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Musholla Building Planning Assistance At Sma Negeri 26 Batam

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Abstract

A building is an infrastructure with several structural and architectural components erected to help all human activities. Mosques and mushollas are buildings that become unique places of worship for Muslims. The existence of Musholla has grown as a necessity for many infrastructures, including factories, offices, and schools or madrasas. Public facilities such as mosques and mushollas require calculations in terms of sound design because of the broad land. An expert with experience making building designs is needed to get the design as expected. This is the main requirement of what is expected by SMAN 26 Batam. The school plans to build a mosque or musholla because it does not have a place yet to worship and do other religious activities for the Muslim community inside the school. The purpose of this community service is to assist in the planning process of the musholla construction, where the project is expected to benefit the school community later. The output of this activity is the submission of 2D and 3D designs and drawings, calculation of a Budget Estimate Plan (BEP), and construction implementation project schedule (Banana Curve).

Keywords: *Musholla, Community Service, Design, Budget Estimate Plan, Banana Curve*

Introduction

A building is an infrastructure with several structural and architectural components erected to help all human activities (Jaya, 2019). Therefore, buildings have a purpose to protect from the weather and fulfill special needs according to their function. Islam is one of the major religions of the population of the Republic of Indonesia (Sasongko, 2021). Mosques and mushollas are buildings that become unique places of worship for Muslims. The existence of Musholla has grown to factories, offices, and also schools or madrasas. The existence of the Minister of Education Regulation allows the development of musholla in schools quickly. This follows the implementation of the Regulation of the Minister of National Education of the Republic of Indonesia Number 24 of 2007 concerning Facilities and Infrastructure Standards for elementary school, junior high school, and senior high school. The regulation stipulates that schools at all levels must have a place of worship, such as a mosque or musholla.

Public facilities such as mosques and prayer rooms require calculations in terms of sound design because the use of land is quite broad and comprehensive (Maurina, 2014). An expert with experience making building designs is needed to get the design as expected. The use of a mosque or musholla as a place of worship needs to pay attention to the number of residents in the surrounding environment (Kahandani, 2020). This is the main point of what SMAN 26 Batam requires. The school plans to build a mosque or musholla because it does not have a place to worship for Muslims. The purpose of this Community Service is to assist in the planning process for constructing a mosque/musholla where the project to be carried out is expected to benefit the school community later. Activities carried out by the community service team began with 2D and 3D drawings from the partners, providing details of the calculation of the Budget Estimate Plan (BEP) until reaching the accumulative results summarized into a construction implementation project schedule (Banana Curve).

Methods

A community service team of students and lecturers from the Batam International University Civil Engineering Study Program carried out this activity. The activity was carried out for four months, starting September 04, 2023, and finishing December 15, 2023. The location was SMA Negeri 26 Batam, and the work process was carried out in several stages.

A. Field Observation

The field observation stage with the supervisor aims to collect data and measurements from the mosque construction planning location and identify areas around the construction site.

B. Discussion with Partners

At this stage, discussions are held with partners to obtain precise information about design, location, Qibla direction, building size, and determination of building elevations.

C. Implementatiton Stages

This stage is the core of implementing community service activities, and here we make building design drawings consisting of 2D and 3D, calculate a Budget Estimate Plan (BEP), and project scheduling (Banana Curve).

D. Evaluation

The evaluation stage is carried out by providing progress to the partners to get improvement suggestions.

Result and Discussion

After discussions with partners and field observations, the next stage is working on 2D and 3D design drawings. Based on the results of discussions and surveys, the land area to be used is (206.18375 m²), and the mosque building is made with the concept of a 2-story building according to partner requests with a total building height of (± 15.5 m). In the mosque building, there is a mihrab room with a size of (4 m x 2 m), male and female ablutions each measuring (2 m x 3.5 m) + (1.5 m x 1.5 m), and next to the ablution place there are three small rooms with a size of (2 m x 1.5 m).

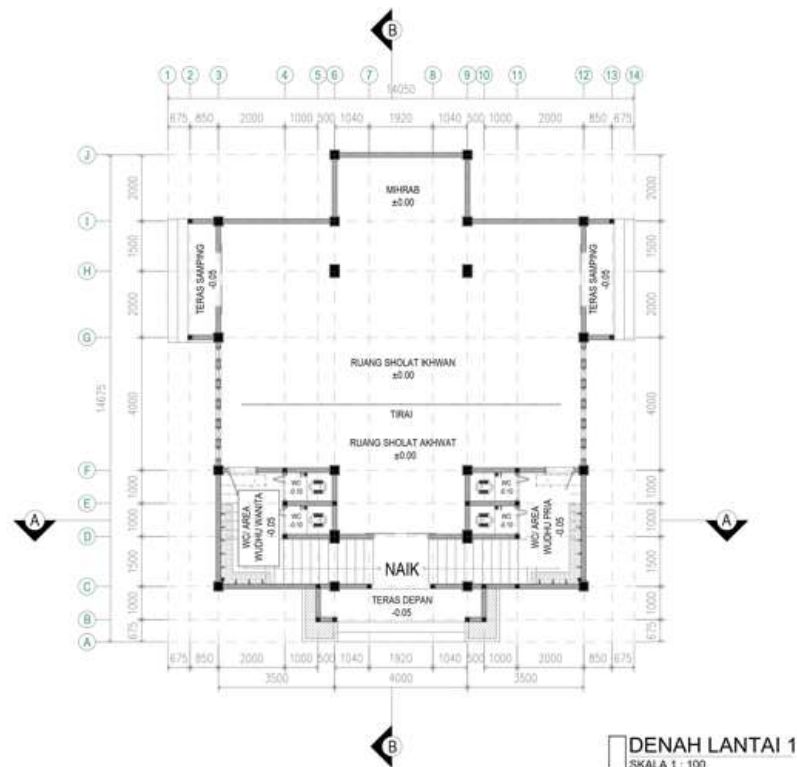


Figure 1. 1st Floor Plan

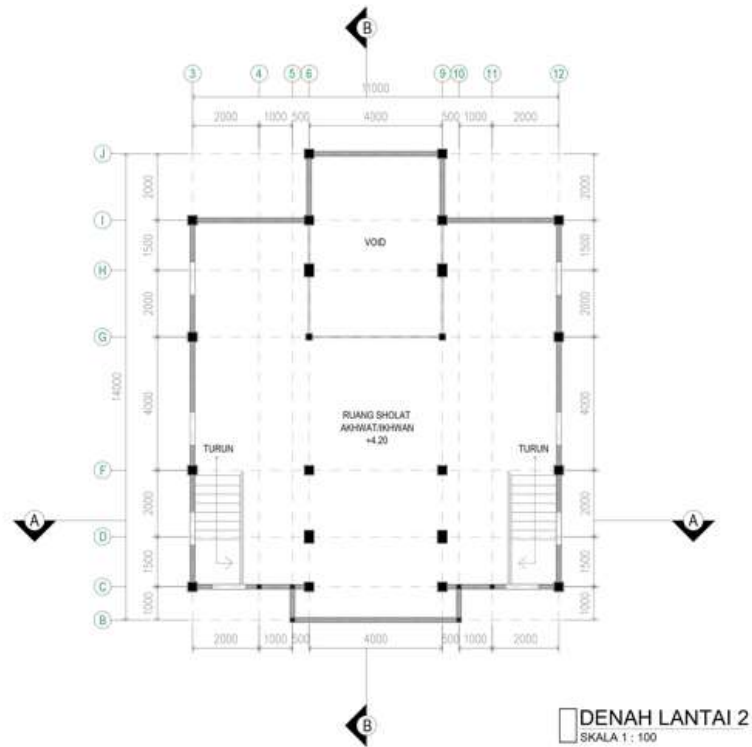


Figure 2. 2nd Floor Plan

The building design is made by referring to the capacity and needs of the use of mosque facilities so that it is obtained on the 1st floor of the building for the Ikhwan prayer area has a size of ($\pm 60.5 \text{ m}^2$), and at the back there is an akhwat prayer room of ($\pm 30 \text{ m}^2$). For the void, the room is minimized according to the partner's request while still paying attention to the comfort of mosque users.

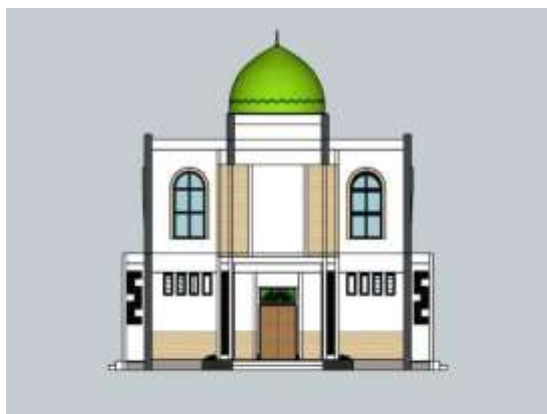


Figure 3. 3D Design of Musholla Building

After the partners approve the 2D and 3D design drawings, the next step is calculating the draft budget cost. The Budget Estimate Plan (BEP) is one of the main parts of a project work where the BEP calculation is carried out to calculate the value of financing in the work on a project, which usually consists of material costs, labor costs, and others (Effendy, 2022). A recapitulation of the cost budget plan calculation is shown in Table 1.

Table 1. Recapitulation of Preparation and Structural Budget Estimate Plan

No	Job Description	Price Amount (Rp)
1	Preparation Work	12,809,110.44
2	Borpile Work	78,540,000.00
3	1st Floor Structural Work	239,018,726.63
4	2nd Floor Structural Work	148,226,546.29
Total		478,594,383.35

Project scheduling determines the time and sequence of work to determine when the project can be completed (Wijoyo, 2022). The estimated time for the construction of SMAN 26 Batam musholla, starting from the preparatory work to the 2nd-floor structure is four months. The detailed schedule and work sequence are shown in Figure 4.

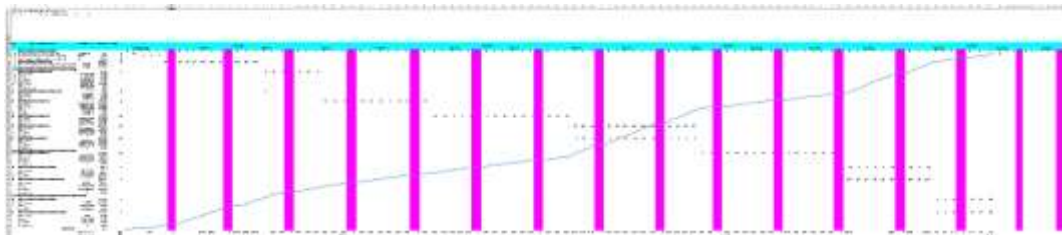


Figure 4. Banana curve of Musholla Construction of SMA 26 Batam

Conclusions

The planning for the construction of SMAN 26 Batam Musholla has been completed by the community service team, starting from the discussion until the final stage of the work. It is planned that the mosque building will consist of two floors, with the total cost from preparatory work to structural work on the 2nd floor amounting to the structure's size. The construction can be completed in approximately four months. This is expected to be helpful for partners as a guideline in implementing mosque construction. This community service activity is also expected to establish better cooperation and relations between the universities, especially the Civil Engineering Study Program of Batam International University, and other educational communities. Lastly, with this community service, it is expected that there will be an upbringing in the sustainability of this program up to the stage of assisting the implementation of work in the field.

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