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Planning for The Development of the Bondok Classroom Boarding School Al Asror Arromah Patemon

Didik Nopianto A Nugradi*, Diharto, Eko Budi Santoso, Teguh Prihanto, Aldy
Firmansyah, Mahbub Amrulloh Ikhsan, Novika Nurhayati

Universitas Negeri Semarang, Indonesia

*Corresponding Author: didiknop@mail.unnes.ac.id

Abstract

Islamic boarding schools play a strategic role in character formation and the development of knowledge based on religious values. Asror Arrohmah Patemon, Semarang, moment This face constraint limitations room facilities the class that not enough optimal in support activity Study teach. Community service program public This aim For designing development room more functional, comfortable, and environmentally friendly classrooms. The implementation method involves surveying existing conditions, analyzing needs, planning floor plans, creating 3D models, and preparing a Cost Budget Plan (RAB). The planning results show classroom designs that apply green building principles, such as natural lighting, cross-ventilation, and efficient spatial planning. 3D visualization makes it easier for management to understand the design, evaluate technical and aesthetic aspects, and planning the construction phase. In conclusion, this activity resulted in a representative design that supports the student learning process and creates a conducive and sustainable educational environment.

Keywords: design, cottage islamic boarding school, room class

INTRODUCTION

Islamic boarding schools (pesantren) are Islamic-based educational institutions that play a strategic role in producing a generation with morals, knowledge, and usefulness. In Indonesia, Islamic boarding schools serve not only as centers of religious learning but also as residences for students from various regions. Physically, Islamic boarding schools generally consist of several main elements: a mosque as a center for worship and learning activities, a pondok as a dormitory for students, a kyai (Islamic cleric) as an educator and role model, and students as learners. With this composition, Islamic boarding schools form a something ecosystem education typical which unites spiritual, intellectual, and social aspects in everyday life (Fitri & Syarifuddin, 2022).

Quality means And infrastructure is an important factor in supporting the success of the educational process in Islamic boarding schools. A comfortable, healthy, and well-organized learning environment can increase concentration, motivation, and the effectiveness of teaching and learning activities. Conversely, limited facilities often hinder the achievement of Islamic boarding school educational goals, particularly in facing the challenges of modernization and the increasingly complex needs of the younger generation (Hasanah, 2020).

Al Asror Arrohmah Patemon Islamic Boarding School, which located in Subdistrict Gunungpati, Semarang City, is an Islamic educational institution currently striving to improve the quality of its educational facilities. The problem faced is the limited number of classrooms that do not meet comfort standards, in terms of layout, lighting, ventilation, and capacity. This situation impacts... The students' enthusiasm for learning and concentration. Furthermore, the existing building design does not fully address environmentally friendly principles, even though these aspects are crucial for creating a healthy, energy-efficient, and sustainable learning environment (Nasir et al., 2014).

Given this urgency, it is necessary to plan the development of classrooms that are more

representative, functional, and appropriate to user needs. This approach not only emphasizes the technical aspects of the building, but also integrates sustainable architectural concepts, such as the use of natural lighting, cross-ventilation systems, spatial efficiency, and the use of environmentally friendly materials (Indarto & Ariyanto, 2018). With this approach, classrooms are expected to become conducive learning facilities, increase student comfort, and support achieving the goals of Islamic boarding school education.

This community service program, implemented by a team of academics in collaboration with the Al Asror Arrohmah Islamic Boarding School, aims to produce a classroom development plan that addresses existing problems. survey, analysis need, From floor plan planning, three-dimensional visualization, to the preparation of a Cost Budget Plan (RAB), this program is expected to make a real contribution to improving the quality of educational facilities in Islamic boarding schools. Furthermore, this activity is also expected to become a model for developing educational facilities based on community Which oriented on sustainability and comfort of learning in the Islamic boarding school environment.

METHOD

The classroom development planning process at the Al Asror Arrohmah Patemon Islamic Boarding School was implemented through several structured stages. Each stage was designed to ensure partner involvement, data accuracy, and integration between technical aspects and actual user needs. The stages implemented were as follows:

Needs Identification and Existing Condition Survey

The initial stage involves collecting data through a field survey. This activity includes:

- Direct observation of the physical condition of existing buildings, including spatial layout, structure, lighting, ventilation, and room capacity.
- Interviews and discussions with the management of Islamic boarding schools, including religious teacher And teaching staff, to identify need priority classroom.
- Documentation visual in the form of photos and location sketches to facilitate further analysis.



Figure 1. Photo Building Condition



Figure 2. Photo Interior Class

The results of this stage are in the form of actual condition data and a list of space requirements which form the basis for design planning.

Planning Design

Based on the survey results, the service team prepares the draft beginning which includes floor plan and site plan.

The planning used includes:

- Comfort, with attention to ergonomic aspects, natural lighting, and air circulation.
- Spatial layout efficiency, so that room capacity can be optimized without reducing comfort.
- Integration, through building orientation that supports energy efficiency and future development potential.

The design is arranged in stages, starting from the floor plan, spatial layout, to the relationship between spaces, then discussed together partners to obtain input.

Participation Partners

This activity is carried out in a participatory manner, involving Islamic boarding school management at every stage. The forms of partner participation include:

- Provides information on space requirements and constraints encountered.
- Review and correct the initial design prepared by the service team.
- Following up on the results of cost calculations in preparation for construction implementation.

This participatory approach aims to ensure that the resulting design is truly appropriate with user needs and get full support from the manager.

Compilation 3D Modeling and RAB

The next stage is translating the floor plan into a three-dimensional (3D) model. This model serves to:

- Provides a real picture of the building's mass form, spatial proportions, and interior-exterior nuances.
- Visualize details of natural lighting, ventilation, And material In addition, the service team prepared a Cost Budget Plan (RAB) based on the standard unit price for construction in the Semarang region. This is aimed at to provide a cost estimate development that realistic and can be used reference by partners.

Evaluation Together Partners

The final stage is an evaluation conducted through a joint discussion between the service team and the Islamic boarding school management. The evaluation includes:

- A review of architectural design, both from an aesthetic and technical perspective.
- Analysis of the suitability of the RAB with the funding capabilities of Islamic boarding schools.
- Preparation of recommendations for the implementation phase, including the possibility of gradual development.

Through this evaluation, a final design was obtained that was representative, functional, and in accordance with the capacity of the Islamic boarding school, so that it can be used as a reference in development. physique.

RESULTS AND DISCUSSION

The planning results show that the classroom design at the Al Asror Arrohmah Patemon Islamic Boarding School is able to accommodate educational needs while integrating sustainable architectural principles. The room layout is designed to maximize user comfort by considering lighting, ventilation, and acoustics, as well as arranging circulation patterns. more efficient so that mobility communication between students and teachers becomes smoother. Furthermore, the design offers flexibility in spatial function, allowing classrooms to be used not only for formal learning but also for group study and other religious activities.

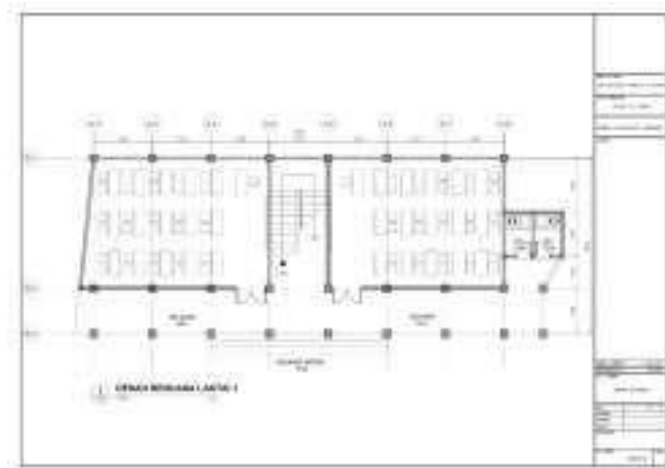


Figure 3. Plans Floor Plan 1

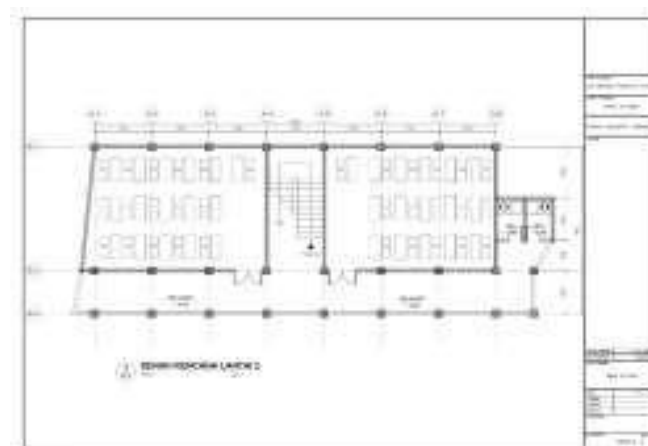


Figure 4. Plans Floor Plan 2

Several environmentally friendly strategies were implemented in this planning. Natural lighting was maximized through the use of large windows and proper room orientation, thus reducing reliance on lamps during the day. Cross-ventilation was also implemented by placing openings on opposite sides. so that circulation air maintained and creates thermal comfort. On the other hand, spatial

efficiency is realized through arrangement furniture which allows the capacity of students to increase without reduce comfort of study room.



Figure 5. Modeling Building Class Al Asror Islamic Boarding School

The design was then visualized in 3D modeling and rendering. This visualization shows the building's exterior with a simple facade and large window openings, connecting corridors between classrooms to facilitate smooth circulation, and the classroom interior with a layout, table And the chair ergonomic and supported by natural lighting. This three-dimensional presentation helps managers understand the design more realistically before the construction phase.



Figure 6. Rendering Building Room Al Asror Islamic Boarding School Class

In addition to the design, a Cost Budget Plan (RAB) is also prepared to provide an overview of the construction funding requirements. Which obtained is around Rp 5,000,000.00 per square meter, the highest construction price standard in the Semarang area. This figure serves as a baseline for Islamic boarding school managers in preparing funding and planning construction in stages according to budget availability.

Table 1. RAB

REKAPITULASI
REKAPITULASI RAB (RAB) - RAB

No	Uraian	Volume	Unit	Harga Satuan	Jumlah
1.	REKAPITULASI RAB (RAB) - RAB				1.000.000
2.	REKAPITULASI RAB (RAB) - RAB				1.000.000
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Discussion

The classroom planning of the Al Asror Arrohmah Patemon Islamic Boarding School not only produces a physical design, but also reflects a sustainable approach in the development of religious-based educational facilities.

The implementation of natural lighting and cross-ventilation aligns with the principles of energy efficiency and improving the quality of the learning environment. This supports previous research findings that natural lighting and ventilation can improve learning, student comfort and concentration in the learning process (Azizah et al., 2021; Nugroho & Rahmawati, 2020).

Furthermore, spatial efficiency allows for increased classroom capacity without sacrificing comfort. This aspect is crucial given the limited land available in Islamic boarding schools, so the design must be able to accommodate this. optimize function the space. 3D modeling plays an important role in helping managers understand the design. in a way concrete, temporary a realistic budget (RAB) allows for development planning to be carried out in stages and in a measured manner. This aligns with a participatory approach, where partners are not only beneficiaries but also actively involved in the planning process.

Thus, the results of this community service program are not only in the form of technical designs, but Also increase capacity partners in understanding the importance of environmentally friendly buildings. This design is expected to serve as a reference for the construction of functional, representative classrooms that support the sustainability of education in Islamic boarding schools.

CONCLUSION

The classroom development planning activity at the Al Asror Arrohmah Patemon Islamic Boarding School in Semarang has successfully produced an architectural design that is representative, functional, and contextual to the needs of the students and the boarding school management. The design not only emphasizes the provision of adequate learning space but also takes into account the principles of sustainable architecture, namely through the use of natural lighting, the implementation of cross ventilation, and efficient spatial planning that supports comfort and effective use of space. By applying these principles, the classroom design is not only energy efficient but also contributes to improving the quality of health and concentration of students in the learning process. The results of this activity are also supported by 3D modeling and rendering visualizations, which allow the management to understand the building's appearance more realistically, both from an exterior and interior perspective. Budget Cost (RAB) which details and provides a realistic basis for financial calculations, namely around Rp. 5,000,000.00 per square meters, meeting the highest construction price standards in the Semarang region. This allows the Islamic boarding school to develop funding strategies and development plans in a phased and measured manner. Besides produce product design, This program also has a non-physical impact in the form of increasing awareness and understanding of Islamic boarding school managers regarding the importance of quality learning spaces. conducive, environmentally friendly, and sustainable. Participatory activities involving partners from the initial stages through final evaluation strengthen collaboration between the service team and the Islamic boarding school, ensuring that the design results better align with the actual needs of users.

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