients' total needs, such as a lack of open spaces or access to nature, which can aid in stress reduction and mental well-being. By considering architectural factors such as connecting indoor and outdoor areas to create comfortable and relaxing spaces, mental health facilities can provide a supportive environment for patients to recover their mental health more successfully observe. see Figure 1.2.

1.3.3 Biophilic Architecture

Biophilic design can be divided into three categories: Nature in Space, Natural Analogues, and Nature of the Space. These three are designed to aid understanding and the adoption of various solutions for use in the built environment. Nature in the Space refers to the immediate, physical, and momentary presence of nature in a space. The optimal experience in this scenario can be obtained by offering something important, such as a direct connection with nature, diversity, movement, and multi-sensory contact.

This method emphasizes the importance of a harmonious relationship between humans and nature, which can increase inhabitants' well-being while also providing a refreshing and tranquil environment (Ronald Justice, 2021). This method emphasizes the importance of a harmonious relationship between humans and nature, which can increase inhabitants' well-being while also providing a refreshing and tranquil environment.

Furthermore, according to (khoerul ummah, 2022), biophilic architecture is a strategy that can aid in patient rehabilitation by incorporating natural elements and human senses as environmental shapers. As a result, adopting a biophilic architecture approach is the appropriate course of action. The incorporation of nature into the built environment can have a substantial impact on the mental health of the inhabitants. This technique achieves a balanced and refreshing environment by addressing the occupants' psychological and physical demands.

1.3.4 Indoor-Outdoor Connectivity

Connecting interior and outdoor areas in architectural design entails establishing a harmonic relationship between the constructed environment and its surroundings. This involves not only the building's physical architecture, but also how people will interact with the outside environment while inside. Interacting with nature can improve health and well-being (Duarte, 2015).

Nature provides natural necessities that humans require, such as clean air or oxygen. Clean air helps to clear the respiratory system, lower the risk of disease, boost focus, and improve mood. The incorporation of plants, light, water, and other natural features into the interior can positively impact people's perceptions of the time and space spent there (Doshi, 2020).

Therefore indoor and outdoor spaces have a significant impact on the mental health of residents. By providing easy access to nature, optimizing natural lighting, and creating open spaces that blend with the outdoor environment, architectural design can create a calming and invigorating environment for residents. Exposure to nature and direct sunlight can help reduce levels of stress, anxiety, and depression, while connection with nature can also improve overall feelings of well-being. Thus, connecting indoor and outdoor spaces in architectural design not only creates a visually beautiful environment but also supports optimal mental health for residents.

1.4 Precedent

1.4.1 California Academy of Sciences in San Francisco

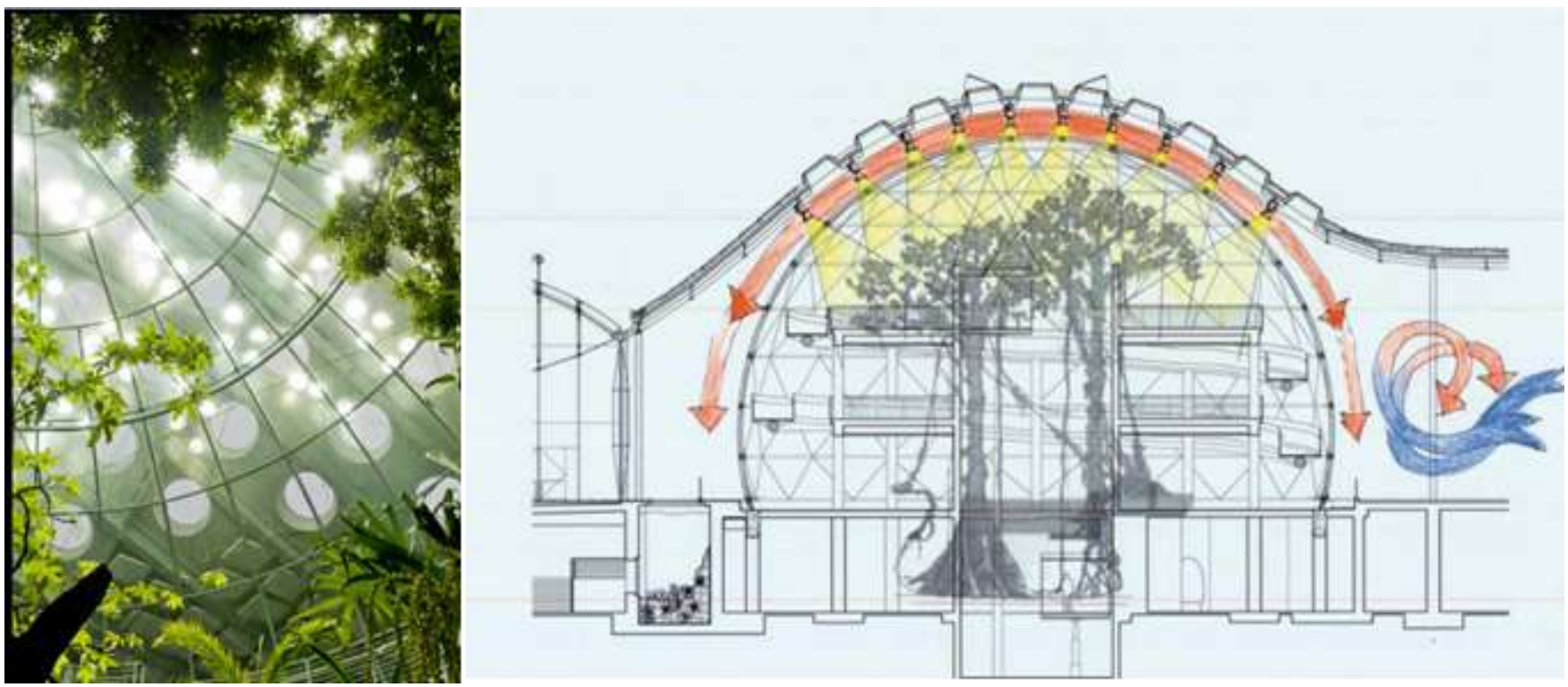


Figure 1.4.1 California Academy of Sciences in San Francisco(source: archdaily.com)

The California Academy of Sciences in San Francisco exemplifies a biophilic approach by incorporating natural elements into its architecture. The usage of dome skylights is the building's solution to generating integrated green spaces. The roof is covered in vegetation, and the presence of a garden within reinforces the emotional connection with the surrounding nature. According to Browning (2012), when a person feels a strong connection to nature, parasympathetic activity in their body increases.

Parasympathetic activity is a component of the autonomic nervous system that promotes relaxation and recovery of the body.

By incorporating nature, this structure can aid in human psychiatric treatment. According to research, spending time in nature can boost mental well-being and reduce stress. As a result, by delivering a nature-based experience, this complex can also aid in psychiatric therapy.

1.4.2 Maggie's Centre



Figure 1.4.2 Maggie's Centre(source: archdaily.com)

Maggie's Centre is a shining example of architectural innovation, with a holistic design concept that smoothly combines elements of nature, comfort, and community interaction. Embracing nature's healing power, the architectural blueprint prioritizes the construction of places that exude tranquility and serenity, which is accomplished through open vistas of surrounding vegetation, beautifully created gardens, and strategically positioned natural light sources. Every component of the design is intended to generate a sense of serenity and solace, providing relief for patients and their families during the arduous path of cancer treatment. Furthermore, the concept emphasizes the value of community involvement, with the center serving as a focal point for communal support and collaboration.

Maggie's Centre fosters a strong sense of ownership and solidarity in the battle against cancer by actively involving the community through a variety of programs, events, and outreach projects. This holistic approach not only speeds up the physical healing process, but it also promotes the emotional and psychological well-being of all individuals affected by the disease, demonstrating the transforming power of architectural design in promoting holistic healthcare.

1.4.3 KANEKA Wellness Center / Kengo Kuma



Figure 1.4.3 KANEKA Wellness Center / Kengo Kuma(source: archdaily.com)

The KANEKA Wellness Center stands out as a strong example in the project "Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in Yogyakarta," especially in its conceptual framework. The institution promotes holistic health by incorporating natural materials and biophilic architectural concepts. This notion highlights the importance of physical, mental, and emotional well-being by creating a tranquil and supporting environment. The wellness center promotes human engagement with nature by utilizing natural components such as sunlight, fresh air, and plants, as well as open areas that connect the inside and exterior.

This creates an environment that promotes the healing process and improves quality of life. Thus, KANEKA Wellness Center exemplifies how the concept of holistic health and integration with nature may serve as a solid foundation for developing creative and sustainable mental health facilities in Yogyakarta.

1.5 PROBLEM FORMULATION & PURPOSE

1.5.1 PROBLEM FORMULATION

- General Problem :

How to apply biophilic design to create connectivity between indoor and outdoor spaces that support the psychological and emotional well-being of individuals suffering from depression, while being mindful of their Psychological .

Specific Problem:

- Visual Connectivity with Nature: How to design spaces that maximize direct views to natural elements to enhance mental well-being without compromising privacy.
- Nature Analogs: How to integrate design elements that use natural materials to create a calming atmosphere.
- Nature of Space: How to design space layouts and features that create a feeling of openness and protection through natural elements such as natural light and ventilation.
- Psychological Aspects: How to ensure biophilic design remains mindful of the Psychological Aspects of patients suffering from depression.

1.5.2 GOALS

1. Creating Visual Connectivity with Nature:
    a. Use large windows, atriums, or glass walls that provide direct views of nature while maintaining privacy.
    b. Placing natural elements such as ornamental plants and vertical gardens that are visually accessible without compromising patient privacy.
2. Integrating Natural Analogs:
    a. Using natural patterns and textures in building materials such as wood and stone.
    b. Design architectural ornaments inspired by natural forms such as leaves and water waves.
3. Optimizing Space Properties:
    a. Design a space layout that combines open and closed areas to provide a feeling of openness and protection.
    b. Use natural ventilation and lighting to create a comfortable and healthy environment.
    c. Providing recreation and relaxation areas connected to nature while paying attention to privacy and security.
4. Ensuring Psychological Aspects:
    a. Design spaces that provide privacy through green screens and natural partitions.
    b. Implement security systems that do not interfere with biophilic aesthetics but are effective in maintaining patient safety.

1.6
Originality & Novelty

Puren and Ginting (2022) designed a Mental Health Center in Medan City using the Biophilic Architecture Approach. The goal of this study is to design a mental health hospital that uses biophilic architecture to improve patient healing.
Although both studies use a similar approach to mental health centers, this study differs from the prior ones. This study focuses on the biophilic approach to improving indoor and outdoor connectedness in mental health clinics.

Another study was undertaken through Shanty in 2018 to build a Mental Health Facility in Blora using a Healing Environment Approach. The study's major goal was to establish an atmosphere that promotes mental patients' healing processes by incorporating numerous design aspects that encourage comfort, tranquility, and rehabilitation. Although both studies concern mental health facilities, this study differs from the previous ones. This study focuses on the biophilic approach to improving indoor and outdoor connectedness at a mental health institution designed in Sleman, Yogyakarta. This discrepancy demonstrates the variety of design approaches utilized to improve environmental characteristics and well-being in mental health facilities across the country.

Another study (Khoerul Ummah in 2022) established a Clinical Facility for Patients with Schizophrenia, Depression, and Bipolar Disorder in South Sentul using a biophilic, behavioral approach.

The primary goal is to design a clinic building exclusively for depression sufferers. The biophilic approach to design takes into account characteristics of the natural environment as well as the link between humans and nature. The behavioral approach was utilized to create an atmosphere that promotes the healing process and well-being of those suffering from depression, such as the creation of relaxing places, social interaction-friendly settings, and the use of mood-enhancing colors and lighting. While both studies address mental health facilities, this study differs from the prior one. This study focuses on a biophilic approach to increasing indoor and outdoor connectedness, which is not limited to individuals suffering from schizophrenia, depression, or bipolar disorder depression. This discrepancy demonstrates the variety of design approaches utilized to improve environmental characteristics and well-being in mental health facilities across the country.

Therefore, there is a gap between the mentioned studies and the research aimed at This research specifically emphasizes the biophilic approach to optimizing indoor and outdoor connectivity in mental health centers.

1.7
Design Methods

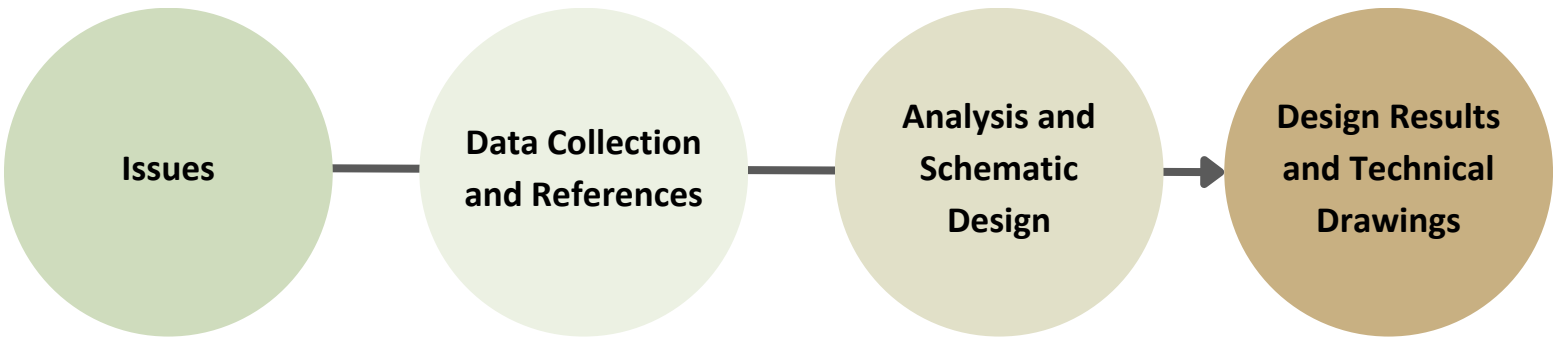


Diagram 1.7.1 Design method diagram (source: Author)

- Issues: Identifying mental health issues present in Jogja, particularly the lack of connectivity between indoor and outdoor spaces in existing healthcare facilities. Reviewing the conditions of existing mental health facilities to evaluate the extent to which indoor and outdoor connectivity systems have been implemented and identifying existing weaknesses.

- Data Collection and References: Conducting in-depth research through literature reviews and case studies related to the implementation of indoor and outdoor connectivity systems in mental health facility designs. Drawing references from previous projects that have successfully applied biophilic architecture principles to enhance user well-being.

- Analysis and Schematic Design: Using relevant analytical techniques, such as simulation applications, to evaluate various potential solutions in improving the connection between indoor and outdoor spaces. Creating schematic designs that consider the results of the analysis to generate an optimal design.

- Design Results and Technical Drawing: Applying design results into detailed and accurate technical drawings. Ensuring that technical drawings encompass all technical aspects of the design, including construction details, dimensions, materials, and other specifications.

1.8
THOUGHT PROCESS

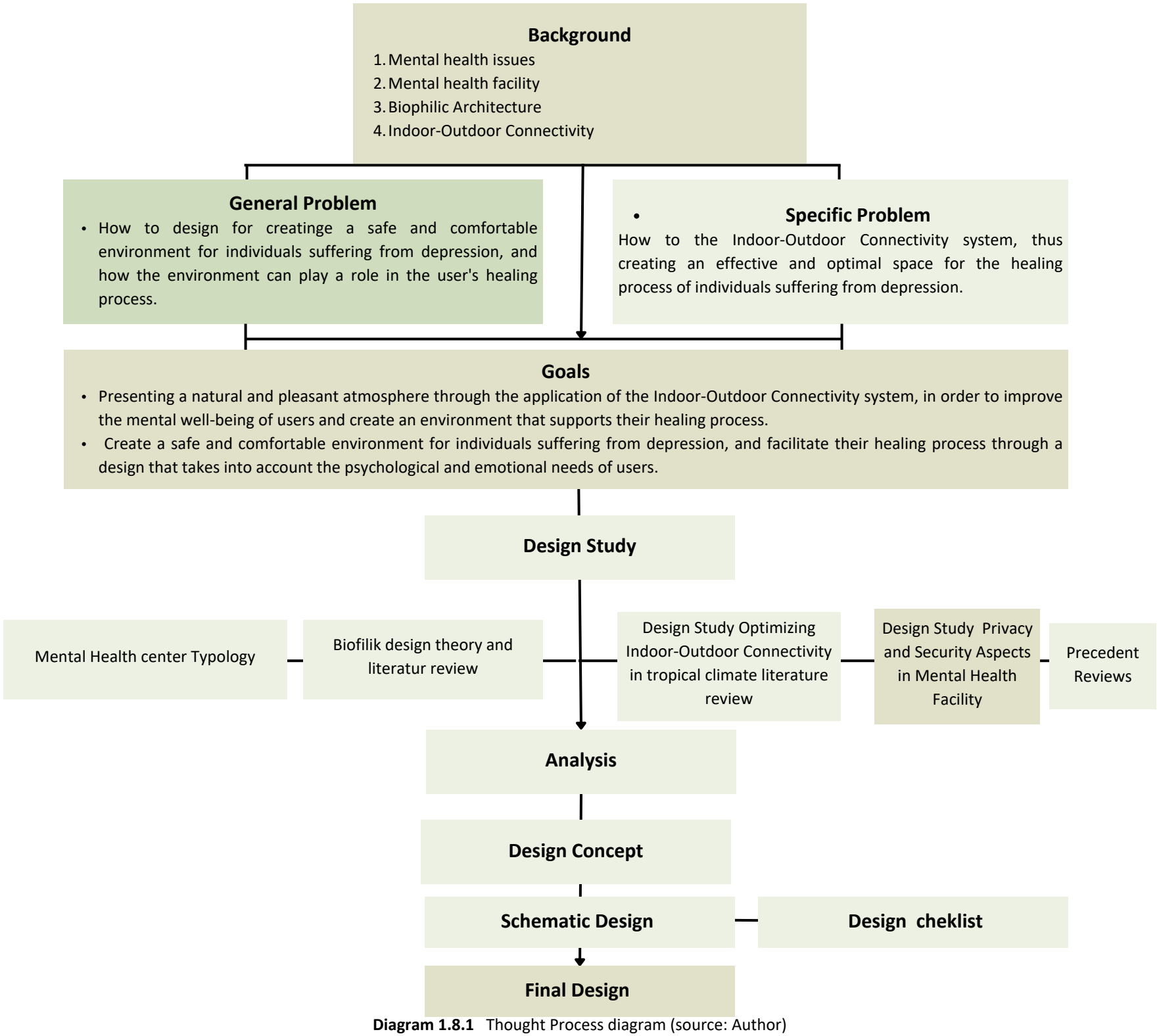


Diagram 1.8.1 Thought Process diagram (source: Author)

Chapter 2
Initial Study



Mental Health center Typology

Biofilik design theory and literatur review

Design Study Optimizing Indoor-Outdoor Connectivity in tropical climate literature review

Design Study Privacy and Security Aspects in Mental Health Facility

Precedent Reviews

2.1 Mental Health center Typology

Mental Health Centers differ from mental hospitals because their focus is more on mental health care on an outpatient or ambulatory scale, while mental hospitals usually provide inpatient treatment for patients with more serious mental disorders.

According to Aisy, K. R., & Anisa, A. (2020) Mental Health Centers provide services such as counseling, therapy, psychiatric evaluation, and drug management for individuals with various levels of severity of mental disorders, while mental hospitals focus more on stabilizing the patient's condition, management crisis, and rehabilitation in an inpatient setting. Apart from that, Mental Health Centers tend to have more limited facilities than mental hospitals, such as inpatient facilities that are simpler and not as complete as mental hospitals.

Meanwhile, mental hospitals are provided with medical facilities such as emergency units, operating rooms and intensive care units. Has a diagnostic laboratory and radiology room.

Based on Minister of Finance Regulation Number 193/PMK.07 /2022 concerning Regional Fiscal Capacity Maps, mental health centers can be grouped into four categories based on their service capacity.

1. COMMUNITY MENTAL HEALTH CENTER:

- Capacity: Usually serves a small number of patients in a sub-district community setting.

Facilities and Space Required:

- Counseling Room: Usually consists of several counseling rooms to provide individual and group counseling services.
- Group Room: For holding meetings or mental health education programs.
- Social Support Room: To organize social support services for patients.
- Waiting Room: A place for patients to wait for counseling or meeting schedules.
- Administration Room: For administration and recording staff.
- Storage Room: To store patient records and other materials.
- Meeting Room: For holding staff meetings and community education sessions.

2. REGIONAL MENTAL HEALTH CENTER:

- Capacity: Serves a larger area than a community mental health center.
- Facilities and Space Required:
- Inpatient Room: Consists of patient rooms with varying capacities, including isolation rooms for patients who require additional supervision.
- Therapy Room: Space for individual therapy, groups, and other activities.
- Consultation Room: For patient counseling and evaluation.
- Rehabilitation Room: Includes physiotherapy room, occupational therapy room and sports room.
- Administration Room: For administration and recording staff.

- Waiting Room: For patients and families waiting.
- Support Facilities: For example, meeting rooms for family or educational sessions.
- Medical Facilities: Such as emergency units, observation rooms, and diagnostic laboratories.

3. PROVINCIAL MENTAL HEALTH CENTER:

- Capacity: Serves a provincial or larger area.
- Facilities and Space Required:
- All the facilities available at regional mental health centers, but with a larger capacity.
- Intensive Inpatient Room: For patients with conditions that require intensive care.
- Special Therapy Units: For example, units for patients with eating disorders or addictions.
- Research Room: For scientific research and development of new technologies.
- Educational Facilities: To train medical staff and students.
- Special Treatment Room: Such as an isolation room or security room.

4. NATIONAL MENTAL HEALTH CENTER:

- Capacity: Serving all countries.
- Facilities and Space Required:
- All the facilities available at the provincial mental health center, but with even greater capacity and capabilities.
- Research and Development Facilities: State-of-the-art laboratories, neuroimaging facilities, and a center for developing new therapies.
- Special Care Unit: For example, a unit for research into rare mental illnesses or a unit for patients who require special care.
- Conference and Exhibition Hall: To host national conferences or mental health exhibitions.
- Training Center: To train staff from all over the country.
- Academic Facilities: To support education and research in the field of mental health.

Based on the Mental Health Center classification, the focus is on community level building capacity, which means the capacity is related to the sub-district area. Based on the Service Standards through the Decree of the Head of the Bina Karya and Laras Social Rehabilitation Center (BRSBKL) DIY Social Service Number 462/00025 of 20 22 concerning Determination of Service Standards, the capacity for Mental Health Centers at the sub-district level at the district **level is around 20-50 beds**. With a **maximum total admission of 250 patients.**

2.1.1 Room Need

Primary Room

Based on the use of the room by patients, room requirements can be grouped as follows

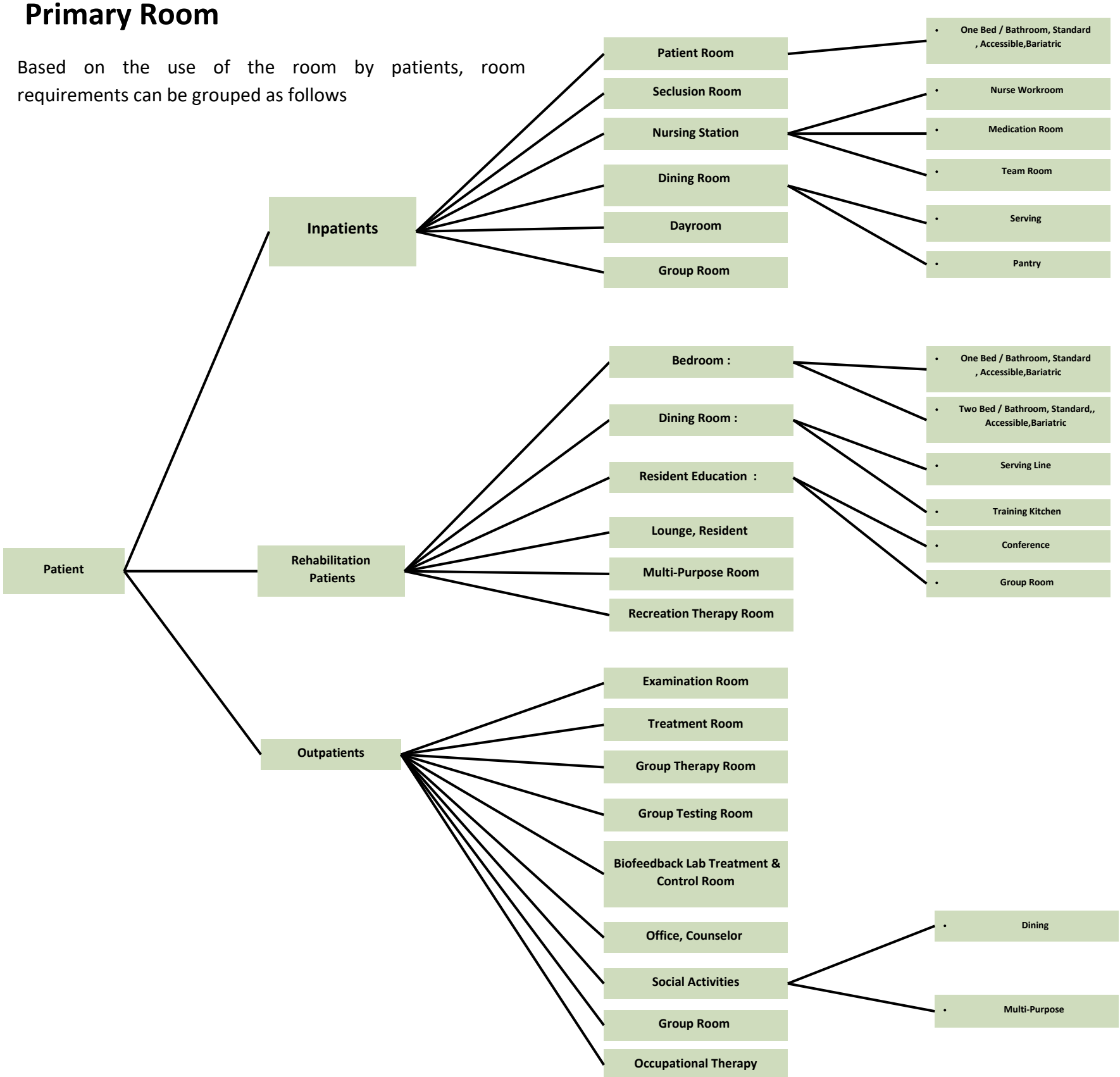


Diagram 2.1.1 Primary Room Need (source: Author)

Secondary Room

Based on the use of the room by patients, room requirements can be grouped as follows

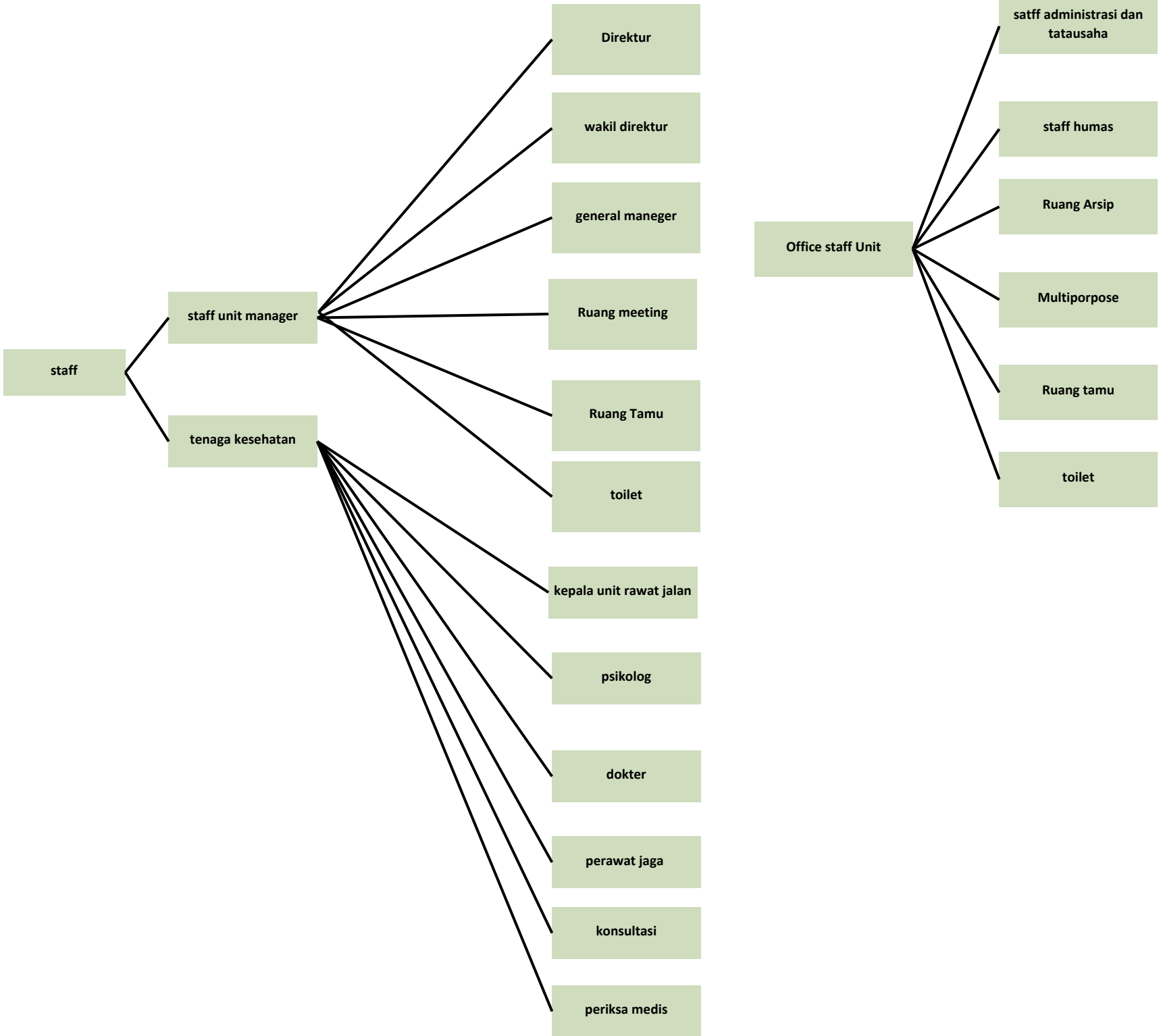


Diagram 2.1.1 Secondary Room Need (source: Author)

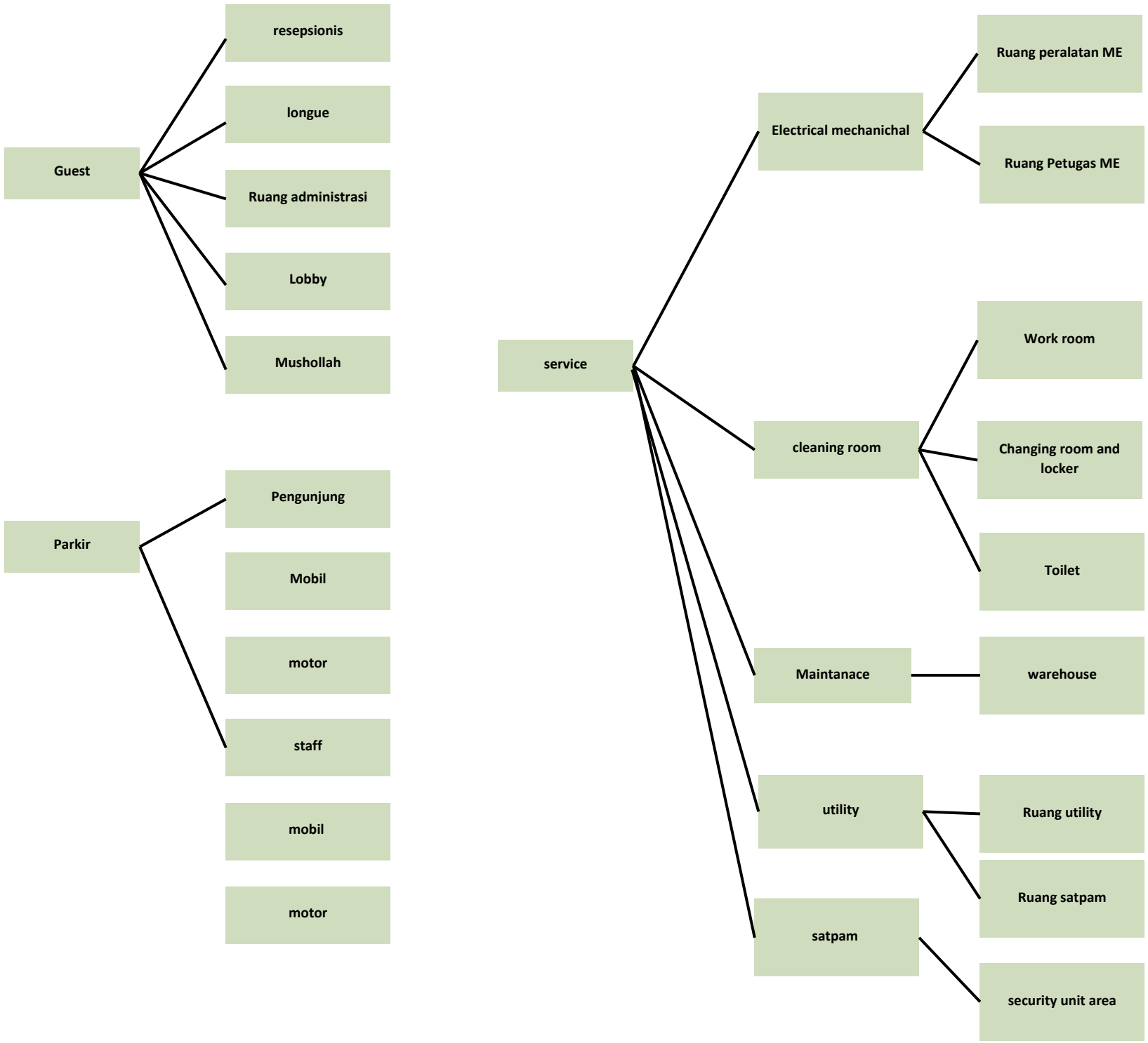


Diagram 2.1.1 Secondary Room Need (source: Author)

Based on the Mental Health Center classification, the focus is on community level building capacity, which means the capacity is related to the sub-district area. Based on the Service Standards through the Decree of the Head of the Bina Karya and Laras Social Rehabilitation Center (BRSBKL) DIY Social Service Number 462/00025 of 20 22 concerning Determination of Service Standards, the capacity for Mental Health Centers at the sub-district level at the district level is around 20-50 beds. With a maximum total admission of 250 patients.

Rehabilitation Patients

Special Bed for Bariatrics People

- Bariatrics People Bed: 2 beds for 2 people.
- Total: 2 people.

Beds for the Disabled

- Disabled Bed: 2 beds for 2 people.
- Total: 2 people.

Standard Bed

- Standard 1 Bed: 22 beds for 22 people.
- Standard 2 Bed: 22 beds for 44 people (each bed for 2 people).
- Total: 66 people.

Total Person Recapitulation

- Bariatrics People: 2 orang.
- Disabled: 2 people.
- Standard 1 Bed: 22 people.
- Standard 2 Bed: 44 people.

Total Accumulated People: 2 + 2 + 22 + 44 = 70 people.

With a total of 50 beds, the number of people that can be accommodated is 70 people.

Inpatients

Special Bed for Bariatrics People

- **2 rooms for 2 people:**
  - 2 rooms for 2 people.

Beds for the Disabled

- **2 rooms for 2 people:**
  - 2 rooms for 2 people.

Bed for Isolation Room (Depression)

- 4 rooms for 4 people (1 bed per isolation room, the number of people is not counted in the total number of permanent patients).

Standard Bed

- **42 standard rooms:**
  - 21 rooms for 21 people (1 room for 1 person).
  - 21 rooms for 42 people (1 room for 2 people).

Total Accumulation of People

- Bariatrics People: 2 orang.
- Disabled: 2 people.
- Standard 1 Bed: 42 people.

Total Accumulated People: 2 + 2 + 42 = 46 people.

Total Room Accumulation

- Bariatrics People: 2 rooms.
- Disabled: 2 rooms.
- Isolation: 4 rooms.
- Standard: 42 rooms.

Total Room Accumulation: 2 + 2 + 4 + 42 = 50 rooms.

Thus, a total of 50 rooms can accommodate 46 people, with 4 isolation rooms used as needed without counting additional people in the total number of permanent patients.

Out patients

Daily Outpatient Scheduling

Total Outpatients

- Total Patients: 130

Weekly Scheduling

- Working Days per Week: 5 days (Monday to Friday)
- Total Working Days in a Month: 20 days

Patient Distribution

- Patients per Day: Around 6-7 patients

Scheduling Steps

1. Initial Scheduling:
   - Each patient is given a schedule based on urgency and doctor availability.
   - Prioritize patients with urgent needs.
2. Patient Grouping:
   - Divide the consultation into two sessions: morning and afternoon.
   - Standard duration for each consultation (eg 30 -60 minutes).
3. Daily Scheduling:
   - Monday Friday:
     - Morning Session (08:00 - 12:00): 4-5patients
     - Afternoon Session (13:00 - 17:00): 3-4 patients

Weekly Scheduling		
Day	**(08:00 - 12:00)**	**(13:00 - 17:00)**
Monday	4 patients	3 patients
Tuesday	3 patients	4 patients
Wednesday	4 patients	3 patients
Thursday	4 patients	3 patients
Friday	3 patients	4 patients

Table 2.1.1 Analysis Patient Visit Schedule 1 Week (source: Author)

Total Outpatients Treated per Month

- Patients per Day: 6-7 patients
- Total Outpatients per Month: 6,5 patients/day x 20 days = 130 patients

Thus, health facilities can routinely handle around 130 outpatients every month.

2.1.2 Room Quantity

Rehabilitation

Patients Room

Room Name	
Patient Room, One-Bed, Standard, Inboard Toilet Option	[12.5 NSM]
Bathroom, Patient, Standard	[4.7 NSM]
Patient Room, One-Bed, Standard, Sideboard Toilet Opti	[14.9 NSM]
Bathroom, Patient, Standard	[4.7 NSM]
Patient Room, One-Bed, Accessible	[13.9 NSM]
Bathroom, Patient, Accessible	[6.0 NSM]
Patient Room, One-Bed, Bariatric	[16.7NSM]
Bathroom, Patient, Bariatric	[7.0 NSM]
Patient Room, Two-Bed, Standard, Option 1	[21.4 NSM]
Bathroom, Patient, Standard	[5.6NSM]
Patient Room, Two-Bed, Standard, Option 2	[21.4 NSM]
Bathroom, Patient, Standard	[5.6NSM]
Seclusion Suite:	
Seclusion Room	[9.3 NSM]
Isolation Room	[7.4 NSM]
Anteroom	[7.4 NSM]
Bathroom	[6.0 NSM]
Nurse Suite:	
Nursing Station	[27.9 NSM]
Nurse Workroom	[11.2 NSM]
Medication / Dispensing Room	[14.0 NSM]
Team Room	[20.4 NSM]
Nutrition & Food Service	
Dining Room	[65.0 NSM]
Serving Line w/ Pantry Storage	[21.8 NSM]
Day Room	[62.7 NSM]
Group Room	[20.9 NSM]

Outpatient Patients Room

Room Name	
Examination Room	[11.2 NSM]
Treatment Room	[17.0 NSM]
Group Therapy Room	[27.9 NSM]
Group Testing Room	[13.9 NSM]
Biofeedback Laboratory Treatment Room	[13.9 NSM]
Biofeedback Laboratory Control Room/Office	[11.2 NSM]
Office, Counselor	[11.2 NSM]
Social Activities / Dining / Multi-Purpose Room	[46.5 NSM]
Classroom / Group Room	[55.8 NSM]
Occupational Therapy	[55.8 NSM]

Inpatients Room

Room Name	
Patient Room, One-Bed, Standard, Inboard Toilet Option	[12.5 NSM]
Bathroom, Patient, Standard	[4.7 NSM]
Patient Room, One-Bed, Standard, Sideboard Toilet Option	[14.9 NSM]
Bathroom, Patient, Standard	[4.7 NSM]
Patient Room, One-Bed, Accessible	[13.9 NSM]
Bathroom, Patient, Accessible	[6.0 NSM]
Patient Room, One-Bed, Bariatric	[16.7NSM]
Bathroom, Patient, Bariatric	[7.0 NSM]
Patient Room, Two-Bed, Standard, Option 1	[21.4 NSM]
Bathroom, Patient, Standard	[5.6NSM]
Patient Room, Two-Bed, Standard, Option 2	[21.4 NSM]
Bathroom, Patient, Standard	[5.6NSM]
Seclusion Suite:	
Seclusion Room	[9.3 NSM]
Isolation Room	[7.4 NSM]
Anteroom	[7.4 NSM]
Bathroom	[6.0 NSM]
Nurse Suite:	
Nursing Station	[27.9 NSM]
Nurse Workroom	[11.2 NSM]
Medication / Dispensing Room	[14.0 NSM]
Team Room	[20.4 NSM]
Nutrition & Food Service	
Dining Room	[65.0 NSM]
Serving Line w/ Pantry Storage	[21.8 NSM]
Day Room	[62.7 NSM]
Group Room	[20.9 NSM]

Table 2.1.2 Room Standards (source: Department of Veterans Affairs)

2.1.3 BUILDING FUNCTION

Planning and design ideas are intended to be a reference in compiling Architectural Design Concepts. Based on the title "Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in Yogyakarta", the function of the space must be appropriate, namely:

to manage their symptoms and achieve their recovery goals.
The users of this building are divided into several groups, namely:
1) Staff/Manager
2) Guests
3) Patients

In the patients themselves, depression sufferers are specifically allocated to several activities according to the classification of the depression they are facing.

Patients in mental health are people with depression, depression is one of the most common types of mental disorders. Mental disorders or mental disorders are conditions that affect a person's feelings, thoughts and behavior. Depression is a type of mental disorder that causes deep and persistent feelings of sadness, loss of interest or pleasure in daily activities, as well as other symptoms such as weight changes, difficulty sleeping, fatigue, and excessive negative thoughts. Mental disorders such as depression can affect a person's ability to function on a daily basis and require medical or psychological treatment.

three types of patients commonly encountered in a mental health context:

Inpatients:

Description: Patients with mental health conditions who require intensive care and 24-hour supervision.
Goal: Stabilization of the patient's condition, management of acute symptoms, and ensuring their safety.
Examples: Individuals at high risk of suicide, acute psychotic episode, or requiring electroconvulsive therapy (ECT).

Rehabilitation Patients:
Description: Patients who need help in improving their skills and functioning after experiencing a mental health disorder.
Goal: Help patients regain independence and function in society.
Example: People who are recovering from a major depressive episode and want to return to everyday life, or who need support to return to work.

Counseling Patients (Outpatient):
Description: Patients seeking emotional, psychological support, or counseling to overcome mental or emotional problems.
Goal: Provide support, understanding and strategies to manage and overcome their problems.
Example: Someone experiencing mild stress, anxiety, or depression, or who wants to understand and resolve interpersonal problems.

2.2 Biofilik design theory

2.2.1 Biophilic Design

Biophilia is defined as the innate human desire to connect with nature. Biophilic Design is a continuation of biophilia, which involves incorporating natural materials, natural light, plants, natural views, and other natural world experiences into an artificial environment (WELL Building, 2017). Terrapin Bright Green's (2014) essay discusses the relationship between nature and design, as well as the relationship between nature and wellness.

Biophilic design is divided into three design principles that help to comprehend the interaction between natural diversity and the evolving environment. The green table categories represent the biophlic principles that will be applied to the design.

Indicators	Categories
Nature In The Space	Visual Connection with Nature
	Non-Visual Connection with Nature
	Non-Rhythmic Sensory Stimuli
	Thermal and Airflow Variability
	Presence of Water
	Dynamic and Diffuse Light
	Connection with Natural Systems
Nature Analogues	Biomorphic Forms and Patterns
	Material Connection with Nature
	Complexity and Order
Nature Of The Space	Prospect
	Refuge
	Mystery
	Risk/Peril

Table 2.2.1 Biophilic Design Indicators (source: helpguide.orgr)

Nature in the Space, is a form of direct, physical and momentary presence of nature in a space.

- Visual Connection to Nature A look at nature's elements, life systems, and processes.
- Non-Visual Connection to Nature Auditory, haptic, olfactory, or gustatory sensations that elicit a purposeful and positive association with nature, living systems, or natural processes.
- Thermal and airflow variability Subtle variations in air temperature, relative humidity, airflow across the skin, and surface temperatures that imitate natural conditions.
- Water Presence A situation that improves a place's experience by allowing visitors to see, hear, or touch water.

Natural analogues are organic, non-living objects that represent nature.

- Material Connection to Nature Natural materials and elements that, with minimal intervention, reflect the local environment or geology, resulting in a particular sense of place.

Natural of the Space refers to a spatial layout in nature. The ideal experience in this situation can be accomplished by designing thoughtful and intriguing spatial configurations that incorporate Nature in the Space and Analogues Natural patterns.

- Prospect An unobstructed perspective from a distance for observation and planning.

2.2.2 Benefits of Biophilic Design

	14 PATTERNS	STRESS REDUCTION	COGNITIVE PERFORMANCE	EMOTION, MOOD & PREFERENCE	Archoitectural Aspect
NATURE IN THE SPACE	Visual Connection with Nature	reduced respiration and blood pressure levels (Tsunetsugu & Miyazaki, 2005; van den Berg, Hartig, & Staats, 2007; Brown, Barton & Gladwell, 2013).	increased concentration and mental involvement (Biederman & Vessel, 2006)	positively affected happiness and attitude in general (Barton & Pretty, 2010)	• The mass of the building optimizes views of the surrounding nature • use of materials that help to connect the view of the outdoor area • placement of opening areas that can optimize views of nature
	Non-Visual Connection with Nature	Lower systolic blood pressure and stress hormone levels (Park et al., 2009; Ulrich et al., 1991; Hartig, Evans, Jamner et al., 2003; Orsega-Smith and al., 2004).	enhanced cognitive function in a positive way (Mehta, Zhu & Cheema, 2012; Ljungberg, Neely, & Lundström, 2004).	gains in perceived calmness and mental health (Jahncke et al., 2011; Tsunetsugu, Park, & Miyazaki, 2010; Kim, Ren, & Fielding, 2007; Stigsdotter & Grahn, 2003; Li et al., 2012).	• Provides an environment that brings in the sounds of the pool. • space arrangement that is able to maximize the user's experience of weather (rain, wind, hail) • Design openings that can maximize air intake
	Non-Rhythmic Sensory Stimuli	improved sympathetic nervous system activity, heart rate, and systolic blood pressure (Li, 2010; Park et al., 2008; Kahn et al., 2008; Beauchamp et al., 2003; Ulrich et al., 1991).	behavioral measures of exploration and attention that were observed and measured (Windhager et al., 2011)		• use of partitions or secondary screens that can allow dynamic light. • use of skylights or roof openings that can play dynamic light
	Thermal & Airflow Variability	improved well-being, comfort, and output (Heerwagen, 2006; Tham & Willem, 2005; Wigö, 2005).	enhanced focus in a positive way (Hartig & Associates, 2003; Hartig & Associates, 1991; R. & Kaplan, 1989)	(Parkinson, de Dear & Candido, 2012; Zhang, Arens, Huizenga & Han, 2010; Arens, Zhang & Huizenga, 2006; Zhang, 2003; de Dear & Brager, 2002; Heschong, 1979) Enhanced perception of temporal and spatial pleasure (alliesthesia)	• Window operability and cross ventilation • Space/place orientation
	Presence of Water	decreased blood pressure, heart rate, and heart rate, as well as a rise in sensations of calm (Alvarsson, Wiens, & Nilsson, 2010; Pheasant et al., 2010; Biederman & Vessel, 2006).	enhanced focus and memory recovery (Biederman & Vessel, 2006; Alvarsson et al., 2010) improved psychological reactivity and perception (Alvarsson et al., 2010; Hunter et al., 2010)	Observed inclinations and favorable affective reactions (Barton & Pretty, 2010; White et al., 2010; Karmanov & Hamel, 2008; Biederman & Vessel, 2006; Heerwagen & Orians, 1993; Ruso & Atzwanger, 2003; Ulrich, 1983)	• Memasukkan water like pound in building
	Dynamic & Diffuse Light	improved the functioning of the circadian system (Figueiro et al., 2011; Beckett & Roden, 2009) Enhanced comfort during viewing (Elyezadi, 2012; Kim & Kim, 2007)			• Opening design to Day light preserving window treatments
	Connection with Natural Systems			heightened favorable health reactions; altered environmental perception (Kellert et al., 2008)	• The choice of transparent material is to show natural changes from time to time • creating a therapeutic garden that can show the various seasons of nature.

Table 2.2.2 Pattern of Biophillic Design (source: Terrapin Bright Green (2014))

	14 PATTERNS	STRESS REDUCTION	COGNITIVE PERFORMANCE	EMOTION, MOOD & PREFERENCE	Archoitectural Aspect
NATURAL ANALOGUES	Biomorphic Forms & Patterns			Preference for the observed view Joye (2007); Vessel, 2012	• Arrangement of the structural system (e.g., columns shaped like trees) • • Building form take in animal shape or biomorfik sahpe • • Acoustic paneling (wall or ceiling) using bie home nest more means it can help the acoustics
	Material Connection with Nature		Lower blood pressure at the diastolic stage (Tsunetsugu, Miyazaki & Sato, 2007) Enhanced artistic output (Lichtenfeld et al., 2012)	increased comfort (Miyazaki, Tsunetsugu, & Sato 2007)	• choosing natural materials, such as wood and natural stone • Use paint with colors that are still connected to nature, such as green, blue and brown.
	Complexity & Order	favorably affected physiological stress reactions and perceptions (Salingaros, 2012; Joye, 2007; Taylor, 2006; S. Kaplan, 1988).		Preference for the observed viewpoint (Hagerhäll et al., 2008; Hägerhäll, Purcella, & Taylor, 2004; Taylor, 2006; Samingaros, 2012).	• **Exposed structure/exoskeleton** • **Exposed mechanical systems** • **Façade, spandrel and window hierarchy using partition shape**
NATURE OF THE SPACE	Prospect	Decreased anxiety (Grahn & Stigsdotter, 2010).	Decreased weariness, annoyance, and boredom (Clearwater & Coss, 1991)	increased perceptions of safety and comfort (Herzog & Bryce, 2007; Wang & Taylor, 2006; Petherick, 2000)	• Open floor plans • use of transparent materials to add a spacious impression to the building
	Refuge		increased perceptions of safety and comfort (Herzog & Bryce, 2007; Wang & Taylor, 2006; Petherick, 2000)		• placement of space arrangements that prioritize privacy so as to provide a sense of security for the occupants.
	Mystery			intensely pleasurable reaction that was induced (Biederman, 2011; Salimpoor et al., 2011; Ikemi, 2005; Blood & Zatorre, 2001).	• Winding access roads or corridors with blocked walls will make users feel uncomfortable
	Risk/Peril			produced intense pleasure or dopamine reactions (Kohno et al., 2013; Wang & Tsien, 2011; Zald et al., 2008).	• creating a safe space but looks dangerous, such as using a cantilever in a building, but still considering where it is used

Table 2.2.2 Pattern of Biophillic Design (source: Terrapin Bright Green (2014))

The benefits of each biophilic design pattern are broken down into three categories in the biophilic benefits table above: stress reduction, improved cognitive function, feelings, mood, and preference. A design pattern that served as the foundation for the design is located inside the red box.

The mental health center can become a place of recovery for sad individuals by implementing the six design patterns derived from the biophilic design concept.

2.3 Design Study Optimizing Indoor-Outdoor Connectivity in tropical climate

iaccording Terrapin Bright Green (2014) ndoor-outdoor connection created from biophilic aspects 14 biophilic aspects, this shows how the application of the selected biophilic aspects is implemented in architectural buildings. By applying biophilic aspects, the inside and outside are connected optimally. The following aspects optimize indoor and outdoor connectivity.

- **Visual Connection with Nature**
  A view to elements of nature, living systems and natural processes.

Bigger opening



Figure 2.31 Optimizing the View by Widening the Openings Source: Sunlight as Formgiver for Architecture, 1986

Enlarging the openings in a room not only provides increased natural light, but can also increase the visual connection with nature. When the openings are enlarged, more natural light can enter the room, allowing users

room to see the outside view more clearly and thoroughly. A wider, open view to the outside creates the impression that the room is closely connected to its environment, even if it is inside a building.

Building Massing

The mass of the building optimizes views of the surrounding nature

The building massing orientation theory to optimize views of the surrounding nature involves strategic placement and design of the building's massing to maximize the visual connection to the natural environment. This approach is particularly relevant in the context of mental health centers where the therapeutic benefits of natural light and views are well-documented.

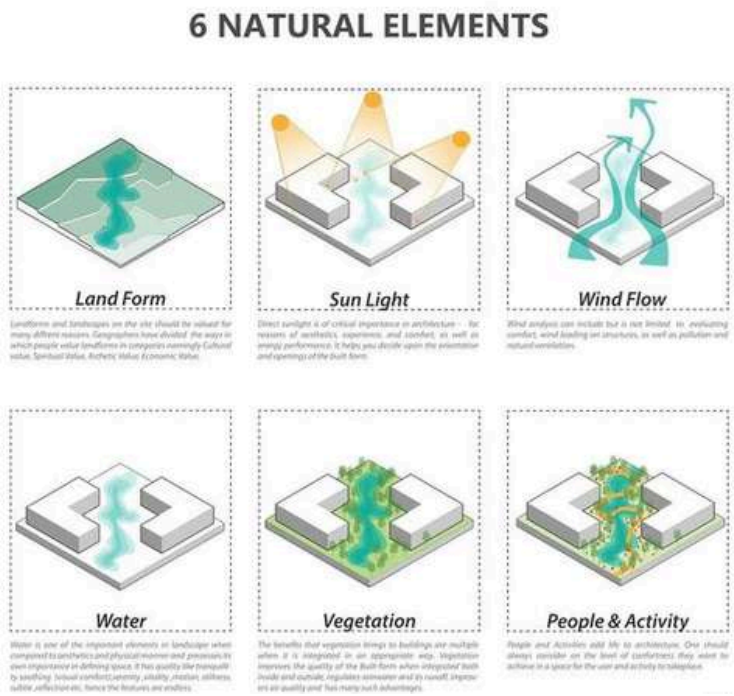


Figure 2.3.2 Building massing concepts Source: earnupstairs

- **Non-Visual Connection with Nature Auditory, haptic, olfactory, or gustatory stimuli that engender a deliberate and positive reference to nature, living systems or natural processes.**

Sound

Sound masking is more effective if it sounds like nature. It can provide privacy and offer restorative benefits. In fact, restoration can be up to 37% faster than with louder urban noises



Figure 2.3.3 Wind catcher hanger to imitate the sound of bamboo Source: Pinterest

The addition of a divider that can produce a sound that can resonate

Touch



Figure 2.3.3 Textures Natural Material Source: Nicol Caranen

Penggunaan material bertekstur seperti kayu, batu alam, atau tanaman hijau dalam desain interior atau eksterior dapat menciptakan koneksi yang kuat dengan alam.

Ketika kita menyentuh atau melihat tekstur tersebut, kita dapat merasakan hubungan langsung dengan elemen alam, bahkan tanpa harus melihatnya secara visual. Ini bisa meningkatkan rasa kenyamanan, ketenangan, dan kesejahteraan secara keseluruhan. Desain yang menggunakan material bertekstur juga bisa membantu mengurangi stres dan meningkatkan produktivitas dengan menciptakan lingkungan yang lebih alami dan menenangkan.

- **Thermal & Airflow Variability Subtle changes in air temperature, relative humidity, airflow across the skin, and surface temperatures that mimic natural environments.**

Air temperature

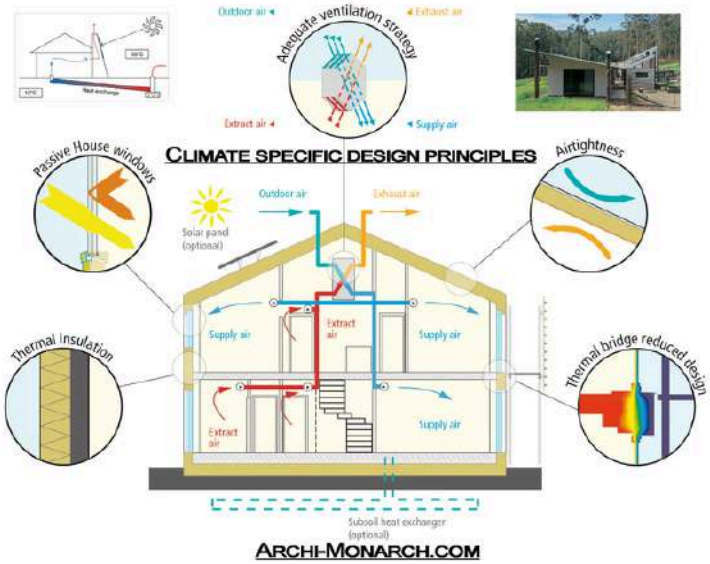


Figure 2.3.4 Building air temperature Source:Archimonaarch

In tropical climates, thermal comfort is a significant consideration in architectural design. Buildings are designed to maximize passive cooling strategies, such as cross ventilation and shading, to reduce the need for active cooling systems that rely on electricity and contribute to environmental degradation

.

The orientation of buildings, roof design, and use of natural ventilation are all important factors in achieving thermal comfort in tropical environments

.

The concept of tropical architecture involves designing buildings that adapt to the local climate and environment. This includes maximizing the application of passive cooling, using natural ventilation, and optimizing lighting and air flow to reduce the need for mechanical cooling systems

Airflow across the skin

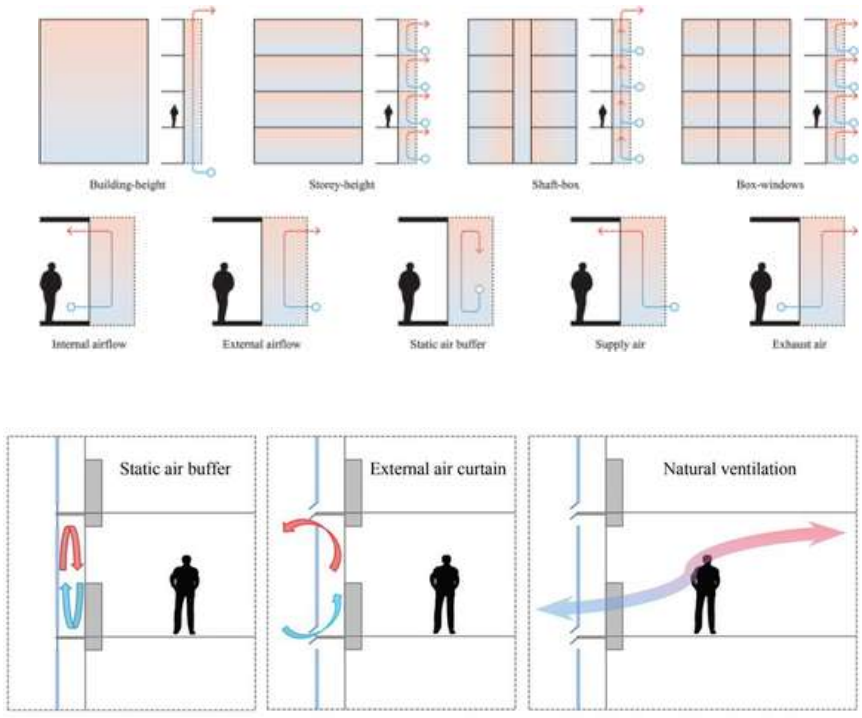


Figure 2.3.5 Airflow Across Source:Archimonaarch

In the context of tropical architecture, airflow across the skin is particularly important due to the high temperatures and humidity levels common in these regions. Buildings are designed to maximize natural ventilation and minimize the need for air conditioning, which can be energy-intensive and contribute to environmental degradation.

Relative humidity

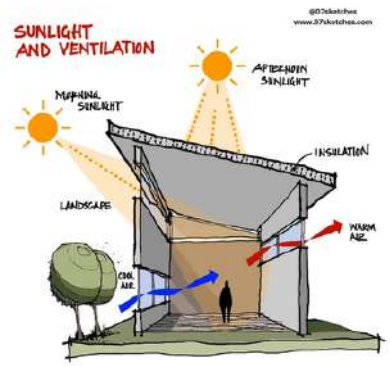


Figure 2.3.6 Cross ventilation optimizes ventilation Source: pinterset

To achieve optimal RH levels in buildings, architects and engineers employ various strategies. These include:

1. Ventilation: Proper ventilation is essential for maintaining optimal RH levels. This can be achieved through natural ventilation, mechanical ventilation, or a combination of both.
2. Humidity control: Humidity control systems can be used to regulate RH levels by controlling the amount of moisture in the air. This can be done through humidification or dehumidification, depending on the specific needs of the building.
3. Building envelope design: The design of the building envelope, including factors such as insulation, glazing, and air tightness, can significantly impact RH levels. A well-designed envelope can help maintain optimal RH levels by reducing heat transfer and minimizing moisture entry.
4. Material selection: The selection of building materials can also influence RH levels. For example, materials with high moisture absorption rates can contribute to higher RH levels, while those with low absorption rates can help maintain optimal levels

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

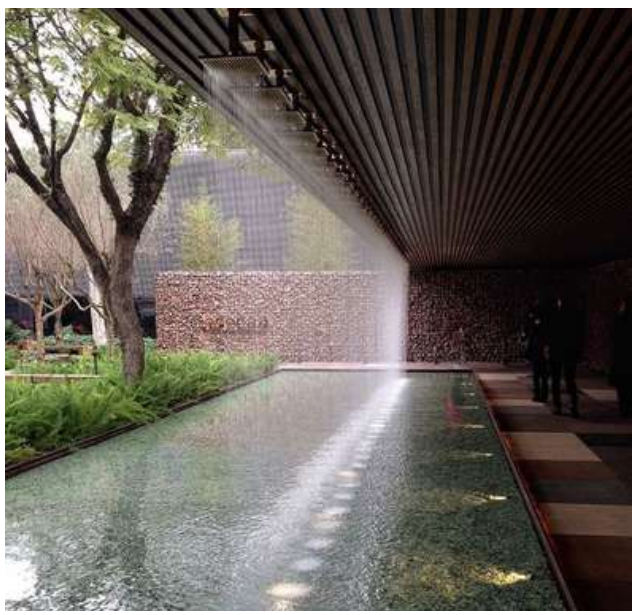


Figure 2.3 .7 Prsence of water source: pinterset

1. The presence of water in biophilic architecture can be achieved through various design strategies, such as:Visual Connection: Providing views of water bodies, such as lakes, oceans, or rivers, can create a sense of calmness and relaxatio.
2. Auditory Connection: Incorporating water sounds, such as the sound of waves or a gentle stream, can create a soothing atmosphere and reduce stress
3. Tactile Connection: Incorporating water features, such as fountains, waterfalls, or splash pools, can provide a sensory experience and enhance the sense of well-being
4. Multisensory Experience: Combining visual, auditory, and tactile elements of water can create a more immersive and engaging experience, enhancing the overall health and well-being benefits

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



Figure 2.3 .8 Bamboo material source: pinterset

1. The use of natural materials in biophilic design can be seen in various aspects of building design, including:Materials: Incorporating natural materials such as wood, stone, and plants into the building design can create a sense of connection to nature
2. Colors: Using natural colors such as earth tones and green can also contribute to a sense of connection to nature
3. Patterns: Incorporating patterns found in nature, such as organic shapes and textures, can also enhance the biophilic effect

- **TABLE ARCHITECTURAL ASPECTS RELATED TO BIOPHILIC**

No	Indicator	Variable	Architectural aspect
1.	Nature in the Sapce	Visual connection with nature	• The mass of the building optimizes views of the surrounding nature • use of materials that help to connect the view of the outdoor area • placement of opening areas that can optimize views of nature
		Non-Visual Connection with Nature Auditory	• Provides an environment that brings in the sounds of the pool. • space arrangement that is able to maximize the user's experience of weather (rain, wind, hail) • Design openings that can maximize air intake
		Thermal & Airflow Variability	• Window operability and cross ventilation • Space/place orientation
		Presence of Water	• Memasukkan water like pound in building
2	Natural Analogues,	Material Connection with Nature	• choosing natural materials, such as wood and natural stone • Use paint with colors that are still connected to nature, such as green, blue and brown.
3	Natural of the Space	Prospect	• Open floor plans • use of transparent materials to add a spacious impression to the building

Table 2.3.1 Architectural aspects related to biophilic
(source: Author)

2.4 Design The study emphasizing aspects of security, safety, and the psychological well-being of the patients.

Building Mass Management

The placement of building mass in mental health facilities plays a very important role because it not only creates separate functional zones, but also reduces noise and interference between zones. As explained by Edwards and Torcellini (2002), “arranging zones within a building layout can significantly improve operational efficiency and user comfort by reducing noise and interference between different functional areas” (Edwards & Torcellini, 2002). This zoning concept also supports the separation between public and private areas, which is essential in maintaining patient privacy and security.

Room and Opening

Modern architectural theory emphasizes the importance of natural lighting and good air circulation in caring for the mental and physical health of patients. As stated by Duffy (1992), "the use of natural lighting and appropriate room partitions can significantly improve the patient's mental well-being by providing both: privacy and connection with the outside world" (Duffy, 1992). By using frosted glass or curtains, as well as with clever door arrangements, privacy can be increased without sacrificing the natural light that plays a vital role.

Circulation area

Circulation area design emphasizes the importance of having wide corridors, good accessibility and clear evacuation routes. As stated by Tregenza and Wilson (2011), "designing circulation areas to be spacious and easy to navigate can significantly reduce stress and increase safety for both patients and staff in healthcare facilities" (Tregenza & Wilson, 2011). This design ensures that the circulation area supports safe and controlled movement.

In addition, the presence of a controlled area for patient monitoring is an important aspect of the design. This area is a surveillance center that allows medical staff to monitor all patient movements efficiently without violating their privacy. Thus, the circulation area not only functions as a transportation route, but also as a strategic monitoring center to ensure patient safety and well-being.

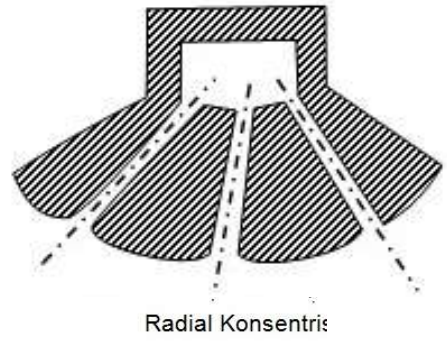


Figure 2.4.1 Radial konsentris circulation (Source: wilson 2011)

Public and Private Spaces

Privacy is a crucial aspect in creating a space that balances the need for social interaction and the need for personal isolation. As stated by Altman (1975), in architectural design, there is an important role in ensuring that individuals can interact socially when desired, while also having quiet personal time when needed. Comfortable and functional shared spaces support the creation of meaningful social relationships, while privacy zones provide an opportunity for individuals to feel safe and comfortable without interference from the external environment. Thus, the development of this concept allows the creation of an environment that supports psychological well-being and a better quality of life for individuals and communities as a whole.

Noise

Noise has a significant negative impact on an individual's mental and physical health. As suggested by Beranek (1992), the application of acoustic insulating materials in building construction can effectively reduce noise transmission between rooms, thereby improving the overall environment for occupants. The principles of good acoustic design suggest placing spaces that require quiet away from noisy areas, taking into account the acoustic function and activities occurring within them."

Feelings of confinement

Feelings of confinement in depressed patients can be explained by the learned helplessness theory. This theory states that individuals who experience repeated failures and feel they have no control over the situation tend to develop feelings of confinement or helplessness. They learn to feel helpless because they are constantly confronted with failure or the inability to overcome challenges. This experience teaches them that attempts to change the situation will not work, so they give up on the difficult circumstances and lose hope for positive change." (Seligman, 1975) According to Seligman, well-considered building design can help maintain the psychological stability of depressed patients by creating an environment that is welcoming and does not make residents feel trapped. This can be achieved by creating open spaces, optimizing natural lighting, minimizing the use of thick visual barriers, and choosing warm and soothing colors and materials.

Room Qualification

Consultation Room

Designed for individual or group counseling sessions, this room provides a comfortable and private space for patients to discuss their mental health concerns with a healthcare professional.
According (jlgarchitects 2022) consultation room have Qualifications

- **Accommodation Capacity**: The room should be able to accommodate a minimum of 12 patients
- **Healing Environment**: The room should be designed to create a healing environment, incorporating elements such as **natural light, Thermal kondition, and soothing colors** to promote relaxation and reduce stress.

-natural light Theory for depression people

According (Meesters et al., 2011) The standard lux level suitable for individuals with depression is typically around 10,000 lux. This level of brightness is recommended for light therapy in the treatment of depression, as exposure to this intensity of light has been found to be effective in improving mood and reducing symptoms of depression. Light therapy involving 10,000 lux is commonly used in the treatment of Seasonal Affective Disorder (SAD) and has shown positive results in improving depressive symptoms.

-ventilation Theory for depression people

According Ventilation by Window Opening: Ventilation by window opening can significantly decrease the level of stress and anxiety,

The use of cross ventilation can help temperature inside the and can effect physiological of patient

-soothing colors for Theory depression people

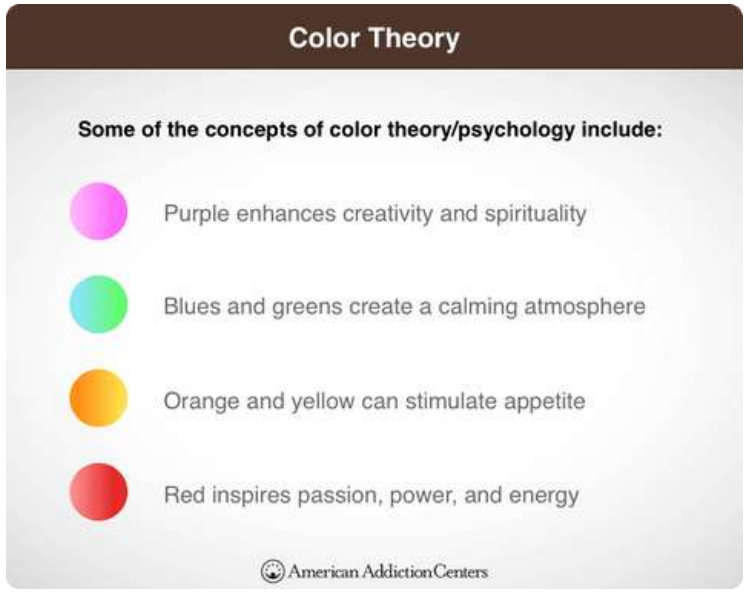


Figure 2.4.2 Color for physocology (Source: Inam sara 2017)

According (Inam sara 2017) The soothing colors for people with depression are those that promote relaxation, calmness, and serenity. These colors are often associated with nature and have a cooling effect on the mind and body. Some of the most calming colors include:

- Blue: Known for its calming effects, blue is believed to slow down heart rate, lower blood pressure, and reduce anxiety
- Green: A restful and quiet color, green is associated with nature and can diffuse anxiety, promoting feelings of calmness and refreshment
- Pink: A soft and tranquil color, pink is believed to promote peace and balance, making it a soothing color for those with depression
- White: Symbolizing clarity and freshness, white can help with mental clarity and is often considered ideal for pregnant women

- Violet: Signifying strength, peace, and wisdom, violet is believed to bring balance and promote inner peace.
- Grey: Often considered a dull and boring color, grey can have a soothing and cooling presence when paired with blue or white elements.
- Yellow: A color that can make you feel lively and energetic, yellow can be used to jumpstart the day on an energetic note.

These colors can be incorporated into a person's environment through various means, such as painting walls, using colored accessories, or placing colored decorations. The use of these colors can help individuals with depression manage their stress and anxiety, promoting a more positive and calming atmosphere

Medical Examintaion Rooms:

Medical Examintaion Rooms: Equipped with special equipment and designed for various forms of therapy, the rooms support the treatment of mental health disorders (Ligianto, 2019)

The architectural qualifications for therapy rooms in mental health centers involve creating spaces that are designed to positively impact the quality and effectiveness of therapy. These qualifications focus on aspects such as spatial parameters, **natural light, privacy, security, and sensory qualities to enhance the therapeutic environment.**

Designing with considerations for the spatial triad Connection between interior and exterior, natural light, and sensory qualities like acoustic intimacy and scent can contribute to creating a conducive environment for therapy (Basinger, 2011).

Additionally, incorporating elements of **biophilic design**, which aims to establish a positive relationship between humans and nature within the built environment, can further enhance the well-being of individuals in therapy rooms (Puren et al., 2021)

- **natural light**

  General guidelines suggest that therapy rooms should have a minimum illumination of **500-750 lux**

- **privacy & security**

  -sound-absorbing materials to reduce the risk of conversations being overheard from neighboring rooms.
  -use of secure doors that can be locked from the outside and have a viewing window for staff to monitor patients



Figure2.4.3 Medical Examintaion Rooms: sourch :perplexity.a

Therapy Rooms:

According to (Tambunan & Mufida, 2019) Therapy rooms are divided into 3 types, namely:

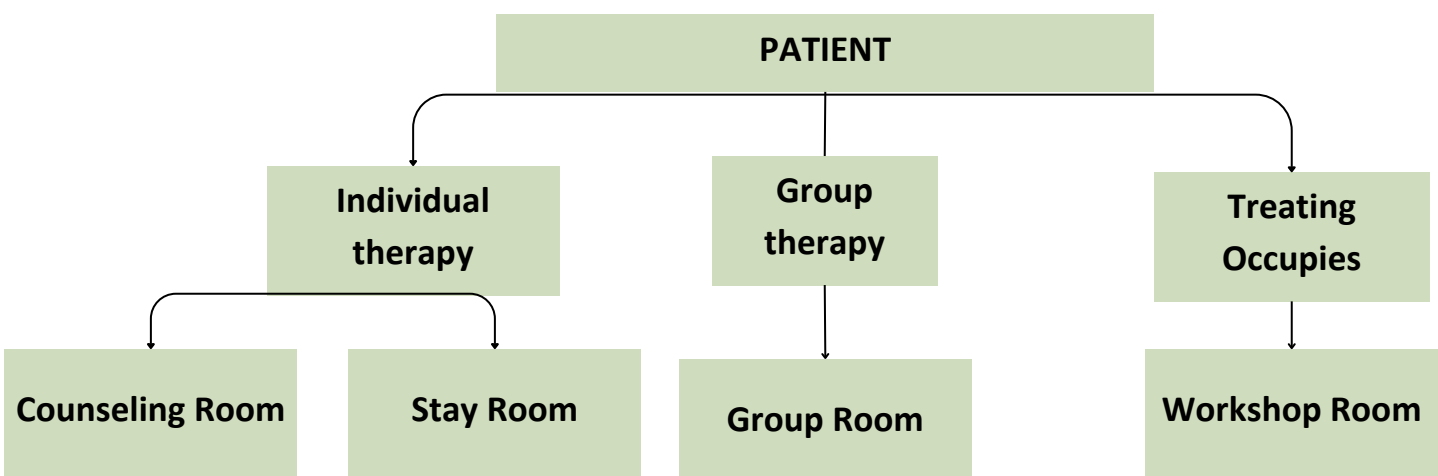


Diagram 2.4.1 Therapy rooms (Source: Tambunan & Mufida, 2019)

According to (Tambunan & Mufida, 2019) A therapy room must meet four requirements. In a therapy room, the most crucial elements to promote the recovery of mental disorders like depression and anxiety are the lighting—both artificial and natural—noise, the view outside, and the proportions of the area.

• Natural Lighting: This kind of indirect natural lighting is made possible by the use of wide windows with vertical blinds covering them or clerestory windows.

·• Diffuse spot lighting is used in the lighting design to encourage patients to share tales more candidly (Antony, 2007). During their investigation,

Miwa and Hanyu (2006) 150 lux light intensity was achieved using incandescent bulbs. The findings demonstrated that low illumination promoted relaxation and comfort, increased openness, and created the illusion of greater time for storytelling.

Patients who are depressed may be at danger in noisy settings. Insulation is therefore a necessary in the therapy room. The A-Sound dB level range for hospital and clinic buildings is 33–45 dB, per SNI 03-6575-2001.

• Size of the Room According to VHA (2016), counseling rooms should have a standard area of 11.2 m2.

Room Qualification Table

Room	indikator	Variabel	Parameter
Consultation	**Healing Environment**	• natural light	• Intensitas Cahaya (500-750 lux)
		• Thermal Conditioon	• 30% hingga 50% Kelembaban Relatif • Suhu 21°C-24°C
		• Colour	• Blue,pink,green,pink,violet ,grey,white yellow
Therapy Rooms:	**Pencahayaan**	• Pencahayaan Alami • Pencahayaan Buatan	• Intensitas Cahaya (150 lux) • Intensitas Cahaya (150 lux)
	Kebisingan	• Sumber kebisingam	• standar untuk ruangan 33-45 dB
	View	• Letak Ruang Arah	• Hadap bukaan
Medical Examintaion Rooms:	**Pencahayaan**	• Pencahayaan Alami	• Intensitas Cahaya (500-700 lux)
	Privasy	• sound-absorbing materials	• standar untuk ruangan 33-45 dB
	Security	• Room personal	• Individual space

Table 2.4.1 Room Qualification (Source: author)

Recreation Area

Based on the classification of levels of depressive mental disorders which are divided into three categories, namely mild, moderate and severe, there are differences in the type of treatment carried out for each level. Garden therapy is a type of therapy that can help recover from depression.

Therefore, the garden therapy that will be created must meet the needs of these three classifications. The following is table 2.1.1 which shows the need for garden therapy for each level of depressive mental disorder:

	Level of Mental Disorders	Therapeutic Garden
Depression Mental Disorders	Mild Depression Level	Garden with a quiet area, surrounded by calming green plants, as well as comfortable chairs for sitting and meditation.
	Moderate Level of Depression	Garden with walking paths winding through the trees, calming statues and areas to sit and reflect.
	Degree of Severe Depression	A garden with water elements such as a fountain or small pond, a path that leads to a more hidden area, as well as a swing or rocking chair for relaxation.

Table 2.4.2 Classification of Depressive Disorders (Source: author)

By meeting these needs, garden therapy can be one part important in supporting the recovery of patients with various levels of depressive mental disorders.

2.5 Precedent

2.5.1 California Academy of Sciences in San Francisco

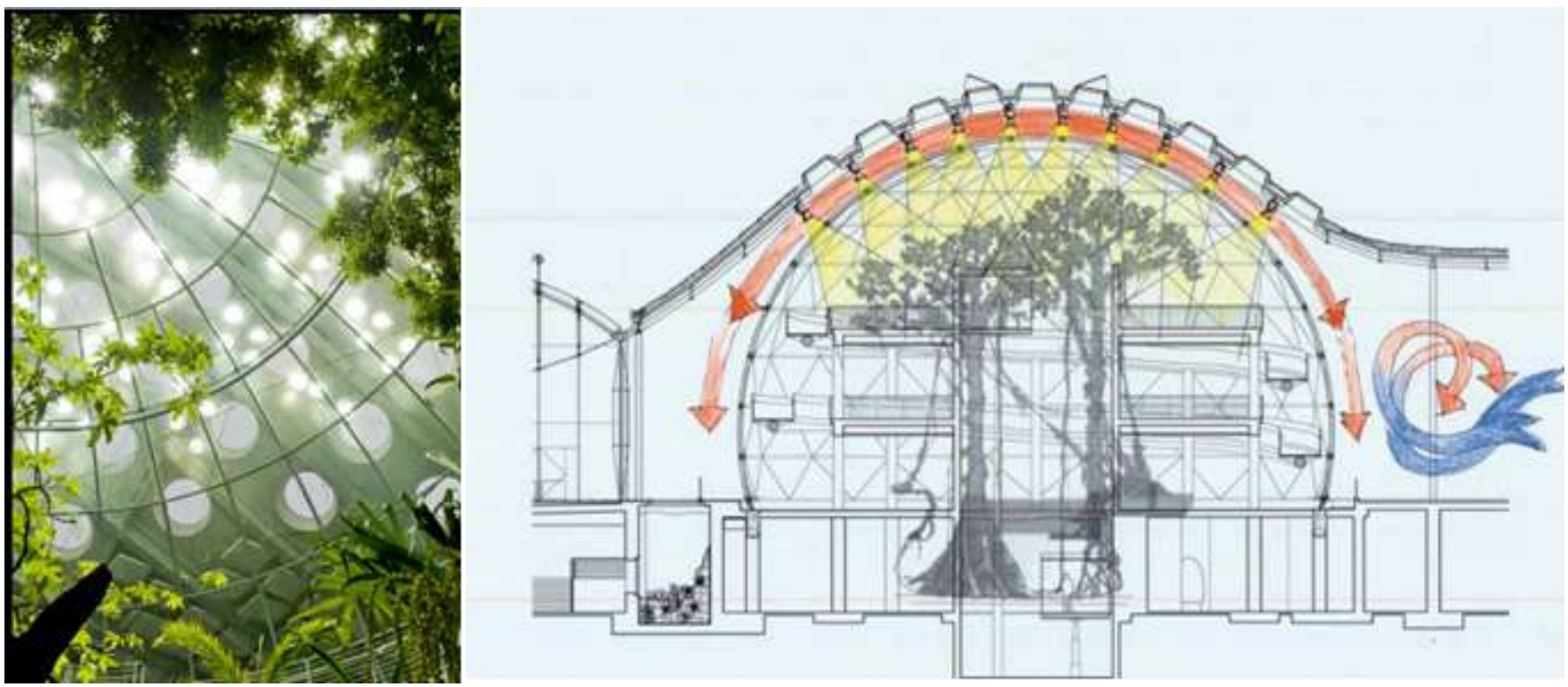
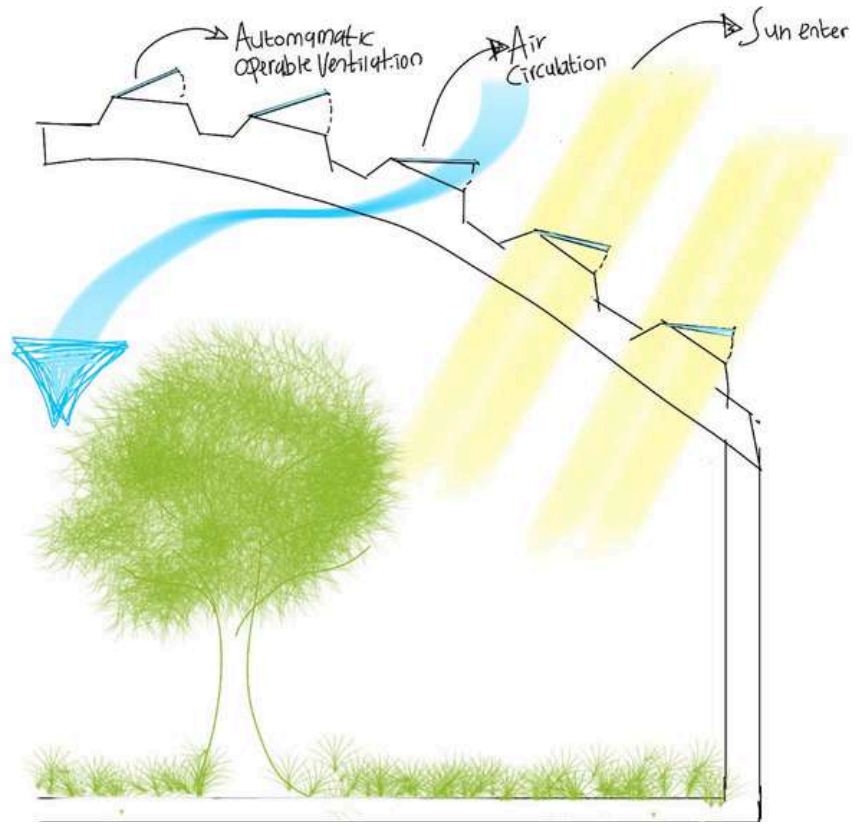


Figure2.5.1 California Academy of Sciences in San Francisco(source: archdaily.com)

One example of a biophilic approach in action is the California Academy of Sciences in San Francisco, which incorporates natural features into the architecture of its building. The building's approach to including integrated green spaces is the use of dome skylights. There is a garden inside, and the vegetation on the roof enhances the sense of emotional connection to the surrounding environment. According to Browning (2012), a person's body experiences an increase in parasympathetic activity when they have a strong connection to nature.

One aspect of the autonomic nervous system that helps the body rest and heal itself is the parasympathetic nervous system.

This architecture can facilitate human psychiatric therapy by incorporating nature. Research has indicated that spending time in nature might enhance mental health and lessen stress. Thus, by offering an experience associated with nature, this complex can also assist psychological therapy.



The Rainforest Garden's part with an opening roof is made to open on its own. The system can open and close in response to weather conditions since it makes use of autonomous controls and weather sensors. When the weather is sunny or the temperature inside rises,

In order to improve natural ventilation and let more light into the space, the roof will open. This is an excellent illustration of how environmentally friendly building design can use technology to improve comfort and energy efficiency.

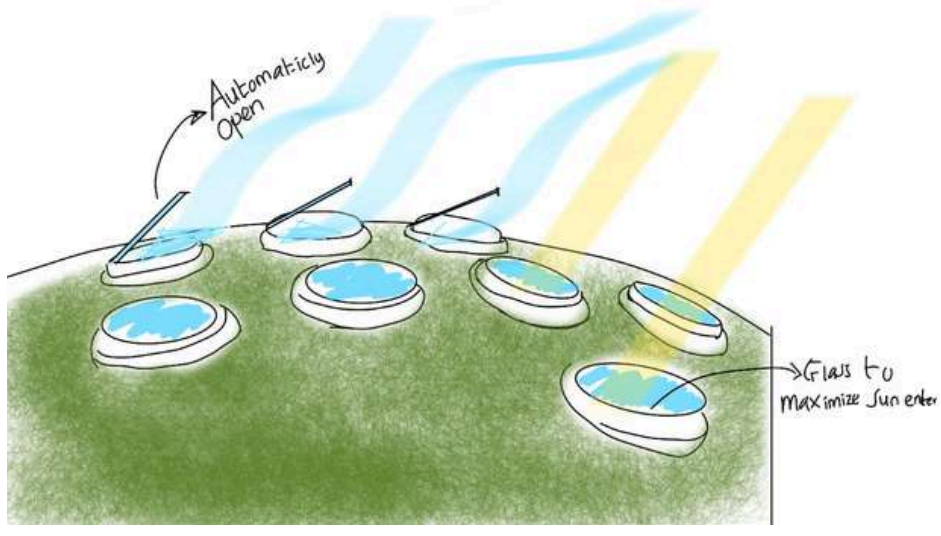


Figure 2.5.2 Sky Light Technology (source: Personal Document)

2.5.2 Maggie's Leeds Centre



Figure 2.5.3 Maggie's Centre(source: archdaily.com)

Maggie's Centre is a shining example of architectural innovation, with a comprehensive design concept based on the seamless integration of comfort, community interaction, and natural features. The architectural plan embraces the healing properties of nature and places a high value on creating areas that radiate peace and tranquillity. This is accomplished by arranging natural light sources in strategic locations, creating open vistas of the surrounding greenery, and creating beautifully landscaped gardens. With the goal of providing patients and their families with a little break throughout the stressful process of cancer treatment, every element of the design is intended to promote a feeling of peace and comfort. Additionally, the idea emphasizes the value of community involvement by using the center as a focal point for cooperation and group support.

Through a range of activities, events, and outreach projects, Maggie's Centre actively engages the local community in the battle against cancer, fostering a deep sense of ownership and solidarity. This holistic approach demonstrates the transforming power of architectural design in supporting holistic healthcare by nurturing the emotional and psychological well-being of all those affected by the disease in addition to enhancing the physical healing process.

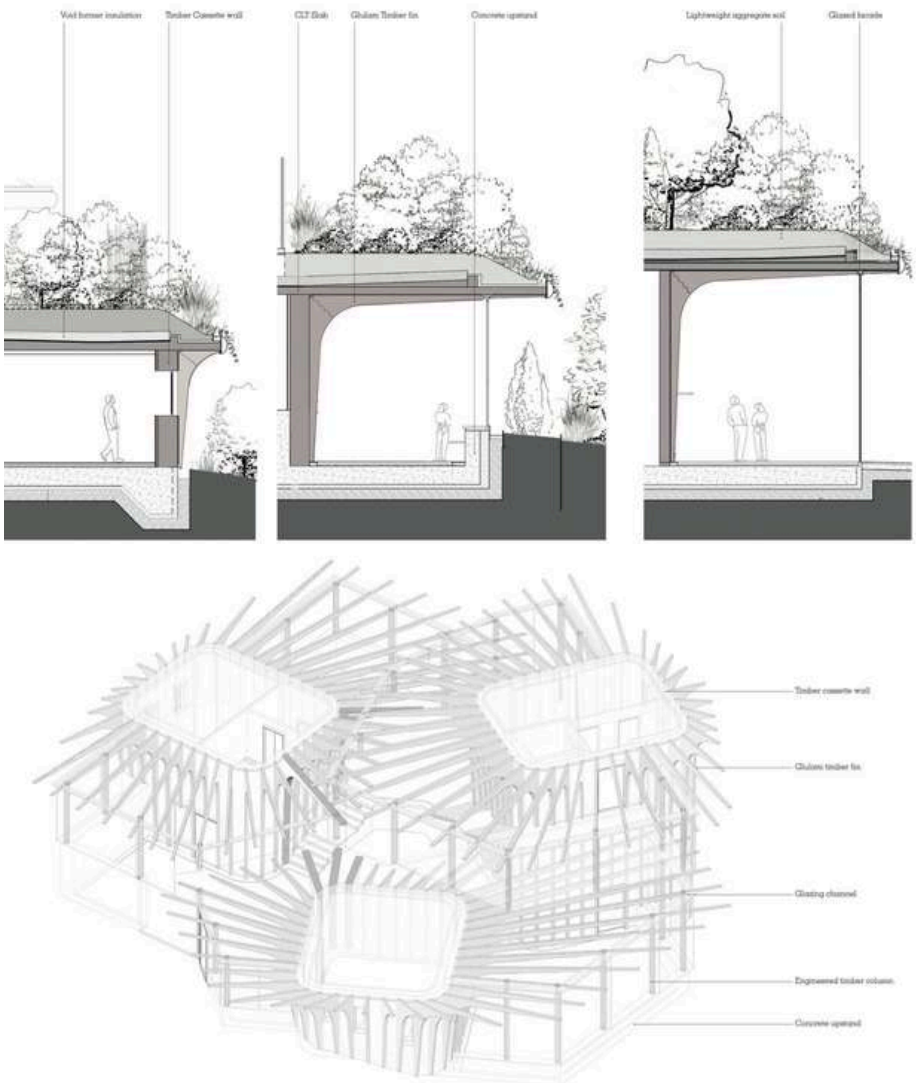


Figure 2.5.4 Maggie's Centre structured (source: archdaily.com)

Building Structure: The natural integration of green spaces is taken into account in the building design. In order to achieve this, open or semi-open designs that permit direct integration with nearby parks or green spaces as well as natural sunlight and ventilation are used.

Materials: The primary material is wood, which fosters a feeling of warmth and welcome while also fostering a connection with nature. One option is to choose environmentally friendly wood, like that from forests that are managed responsibly. Additionally, it's critical to choose materials like glass and recycled metal that are good for the environment and can help maintain green spaces.

Sustainable Construction: Sustainable construction practices are applied in the construction of buildings, encompassing the utilization of renewable energy sources, effective water management strategies, and the selection of ecologically friendly building materials. This will contribute to ensuring that the building structure is long-lasting and resilient.

By including green spaces and natural materials to foster a deep connection with nature, Maggie's Center was able to create a supportive environment for cancer patients and their families by taking all these things into account during the design and construction process.

2.5.3 KANEKA Wellness Center / Kengo Kuma



Figure 2.5.5 KANEKA Wellness Center / Kengo Kuma(source: archdaily.com)

In the project "Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in Yogyakarta," the KANEKA Wellness Center stands out as a strong precedent, especially when it comes to its conceptual framework. The center incorporates biophilic building concepts with natural features to practice holistic health. The concept underscores the need of maintaining equilibrium among physical, mental, and emotional well-being by fostering a serene and encouraging atmosphere. The wellness center promotes human engagement with nature by utilizing natural components like sunlight, fresh air, and plants, as well as by including open spaces that connect the inside and exterior.

This creates an environment that improves quality of life and speeds up the healing process. Thus, Yogyakarta's KANEKA Wellness Center offers a prime illustration of how the idea of holistic health and connection with nature may act as a strong foundation for the creation of creative and long-lasting mental health facilities.

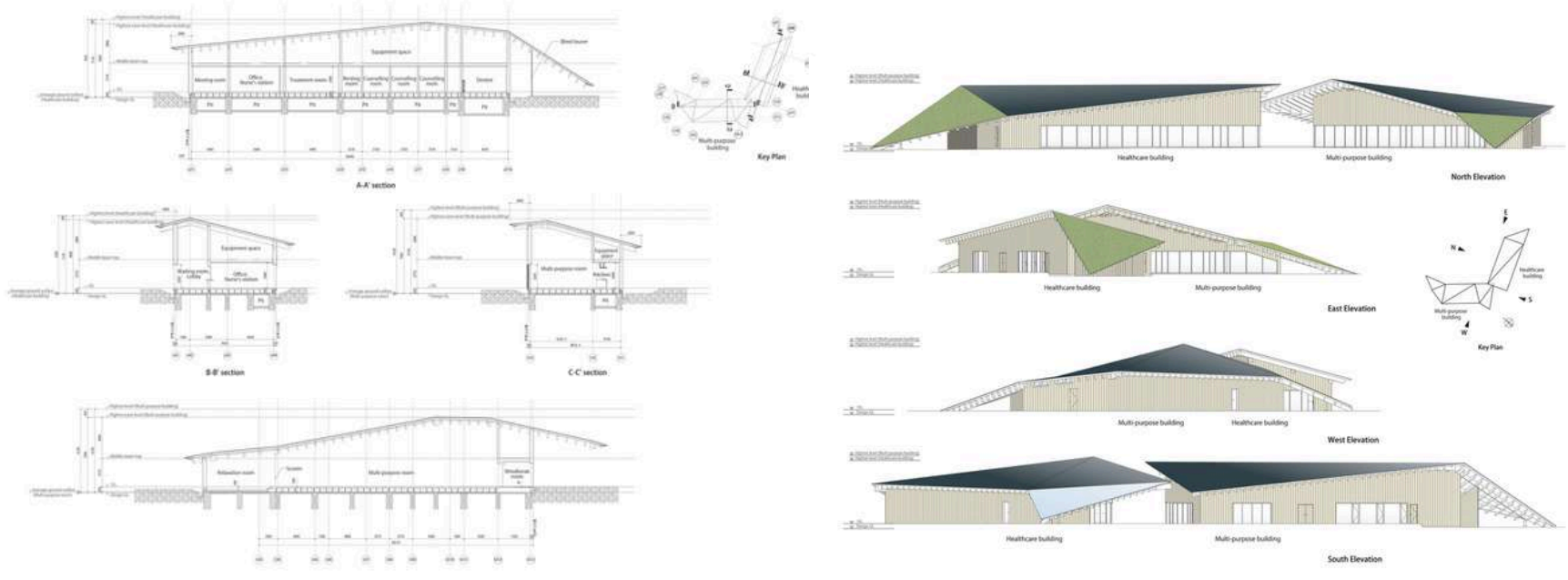


Figure 2.5.6 KANEKA Wellness Center / Kengo Kuma(source: archdaily.com)

In an effort to alleviate sadness, KANEKA Wellness Center builds healthcare and multipurpose structures, each with a distinct purpose. A good way to guarantee spatial arrangement that permits interaction with nature is to employ glass material facing open spaces that are green. The following are some strategies for achieving natural integration in design and spatial organization:

Use of Natural Light: The building's extensive glass usage facilitates more efficient natural light penetration. This produces an airy, light environment that can improve guests' moods and general wellbeing.

Natural Views: Visitors can take in views of the parks and verdant gardens that surround the building by means of glass that faces these green, open spaces. It has been demonstrated that these scenic vistas lessen stress and improve mood.

rEach to Open Spaces: People should be able to easily and freely access the nearby green spaces thanks to the building's layout. To give visitors a better sensation of being outside, this may entail constructing balconies, terraces, or other outdoor spaces onto the building.

Through careful planning and arrangement, KANEKA Wellness Center can help those suffering from depression by creating a healing environment that allows for a close relationship with nature.

2.6
SITE DATA

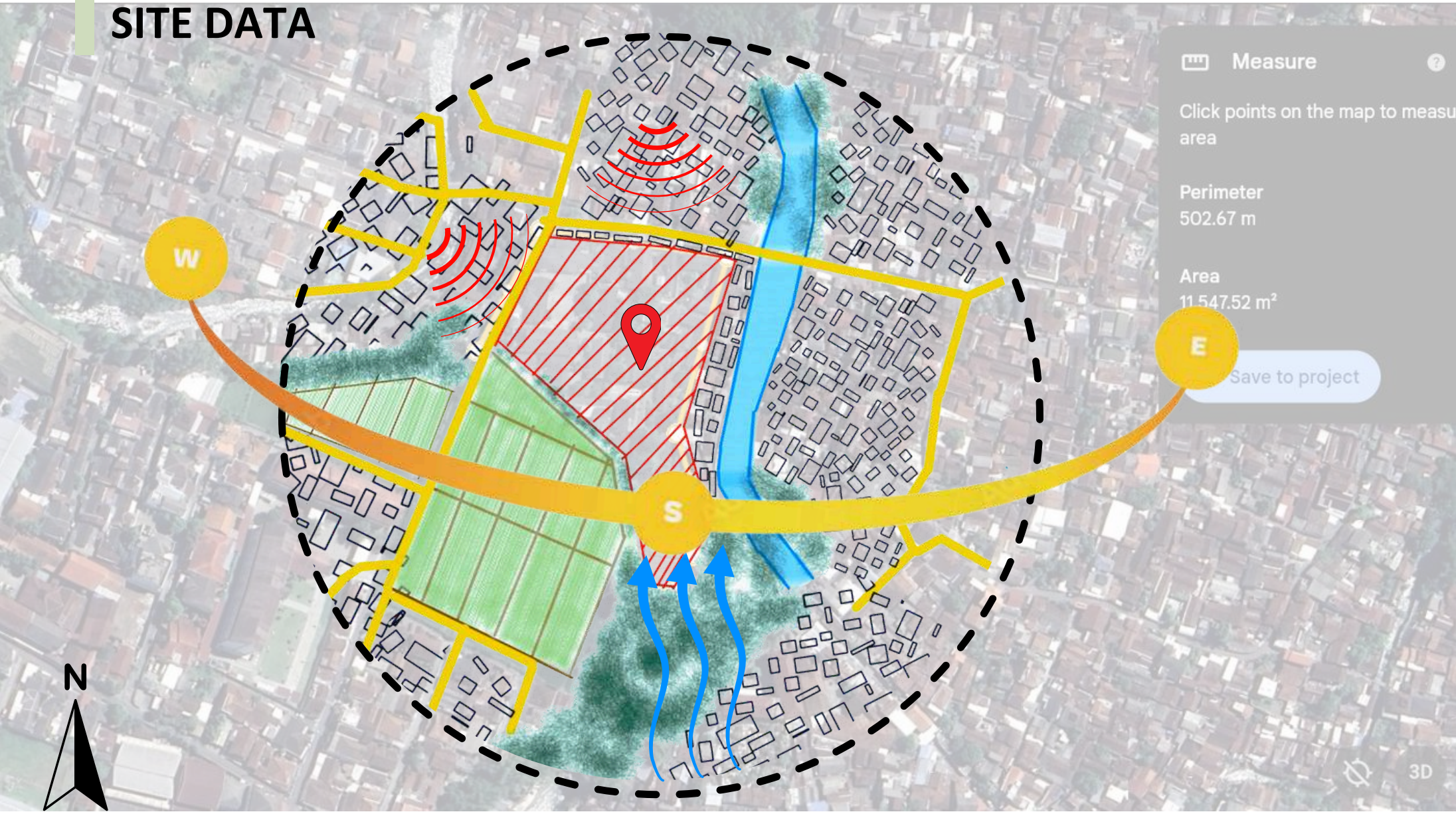
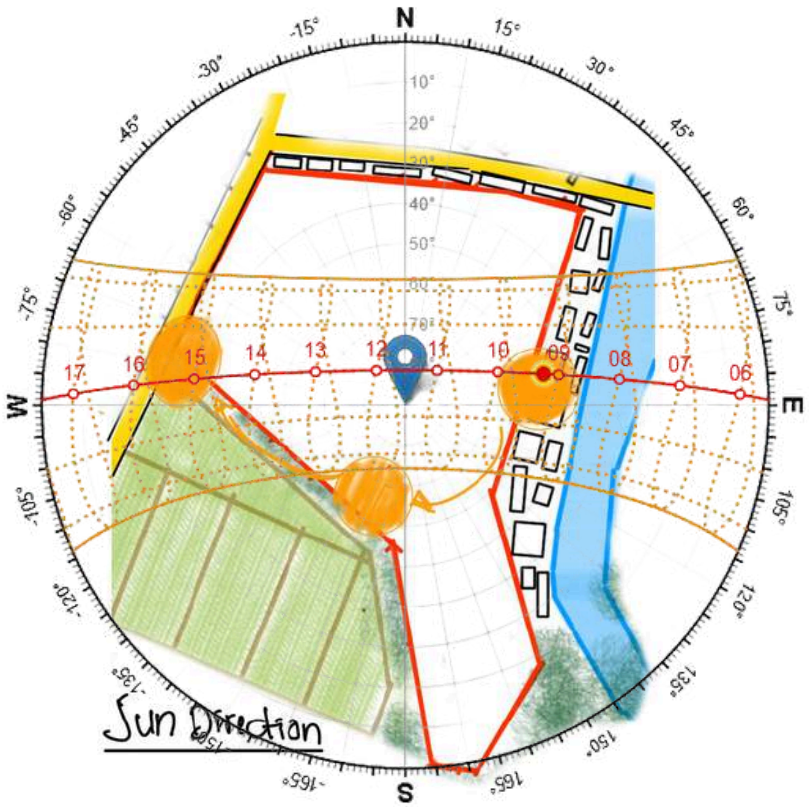
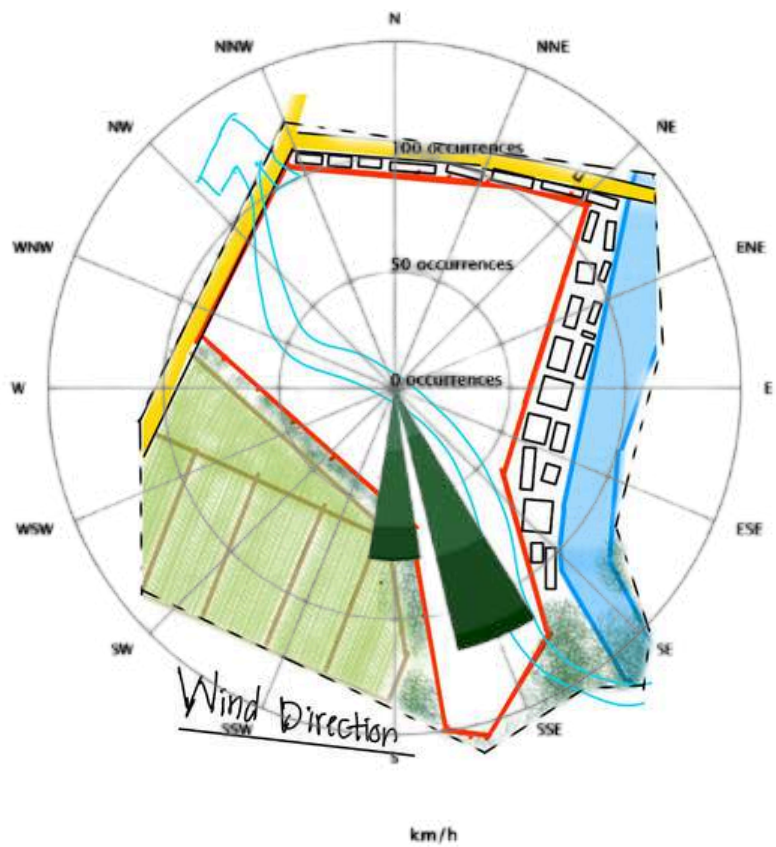


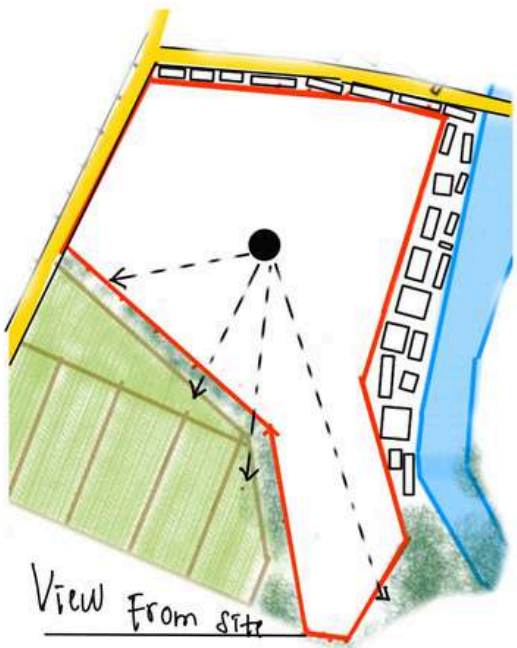
Figure 2.6.1 surrounding site data (source: author)

The site size is 11,000 m2 with the following regulations:
Maximum KDB
60% x 11,000m2 = 6,600m2
Minimum KDH
30% x 11,000m2 = 3,300m2
KLB
11,000x1,2= 13,200
Maximum Building Height = 33m

Location:
Balai Rehabilitasi Sosial Bina Karya Dan Laras (BRSBKL) Jl. Sidomulyo TR IV No.369, Bener, Kec. Tegalrejo, Kota Yogyakarta, Daerah Istimewa Yogyakarta







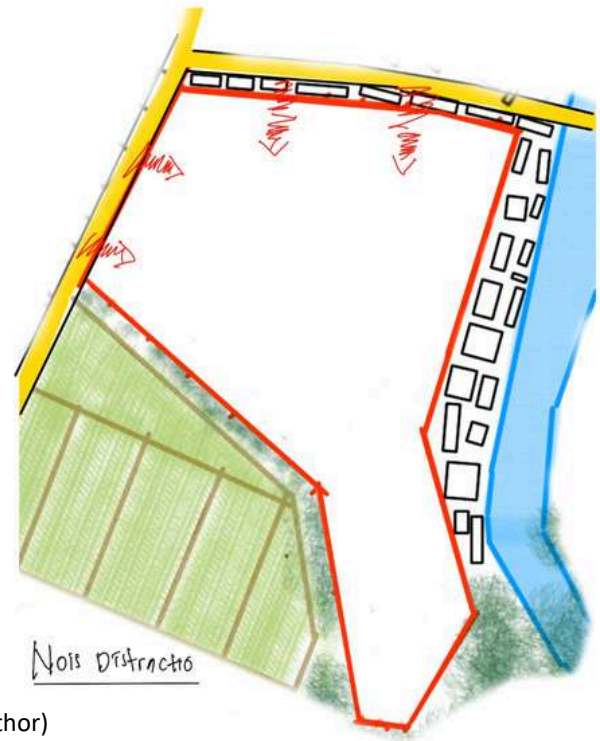


Figure 2.6.2 surrounding site data (source: author)

2.5
SITE DATA

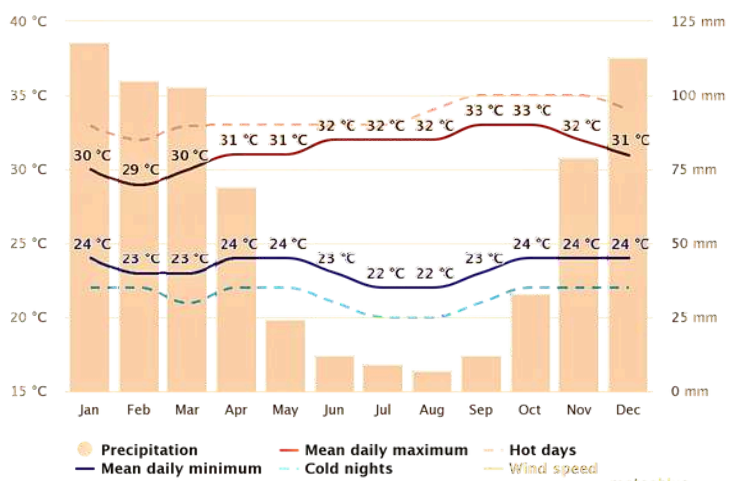


Diagram 2.6.1 Precipitation and Temperature(source:https://www.drought.gov/)

Temperature
The coldest months are July and August, boasting an average temperature of 22 degrees Celsius, while the yearly average stands at a comfortable 23 degrees Celsius. Conversely, the warmest period falls in September and October, recording an average temperature of 33 degrees Celsius, surpassing the annual average of 31 degrees Celsius.

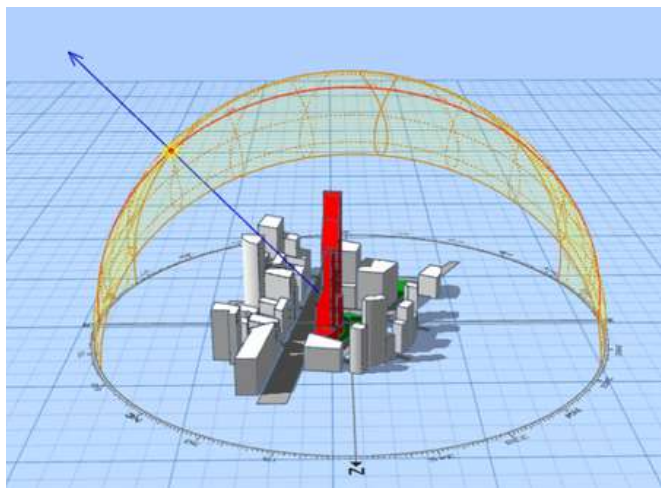


Diagram 2.6.2 Precipitation and Temperature(source:https://www.drought.gov/)

Sun path
The annual path of the sun is directly overhead, slightly tilted towards the south in January, and towards the north in June.

Chapter 3

Design Concept for Mental Health Center: Enhancing Biophilic, Maximizing Indoor-Outdoor Connections, and Ensuring Safety

3.1 BRIEFING FUNCTION

3.1 .2 USER ACTIVITY ANALYSIS

3.2 PROPERTY SIZE TO DETERMINE THE SIZE OF BUILDING MASSES

3.3 ZONING RELATED TO PRIVACY, SECURITY, AND EFFECTIVE TREATMENT

3.4 MANAGING ACCESS TO MAINTAIN SECURITY AND PRIVACY

3.5 MANAGING ACCESS TO MAINTAIN SECURITY

3.6 ZONING PLANNING RELATED PLACE GREEN AREA EFFECTIVE TREATMENT

3.7 MANAGING ACCESS TO MAINTAIN SECURITY FOR PATIENT

3.8 SITE FINISHING RELATED TO ZONING

3.9 BUILDING MASS CONFIGURATIN RELATED SECURITY AND EFFECTIVE TREATMENT

3.10 BUILDING MASS CONFIGURATION TO RESPON SUN AND WIND

3.11 ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

3.12 FINISHING ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

3.13 BUILDING MASS INPATIENT UNIT RESPONSS TO SUN AND WIND DIRECTION

3.14 ROOF FOR INPATIENT UNIT TO ACHIEVE THERMAL AIRFLOW VARIABILITY &EFFECTIVE TREATMENT

3.15 ROOF FOR INPATIENT UNIT TO ACHIEVE THERMAL & AIRFLOW VARIABILITY

3.16 ROOF FOR INPATIENT UNIT TO ACHIEVE HEALING PROCESS, THERMAL AND AIRFLOW VARIABILITY.

3.17 ROOF FOR INPATIENT UNIT TO ACHIEVE EFFECTIVE TREETMENT

3.18 ROOF STRUCTURE INPATIENT UNIT

3.19 PATIENT BEDS TO ACHIEVE EFFECTIVE CARE THROUGH THE USE OF MATERIALS AND COLORS

3.20 BUILDING MASSING THERAPHY MASS TO ACHIEVE EFFECTIVE TREETMENT

3.21 ORGANIZATION OF FUNCTIONAL SPACES THERAPY UNIT : MAXIMIZING INDOOR AND OUTDOOR CONNECTIVITY WITH VISUAL AND ACOUSTIC INTEGRATION

3.22 BUILDING MASS RESPONSS TO SUN AND WIND DIRECTION

3.23 ROOF FOR THERAPHY TO ACHIEVE THERMAL AIRFLOW

3.24 WATER FALL CONCEPT RELATED ACUSTIC FOR ACHIEVE EFFECTIVE TREETMENT

3.25 ROOF STRUCTURE THERAPHY UNIT RELATED TO MATERIAL FOR ACHIEVE EFFECTIVE TREETMENT

3.26 3D VISUALIZATIN THERAPHY UNIT RELATED EFFECTIVE TREETMENT

3.27 BUILDING MASSING REHABILTATION MASS TO ACHIEVE EFFECTIVE TREETMENT

3.28 ORGANIZATION OF FUNCTIONAL SPACES THERAPY UNIT : MAXIMIZING INDOOR AND OUTDOOR CONNECTIVITY WITH VISUAL

3.29 BUILDING MASS RESPONSS TO SUN AND WIND DIRECTION

3.30 ROOF FOR THERAPHY TO ACHIEVE THERMAL AIRFLOW

3.31 3D VISUALIZATINREHABILITATION UNIT RELATED EFFECTIVE TREETMENT

3.32 GARDEN THERAPY SPACE ORGANIZATION FOR EFFECTIVE TREATMENT

3.33 DESIGN CHEKLIST RELATED TO CONCEPT

3.1 BRIEFING FUNCTION

The building is designed based on its function as a mental health center that provides treatment for individuals with depression. Patients consist of those undergoing outpatient, inpatient, and rehabilitation treatment.

The concept applied is biophilia design to optimize indoor and outdoor connectivity, while considering the psychology of depressed patients. The building is planned from macro to micro scale, considering all three aspects in every stage of the design.

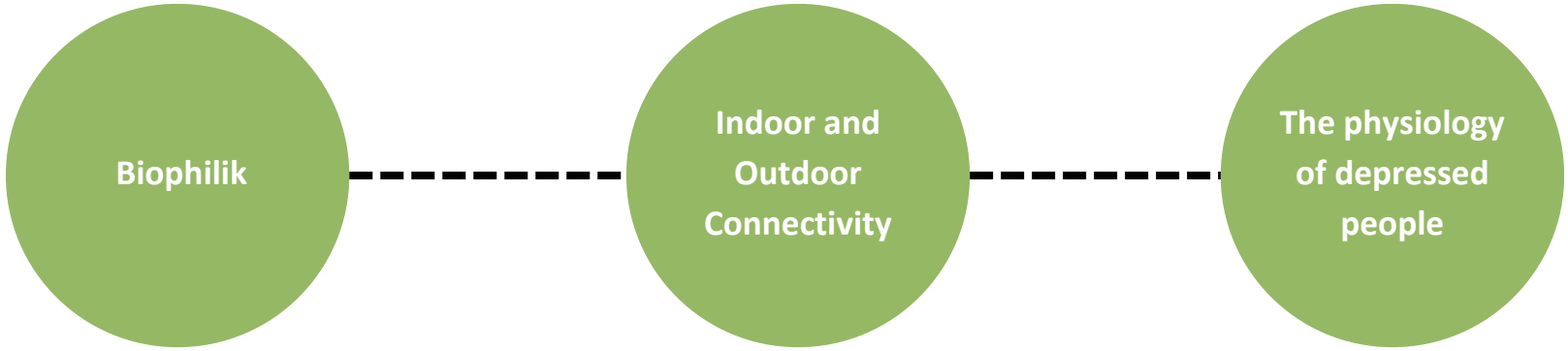


Diagram 3.1.1 Three aspects of building concept (source: Author)

- Natural Analogues
- Nature in the Space
- Natural of the Space

- Visual Connection with Nature
- Non-Visual Connection with Nature
- Thermal & Airflow Variability
- Presence of Water
- Material Connection with Nature
- Prospect

- sound quality
- safety
- security

3.1 .2 USER ACTIVITY ANALYSIS

Activity Group	Type of activity	Space requirements
Reception activities	1. **Parking** 2. **Boarding/alighting passengers** 3. **Wait** 4. **Take care of administration** 5. **Metabolism** 6. **Visit or meet patients**	1. **Parking area** 2. **Drop off** 3. **Lobby and waiting room** 4. **Ruang Manages** 5. **Sitting room**
Management Activities	1. **Receive guests** 2. **Take care of administration** 3. **Meeting** 4. **Manage rehabilitation center staff room** 5. **Carry out a medical check** 6. **Doing therapy** 7. **Do counseling** 8. **Make observations** 9. **Sleep** 10. **Metabolism** 11. **Eat** 12. **Washing** 13. **Cooking**	1. **Sitting room** 2. **Administration room** 3. **Meeting room** 4. **Medical examination room** 5. **Therapy room** 6. **Counseling room** 7. **Observation room** 8. **Manager's bedroom** 9. **Management toilet** 10. **Dining room** 11. **Washing room** 12. **Kitchen**
Inpatient Activities	1. **Doing therapy** 2. **Conduct counseling guidance** 3. **Medical examination by a doctor** 4. **carry out daily activities** 5. **Eat** 6. **Sleep** 7. **Metabolism** 8. **Washing** 9. **hone skills** 10. **hone physical abilities** 11. **Gardening** 12. **walk**	1. **Therapy room** 2. **Counseling room** 3. **Medical examination room** 4. **Occupational therapy room** 5. **Dining room** 6. **Bedroom** 7. **Toilet** 8. **Washing room** 9. **skill room** 10. **gym area** 11. **Park** 12. **Park**
Rehabilitation Patient Activities	1. **Parking** 2. **on foot** 3. **Conduct counseling guidance** 4. **Medical examination by a doctor** 5. **Metabolism** 6. **hone skills** 7. **hone physical abilities**	1. **Parking area** 2. **pedestrian** 3. **Counseling room** 4. **Medical examination room** 5. **Toilet** 6. **skill room** 7. **gym area**
Outpatient Activities	1. **Parking** 2. **on foot** 3. **Searching for information** 4. **register for treatment** 5. **consultation with a doctor/psychiatrist** 6. **therapy**	1. **parking area** 2. **pedestrian** 3. **receptionist** 4. **reseosionis** 5. **consultation room** 6. **therapy room**
General Visitor Activities	1. **Parking** 2. **on foot** 3. **Searching for information** 4. **wait** 5. See the facilities and tour the outdoor area 6. metabolism 7. **Worship**	1. **parking area** 2. **pedestrian** 3. **receptionist** 4. **reseosionis** 5. Park 6. **Toilet** 7. prayer room

Table 3.1.1 User Activity Analysis (source: Author)

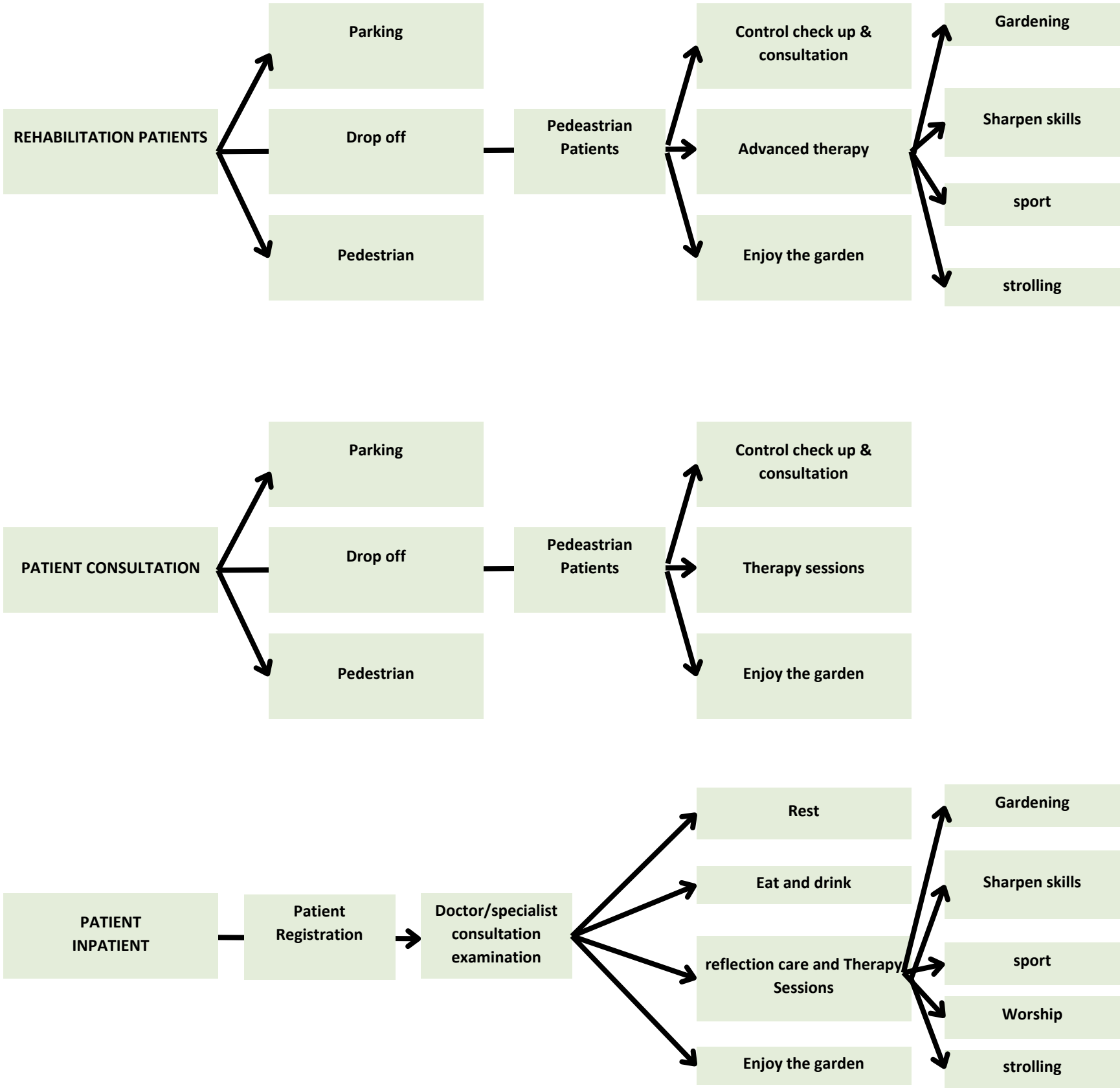


Diagram 3.1.2 User Activity Analysis (source: Author)

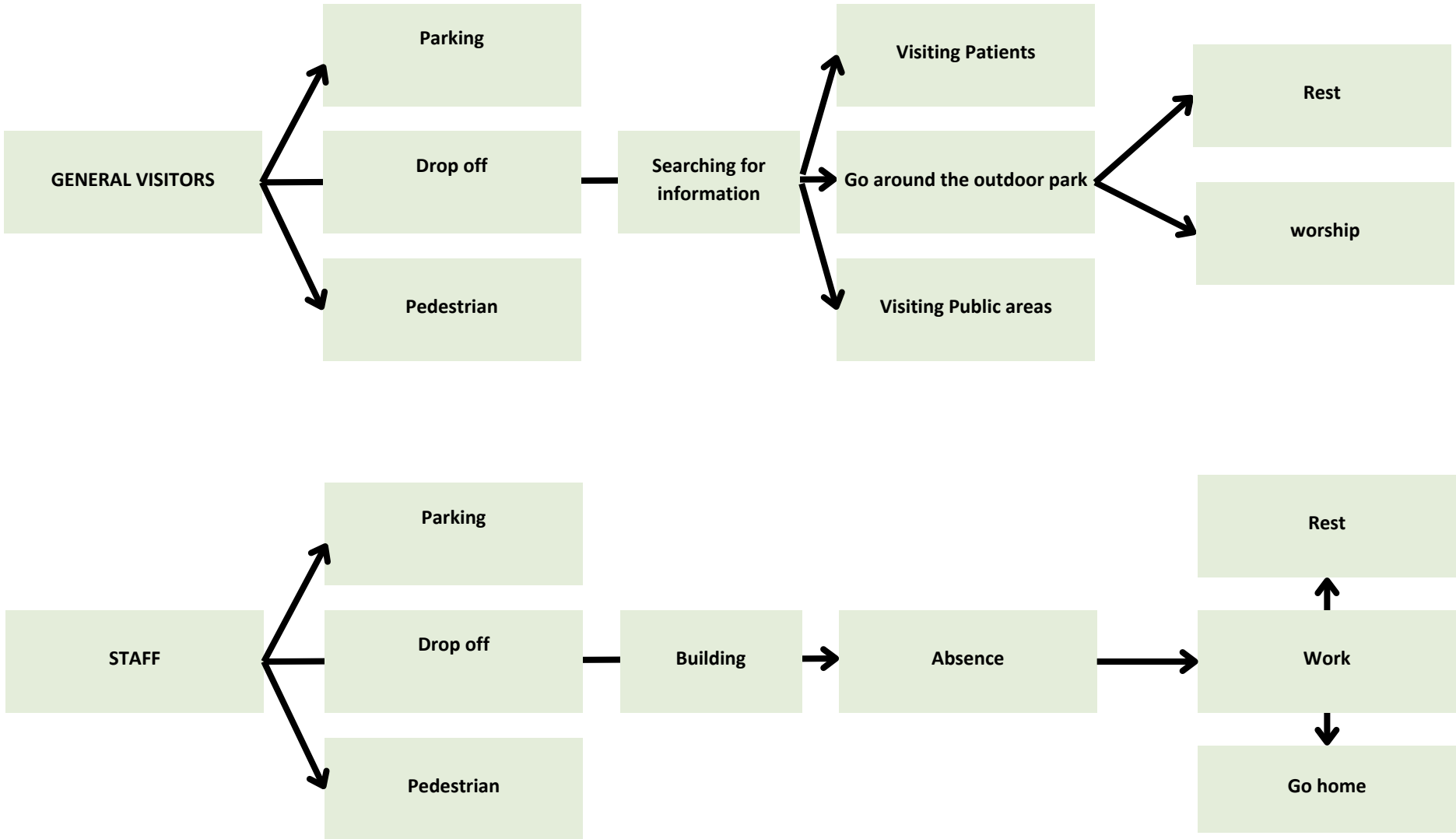


Diagram 3.1.2 User Activity Analysis (source: Author)

3.2 PROPERTY SIZE TO DETERMINE THE SIZE OF BUILDING MASSES

State of the rooms function

- Primary room
- Secondary room

Room function

- Patient rooms
- Supporting rooms
- Service rooms

Room type

- Private
- Semi private
- Public

Capacity

Qty + Qty

Max quantity of main user — Additional user

Circulation

20%

Circulation for user

State	Function	Room	Standard	Capacity	Area/unit circulation (20%)	The number of room	Total area
Primary rooms	Inpatient rooms	One Bed ,Bathroom, Standard	12,5 m2	1	2,5 m2+12,5m2=15	21	315m2
		One Bed , Bathroom, Accessible	13,5 m2	1	3,5m2+13,5m2=17	2	34m2
		One Bed, Bathroom patient Bariatric	16,7m2	1	3,34m2+16,7m2=20.04	2	40,08m2
		Two Bed , Bathroom, Standard	21,4 m2	2	4,28m2+21,4m2=25,68	21	539,28m2
		Seclusion Room	7,4 m2	1	1,48m2+7,4m2=8,88	4	35,52m2
		Medication Room	14 m2	1	2,8m2+14m2=16,8	1	16,8m2
		Nurse Workroom	11,2 m2	6	2,24m2+11,2m2=13,44	1	13,44m2
		Team Room	20,4 m2	8	4,08m2+20,4m2=24,48	1	24,48m2
		Nursing Station	27,9	3	5,58m2+27,9m2=33,48	1	33,48m2
		Dinning room	138 m2	67	27,6m2+138m2=165,6	1	165,6m2
		dayroom/activity space	62,7 m2	23	12,54m2+62,7m2=75,24	3	225,72m2

Table 3.2.1 Property Size (source: Author)

State	Function	Room	Standard	Capacity	Area/unit circulation (+20%)	The number of room	Total area
Primary rooms	Rehabilitation Patients	One Bed, Bathroom patient Standard	12,5 m2	1	2,5m2+12,5m2=15	22	330m2
		Two Bed / Bathroom, Standard	21,4 m2	2	4,28m2+21,4m2=25,68	22	564,96m2
		one Bed / Bathroom, Accessible	13,5 m2	1	2,7m2+13,5m2=16,2	2	32,4m2
		One Bed/ Bathroom patient Bariatric	16,7m2	1	3,34m2+16,7m2=20,04	2	40,08m2
		Dinning	11,2m2	4	2,24m2+11,2m2=13,44	1	13,44m2
		Training Kitchen	8,4m2	4	1,68m2+8,4m2=10,08	1	10,08m2
		Multi-Purpose Room	140m2	70	28m2+140m2=168	1	168m2
		Recreation Therapy Room	210m2	70	42m2+210m2=252	1	252m2
Primary rooms	Outpatient Room	Examination Room	73m2	12	14,6m2+73m2=87,6	1	87,6m2
		Treatment Room	91m2	15	18,2m2+91m2=109,2	1	109,2m2
		Consultation Room	60m2	10	12m2+60m2=72	2	144m2
		Group Testing Room	80m2	20	16m2+80m2=96	1	96m2
		Biofeedback Lab Treatment & Control Room	122m2	20	24,4m2+122m2=146,4	1	146,4m2

Table 3.2.1 Property Size (source: Author)

State	Function	Room	Standard	Capacity	Area/unit circulation (+20%)	The number of room	Total area
Secondary rooms	staff & management room	satff administrasi dan tatausaha	24m2	6	4,8m2+24m2=28,8	1	28,8m2
		staff humas	24m2	6	4,8m2+24m2=28,8	1	28,8m2
		Ruang Arsip	6m2	1	1,2m2+6m2=7,2	1	7,2m2
		Multiporpose	30m2	15	6m2+30m2=36	1	36m2
		Ruang tamu	12m2	6	2,4m2+12m2=14,4	1	14,4m2
		toilet	10m2	4	2m2+10m2=12	1	12m2
Secondary rooms	Service rooms	Ruang peralatan ME	56m2		11,2m2+56m2=67,2	1	67,2m2
		Ruang Petugas ME	6m2	2	1,2m2+6m2=7,2	1	7,2m2
		Work room	56m2		11,2m2+56m2=67,2	1	67,2m2
		Changing room and locker	20m2	40	4m2+20m2=24	1	24m2
		Toilet	20,16m2	8	4,032m2+20,16m2=24,192	1	24,192m2
		warehouse	56m2		11,2m2+56m2=67,2	1	67,2m2
		Ruang utility	56m2		11,2m2+56m2=67,2	1	67,2m2
		Ruang satpam	6m2		1,2m2+6m2=7,2	1	7,2m2

State	Function	Room	Standard	Capacity	Area/unit circulation (+20%)	The number of room	Total area
Secondary rooms	staff & management room	Direktur	20m2	5	4m2+20m2=24	1	624m2
		wakil direktur	20m2	5	4m2+20m2=24	1	624m2
		general maneger	20m2	5	4m2+20m2=24	1	624m2
		Ruang meeting	30m2	10	6m2+30m2=36	1	36m2
		Ruang Tamu	12m2	4	2,4m2+12m2=14,4	1	14,4m2
		toilet	20,16m2	8	4,032m2+20,16m2=24,192	1	24,192m2
		kepala unit rawat jalan	25m2	1	5m2+25m2=30	1	30m2
		psikolog	16m2	4	3,2m2+16m2=19,2	1	19,2m2
		dokter	16m2	4	3,2m2+16m2=19,2	1	19,2m2
		perawat jaga	24m2	6	4,8m2+24m2=28,8	1	28,8m2

Table 3.2.1 Property Size (source: Author)

State	Function	Room	Standard	Capacity	Area/unit circulation (+20%)	The number of room	Total area
Secondary rooms	Guest room	**resepsionis**	26m2	40	5,2m2+26m2=31,2	1	31,2m2
		longue	72m2	40	14,4m2+72m2=86,4	1	86,4m2
		Ruang administrasi	15m2	5	3m2+15m2=18	1	18m2
		Mushollah	47,5m2	25	9,5m2+47,5m2=57	1	57m2
Secondary rooms	Parkir	**Mobil Pengunjung**	437,5m2	35	87,5m2+437,5m2=525	1	525m2
		motor Pengunjung	88m2	44	17,6m2+88m2=105,6	1	105,6m2
		mobil staff	187,5m2	15	37,5m2+187,5m2=225	1	225m2
		motor staff	40m2	20	8m2+40m2=48	1	48m2

Table 3.2.1 Property Size (source: Author)

TOTAL ALL AREAS **6.962m2**

3.3 ZONING RELATED TO PRIVACY, SECURITY, AND EFFECTIVE TREATMENT



Figure 3.3.1 Zoning Related to Privacy, Security, and Effective Treatment(source: Author)

In the design of this zone, three indicators are considered, namely privacy, security, and Effective Treatment.

PRIVACY

What : Patients need a more private place to avoid being disturbed. How: To implement this, patient-related zoning is placed in the back area that cannot be reached by guests. This ensures that the inpatient area is accessed by medical staff and patients only. Why: This approach aims to accelerate the healing of patients, especially those with depression, by providing a calm and distraction-free environment."

SECURITY

What: The building is secured with a protective fence to ensure safety and prevent patients from escaping.
How: Two types of fences were chosen for the building's perimeter—concrete fences and wire mesh fences.
Why: The choice of different fences was made to consider the varying characteristics of the surrounding area, ensuring that the security measures are effective and appropriate for each specific part of the site.

EFFECTIVE TREATMENT

What: The surrounding environment is considered in the placement of therapy areas, patient units, and rehabilitation centers to create an atmosphere that supports the healing process.
How: Therapy areas, patient units, and rehabilitation centers are placed in locations that offer views of the surrounding rice fields and potential sites, and away from noise sources.
Why: This strategic placement was done to ensure that patients are not disturbed by external noise and can enjoy pleasant views. Soothing views and a tranquil environment can contribute positively to the healing process of patients, providing them with an atmosphere that is more conducive to recovery.

3.4 MANAGING ACCESS TO MAINTAIN SECURITY AND PRIVACY



Figure 3.4.1 Managing Access to Maintain Security and Privacy (source: Author)

Access is important to maintain security and privacy. Access is divided into three, namely for staff, guests, and patients.

Access, Maintenance, Security

What: Entry and exit access is an important aspect to control and supervise patients, thus improving patient safety. How: The design of the main entrance and exit access is designed to pass through the lobby area, with the aim of reducing the risk of patients escaping. Every patient who wants to leave must pass through a centralized, supervised area. Why: This step is taken to improve patient safety by minimizing the possibility of patient escape. By forcing patients to pass through a supervised area such as the lobby, staff can more easily detect and prevent escape attempts.

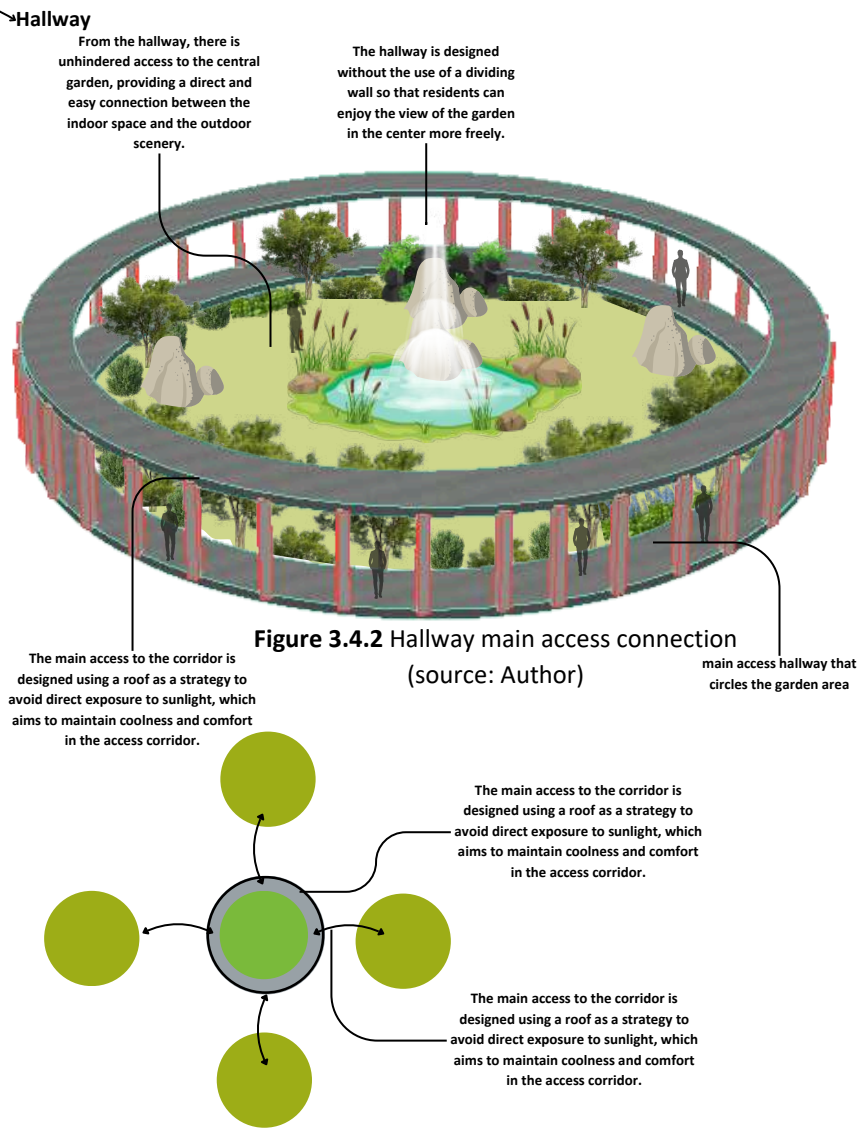


Figure 3.4.2 Hallway main access connection (source: Author)

Access, Maintenance, Privacy

What: Access ensures privacy, with certain areas restricted to staff only. Restrictions are necessary to control guest access.

How: A main hallway serves as the primary access point, leading to the entire space. Guests are limited to the garden area. A central circular hallway facilitates easy control of entries and exits.

Why: Centralizing access enhances efficiency and control. Placing the main hallway in the center prevents guests from entering patient areas, thus safeguarding privacy.

3.5 MANAGING ACCESS TO MAINTAIN SECURITY

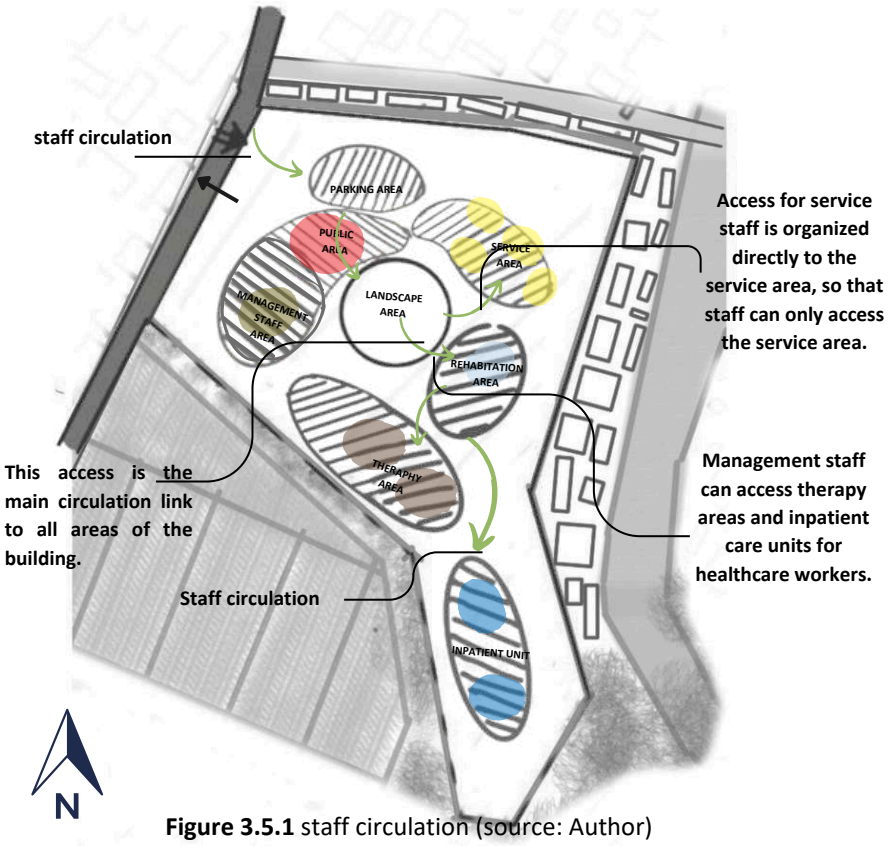


Figure 3.5.1 staff circulation (source: Author)

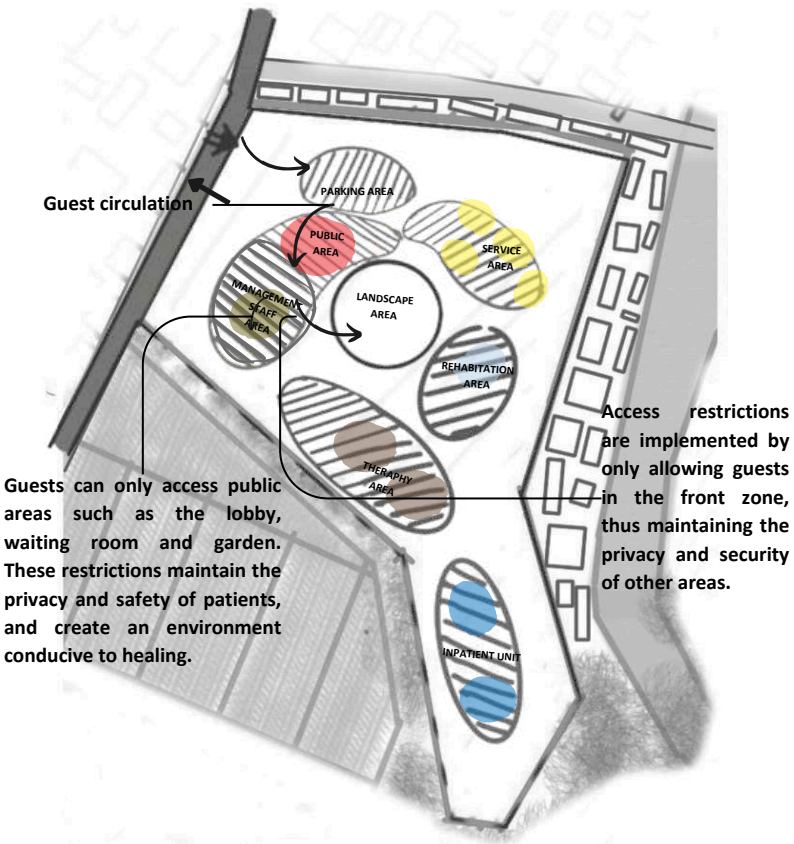


Figure 3.5.2 Guest circulation (source: Author)

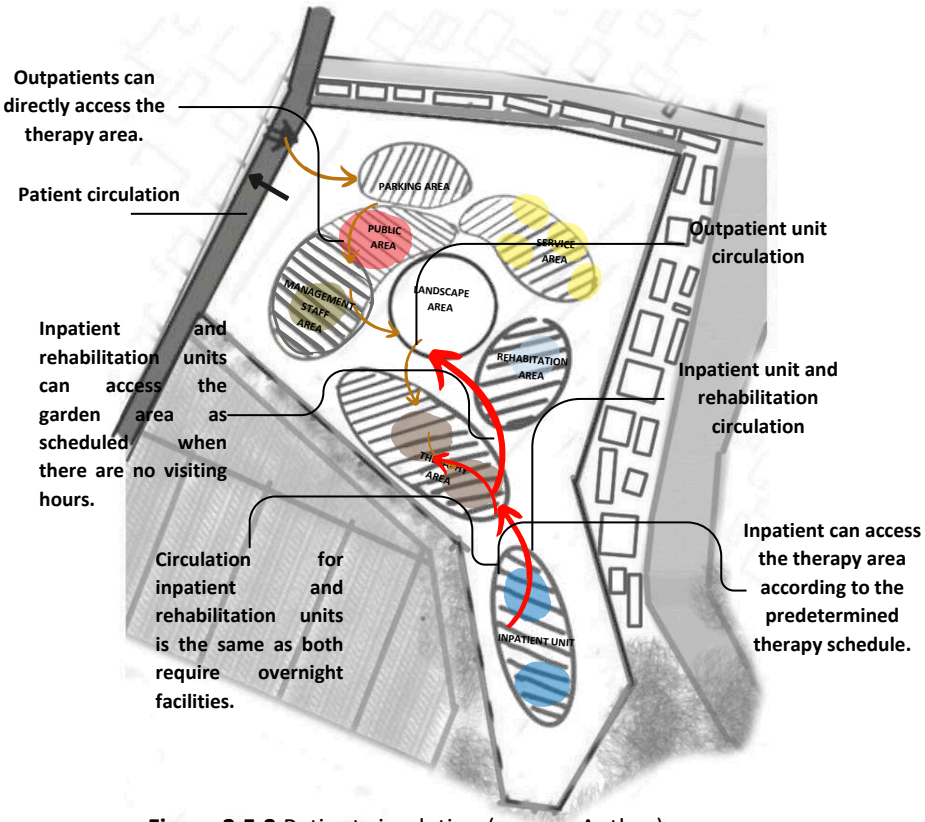


Figure 3.5.3 Patient circulation (source: Author)

What: Effective access management is essential for security, ensuring separation between patients, guests, and staff.

How:

- Patient Access: Inpatient areas are at the back, ensuring privacy and restricted access. Patient circulation is kept away from public zones.
- Guest Access: Public areas, like the lobby and garden, are at the front. Guest circulation is straightforward, avoiding patient areas.
- Staff Access: Staff areas surround inpatient units for easy monitoring. Staff circulation allows quick and direct access to patients.
- Service Areas: Located away from patient zones, with separate circulation to ensure safety.

Why: This setup enhances patient security, allows efficient control of movements, and maintains a safe environment by minimizing unauthorized interactions.

3.6 ZONING PLANNING RELATED PLACE GREEN AREA EFFECTIVE TREATMENT

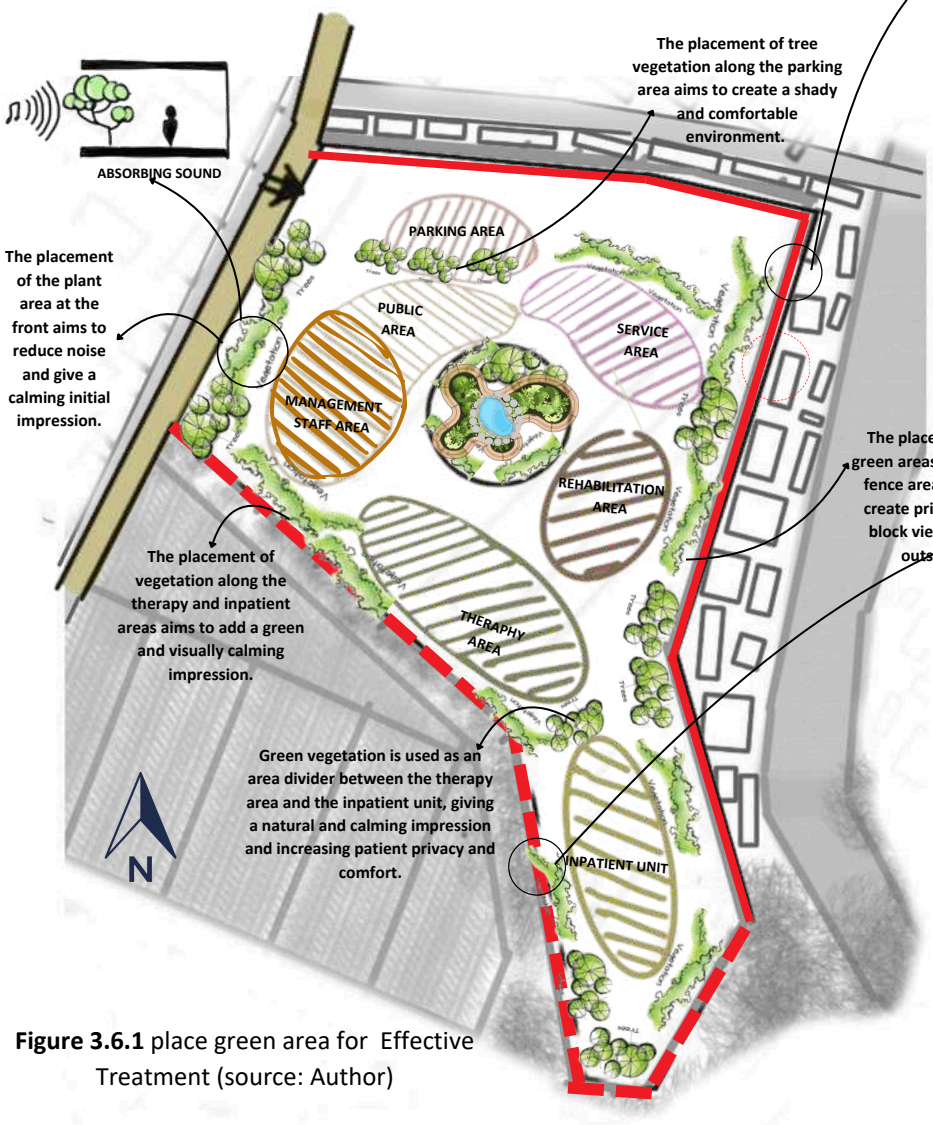
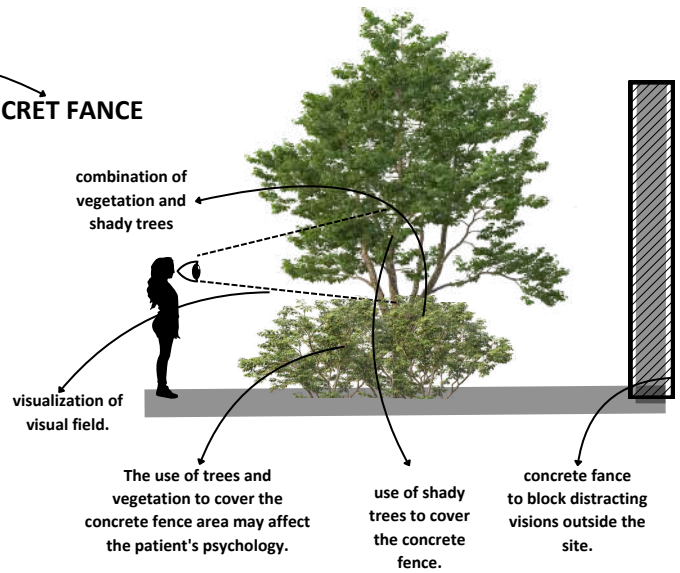


Figure 3.6.1 place green area for Effective Treatment (source: Author)



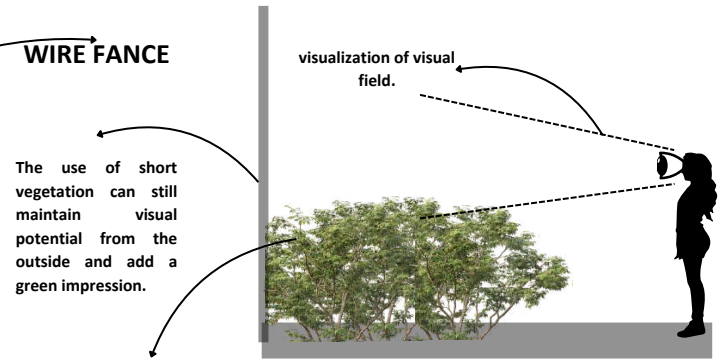


Figure 3.6.2 visual potential (source: Author)

VISUALIZATION WIRE FANCE

The wire fence was designed to eliminate the sense of confinement for patients, yet still allow them to see outside the area so as to take advantage of the potential scenery around the site.

Alternative 1

Alternative 2

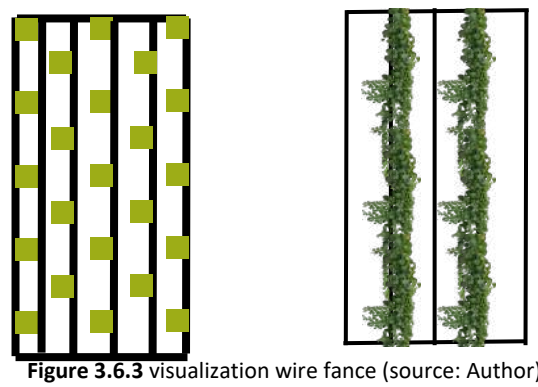


Figure 3.6.3 visualization wire fance (source: Author)

The use of potted plants arranged in a zigzag manner does not block the view to the outside area. However, maintenance is difficult and more expensive because you have to use pots as planting media.

The use of vines arranged alternately on the fence allows the view out of the area to remain open. Maintenance is also easier.

The second alternative has more advantages, so the fence used in the design is the second alternative.

Place green area Effective Treatment for patient

What: The placement of green areas is an important aspect to consider as this is beneficial for the recovery of health for depressed patients. How: The placement of vegetation along the therapy area and treatment rooms aims to add a green and visually soothing impression. Green vegetation is used as a separator between the therapy area and the treatment unit, providing a natural and calming impression as well as increasing patient privacy and comfort.The placement of green areas along the fence aims to create privacy and block views from outside.

Why: Green areas can help reduce stress and anxiety, promoting a sense of peace and well-being.Exposure to natural environments has been shown to improve mood and cognitive function, aiding in the recovery process for patients with depression.

3.7 MANAGING ACCESS TO MAINTAIN SECURITY FOR PATIENT

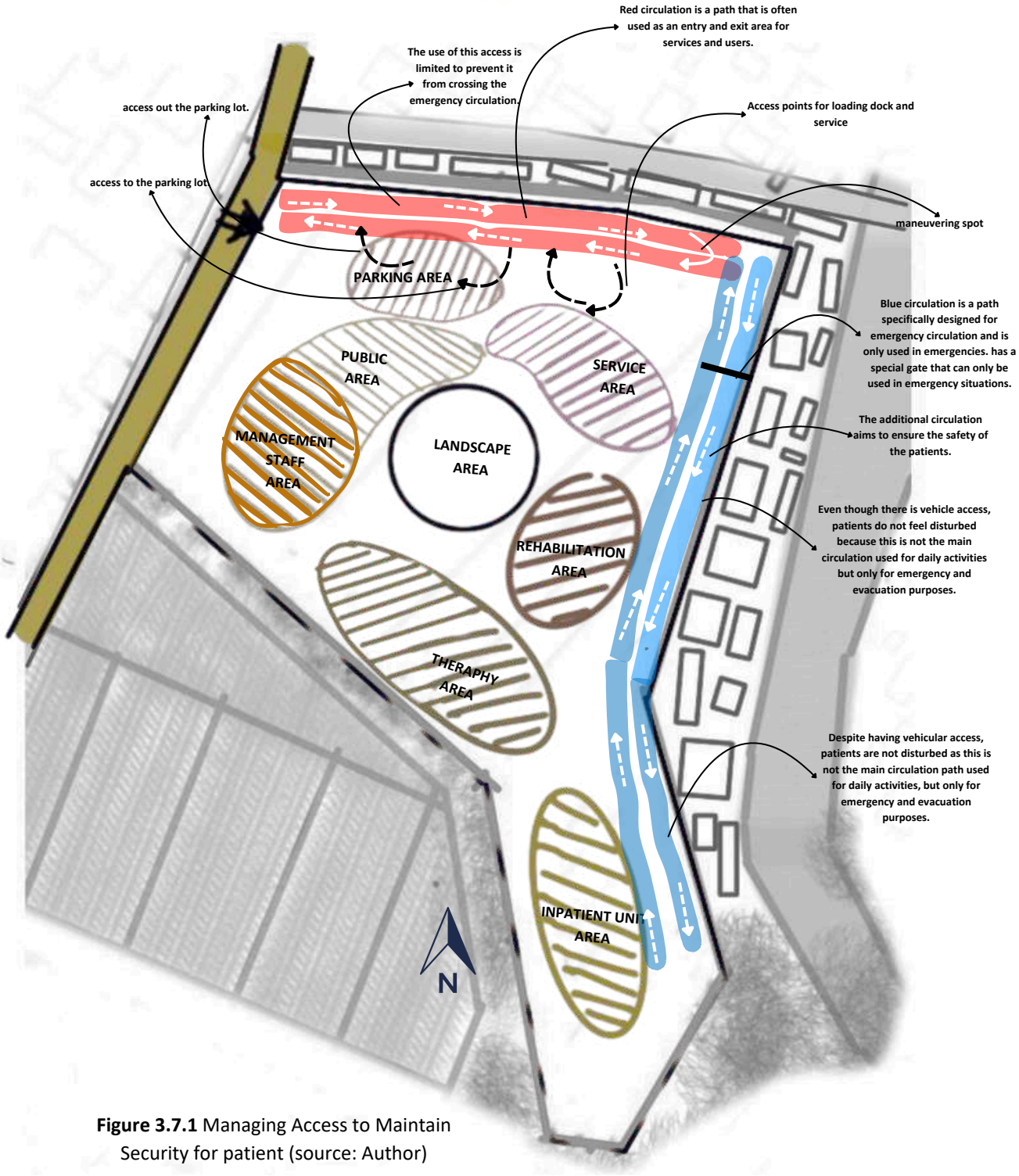


Figure 3.7.1 Managing Access to Maintain Security for patient (source: Author)

Managing Access to Maintain Security for patient

What: Creating two circulation paths:

1. Red circulation, frequently utilized as an entry and exit point for services and users.
2. Blue circulation, specifically designated for emergency situations.

How:

- Red circulation serves as a convenient route for service access and user traffic.
- Blue circulation is solely reserved for emergencies, ensuring swift response and evacuation when needed.
- The additional circulation infrastructure aims to uphold patient safety.
- Despite vehicular access availability, patients remain undisturbed as this pathway is primarily designated for emergencies and evacuations, rather than routine daily activities.

Why:

- Establishing distinct circulation paths enhances overall security and safety protocols within the facility.
- By delineating separate routes, it streamlines traffic flow and minimizes potential disruptions to patient care and comfort.
- The segregation of circulation pathways serves to optimize emergency response procedures, prioritizing patient well-being and efficient evacuation protocols.

3.8 SITE FINISHING RELATED TO ZONING



Figure 3.8.1 Site Finishing Related to Zoning
(source: Author)

Site Finishing Related to Zoning: Considering Privacy, Security, Circulation, and Effective Treatment.

Site Finishing is the culmination of previous zoning planning that considers important aspects such as Privacy, Security, Circulation, and Effective Treatment.

Privacy is achieved through the placement of private zones at the back and public zones at the front. This ensures that sensitive areas are shielded from outside view, while access to public areas remains open to users.

Security is reinforced by placing circulation areas that cannot be accessed by guests. This provides additional protection against unwanted access to sensitive areas within the facility.

In terms of circulation, the focus is on designing vehicle routes that do not disrupt the privacy and security of patients. This may include restricting vehicle access to certain areas and arranging traffic flow to minimize disruption to medical and treatment activities.

For effective treatment aspects, every vegetation planted in the site area is considered to provide maximum therapeutic benefits. The selection of plant types, vegetation placement, and green space arrangement are designed to create an environment that supports healing and patient well-being.

3.9 BUILDING MASS CONFIGURATIN RELATED SECURITY AND EFFECTIVE TREATMENT

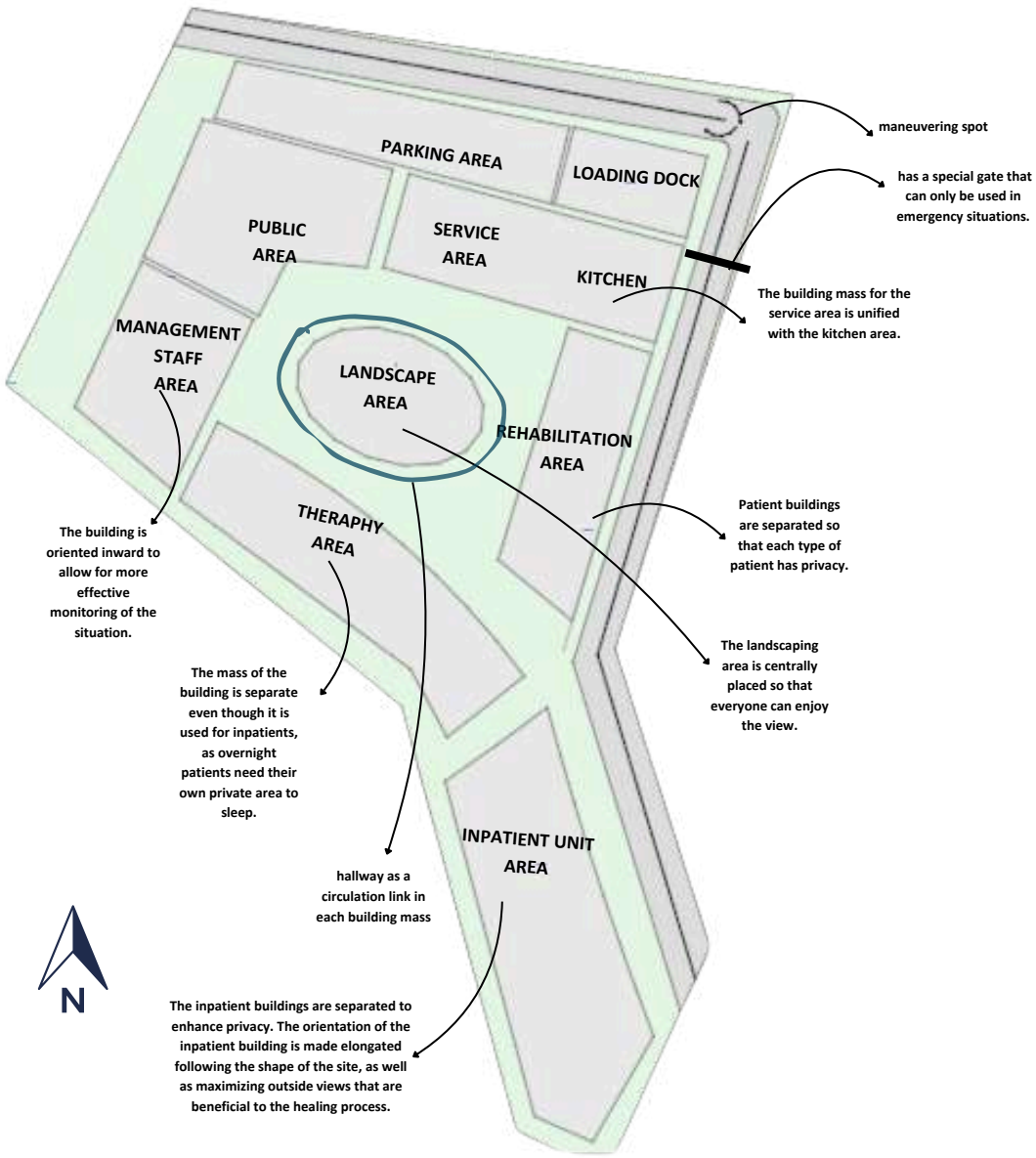


Figure 3.9.1 Building mass configuration related security and Effective Treatment (source: Author)

SECURITY

What: The mass configuration of the building is useful to aid security.

How:

The building mass configuration is made to circle the site, with access in and out only through the lobby area. This ensures that patients cannot escape and movements can be closely monitored.

Each building mass is differentiated based on users, namely inpatient, outpatient and rehabilitation. This division is done so that patients with different levels of depression do not feel disturbed by each other and feel safe.

Why:

- With one main access point in the lobby, staff can more easily monitor activity within the facility, improving patient safety and comfort.
- Segregating the building by patient type reduces the risk of interference between groups, so that each patient gets the care they need without being disturbed by other patients who may have different conditions.

EFFECTIVE TREATMENT

What: The mass configuration of the building is designed to support effective treatment.

How:The separation of the building masses considers the psychology of the patients. The design gives a village-like feel that makes patients feel more welcoming and familiar with the environment, reducing feelings of alienation or isolation.

Why:

The village-like design creates a cozy atmosphere and supports patient recovery, enhances a sense of familiarity and security, and promotes positive social interaction among patients.

3.10 BUILDING MASS CONFIGURATION TO RESPON SUN AND WIND

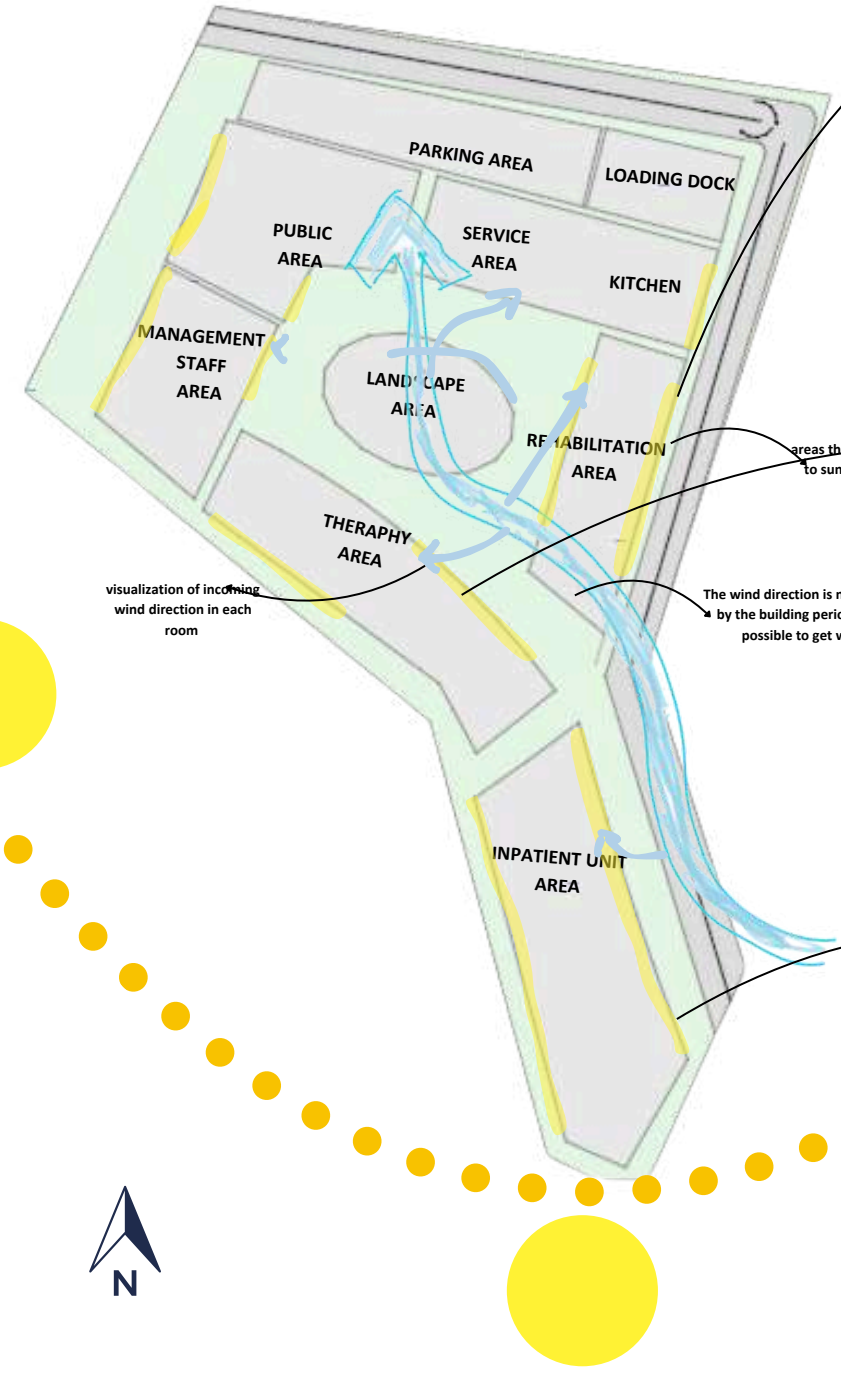
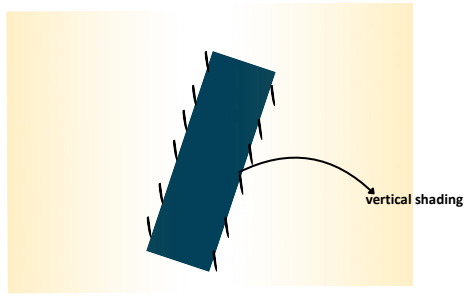


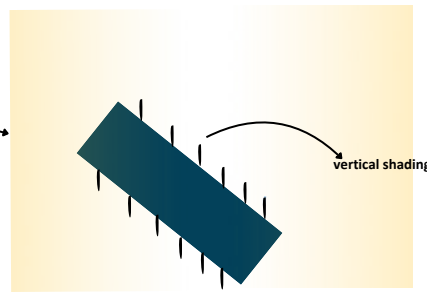
Figure 3.10.1 Building mass configuration to respon sun & wind (source: Author)

REHABILITATION AREA



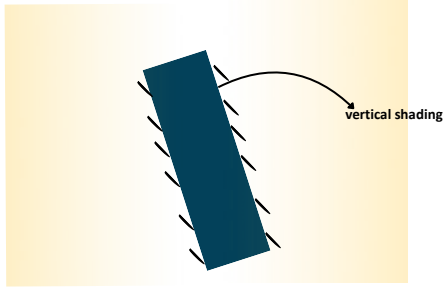
Areas of the rehabilitation building that are most vulnerable to sun exposure need to be shaded. This shading is angled according to the direction of sunlight, and adjusted based on the angle of the sun to provide optimal protection. The shading is designed vertically to maximize effectiveness in reducing heat and glare.

THERAPHY AREA



In the therapy building, the same principle is applied by adjusting the oblique direction of the vertical shading. This shading is designed to follow the angle of incidence of sunlight, ensuring that the therapy area remains protected from direct exposure to sunlight, thus creating a comfortable environment conducive to the healing process.

INPATIENT UNIT AREA



This principle also applies to the inpatient building. Vertical shading is designed at an oblique angle to the direction of incoming sunlight, ensuring that the inpatient area is protected from direct exposure to sunlight. This creates a comfortable and conducive environment for patients to rest and recover.

3.11 ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

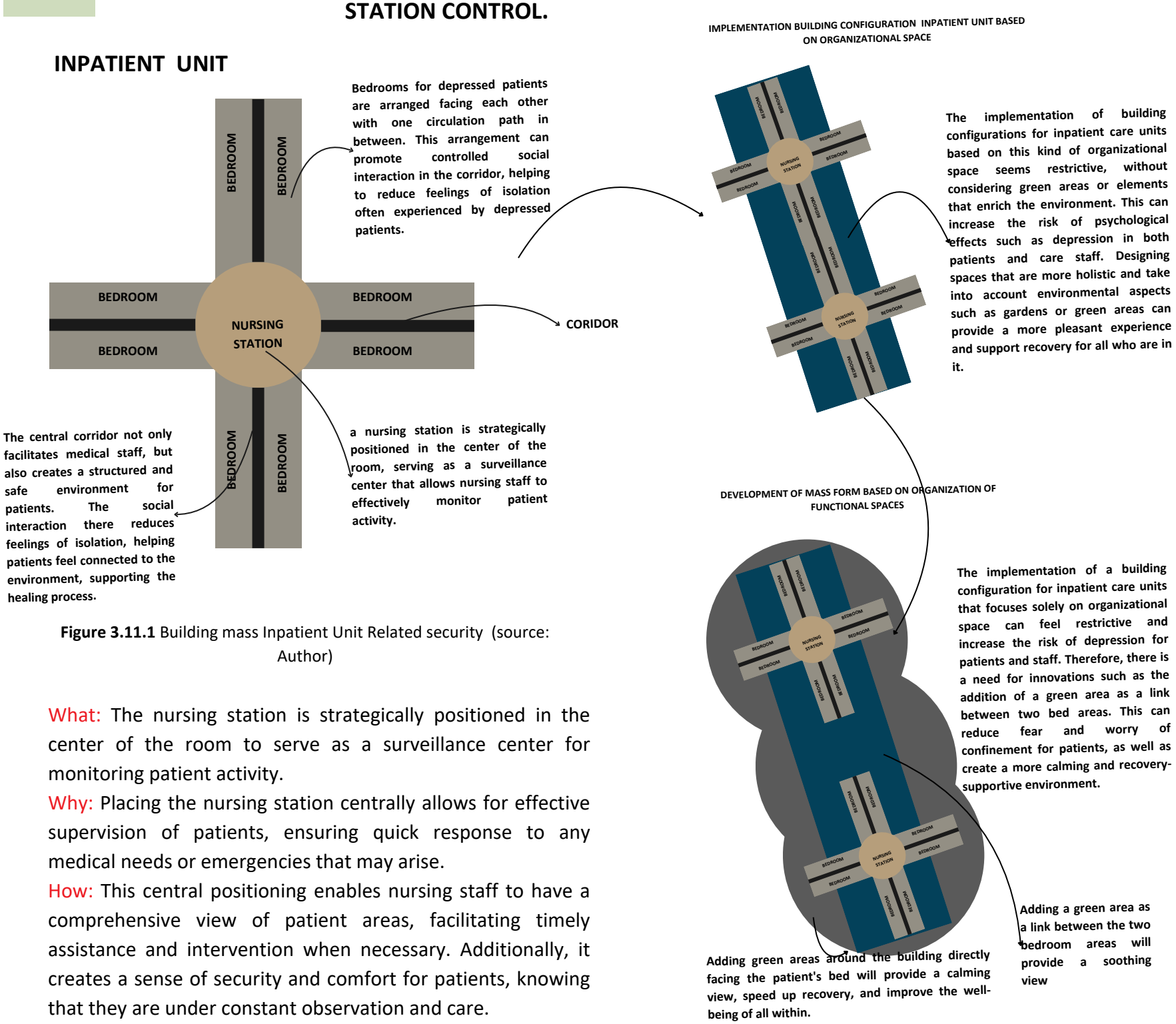


Figure 3.11.1 Building mass Inpatient Unit Related security (source: Author)

What: The nursing station is strategically positioned in the center of the room to serve as a surveillance center for monitoring patient activity.

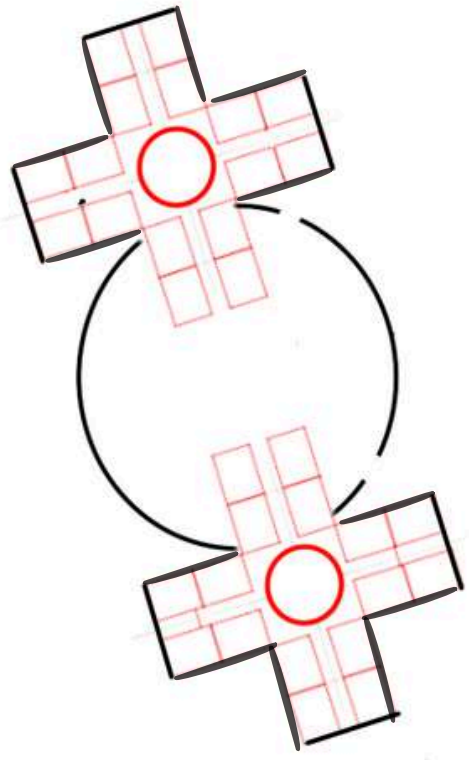
Why: Placing the nursing station centrally allows for effective supervision of patients, ensuring quick response to any medical needs or emergencies that may arise.

How: This central positioning enables nursing staff to have a comprehensive view of patient areas, facilitating timely assistance and intervention when necessary. Additionally, it creates a sense of security and comfort for patients, knowing that they are under constant observation and care.

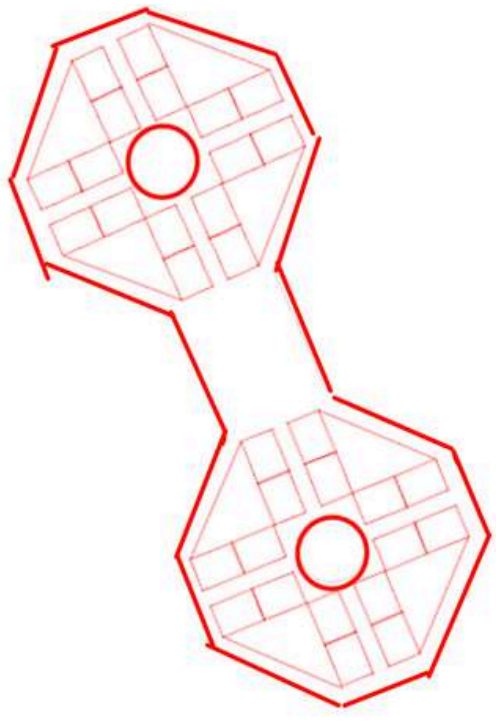
Figure 3.11.2 Building mass Inpatient Unit Related security & psychology (source: Author)

Alternative 1

This alternative mass can optimize the usable area of the room. Security can be controlled from the nurse station. I choose this alternative.

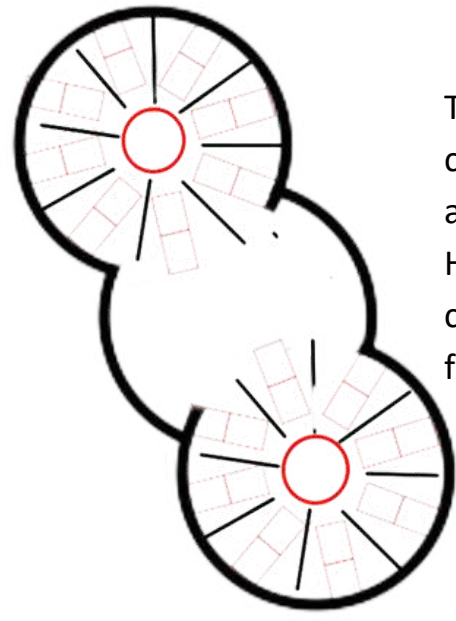


Alternative 2



This alternative mass can optimize the usable area of the room. However, it results in non-optimal air and light circulation and obstructs the visual view. Security can still be controlled from the nurse station.

Alternative 3



This alternative mass can optimize the usable area of the room. However, security cannot be controlled from the nurse station.

Figure 3.11.3 Building mass Alternative Inpatient Unit Related security & physosolghy (source: Author)

CHOOSE ALTERNATIVE 1

What: This design alternative is intended to maximize the use of available space with attention to functionality and safety.

How: With the arrangement in alternative 1, the space can be optimized for multiple purposes without compromising security. The integrated security system ensures efficient control of the nurses' station, maintaining security without compromising the comfort of space users.

Why: This alternative was chosen because it is able to provide a safe and functional environment for the residents or users of the facility. With safety and functionality in mind, the space provides the protection and comfort needed by the occupants.

3.12 FINISHING ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

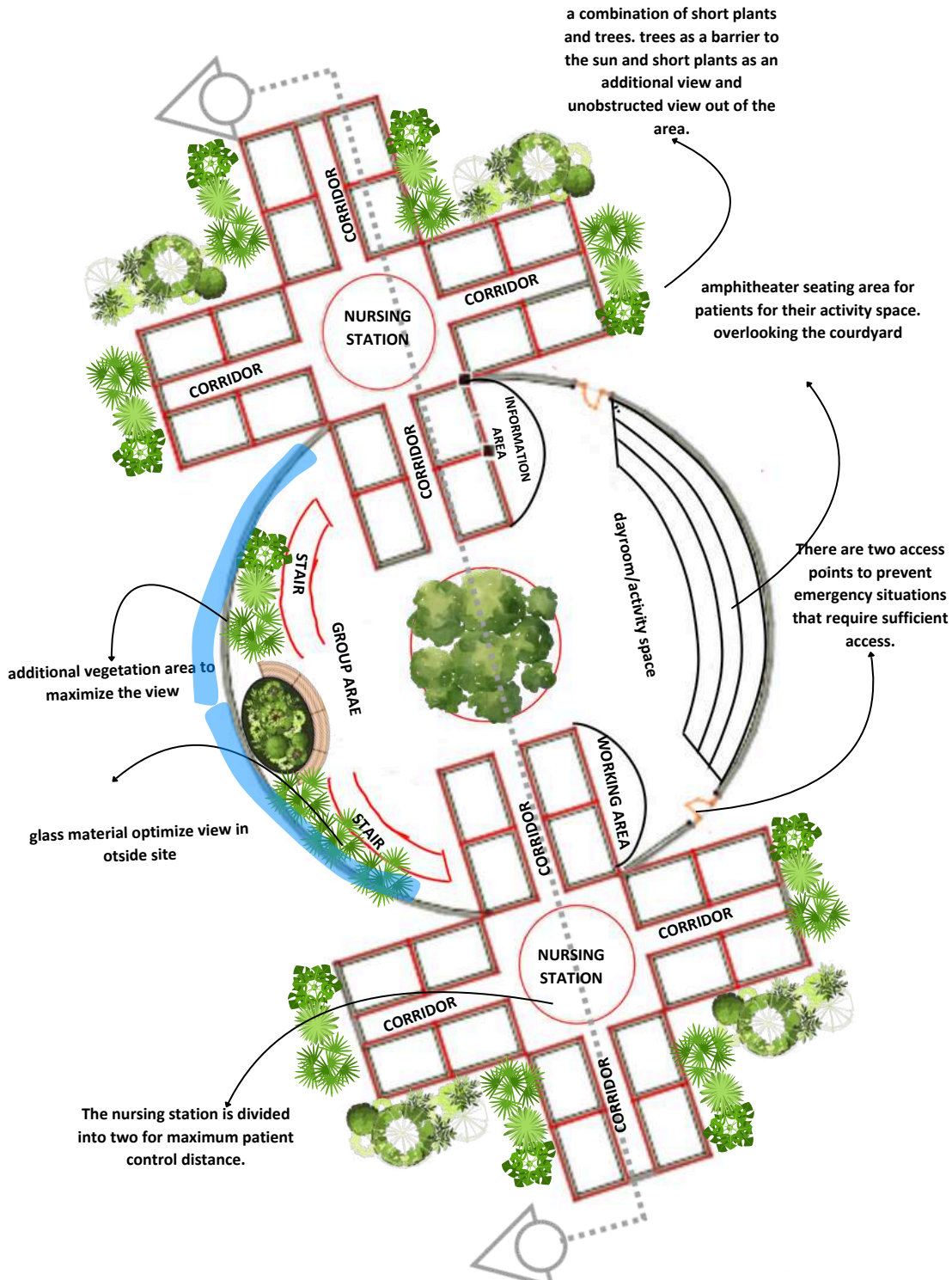


Figure 3.12.1 Building mass finishing Inpatient Unit Related security & psychology (source: Author)

What: Implement a green area as a link between two bed areas in the inpatient care unit.

How:

1. Design the building layout to include green spaces directly facing patient beds.
2. Ensure the central corridor facilitates medical staff movement while integrating green areas to enhance patient views.
3. Create green areas as connecting spaces between two bed areas, providing soothing natural views.
4. Incorporate plants, gardens, or indoor landscaping elements within these green areas.

Why:

1. Enhance Patient Well-being: Green areas provide calming views that help reduce feelings of confinement, fear, and worry, thus supporting the healing process.
2. Reduce Isolation: The central corridor not only facilitates medical staff but also promotes social interaction among patients, reducing feelings of isolation.
3. Support Recovery: Exposure to natural elements and green spaces can speed up recovery and improve the overall well-being of patients and staff.
4. Create a Calming Environment: Integrating green spaces helps create a structured, safe, and soothing environment conducive to patient recovery and staff productivity.

3.12 FINISHING ORGANIZATION OF FUNCTIONAL SPACES WITH CENTRAL NURSE STATION: ENHANCING PATIENT SUPERVISION THROUGH NURSE STATION CONTROL.

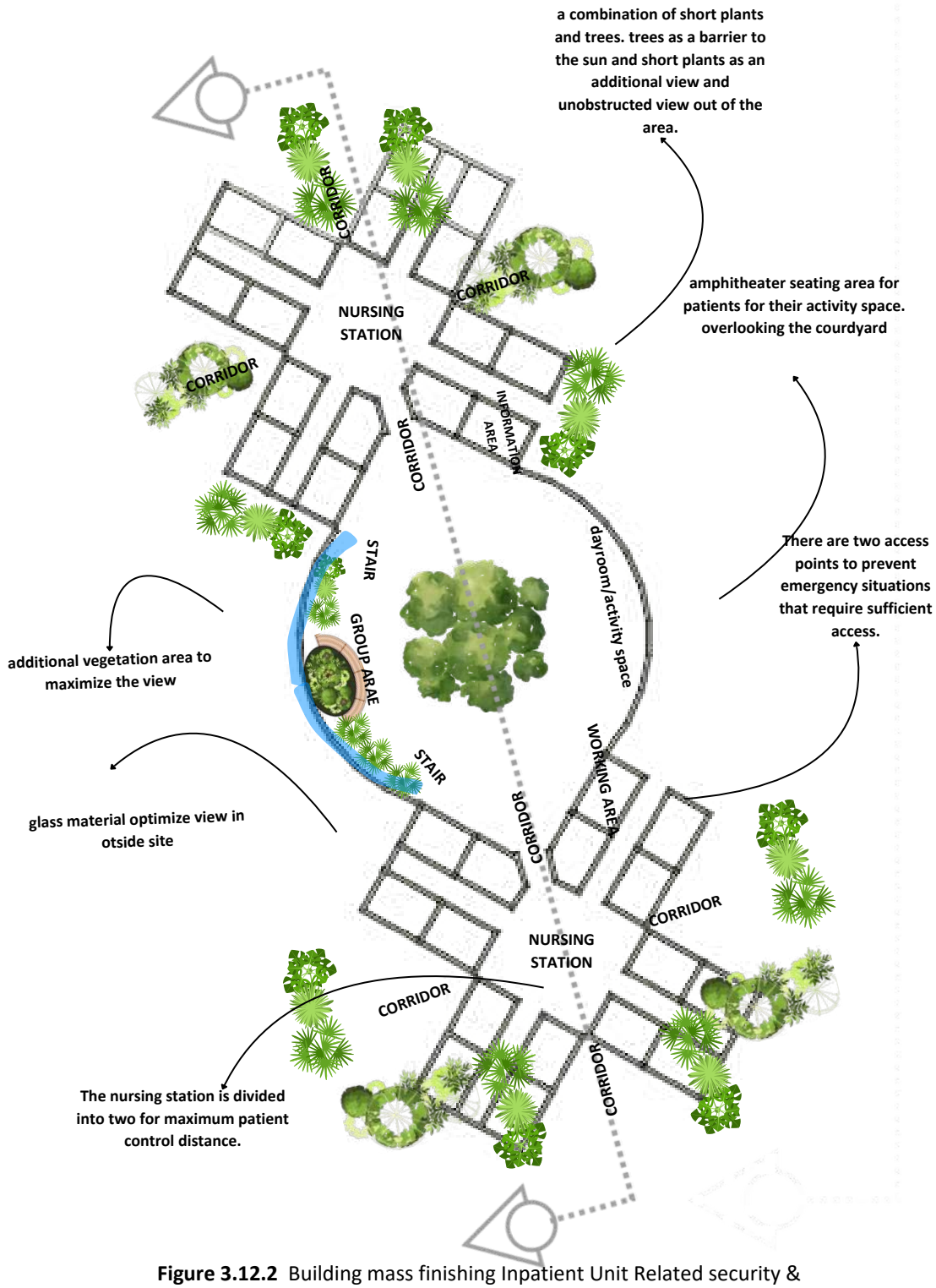


Figure 3.12.2 Building mass finishing Inpatient Unit Related security & psychology (source: Author)

What: Implement a green area as a link between two bed areas in the inpatient care unit.

How:

1. Design the building layout to include green spaces directly facing patient beds.
2. Ensure the central corridor facilitates medical staff movement while integrating green areas to enhance patient views.
3. Create green areas as connecting spaces between two bed areas, providing soothing natural views.
4. Incorporate plants, gardens, or indoor landscaping elements within these green areas.

Why:

1. Enhance Patient Well-being: Green areas provide calming views that help reduce feelings of confinement, fear, and worry, thus supporting the healing process.
2. Reduce Isolation: The central corridor not only facilitates medical staff but also promotes social interaction among patients, reducing feelings of isolation.
3. Support Recovery: Exposure to natural elements and green spaces can speed up recovery and improve the overall well-being of patients and staff.
4. Create a Calming Environment: Integrating green spaces helps create a structured, safe, and soothing environment conducive to patient recovery and staff productivity.

3.13 BUILDING MASS INPATIENT UNIT RESPONSS TO SUN AND WIND DIRECTION

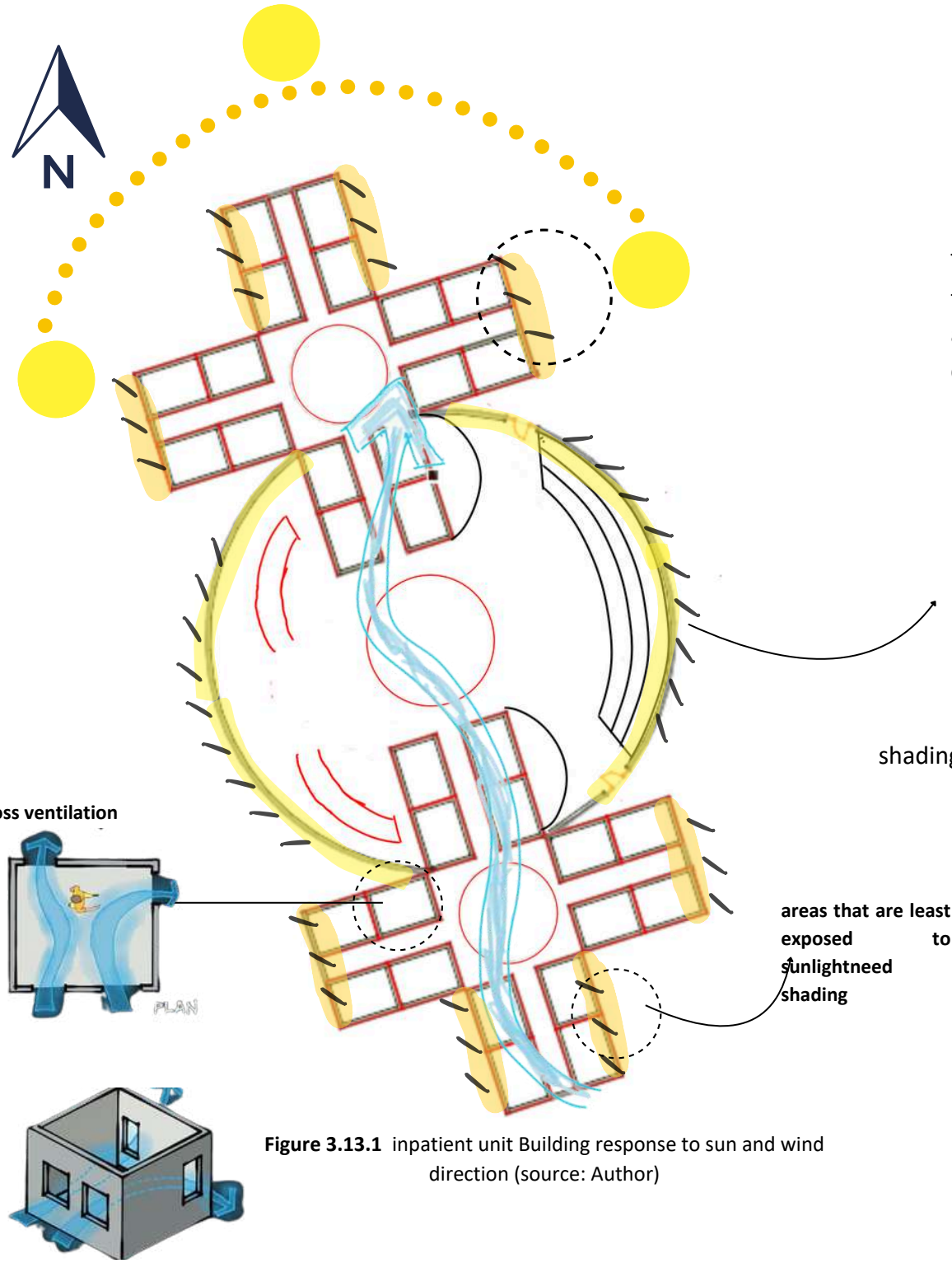
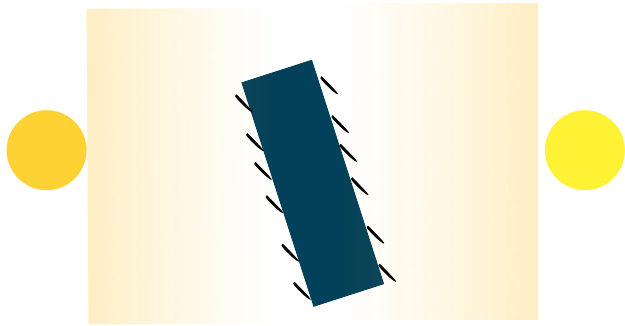
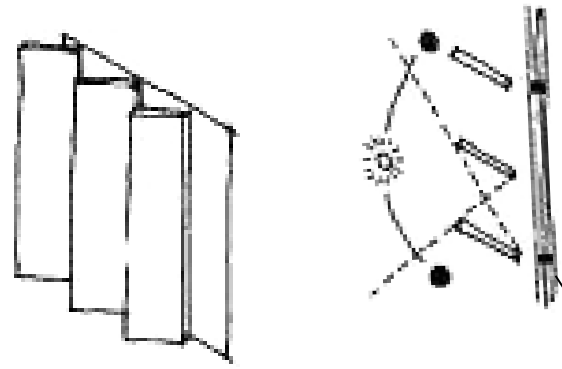


Figure 3.13.1 inpatient unit Building response to sun and wind direction (source: Author)



The vertical shutters are designed at an oblique angle to face the direction of incoming sunlight, so that the hospitalization area is protected from direct exposure to sunlight. This creates a comfortable and conducive environment for patients to rest and recuperate.



shading

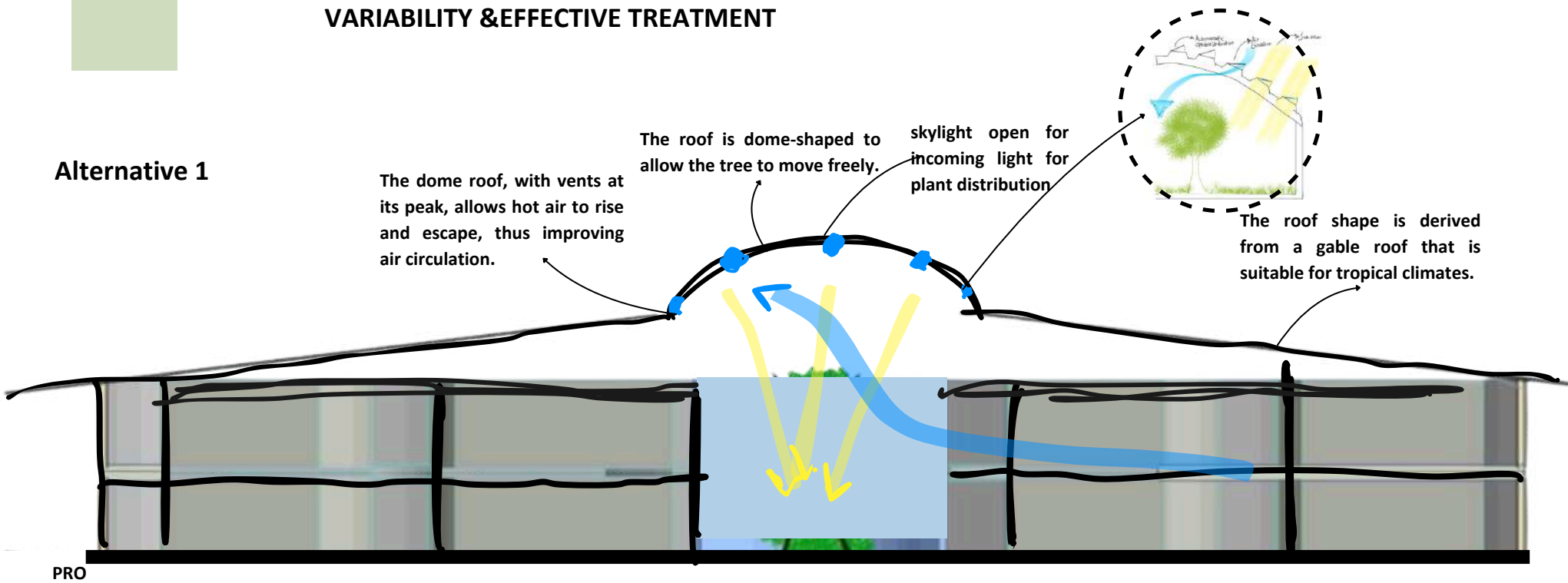
3d visualization of how to keep the sun out



Figure 3.13.2 shading to increasing sun heat (source: Author)

3.14 ROOF FOR INPATIENT UNIT TO ACHIEVE THERMAL AIRFLOW VARIABILITY &EFFECTIVE TREATMENT

Alternative 1



PRO

- Small skylights do not let in too much sunlight, so the room temperature remains safe.
- The use of a dome-shaped roof with ventilation can improve air circulation and keep the air comfortable.
- The use of a pyramid roof can adjust the temperature in the tropics.

CONS

-pendistribusian cahaya matahari kurang merata untuk area taman naya
.Kurang adanya innovasi atap yang bisa ngefekk ke asoek sikology
- kurang terintegrasi dengan alam

Alternative 2

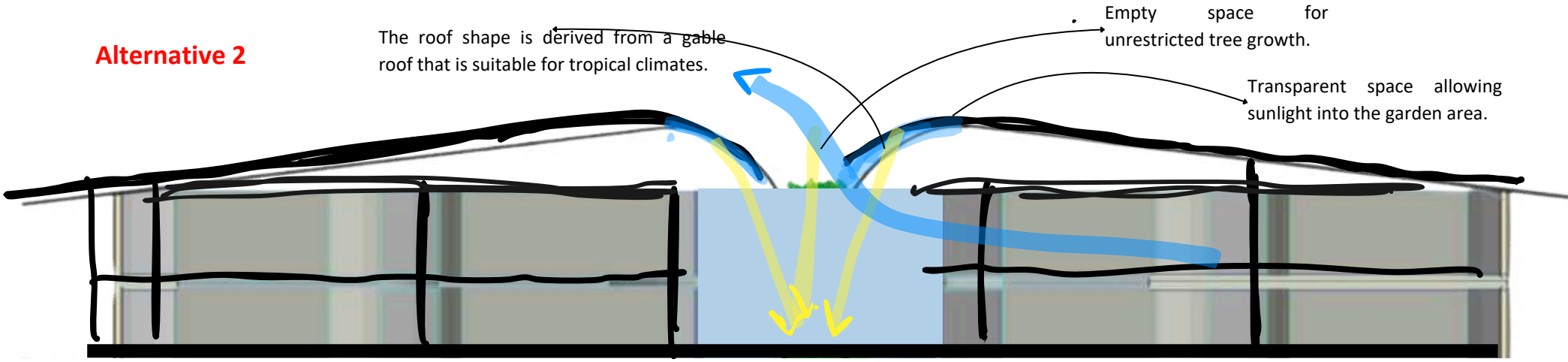


Figure 3.14.1 Alternative Roof for inpatient unit to achieve Thermal Airflow Variability &Effective Treatment (source: Author)

PRO

- Large, open skylights allow plants to move freely and grow. Plants moving in the wind create a calming atmosphere and are more integrated with nature.
- Large, open skylights distribute light evenly over the plants.
- The wind can move freely so that we feel comfortable and more integrated with the outdoors.
- When it rains, the skylight can also water the plants, and we can hear the raindrops, which is very good for psychology.

CONS

- Large skylights allow a lot of sun exposure, which can increase the risk of overheating indoors.

3.15 ROOF FOR INPATIENT UNIT TO ACHIEVE THERMAL & AIRFLOW VARIABILITY

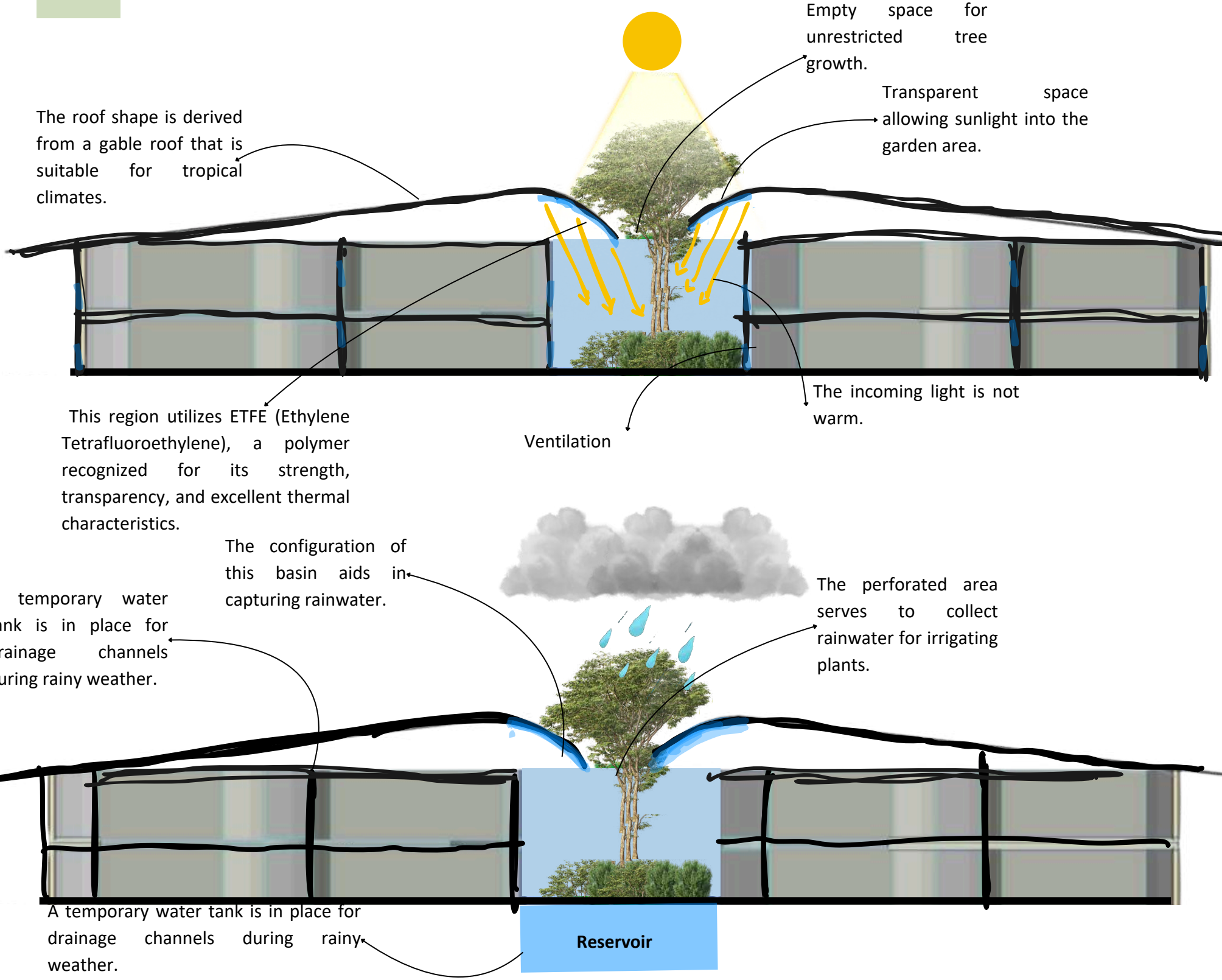


Figure 3.15.1 Roof for inpatient unit to achieve Thermal & Airflow Variability (source: Author)

3.16 ROOF FOR INPATIENT UNIT TO ACHIEVE HEALING PROCESS, THERMAL AND AIRFLOW VARIABILITY.

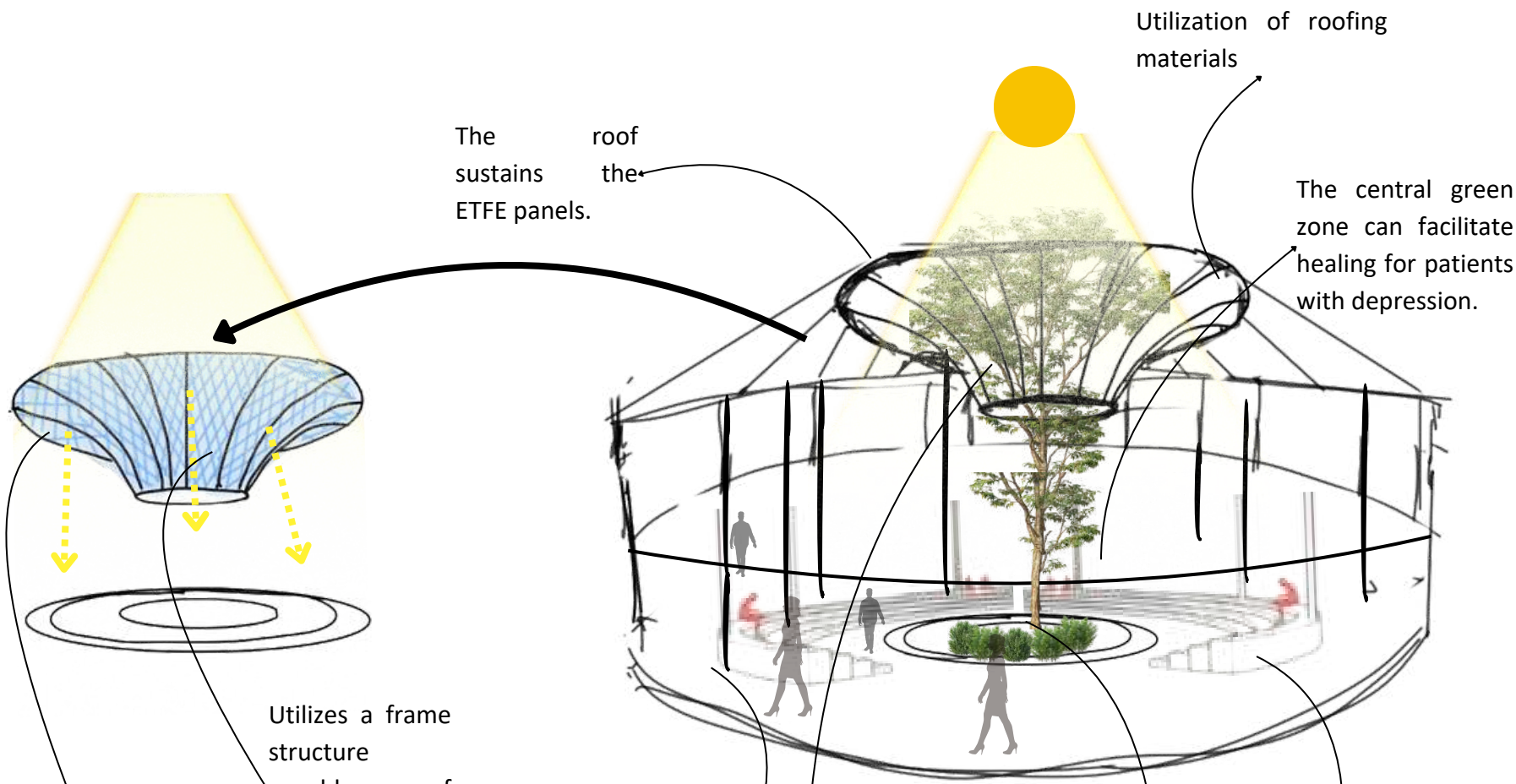


Figure 3.16.1 Roof for inpatient unit to achieve Thermal & Airflow Variability (source: Author)

3.17 ROOF FOR INPATIENT UNIT TO ACHIEVE EFFECTIVE TREETMENT

The smooth and rhythmic sound of falling water droplets can help relieve stress and create a calm and peaceful atmosphere.

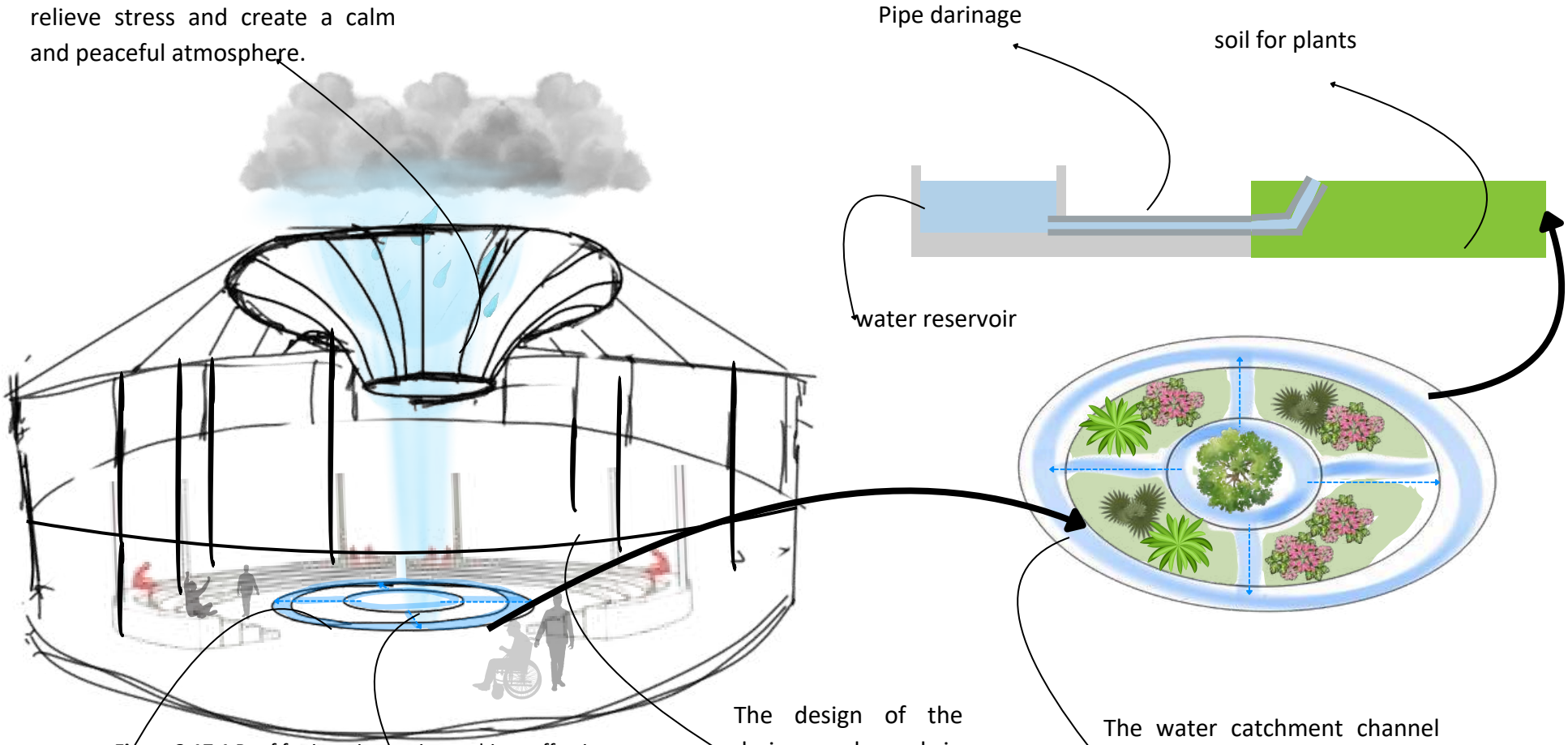


Figure 3.17.1 Roof for inpatient unit to achieve effective treetment (source: Author)

There are water reservoirs nearby, so even if it doesn't rain, water is available. When it rains, the staff will regulate the flow of water to drain into the water reservoir.

The center area will fill with water when it rains.

The design of the drainage channel in the center of the building aims to manage rainwater as it falls.

The water catchment channel that circles the vegetation area serves to collect rainwater that falls around the plants.

3.18 ROOF STRUCTURE INPATIENT UNIT

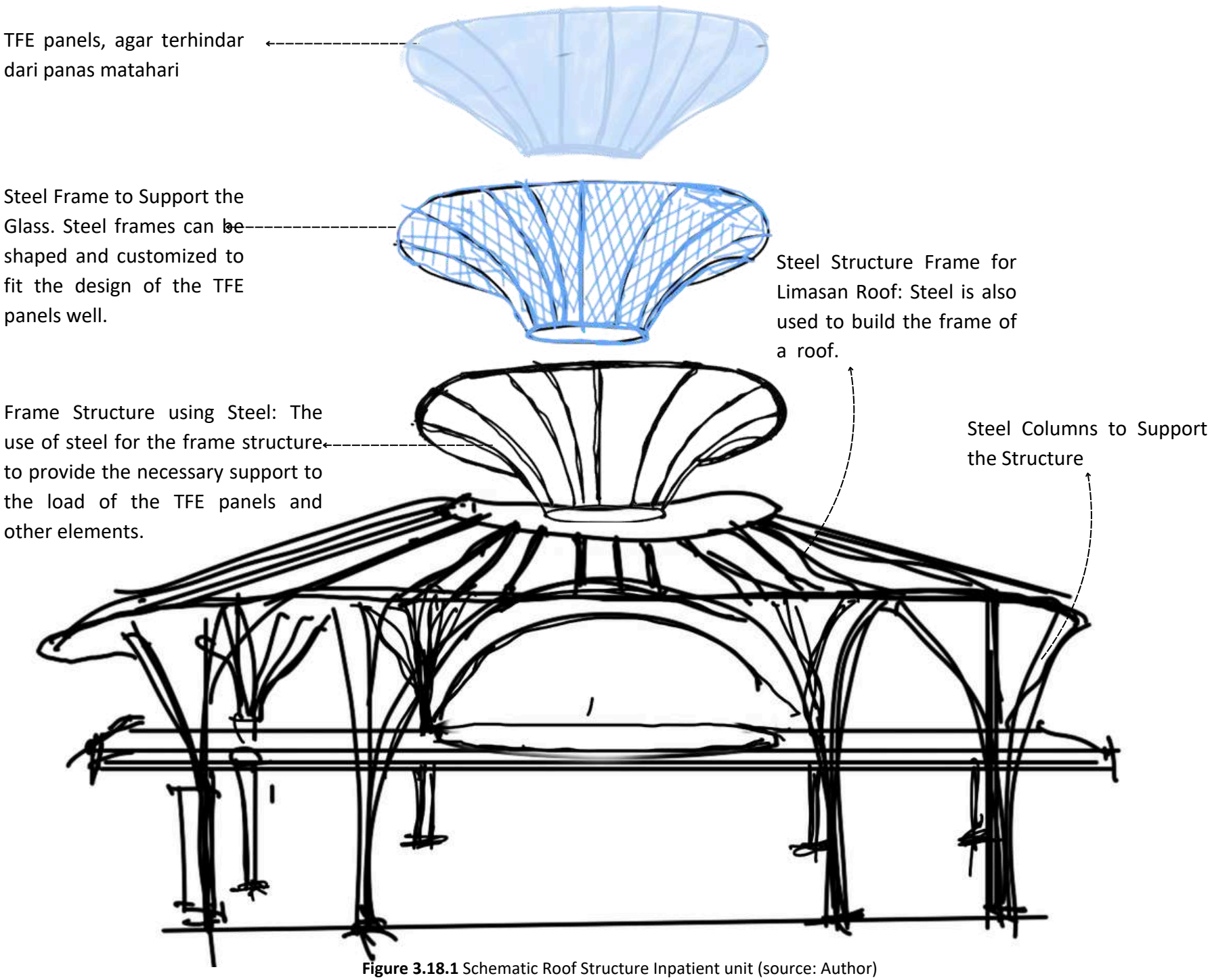


Figure 3.18.1 Schematic Roof Structure Inpatient unit (source: Author)

3.19 PATIENT BEDS TO ACHIEVE EFFECTIVE CARE THROUGH THE USE OF MATERIALS AND COLORS

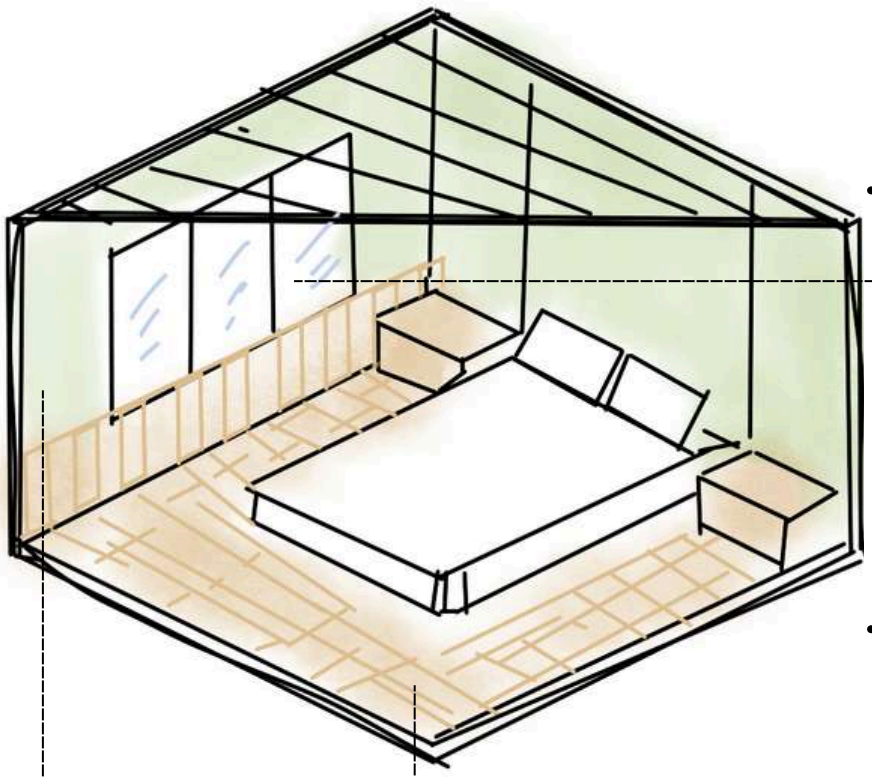


Figure 3.19.1 Schematic Patient beds to achieve effective care through the use of materials and colors(source: Author)

3.20 BUILDING MASSING THERAPHY MASS TO ACHIEVE EFFECTIVE TREETMENT

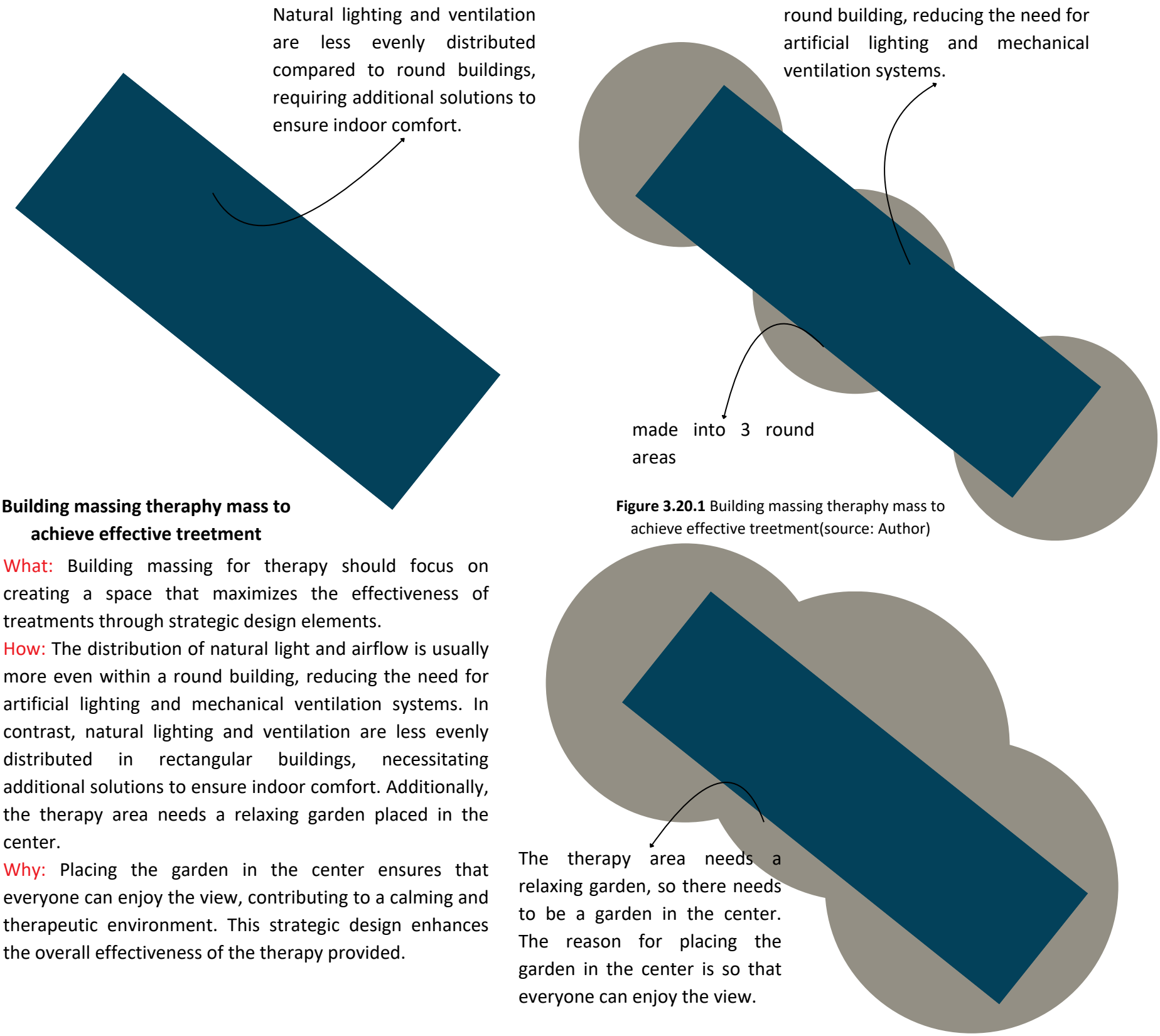


Figure 3.20.1 Building massing theraphy mass to achieve effective treetment(source: Author)

Building massing theraphy mass to achieve effective treetment

What: Building massing for therapy should focus on creating a space that maximizes the effectiveness of treatments through strategic design elements.

How: The distribution of natural light and airflow is usually more even within a round building, reducing the need for artificial lighting and mechanical ventilation systems. In contrast, natural lighting and ventilation are less evenly distributed in rectangular buildings, necessitating additional solutions to ensure indoor comfort. Additionally, the therapy area needs a relaxing garden placed in the center.

Why: Placing the garden in the center ensures that everyone can enjoy the view, contributing to a calming and therapeutic environment. This strategic design enhances the overall effectiveness of the therapy provided.

3.21 ORGANIZATION OF FUNCTIONAL SPACES THERAPY UNIT : MAXIMIZING INDOOR AND OUTDOOR CONNECTIVITY WITH VISUAL AND ACOUSTIC INTEGRATION

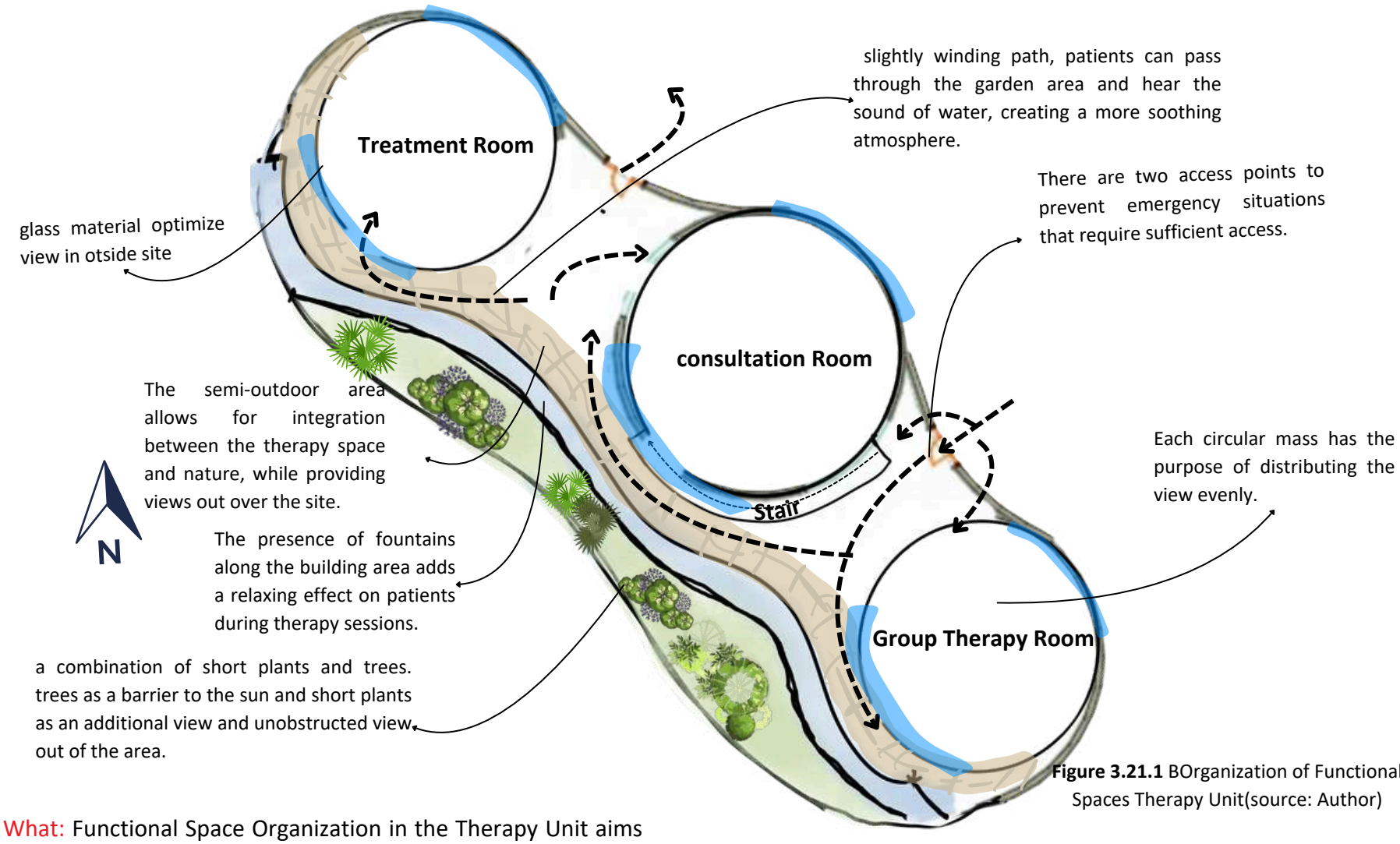


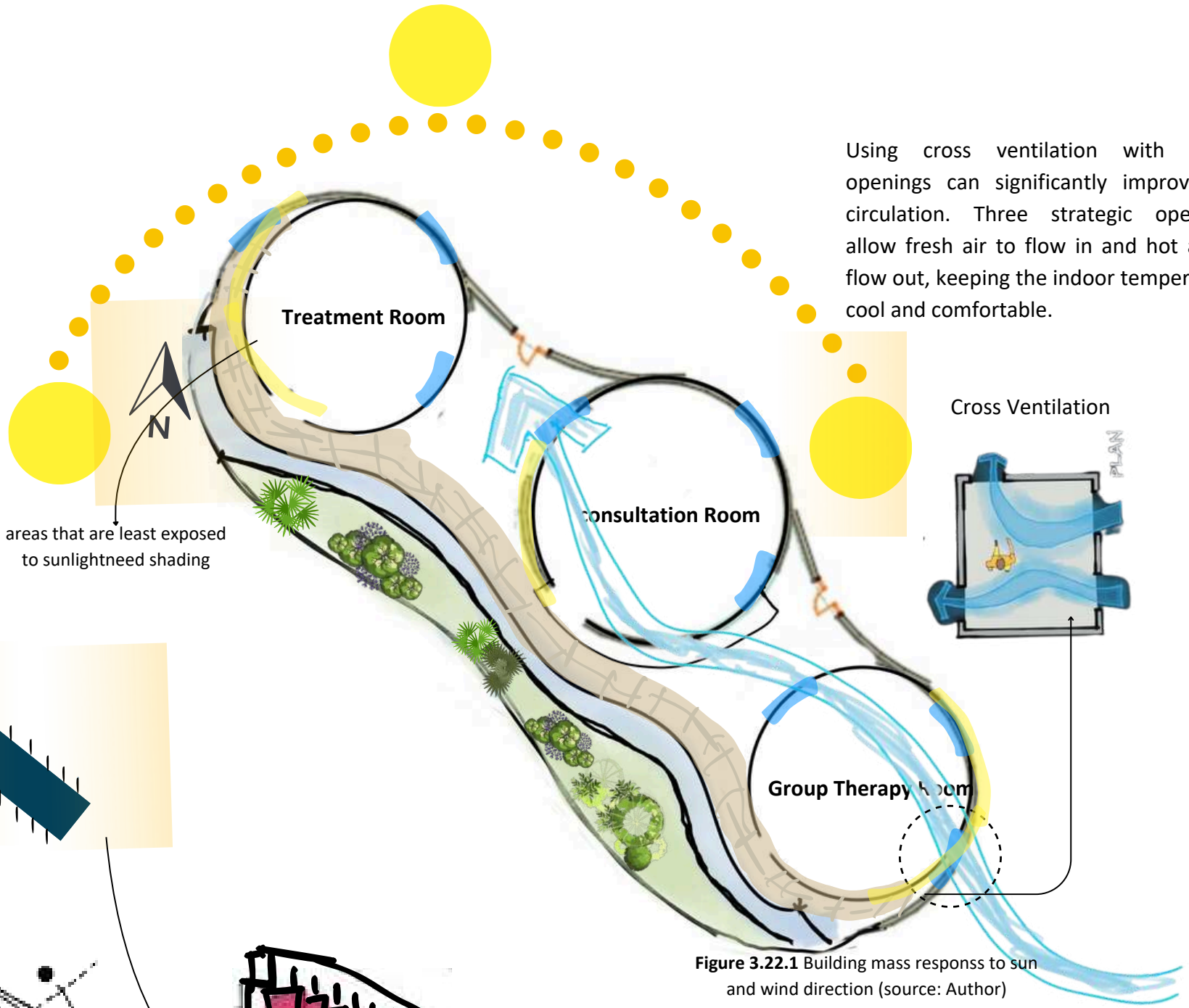
Figure 3.21.1 BOrganization of Functional Spaces Therapy Unit(source: Author)

What: Functional Space Organization in the Therapy Unit aims to maximize indoor and outdoor connectivity with visual and acoustic integration.

How: With a slightly winding path, patients can pass through the garden area and hear the sound of water, creating a more soothing atmosphere. The presence of fountains along the building area adds a relaxing effect on patients during therapy sessions. The semi-outdoor area allows for integration between the therapy space and nature, while providing views out over the site. Each circular mass has the purpose of distributing the view evenly.

Why: This spatial arrangement aims to create a calming environment that supports patient recovery. By considering the connection between indoor and outdoor spaces, and integrating natural elements such as gardens and water sounds, the therapeutic experience becomes more holistic and effective.

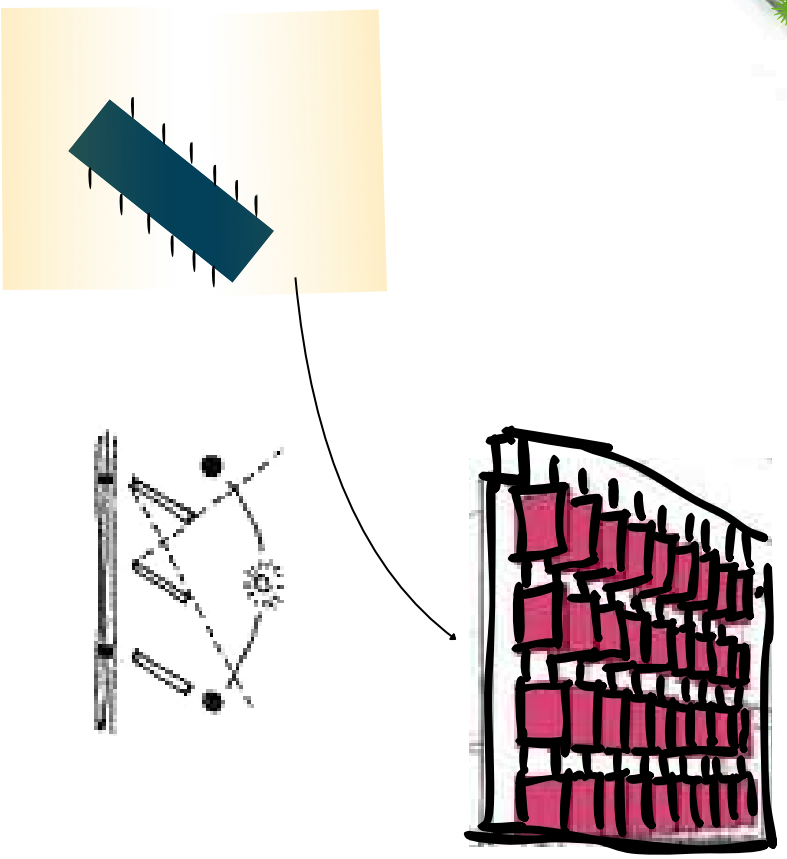
3.22 BUILDING MASS RESPONSS TO SUN AND WIND DIRECTION



Using cross ventilation with three openings can significantly improve air circulation. Three strategic openings allow fresh air to flow in and hot air to flow out, keeping the indoor temperature cool and comfortable.

Figure 3.22.1 Building mass responss to sun and wind direction (source: Author)

Shading



In the therapy building, the same principle is applied by adjusting the oblique direction of the vertical shading. This shading is designed to follow the angle of incidence of sunlight, ensuring that the therapy area remains protected from direct exposure to sunlight, thus creating a comfortable environment conducive to the healing process.

3.23 ROOF FOR THERAPHY TO ACHIEVE THERMAL AIRFLOW

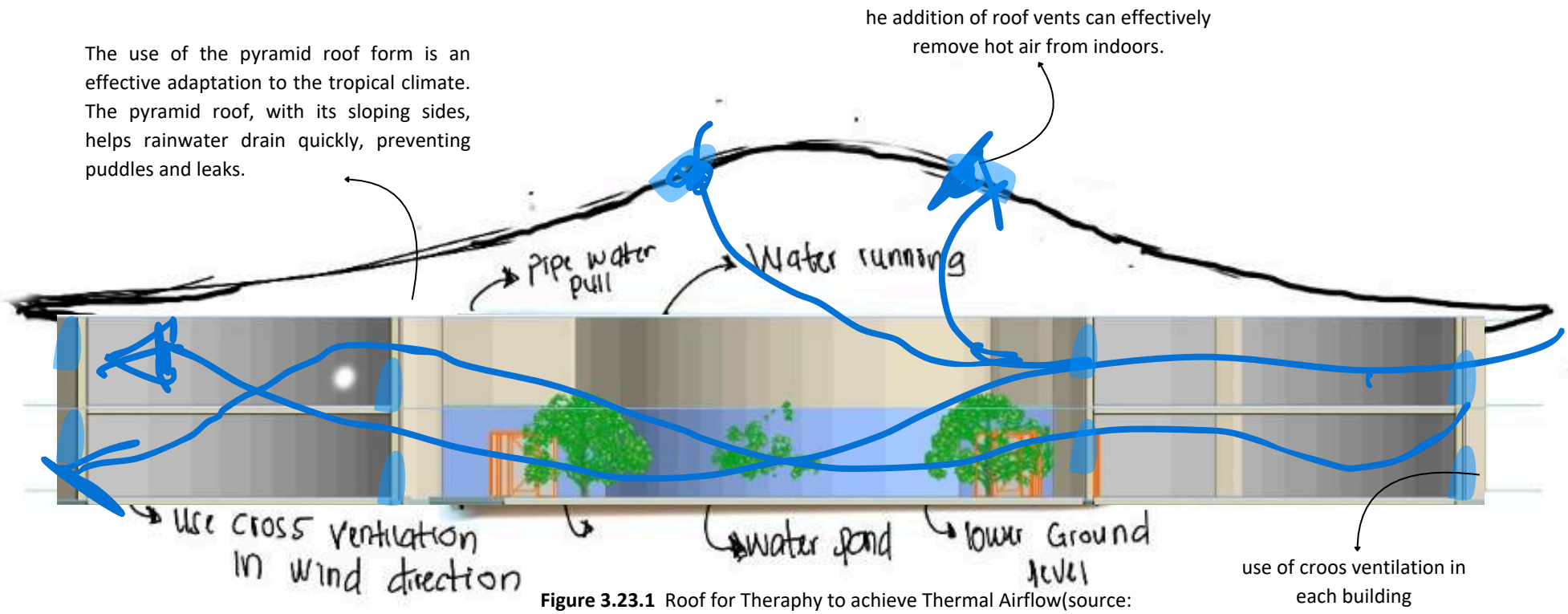


Figure 3.23.1 Roof for Theraphy to achieve Thermal Airflow(source: Author)

What: The roof is an important part of designing a therapy room as it can improve the air and thermal quality of the room.

How:

Roof Ventilation: Adding vents on the roof to let out hot air, keeping the room temperature cool.
Adopt Limasan Roof Form: Using this shape is effective for tropical climates, helping rainwater drain quickly, improving air circulation.

Why:

Thermal Efficiency: Ventilation and the pyramid roof work together to maintain a comfortable room temperature.
Tropical Climate Adaptation: Adopting the Limasan Roof Shape prevents waterlogging and leakage, this design ensures the therapy room stays cool and comfortable.

3.24 WATER FALL CONCEPT RELATED ACUSTIC FOR ACHIEVE EFFECTIVE TREETMENT

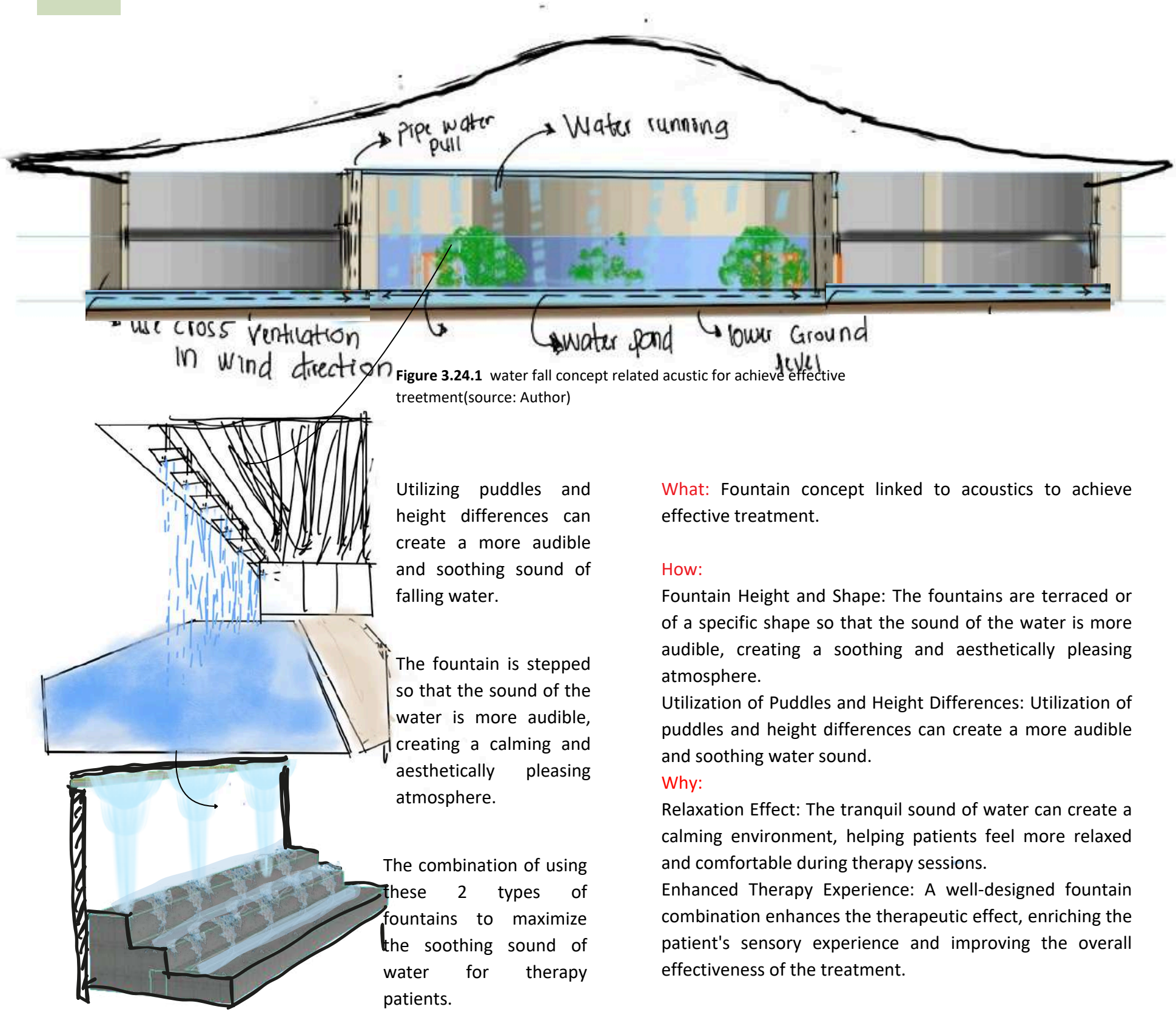


Figure 3.24.1 water fall concept related acustic for achieve effective treetment(source: Author)

Utilizing puddles and height differences can create a more audible and soothing sound of falling water.

The fountain is stepped so that the sound of the water is more audible, creating a calming and aesthetically pleasing atmosphere.

The combination of using these 2 types of fountains to maximize the soothing sound of water for therapy patients.

What: Fountain concept linked to acoustics to achieve effective treatment.

How:

Fountain Height and Shape: The fountains are terraced or of a specific shape so that the sound of the water is more audible, creating a soothing and aesthetically pleasing atmosphere.

Utilization of Puddles and Height Differences: Utilization of puddles and height differences can create a more audible and soothing water sound.

Why:

Relaxation Effect: The tranquil sound of water can create a calming environment, helping patients feel more relaxed and comfortable during therapy sessions.

Enhanced Therapy Experience: A well-designed fountain combination enhances the therapeutic effect, enriching the patient's sensory experience and improving the overall effectiveness of the treatment.

3.25 ROOF STRUCTURE THERAPHY UNIT RELATED TO MATERIAL FOR ACHIEVE EFFECTIVE TREETMENT

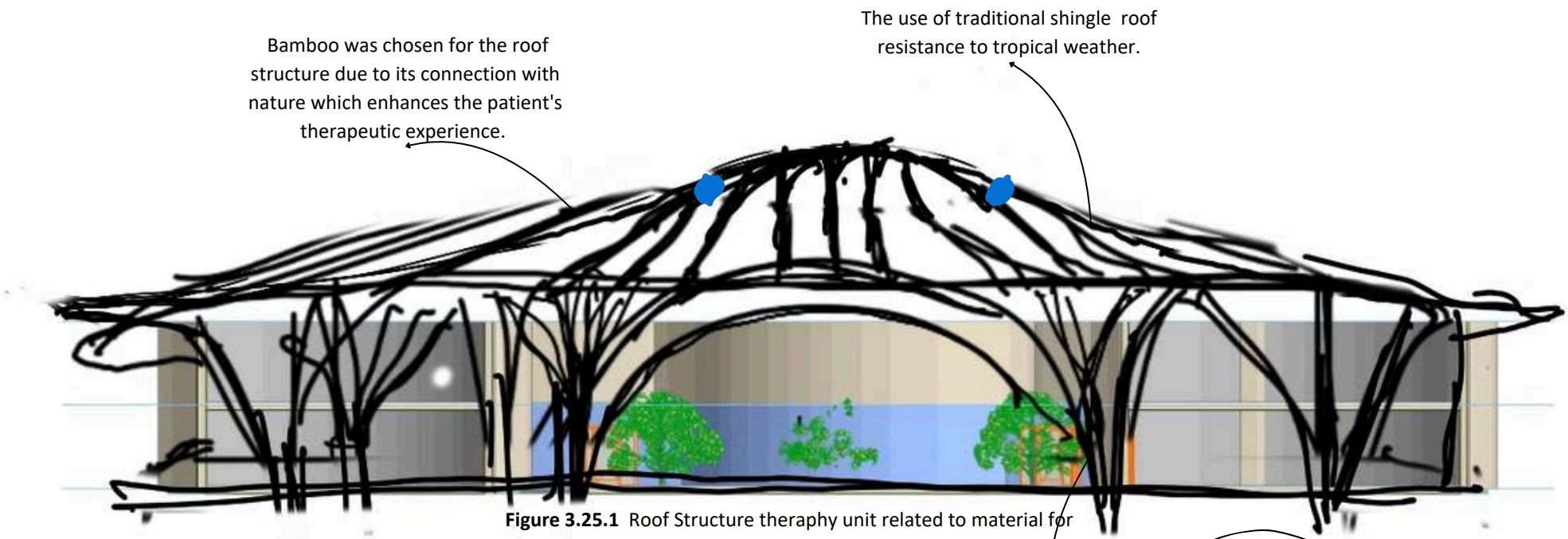


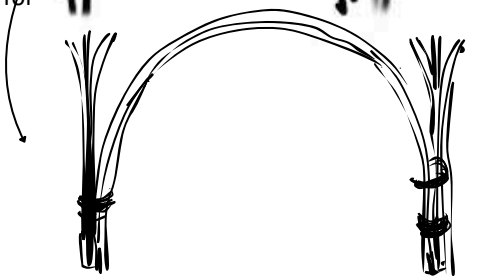
Figure 3.25.1 Roof Structure theraphy unit related to material for achieve effective treetment (source: Author)

What: The choice of roofing material for therapy units is directly related to the effectiveness of treatment.

How: Use of Bamboo: Bamboo was chosen for the roof structure due to its connection with nature which enhances the patient's therapeutic experience. Bamboo provides a natural feel and adds aesthetic value visually.

Shingle Roof: The use of traditional shingle roofing not only provides visual beauty, but also ensures resistance to tropical weather. The material is resistant to moisture and strengthens the structure of the building.

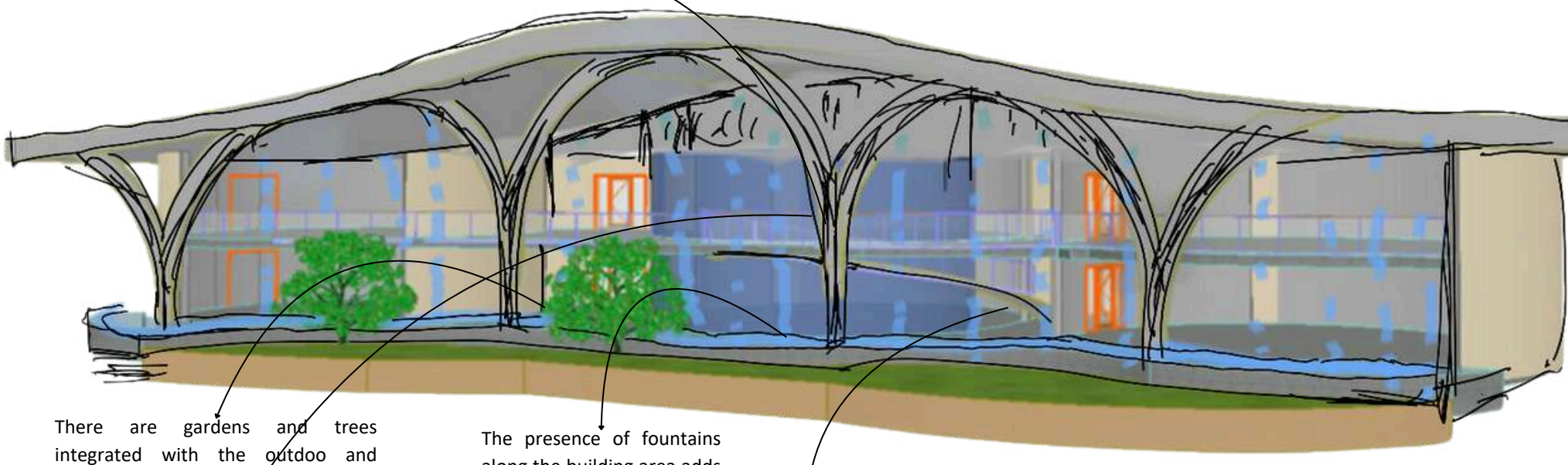
Why: Effectiveness of Treatment: Proper selection of roofing materials contributes to a favorable environment for therapy. Bamboo creates a soothing natural ambience, while shingle roofs provide protection against extreme weather, ensuring a smooth therapeutic process without external interference.



The structural support using bamboo is combined with a splicing technique where one bamboo culm is joined to another. This technique utilizes the natural strength of bamboo and strengthens the structure as a whole.

3.26 3D VISUALIZATIN THERAPHY UNIT RELATED EFFECTIVE TREETMENT

on the 2nd floor still allows listening to the sound of the water fountain.



There are gardens and trees integrated with the outdoo and soothe the patient's psychology

The semi-outdoor area allows for integration between the therapy space and nature, while providing views out over the site.

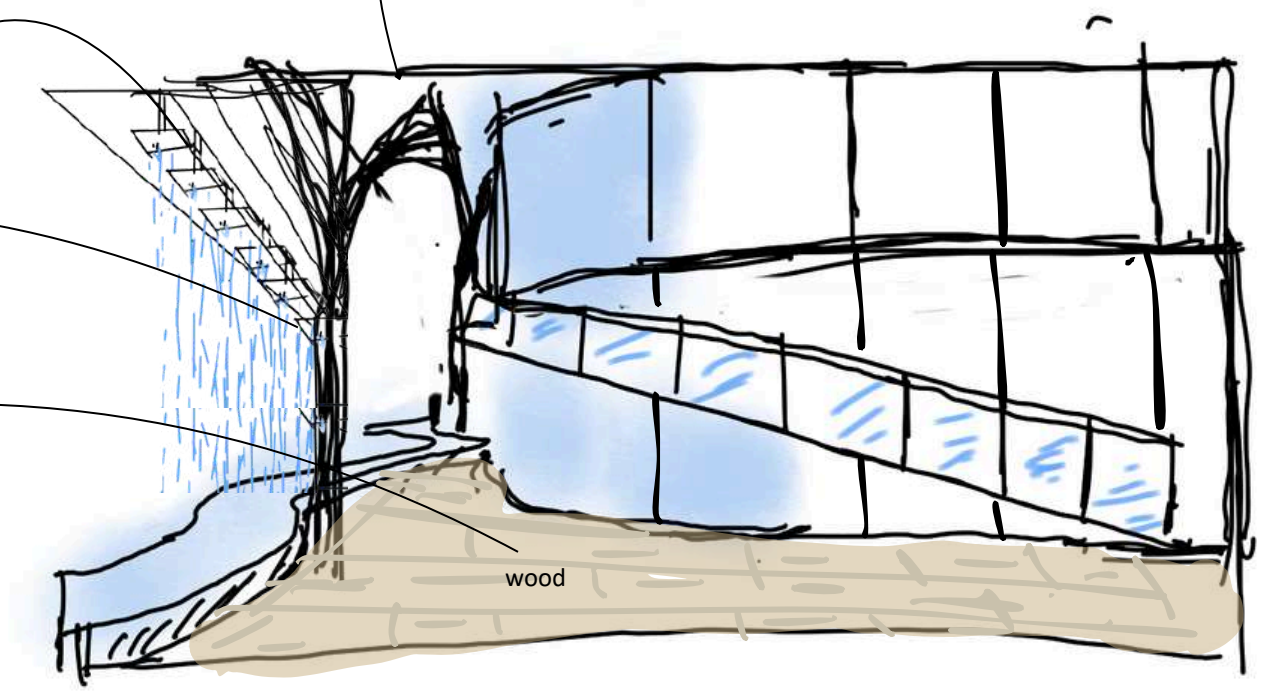
The presence of fountains along the building area adds a relaxing effect on patients during therapy sessions.

Figure 3.26.1 3D VISUALIZATIN THERAPHY UNIT Related effective treetment (source: Author)

fountain

Bamboo was chosen for structure due to its connection with nature which enhances the patient's therapeutic experience.

The use of flooring material also has an influence, the floor uses bamboo composite material, the warm color of the flooring material also influences psychological comfort.



3.27 BUILDING MASSING REHABILTATION MASS TO ACHIEVE EFFECTIVE TREETMENT

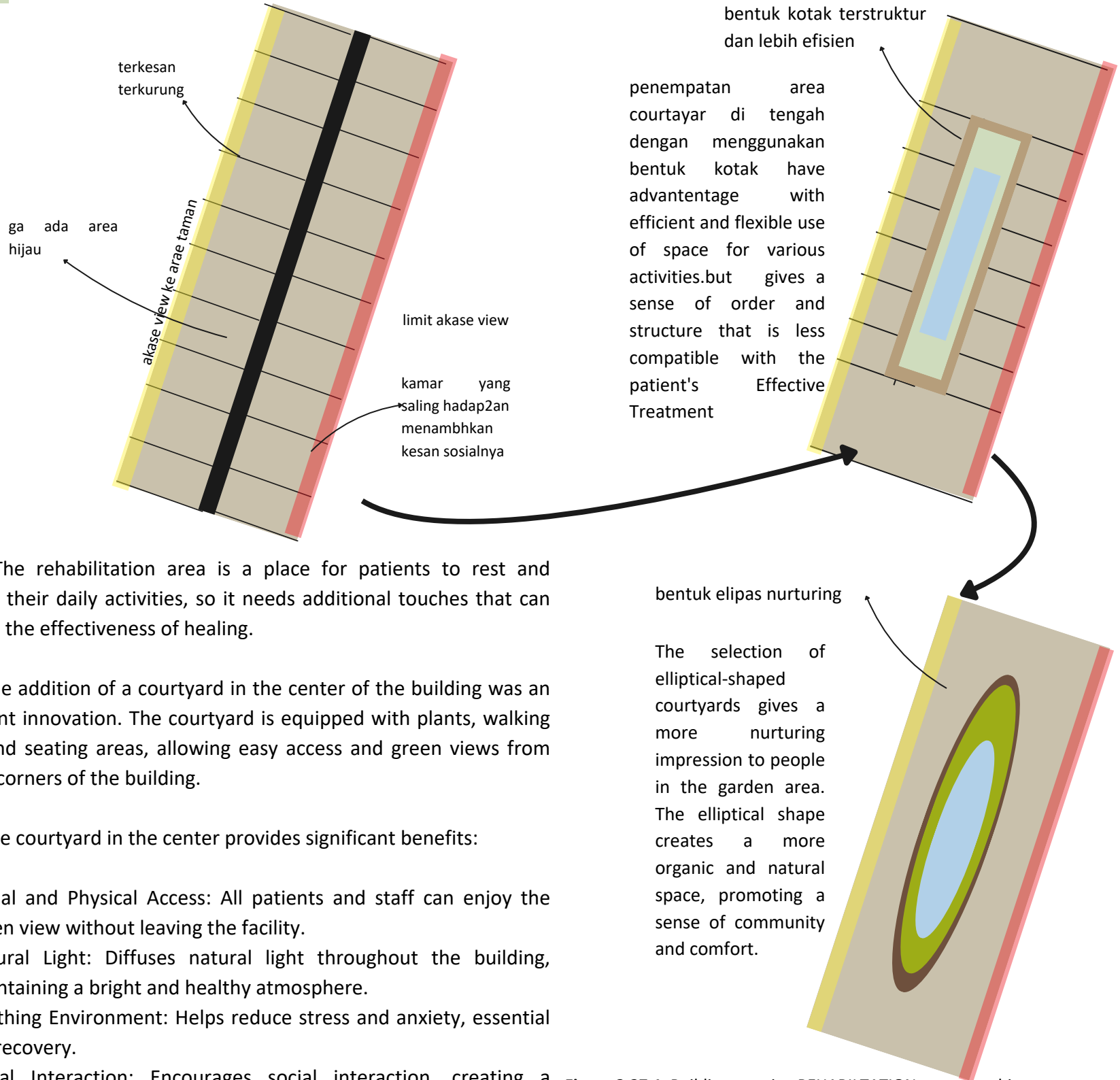


Figure 3.27.1 Building massing REHABILTATION mass to achieve effective treetment (source: Author)

What: The rehabilitation area is a place for patients to rest and perform their daily activities, so it needs additional touches that can increase the effectiveness of healing.

How: The addition of a courtyard in the center of the building was an important innovation. The courtyard is equipped with plants, walking paths and seating areas, allowing easy access and green views from various corners of the building.

Why: The courtyard in the center provides significant benefits:

- Visual and Physical Access: All patients and staff can enjoy the green view without leaving the facility.
- Natural Light: Diffuses natural light throughout the building, maintaining a bright and healthy atmosphere.
- Soothing Environment: Helps reduce stress and anxiety, essential for recovery.
- Social Interaction: Encourages social interaction, creating a supportive community and reducing feelings of isolation.

3.28 Organization of Functional Spaces Therapy Unit : Maximizing Indoor and Outdoor Connectivity with Visual

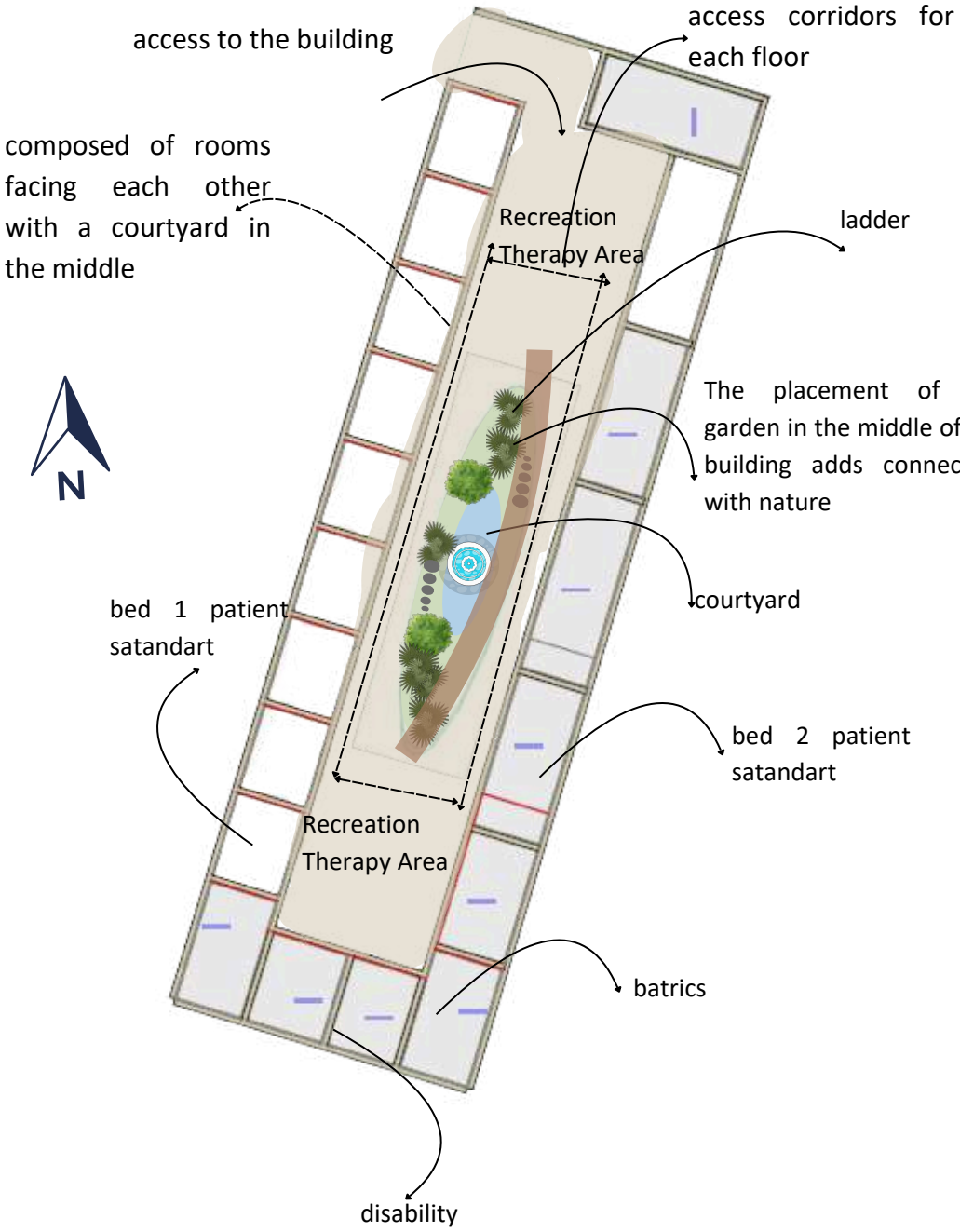


Figure 3.28.1 Organization of Functional Spaces Therapy Unit : Maximizing Indoor and Outdoor Connectivity with Visual (source: Author)

What: Implement a green area as a link between two bed areas in the inpatient care unit.

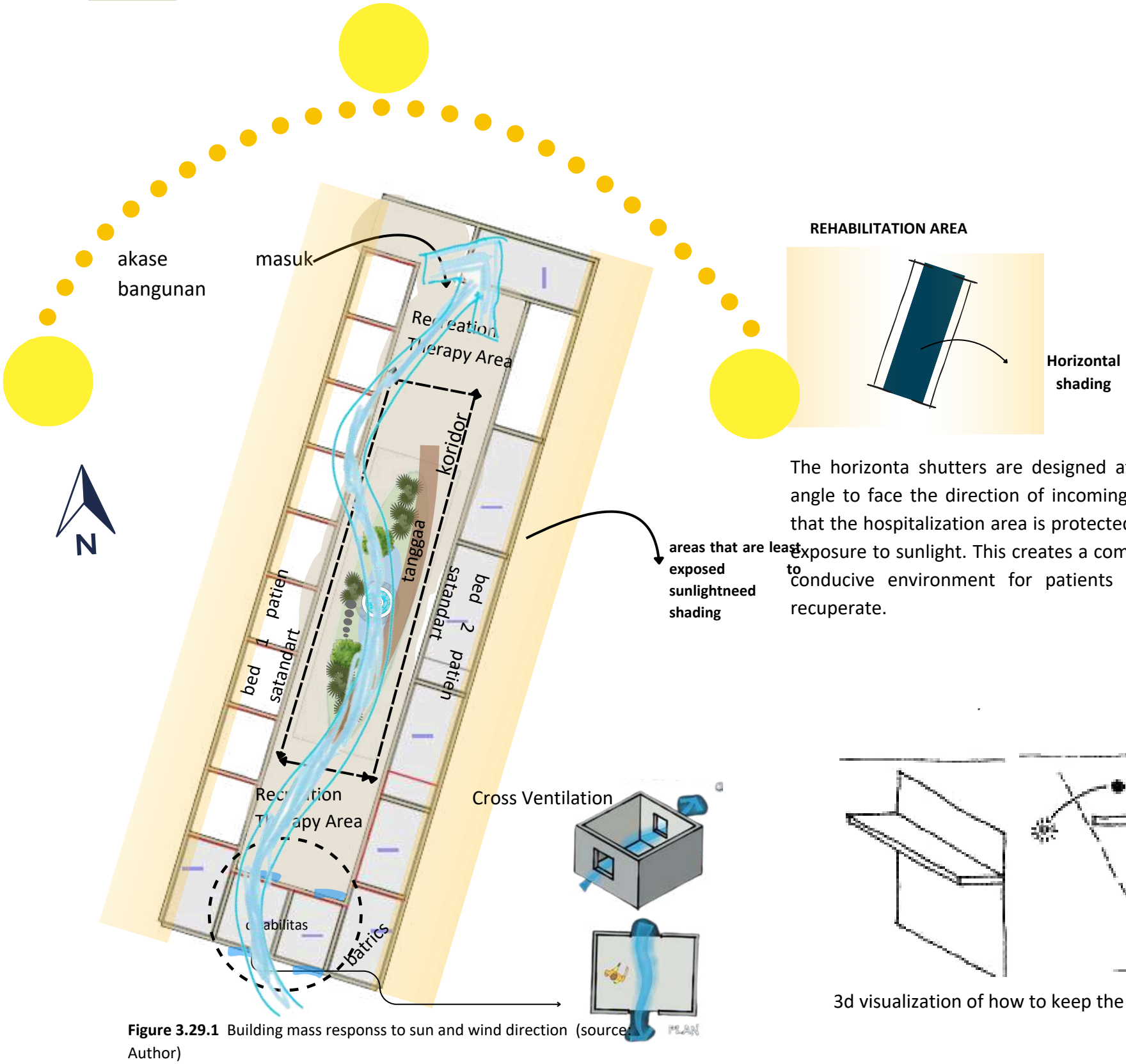
How:

1. Design the building layout to include green spaces directly facing patient beds.
2. Ensure the central corridor facilitates medical staff movement while integrating green areas to enhance patient views.
3. Create green areas as connecting spaces between two bed areas, providing soothing natural views.
4. Incorporate plants, gardens, or indoor landscaping elements within these green areas.

Why:

1. Enhance Patient Well-being: Green areas provide calming views that help reduce feelings of confinement, fear, and worry, thus supporting the healing process.
2. Reduce Isolation: The central corridor not only facilitates medical staff but also promotes social interaction among patients, reducing feelings of isolation.
3. Support Recovery: Exposure to natural elements and green spaces can speed up recovery and improve the overall well-being of patients and staff.
4. Create a Calming Environment: Integrating green spaces helps create a structured, safe, and soothing environment conducive to patient recovery and staff productivity.

3.29 Building mass responss to sun and wind direction

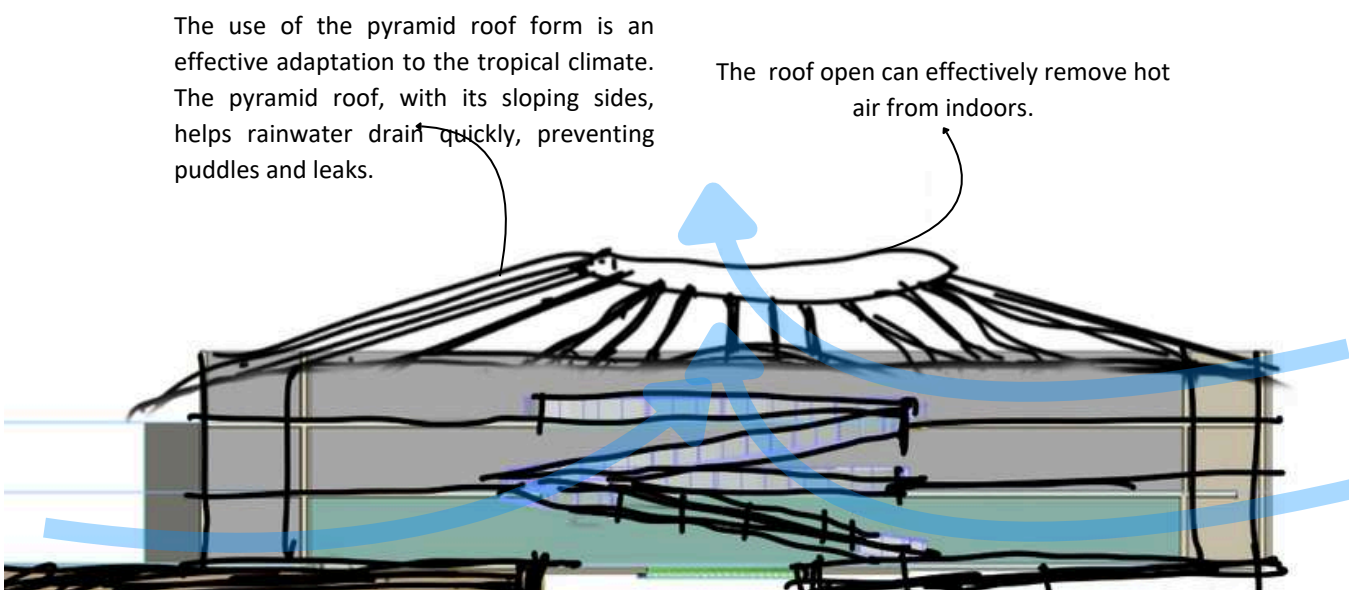


The horizonta shutters are designed at an oblique angle to face the direction of incoming sunlight, so that the hospitalization area is protected from direct exposure to sunlight. This creates a comfortable and conducive environment for patients to rest and recuperate.

3d visualization of how to keep the sun out

Figure 3.29.1 Building mass responss to sun and wind direction (source: Author)

3.30 ROOF FOR REHABILITATTION TO ACHIEVE THERMAL AIRFLOW



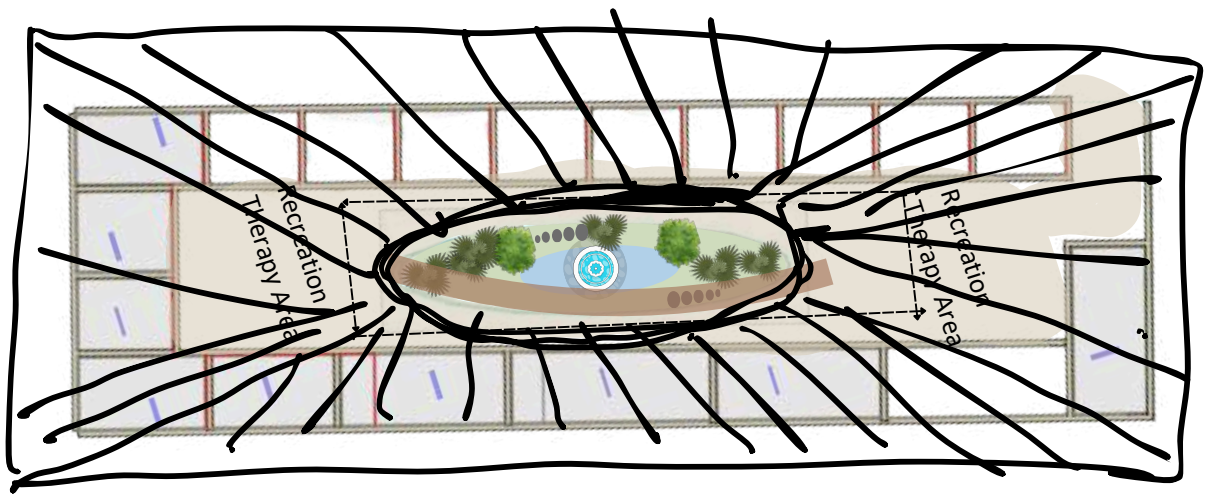


Figure 3.30.1 Roof for Theraphy to achieve Thermal Airflow (source: Author)

What: The roof is an important part of designing a therapy room as it can improve the air and thermal quality of the room.

How:

Roof open inteh midle: Adding vents on the roof to let out hot air, keeping the room temperature cool, can watering the courtyard, can get natural ligting.

Adopt Limasan Roof Form: Using this shape is effective for tropical climates, helping rainwater drain quickly, improving air circulation.

Why:

Thermal Efficiency: Ventilation and the pyramid roof work together to maintain a comfortable room temperature.

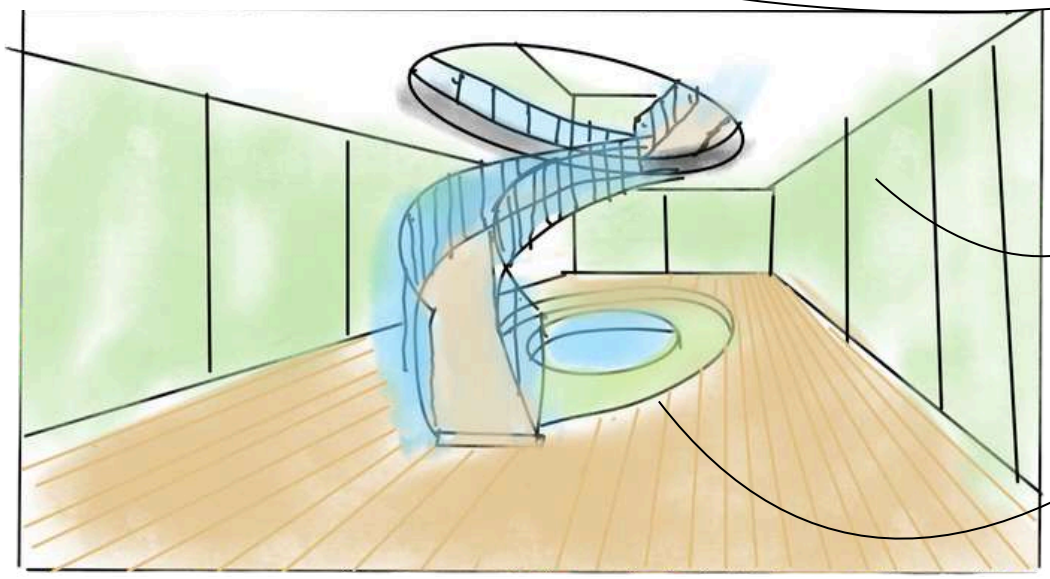
Tropical Climate Adaptation: Adopting the Limasan Roof Shape prevents waterlogging and leakage, this design ensures the therapy room stays cool and comfortable.

3.31 3D VISUALIZATINREHABILITATION UNIT RELATED EFFECTIVE TREETMENT



The presence of a fountain in the center of the courtyard adds an element of soothing water sounds and enhances the overall aesthetic.

The placement of the garden at the center of the building not only adds a connection with nature through the soothing green scenery, but also allows natural light to enter each room



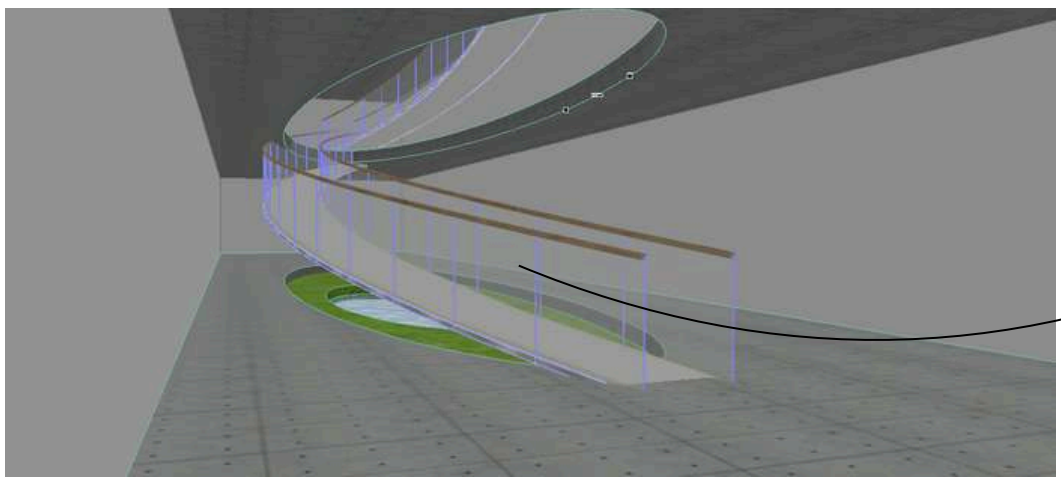
WALL

The color of the walls is very influential for the patient, therefore choosing a green color helps to calm the patient's psychology

FLOOR

The use of flooring material also has an influence, the floor uses bamboo composite material, the warm color of the flooring material also influences psychological comfort.





The use of the coryar staircase is useful for When using the staircase, patients can enjoy the green view of the courtyard area. This can improve mood and help reduce any stress or anxiety that may be felt during the recovery process.

Figure 3.31.1 3D Visualization rehabilitation UNIT Related effective treetment (source: Author)

3.32 GARDEN THERAPY SPACE ORGANIZATION FOR EFFECTIVE TREATMENT

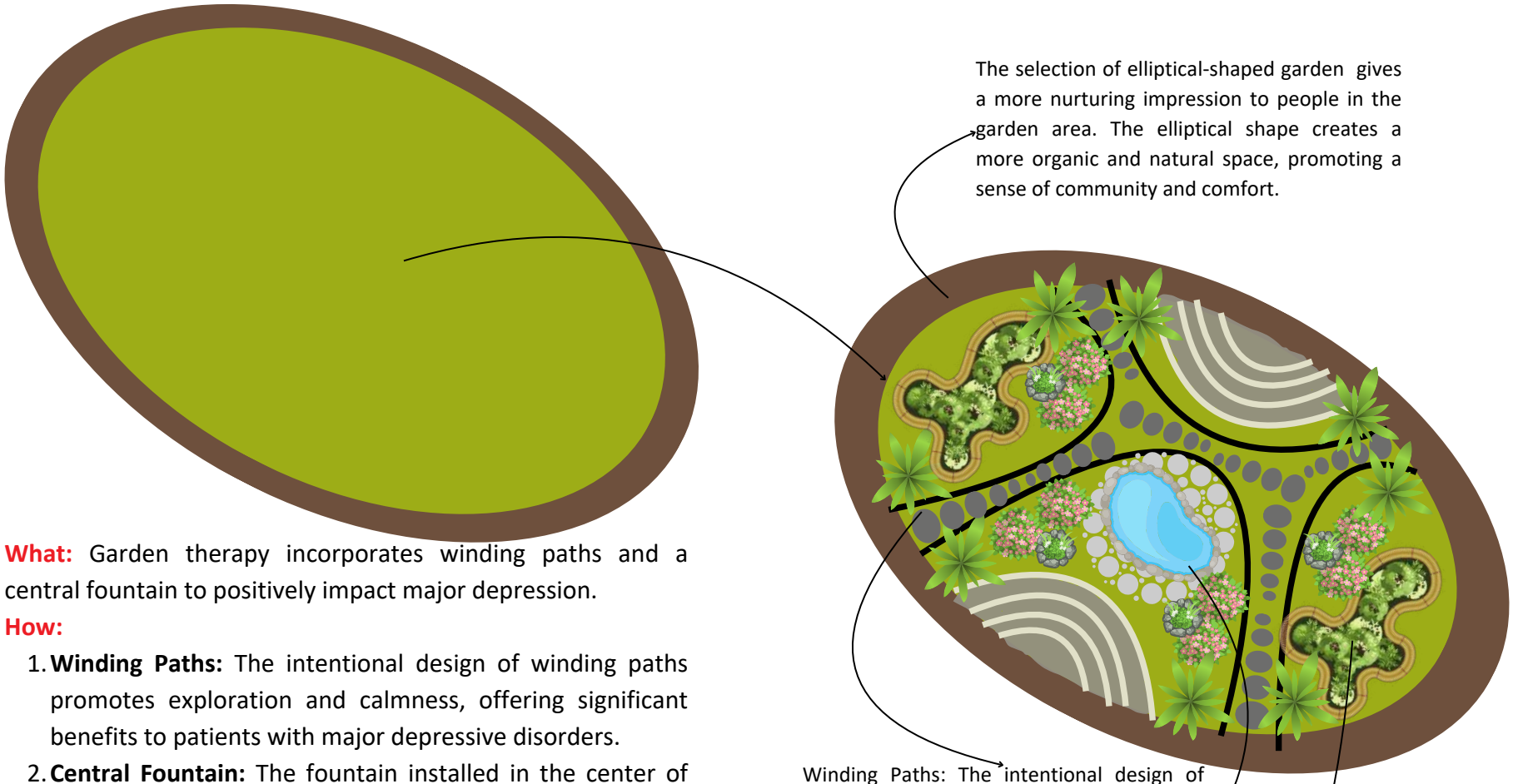


Figure 3.32.1 Garden Therapy Space Organization for Effective Treatment (source: Author)

What: Garden therapy incorporates winding paths and a central fountain to positively impact major depression.

How:

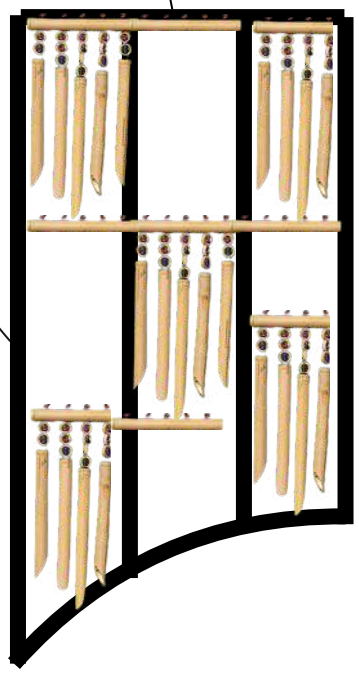
1. **Winding Paths:** The intentional design of winding paths promotes exploration and calmness, offering significant benefits to patients with major depressive disorders.
2. **Central Fountain:** The fountain installed in the center of the garden serves as a crucial element in the healing process. Its calming auditory and visual experience aids in patient recovery and well-being.

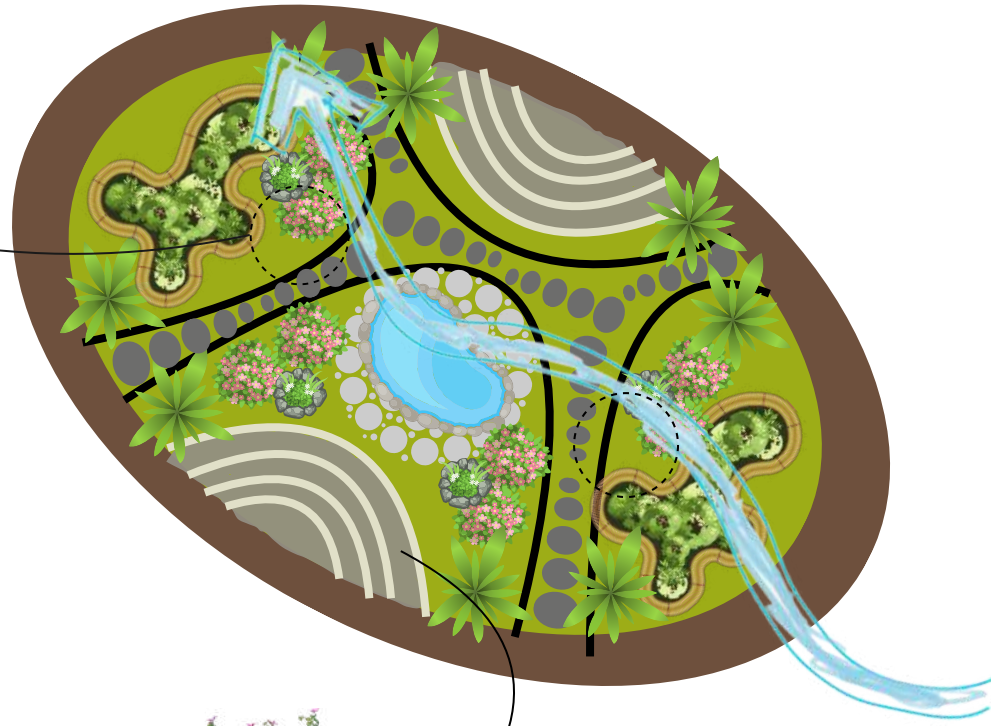
Why:

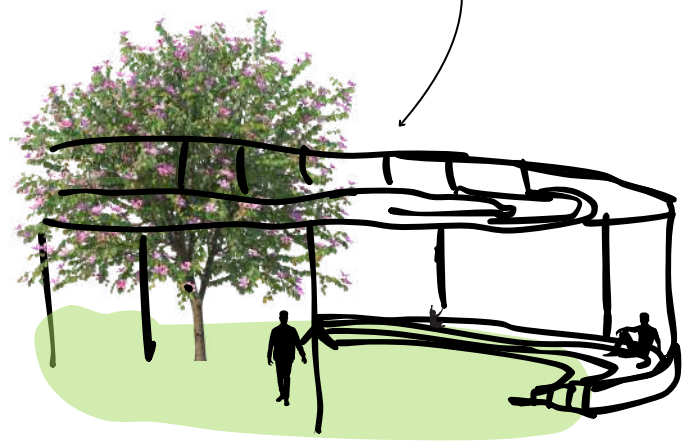
1. **Exploration and Calmness:** Winding paths encourage patients to explore and engage with the garden environment, fostering a sense of calmness and tranquility.
2. **Healing Environment:** The combination of meandering paths and a central fountain creates a therapeutic atmosphere that supports mental and emotional healing. The soothing sounds and sights of the fountain contribute to the overall well-being of patients, promoting relaxation and stress reduction.











The Bamboo Wind Chime is used to create a calm and natural therapeutic environment, helping patients feel more relaxed and focused on the recovery process. The sound produced by the chime mimics the natural sound of bamboo friction, giving patients a sense of privacy and creating a cozy atmosphere within the therapeutic environment. The sound panels are strategically installed in the direction of the wind to reduce outside noise interference and create a quieter environment that supports recovery.

The addition of a sitting area in the garden enriches the patient experience by providing a space to sit and enjoy the beauty of the centrally located garden. The sitting area provides regular and organized seating, allowing visitors to relax while enjoying the surrounding and scenery.

3.33 DESIGN CHEKLIST RELATED TO CONCEPT

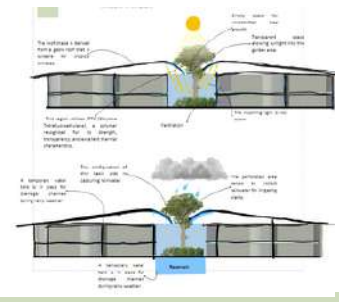
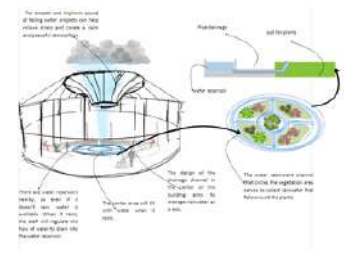
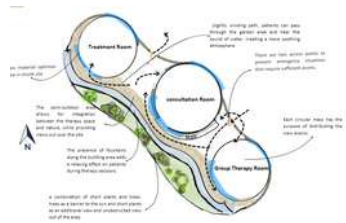
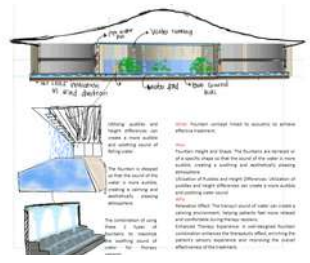
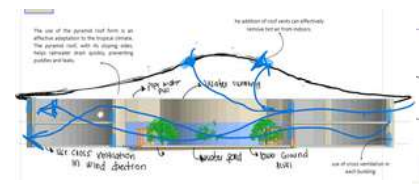
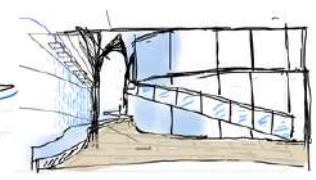
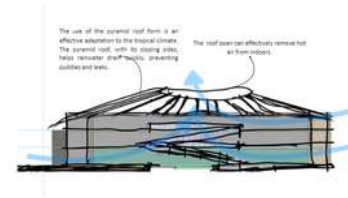
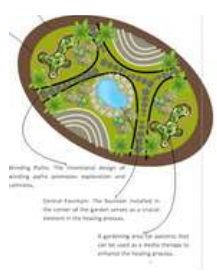
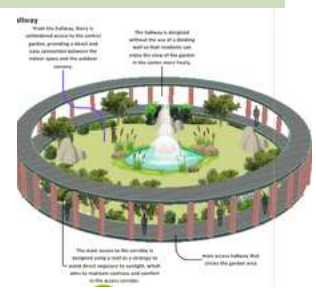
Natural Analogues	Visual Connection with Nature	Non-Visual Connection with Nature	Thermal & Airflow Variability	Presence of Water
inpatient				
	there is a garden in the middle of the building	when it rains there is a sound of water entering the building	• the roof has holes in it for the wind to let in and out. • use of heat-resistant materials	• there is temporary water storage in the building
outpatien				
	• There is a garden that directly faces each therapy room	• there is a fountain in the building, you can always hear the sound of water.	• Adopt a pyramid roof shape • There is ventilation at the top for smooth wind distrusion	• Adopt a pyramid roof shape • There is ventilation at the top for smooth wind distrusion
rehabilitation				
	• There is a garden in the middle of the building which faces directly to the bedroom area	• There is a fountain in the middle of the garden, you can always hear the sound of water splashing	• there is a courtyard in the middle of the building so that the wind can easily enter	• there is a water fountain in the courtyard
Garden				
	• there is a garden around the garden area	• there is the use of wind catcher partitions • There is a water fountain and you can hear the sound of water	• the garden does not cover the movement of the wind	• there is a water fountain in the middle of the garden

Table 3.33.1 Design cheklist related to concept (source: Author)

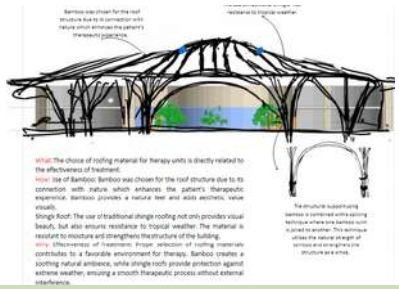
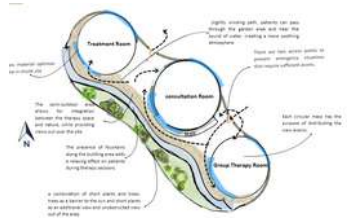
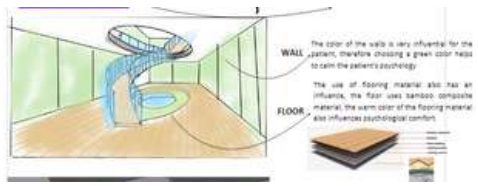
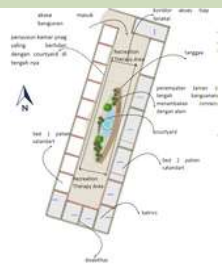
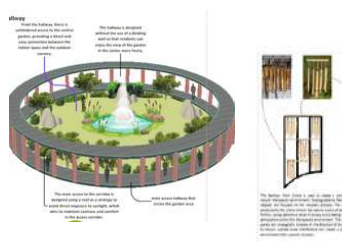
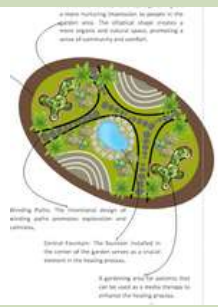
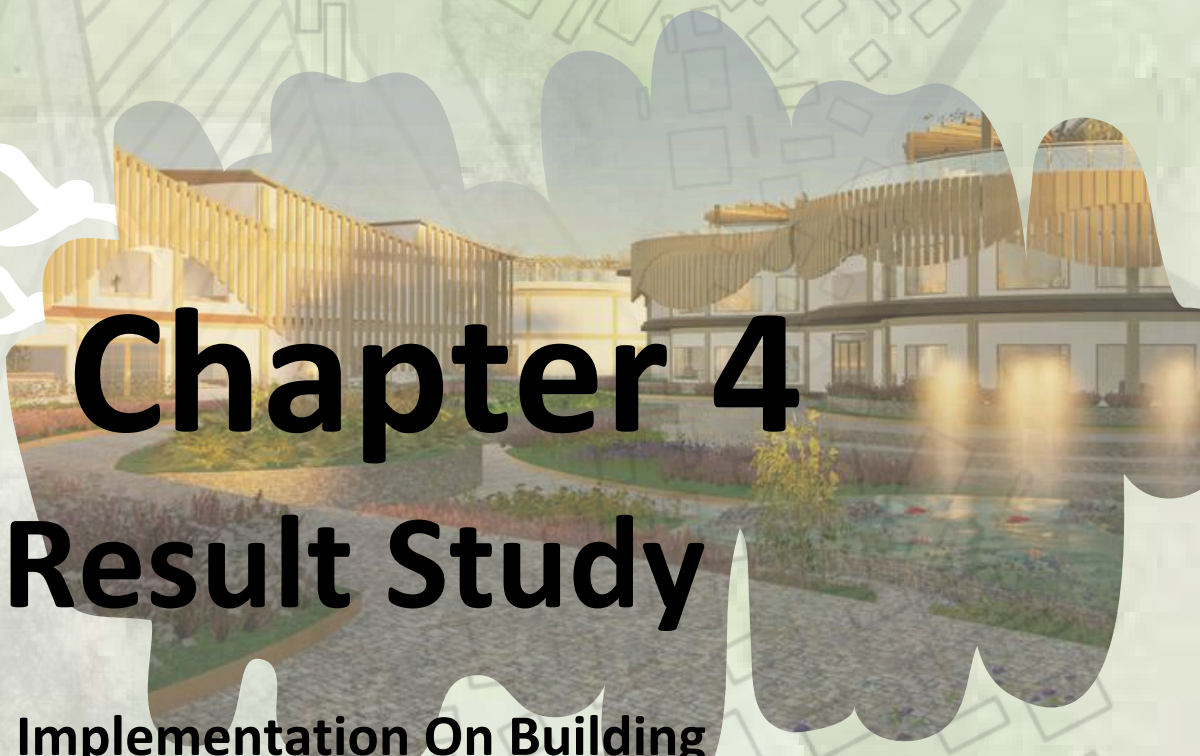
Nature in the Space	Material Connection with Nature	Nature Of the Space	Prospect (Open floor plan)
inpatient ✓		**inpatient** ✓	
	• In each room, bamboo composite floors are used		• The middle of the building has a space area without partitions
outpatien ✓		**outpatien** ✓	
	• The roof and roof structure uses bamboo and shingle roofing materials		• Every building has rooms without partitions
rehabilitation ✓		**rehabilitation** ✓	
	• The building uses bamboo composite floors		• courtyard area in the middle of the building without partitions
Garden ✓		**Garden** ✓	
	• Bamboo Wind Chime from bamboo material		• has a spacious and open garden design

Table 3.33.1 Design cheklist related to concept (source: Author)



Chapter 4
Result Study

Implementation On Building Design

BRIEFING FUNCTION AND CONCEPT

SITE CONSIDERING PRIVACY, SECURITY, CIRCULATION, AND EFFECTIVE TREATMENT.

INPATIENT UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

OUTPATIENT UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

REHABILITATION UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

THERAPEUTIC GARDEN



Figure 4.1.1 Mental helath center (source: Author)

A mental health center is a facility that provides various services to help individuals with mental health issues. At mental health centers, there are psychological therapies, psychiatric evaluations, consultations with mental health professionals, and support for various depressive disorders. In addition, these centers also often offer support groups, skills training to improve mental well-being.

Diagram 4.1.1 Three aspects of building concept (source: Author)

- Natural Analogues
- Nature in the Space
- Natural of the Space

- Visual Connection with Nature
- Non-Visual Connection with Nature
- Thermal & Airflow Variability
- Presence of Water
- Material Connection with Nature
- Prospect

- sound quality
- safety
- security

This chapter discusses the implementation of design concepts that consider the application of biophilia design to optimize connectivity between indoor and outdoor areas, while taking into account the psychology of patients experiencing depression.

4.2 SITE CONSIDERING PRIVACY, SECURITY, CIRCULATION, AND EFFECTIVE TREATMENT.



LEGEND	
A	Public & Management Area
B	Theraphy Area
C	Service Area
D	Rehabilitation Area
E	Inpatient Unit Area
F	Garden Therapic Area
G	Garden Therapic Area
H	Security Post

Figure 4.2.1 Site Related to Zoning: Considering Privacy, Security, Circulation, and Effective Treatment**.** (source: Author)

Considering Privacy, Security, Circulation, and Effective Treatment.

Site Finishing is the culmination of previous zoning planning that considers important aspects such as Privacy, Security, Circulation, and Effective Treatment.

Privacy is achieved through the placement of private zones at the back and public zones at the front. This ensures that sensitive areas are shielded from outside view, while access to public areas remains open to users.

Security is reinforced by placing circulation areas that cannot be accessed by guests. This provides additional protection against unwanted access to sensitive areas within the facility.

In terms of circulation, the focus is on designing vehicle routes that do not disrupt the privacy and security of patients. This may include restricting vehicle access to certain areas and arranging traffic flow to minimize disruption to medical and treatment activities.

For effective treatment aspects, every vegetation planted in the site area is considered to provide maximum therapeutic benefits. The selection of plant types, vegetation placement, and green space arrangement are designed to create an environment that supports healing and patient well-being.

INPATIENT UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT 4.3

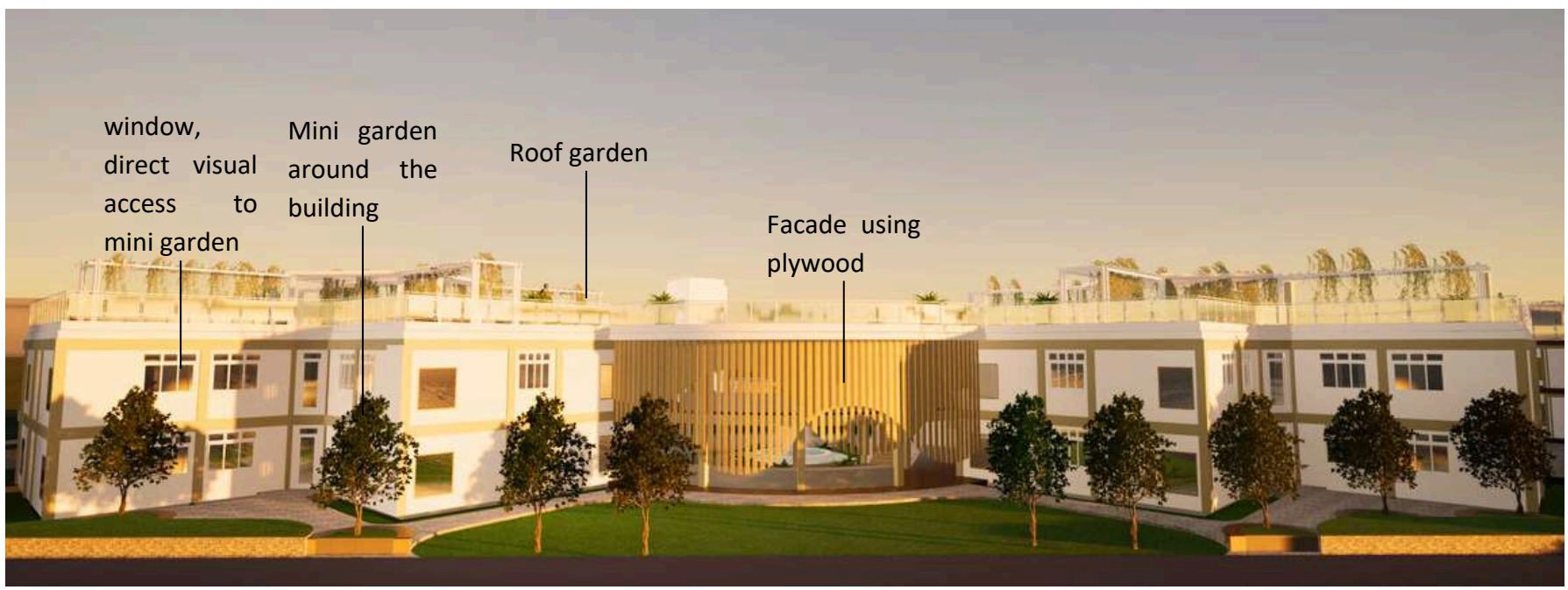


Figure 4.3.1 Inpatient unit implements biophilic &Indoor and Outdoor Connectivity concept (source: Author)

ROOF GARDEN



Figure 4.3.2 Roof garden implementation (source: Author)

What:

This roof garden is a therapeutic area specially designed for inpatient units. Located on the roof of the building, the garden is equipped with grape vines that provide shade, comfortable seating, as well as facilities for gardening, specifically the planting and care of grapes. The roof garden is also under the supervision of nurses to ensure patient safety.

Why:

The roof garden was created to assist the therapeutic process for patients with major depressive disorder. The natural environment and gardening activities in this garden can help reduce stress, improve mental well-being, and provide opportunities for patients to interact with nature. The presence of grape vines and calming areas are designed to create an atmosphere that supports healing and recovery, and provide additional benefits in the therapeutic process.

ROOF GARDEN IMPLENETATION

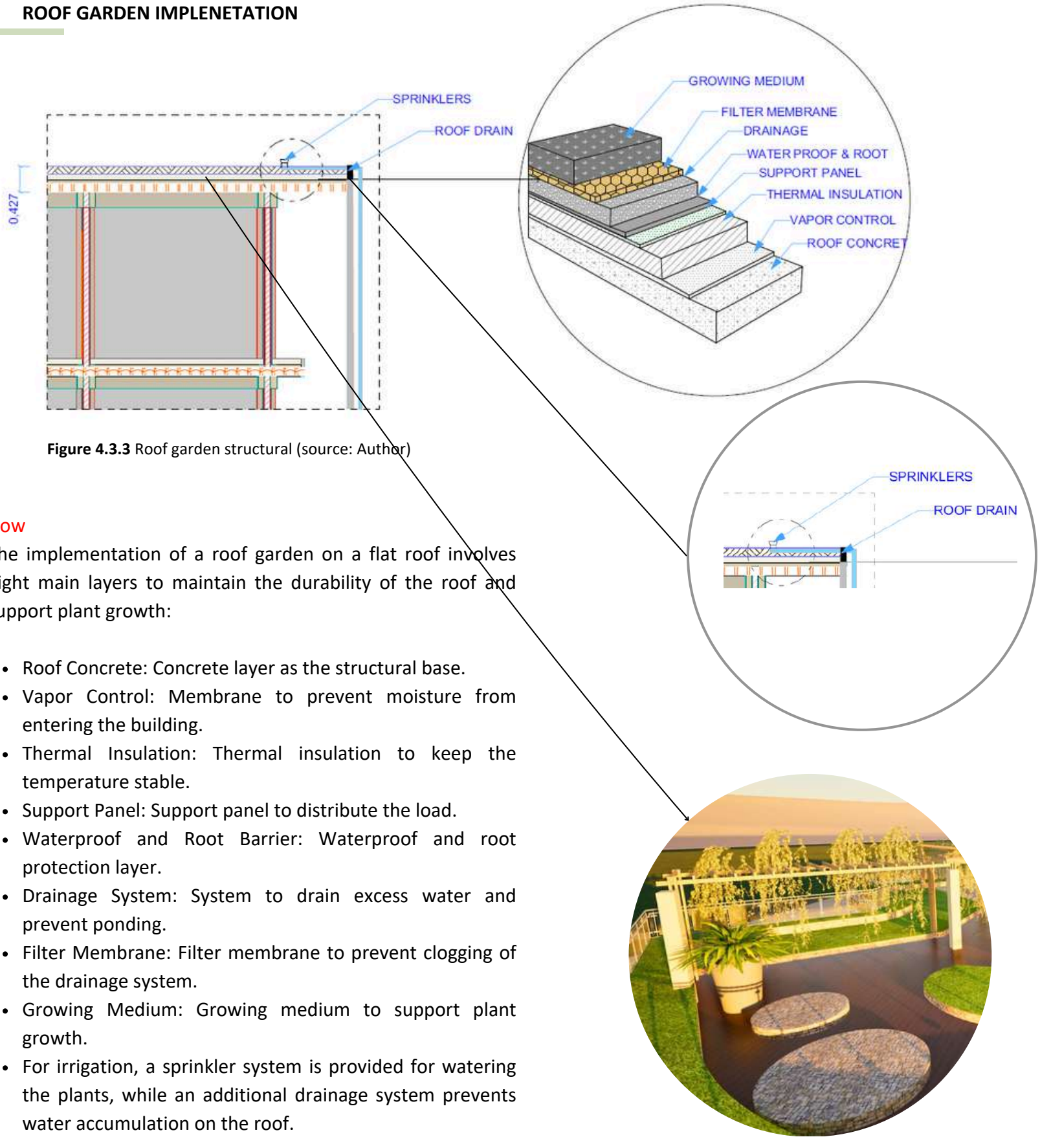


Figure 4.3.3 Roof garden structural (source: Author)

How

The implementation of a roof garden on a flat roof involves eight main layers to maintain the durability of the roof and support plant growth:

- Roof Concrete: Concrete layer as the structural base.
- Vapor Control: Membrane to prevent moisture from entering the building.
- Thermal Insulation: Thermal insulation to keep the temperature stable.
- Support Panel: Support panel to distribute the load.
- Waterproof and Root Barrier: Waterproof and root protection layer.
- Drainage System: System to drain excess water and prevent ponding.
- Filter Membrane: Filter membrane to prevent clogging of the drainage system.
- Growing Medium: Growing medium to support plant growth.
- For irrigation, a sprinkler system is provided for watering the plants, while an additional drainage system prevents water accumulation on the roof.

INNER COURTYARD



Figure 4.3.4 inner courtyard visualization (source: Author)

What:

Inner courtyard is an area that serves as a place for various day room activities. All activities will be held in the specially designed center area of the courtyard. This area is equipped with a beautiful fountain and a green garden in the center, creating a calm and refreshing atmosphere.

Why:

The sound of gurgling fountains and the soothing sight of water have a positive impact on the health of patients with depression. The presence of these elements help relieve stress and improve their mood. Thus, the inner courtyard is not only a place for gathering and activities, but also an important element in the therapy and recovery of patients.

INNER COURTYARD ON THE SECOND FLOOR



What:

The inner courtyard on the 2nd floor shares the same principle as the 1st floor as a place for outdoor activities. Although you can't see the fountain clearly, this area is equipped with hanging plants that surround the opening of the building.

Why:

Even without the view of the fountain, the hanging plants still have a calming and positive effect on patients' mental health. This greenery helps to relieve stress and improve mood, making it an important element in patient therapy and recovery.

INNER COURTYARD IMPLENETATION

How

The application of the fountain in the inner courtyard will utilize an efficient water circulation system. Water will be stored in a reservoir and pumped by a fountain pump, which will keep the water flowing and rotating until it is time to drain and replace the water.

The system will be equipped with a special pipe to refill water into the reservoir as well as another pipe to remove water during the draining process. Thus, maintenance of the fountain will be easier and more efficient, ensuring that the water is always clean and fresh to create a soothing and refreshing atmosphere in the inner courtyard.

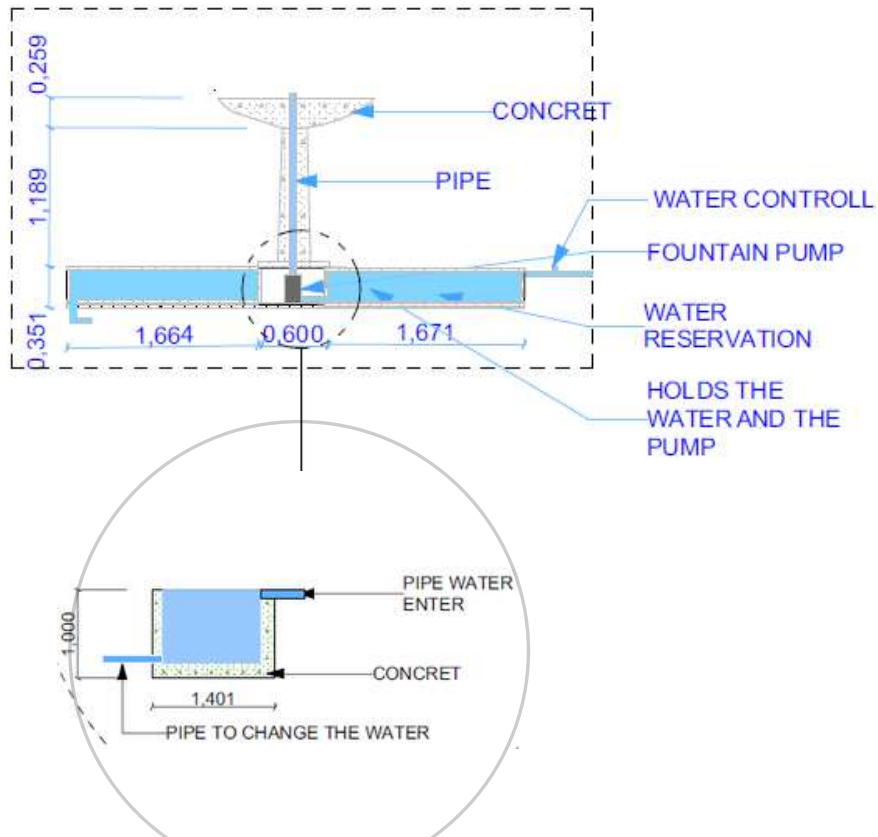


Figure 4.3.5 fountain structure (source: Author)

MINI GARDEN AROUND THE BUILDING



Figure 4.3.6 Mini garden around the building (source: Author)

What:

The presence of mini gardens around the building creates a calming atmosphere for the entire inpatient building area. These small gardens not only add to the aesthetics of the environment, but also provide a beautiful and fresh view from every corner of the building.

Why:

With a design that pays attention to optimal plant placement, every room and space has visual access to the garden. This allows patients and staff to enjoy a green view that can help relieve stress and improve overall well-being. The mini garden is an important element in creating a harmonious and refreshing healing environment.



Figure 4.3.7 Mini garden sitting area (source: Author)

What:

Mini gardens around the perimeter of the building provide comfortable seating. These small gardens are designed not only to add to the aesthetics of the environment, but also to provide rest and relaxation areas for the building's occupants.

Why:

The seating available in the mini gardens allows patients and staff to sit, relax, and enjoy the soothing green atmosphere. This provides an opportunity for them to release stress and interact outdoors, which can help improve mental and physical well-being. As such, the mini garden is an important element in creating a harmonious and refreshing healing environment.

FACADE USING PLYWOOD



Figure 4.3.8 Facade using plywood (source: Author)

What:

A plywood facade was used as a divider in the day room area. The facade is made of natural materials, designed to create a connection with nature. The louvers on the building facade allow natural light to enter the room.

Why:

The use of plywood as a facade material provides a natural touch that helps to create a warm ambience and blend in with the surroundings.

The lattice design on the facade n allows natural light to enter, reducing the need for artificial lighting. Natural light entering the space can improve the mood, comfort and well-being of the occupants. Thus, this plywood facade plays an important role in creating a comfortable, healthy and harmonious environment.

FACADE USING PLYWOOD IMPLENETATION

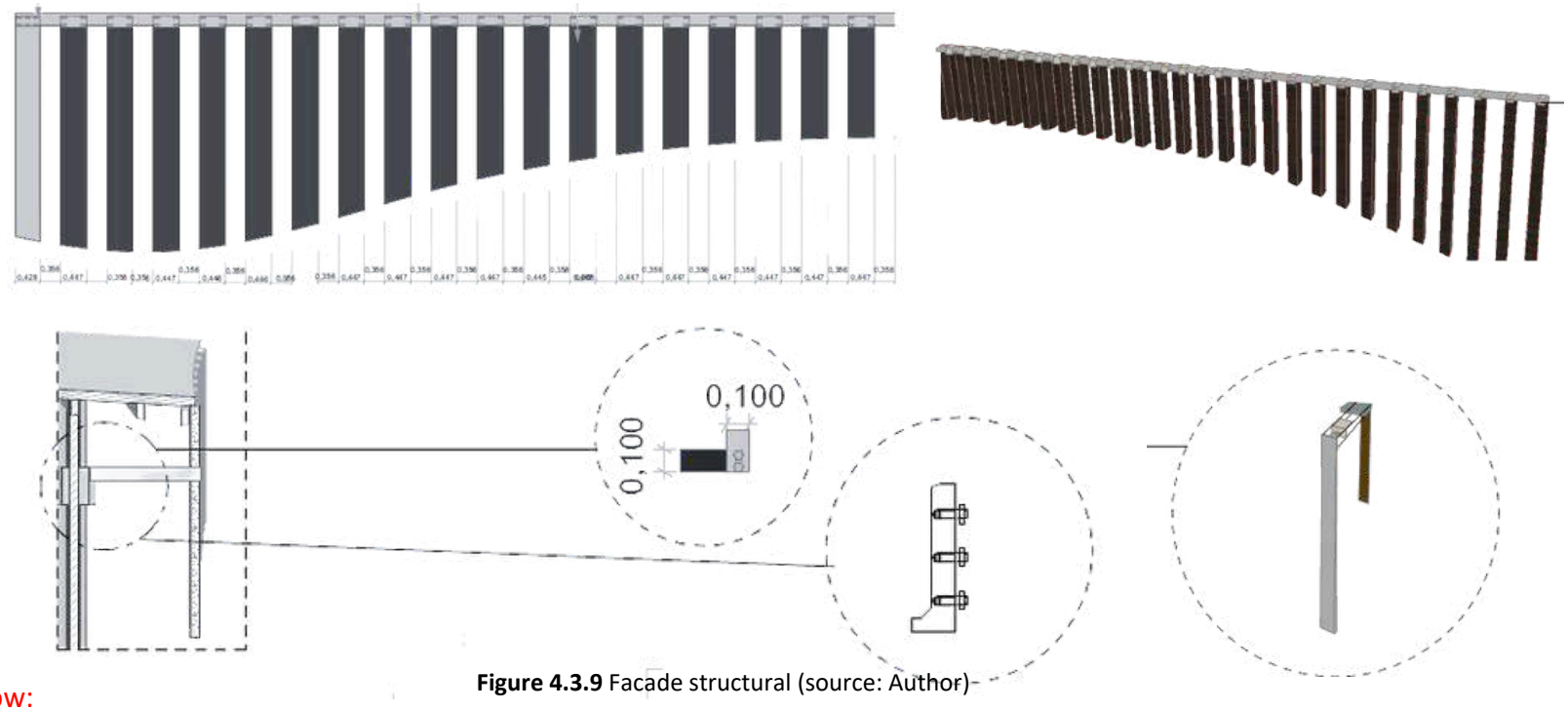


Figure 4.3.9 Facade structural (source: Author)

How:

The plywood facade of this building uses steel frames as the main supporting structure. The plywood is mounted on steel frames and connected to each other using bolts, ensuring strength and stability. The distance between the louvers on the facade is set at 30 cm

, which allows natural light to enter optimally and provides a clear view from inside the building. This design not only adds to the aesthetics of the building but also enhances the visual connection with the surrounding environment, creating a brighter and more refreshing atmosphere.

WINDOW, DIRECT VISUAL ACCESS TO MINI GARDEN

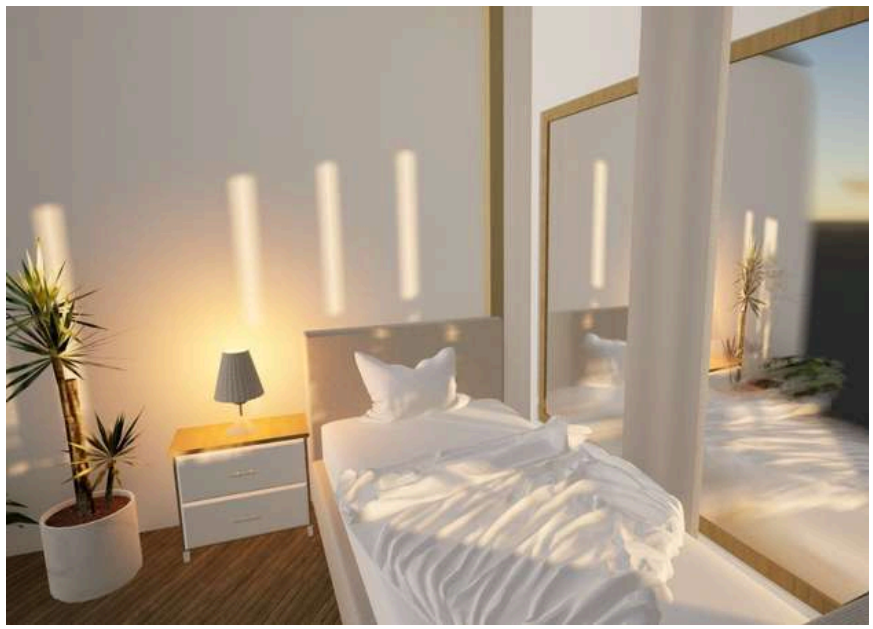


Figure 4.3.10 window, direct visual access to mini garden (source: Author)

What:

Each room in the inpatient building is equipped with a window facing the garden.

Why:

The garden view from the windows helps to create a calming atmosphere and improve the mental well-being of the patients. The incoming natural light also reduces the need for artificial lighting.

How:

Windows with sizable openings and a direct view of the garden allow optimal views of the greenery and natural light to flood in, creating a brighter and more refreshing atmosphere.

THERMAL & AIRFLOW VARIABILITY

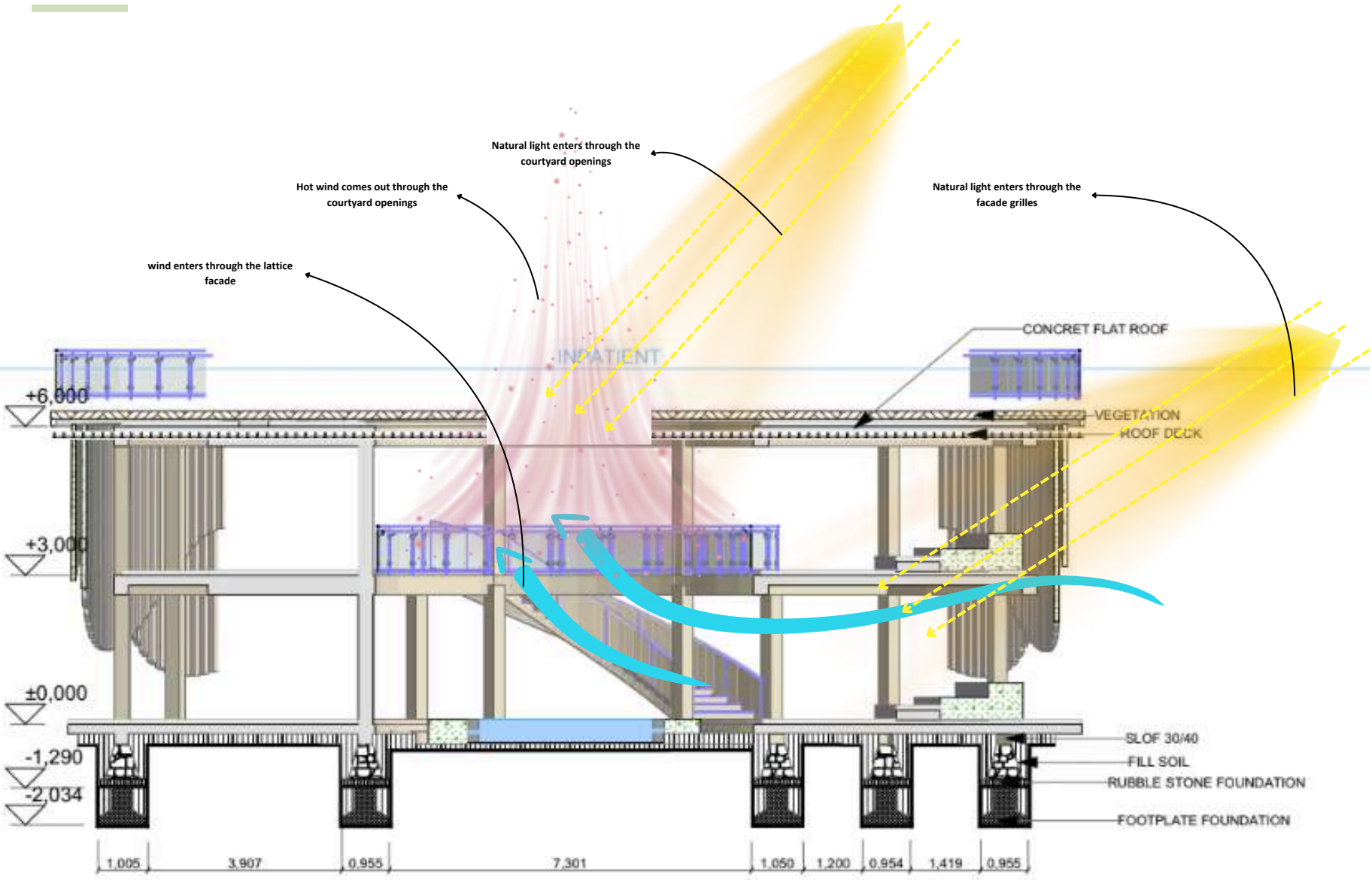


Figure 4.3.11 Thermal & Airflow Variability (source: Author)

What:

In the inpatient unit, a central courtyard is designed to maximize the entry of natural light. The area is created as a semi-outdoor space to enhance airflow circulation.

Why:

The design allows hot air to exit through the courtyard openings, ensuring better thermal regulation and a more comfortable environment. By utilizing natural light and promoting effective air circulation, the courtyard helps maintain a healthier and more pleasant atmosphere for patients and staff.

How:

The semi-outdoor design of the courtyard facilitates the movement of air, allowing fresh air to enter and hot air to escape through strategically placed openings. This natural ventilation system reduces the reliance on artificial cooling and lighting, promoting energy efficiency while enhancing indoor air quality. The integration of natural elements not only improves the environmental sustainability of the building but also contributes to the overall well-being of its occupants by creating a more soothing and harmonious space.

INPATIENT UNIT IMPLEMENTS SAFETY CONCEPT

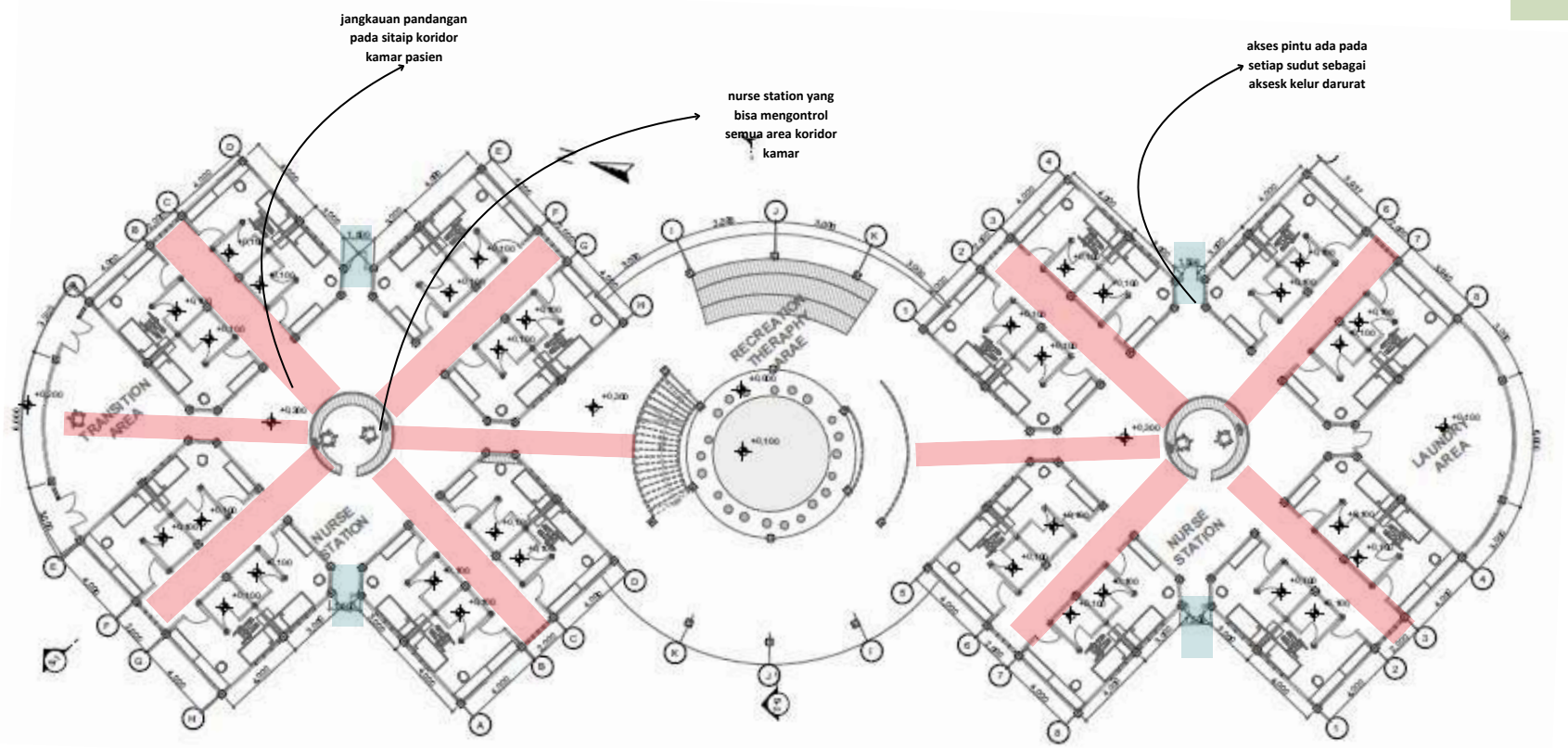


Figure 4.3.12 Inpatient unit implements safety concept (source: Author)

What:

Emergency exit access is provided at every corner of the building to ensure safe evacuation routes. Each patient room corridor and nurse station is designed with a line of sight that allows for complete visual control of all room corridor areas.

Why:

The provision of emergency exits at each corner ensures quick and safe exit access in emergency situations. The wide view of the nurse station allows medical staff to monitor and supervise the entire corridor with ease, enhancing quick response to patients' needs and ensuring their safety.

How:

This design implements the safety concept by integrating emergency exits at each corner and allowing a direct view from the nurse station to the entire corridor. In this way, staff can easily supervise and efficiently manage the surrounding environment, providing additional protection and better response in emergency situations.



Figure 4.4.1 Outpatient unit implements biophilic &Indoor and Outdoor Connectivity concept (source: Author)

ROOF GARDEN





Figure 4.4.2 Roof garden implementation (source: Author)

What:

This rooftop garden is a specially designed therapy area for the outpatient unit. After undergoing a check-up, patients can enjoy this garden area located on the roof of the building. The garden is equipped with grape vines that provide shade, comfortable seating, and is supervised by nurses to ensure patient safety.

Why:

This rooftop garden was created to support the therapeutic process for patients with depressive disorders. The natural environment in the garden helps to reduce stress, improve mental health, and provide opportunities for patients to interact with nature. The presence of grape vines and the calming atmosphere are designed to support healing and recovery, and provide additional benefits in the therapeutic process.

ROOF GARDEN IMPLENETATION



How:

The implementation of grapevines on a green roof involves several important components such as the vine medium, the soil for the main vine, and the support structure for the vine medium. The soil in this green roof has eight layers, namely:

Roof Concrete
Vapor Control
Thermal Insulation
Support Panel
Waterproof and Root Barrier
Drainage System
Membrane Filter
Growing Medium

For irrigation, a sprinkler watering system is provided to water the plants, while an additional drainage system prevents water buildup on the roof. A strong vine medium will be installed to support the growth of the vines, with fertile, well-structured soil to ensure plant health and fertility. A support structure will keep the vine media stable, ensuring the vines can grow optimally.

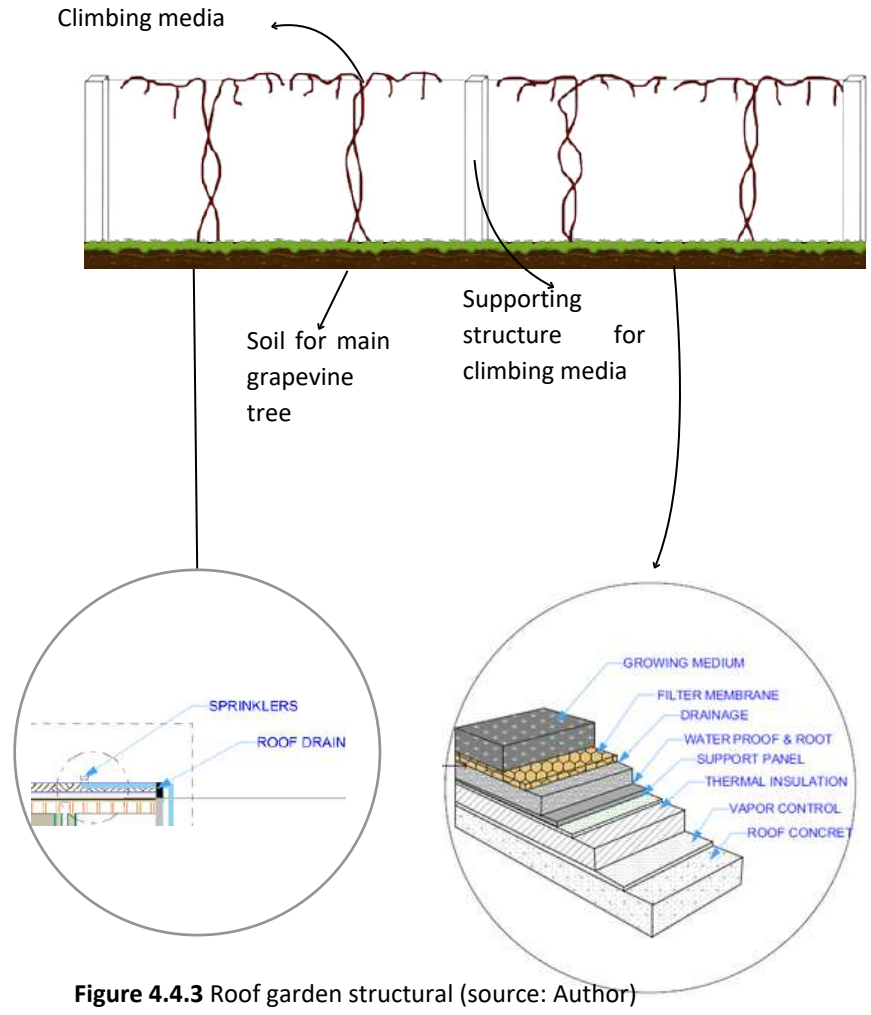


Figure 4.4.3 Roof garden structural (source: Author)

WATER FOUNTAIN



Figure 4.4.4 water fountain visualization (source: Author)

What:

A fountain area is placed along the building that directly faces the therapy rooms.

WATER FOUNTAIN IN DIFFERENT VIEW



Figure 4.4.5 Water fountain in different view (source: Author)

Why:

The placement of water fountains along the building provides a calming and refreshing view for patients in the therapy rooms. The sound of gurgling water and the visual of the fountain can help create a relaxing atmosphere and support the healing process. In addition, the fountains also contribute to the aesthetics of the environment, making the therapy area more attractive and comfortable.

How:

The fountain is designed to operate with an efficient circulation system, ensuring the water stays clean and fresh. Its strategic position along the building allows all therapy rooms to benefit visually and auditory from the fountain. The design also pays attention to ease of access and maintenance, with well-organized pipelines for refilling and draining the water when needed.

WATER FOUNTAIN IMPLENETATION

How

Application of a fountain along the building using a fountain pump for water circulation. There is a pipe to refill the water and a drain pipe to remove the old water.

The fountain system uses a pump to rotate the water, ensuring continuous circulation and clean water. Special pipes are provided to refill the water when it needs to be replaced, while drain pipes allow for easy removal of old water. Water-resistant galvanized hollow steel supports are used to keep the structure sturdy and durable. Flexible hoses are used to follow the curvature of the fountain design, ensuring an efficient and aesthetically pleasing installation.

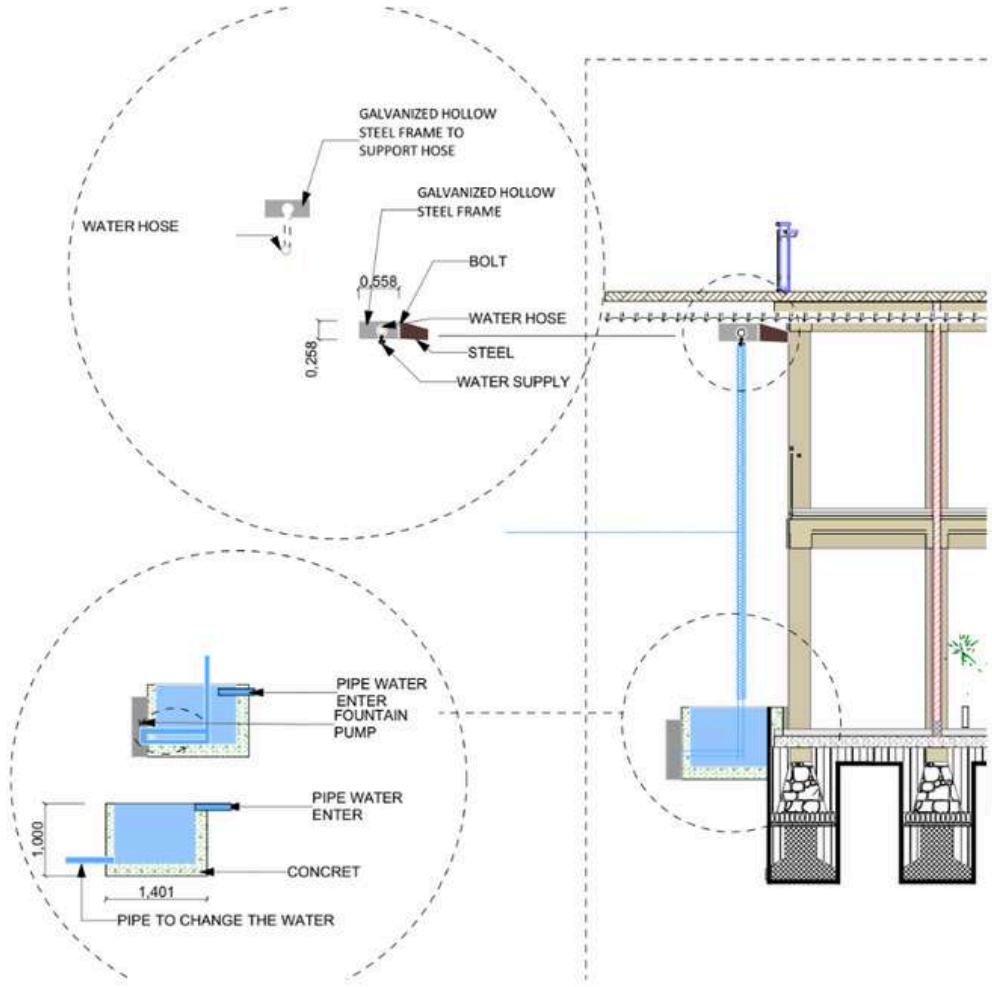


Figure 4.4.6 fountain structure (source: Author)

GARDEN AROUND THE BUILDING

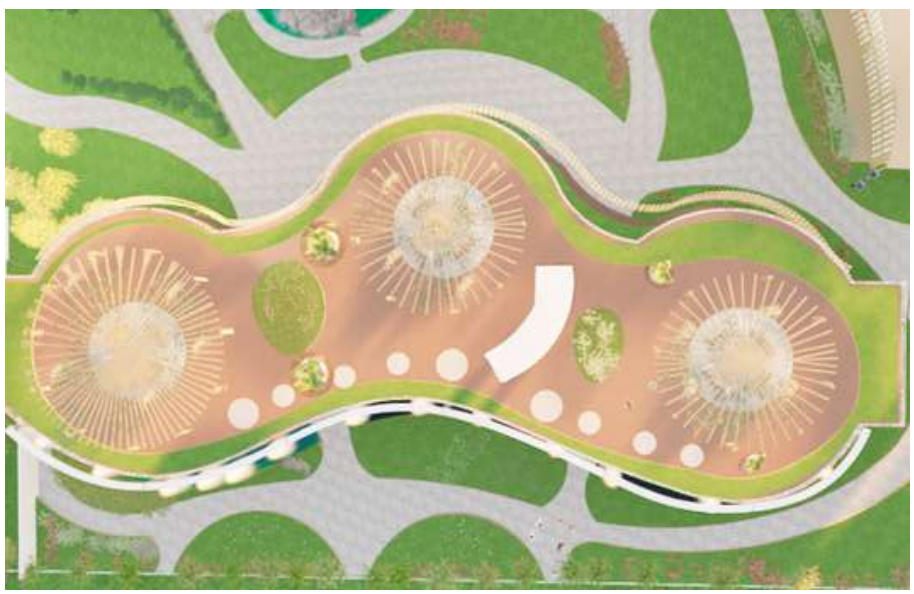


Figure 4.4.7 Mini garden around the building (source: Author)

What:

There is a garden in the building area designed to maximize the view from the windows that face directly into the garden.

Why:

The direct view of the garden provides a calming and refreshing atmosphere for therapy patients. The presence of the garden helps create a more relaxed and comfortable environment, and improves the mental and emotional well-being of the patients.

How:

The windows facing the garden are designed with sizable openings, allowing maximum natural light in and providing optimal visual access to the garden. This design ensures each therapy room has a soothing view of the greenery, supporting a brighter and more refreshing atmosphere within the building.

WINDOW, DIRECT VISUAL ACCESS TO GARDEN



The openings in the group therapy area are designed to be large enough to allow maximum natural light in and provide optimal visual access to the garden. This design ensures every group therapy session has a soothing view of the greenery, supporting a brighter and more refreshing atmosphere in the room.



Windows facing directly onto the fountain provide a clear and calming view of the fountain, allowing residents to enjoy the visual beauty of the dynamic splashing water. In addition, this window also allows the sound of the gurgling fountain to be clearly heard in the room, creating a relaxing and refreshing atmosphere. This combination of sights and sounds not only beautifies the indoor environment, but also provides a calming effect that can enhance residents' well-being.



on the 2nd floor therphy room still gets a view even though there is a facade because the facade used still gives enough distance to still get a view.

Figure 4.4.8 window, direct visual access to garden(source: Author)

OUTPATIENT UNIT IMPLEMENTS CONNCTIVITI WITH NATURE

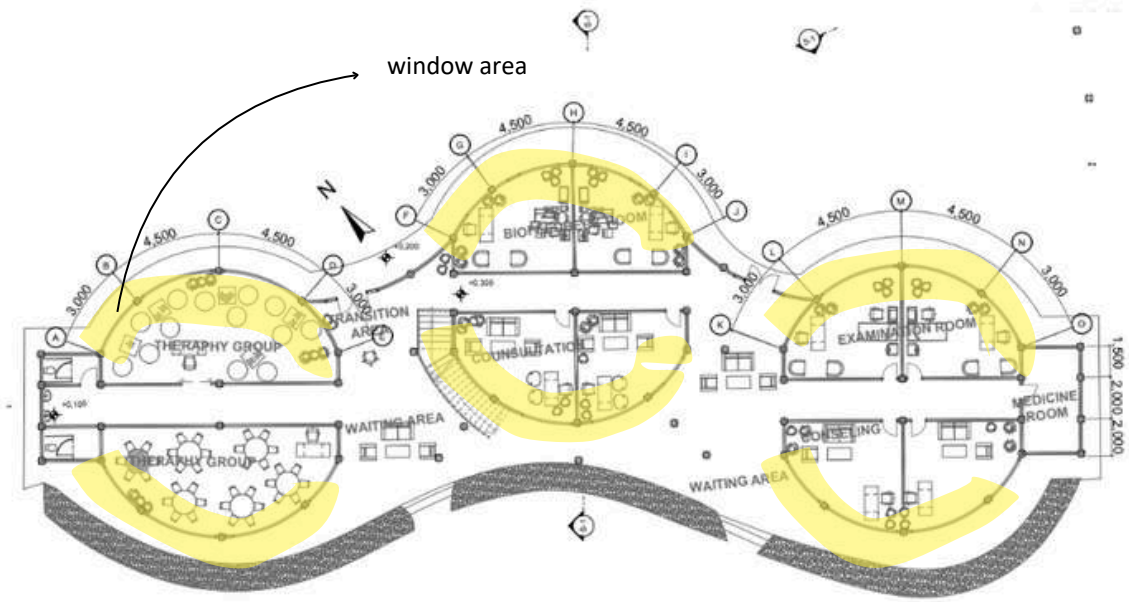


Figure 4.4.9 Outpatient unit implements connctiviti with nature(source: Author)

What:

The round shape of the therapy building provides significant benefits to the overall view received in each therapy room."

How:

This circular design not only creates a more open and harmonious sense of space, but also maximizes the penetration of natural light from various angles.

Why:

In this way, each therapy room can utilize the outside view more optimally, creating a more refreshing and relaxing environment for the users.

FACADE USING PLYWOOD



Figure 4.4.10 Facade using plywood (source: Author)

What:

A plywood facade was used as a divider in the day room area. The facade is made of natural materials, designed to create a connection with nature. The louvers on the building facade allow natural light to enter the room.

Why:

The use of plywood as a facade material provides a natural touch that helps to create a warm ambience and blend in with the surroundings.

The lattice design on the facade n allows natural light to enter, reducing the need for artificial lighting. Natural light entering the space can improve the mood, comfort and well-being of the occupants. Thus, this plywood facade plays an important role in creating a comfortable, healthy and harmonious environment.

THERMAL & AIRFLOW VARIABILITY



Figure 4.4.11 Thermal & Airflow Variability (source: Author)

How:

Semi-outdoor buildings are designed to maximize thermal variability and airflow by allowing free wind to enter through semi-open areas and efficiently expel hot air.

What:

This design ensures optimal air circulation, provides thermal comfort for occupants, and reduces the need for artificial cooling systems.

Why:

Maximizing air circulation can have an impact on human physiology, which is expected to reduce stress and depression for patients with rheumatoid arthritis.

REHABILITATION UNIT IMPLEMENTS BIOPHILIC &INDOOR AND OUTDOOR CONNECTIVITY CONCEPT

4.5



Figure 4.5.1 Rehabilitation unit implements biophilic &Indoor and Outdoor Connectivity concept (source: Author)

What:

The rehabilitation building was designed with a variety of features, including large windows, direct visual access to the garden, a garden at the front of the building, and a sawtooth roof that maximizes sunlight without overheating as the therapy garden needs enough light for the plants to grow.

How:

Large windows allow natural light in and create a bright atmosphere indoors, while the garden at the front of the building provides a relaxing green view and the sawtooth roof maximizes sunlight in without overheating as the therapy garden needs enough light for the plants to grow.

Why:

These features support the healing process by creating a more refreshing and calming environment, and enhance the therapeutic experience with the abundant presence of natural elements.

FACADE USING PLYWOOD



Figure 4.5.2 Facade using plywood (source: Author)

What:

A plywood facade was used as a divider in the day room area. The facade is made of natural materials, designed to create a connection with nature. The louvers on the building facade allow natural light to enter the room.

Why:

The use of plywood as a facade material provides a natural touch that helps to create a warm ambience and blend in with the surroundings.

SAWTOOTH ROOF

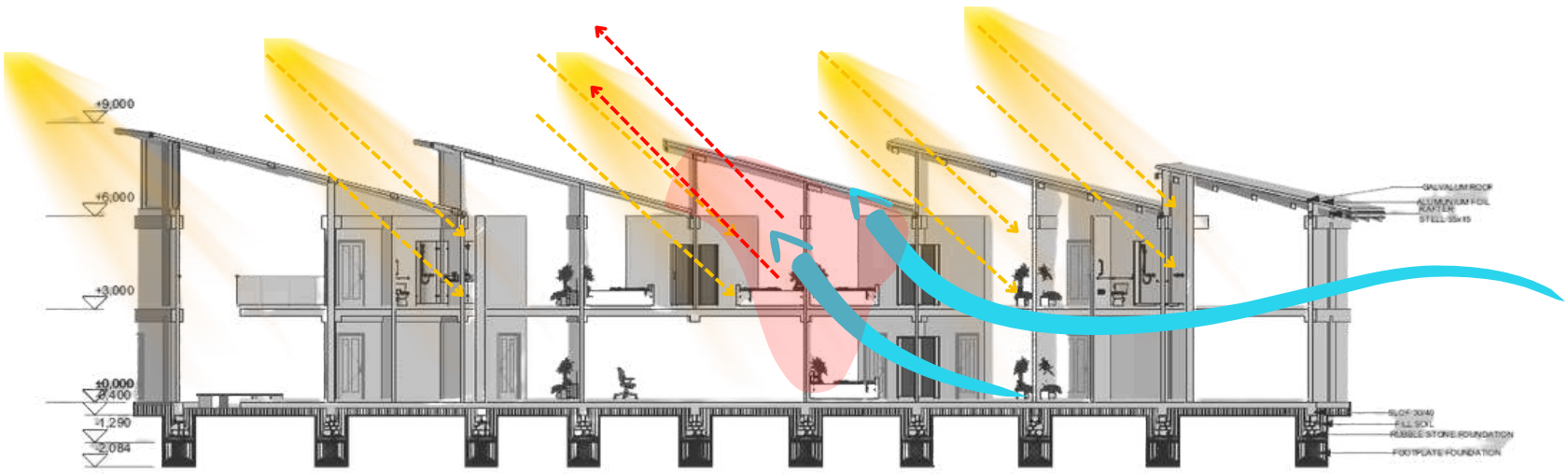


Figure 4.5.3 Thermal & Airflow Variability (source: Author)

The sawtooth roof provides maximum benefit from sunlight without excessively increasing the room temperature, thus maintaining thermal comfort. The addition of vents on each section of the sawtooth roof allows for better air circulation, allowing breeze to enter and exit easily.

This helps keep the room temperature comfortable and improves energy efficiency in the building. This design not only maximizes natural lighting, but also improves air quality and thermal comfort for occupants.

COURTYARD AREA





Figure 4.5.4 courtyard area (source: Author)

The courtyard area of the rehabilitation center is a therapeutic area used as an everyday space, where leisure activities are performed. This area helps rehabilitation patients to relax more, providing them with a calming environment and supporting the healing process.

Activities in the courtyard may include taking a leisurely stroll, sitting in the fresh air, or interacting with other patients, all of which contribute to the patient's physical and mental well-being.

SAWTOOTH ROOF IMPLENETATION

The use of a sawtooth roof has a negative impact on tropical areas in Indonesia because it is prone to leaking due to high rainfall. Therefore, it is necessary to add gutters at each slope angle of the sawtooth roof. These gutters will help drain rainwater efficiently, prevent water accumulation and leakage, and keep the building structure dry and safe. Thus, the use of a sawtooth roof can still provide maximum daylighting benefits without sacrificing resistance to tropical weather conditions.

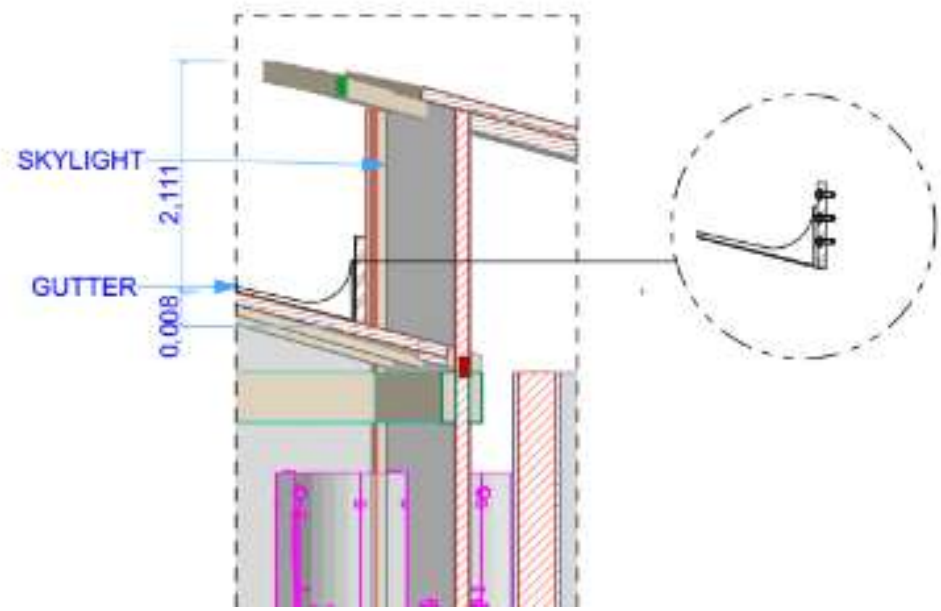


Figure 4.5.5 roof construction (source: Author)

FOUNTAIN IN COURTYARD AREA





Figure 4.5.6 fountain in courtyard area (source: Author)

The courtyard area has a water fountain designed to add to the relaxation of the patients. Throughout the courtyard area, there are also gently flowing waterways, providing a calming atmosphere for rehabilitation patients. The presence of these water elements not only beautifies the environment, but also creates soothing sound effects, helping patients feel calmer and more comfortable during the rehabilitation process. These elements are designed to support the physical and mental well-being of patients, making the courtyard an ideal place to rest and relax.

REHABILITATION UNIT IMPLEMENTS FOUNTAIN IN COURTYARD

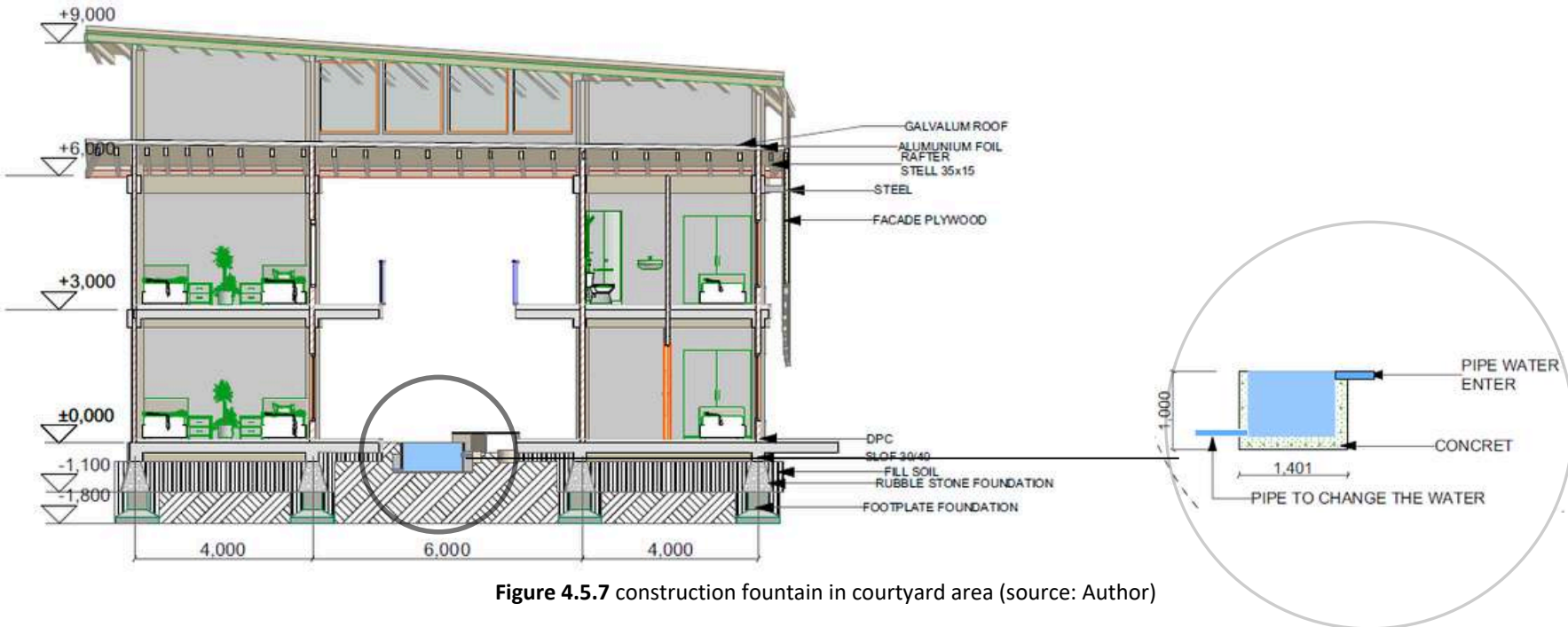


Figure 4.5.7 construction fountain in courtyard area (source: Author)

What:

The courtyard fountain's distribution scheme includes a drain pipe and a water inlet pipe that can be controlled to change the water periodically. There is also a water pump that distributes the water repeatedly, creating a soothing gurgling sound.

How:

The system works by passing water through a regulated inlet pipe to ensure the water is always clean. The water pump then distributes the water to the fountain, resulting in continuous water circulation and a soothing gurgling sound. Drain pipes are used to remove old water and allow for easy and efficient replacement of new water.

Why:

This arrangement is designed to maintain the cleanliness and quality of the water in the fountain, which is essential for creating a healthy and pleasant environment. The sound of gurgling water helps to create a calming and relaxing atmosphere for rehabilitation patients, supporting their mental and physical well-being. This efficient system ensures that the water elements within the courtyard are always functioning optimally and providing maximum benefits to residents.

WINDOW, DIRECT VISUAL ACCESS TO COURTYARD



This is a view of a rehabilitation patient's room, where the windows used are large enough to provide optimal natural lighting. The placement of the beds is designed in such a way that patients can maximize the view out of the room directly facing the garden. This design not only provides a more open and fresh atmosphere, but also helps to create a calming and pleasant environment for patients. The green scenery from the garden can have a relaxing effect and accelerate the healing process of patients by giving them a visual connection with nature.



ni is a double bed area for rehabilitation patients, where the windows are made wide facing the central courtyard area that has a view of the garden. This design ensures that each patient has direct access to the green and calming scenery of the garden, which can help speed up their healing process. The natural lighting coming in through the large windows also creates a brighter and more open atmosphere, enhancing the comfort and well-being of the patients during their rehabilitation.

Figure 4.5.8 window, direct visual access to Courtyard (source: Author)

REHABILITATION UNIT IMPLEMENTS SAFETY CONCEPT

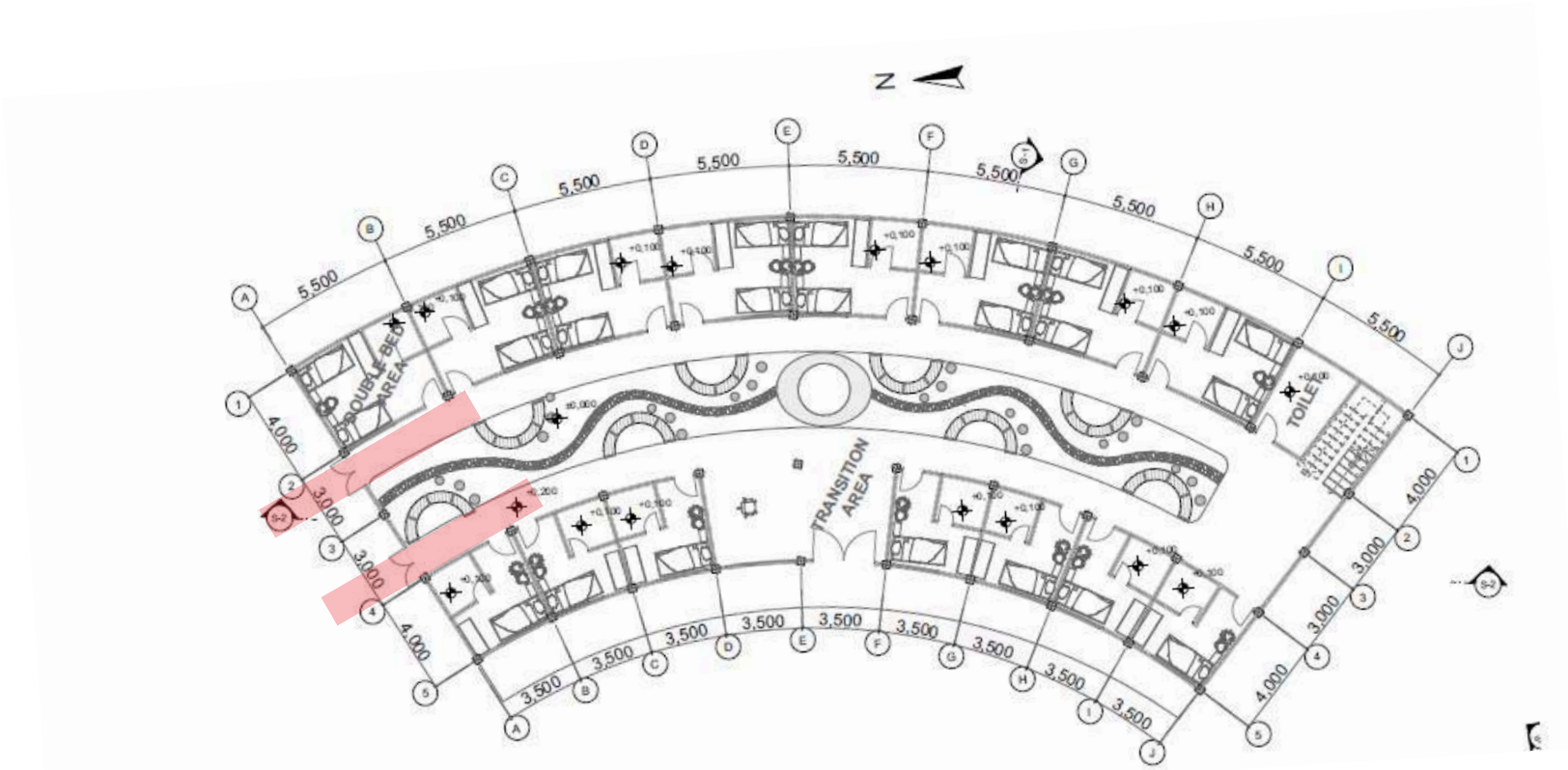


Figure 4.5.9 Rehabilitation unit implements safety concept (source: Author)

What: The design incorporates emergency exits at several corners of the building to enhance safety.

How: Emergency exits are strategically placed at various corners to ensure they are easily accessible from different parts of the building. This design allows for multiple clear and direct escape routes in case of an emergency, facilitating a swift and organized evacuation.

Why: Strategically placed emergency exits improve occupant safety by providing multiple escape routes, which helps reduce congestion and potential hazards during an emergency evacuation. This approach ensures that the building complies with safety regulations and enhances the overall emergency response plan, contributing to a safer environment for all occupants.

WATER IMPLEMENTS FOUNTAIN IN RAINING SESION



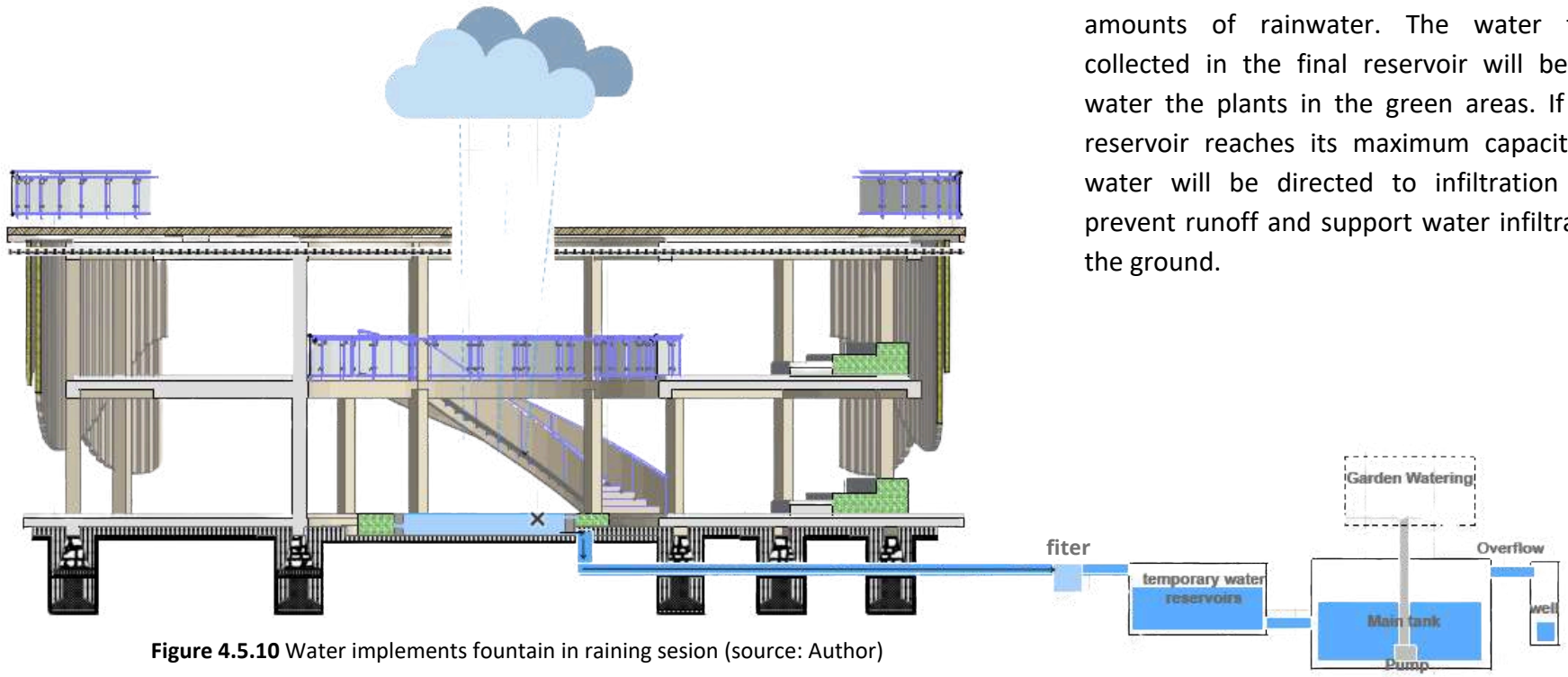


Figure 4.5.10 Water implements fountain in raining sesion (source: Author)

The system designed to handle rainwater involves several stages of management that are integrated with the building functions. When it rains, rainwater will be collected and temporarily stored in reservoirs that serve as fountain elements in the therapy and inpatient units. The water from these temporary reservoirs will then be directed to a final reservoir designed to collect large amounts of rainwater. The water that has collected in the final reservoir will be used to water the plants in the green areas. If the final reservoir reaches its maximum capacity, excess water will be directed to infiltration wells to prevent runoff and support water infiltration into the ground.

THERAPEUTIC GARDEN IN MIDDLE

- What:

The garden located in the center of the building is designed to integrate with the rest of the space, so that every area in the building can enjoy a view of the garden.

- How:

The strategic design of the garden ensures wide visual access from different areas of the building. The central placement of the garden maximizes the views and visual connections from each room, creating an atmosphere that blends with nature.

- Why:

The design provides a harmonious and calming impression for all building occupants, supporting their physical and mental well-being. The integration of the garden with the space enhances the quality of life by connecting residents with the beauty of nature, creating a more refreshing and comfortable environment.



Figure 4.6.1 Therapeutic garden in middle (source: Author)

FOUNTAIN IN THE CENTER OF THE GARDEN



Figure 4.6.2 fountain in the center of the garden (source: Author)

What:

There is a fountain in the center of the garden designed to maximize therapy using sound, and the paths around the garden are curved.

How:

The fountain located in the center of the garden serves to create the soothing sound of gurgling water, which contributes to a therapeutic and relaxing effect. The paths around the park are designed with curved shapes to add a dynamic visual element and provide a more interesting and enjoyable walking experience.

Why:

The fountains serve to enhance sound therapy, help calm the mind and body, and provide a more relaxed and refreshing experience for park visitors. The twisting path creates a more natural and pleasant atmosphere, enriching the park walking experience and maximizing the therapeutic benefits of the surroundings.

GARDENING AREA ON GARDEN



Figure 4.6.3 gardening area on garden (source: Author)

What:

In the garden area there is a gardening area designed to be used by patients as part of their therapeutic process.

How:

This gardening area allows patients to be directly involved in gardening activities, such as planting, tending and harvesting plants. These activities are carried out with supportive facilities, such as easily accessible planting beds and ergonomic gardening tools.

Why:

Gardening offers significant therapeutic benefits, such as reducing stress, improving mental well-being, and providing a sense of accomplishment and responsibility. It also helps patients in the rehabilitation process by encouraging gentle physical activity and increasing interaction with the natural environment, which in turn supports overall well-being.

FLOWER AREA ON GARDEN

What:

In the garden area there are beautiful flower areas and seating areas designed to allow visitors to enjoy the garden views.

How:

The flower area is decorated with various types of flowering plants which create a bright and pleasant atmosphere. The seating area is equipped with comfortable seating, such as benches or chairs, which are placed in strategic locations to provide the best view of the entire garden.

Why:

Flower areas add to the visual beauty of the garden and create a refreshing atmosphere, while seating areas provide space for visitors to relax and enjoy the view. This combination enhances the overall experience in the garden, providing a tranquil place for relaxation and reflection, and supporting visitors' mental and physical wellbeing.

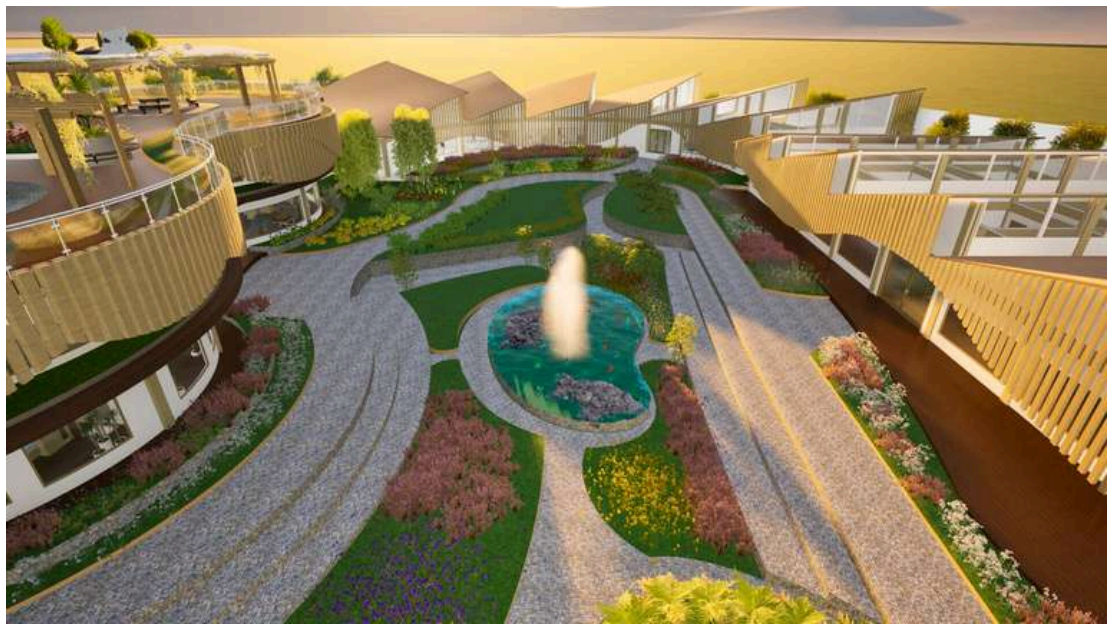
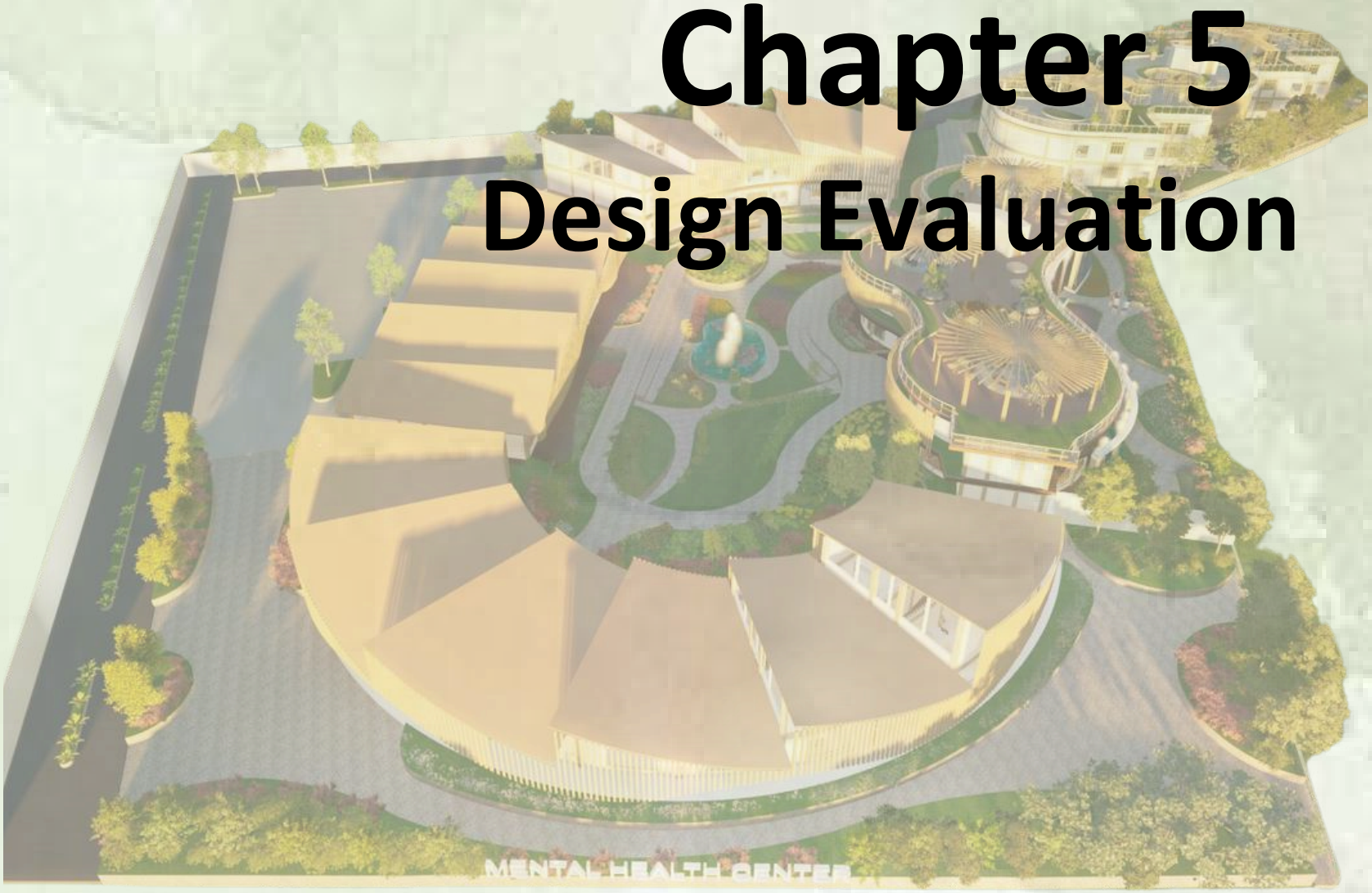


Figure 4.6.4 Flower area on garden (source: Author)

Chapter 5
Design Evaluation



EXPLANATION AND INFORMATION RELATED TO THE MASS OF THE SUPPORTIVE BUILDING

IMPROVE ENTRANCE AND DROP-OFF AREA DESIGN FOR MENTAL HEALTH CENTER.

REFINE CIRCULATION AREAS TO EACH BUILDING MASS AND SHADE AREAS FOR SITTING IN THE GARDEN.

DROP OFF CIRCULATION

KITCHEN AREA AND CANTEEN MORE BIGGER

TECHNICAL DETAILS ON ROOF GARDEN STRUCTURE AND LAYERS.

ENHANCE SAFETY FEATURES FOR ROOFTOP AREAS IN MENTAL HEALTH CENTE

SHOW THAT THE BUILDING HAS DIRECT VISUAL ACCESS TO THE OUTSIDE AREA IN TECHNICAL DRAWING

Design Evaluation

The design evaluation was carried out through a final exam involving two examiners and one supervisor. Based on the evaluation results, it was found that the design needs to be strengthened and clarified on several important points. The points that need to be considered and improved are as follows:

5.1 Guideline Desain Evaluation

Based on the test results, there are several points that must be considered and will become a design guideline for further development. The following are those points:

Explanation and Information on Supportive Building Mass
Ensure that the explanation of the mass of the supportive building is clear and detailed. This information should cover the technical and functional aspects of the supportive building.

Improved Design of Entrance and Drop-Off Areas for Mental Health Centers
The design of the entrance and drop-off area needs to be improved to make it more functional and comfortable for users, especially patients and visitors at the mental health center.

Improvement of Circulation Area to Each Building Mass and Shading in the Garden Area
Circulation in each building mass needs to be refined to ensure easy and efficient access. In addition, the garden area should provide comfortable seating with adequate shade.

Circulation at the Drop-Off Area
The drop-off area should be redesigned to ensure smooth and safe vehicular circulation, minimizing distractions or obstacles.

Enlarge Kitchen and Canteen Area
The kitchen and canteen area needs to be expanded to cater to the larger needs, ensuring that the area can accommodate more people while maintaining comfort and efficiency.

Technical Details on Roof Garden Structure and Layers
Technical drawings should include details of the roof garden structure and layers, providing clear information about each element that makes up the area.

Improving Safety Features in the Rooftop Area of the Mental Health Center
Safety features in the rooftop area should be enhanced, including increased railing height and other additional protection to ensure patient and staff safety.

Indicate Direct Visual Access to Outside Areas in Technical Drawings
Technical drawings should clearly show that the building has direct visual access to the outside area, through the use of window cutouts and other design elements that reflect openness and connection to the outside environment.

These guidelines will serve as a key reference in subsequent design development, ensuring that all aspects identified in the mock exam are properly addressed.

EXPLANATION AND INFORMATION RELATED TO THE MASS OF THE SUPPORTIVE BUILDING

5.2

The examiner said that the explanation and information related to the mass of the Supportive building is still lacking in detail, so further elaboration on the important aspects of this building is needed.

SUPPORTIF BUILDING
MANAGEMENT & STAFF AREA

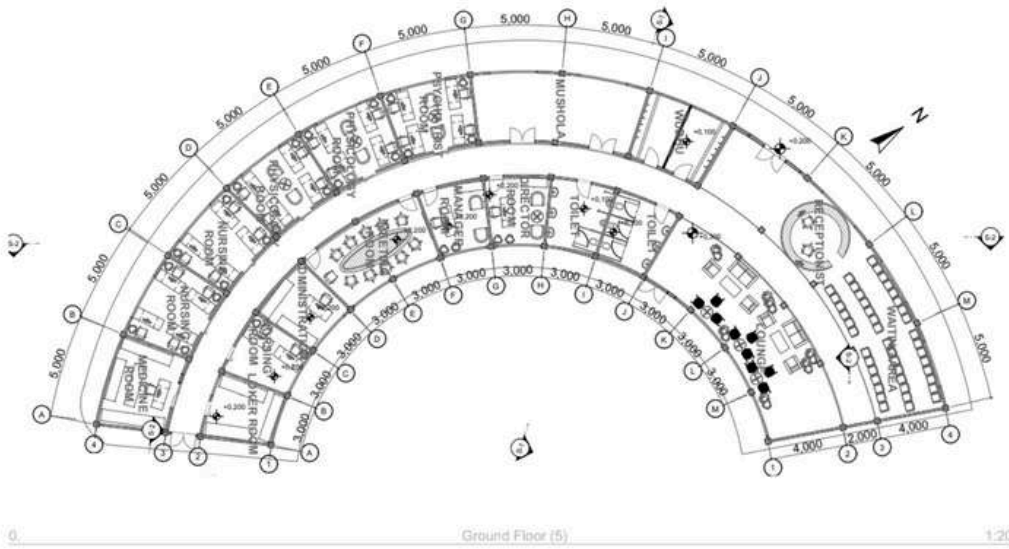


Figure 5.2.1 Plan Management & staff Area (source: Author)



Figure 5.2.2 Elevation Management & staff Area (source: Author)

Therefore, I will provide a more detailed explanation of the function and use of each element of the supportive building. The explanation will include the specific role of each area in supporting the overall operation.

The Supportive Building in this design serves as the administrative and operational center, catering to the various needs of management and staff. This area includes office space for managers and directors, a reception area, and a medicine storage and distribution area. In addition, the building is also the first place to receive visiting guests, especially for administrative and managerial purposes.

Outpatients who have made an appointment will be directed to the therapy room for re-registration, given that each building mass in this complex has its own administration area. The Supportive Building is focused on supporting the overall office and guest service needs. For guest convenience, public facilities such as prayer rooms and lounge areas are also provided. This design ensures efficient operations and guest comfort are well catered for.

The Supportive Building is designed using facades in the rear and front areas to overcome direct sunlight exposure from the west and east. These facades serve to reduce overheating and provide thermal comfort for residents. In addition, the building is also equipped with a sawtooth roof, which is specially designed to optimize daylighting in each hallway. This roof design allows sunlight to enter optimally, thereby reducing the need for artificial lighting and creating a brighter and more comfortable environment.

SUPPORTIF BUILDING SERVICE AREA

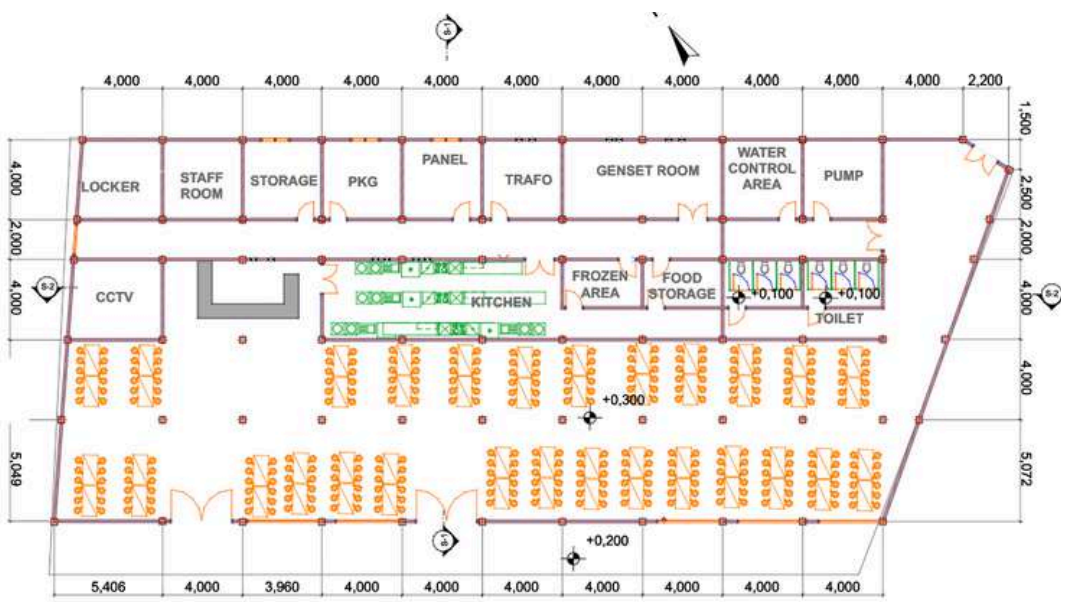


Figure 5.2.3 Plan Kitchen and service area (source: Author)

The Supporting Service building is one of the supporting buildings specifically designed to accommodate service areas, such as CCTV and MEP (Mechanical, Electrical, and Plumbing) areas. This building is deliberately made separate from the main area to maintain the comfort and safety of patients, ensuring that they are not disturbed by technical or operational activities.

In addition, the building is also equipped with a canteen area that can accommodate up to 300 people. The canteen is placed at the very front of the building to maximize the view towards the garden, thus creating a more pleasant atmosphere while eating. To maintain privacy and security, the service areas within the building are connected through separate hallways that can only be accessed by employees, ensuring that patients and visitors do not enter inappropriate areas.

The Supporting Service building was also designed using a sawtooth roof to maximize natural lighting. This design is particularly important as many of the hallways in the building require sufficient natural lighting to create a bright and comfortable environment.

In the front area of the building, there are many window openings, so additional facades were installed to reduce overheating due to direct sunlight. Meanwhile, the rear area of the building does not use a facade due to the smaller number and size of windows, so it does not require additional protection from heat.



Figure 5.2.4 Elevation Kitchen and service area (source: Author)

Examiner suggested that the drop-off area in this design be improved by making it more open and expanding the patio area, thus providing more convenience for users. In the revision of the design, it is important to consider the expansion of this drop-off - area, ensuring that users can easily access and feel comfortable upon arrival at the facility. The more open design and larger terrace area will help create a more welcoming and functional feel to the area.



Figure 5.3.1 Before revision entrance and drop-off area design (source: Author)



Before the revision, the drop-off area in the design was still not very open, with a narrow terrace area and no clear distinction between the drop-off area and other entrances. This makes the drop-off area less prominent and less convenient to use. This design change will focus on improving these weaknesses by making the drop-off area more open, expanding the terrace, and adding clear distinguishing elements to make this area more functional and comfortable for users.

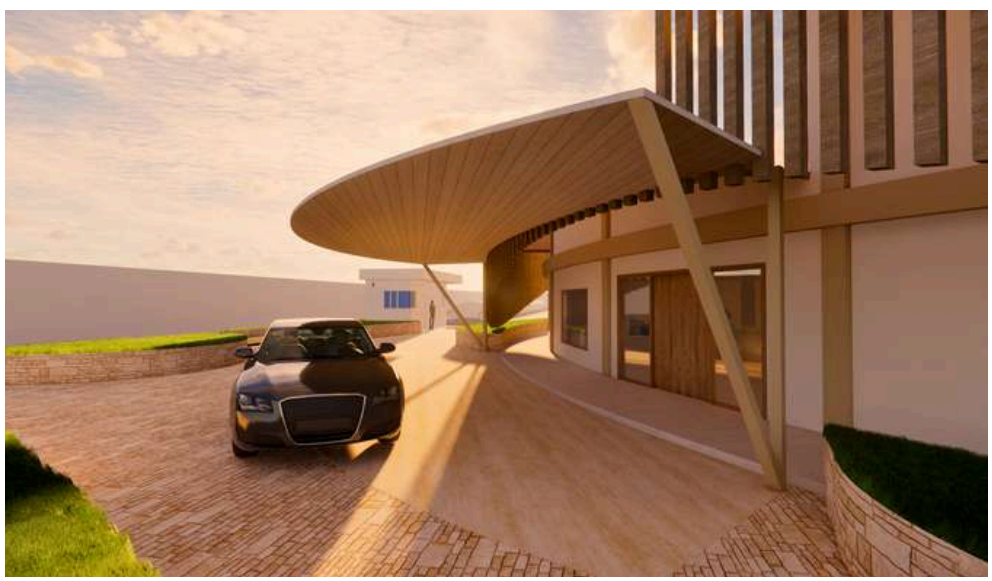


Figure 5.3.2 After revision entrance and drop-off area design (source: Author)

After the revision, the difference in the drop-off area is obvious. This area is now more open, with a wider terrace and clear distinguishing elements, making it more functional and convenient for users. This updated design managed to significantly improve the quality and convenience of the drop-off area.

5.4 REFINE CIRCULATION AREAS TO EACH BUILDING MASS AND SHADE AREAS FOR SITTING IN THE GARDEN.

The examiner suggested improving the circulation area so that each building mass has more convenient access, as well as adding shaded areas in the garden for seating. Before the revision, the circulation between gardens was still uncomfortable and there was no adequate shading for the seating area in the garden. This makes the user experience in the area less than optimal, so improvements need to be made in the design.



Figure 5.4.1 Before revision circulation areas to each building mass (source: Author)

After the revision, significant improvements have been made to the circulation areas and seating areas in the park. Now, along the circulation path, vines are added as shady elements that not only provide protection from the sun but also create a cooler and more natural atmosphere. These vines were chosen to blend in with the surrounding environment, strengthening the sense of harmony between the building and nature.

In addition, the seating area in the garden also received special attention. The vines not only decorate the circulation paths, but are also used in the sitting areas, providing comfortable shade for users. With these additions, the park not only functions as a recreational space, but also as a place that better supports relaxation and social interaction.

This revision reflects a design approach that considers user comfort while reinforcing the biophilic concept on which the overall design is based. The close relationship between the building and nature is further emphasized, creating a space that is not only aesthetically pleasing but also functional and environmentally friendly.

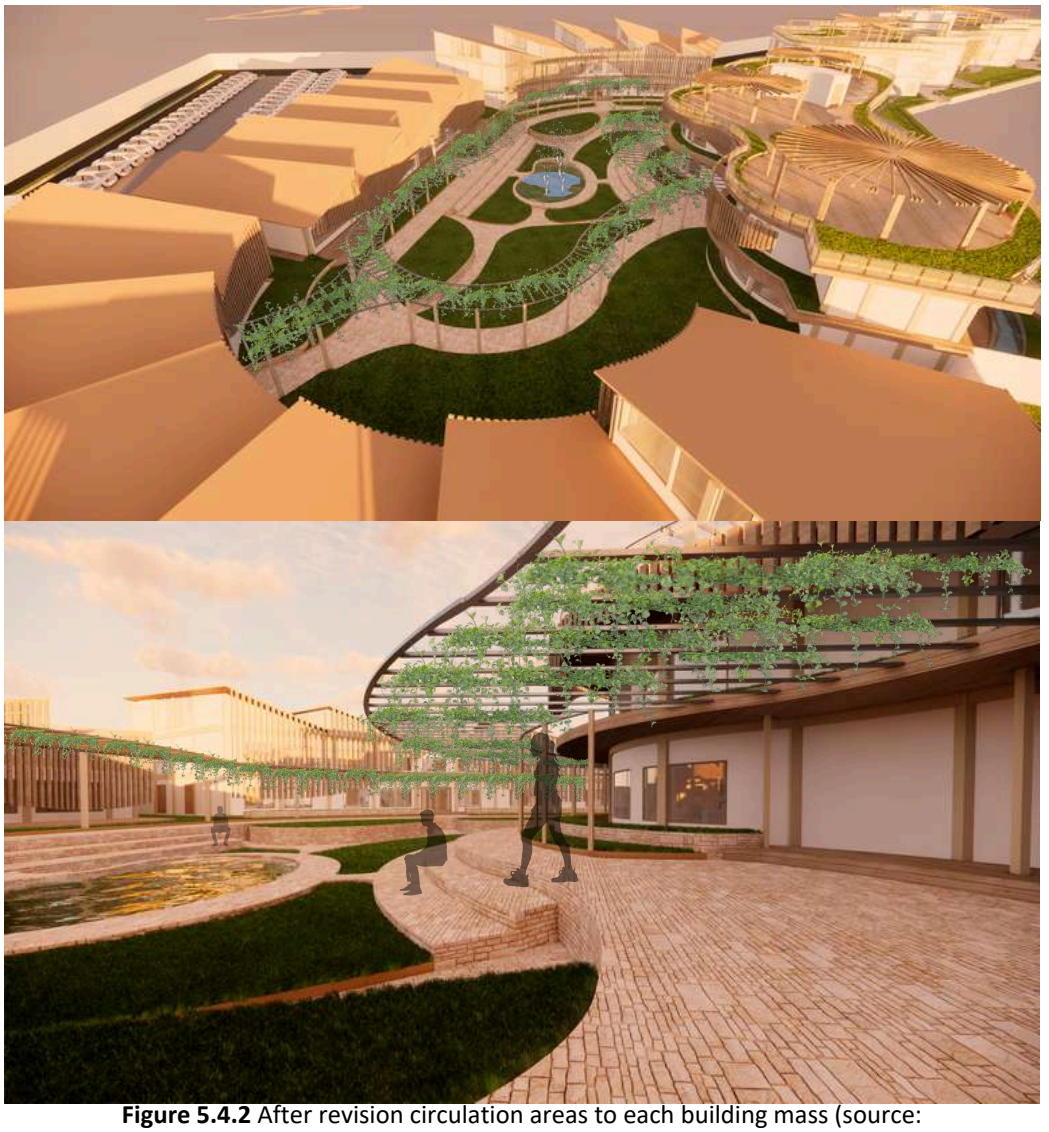


Figure 5.4.2 After revision circulation areas to each building mass (source: Author)

5.5 DROP OFF CIRCULATION

The examiner noted that the circulation leading to the drop-off area in the initial design was too complex, requiring many maneuvers and lacking simplicity, which is clearly visible in the presented diagrams. The winding and convoluted pathway has the potential to confuse users, particularly those accessing the area for the first time. In response to this feedback, the circulation leading to the drop-off area was revised to be more straightforward.

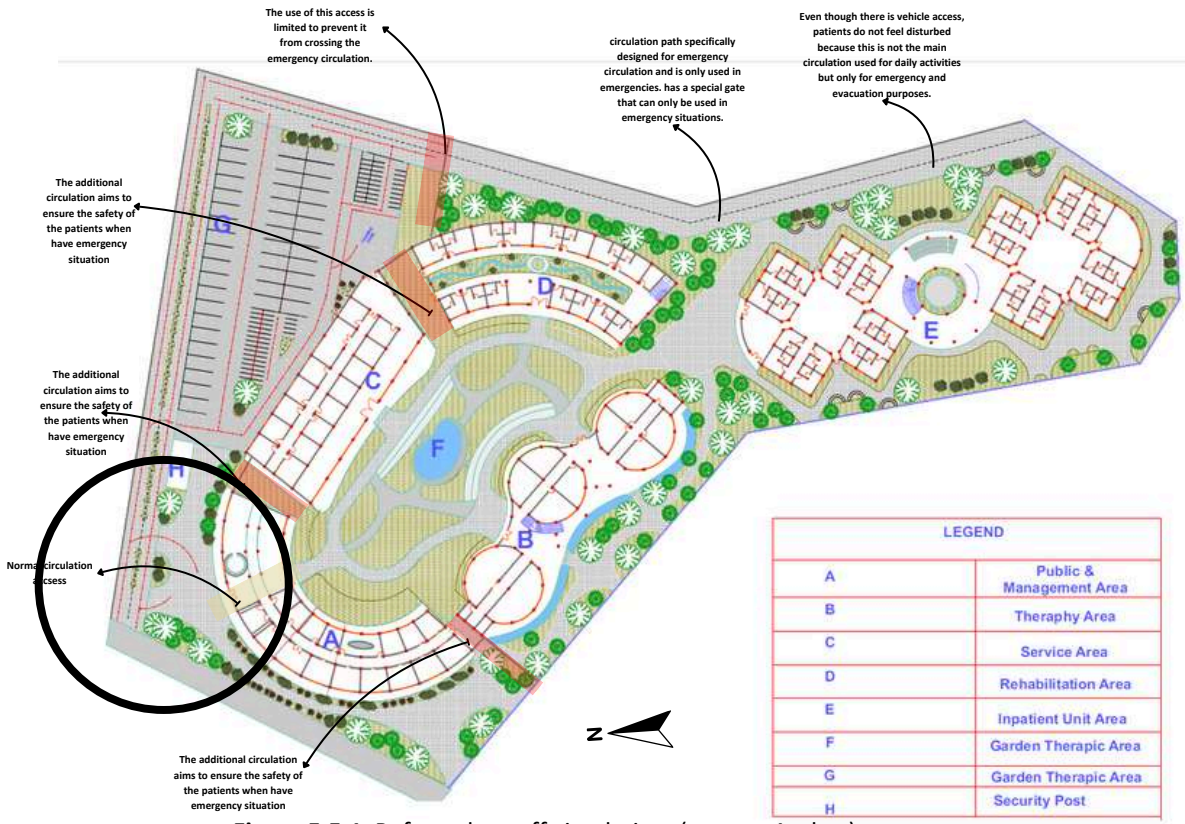


Figure 5.5.1 Before drop off circulation (source: Author)

The previously winding path was redesigned to be more linear, minimizing unnecessary maneuvers and making access to the drop-off area more efficient and easier to navigate. This change aims to enhance the user experience by providing a simpler and clearer circulation, thereby reducing confusion and increasing comfort when entering the drop-off area. Thus, this revision not only improves the functional aspect of circulation but also ensures that the resulting design is more user-friendly and practical in its application.



Figure 5.5.2 After revision circulation areas to each building mass (source: Author)

KITCHEN AREA AND CANTEEN MORE BIGGER

5.6

Examiners suggested that the current kitchen area is inadequate because it is too small, making it impossible to cook comfortably, especially with the large number of people who will come to the canteen. The kitchen area, which is only 4x4 meters in size, seems insufficient to meet operational needs.

Therefore, it was necessary to make revisions so that the kitchen area could be expanded.

After the revision, the kitchen size became 12x4 meters, which provides more space for cooking activities. In addition, the canteen seating area was also enlarged. Initially, this area could only accommodate 108 people, but after it was expanded, the capacity increased to accommodate up to 300 people. This revision was done to ensure that the canteen facilities can serve a larger number of visitors more effectively and comfortably.

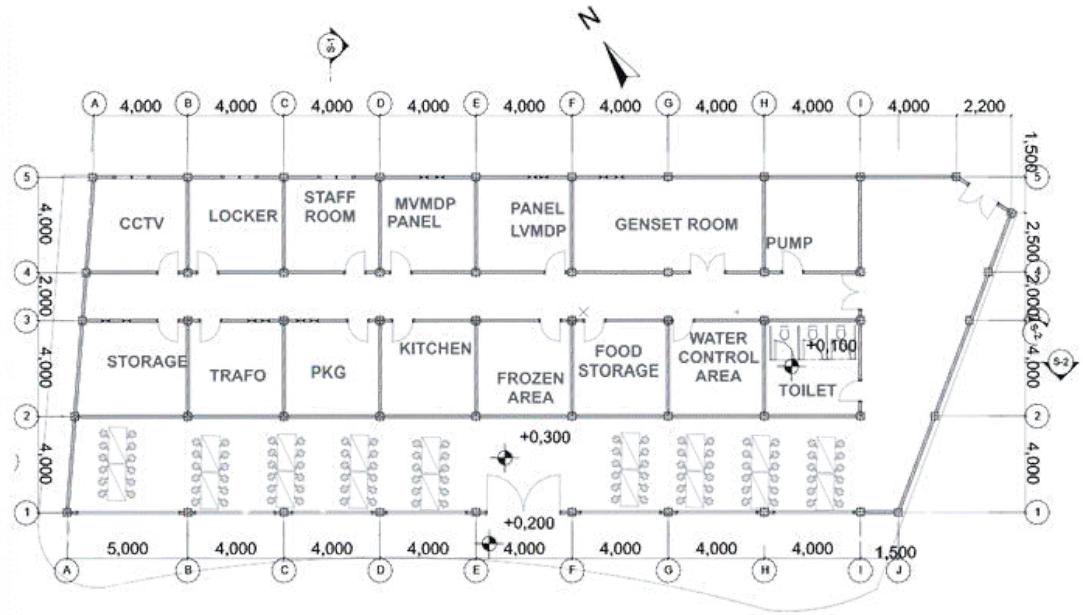


Figure 5.6.1 Before kitchen area and canteen more bigger (source: Author)

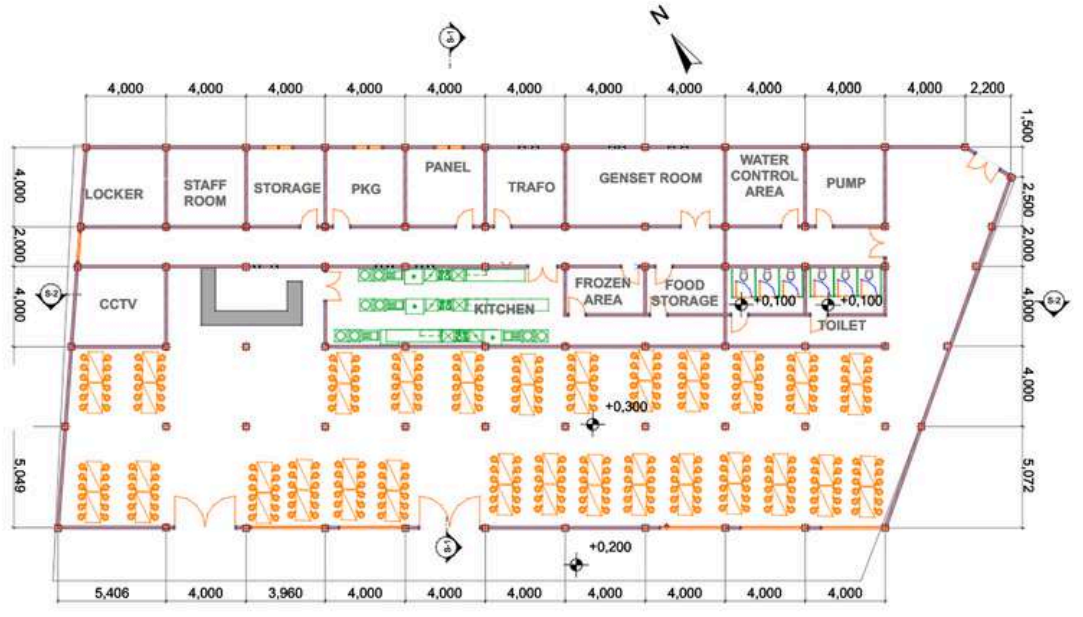


Figure 5.6.2 After kitchen area and canteen more bigger (source: Author)

TECHNICAL DETAILS ON ROOF GARDEN STRUCTURE AND LAYERS. 5.7

The examiner suggested that the roof garden area is still incomplete, especially in terms of the technical size of each layer of the roof garden. Therefore, it is necessary to add details to the technical drawing that includes the size of each layer in the roof garden area. This addition was intended to provide a clearer and more accurate picture of the roof garden construction and design, so that all technical aspects could be better understood. After revision, the technical drawing has been improved with the addition of details that include the size and specifications of each layer, ensuring that all technical elements are properly accounted for.

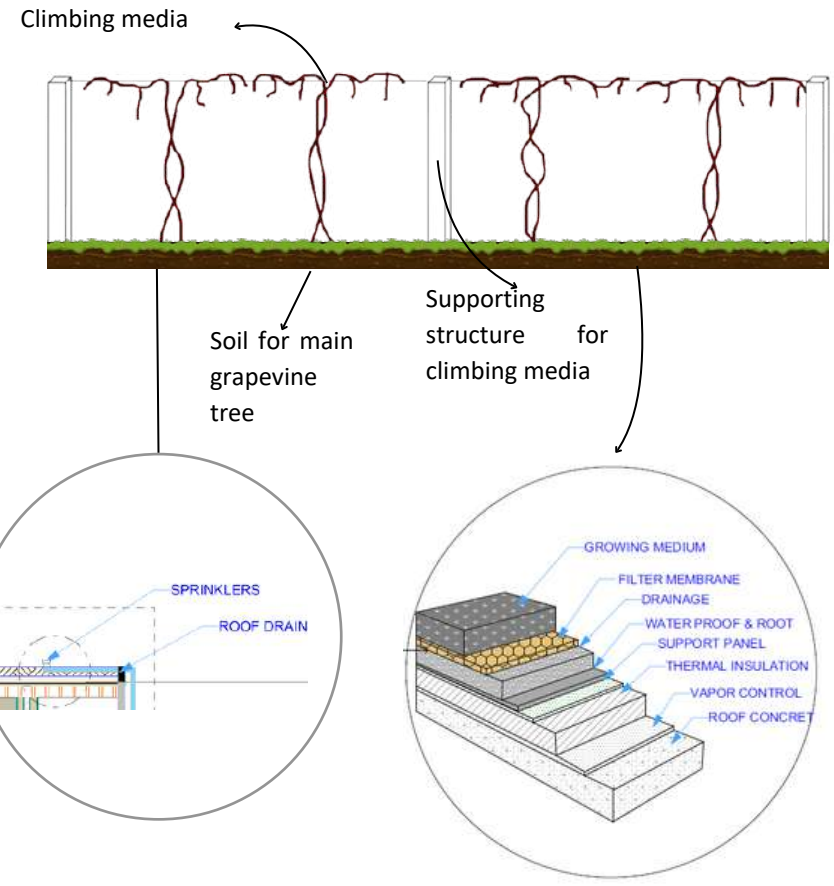
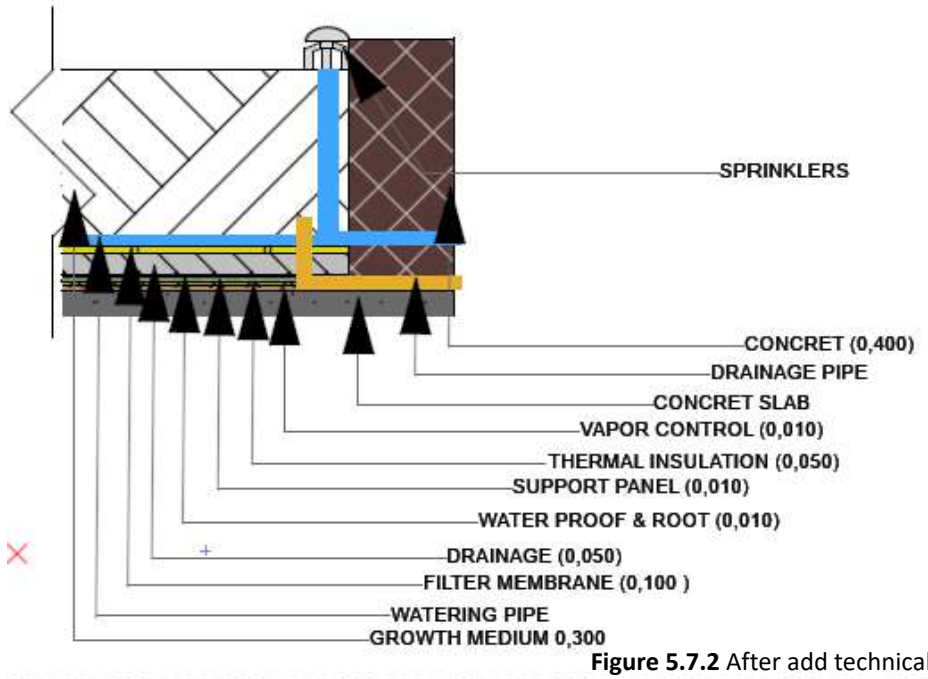


Figure 5.7.1 Before add technical details on roof garden structure and layers. (source: Author)



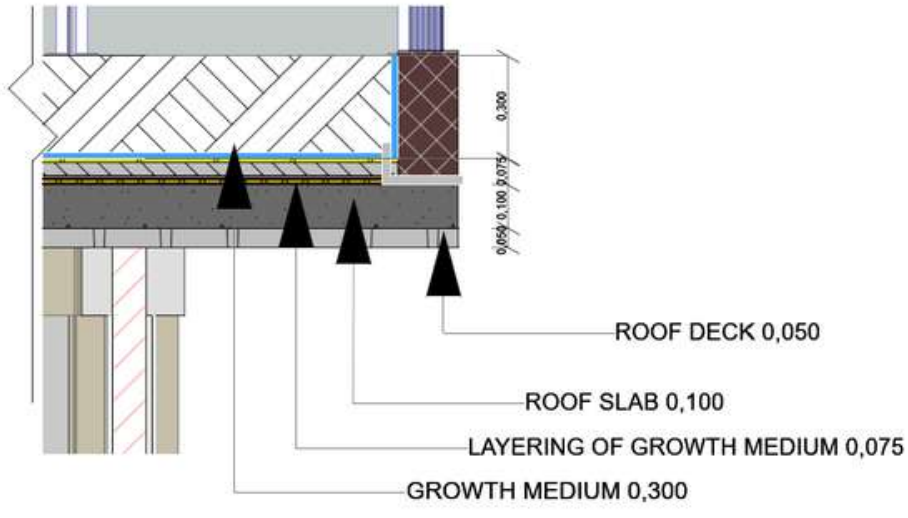


Figure 5.7.2 After add technical details on roof garden structure and layers. (source: Author)

The examiner emphasized the importance of ensuring that any railings installed at the facility are capable of ensuring patient safety. The previously installed railings were 1 meter high, which was considered to still pose a risk to patient safety, especially in the event of an incident involving patients with impaired mobility or conditions that affect their balance. The railing height of only 1 meter is considered inadequate to prevent potential accidents, such as falling from a height.

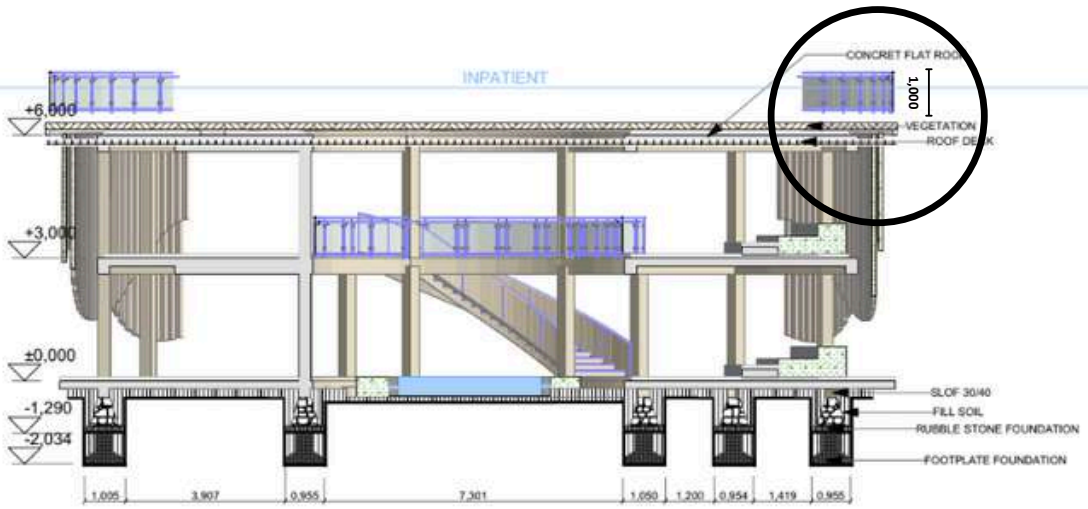


Figure 5.8.1 Before enhance safety features for rooftop areas in mental health center (source: Author)

Therefore, in the proposed revision, the railing height is increased to 2 meters. This increase is designed to provide extra protection, especially in risky areas such as the second floor and roof garden, where patients may be. With the greater railing height, the potential risk of accidents can be minimized, thus ensuring the safety of patients while in the facility. This revision not only improves safety, but also provides a sense of security for patients and staff, ensuring that the area is fully compliant with the expected safety standards.

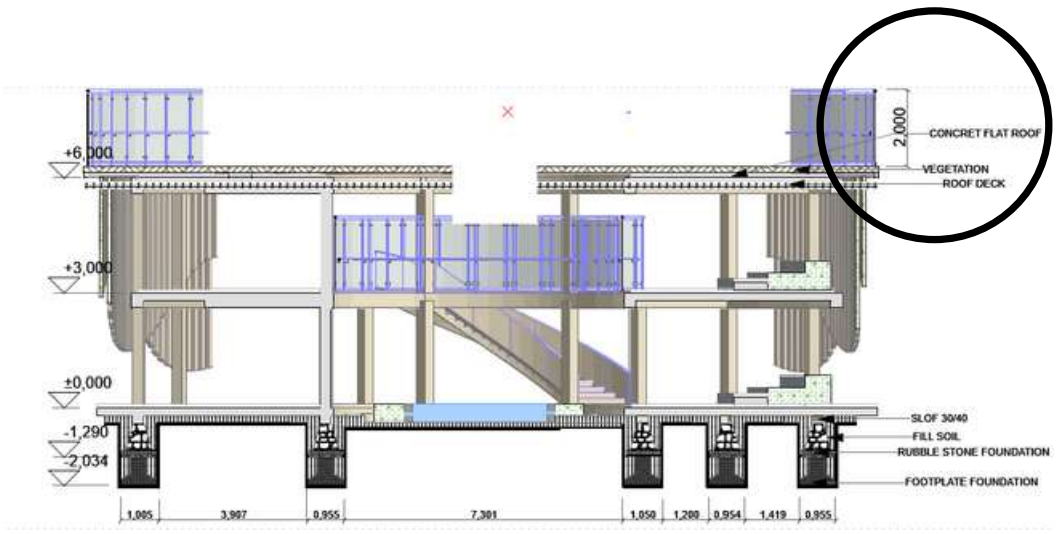


Figure 5.8.2 After enhance safety features for rooftop areas in mental health center (source: Author)

SHOW THAT THE BUILDING HAS DIRECT VISUAL ACCESS TO THE OUTSIDE AREA IN TECHNICAL DRAWING

5.9

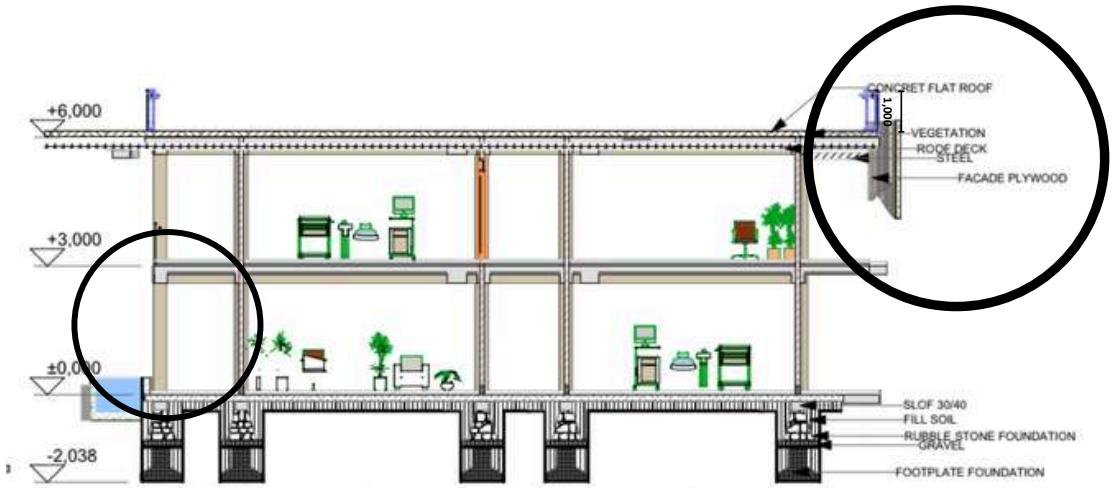


Figure 5.9.1 Before show that the building has direct visual access to the outside area in technical drawing (source: Author)

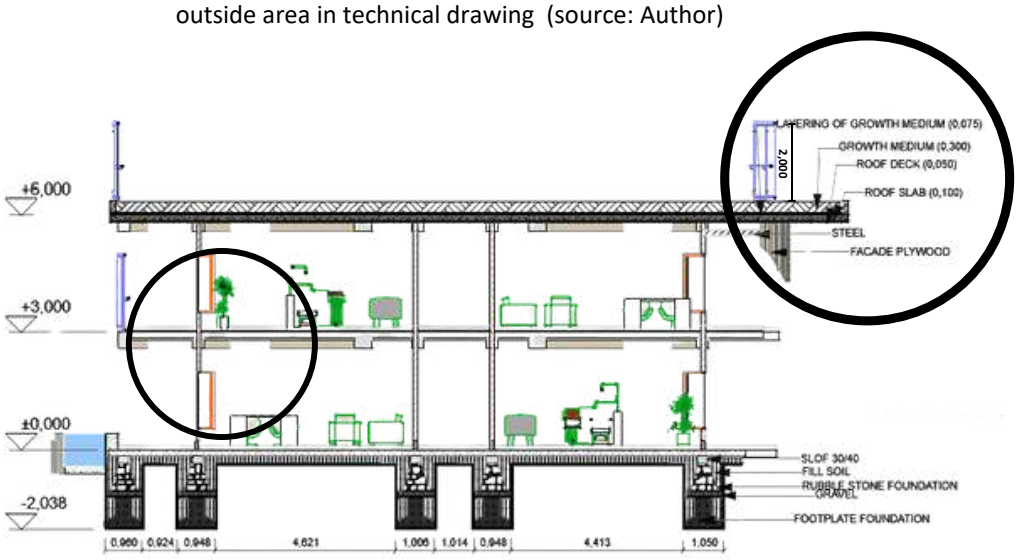


Figure 5.9.2 After show that the building has direct visual access to the outside area in technical drawing (source: Author)

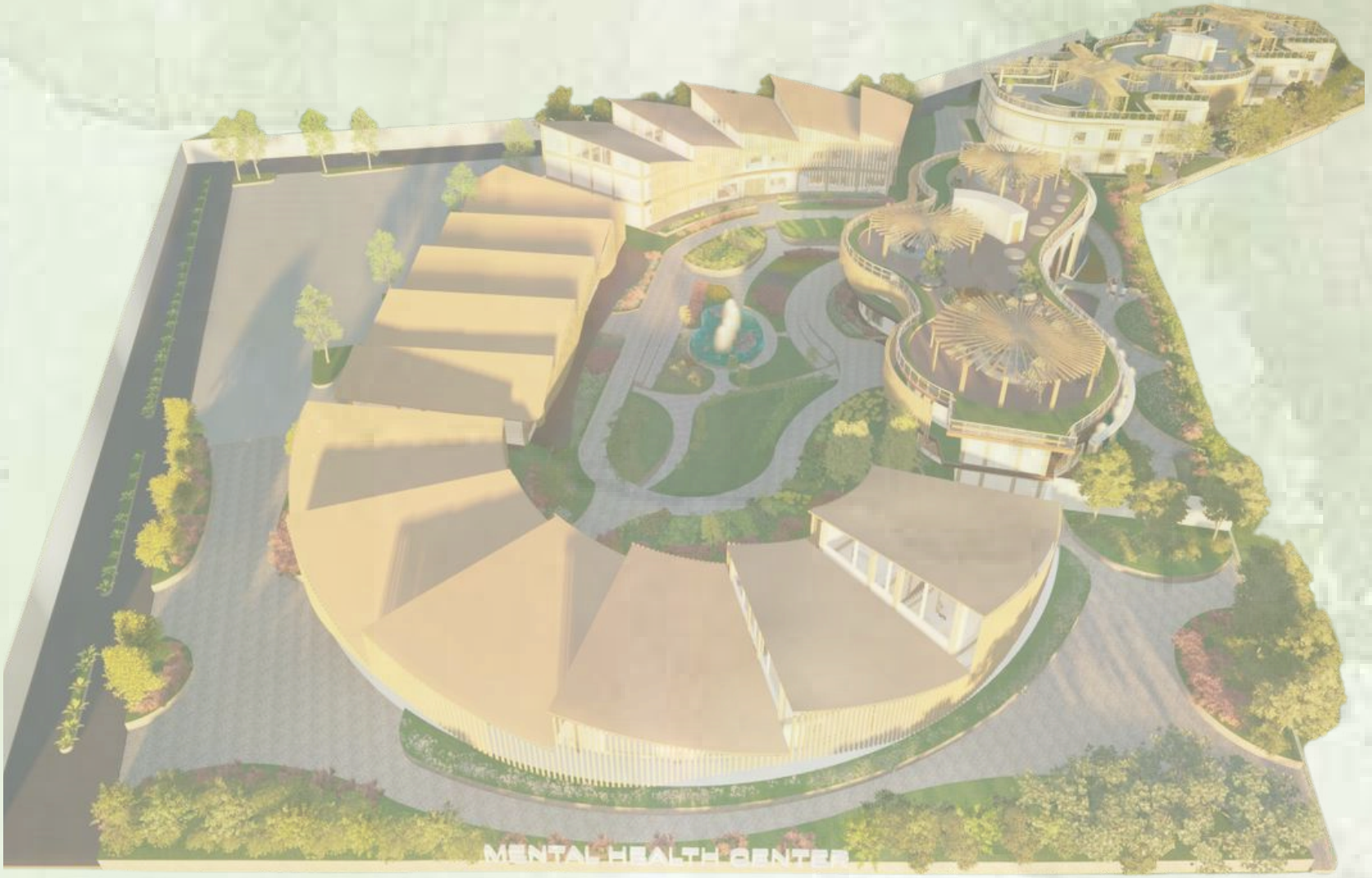
The examiner is concerned that in the technical drawing section, it is important to show that the building has direct visual access to the outside area. This should not only be mentioned in the rendering, but should also be clearly visible in the technical drawings.

For this reason, revisions were made by adding details to the building section drawings that clearly show the window cuts. This addition aims to prove that the building does have direct visual access to the outside scenery, so that all design elements related to visual access can be better understood and verified through technical drawings.

This revision ensures that the building design fulfills the need for visual access to the external environment in a functional and aesthetically pleasing manner.

Chapter 6

attachment



- **Plagiarism Check Result**
- **Architectural Presentation Board (APREB)**
- **Reference List**

Direktorat Perpustakaan Universitas Islam Indonesia
Gedung Moh. Hatta
Jl. Kaliurang Km 14,5 Yogyakarta 55584
T. (0274) 898444 ext.2301
F. (0274) 898444 psw.2091
E. perpustakaan@uii.ac.id
W. library.uii.ac.id

SURAT KETERANGAN HASIL CEK PLAGIASI
Nomor: 2423952761/Perpus./10/Dir.Perpus/VI/2024

Bismillaahirrahmaanirrahiim

Assalamualaikum Wr. Wb.

Dengan ini, menerangkan Bahwa:

Nama	: Nurdianti
Nomor Mahasiswa	: 20512155
Pembimbing	: Prof.Noor Cholis Idham S.T., M.Arch., Ph.D., IA
Fakultas / Prodi	: Teknik Sipil dan Perencanaan/ Arsitektur
Judul Karya Ilmiah	: Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in , Yogyakarta"

Karya ilmiah yang bersangkutan di atas telah melalui proses cek plagiasi menggunakan **Turnitin** dengan hasil kemiripan (*similarity*) sebesar **7 (Tujuh) %.**

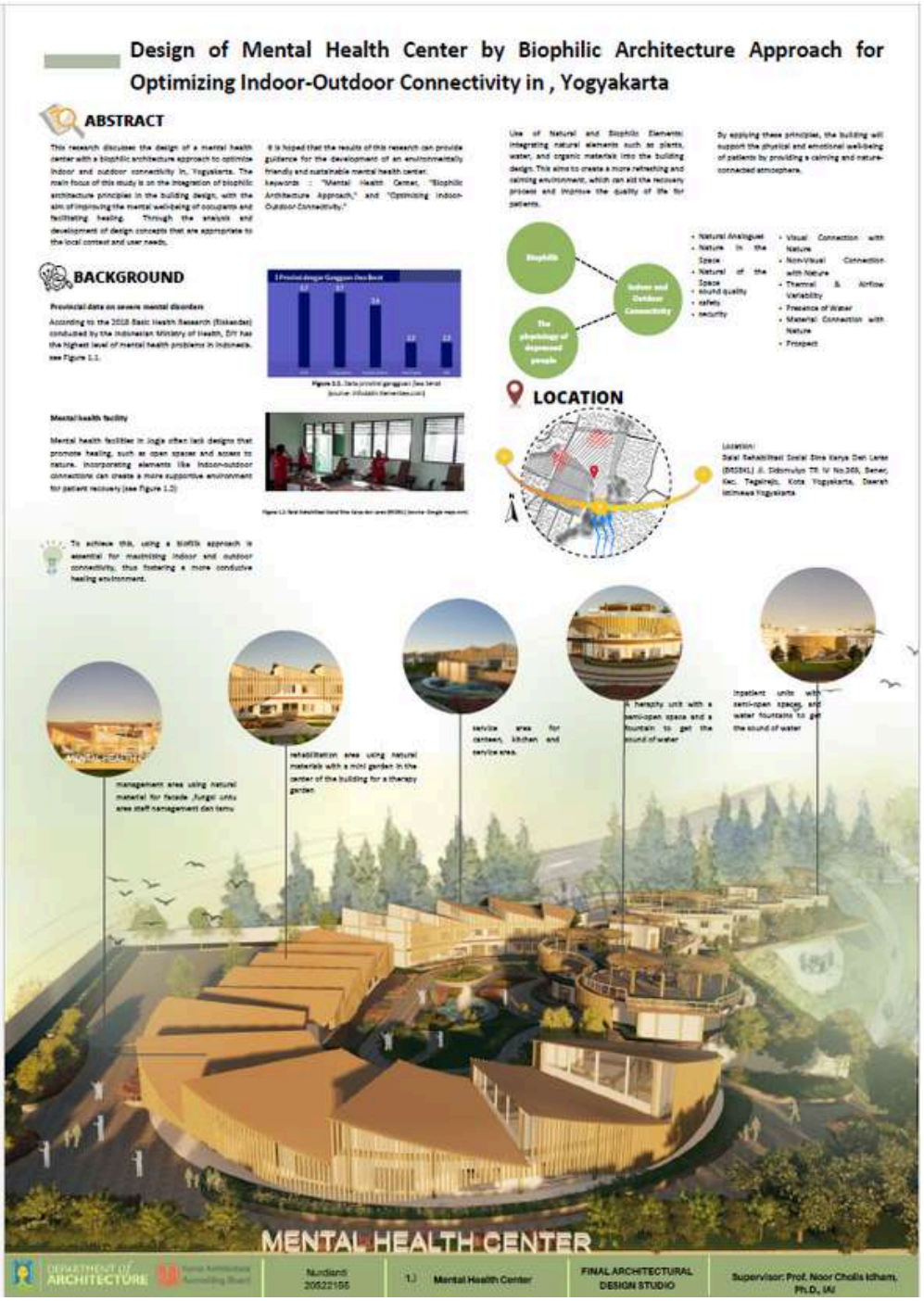
Demikian Surat Keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

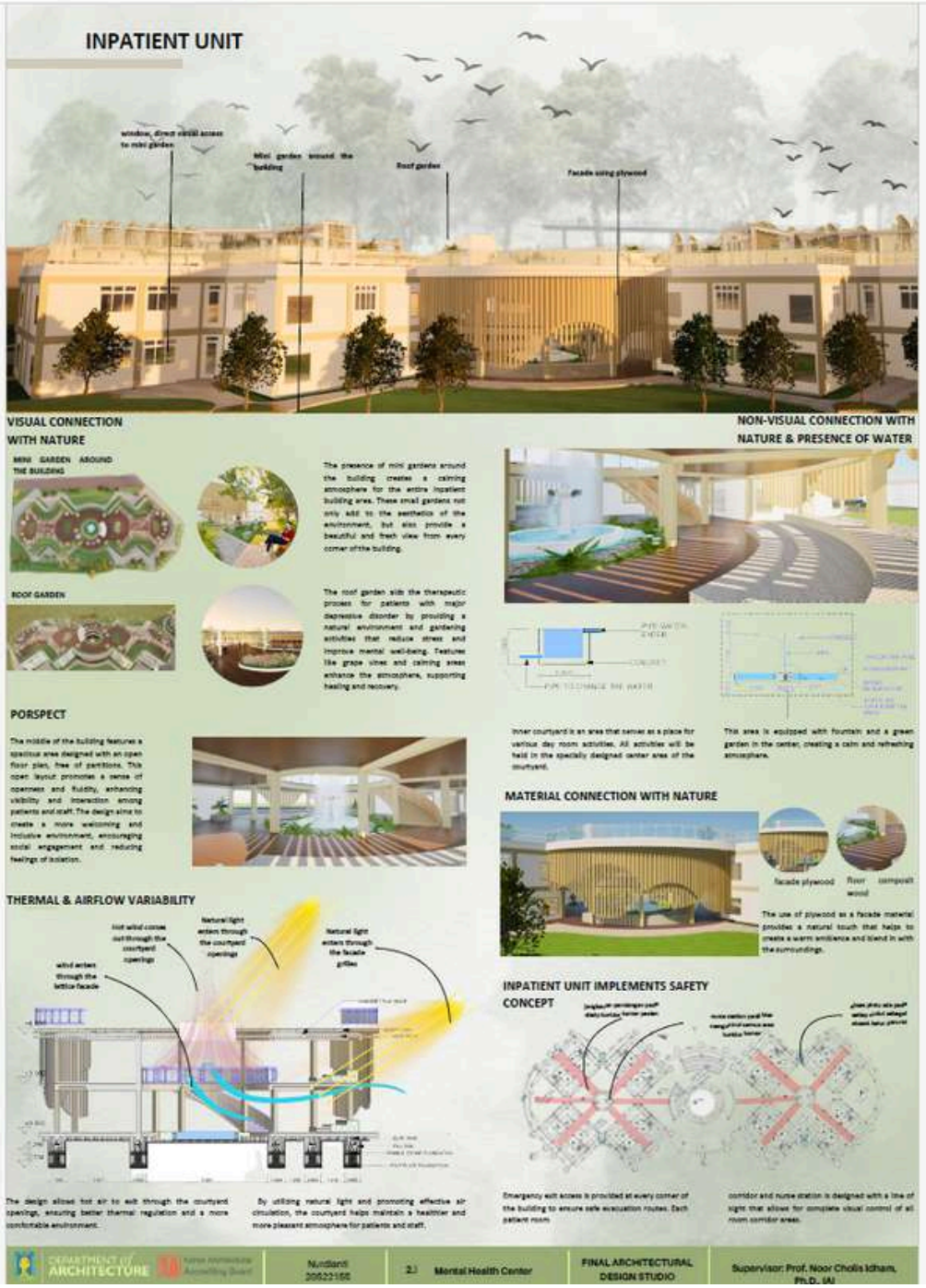
Wassalamualaikum Wr. Wb.

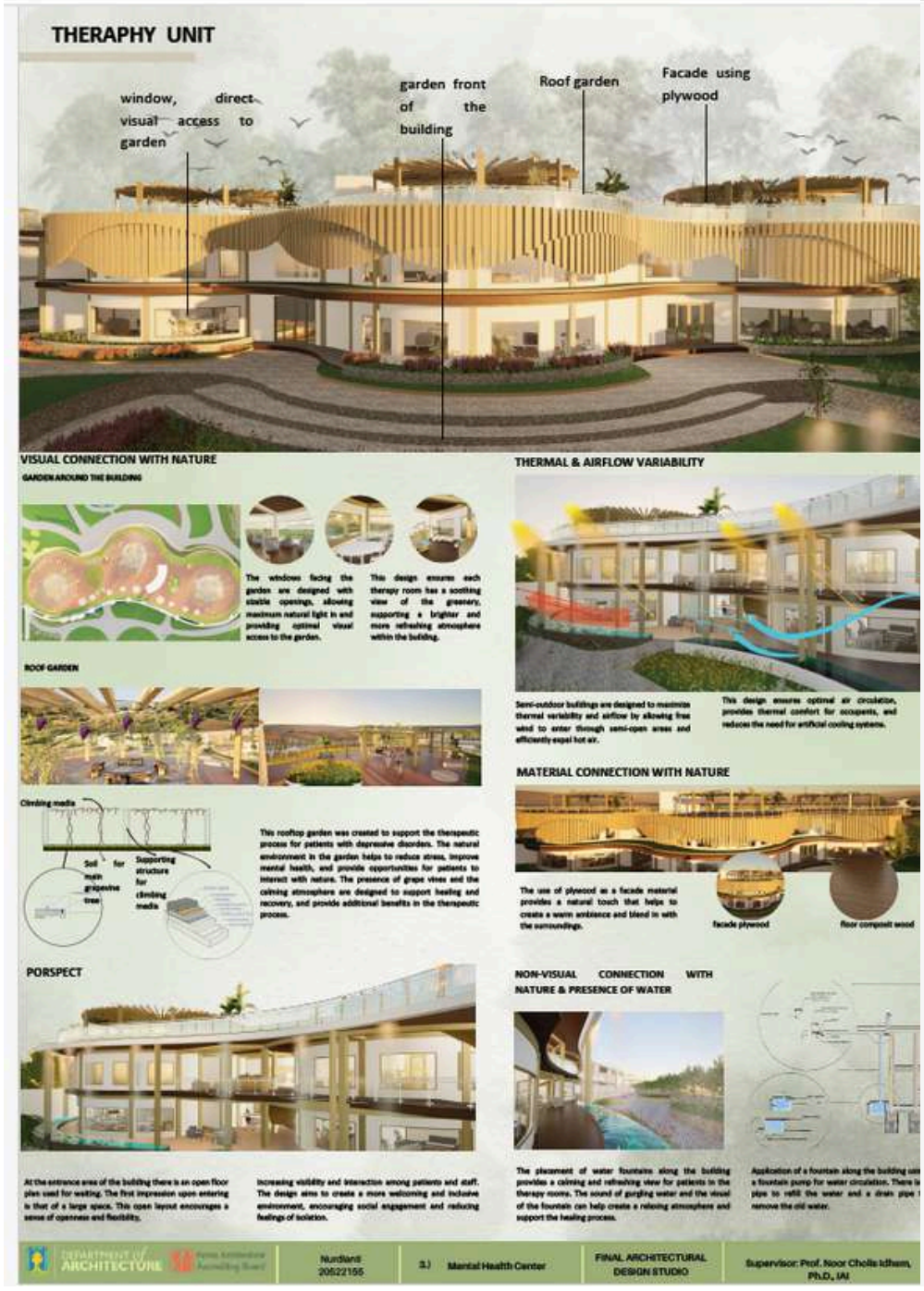
Yogyakarta, 7/29/2024
Direktur

UNIVERSITAS ISLAM INDONESIA
DIREKTORAT PERPUSTAKAAN
YOGYAKARTA

Muhammad Jamil, SIP.


Design of Mental Health Center by Biophilic Architecture Approach for Optimizing Indoor-Outdoor Connectivity in , Yogyakarta
ABSTRACT
BACKGROUND
LOCATION
MENTAL HEALTH CENTER
DEPARTMENT OF ARCHITECTURE
Nurdianti 20522155
1.) Mental Health Center
FINAL ARCHITECTURAL DESIGN STUDIO
Supervisor: Prof. Noor Cholis Idham, Ph.D., IAI


INPATIENT UNIT
VISUAL CONNECTION WITH NATURE
NON-VISUAL CONNECTION WITH NATURE & PRESENCE OF WATER
PORSPECT
MATERIAL CONNECTION WITH NATURE
THERMAL & AIRFLOW VARIABILITY
INPATIENT UNIT IMPLEMENTS SAFETY CONCEPT
DEPARTMENT OF ARCHITECTURE
Nurdianti 20522155
2.) Mental Health Center
FINAL ARCHITECTURAL DESIGN STUDIO
Supervisor: Prof. Noor Cholis Idham, Ph.D., IAI


THERAPHY UNIT
window, direct visual access to garden
garden front of the building
Roof garden
Facade using plywood
VISUAL CONNECTION WITH NATURE
GARDEN AROUND THE BUILDING
The windows facing the garden are designed with sizable openings, allowing maximum natural light in and providing optimal visual access to the garden.
This design ensures each therapy room has a soothing view of the greenery, supporting a brighter and more refreshing atmosphere within the building.
ROOF GARDEN
Climbing media
Soil for main grigestive tree
Supporting structure for climbing media
This rooftop garden was created to support the therapeutic process for patients with depressive disorders. The natural environment in the garden helps to reduce stress, improve mental health, and provide opportunities for patients to interact with nature. The presence of grape vines and the calming atmosphere are designed to support healing and recovery, and provide additional benefits in the therapeutic process.
PORSPECT
At the entrance area of the building there is an open floor plan used for waiting. The first impression upon entering is that of a large space. This open layout encourages a sense of openness and flexibility.
Increasing visibility and interaction among patients and staff. The design aims to create a more welcoming and inclusive environment, encouraging social engagement and reducing feelings of isolation.
THERMAL & AIRFLOW VARIABILITY
Semi-outdoor buildings are designed to maximize thermal variability and airflow by allowing free wind to enter through semi-open areas and efficiently expel hot air.
This design ensures optimal air circulation, provides thermal comfort for occupants, and reduces the need for artificial cooling systems.
MATERIAL CONNECTION WITH NATURE
The use of plywood as a facade material provides a natural touch that helps to create a warm ambience and blend in with the surroundings.
facade plywood
floor composit wood
NON-VISUAL CONNECTION WITH NATURE & PRESENCE OF WATER
The placement of water fountains along the building provides a calming and refreshing view for patients in the therapy rooms. The sound of gurgling water and the visual of the fountain can help create a relaxing atmosphere and support the healing process.
Application of a fountain along the building
a fountain pump for water circulation. There
pipe to refill the water and a drain pipe
remove the old water.
DEPARTMENT OF ARCHITECTURE
Nurdianti 20522155
3.) Mental Health Center
FINAL ARCHITECTURAL DESIGN STUDIO
Supervisor: Prof. Noor Cholis Idham, Ph.D., IAI


REHABILITATION UNIT
window, direct visual access to garden
garden front of the building
sawtooth roof
Facade using plywood
VISUAL CONNECTION WITH NATURE
COURTYARD AREA
The courtyard area of the rehabilitation center is a therapeutic area used as an everyday space, where leisure activities are performed.
This area helps rehabilitation patients to relax more, providing them with a calming environment and supporting the healing process.
THERMAL & AIRFLOW VARIABILITY
SAWTOOTH ROOF
The sawtooth roof provides maximum benefit from sunlight without excessively increasing the room temperature, thus maintaining
thermal comfort. The addition of vents on each section of the sawtooth roof allows for better air circulation, allowing breeze to enter and exit easily.
MATERIAL CONNECTION WITH NATURE
A plywood facade was used as a divider in the day room area. The facade is made of natural materials, designed to create a connection with nature. The louvers on the building facade allow natural light to enter the roo
NON-VISUAL CONNECTION WITH NATURE & PRESENCE OF WATER
WATER FOUNTAIN
The courtyard area has a water fountain designed to add to the relaxation of the patients. Throughout the courtyard area, there are also gently flowing waterways, providing a calming atmosphere for rehabilitation patients. The presence of these water elements not only beautifies the environment, but also creates soothing sound effects,
PORSPECT
A plywood facade was used as a divider in the day room area. The facade is made of natural materials, designed to create a connection with nature.
The louvers on the building facade allow natural light to enter the roo
REHABILITATION UNIT IMPLEMENTS SAFETY CONCEPT
DEPARTMENT OF ARCHITECTURE
Nurdianti 20522155
4.) Mental Health Center
FINAL ARCHITECTURAL DESIGN STUDIO
Supervisor: Prof. Noor Cholis Idham, Ph.D., IAI

6.4 REFERENCES

'Afif, F. S. (2023). Keterpaduan Iniasiasi Bebas Pasung, Depressi dan Penyakit Jiwa. Dinas Kesehatan Daerah Istimewa Yogyakarta. https://dinkes.jogjaprov.go.id/berita/detail/keterpaduan-iniasiasi-bebas-pasung-depressi-dan-penyakit-jiwa

Anwar, I. C. (2023). Info Data Kesehatan Mental Masyarakat Indonesia Tahun 2023. Tirto.Id - Kesehatan. https://tirto.id/info-data-kesehatan-mental-masyarakat-indonesia-tahun-2023-gQRT#google_vignette

Belakang, L., Utara, P. S., Tengah, P. K., Timur, K., Selatan, K., Utara, S., & Nasional, S. (2017). BAB I Data Hasil Survey Nasional BNN Tahun 2017. 1–11.

khoerul ummah. (2022). Fasilitas Klinik Penderita Skizofrenia,Depresi Dan Bipolar Disorder Di Sentul Selatan. EDIMENSI ARSITEKTUR, X(8.5.2017), 2003–2005.

Puren, N., & Ginting, N. (2022). Perancangan Mental Health Centre dengan Pendekatan Biofilik Arsitektur di Kota Medan. Talenta Conference Series: Energy …, 5(1). https://doi.org/10.32734/ee.v5i1.1491

Ronald Justice. (2021). Konsep biophilic dalam perancangan arsitektur. Jurnal Arsitektur ARCADE, 5(1), 110–118.

Shanty, S. P. (2018). Perancangan fasilitas kesehatan mental di Blora dengan pendekatan healing environment. http://digilib.uinsby.ac.id/id/eprint/26951

Rolland, G. M., & Supatra, S. (2022). FASILITAS KESEHATAN MENTAL DI TANGERANG SELATAN. Jurnal Sains, Teknologi, Urban, Perancangan, Arsitektur (Stupa), 4(1), 271-282.

Fakhriyani, D. V. (2019). Kesehatan mental. Pamekasan: duta media publishing.

Aisy, K. R., & Anisa, A. (2020). Kajian Tipologi Bangunan pada Pusat rehabilitasi Mental Disorder. MARKA (Media Arsitektur dan Kota): Jurnal Ilmiah Penelitian, 3(2), 53-67.