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The Management of Public Facilities Area in Sidomakmur Baru Complex Dau Sub District Malang Regency as a Community Hall and Playground

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ABSTRACT

According to Government Regulation No. 14/2016, every housing and settlement area is required to provide facilities and infrastructure and public facilities. However, in Sidomakmur Baru Complex, the developer has provided the facilities only in the form of empty land that has not been adequately processed and serves only as a water catchment area. The land will be very potential if processed into a place that can accommodate more functional community activities, such as processing its function as a Citizen Hall and Playground for children. Manage the function of the land while maintaining its previous function as a water catchment area. The method used in this activity was field observation and advance plan and a participatory action research strategy. In terms of design, the main focus is to have a decent architecture while still paying attention to the surrounding environment.

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INTRODUCTION

Regulation of the Minister of Public Housing Number 11/2008 concerning Guidelines for the Harmony of Housing and Settlement Areas states that every developer of non-subsidized housing and subsidized housing must provide public and social facilities. Based on this regulation, the developer must provide land covering 30 percent of the site plan's total development as public and social facilities. Meanwhile, in Law Number 1 of 2011 concerning Housing and Settlement Areas, it is stated that each developer is obliged to allocate land to be built to be used as social and public facilities. Both of these are supported by the enactment of Government Regulation Number 14 of 2016. Every housing and settlement area is required to provide facilities and infrastructure, and public facilities.

The developer can carry out the development of social and public facilities in a residential area. The construction is then handed over to the local government or the housing community through the residents' community management. The provision and delivery of these facilities are regulated in the

Minister of Home Affairs Regulation No. 9 of 2009 concerning Guidelines for the Delivery of Housing and Settlement Infrastructure, Facilities and Utilities.

Public facilities are rights that must be obtained by every resident in a settlement. Ujianto. et al. (2018) described the analysis and concept of environmental infrastructure for the Sidomakmur Baru Plot Complex as a basic need and an essential factor in increasing social stability, dynamics, and community productivity. Sidomakmur Baru Plot Complex is a non-subsidized housing area located in Dau sub-district. Based on the field observations, the problem found was that the land for public facilities had not been appropriately managed and cannot be used to support residents' daily activities. The residents faced difficulty gathering for the community regular discussion, as they need spacious and comfortable space to gather. Besides, there are no suitable places for children to gather and play together as no playground facilities. During this time, the children used the small guardhouse or the street, which was dangerous. This condition led to the increasing of the community inconvenience.

The aim of assisting the public facilities' designing process was to create a healthy, clean, and comfortable environment. The research problem's formulation is to map the architectural design of public facilities following the site's environmental conditions and the residents' needs while maintaining its primary function as a water catchment area. Therefore, this study aims to design an architectural design of public facilities that are environmentally friendly and effective in accommodating residents' activities.

METHODS

This research is a qualitative descriptive study with an in-depth observation and discussion approach. The research strategy is a Participatory Action Research (PAR) type (Kemmis & Wilkinson in (Creswell, 2010) where researchers are part of the action, do not separate themselves from the situation of the community under study, and merge into it to work with the residents. The type of PAR method's research strategy is an approach to participation to empower the citizens' potential to maintain cooperation between residents.

The data collection method uses field observations as primary data and site plan as secondary data. Field observations as the primary data source consisted of architectural measurements, architectural documentation, architectural sketches, and in-depth interviews with residents. The advance plan as a secondary data source serves to determine the location and determine the area's potential.

The method of analysis uses descriptive analysis (Cresswell, 2012). The researcher tries to map what public facilities exist and what new facilities are planned in the descriptive analysis.

RESULT AND DISCUSSION

Community Hall Design

The community hall is a gathering space used for residents' discussion or other activities. The area of the community hall to be designed is 54 m². The location is on the north side of the Sidomakmur Baru complex.



Figure 1. Community Hall Site (source: survey result, 2020)

The space requirements for Balai Warga consist of the main room, bathroom, warehouse, and terrace. This space requirement was obtained after discussions with the board of the Sidomakmur Baru complex. The Citizens Hall's maximum capacity is 30 people, with 15 people inside the hall and 15 people on the terrace.

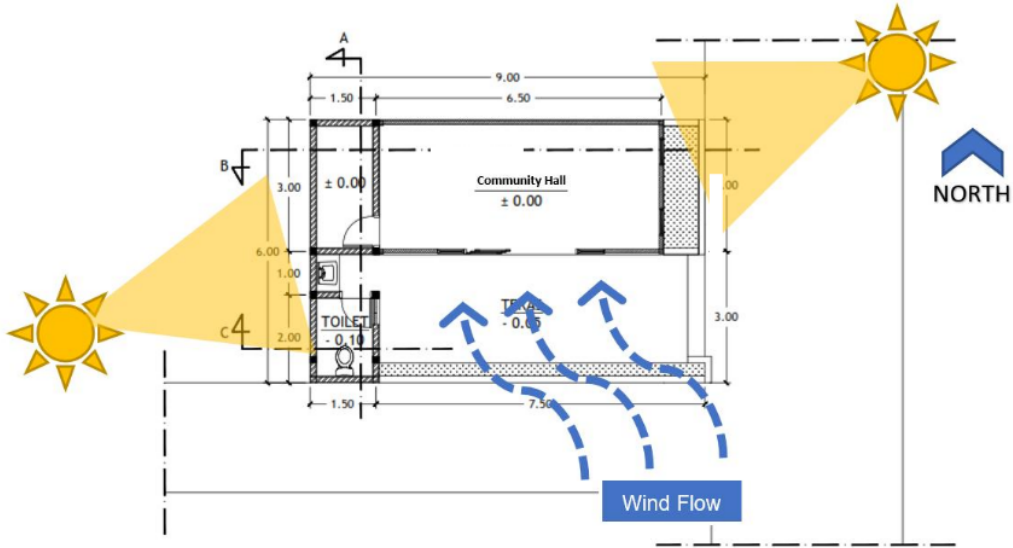


Figure 2. Community Hall Floor Plan (source: analysis result, 2020)

The design of the community hall provides culverts that are in charge of absorbing rainwater. The community hall is located in the corner and can be reached from 3 directions: east, north (the village shortcut), and south.

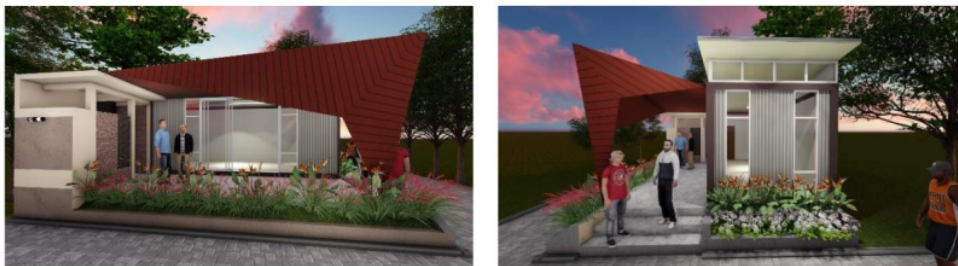


Figure 3. Front Elevations of Community Hall (source: analysis result, 2020)

Figure 3 shows that the dominant building period is stretched to the east-west so that the cross-sectional area of the east and west sides is small. This shape aims to reduce the sun's heat received in the building. Meanwhile, the natural lighting system from outside the building can be optimized by designing a broader opening on the south side of the facade to enter natural light indirectly. Widen the opening on the south side also has the purpose of capturing the coming wind from the surrounding environment. Through such a building design concept, thermal comfort inside the building can be obtained naturally without excessive electricity consumption.

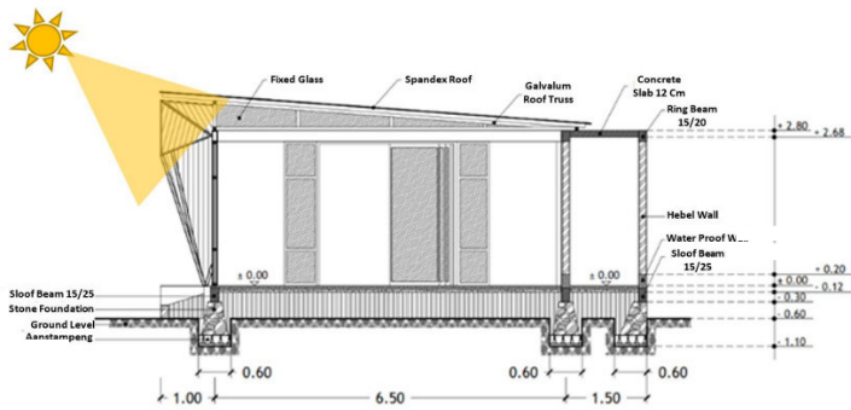


Figure 3. Community Hall Section B – B (source: analysis result, 2020)

As seen in Figure 3, the roof uses spandex to minimize construction costs and achieve an attractive architectural form while still paying attention to its function. The roof frame uses a lightweight galvalume material frame and will be cheaper than wood. Galvalume frame material tends to be more durable and anti-porous than wood, and the level of its installation efficiency is relatively fast and easy compared to using wood.

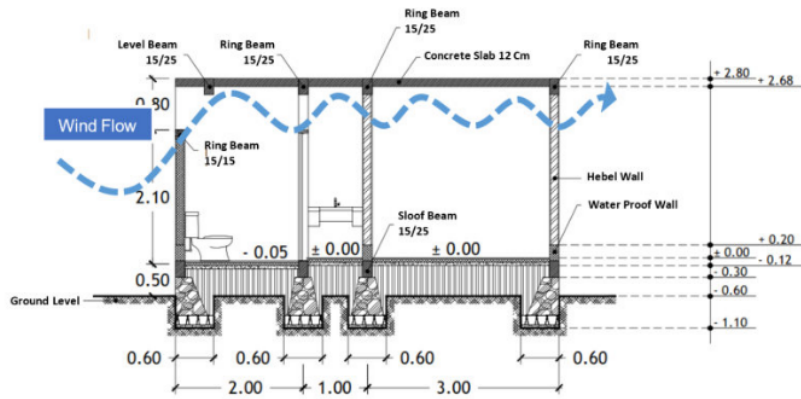


Figure 4. Community Hall Section A – A (source: analysis result, 2020)

Figure 4 shows the cross-ventilation system inside the Community Hall building. There are window openings located opposite each other in a room. This ventilation is the best solution for the design of this community hall, as besides being able to cool the air, it can also save energy and costs. Large window openings act as air vents and doors. The openings are made of glass so that the lighting that comes in from morning to noon can take advantage of the existing sunlight.

Playground Design

The next public facility design is a Playground. This playground is the dream of many children who live in the housing complex. Playing is a fundamental need for child development, both for physical and motor development in children. Suyanto (2005) stated that the function of children's

playing is to develop motor skills, cognitive abilities, affective abilities, language skills, and social abilities. In the design process, this playground will be built on an area of 9.20 m x 16.80 m. The location is in area D as shown in Figure 4 the site plan image.

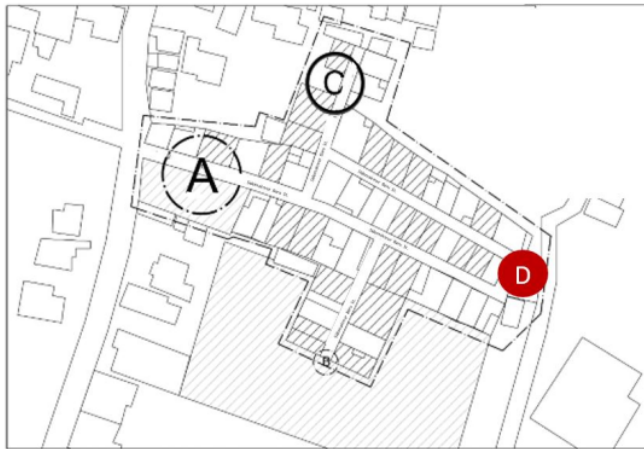


Figure 4. Playground Site Plan (source: survey result, 2020)

The location of this playground is adjacent to the Integrated Waste Management Site (TPST) area of Mulyoagung Village. Only one gazebo is found in the existing condition, which is used to play and gather for children. Having a playground site will help children's physical and emotional development.



Figure 5. Existing Site of Playground (source: survey result, 2020)

Survey results showed that the area intended to be the playground site is far from high intensity, such as passing vehicles. Therefore, the land selection was deemed very suitable. There is a small river as a catchment area for rainwater and water from rice fields in the current condition. The function of the land will be processed for a playground and as a water catchment area. The concept aimed not to eliminate the existing river. The application of the design concept can be seen through the design, as shown in Figure 6a.

The Playground design concept includes a green area in the design, so the playground zone can still function as a catchment area. Green plants will be planted in some areas as an element of softscape and as shade for the children playing under it. This area can also be used as a medium for planting herbs for public health. Fair use of public facilities that are still empty land is expected to contribute to nature, as shown in Figure 6b.

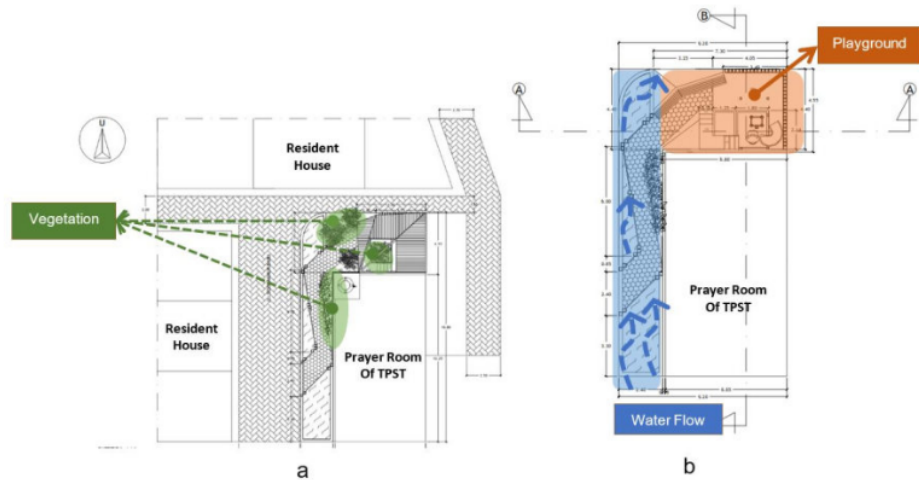


Figure 6. Site Plan and Floor Plan of Playground (source: analysis result, 2020)

This playground will provide slides, rope games, and sand games, mostly open spaces that serve social activities, relaxing, and a place for the children's social communication. Possibly, it also can be used as a place to relax for adults. Some of the materials used in this design are the same as those used in the community hall. The roof design's shape is made similar to create an interlocking atmosphere between the public facilities in the Sidomakmur Baru Complex. The playground design is shown in Figure 7 and 8.



Figure 7. 3-Dimensional Design of Playground (source: analysis result, 2020)

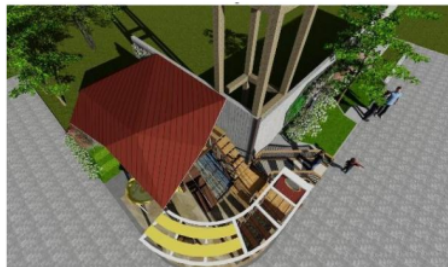


Figure 8. Top View of Playground (source: analysis result, 2020)

Based on the overall analysis results, three elements influencing the community hall and playground planning are sun trajectory, water absorption, and wind direction. The three forming elements are closely related to lighting, ventilation, and building utilities.

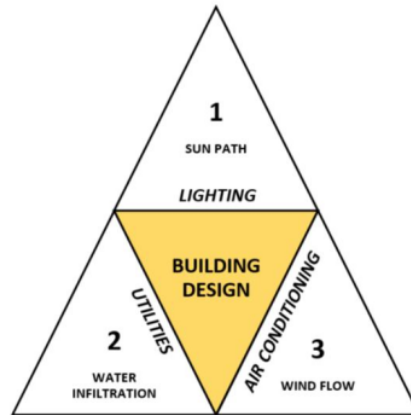


Figure 9. Design-forming Elements (source: analysis result, 2020)

Public facilities are designed not only as a complement to residential areas but can be used effectively and functionally by taking into account space requirements and the impact of the design on the surrounding environment. It will be architecturally beautiful and functional and will not cost much money. That is the architecture that can contribute to the environment, nature, and society in it.

CONCLUSION

The study results concluded that the design process of the Citizens' Hall and Playground pay attention to the direction of the sun's trajectory and the direction of the wind on each site. The design aims to minimize the use of additional energy for conditioning the room user's thermal comfort. Apart from these two things, this public facility's design also maintains the original function of the land as a water catchment area. These three things are the main elements that aim to produce an environmentally friendly and practical design in accommodating community activities.

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