



Belawan Maritime Museum (Metaphor Architecture)

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ABSTRACT

Indonesia is a maritime nation with the world's biggest archipelago. Despite the fact that Medan, and particularly the Medan Belawan District, played a significant role in Indonesia's maritime history, the district's potential remains unrealized and has not been utilized and accommodated properly. Media is needed to accommodate and educate the public about the importance of maritime knowledge by providing a museum that can function as a place for preserving maritime history. Unfortunately, the interest of the Indonesian people in visiting museums is still relatively low. Therefore, facilities/facilities and infrastructure are needed to support the function of the museum so that it is more recreational but still informative. The Belawan Maritime Museum is located at K.L.Yosudarso Street, Medan Belawan District, and provides information about Indonesian maritime affairs, especially Belawan. The design approach used is the metaphorical architectural approach. The metaphorical architectural theme with the shape of ships and waves applied to the museum is intended to optimize the appearance and marketability of this building. The use of metaphorical themes is closely related to the visual impression and meaning to be displayed in the building. This building is also expected to become an icon in the area. It is hoped that the design of the Belawan Maritime Museum can further increase the interest and insight of the Indonesian people, especially Medan City, about Indonesian maritime affairs and become one of the attractions of Medan City, especially Medan Belawan District, as a tourist destination for local and foreign tourists.

Keywords: Belawan, maritime, metaphor architecture, museum

1 Introduction

Indonesia is an archipelagic country that is geographically located between two continents, namely the Asian continent and the Australian continent, and is flanked by the Pacific Ocean and the Indian Ocean. Based on these geographical conditions, the State of Indonesia has a very strategic location, because it is traversed by world trade and shipping routes. The maritime aspect plays a very important role in the history of Indonesia. The city of Medan, which is located on the western coastline of the island of Sumatra, is currently one of the areas that have a major influence on Indonesian maritime affairs. Over time, activities in the maritime sector in Medan City were more focused on the area now known as Medan Belawan District, which is about 24 km from the center of Medan City. However, until now the Medan Belawan District does not yet have a maritime-based recreational education tour to accommodate the preservation of maritime history for the public in obtaining knowledge about Indonesian maritime affairs, especially Belawan.

Museums are one example of many media that can be used to gain knowledge about the maritime world. The approach applied in the planning and design of the Belawan Maritime Museum is metaphorical architecture, this approach is intended to optimize the appearance and marketability of the building, considering that the metaphorical architectural approach is closely related to the visual impression and meaning to be displayed on the building. Therefore, the planning and design of the Belawan Maritime Museum with a metaphorical

architectural approach that has educational and recreational functions can be used as an effort to facilitate and increase public interest in acquiring knowledge and preserving Indonesia's maritime history.

The term "museum" is derived from the Greek word "v" or "mouse," which relates to the name of the temple dedicated to the nine Muses goddesses, the sons of Zeus who represent knowledge and art [1]. Part of the library complex in Alexandria that Ptolemy I Soter created primarily for the arts and sciences, particularly philosophy and study, is another structure that is known to be connected to the history of the museum [2]. An open-to-the-public permanent non-profit institution, a museum's job is to gather, preserve, research, communicate, and exhibit the tangible and intangible historical heritage of humanity and its environment for the benefit of education, research, and development [3]. A museum is a permanent organization that serves society and its advancement without focusing on making a profit and is available to the public. It conducts research, maintains displays, and shares some human material evidence in its setting for education, study, and pleasure [4].

A museum is necessary because it has the duty and purpose of preserving, fostering, and developing communal culture, both tangible and intangible. Museums in Indonesia serve as a source of communication and as bridges that can spark awareness and knowledge for the community through messages that are structured through exhibits and exhibition halls. A museum that focuses on presenting nautical history, culture, or archeology is known as a maritime museum. They describe the interaction between civilization and marine or water-related life. Alternative non-formal education mediums that reconstitute marine attitudes and insights from the archipelago include maritime-themed museums. Additionally, museums will constantly adapt to the advancement of the modern world itself as contemporary instructional resources [5]. Government Regulation 66 of 2015 regulating Museums states that museums are organizations whose purpose is to preserve, expand, make use of, and share collections with the general public [6]. The museum is a structure that houses a variety of collections of items used for educational and recreational purposes [7].

The word "maritime" has a meaning relating to the sea; related to shipping and trade activities at sea [8]. Overall, maritime history subjects include shipping, fishing, whaling, and naval history. history of shipping, international maritime law, history of navigation, ship design, and manufacture, maritime sciences (oceanography, hydrography, cartography, etc.), maritime trade & economics, seafront workshops, marine exploration, maritime-themed literature & arts, history of lighthouses, and social history of seafarers & communities [9].

According to Charles Jenks, in "The Language of Post Modern Architecture", a Metaphor is defined as a code that is captured by the observer, which is obtained from an object by relying on other objects. For example, how observers see a building as something else because there are similar elements. between both [10]. Buildings that embody allegories or other forms of expression with the hopes of evoking reactions from those who appreciate or use them are known as "metaphorical architecture" [11]. Aristotle claimed that metaphor is a highly efficient way to think to comprehend an abstract idea. This is accomplished by extending the idea's meaning by contrasting it with another idea that is already known [12]. A metaphor is a figure of speech built on comparison [13].

2 Method

Several indicators become the basis for consideration of site selection for the Belawan Maritime Museum project, including site conditions that made it possible to build a museum, an area that has a historical value which is intended to be able to develop the existing potential, easy to reach by all people with various vehicles, a site that can be easily seen from the main road as well as adequate facilities and infrastructure. The approach method applied in the design of the Belawan Maritime Museum is descriptive research that seeks to describe an event systematically according to what it is. The research is descriptive-analytic, where the data obtained (observations, interviews, photo shoots, etc.) are not expressed in the form of numbers. Researchers analyze the data by enriching information, comparing, looking for relationships, and finding patterns based on the original data. The results of the analysis are in the form of an explanation of the situation presented in the form of a narrative description [14]. The stages carried out in planning and designing the Belawan Maritime Museum are finding ideas, collecting data using field surveys, observations, literature studies, and comparative studies, analyzing designs from the data that have been obtained, solving

design object problems that produce concepts, then the results of object designs. the design obtained from the whole process.

3 Results and Discussion

The title of this project is “Belawan Maritime Museum (Metaphor Architecture)”. This project is one of the efforts to educate and preserve the history of Indonesia's maritime and marine resources, especially in Belawan. The design of the Belawan Maritime Museum (Metafora Architecture) is a museum design that collects, stores, and exhibits collections that have a maritime context that serves as a forum/link and displays the maritime history of Belawan, Indonesia, and the world, which is located in Medan Belawan District.

3.1 Project Description

The title of this project is “Belawan Maritime Museum (Metaphoric Architecture)”. This project is one of the efforts to educate and preserve history regarding maritime affairs and Indonesia's marine wealth, especially in Belawan. The design location of this museum building can be seen in (Figure 1).

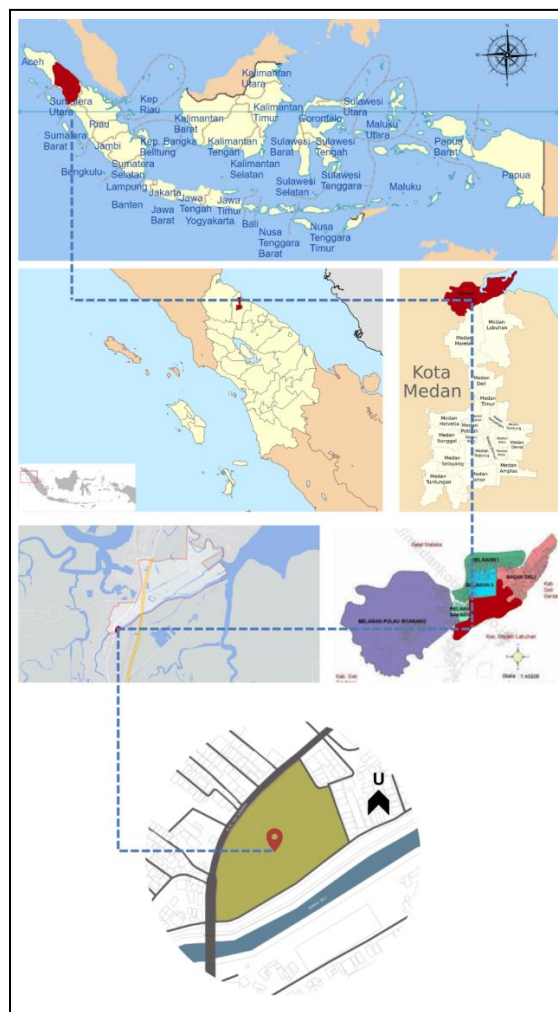


Figure 1. Project Location

Source: Google Earth [15].

The design location for this museum is located in Belawan Bahari Village, Medan Belawan District. The existing function of the design site for this museum is a former industrial warehouse building that is no longer in operation, with a total design area of 2.65 ha.

3.2 Basic Concept

The Belawan Maritime Museum is a building that functions to maintain, care for, and secure objects that have a maritime history of Belawan, Indonesia, and even the world as its main function, and as an

informative and recreational means of inviting visitors to understand, admire, and also gain additional knowledge & information about the maritime world. The architectural metaphor that is applied in the design of the Belawan Maritime Museum is the Combination Metaphor, where the application of this metaphor in the design is in the form of a figure of speech or expression that is realized in the design with the hope that it can generate responses from people who observe or use the building. The Combination Metaphor. Architecture theme refers to the function of the visual formation & environment, as well as the issues of comfort and safety that will come. This museum aims to attract local and foreign tourists to explore the contents of the museum, so the appearance of the building must be attractive and reflect maritime impressions such as waves, fish, ships, etc. The location of the building is located in the District of Medan Belawan which is a coastal area, so the design of the building is also appropriate in taking the concept of forms related to the sea which can interpret the location where the building is located. Application of the Ecological Theme

The application of the ecological theme in this tourist area is to use bamboo as the material main. The bamboo comes from around the design project, by the principles of ecological architecture, namely utilizing the available resources around the design project. Maximizing the use of bamboo and on educational tours also continues to explore bamboo plants, starting from planting, harvesting, processing, and applying processed products to buildings in the project.

3.3 Accessibility and Outdoor Space Circulation Design

The site is on the edge of K.L.Yos Sudarso Street which is passed by 2 and 4-wheeled private vehicles, goods trucks, and public transportation including the Trans Metro Deli Bus, public transportation cars, rickshaws, and online-based public transportation, On the site there is a Trans Metro Deli bus stop. The site is close to the passenger port, and easy to access from various Medan-Belawan routes and vice versa, Traffic to the site is busy smoothly, however, entrance planning must be done properly. The sidewalks on the site are inadequate, making it difficult for pedestrians to walk to access the building. The main entrance access for visitors and managers to the building is the same, namely on the north side of the site or from the direction of Belawan to Medan.

Entrance access is placed at that point because it is in the direction of the road lane directly adjacent to the site, this is expected to prevent crosses and the accumulation of vehicles that want to enter the museum area. Exit doors Separation of the entrance and exit of the site is also intended so that incoming and outgoing circulation does not interfere with each other and accumulate at one point. Circulation in the outdoor space is divided into several types, namely pedestrian circulation, visitor vehicle circulation, management, and service circulation. Each circulation has a different entrance, for the pedestrian circulation starting from the bus stop at the front of the site then heading to the plaza and heading to the building. For the circulation of visitor vehicles and managers, they are made into one based on consideration of minimizing pavements that do not absorb water and circulation in museum function buildings that are not too busy, such as in certain building functions (Figure 2).

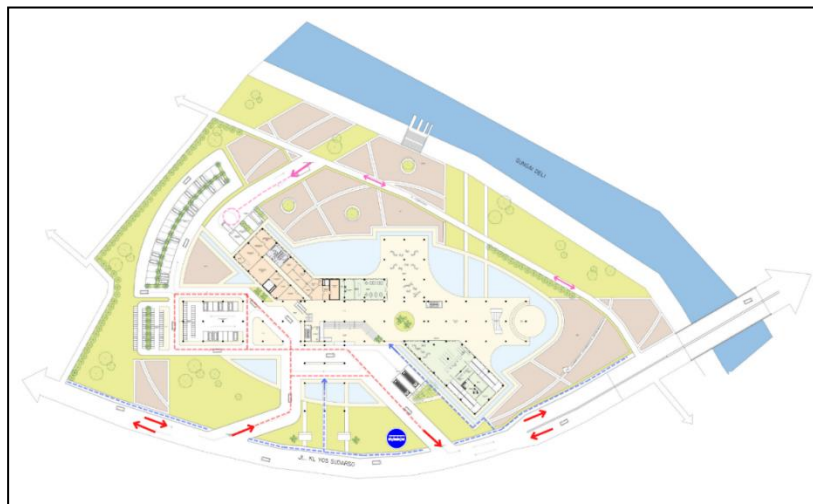


Figure 2. Accessibility and Outdoor Space Circulation Design

3.4 Outdoor Space Design

The tread is on the side of the road, the view from the outside to the building is very good, nothing is blocking the view, and it is possible to maximize the view from the outside and the inside. At the site there is the Deli River on the south side of the site, allowing you to get an attractive view from the inside out and the outside in. The design of the outdoor space at the Belawan Maritime Museum is oriented towards the river, sea, and road which are the main views of the chosen site. The facilities provided in the outdoor space are amphitheater, plaza, parking, and pedestrian. The outer space consists of several zones including public zones, semi-public zones, and service zones. The public zone is placed at the front facing directly to the road, intended to be the area closest to access from the outside. The design of this museum building as much as possible minimizes the land for circulation by utilizing part of the area under the building as a vehicle parking area. The west side of the site is directly adjacent to the highway making the site vulnerable to the noise of passing vehicles, so vegetation that can reduce noise is planted in outdoor spaces (Figure 3).

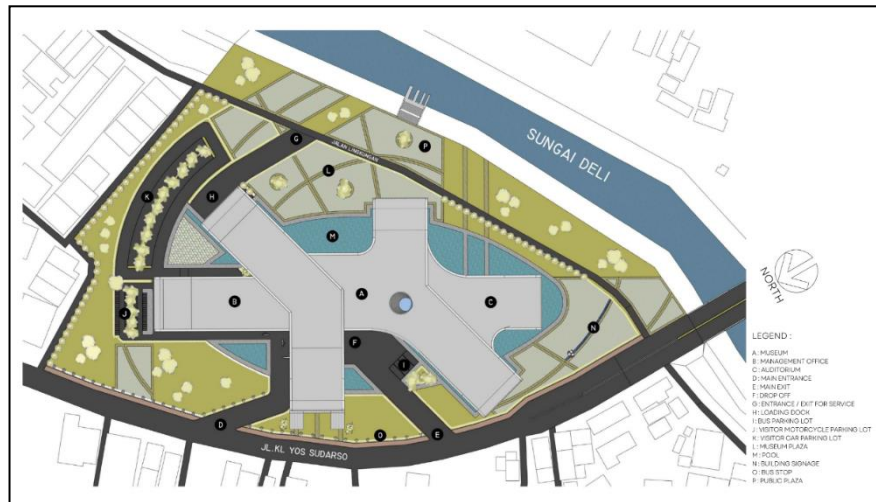


Figure 3. Site Plan

3.5 Mass Composition Design

The building period for the Belawan Maritime Museum building is influenced by the activities of the actors in it. The museum building is a building with a single function, so the form of the building also uses a singular form. To determine the basic form of the building period, several things must be considered. The considerations in determining the basic form of the building, among others, are the design theme (architectural and functional), can accommodate all activities (services and non-services) and needs in buildings, the efficiency of the form of space, conformity with the existing site, ease of implementation of the structure, and ease of arrangement of furniture in the room (Figure 4). The surrounding public building style is modern, as can be seen from its minimalist shape and the use of glass materials. Meanwhile, residential and commercial buildings are dominated by a simple minimalist style and colonial classics. The shape building will use a simple (modern) shape but give a dynamic and "eye-catching" impression. The building uses local building materials as much as possible, the use of materials by the surrounding buildings, namely glass, steel, concrete, and bricks, but does not rule out the use of other materials.

The Belawan Maritime Museum building is a single function with a mass form whose main form is obtained from the theme used, namely metaphorical architecture that takes the form of a ship. The shape of the building is a combination of the shape of the ship, the house on stilts, and the response to the climate and the characteristics and heights of the surrounding buildings. The shape of the building is based on uniting several basic rectangular shapes, as well as taking into account the geographical location and the shape of the site. The choice of colors that are not too harsh/dense is also a consideration so that the design looks natural / blends with nature and also as a form of respect for the surrounding buildings that were there first. The color of the building is dominated by white which is a neutral color to support maximum natural lighting and reflect solar radiation so that the building does not get hot easily. The building then added a brown accent on the floor and the natural green color of the vegetation, this made the appearance of the building more beautiful (Figure 5).

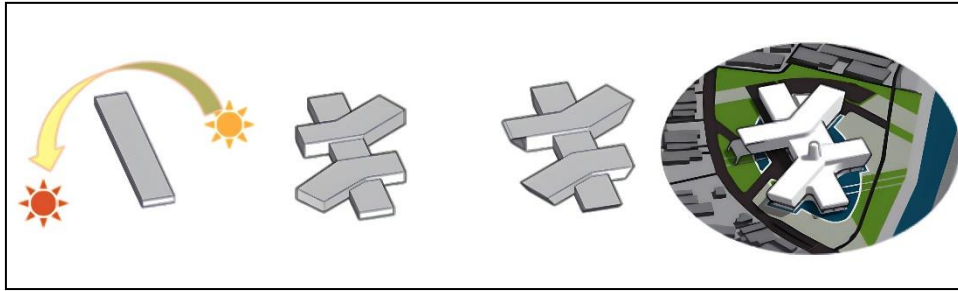


Figure 4. Mass Transformation Concept

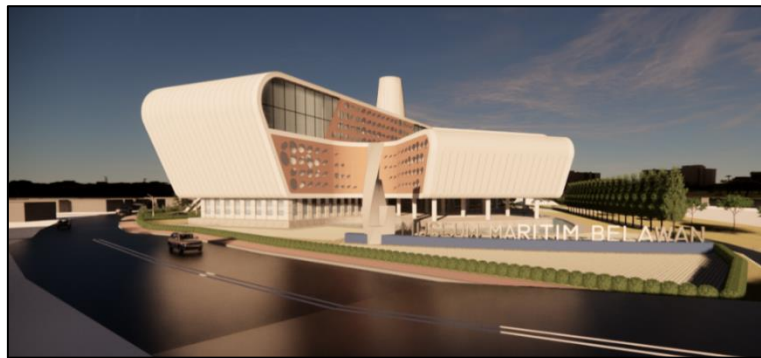


Figure 5. The exterior of the Belawan Maritime Museum

3.6 Inner Space Design

The programming and organization of space in the museum are the results of an analysis of museum functions, museum users & activities, museum space requirements, museum space functions, museum space requirements, and the proximity of museum spaces concerning existing standards regarding museum buildings (Figure 6). The exhibition at the museum consists of three exhibitions with an arrangement system according to the periodization of Indonesian maritime history, namely the pre-colonial period exhibition, the colonial period exhibition, and the post-colonial period exhibition.

On the ground floor, the room is divided into a public zone, a semi-public zone, and a service zone (Figure 7). The three zones consist of a lobby and ticket booth as a public zone, a cafeteria as a semi-public area, and a service area. On the 1st floor, it is planned that there will be a main exhibition space which is divided by time zone in Indonesian maritime history. On this floor, there is also a museum auditorium, management office, collection storage room, and prayer room. The auditorium is planned to be able to go directly without having to buy a ticket because the stairs are provided from the lobby directly to the auditorium. On the 2nd floor, it is planned that there will be a colonial showroom, a library and collection storage room, an auditorium operator area, and also workshop spaces (Figure 8).

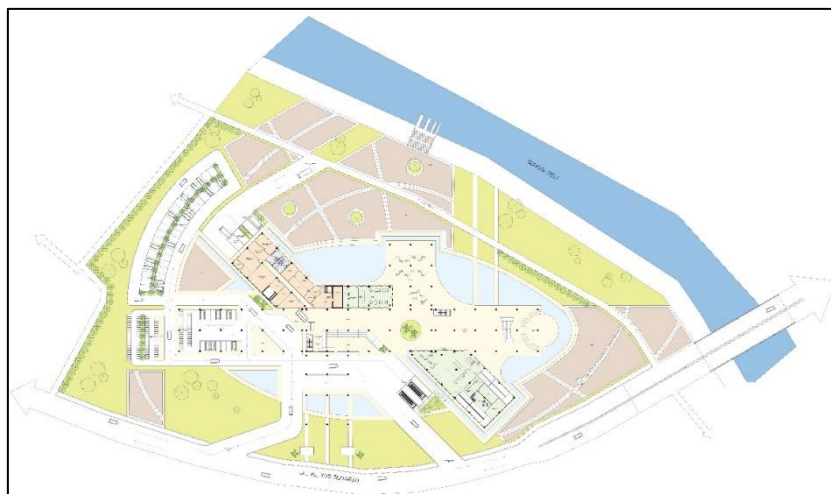


Figure 6. Ground Floor Plan

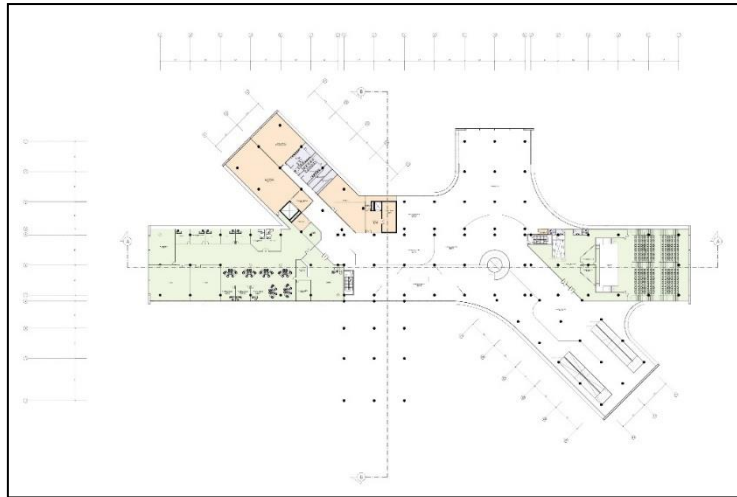


Figure 7. First Floor Plan

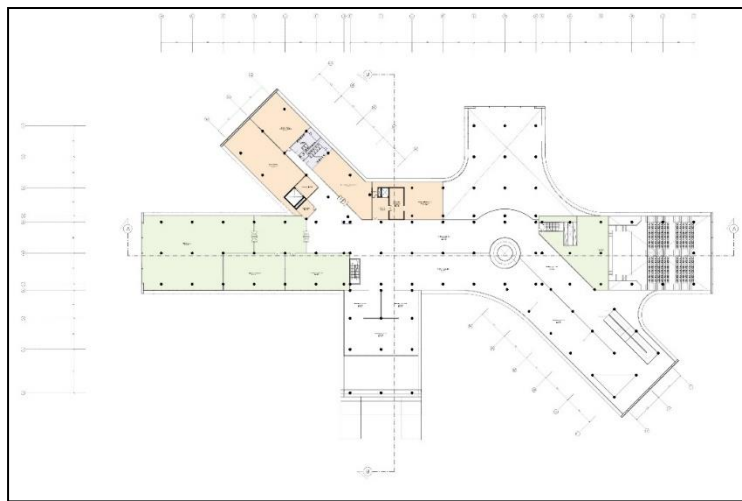


Figure 8. Second Floor Plan

On the 3rd floor, it is planned that there will be a continuation of the exhibition space from the 2nd floor, namely the post-colonial exhibition and the saltwater and freshwater aquarium area, then at the end of the exhibition room there is a gift shop, and rest room for visitors, and if you want to go straight down there is a circular ramp available. take visitors to the lobby (Figure 9). On the 4th floor, there is an aquatic animal preservation facility (Figure 10).

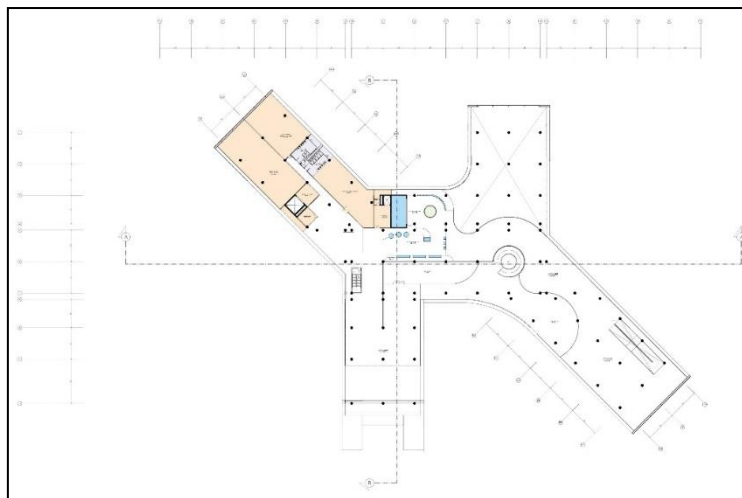


Figure 9. Third Floor Plan

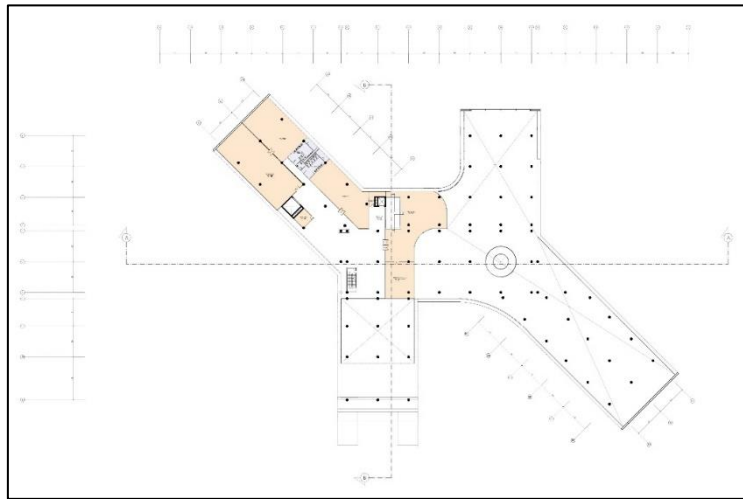


Figure 10. Fourth Floor Plan

3.7 Structure Concept

The Belawan Maritime Museum building with a metaphorical approach demands an expressive form of building but is also able to accommodate its main function, then the right structural system is a wide span structure system with the use of a truss roof that can minimize heat and humidity in the building. The foundation structure of the museum building uses a pile foundation considering soil conditions and loads. The building uses reinforced concrete material on columns and beams, this is applied based on consideration of the function of the building, namely protecting collections and the comfort of visitors. Material selection is based on the ability of the material to absorb and release heat. In this case, concrete is better than steel. Because the shape of the building mass consists of several different geometric shapes, it is necessary to dilate the column to minimize damage to the building due to vibration (Figure 11).

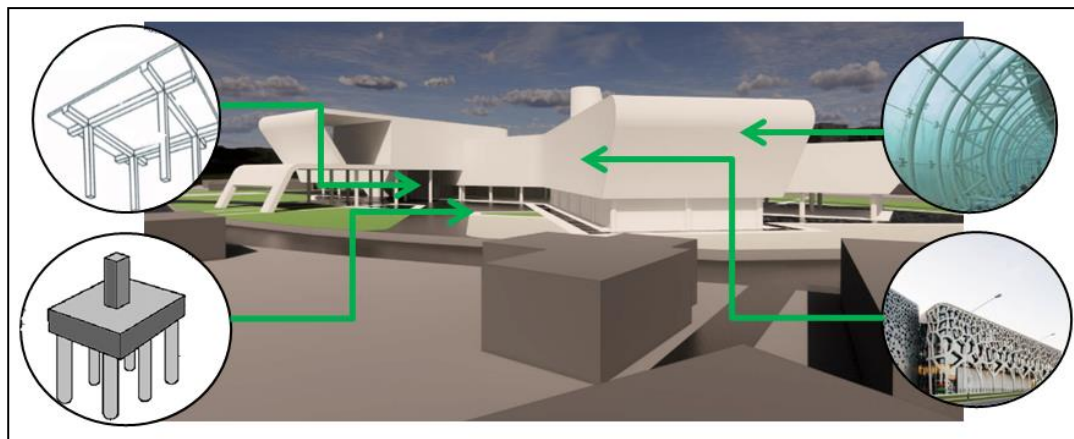


Figure 11. Structure System Concept

3.8 Utility system

The concept of utility in the Belawan Maritime Museum building is to minimize the use of energy and new sources. Its application to the design is a natural ventilation system in public / non-collection spaces, artificial ventilation in the exhibition area, and separate artificial ventilation in office and auditorium functions. The concept of providing electrical energy in buildings uses the main source of electrical energy from PLN and is equipped with a generator to anticipate power outages. If there is a sudden power outage, there will be an auto switch on the power station and it will distribute electricity to the building automatically.

The clean water system in the building comes from PDAM and drilled wells. The clean water distribution system uses a down feed system for the toilet and kitchen functions to ease the work of the pump, while for the aquarium area, an up feed system is used based on the need for fast clean water facilities. There is a rainwater storage pool on the ground floor that functions as an alternative water reservoir for the

needs of the sink and toilet flush after the filtration process is carried out. The rainwater that has been collected in the reservoir is channeled to the filter and then stored in a clean water tank. The concept of a dirty water system minimizes environmental pollution as much as possible, dirty water from the toilet or aquarium is channeled into the control tub and infiltration wells on the site and then flows into the sewer.

4 Conclusion

The design of the Belawan Maritime Museum covering an area of $\pm 15,000$ m² aims to be able to accommodate the community to gain this experience and to preserve history for future generations. function. The application of Combined Metaphor architecture in the planning and design of the Belawan Maritime Museum was chosen to present a visually attractive building that inspires local people and foreign tourists to come to visit but also has meaning in its shape. The results of the application of the combined metaphor architecture can be seen in the symbolization of the shape of the hull which is very important in the maritime world. In addition, the application of other combined metaphor architectural themes can be seen in the design elements of the building, interior, and site.

5 Acknowledgment

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6 Conflict of Interest

The authors whose names are listed below certify that the manuscript does not have a conflict of interest.

Alya Maysarah Daulay

This statement is signed by all the authors to indicate agreement that the above information is true and correct (a photocopy of this form may be used if there are more than 10 authors):

Author's name (typed)

Author's signature

Date

Alya Maysarah Daulay



November 2023

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