DESIGNING LOUNGE FURNITURE AT THE ROSE OF SHARON CHURCH AT WEST JAKARTA WITH A BIOMIMICRY POD CONCEPT

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Abstract

This proposal describes a visionary approach to improving the environment and functionality of the Rose of Sharon Church Lounge in West Jakarta through the innovative application of biomimetic principles. Inspired by the natural world, specifically the concept of pods found in various biological organisms, the project aims to revolutionize the interior design of the lounge. By harnessing biomimetics, the proposed furniture will not only provide ergonomic and aesthetic comfort but also promote sustainability and harmony with the church environment. This interdisciplinary effort will integrate biomimetic, design and engineering principles to create a unique and transformative space that promotes connection, relaxation and contemplation for the church community. Through this proposal, we seek to inspire a harmonious coexistence between the built environment and the natural world, while meeting the functional needs and spiritual aspirations of the Rose of Sharon Church congregation.

Keywords: Lounge, Furniture, Space, Pod, Biomimicry

1. INTRODUCTION

1.1 BACKGROUND

Rose of Sharon Church in West Jakarta, like many urban churches, faces the issue of limited and non-optimal space for social activities and gatherings after services. With a growing congregation, the need for a comfortable and welcoming area for congregants to interact and share becomes increasingly important. The cramped conditions often hinder community activities after services. Congregants often wish to mingle and discuss after services, but the lack of suitable and comfortable space can be a barrier. In this context, the design of a lounge with a biomimicry pod concept is expected to address this issue by creating a more functional and aesthetic space that optimizes the use of available space.

Additionally, the use of the biomimicry pod concept adds value to the interior design. Biomimicry, or the imitation of nature, offers inspiration from the structures and functions of living organisms to be applied in human design. In this case, biomimicry can be applied to create furniture

structures and designs that efficiently use space while providing maximum comfort for users. This concept focuses not only on visual beauty but also on function and space efficiency, resulting in an environment that supports social interaction and community involvement in the church.

With this problem in mind, the design of lounge furniture is expected to provide innovative and practical solutions to enhance the congregants' experience of interacting and sharing within the church environment. Considering these aspects, the design outcome is expected to inspire the development of similar spaces in other churches facing similar challenges in maximizing available space for community benefit.

1.2 RESEARCH OBJECTIVES

The objective of this research is to respond to the lack of spatial identity at the Rose of Sharon Church in West Jakarta by designing lounge furniture that can optimize the space. Additionally, it aims to create a lounge that can be used by all users and reflect the philosophical character of the Rose of Sharon Church. Furthermore, this lounge will be designed with a biomimicry pod concept to facilitate friendly activities within the church.

2. METHODOLOGY

2.1. Lounge Furniture

2.1.1. Lounge Furniture Configuration

A lounge chair is designed for extra comfort, ideal for those who sit or relax for long periods. Its ergonomic design includes a low backrest and a wider seating surface compared to conventional chairs, creating a relaxed atmosphere and maximum comfort for users. According to Ken Coleman in his book "The Proximity Principle," proximity is defined as the closeness or distance from an object or living being that affects how a person feels and acts. This principle explains how the human mind interprets visual information more effectively when things are close rather than far away. This principle also shows that in social psychology, people who are physically closer to each other are more likely to form relationships than those who are farther apart.

2.2. Biomimicry Method

2.2.1. Definition of Biomimicry

According to Maibritt Pedersen Zari in her book "Regenerative Urban Design and Ecosystem Biomimicry," biomimicry means imitating life. Janine Benyus in her book "Biomimicry—Innovation Inspired by Nature" describes biomimicry as a way designers take inspiration from nature to create effective solutions for human problems.

2.2.2. Open and Close Mechanism in Biomimicry

Examples of biomimicry with the Open and Close mechanism include:

- Bristlecone Pine Seeds: Open when it's hot and close when it's cold.
- Manila Clams: Open to eat and close to protect themselves.
- Venus Flytrap: Closes its mouth to capture and digest prey.
- Pitcher Plants (Sarracenia): Capture prey with trap-like leaves.
- Eudicot Flowering Plants: Hibiscus: Open at high temperatures and close at low temperatures to save energy.

2.3. Church of Sharon Rose (GMS)

2.3.1. About the Church of Sharon Rose (GMS)

The Church of Sharon Rose (GMS) is a church with a Pentecostal Charismatic Theology. It began as the "Febe" Prayer Fellowship in 1984 in Surabaya and was officially established as a church under the Bethel Church Indonesia synod in 1990. GMS's vision is to be an "Apostolic and Prophetic Cell Church," with a mission to build 1,000 strong local churches and 1 million disciples of Christ.

2.3.2. Mission and Vision of the Church of Sharon Rose

GMS's vision is to be an "Apostolic and Prophetic Cell Church." Their mission includes evangelism and discipleship according to the Great Commission of Jesus Christ (Matthew 28:18-20).

2.3.3. Brand Identity of the Church of Sharon Rose

According to Raditha Hapsari et al. (2020:146), brand identity creates a unique identity for a brand by reinforcing the brand's perspective in representing concepts of society, organization, symbols, and products. This involves understanding the core identity of the product and aligning it with the needs of each market segment.

Brand identity is formed through brand element design. According to Kotler and Pfoertsch (2008) in Adelia Efendy (2020), brand elements are visual efforts that identify and differentiate a company's product or service through name, logo, color, slogan, values, vision and mission, and other elements that support brand character development.

3.1. Project Analysis

3.1.1. Design Project Scope

This project involves designing built-in furniture to accommodate a mini-lounge accessible to the public, either individually or in groups of two to three people. The primary purpose of the mini-lounge is for conversations, categorized into two types: casual and private. Casual conversations are informal and safe to be heard by anyone, while private conversations contain sensitive information not meant for outsiders. Therefore, furniture needs to be designed to cater to both types of conversations.

3.1.2. Design Area Layout

The existing data is from the Church of Sharon Rose branch in West Jakarta, located at Tribeca Building Lt. 1, Central Park Mall, Podomoro City, Grogol Petamburan, West Jakarta. The church has a capacity of 2,000 people with facilities including 1 main hall, 1 additional hall, 3 chapel rooms, 2 broadcasting control rooms, office space, 2 meeting rooms, 1 prayer room, 2 baptismal pools, 2 offering areas, and 2 storage rooms. The design area is situated between the main hall and the access door to the broadcasting control room and prayer room.

Area Documentation:

- Side A: Facing two double doors leading to the main hall. The doors use double-swing hinges for side access to the hall.
- Side B: Facing a blank wall.
- Side C: Facing a wall with a camouflage door for church staff access to the prayer room and broadcasting control room.
- Side D: Facing the offering area with 3 booths for congregation members.

3.1.3. Activities and Facilities

Activities conducted in the existing area include:

- Circulation between public and private zones.
- Giving offerings and tithes.
- Conversations among church members.

3.2. Design Studies

3.2.1. Human Aspects

Operational Study: Observations and analysis of activities conducted in the design area and the facilities used. The operational analysis is summarized in scenarios that design the user activity flow.

Ergonomic Study: An ergonomic assessment is conducted to determine the appropriate distance between users for face-to-face seating, accommodating up to 3 people.

3.2.2. Technical Aspects

The mechanism of Hibiscus flower petals opening and closing is applied in the mechanism for opening and closing the lounge pod. Structural studies are conducted by exploring various possibilities for opening and closing mechanisms.

3.2.3. Visual Aspects

Drawing boards are used to illustrate the aesthetic design.

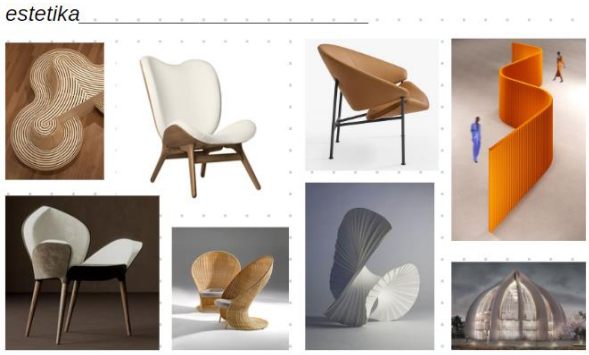


Figure 1. Aesthetic Study (Source: Personal document)

This structured approach ensures that all aspects of the project, from operational and ergonomic studies to structural and visual analysis, are thoroughly examined and addressed, leading to a comprehensive and functional design.

3. RESULTS

3.1. Design Concept

Biomimicry of Hibiscus Flower

From the spatial analysis conducted, three main issues were identified:

1. Areas with good identity but not optimally utilized.
2. Accommodating additional activities, namely Loungepods for congregants to socialize.
3. Improving the offering box area for the church.

The solution to these issues is to use the biomimicry method of eudicot flowers implemented in furniture design. The room layout is designed using a petal pattern with walking areas for circulation, two mini lounge areas each with 3 chairs, and the offering area.

Lounge Mini:

- Designed as a pod that can transform using the blooming movement of flower petals.
- In open mode (blooming flower), the pod creates a relaxing space.

- In closed mode (closed flower), the pod provides a private space that dampens sound and visibility.

Offering Box Area:

- Designed as a semi-closed space mimicking eudicot flower petals.
- The elliptical shape allows privacy for users when making offerings.
- Facilities include offering envelopes, an EDC machine table, receipt disposal place, and offering box.

User Board

Displays user interaction activities with objects, illustrating how users interact with the lounge and offering area.

Technical Board

Displays the technical mechanisms used in the additional features of the lounge pod.

Mood Board

Displays the style and visuals to be achieved in the final interior.

3.2. Design Process

Determining Layout

Using scaled paper pieces to arrange the layout. From 25 arrangements, the selected one is:

Prototyping Mechanism

Using paper pieces to create chairs and pod mechanisms.

Sketching

Using tracing paper for furniture lounge pod and offering box design sketches.

Modeling

Creating 3D models using SketchUp version 2023 for visualizing the design in three dimensions.

3.3. Finalization of Design Results

Final Sketches

Final selected sketches to be developed:

Figure 2. In opened form (Source: Personal document)

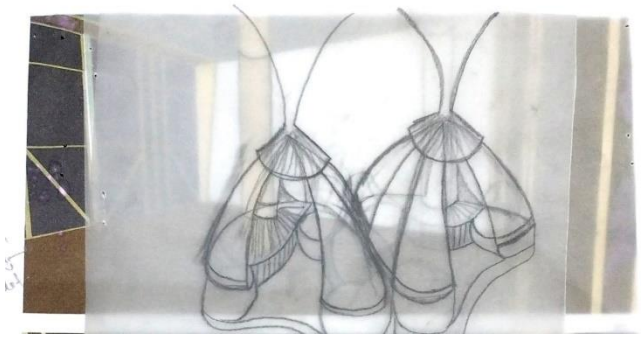


Figure 3. In a closed form (Source: Personal document)

Application of Membrane Tension Mechanism

Using elastic materials such as nylon fabric for flower petals that can stretch, paired with an elastic frame.

Below are the appearances when the petals are open and when the petals are closed

Figure 4. Appearance when open (Source: Personal document)

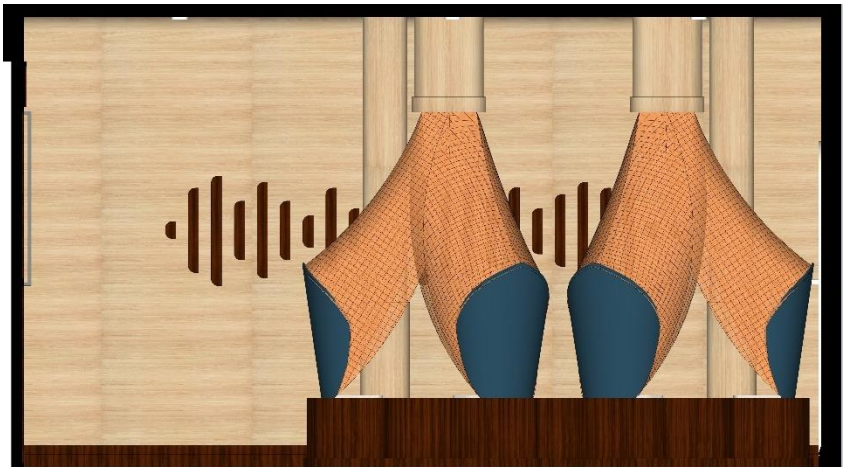


Figure 5. View when closed (Source: Personal Document)

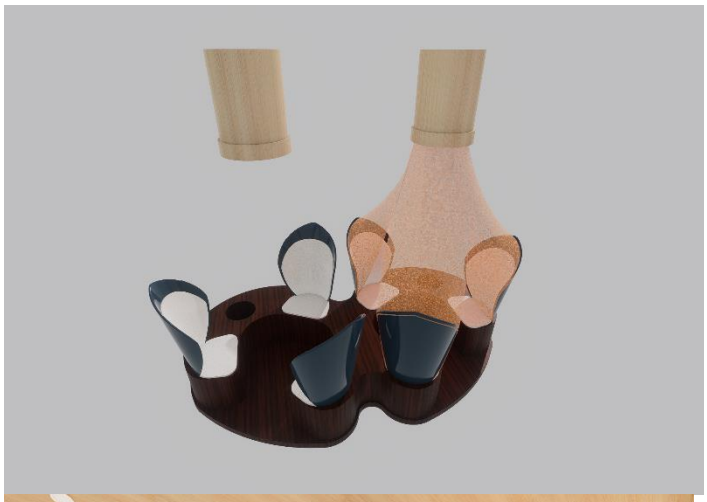
3D Model Development

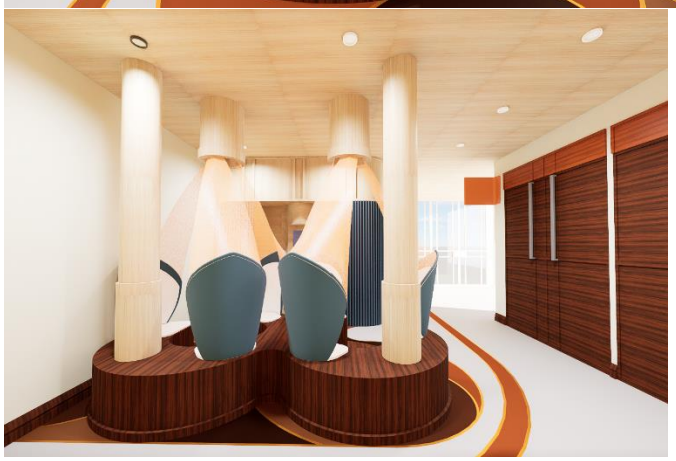
Perspective views of objects within the case study interior:

The following are perspective views of objects within the case study interior.:

Figure 6. Pod appearance when closed (left) and pod appearance when open (right) *(Source: Personal Document)*

Figure 7. Offering Booth Design *(Source: Personal Document)*





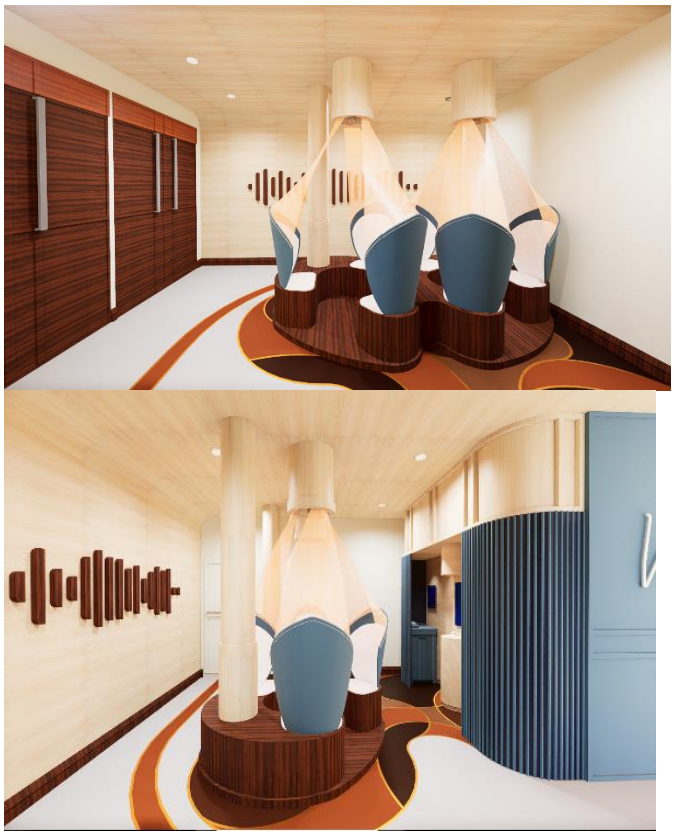
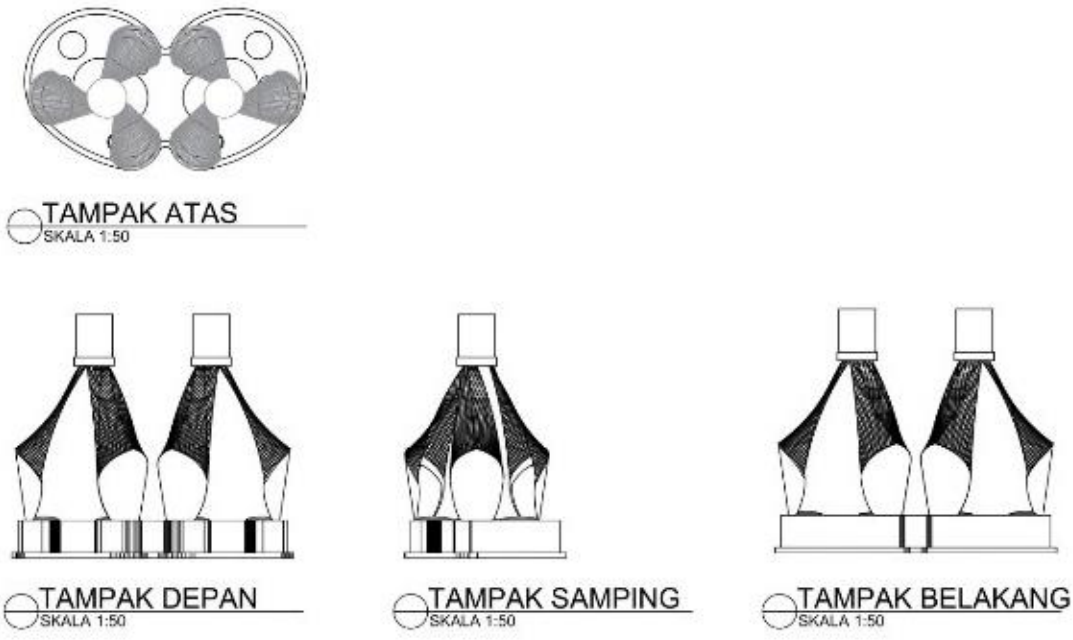
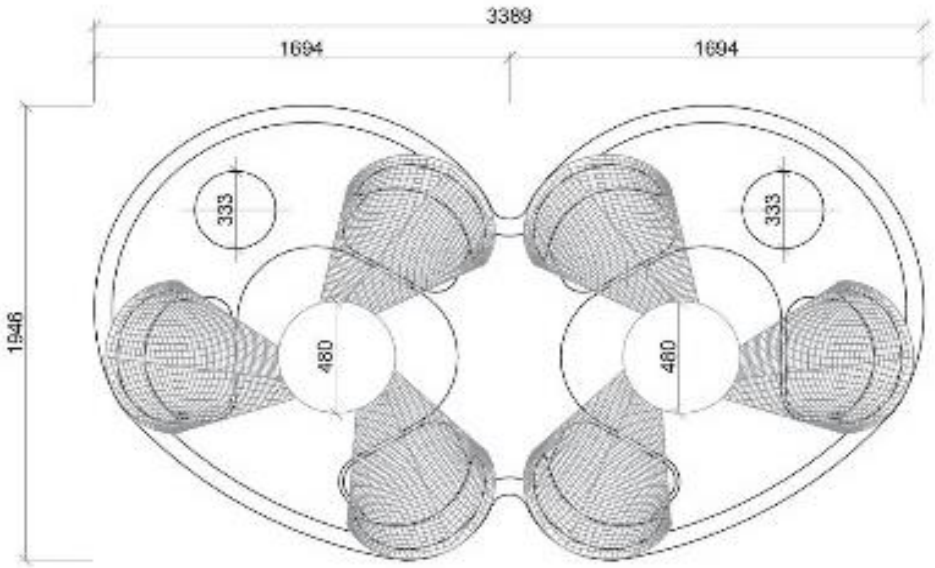


Figure 8. Pod Lounge Appearance (Source: Personal Document)

Detailed Engineering Drawing

Axonometric Drawing





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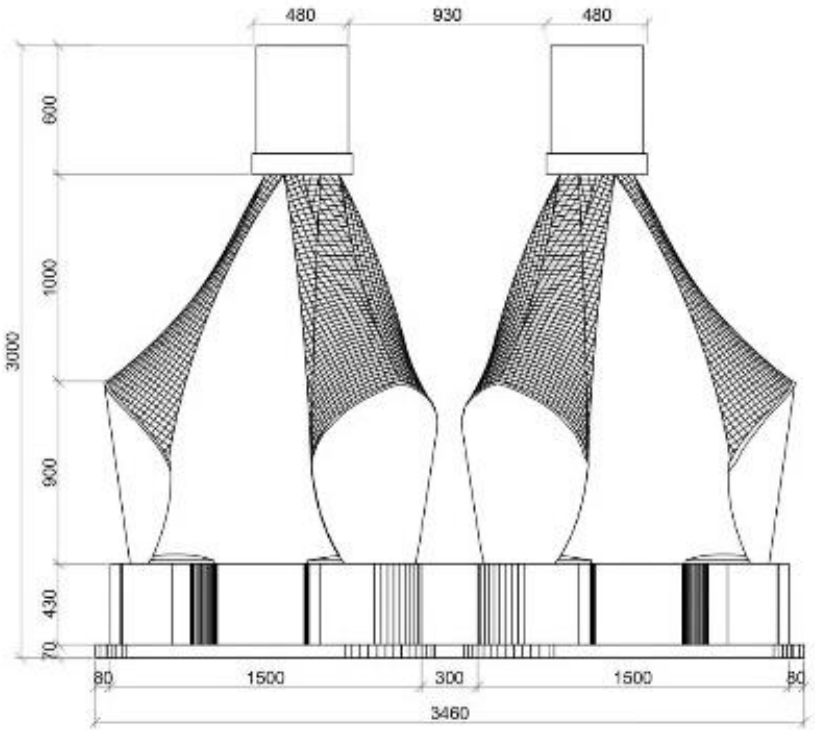

TAMPAK DEPAN
SKALA 1:20

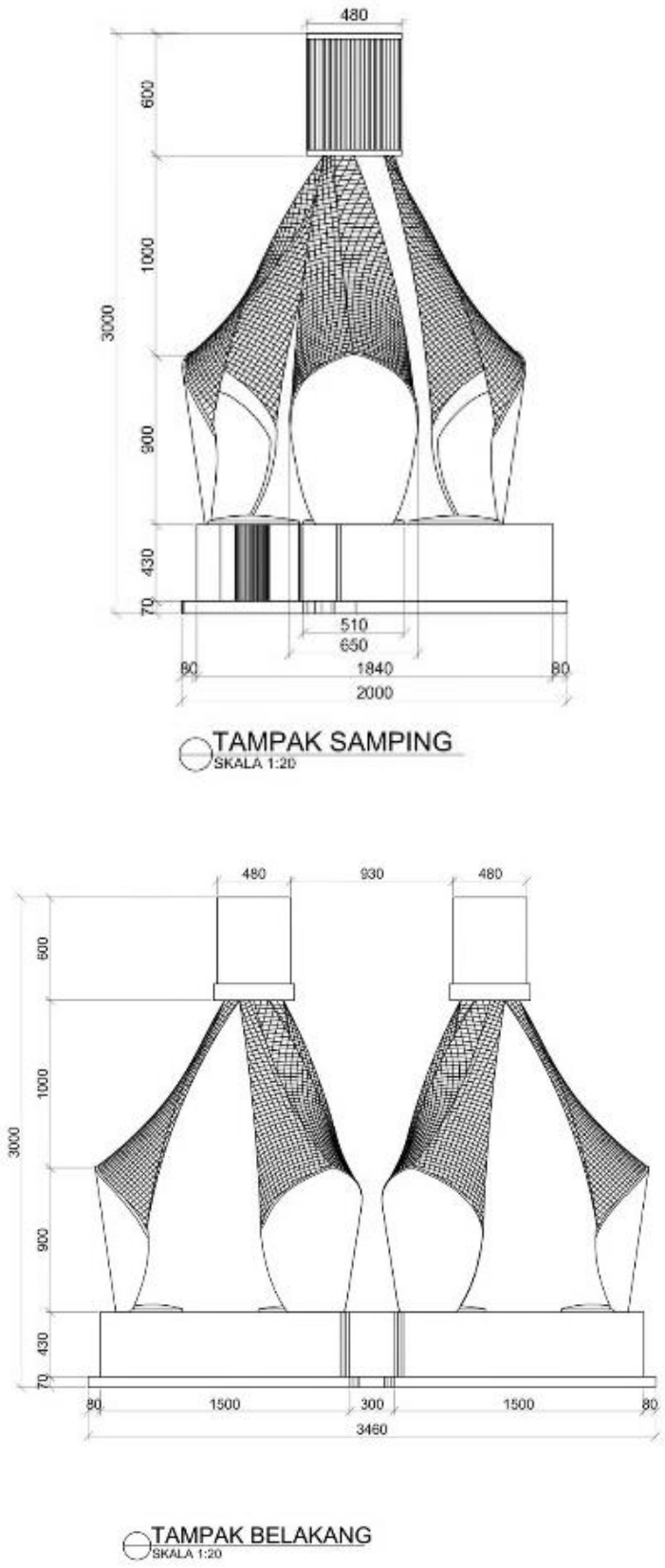

Figure 9. Working Drawing (Source: Personal Document)

The comprehensive approach taken in this project, from initial analysis and conceptualization to detailed design and final modeling, ensures a functional and aesthetic solution that effectively addresses the identified issues.

4. CONCLUSION

The Pod Lounge furniture design is intended to create better circulation direction and optimize the design space from previously only being used for offering activities and as a thoroughfare to the second floor. This Pod Lounge is designed to support the activities of church congregants who often use the design area as a place to chat or converse before and after services. The hope is that when casual and public conversations are conducted in the Pod Lounge, they can continue in a safe area when the Pod Lounge is activated to close.

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