A SUSTAINABLE ARCHITECTURAL CONCEPT APPROACH TO MOSQUE DESIGN IN MEDAN

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ABSTRACT

A mosque is a building of worship that is widely spread in Indonesia, because many of these buildings are found because the majority of the population in Indonesia is Muslim. A mosque is a place that not only functions for worship, but also contains beauty, holiness and a sense of comfort for future users. methods or approaches, including data collection methods, literature, site location surveys, discussion and data analysis and concept formulationdesign. This data is then grouped again to create a room. The space is in the form of a zoning drawing of the shape of a mosque, as well as other supporting facilities. Ideas for designing a mosque area that can accommodate the needs of its future users by providing a sustainable architectural approach. The design concept for this mosque carries the concept of sustainable architecture which can maximize its function other than for worship. As for sustainable architecture, several literatures reveal that the application of a building context with the concept of sustainable architecture also gives a comfortable impression and is aimed at environmentally friendly development, which utilizes natural potential as much as possible. Sustainable architecture is an environmentally friendly building, which is designed and built using sustainable building technology, sustainable energy systems, sustainable building materials and sustainable building materials that do not burden future generations with environmental and financial debt.

INTRODUCTION

The area is developing very rapidly at the moment, so an area is really needed that can accommodate visitors who want to stop by while crossing the city. The development of this area is considered to have very good potential for the community because the area is quite strategic. One of the things that will be built in this area is a mosque, where this mosque is really needed for the community and road users in the future. Mosques that have a unique attraction or have a quality space that is felt to provide a sense of comfort for people who come to this area.

A mosque is a building of worship that is widely spread in Indonesia, because many of these buildings are found because the majority of the population in Indonesia is Muslim. A mosque is a place that not only functions for worship, but also contains beauty, holiness and a sense of comfort for future users. Mosques have various goals and programs which ideally aim to maintain religious and other behavior in a society (Auliyah, n.d.). For this reason, it is not only in terms of worship activities, but can also be used as a means of community between Muslims. Thus, the existence of a mosque can be said to be a unifying place for Muslims.

With the Muslim religion being the majority in Indonesia, there are many areas where mosques are spread.There are no less than 300,000 mosques in Indonesia, not only in villages or on the outskirts of cities, but also in the heart of the capital (Nata, 2021) . For Indonesian people, mosques are not only buildings that contain religious values. Because it is a region where many cultures are spread, the characteristics of the forms of mosques in each region are also different. This also causes the function of the mosque not only as a place of worship but also as a place of recreation. Being aware of the various characteristics and cultures that

exist in Indonesia, mosque buildings have added value, namely in the form of aesthetics because of the distinctive characteristics of their shape.

In general, mosque buildings can later become a wider forum for the community for common interests. In this case, the function of the mosque is first as a place of worship, then also as a place for spreading knowledge because of its unique characteristics. Because of this, the concept taken in this design focuses on the sustainability of the design building. This Sustainable Architecture concept is considered to be able to integrate location utilization in development for the community in the area where the mosque is being built.

The design for the needs of the user community should consider local wisdom. This is important to accommodate the functions of the designed building so that it becomes more familiar and is considered important by the user community (Negoro & Nuraini, 2022).

Design problems

Ideas for designing a mosque area that can accommodate the needs of future users by providing a sustainable architectural approach.

Design Purpose

The purpose of this planning is to make the mosque a place that can be used for its functions other than for worship. And to create an important role with the existence of this building for the development of the area.

METHOD

The design method used for this mosque design project follows the five-step design process standards based on Nuraini & Sudrajat (2010). The initial stage involves formulating the design problem followed by data collection; the second stage is spatial programming for the building and site; the third stage is the analysis of the building and site; the fourth stage involves the development of design concepts for both the building and site, and the final stage is design synthesis.

For the proposed chosen form, it is carried out through the analysis of the form or morphology of mosque shapes within the understanding of the general public. This is done to ensure that the chosen forms are shapes understood by the local community (Nuraini, 2019).

Planning Location

Pekalongan's iconic mosque design is located on Jl. Pungguk, sei goat B, Medan Sunggal Kota District, Medan City, North Sumatra, with a land area of ± 22,535.23 m2. The strategic location of the land is considered to have the potential to attract people to visit this city's iconic mosque. The location of the design location in the Pekalongan city area can be seen from Figure 1.

Figure 1. Planning Location
(Source: Processed by the author based on Google Maps and Masterplan)

RESULT AND DISCUSSION

The design of this mosque carries the concept of sustainable architecture which can maximize its function other than for worship. As for sustainable architecture, several literatures reveal that the application of a building context with the concept of sustainable architecture also gives a comfortable impression and is

aimed at environmentally friendly development, which utilizes natural potential as much as possible. Sustainable architecture is an environmentally friendly building, which is designed and built using sustainable building technology, sustainable energy systems, sustainable building materials and sustainable building materials that do not burden future generations with environmental and financial debt (Prabowo et al., 2019). This definition also goes hand in hand with implementation *sustainable* in designing this mosque, namely maintaining existing land to maintain the culture of the surrounding community, utilizing rainwater to be reprocessed into drinking water, and utilizing local materials.

According to Hudrita (2010) in Syamsiyah's (2015) research, there are several ways to implement sustainable architecture, including efficiency in: 1. Energy use 2. Land use 3. Material use 4. Use of new technology and materials 5 (Agung Kurniawan & Sapto Pamungkas, 2020). Sustainable architecture or also channel *Green architecture* is architecture that seeks to maximize or minimize the negative impact of the building environment with efficiency in the use of materials, energy and ecosystems at large.

To achieve the objectives and functions achieved, several methods or approaches are used, including data collection methods, literature, site location surveys, discussion and data analysis and concept formulation *design*. A number of location land data can be seen in Figure 2. A number of data are then grouped again to create a room. The space is in the form of a zoning image of the shape of a mosque which can be seen in figure 3.

Figure 2. Planning Location
(Source: Author, 2023)

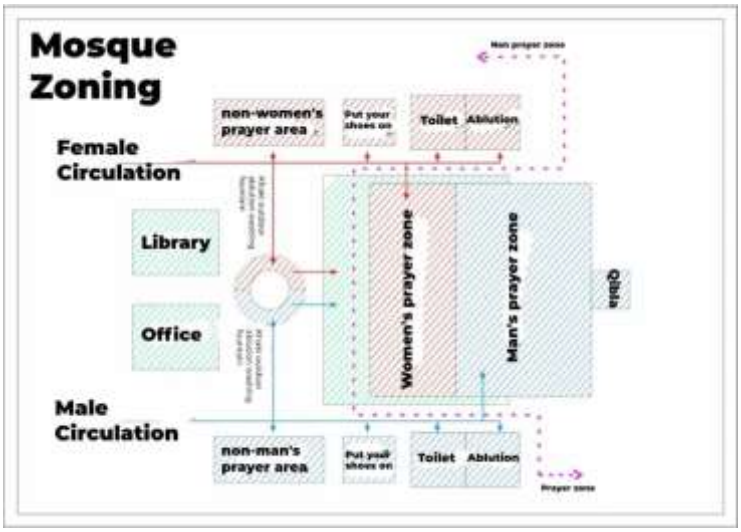


Figure 3. Mosque Zoning
(Source: Author, 2023)

The conceptual basis in this design is the basis or explanation of the source of the design concept which includes analysis such as function, form, structure, utility and circulation. In the initial stage, the analysis carried out is to identify the site plan which determines the shape of the facade and floor plan to be built, as shown in Figure 4. The three points are expected to be able to cover and accommodate future users, such as the public or mosque visitors who can complement and support The main function. Several exterior and interior physical appearances of the mosque design can be seen in Figure 5. The site plan and floor plan of the mosque building can be seen in Figure 6, 7 and 8.

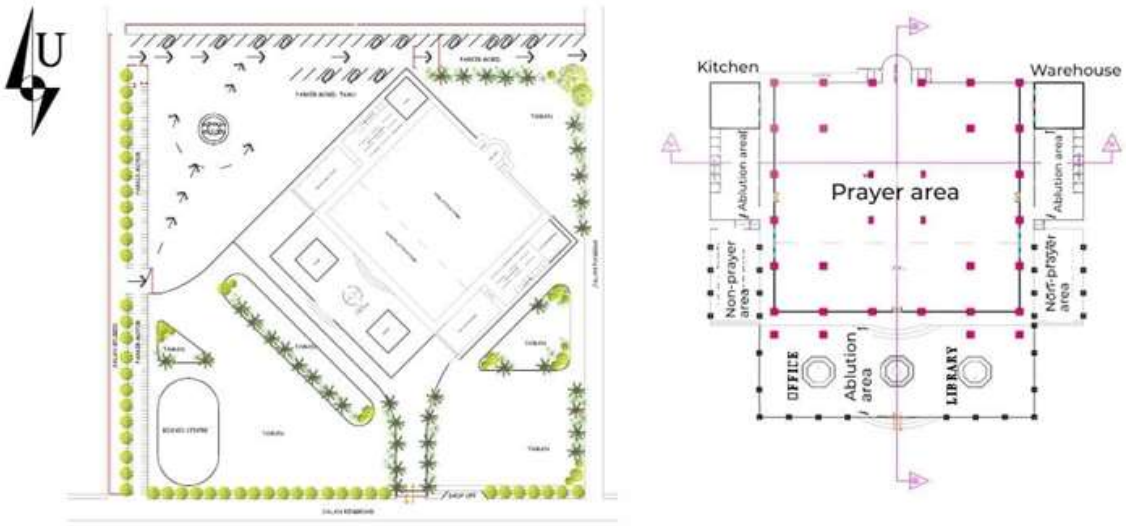


Figure 4. Site plan and Floor plan

Figure 5. The exterior appearance of the mosque building (1)

Figure 6. The exterior appearance of the mosque building (2)

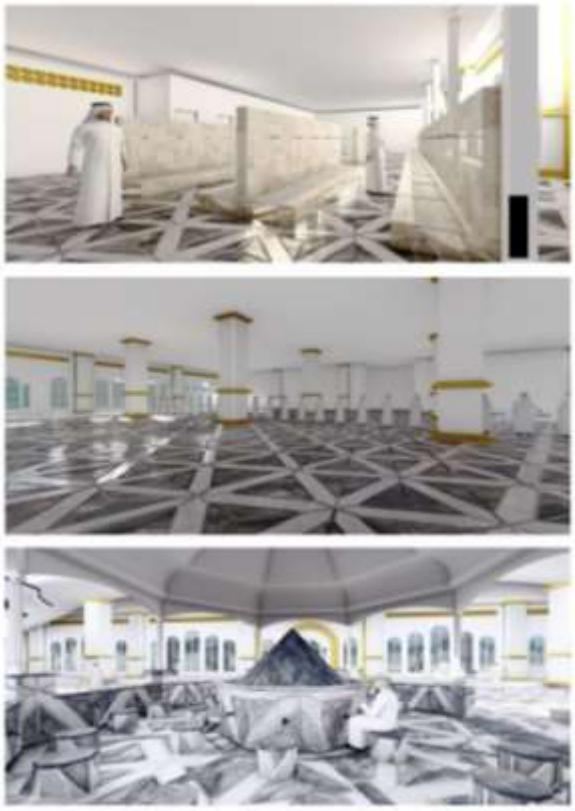
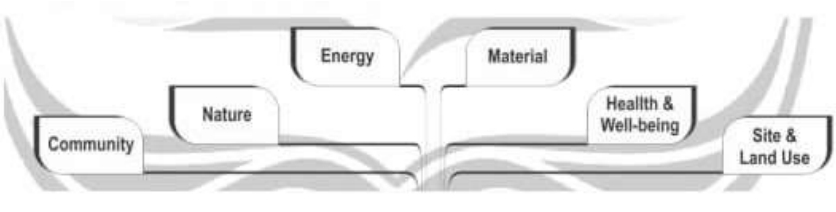


Figure 8. The Interior Concept
(Source Author, 2023)

This conceptual foundation comes from the form of the Koran. And in this concept there are six aspects in which there is a unity that must be integrated with each other. The transformation process takes the form of six mutually integrated aspects, which are shown in Figure 9.



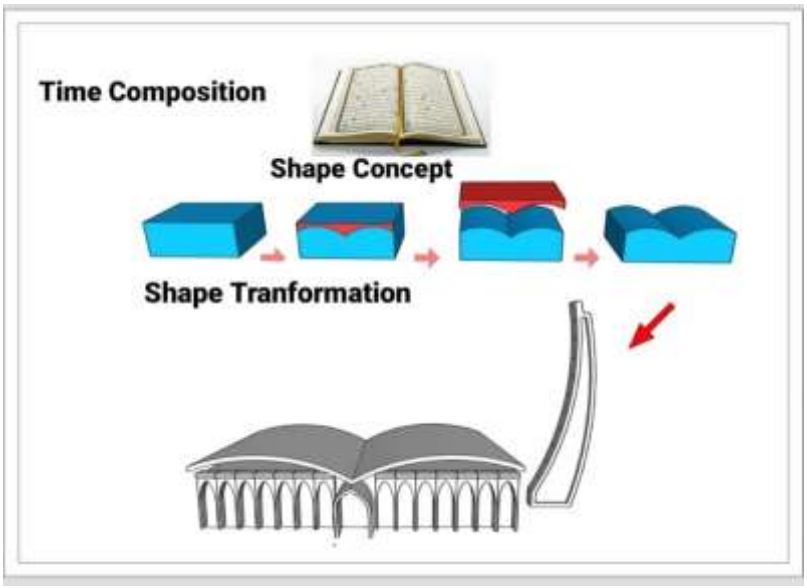


Figure 9. Concept and Shape Transformation
(Source: Author, 2023)

Figure 10. Exterior Ambience
(Source: Author, 2023)

CONCLUSION

Sustainable Architectural Design which applies the concept of utilizing the environment at the location in a form that is transformed into a comfortable design from a sustainable form. The transformation of the form

taken from the Al-Qur'an is the main point of its uniqueness. This form is applied to the roof design, in which there are six aspects that are integrated with each other. Apart from that, other supporting facilities are expected to provide good functions for the community. This adds a sense of comfort and aesthetics in making the mosque building an icon in the Medan city area.

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