
**PLANNING AND DESIGNING SCHOOLS WITH DISABILITIES
BASIC EDUCATION WITH BEHAVIORAL ARCHITECTURE APPROACH IN
SURABAYA**

Supriyadi

Universitas Widya Kartika Surabaya, Indonesia

Email: huangsupriyadi@gmail.com

*Correspondence

INFO ARTIKEL

ABSTRACT

Keywords: schools with disabilities; elementary education; architecture; behavior; jointly.

Disabled schools are an opportunity for educational services that must be optimally emphasized and highlighted for children with disabilities, have significant implications for special/special education, and joint education centers or joint learning must have programs and systems, namely inclusive education, responsibility/accountability and learning accessibility, positive behavior and collaboration. Students with disabilities still do not understand and can get an education, because there are still many obstacles or obstacles related to physical human activity. With problem-solving methods as well as developing the ability to analyze and read symptoms critically every movement that can occur around. Behavior in children with special needs varies depending on the needs required, in a building and especially in architectural spaces can be realized by architectural elements. Designed based on the need for function and to accommodate children with disabilities to get early/basic education with future interests to be able to care for themselves. The role and guidance of parents is also expected to be a major consideration and an important factor. So, it is hoped that the Planning and Design of Schools with Disabilities in Basic Education with the Behavioral Architecture Approach in Surabaya will become one of the reference considerations in designing schools with disabilities in basic education.



Introduction

Disability schools are opportunities in educational services that must be emphasized and highlighted optimally for children with disabilities, with a tendency that significantly has implications for special/extraordinary education, and the current focus is on centralizing education together or learning together as well as groups must have programs and systems namely inclusive education, responsibility/accountability and learning accessibility, with support for positive behavior and collaboration. Regardless of the form of education/training services and wherever they are located they are provided to children with disabilities. The government should offer and provide various alternative education services as an option (Rahardja, Aini, & Zuliana, 2016) (Bauman & Murray, 2014).

Disability (children have limited abilities) as has been shown in Law of the Republic of Indonesia Number 8 of 2016 article 10 concerning the Right to Education that every child who has a disability or disability has the right to receive quality and quality education and have equal education opportunities (Husna, Yunus, & Gunawan,

2019). Education is a way to develop in the formation of a person's ability to use their rational mind to answer in the face of various issues or problems that will arise in the future (Mulyasa, 2022). One of the objectives of education is to improve the quality of human resources that are adapted to the development of situations and living conditions to convey or bring mental attitudes of the behavior of students/students and students (Darman, 2020). In the process of changing the attitudes and behavior/behavior of a person or group of people to improve and efforts to mature humans through teaching and training efforts (ALAM, 2022).

In today's world education is often used as a reference or benchmark for someone in their social environment, someone is often underestimated because they have to choose an uncommon educational method or approach. Meanwhile, the choice of type or approach to education should always be adjusted to the conditions of students and students, for example for children with disabilities in the era who should be able to enjoy proper education for everyone and society, are still underestimated if they have to choose education at Special Schools (SLB) or there are still many who receive or get different treatment when they have to gather with non-disabled students at school inclusive which indicates that normal students only accept physical disabilities (Arsanti, 2016) (Harahap & Lelo, 2020).

In reality, students with disabilities still do not understand and can get an education by what should be received or obtained evenly and fairly or reasonably, because there are still many obstacles or obstacles both internally and externally in their environment (Miftakhuddin, 2018). The implementation of inclusive education is the right step to provide maximum service to children with disabilities. Presenting the principle of education of children's disabilities is the principle of affection, the principle of individual service, the principle of readiness, the principle of demonstration, the principle of motivation, the principle of skills, and the principle of instilling and perfecting attitudes (Nadhirah, 2021).

Thus, the importance of basic education schools must be an important and adequate part, especially about accessibility and social aspects, comfort and appearance of architectural aspects are needed considering the presence of children with disabilities who drop out of primary education. Therefore, by considering the needs and desires for basic education disabled schools whose quality is ideal in terms of architecture with an architectural approach that pays attention to behavior as a physical and social aspect. Children with disabilities also hope that Surabaya Mayor Eri Cahyadi can implement and realize inclusive education, where children with disabilities can receive education in the same school as other students without discrimination. Until now, the Surabaya City Government continues to expand or add facilities for children with disabilities but not evenly distributed by the realization of better fulfillment of the rights of people with disabilities in enjoying urban development, both in terms of facilities in public spaces and quality early/basic education and many schools that cannot be said to be good in comfort and get accommodation to receive education for children with disabilities (Soedarto & Ainiyah, 2022) (Chiambretto, 2016).

The purpose of this approach refers to being able to overcome problems involving human-environment interaction in making, and processing, maintaining. As well as improving the environment to be able to create the desired behavior (Justice, 2021).

Research Methods

The design method is the theoretical foundation of the design steps needed and how the design process guides and facilitates achieving these goals methodologically. Introduction to the way or sequence of design in designing and building ideas and ideas of thinking patterns that are by the process of design problems, namely by problem-solving methods and on the development of the ability to critically analyze and read symptoms of every movement of activities that can occur around the environment. In carrying out the process of designing or designing several stages of design need to be done (Tahir et al., 2023).

Preparatory Stage

It is a preparatory stage there are various pre-planning and design activities. At this stage arrange the important things in the design needed before starting the design stage to identify the time and activities to be carried out.

Identify the Problem

It is a stage of identifying problems based on the reality that exists in the city of Surabaya about Basic Education Disability Schools with a Behavioral Architecture Approach in Surabaya.

Data Collection

Is a stage of data collected for the main target as a source of information and can make references based on applicable government standards and regulations. Divided into two kinds of data results, which are as follows:

Primary Data

Is data obtained from the direct field, both quantitative data and qualitative data, with this it is expected that the data that has been obtained are the main data needed in design, including:

1. Quantitative Data

That is data that can be physically known in size or amount, such as space dimensions, number of users, and so on.

2. Qualitative Data

Namely, data that cannot be measured in size and amount physically and definitely, including user character, space programs and space needs, site conditions, and social culture and the surrounding environment.

3. Secondary Data

Are supporting data to be able to support primary data in planning and designing objects in the design? Secondary data is data obtained from literature studies by comparing similar objects as a reference for standardization by applicable laws and regulations. In the form of literature regarding the requirements for buildings such as disabled schools supporting data is needed in the next stages of analysis.

Analyzes

Is a stage of analysis/analysis carried out on several data based on facts and needs needed or taken from the problems behind the emergence of ideas at the beginning. In this case, it is done to later find solutions or solutions that are effective. With that data analysis can be done, in the form of:

1. Site analysis
2. Function analysis
3. Activity or behavior analysis
4. User analytics
5. Space analysis
6. Shape study analysis
7. Analysis of building structure systems
8. Analysis of utilities and building systems

Design Concept

It is the main concept stage of this design is the "Behavioral Architecture Approach". This concept is taken from several user needs for schools with disabilities, especially at the basic education level for teaching and learning activities and getting the same learning. The Behavioral / Psychological Architecture Approach will also be applied to be able to accommodate user behavior to the activity needs of each room by considering elements, such as shape, scale, color, material, and user characteristics.

Architectural Design

It is a design stage with the process of entering the development stage and the maturation stage of the overall design concept in harmonizing all various aspects, and can also produce architectural drawings, such as floor plans, looks, cuts, layout plans, site plans, and perspectives that can be used to explain fully and in detail about the overall design design.

Results and Discussion

In this chapter, we will discuss the planning and design program of the Basic Education Disability School building. Includes analysis of space users and managers, space programs, space relations, space organization, site selection, space circulation and site analysis, and study of forms and systems in buildings. By limiting or only focusing on accommodating 4 children with disabilities including, Disabled, Blind, Deaf, and Speech Impaired with different behaviors.

Space Program

Space is very important to support an activity, there also needs to be a basic reference in designing and determining rooms in a building or building of Basic Education Disability Schools, especially for children with physical and mental disorders. (Government Regulation Number 13 of 2020). The following are the requirements for managing space for the Basic Education Disability School building, namely:

1. Has a room that can be used to carry out children's activities consisting of an indoor learning room and an outdoor room with a maximum of 5 students in the classroom.

2. Have a bathroom and toilet / WC that can be used for personal hygiene purposes and defecate with clean water.
3. Meet the important requirements of accessibility, of course, for children with special needs.
4. Has an attractive design in learning activities and can support learning media.
5. Have and fulfill room furniture that can be used by children with special needs. (Government Regulation Number 13 of 2020 Article 4 paragraph (1) letter D).

Site Selection

For site selection in supporting a learning and teaching activity to children with disabilities or children with disabilities is very important, to optimize and adjust basic needs for selection considerations by regulations or basic laws set by the government. Here are some land requirements that need to be considered, namely:

1. Know the existence or position of land.
2. Land by the designation of the location and according to local regulations.
3. The land area is sufficient to accommodate various activities in it.
4. The condition of the soil must be in a stable state and have a good carrying capacity.
5. Strategic site location.
6. The location of the site has a fairly good view.
7. Ease of reaching the site location.
8. several infrastructures can support this.

Site Analyzes

The location of the site is on Jl. Raya Gebang Pratama, Gebang Putih Village, Sukolilo District, Surabaya City, East Java Province 60117, Indonesia.

a. Description of Alternative Site

Site Function: Primary Education Difable School

Street Name: Jl. Raya Gebang Pratama

Site Area: 6,003.8 m² or 0.600 hectares

KDB: 50%

KLB: 1-2 floors

Land Allocation: Education (SPU-1)

Tread Condition: Non-contoured

Boundary; In the North: Parks & Vacant lots

In the West: Settlements

In the South: Jl. Gang Puskesmas

In the East: Jl. Raya Gubeng Pratama

b. Site Shapes and Dimensions

Square site

The site is oriented towards the East because the main circulation is on the East side.



Figure 1. Site existing data

a. Natural Factor Analysis of Soil Classification

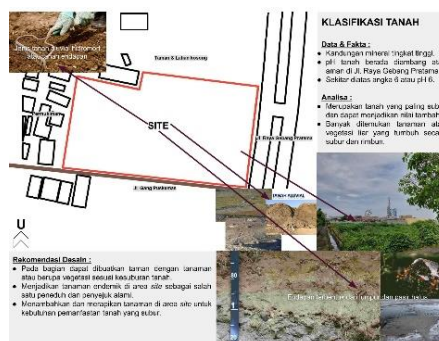


Figure 2. Sun site conditions

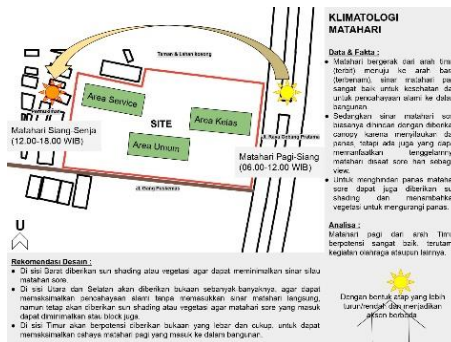
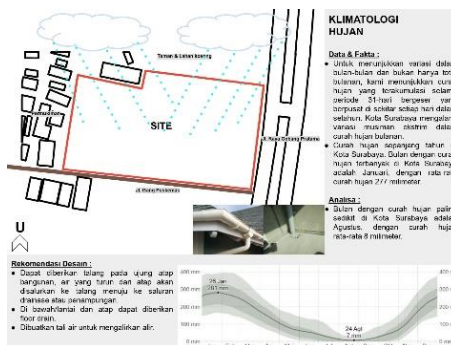


Figure 3. Rain sun analysis



Gambar 4. Analisa hujan

b. Analysis of Land Use Culture Factors



Figure 5.

Land Use Analysis Relationship and Circulation



Figure 6. Relationship and circulation analysis

c. Analysis of Aesthetic Factors of Natural Forms (Potentials and Obstacles)



Figure 7.

Analysis of natural forms (potentials and obstacles)

Space Pattern:

View to the site (People and Vehicles)



Figure 8. View to site analysis (human and vehicle)

View from site



Gambar 9. Analisa view from site

Form Studies

With the formation achieved is a Basic Education Disability School building that can meet the needs and have uses in teaching and learning activities. Based on the results of the literature review, similar object studies, and site analysis, the results of the desired form study have been obtained with the discussion below.

a. Architectural Style

With a formal aesthetic architecture, it was chosen according to its needs as a school. The resulting form follows the function of the building, the simpler is an added value to architecture, and simplifying the building in detail format becomes unnecessary. Formal aesthetics includes proportion, scale, balance, hierarchy, rhythm, repetition, color, and aesthetic value. (Riskiani, 2013).



Figure 10. Formal aesthetic form

b. Aesthetics and Functions

By maximizing the formal aesthetic architectural style and also emphasizing horizontal and vertical elements to add to the aesthetics and beauty of the building. Buildings that follow function, are simple, and there are no ornaments to show a formal impression. Because other existing ornaments are also considered to have no function either structurally or non-structurally, the ornaments are removed (Safana et al., 2021).



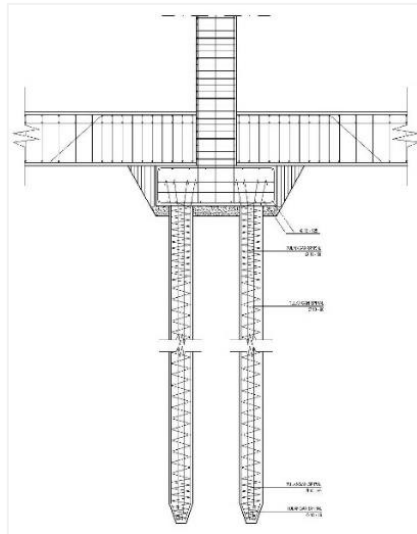
Picture 11.

An example of the aesthetics and functions of a school building

In-Building Systems

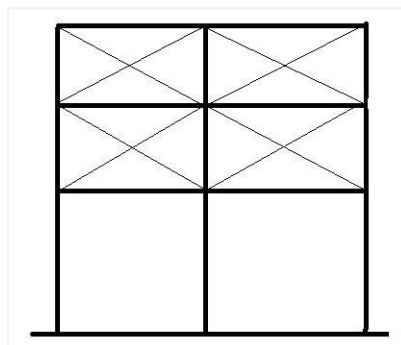
a. Structural System and Foundation Construction

The structure and construction system of the foundation uses a pile foundation because the use of this foundation is very suitable for use in unstable soil conditions.



Picture 12.
Body pile foundation

The structural and construction system on the body uses a rigid frame system because the structural system consists of linear elements, such as columns and beams whose ends are connected by joints (connecting points) that are rigid/rigid and can be distinguished from pos-and-beam structures whose connecting points are joints/roll.



Picture 13.
Roof frame rigid structure

The structure and construction on the roof use shields, because the building with a formal aesthetic architectural design.



Picture 14.

Shield or pyramid roof structure

b. Lighting System

Optimizing natural lighting from the sun which in the morning-afternoon / evening is the school's operating hours and also utilizing the optimization of openings (doors, windows, etc.).

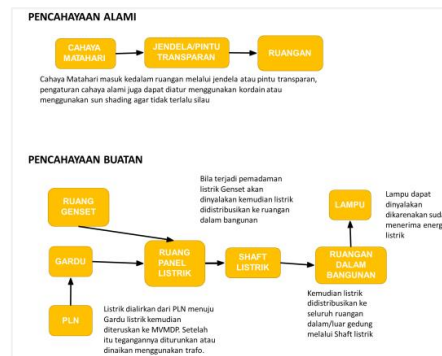


Figure 15. Natural and artificial lighting

c. Air Conditioning System

Optimized natural air in schools, will give specificity to students with disabilities to be more adaptable.



Picture 16.

Natural and artificial air conditioning

Design and Pre-Design Transformation

Design concept with the architectural process for planning and designing the building of the Basic Education Disability School. Consists of 2 concepts, namely macro

and micro, micro concepts with 3 points, namely in shape, space, and mass arrangement or site order.

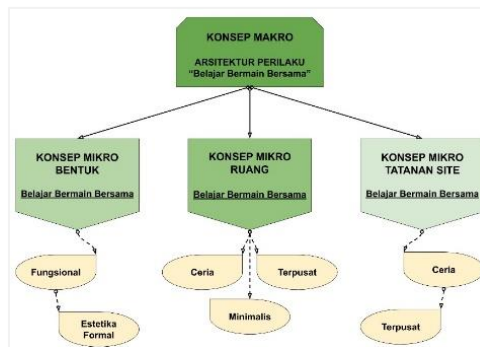


Figure 17. Design concept process

Macro Concepts

The macro concept in the planning and design of the Basic Education Disability School building is obtained from the results of data by direct observation and analysis process in the previous chapters, namely behavioral architecture taken from children with disabilities (namely the disabled, visually impaired, deaf, and speech-impaired).

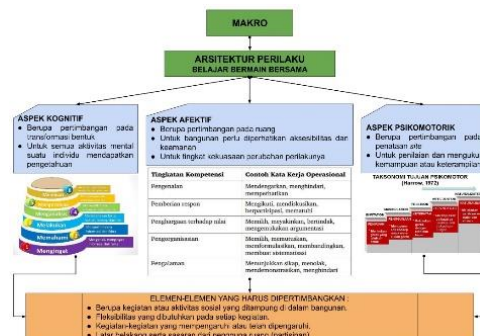


Figure 18. Schematic macro concept

Micro Concept

a. Microshape Concept

The concept of microforms in the building of the Basic Education Disability School is based on cognitive aspects as a function of social activities or activities about human relations between human behavior and their environment and site analysis.

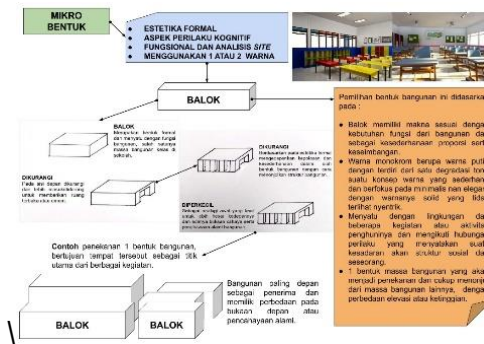


Figure 19. Schematic concept of micro shapes

b. Micro Space Concept

The concept of micro space in the Basic Education Disability School building is a minimalist space and is functional or by the needs of its function as a place to take education, as well as on the affective aspect in paying attention to all accessibility and safety of students with disabilities who are inside or outside the building space.

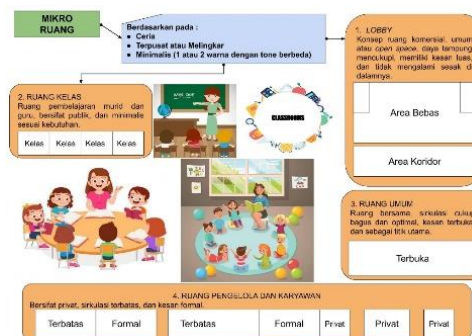


Figure 20. Schematic of the concept of microspace

c. Micro Concept of Mass Structuring

The concept of micro mass arrangement of the Basic Education Disability School building by maintaining the condition of the site and with a centralized site arrangement is in the middle, where in the psychomotor aspect students with disabilities can be used as a value to measure the ability and skills in carrying out activities independently for themselves or accompanied directly by paying attention to the will/opportunity in an area.

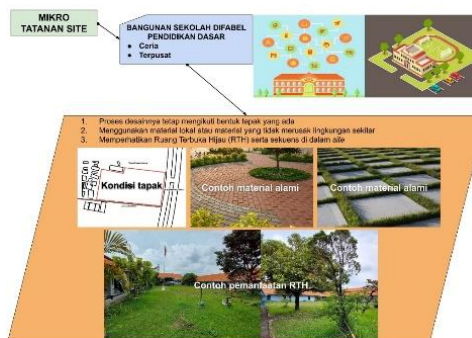


Figure 21. Schematic of the concept of microstructuring mass

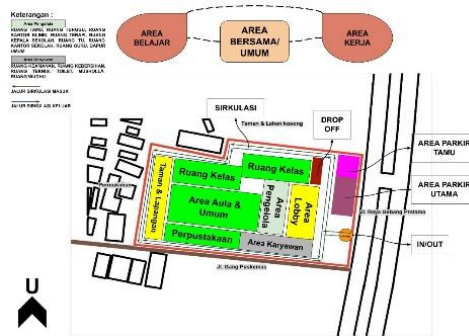
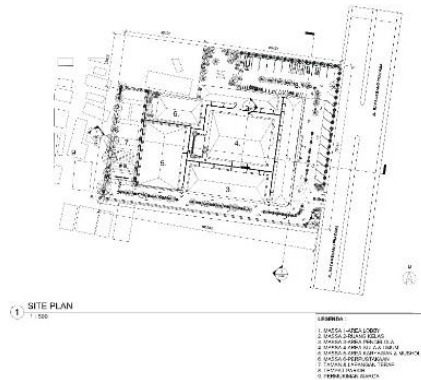


Figure 22. The concept of mass structuring

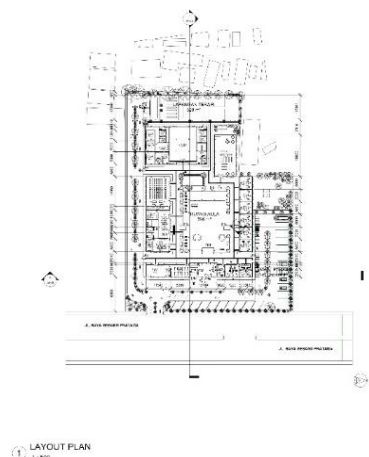
Pre-Drafted Drawings

Site plan



Gambar 23. Site map

Layout plan



Gambar 24. Layout plan

Views &; overall pieces

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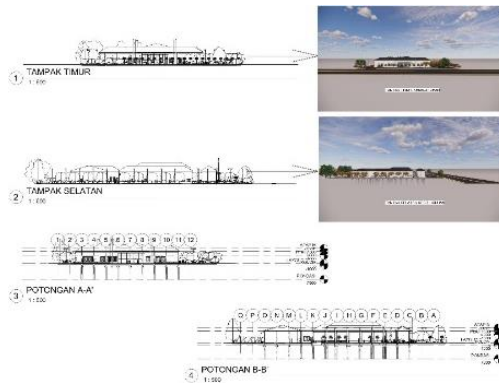


Figure 25. Views & overall pieces

Denah massa 1-6

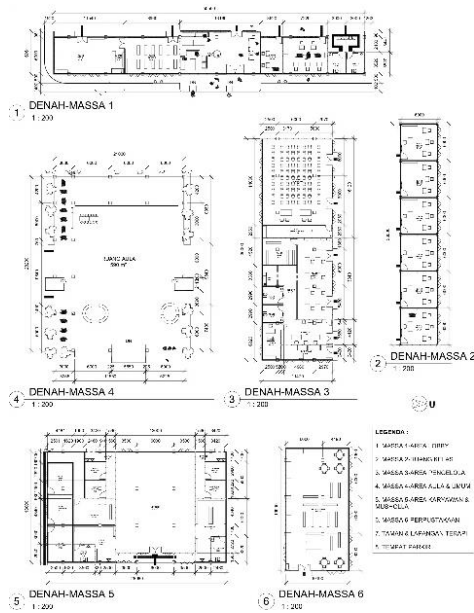


Figure 26. Mass plan 1-6

Views & pieces of building 2 pieces

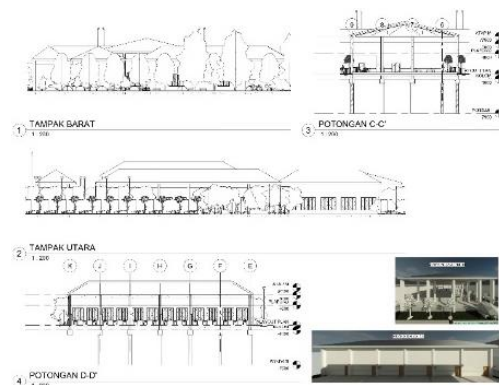


Figure 27. Views & pieces of building 2 pieces

System Utilities

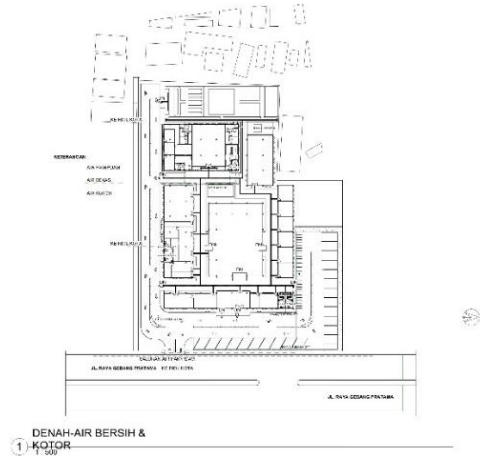


Figure 28. System Utilities

Exterior perspective

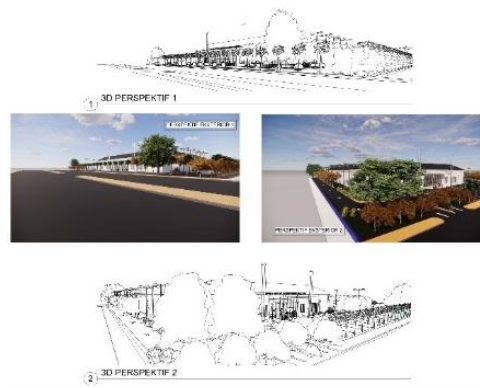


Figure 29. Exterior perspective

Perspektif interior



Figure 30. Interior perspective

Outdoor space details

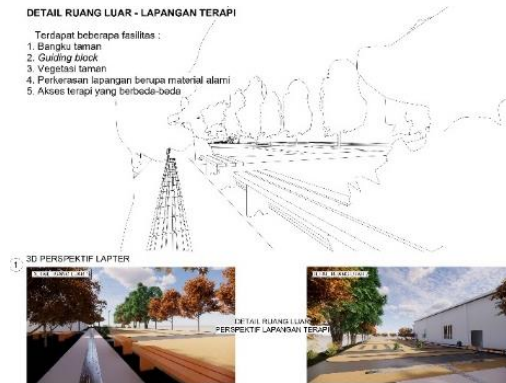


Figure 31. Outdoor space details

Detail facade



Figure 32. Facade details

Detail interior



Picture 33. Detail interior

3D model kilometers

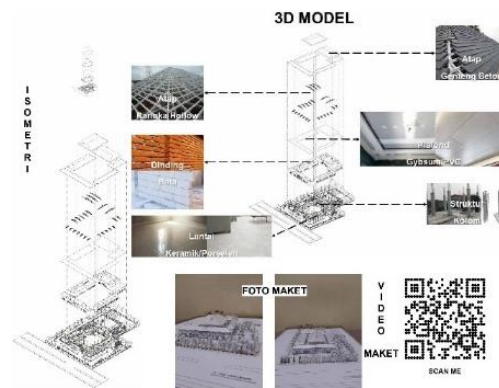


Figure 34. 3D isometric models

Market skala 1: 300



Figure 35. Scale mockups 1: 300

Conclusion

One place to take education for students or children with disabilities as the main background in getting the right to education in schools equally. The limited place to learn in special education and often underestimated by the community, as well as the means of consultation from experts in the field of children with disabilities is a problem for parents. The Planning and Design of Basic Education Disability Schools with a Behavioral Architecture Approach is an important solution for parents and also for the public interest. This Basic Education Disability School is designed based on the needs of function and to accommodate children with disabilities to get early/basic education with importance and also aims to be a provision for children with disabilities in the future to be able to take care of themselves. The role and guidance of parents are also expected to make the main consideration and important factor, this school is located on Jl. Raya Gebang Pratama Surabaya. Thus, the Planning and Design of Basic Education Disability Schools with a Behavioral Architecture Approach in Surabaya is expected to be one of the reference considerations in a basic education disability school design.

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