

**DESIGNING DRUG REHABILITATION WITH BIOPHILIC ARCHITECTURE
APPROACH IN MEDAN CITY****Vinky Rahman¹⁾, Desvita Angelia Sipayung²⁾**Architecture Department, Faculty of Engineering, Universitas Sumatera Utara, Medan, 20155,
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Abstract

Rehabilitation is the restoration of mental and physical health aimed at drug addicts who have undergone a curative program. The goal is that addicts do not use illegal drugs anymore and are free from diseases such as physical damage (nerves, brain, lungs, kidneys, liver, and others), mental damage, changes in character from positive to negative, antisocial, diseases such as HIV / AIDS, hepatitis, syphilis, and others due to former drug use. (Subagyo 2006:105). According to the National Narcotics Agency, Drug Rehabilitation is a section devoted to rehabilitating victims of drug abuse. The rehabilitation center for victims of drug abuse is tasked with handling patients or victims of drug addicts so that treatment is carried out and restoring public health from using or being dependent on drug drugs (BNN, 2021). Drug Rehabilitation has the concept of Biophilic Architecture, which aims to translate the understanding of biophilia to the design of the built environment so that a beneficial relationship between humans and nature in buildings can be realized.

Article History*Submitted: 22 Agustus 2024**Accepted: 28 Agustus 2024**Published: 29 Agustus 2024***Key Words***Rehabilitation, Drug
Rehabilitation, Biophilic
Architecture***1. Introduction**

Drugs have become a serious problem in Indonesia over the years due to its strategic location on the international drug trade route, making drug smuggling and abuse in Indonesia always increase. Drug abuse has become a global threat and problem that poses a serious threat to human resources. Drug abuse has entered all levels of society, such as residential areas, campuses, and other social places. Drugs are substances that are needed by humans in the medical field. However, in its development in the community, drugs are misused and become illegal goods that have an impact on physical health, including our emotional, psychological, and social aspects.

In his work, Dr. Kellert states that it is important to integrate nature into the built environment to improve the quality of human life. He argues that humans are naturally connected to nature and that this will have a negative impact on physical and mental health if the connection between humans and nature is severed. The concept of biophilic architecture includes the use of natural materials, such as wood, stone, plants, natural light settings, and access to green open spaces. It also considers elements such as the sounds of nature, flowing water, and fresh air to create an experience closer to nature.

2. Method

Design methods carried out:

1. Literature Study, which is a method to solve design problems by tracing written sources and theoretical references that are relevant to the problems found.
2. Comparative Study, which is a method carried out by comparing design cases that have similar functions or themes by looking for them from various sources.

3. Result and Discussion**3.1 Drug Rehabilitation Center**

A drug Rehabilitation Center is a place where a person who is addicted to drugs and illegal drugs wants to gain confidence to recover and become a better person (Romansyah et al., 2021).

1. Medical Rehabilitation Medical rehabilitation is a process of integrated treatment activities for drug-free people.

2. Social Rehabilitation is a recovery process for victims of physical, emotional, and social violence.

Drug Rehabilitation Center is an important place to improve people's mental health after becoming victims of drug addiction. Drug Rehabilitation Centers have good facilities to support activities and therapies to improve a person's mental health so that they can return to normal. This is important because drug addiction in North Sumatra Province continues to increase every year. In addition to the facilities, the rehabilitation center has a pleasant atmosphere and building design that communicates with the users.

3.2 Purpose Of Drug Rehabilitation Center

Drug dependence is one of the most pressing public health challenges in many parts of the world. Its far-reaching impact is not only felt by the individuals experiencing dependence but also by their families, communities, and the health system as a whole. Hence, the need for effective and comprehensive drug rehabilitation centers is critical.

1. Providing a Comprehensive Rehabilitation Facility: Creating a safe and supportive environment for patients to begin and continue the process of recovery from drug dependence.
2. Promote an Integrated Approach: Integrate various therapeutic methods, both medical and non-medical, to support the holistic recovery of patients, including individual, group, and family therapy.

3.

3.3 Biophilic Architecture

Biophilic or biophilia is the study of the human desire to affiliate with natural forms in life. Social psychologist Eric Fromm first coined the term biophilia, and it was later popularized by biologist Edward Wilson (Biophilia, 1984). The term biophilia evolved from the fields of biology and psychology and was adapted to various fields, one of which is the field of architecture. In this case, biophilia can be interpreted as a desire to reconnect with a natural system or reconnection with nature and natural systems. In the world of architecture, this term is known as biophilic design.

According to Steven Kellert, the term biophilic design aims to translate the understanding of biophilia to the design of the built environment, so that beneficial relationships between humans and nature in modern buildings and landscapes can be realized. Biophilic design presents how the design of a building is closer to nature as its main medium of approach.

3.4 Project Description

This project is planned as a Drug Rehabilitation Facility that is located away from the crowd, high noise level, and far from the city center but still easily accessible. The project is located at Jl. Rawe, Medan Labuhan District, Medan City, North Sumatra with a land area of 21.000 m².



Figure 1 Location
Source: Google

3.5 Mass Concept

According to D.K. Ching (2000), there are 2 types of building mass:

1. Single mass, single mass has advantages such as ease of supervision and maintenance and centralized activities.
2. Compound mass: compound mass has advantages such as dynamic mass patterns, the nature of the building spreads, and centers at one point.



Figure 2 Massing

Source: Author

The mass that I use is a compound mass or multi-mass, which comes from the concept of the initial reception flow (administration stage) to the stage of patient care. Derived from a circular shape that is divided into 4 buildings but still continuous. Creating a pedestrian in the center of the site as access so that users in the building can feel comfortable and have easy access to all buildings.

3.6 Basic Concept

The picture below is a site plan design that already has facilities according to the function of the building, which is a drug rehabilitation center. The project is located at Jl. Rawe, Medan Labuhan District, Medan City, North Sumatra with a land area of 21.000 m².

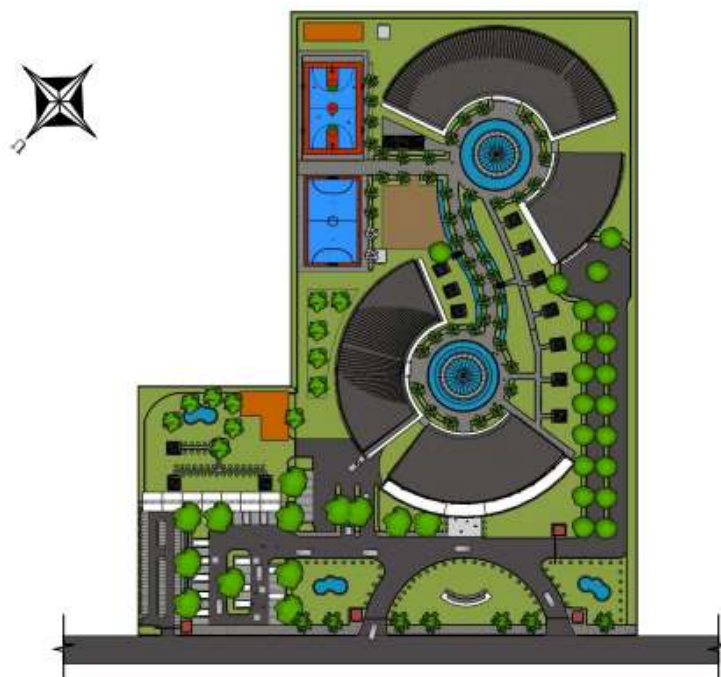


Figure 3 Site Plan

Source: Author

3.7 Zoning

3.7.1 Ground Plan

The site is designed with an organized and functional layout. Starting from the building, which is designed according to the concept of the initial admission flow until the patient is rehabilitated. In the center is a large open area with a healing garden surrounded by streams, trees, and gazebos to sit and rest. This garden is a healing center for patients and employees, providing a soothing green space in the middle of the building. Near the primary building where patients are rehabilitated, there are facilities in the form of an agricultural area and a blue and red sports field, which is a basketball court and futsal court.

The main buildings are located around the site, including the administration building, MEFP building, creativity building, and the main building. Access to the buildings is provided through a pedestrian walkway in the middle of the buildings with a stream on either side and several gazebos. The main entrance is located at the administration building, which has a drop-off area. There is also a lane on the side of the site that serves as a loading dock area for the creativity and service buildings. Vehicle circulation is well designed, with the main road directly accessing the parking area and loading dock. In some areas, such as the main lane, loading dock lane, and parking area, there are security posts. In areas that can be accessed by patients, there are guard posts such as agricultural areas, fields, and areas around the primary building to monitor patient activities more efficiently.

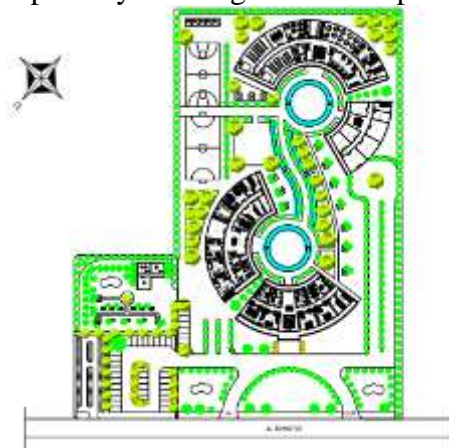


Figure 4 Ground Plan

Source: Author

3.7.2 Floor Plan

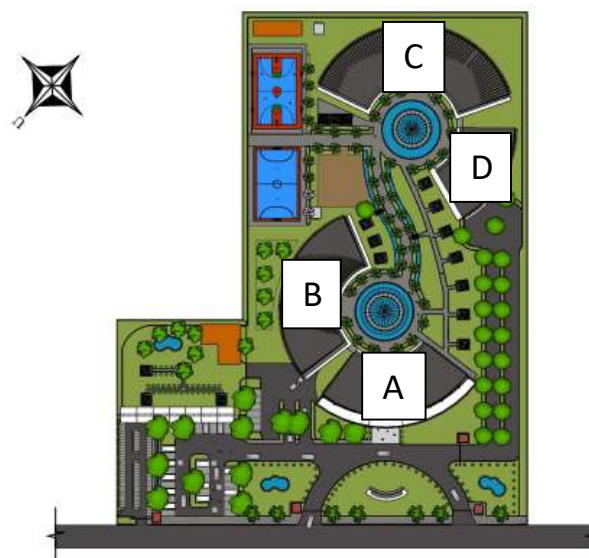


Figure 5 Floor Plan

A. Administration

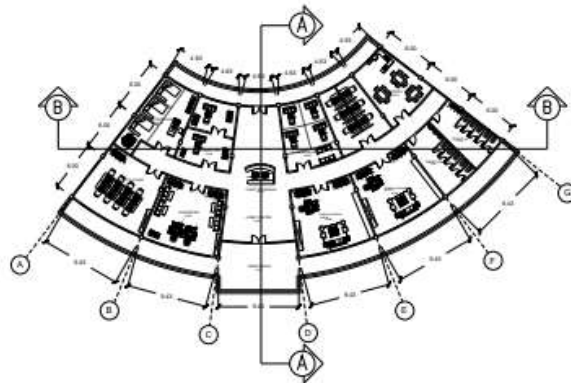


Figure 6 Administration floor plan

The administration building plays an important role in running day-to-day operations and ensuring effective coordination between various departments. The plan of the administration building is designed to support efficient workflow, staff comfort, and optimal service to patients and visitors.

B. Physical and Psychological Evaluation Monitoring

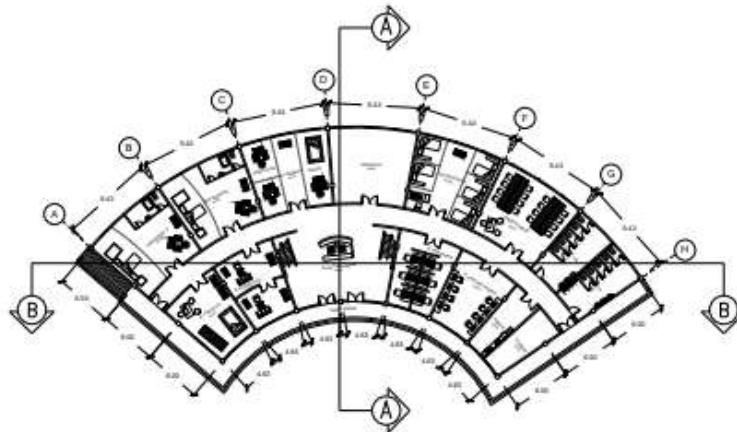


Figure 7 MEFP 1st floor plan

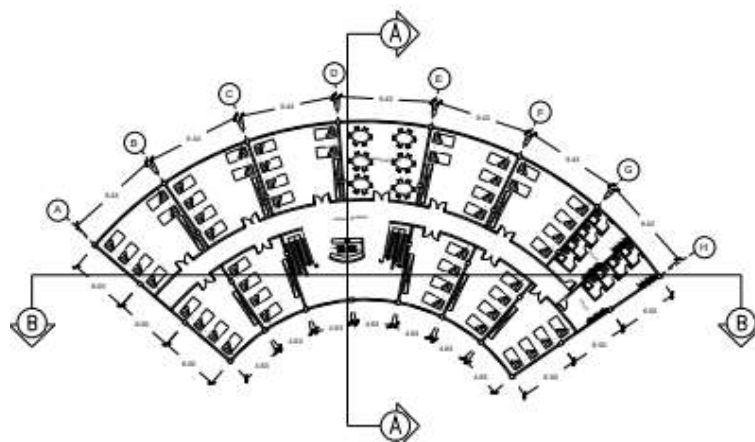


Figure 8 MEFP 2nd floor plan

The physical and psychological monitoring and evaluation building is an important component of a drug rehabilitation center. It is designed to provide complete facilities to support a thorough assessment of the patient's physical and mental health, to ensure the effectiveness of the rehabilitation program runs smoothly. There are two floors in the MEFP building, where the first floor is a medical

examination facility, and the second floor is a temporary dormitory for patients for a few weeks before being transferred to the primary building.

C. Primary

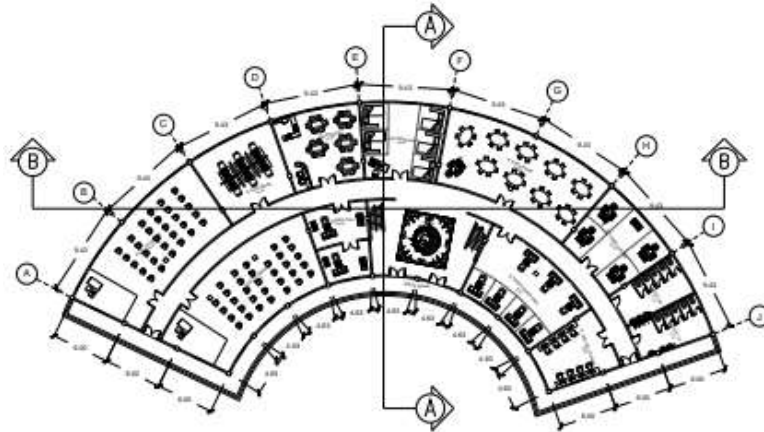


Figure 9 Primary 1st floor plan

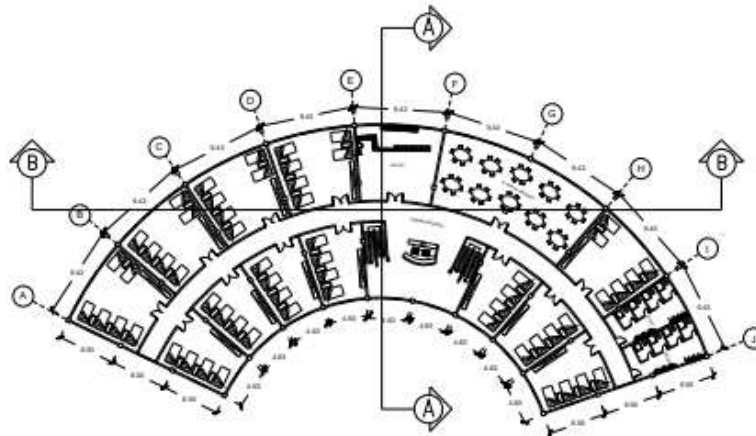


Figure 10 Primary 2nd floor plan

The primary building is the main facility used for intensive treatment and care of patients undergoing drug rehabilitation. The plan of the primary building is designed to provide an environment that supports the physical and mental recovery of patients through a comprehensive and integrated range of facilities. There are 2 floors in this building, where the first floor is a facility for staff, and the second floor is a dormitory for patients during rehabilitation.

D. Creativity

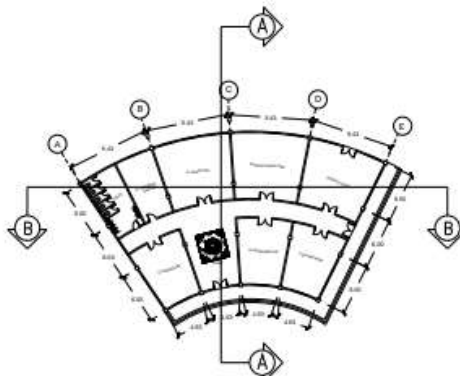


Figure 11 Creativity floor plan

The creativity building at the drug rehabilitation center is designed to provide various spaces and facilities that support the creative activities of patients, aiming to promote self-expression, relaxation, and mental recovery. The building plan includes various spaces for patient activities as well as storage areas and loading docks for staff and patient use.

3.8 Theme Implementation



Figure 12 Theme Implementation

The application of the biophilic theme in the design of the drug rehabilitation center aims to create an environment that blends with nature, supporting the physical and mental recovery of patients. The biophilic theme involves the use of natural materials, design elements that mimic the shapes and textures of nature, and the integration of living plants. Examples, as shown in the picture, are the use of wood-patterned GRC secondary skins, hanging plants, and solid wood grilles.

4. Conclusion

The results of designing a drug rehabilitation center with a biophilic architecture approach show that the integration of natural elements into the rehabilitation environment provides significant benefits in supporting the patient's recovery process. By creating a pedestrian in the form of a large healing garden, surrounded by water and trees, it becomes a recreation center for patients, a sports area to support patient recovery in the form of a basketball court and futsal court, and an agricultural area. The implementation of biophilic architecture in the drug rehabilitation center shows that a design that integrates nature can have a major positive impact on the recovery process. By creating a comfortable, calming, and supportive well-being environment, this approach provides a strong foundation for the successful rehabilitation of patients.

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