Economic Hotel And A Culinary Center Sustainable Architecture Approach

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Abstract. The Kwala Bekal area in Medan is one area included in the Transit-Oriented Development (TOD) development project which, according to the book The Next American Metropolis, is categorized as a commercial area [1]. Where urban development focuses on public transportation such as public transportation, buses, and trains and minimizing private vehicles. In this case, the designer will discuss how to design hotel buildings and culinary centers using the concept of Sustainable Architecture. The design problem found in planning and designing buildings following the functions of hotels and culinary centers. The aims and objectives of project planning are to design economical hotel buildings and culinary centers on an elongated site and Implementing the applications of Sustainable themes into the building. The methodology used in this design is data collection methods, design approaches, and analysis methods. From the results of research on the design concept, existing and placement of the building period, it was found that the Kwala Bekal City, which is in the Medan Tuntungan sub-district, was a development project by P.T Propenas Nusa Dua which had become a master plan design for the embryo of the new city of Kwala Bekal. So that, the completion of the construction of an economical hotel & culinary center can complement residential facilities in the commercial area.

Keyword: commercial, culinary, hotel, region, sustainable

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1 Introduction

Kota Mandiri Kwala Bekal, located in the Medan Tuntung sub-district, is a development project by P.T Propenas Nusa Dua, which has become a master plan for the new city of Kwala Bekal. The master plan design by Propenas is a given design project and it has been redesigned in the Architectural Design Studio VI. In this case, the form of new city development is by building urban service centers that are secondary in function, connecting the mass transportation network system, and developing a corridor of primary activities based on the scale. The new city of Kwala Bekal has a wholesale market which is the center of trade and business activity. Kwala

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Bekal City is one area included in the Transit-Oriented Development (TOD) development project, which according to the book The Next American Metropolis is categorized as a commercial area. Where the development of the city is focused on public transportation such as public transportation, buses, and train and minimizing private vehicles.

2 Literature Review

2.1 Transit-Oriented Development (TOD)

According to Calthorpe's explanation in Wijaya (2007), the concept of Transit Oriented Development (TOD) is basically to integrate the road network with the surrounding buildings associated with humans as users to create a walkable environment [2]. Roads in the TOD area are the most vital elements in determining the quality of public spaces. Roads in the TOD area must be pedestrian-friendly. To create such road space, one must consider how much space is needed for the pedestrian to create an active public space, while maintaining a balance between parking spaces, biking trails, and vehicle movements (Figure 1).

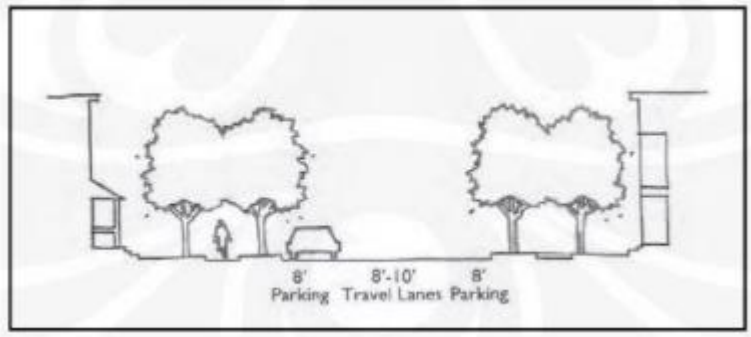


Figure 1 Ideal spacing dimensions on the road
Source: Book “The Next American Metropolis”, Peter Calthorpe ***[1]***

The sidewalk is virtually divided into several zones namely; the edge zone directly next to the car lane (minimum 1.2 meters for the TOD area, to provide waiting space), the furnishing zone that accommodates the placement of street furniture such as trees or transit facilities, the 'crossing zone' ie the path that can be traversed without interruption, and the 'frontage zone, The recommended minimum sidewalk width is 3 meters (in a minimum commercial area of 4 meters), not the maximum limit for sidewalk width but if it is too wide it causes inconvenience because it seems empty and not inviting (Figure 2).

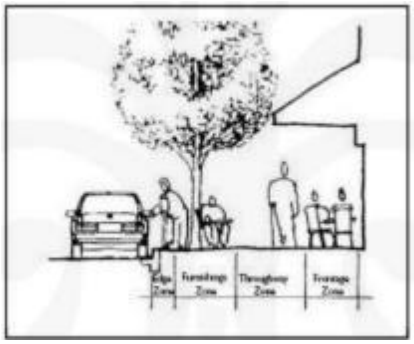


Figure 2 Sidewalk on the road

Source: Book "The Next American Metropolis", Peter Calthorpe ***[1]***

2.2 Location and Site

Location at Jamin Ginting street, Simpang Selayang, Medan Tuntung, Medan City, North Sumatra. The site's position is very strategic, which is on the big road. Also, be reached by various modes of land transportation [3]. There are several city facilities around the site, such as offices, shop houses, and settlements are public facilities around the site such as mosques, churches, terminals, markets. This area also has a good utility route (Figure 3).

Figure 3 Site and Location (Left) and Existing (Right)

2.3 Theme Review

Sustainable design, which is one of the important, considerations in buildings, includes many factors such as energy efficiency, environmental friendliness, adaptability, and efficient use of resources [4]. Nowadays, architectural design trends can only be understood through pluralism. Material is the most important thing in designing how we can express our buildings. Now we are running out of natural resources. Material which is, divided into renewable and non-renewable natural resources is debated in the use of sustainable materials where the material can help the building in energy efficiency such as reducing heat, resisting weather changes, being environmentally friendly, and making the process easy, inexpensive and fast [5]. The most recommended application of materials is recycled material where we use used materials that

have been modified and filtered so that the production process is faster, easier, and cheaper [6]. So that, can reduce process emissions and per the concept of sustainability where we build without compromising the needs of future generations (Figure 4).

Figure 4 Bamboo Theme (Left) and Sustainable Material (Right)

Source: https://www.google.com

2.4 Comparative Study

The Bamboo Ecolodge at Bukit Lawang Restaurant is a natural tourist spot in the Bahorok sub-district, Langkat Regency, North Sumatra Province [7]. The Kapal Bambu restaurant is something new from the Ecolodge Bukit Lawang (Figure 5).

Figure 5 The Bamboo Ecolodge at Bukit Lawang Restaurant

Source: https://www.google.com

The restaurant is built of bamboo. And there is a dining area on the ground floor with seating for 150 people and on the upper floor provides space for conservation education. Built with carefully treated bamboo material. Bamboo is a sustainable material, which can be applied to the design of economical hotels and culinary centers (Figure 6).

Figure 6 Interior of Bamboo Ecolodge at Bukit Lawang Restaurant

Source: https://www.google.com

Applications for the use of bamboo material are also found in the Green School building. Which is a natural school located in Bali precisely, on Raya Sibangkaja, Banjar Saren. This nature school has students from several countries [8].

The Green School Bali is an excellent natural school because of its architecture. Which can convey educational messages with the concept (Figure 7).

Figure 7 The Green School Bali
Source: https://www.google.com

The building is also used for the central library and reception area. These natural schools often get visits from several well-known people / upper classes who invest in these natural schools. The names of these people are carved into bamboo in this receiving area (Figure 8).

Figure 8 Interior of The Green School Bali
Source: https://www.google.com

Concerning the use of sustainable bamboo material, the designer was finally inspired to apply the design of bamboo material in the design of the Economical Hotel and Culinary Center.

3 Methodology

The methodology of this project starts from conducting site selection by literature studies. Then the design problem-solving phase, namely by searching ideas, collecting data, literature studies, observation studies, and comparative studies. In the final stage, the design stage is carried out by analyzing everything related to the design case.

4 Results and Discussion

Kwala Bekal area, precisely in the Simpang Selayang area, Medan city has become a strategic area for the design of residential and commercial function buildings (mix use). The development of the Kwala Bekal area in the future will bring many tourists to the city of Medan. The strategic location of the Kwala Bekal area is quite important as one of the gates. That gives the potential for developing culinary destinations and economical hotels.

4.1 Application of themes to buildings

Application of the concept of sustainable architecture, which integrates social, economic, and environmental factors in designing a comfortable building. Conservation and rehabilitation of green land as a buffer and an element that can reduce micro temperatures and open space as an area for socializing and recreation [9]. Below are some of the criteria for a sustainable architecture theme applied to buildings (Table 1).

Table 1 Application of Themes

Criteria in Sustainable Design	Application of Concepts into design
• Natural Lighting	• Utilize the sunlight that enters the building through wide openings in the building [10].
• Quality of Air Temperature in the room	• Reducing the heat around the building with the Greenery wall.
• Efficiency of Energy	• Minimize the use of lights during the day with wide openings, and reduce the weight of the work of the air conditioning system by reducing solar radiation that affects the room by making bamboo lattice filters in the window [11].
• Landscaping	• There are parks and trees around the building as the air filter [12].
• Roof Garden	• There is a roof garden to absorb carbon pollution and produce new oxygen resulting from plant photosynthesis, as well as providing comfort to building users [13].
• Wastewater Treatment	• there is a wastewater treatment plant so that water that is flowed into the city channels is not polluted [14]
• Material	• The use of bamboo material, as a window lattice to filter solar radiation [12]

4.2 Mass and Landscape Concept

Mass and landscape Concept of Design (Figure 9).

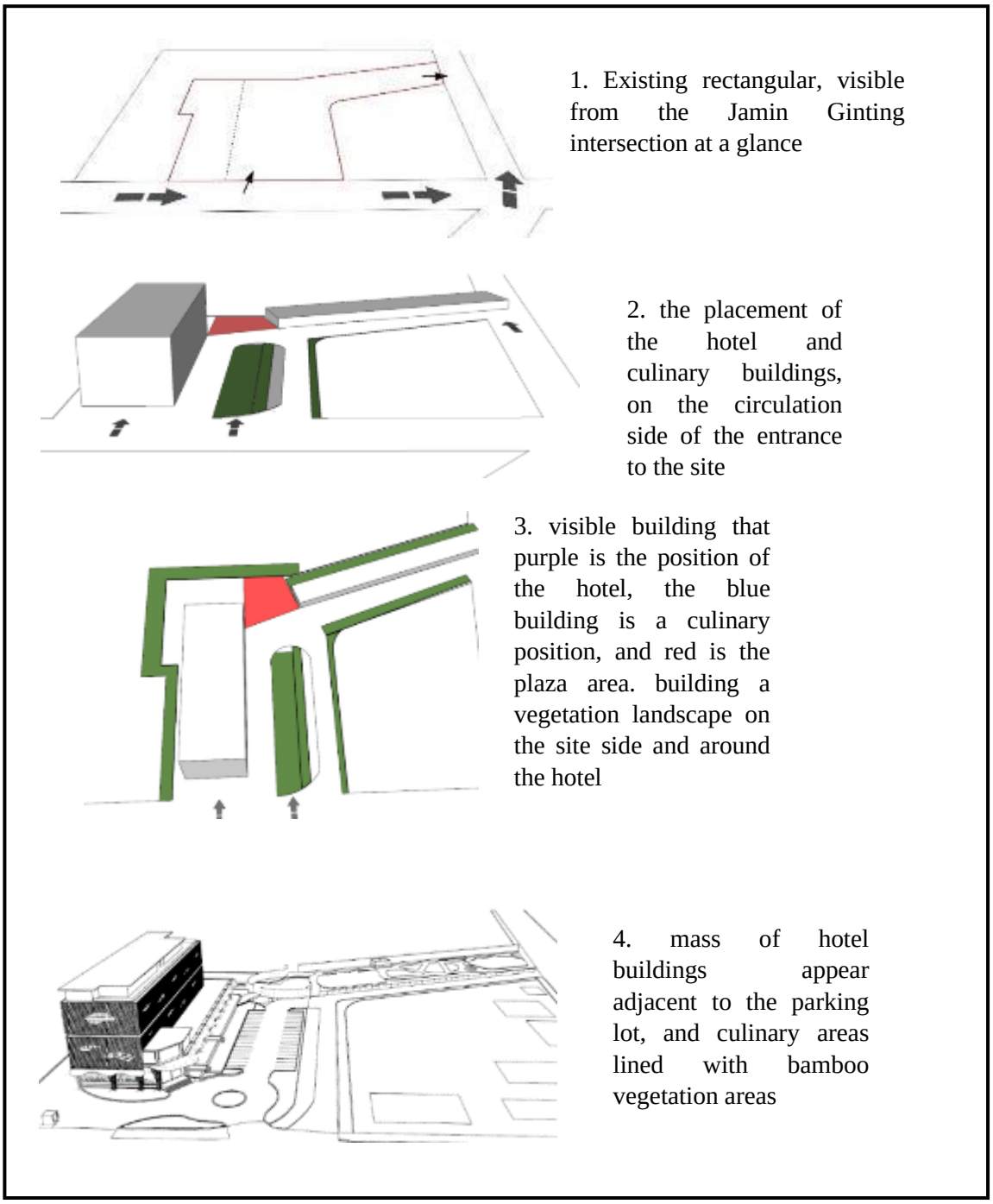


Figure 9 Mass Concept

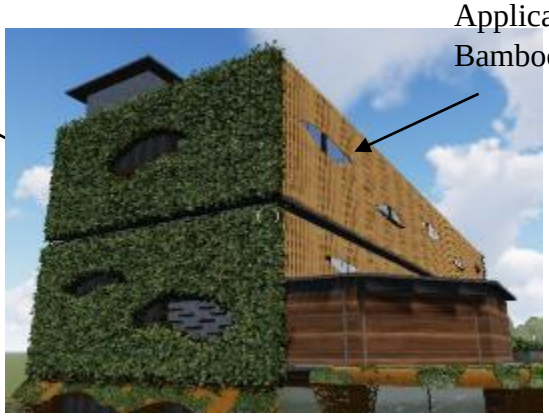
4.3 Greenery Concept

There is a roof garden to absorb carbon pollution and produce new oxygen, from the results of plant photosynthesis [15], which also provides a sense of comfort for users (Figure 10).

Application of Green wall on the side of the building, there is a green wall that functions as a solar heat filter as well as an additional vertical plant ecosystem.

Application of Bamboo material

On the side of the building can be seen from the glinting street guarantee the green wall which aesthetically makes plants in a vertical position.



Application of Roof garden that is designed on the roof floor is on the roof of the first floor, also as a vertical plant ecosystem

Figure 10 Greenery Concept

4.3 Facade Concept

In the facade concept, several additional materials or secondary skins, such as fabricated bamboo, green walls, and concrete materials [16]. The application of bamboo louvers in the glass window area, as a filter of solar radiation that enters the room (Figure 11).

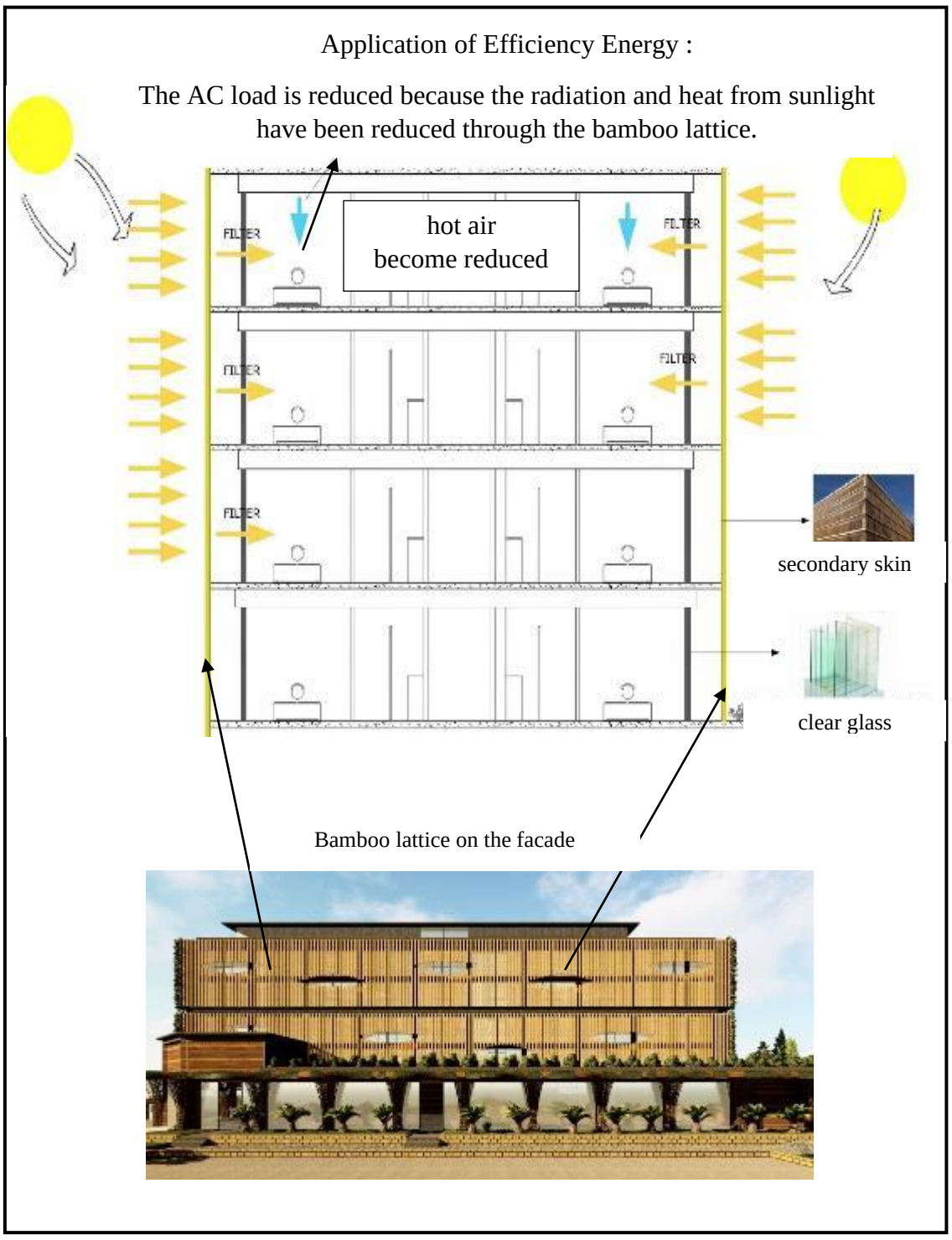


Figure 11 Facade Concept

5 Conclusion

In the development of the Medan city and the development of commercial areas that are being supported by the Medan city government, then the design of economic hotels and culinary centers can accompany that development. Likewise with architectural values can be built in the design of Economical Hotels and Culinary Centers.

Then with the help of circulation to provide environmental controversy, support snacks in the city of lawful and clean terrain for the development of government efforts to increase tourists coming to the city of Medan.

Then this design is expected to support the needs of users and help the environment in supporting daily needs.

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