

Openings As an Important Aspect of Traditional Market Design Font

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ABSTRACT

Traditional markets are known as one of the pillars of people's economic state, and because of that, they need to be developed properly. Despite that, traditional markets nowadays have a negative stigma which is dirty and smelly. To increase the interest of residents, many factors can be used such as adjusting and improving traditional market facilities. Design elements can help in solving this problem by adding openings and adjusting market structure modules. This paper aims to provide more information about the effect of market openings and modules on air circulation (odor) in the market. The method used in this research is a literature study, namely by collecting data related to solutions to counteract the smelly market through articles, journals, and books. The existence of an opening is to provide natural air circulation into a room, also the sunlight helps eradicate bacteria inside the humid room. The arrangement of the modules is also important so the odor of each segment does not mix. The existence of traditional markets must be maintained and developed so that it is necessary to overcome the bad smell in the current market because it can affect and have an impact on the interest of visitors to come to traditional markets.

Keywords: air circulation, openings, traditional market



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1 Introduction

Most of the current traditional markets have the impression of being slum, dirty, muddy, and congested, thus causing many people who now prefer to switch to shopping at supermarkets. Based on Nelson's survey in 2004 – 2005, the development of modern markets (supermarkets) in Indonesia in a year reached 34.1%. While the traditional market is far below that is only 8%. This issue can have many direct impacts on the economic conditions of the people who still depend on traditional markets for their livelihood. This can happen because one of them is a very smelly market that will disturb the comfort of traders and visitors. Besides disturbing comfort, smelly market conditions also create an unhealthy environment. The main reason why the market smells so bad is because there are piles of garbage that are left scattered in every corner of the market.

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In the journal, *Government Management in Waste Handling and Management* (2020) by Fitri Yanuar, the accumulation of garbage in open areas causes an unpleasant odor, especially when the rainy season arrives. Rainwater and mud mixed with garbage will make the smell even more pungent [1].

A market is a gathering of consumers and providers of a specific commodity or service. The demand for the product is established by the buyers collectively, and the supply of the commodity is established by the sellers collectively. A market can be classed as either traditional or modern depending on the type or caliber of services offered [2]. According to Presidential Decree No. 112 of 2007 Article 1, the traditional market is developed and managed by the government, local government, private sector, state-owned enterprises, and regional-owned enterprises, as well as partnerships with business establishments in the form of stores, kiosks, stalls, and tents that are owned/managed by traders small, medium, non-governmental organizations, or cooperatives with small-scale businesses, small capital, and with the propensity to experiment [3]. A group of people who want to be satisfied, have money to spend and are willing to do so make up the market [4]. The market serves as both a place to purchase necessities and a venue for social and recreational activities [5]. Industrial relocation plans to a location are also referred to as relocation, according to the Ministry of Education and Culture [6].

In addition to supporting economic activity, traditional markets can also serve as a hub for intercultural contact and provide recreational amenities [7]. Traditional markets provide a significant purpose for nearby areas and other regional communities, it might be argued. Because of its humanist nature, traditional markets enable closeness and "family" interactions between sellers and purchasers [8]. Traditional marketplaces are places where people gather from all ages, genders, and groups. Traditional markets have a dynamic nature which can be seen from the number of similar traders in one building, the transaction process is carried out by bargaining so that there is social interaction between traders and buyers which causes this place to be used as a reflection of culture. But over time, traditional markets have begun to be replaced by modern markets which have more adequate facilities. The traditional market, which is known for its smelly, muddy, and dark impression as a model for the early shopping places in this country, has not developed quite significantly when compared to the development of modern markets.

One of the most important things that must be considered in designing a building is analyzing the current problem. The main target in designing a traditional market is the convenience of buyers and sellers themselves. Therefore, the application of green architecture can help in solving odor problems that occur in traditional markets today. Presidential Decree number 112 2007 About Organization and Traditional Market Development, Shopping Center And Modern Stand. This regulation explains that with the development of retail trade businesses on the small and medium scale, the modern retail trade business on a huge scale, the traditional market must be empowered to empower the traditional market. To promote the development of industry and trade in domestic goods and the smooth distribution of goods, it is important to provide guidelines for the operation of the traditional markets and modern shops, as well as norms of fairness, all mutually beneficial and without any problem between the goods' supplier and modern shops and the developments of partnerships. To foster peaceful competition with small firms and strike a balance between the interests of manufacturers, suppliers, contemporary retailers, and customers.

The term "green architecture" refers to architecture that considers the surrounding environment and is motivated by a desire to preserve or protect the environment by utilizing sustainable concepts, energy-efficient design, and holistic implementation [9]. To provide eco-design, care for the environment, natural architecture, and sustainable architecture, green architecture also serves as an introduction to the planning of architecture by minimizing the negative effects on human health and the surrounding environment [10]. For instance, the greenhouse effect can cause drastic climatic change, ecological disruptions, and even an increase in temperature. So that green can be used to increase energy and water efficiency, as well as the use of materials that lessen the negative effects of buildings on human health [11]. Considering how to design buildings by minimizing fossil energy use and CO₂ production as well as trying to prevent negative effects or at the very least, the environment, is a step toward creating buildings, whether in a rural or urban area, that do not have an impact on increasing greenhouse gases in the atmosphere [12]. A proper balance between people, buildings, and the environment can be achieved by using green architecture, as mentioned by (Sharif & A, 2017). Green architecture is one of the concepts employed by architecture to achieve this [13]. Other advantages of green architecture include energy savings, longer building lifespans, reduced

maintenance requirements, improved health and comfort for building occupants, and a potential to lethesen global warming [14].

2 Methodology

I applied a green architecture theme approach in designing this traditional market. But before carrying out the design process, I did a study on green architecture, and also the needs in a traditional market. I also made observations on several traditional markets that exist today. I observe existing activities, spatial planning, and space requirements to find out the shortcomings and needs of the community to develop spatial programs and design concepts.

2.1 Data Collection Techniques

In general, there are 4 data-collecting techniques, namely questionnaires, interviews, documentation, and observations. However, in carrying out this research, only 2 techniques were used. Documentation where data technique with documentation is an easier method than other methods because if there was an error, the source of the data remains the same. Objects that are observed in the error documentation method are animated objects but inanimate objects. Next is private documents where a personal document is a written note or an essay made by somebody else. Examples include diaries, personal letters, and autobiographies. Official documents are examples of official documents including memos, announcements, institutional rules, official letters, meeting reports, and others. Those are some kinds of data techniques that can be used when conducting research.

One way to collect data is through observation, which is also done through experimentation. Completing the observations with an ASI checklist and instruments is a useful observation technique. A common technique in qualitative research approaches is observation. particularly, recording and watching. Participation Observation: the process of closely monitoring regular human behaviors while a researcher is present. Additionally, unstructured observations are those that are made without the use of new observations, allowing researchers to base their observations on advancements made in the area.

2.2 Data Variables

Data collecting is divided into 2 types. Primary data, through field observations and interviews with target respondents, primary data consists of observation studies (field survey) that are carried out to fulfill data such as site conditions, existing building conditions, potential area, location, character, and other things that can assist the planning and design. Next is documentation where data is in the form of existing photos that aim to clarify the data used in analyzing and this data is real as evidence to support the methods.

Secondary Data looks for data on literature studies, area history, references, and types of similar projects from books, websites, journals, and other sources. First, the literature study is a study studying architectural theories descriptively through study and literature review. The things that will be done during the process of studying this literature are, to study and understand the needs and requirements that must be considered during the planning and design process, to study the characteristics of shapes, materials, textures, and colors that can give the impression of being comfortable and attractive. Secondly, a comparative study is data from studies related to similar projects that already exist. Comparative studies are divided into 2, namely comparative studies of similar projects and comparative studies of similar themes. This data search can be sourced from books, magazines, the internet, and soon. A comparative study was conducted to find out the advantages, disadvantages, and application of the theme to design. Lastly, references are data obtained through the collection of data, maps, and regulations from the relevant agencies.

3 Results and Discussion

I applied a green architecture theme approach in designing this traditional market. But before carrying out the design process, I did a study on green architecture, and also the needs in a traditional market. I also made observations on several traditional markets that exist today. I observe existing activities, spatial planning, and space requirements to find out the shortcomings and needs of the community to develop spatial programs and design concepts.

3.1 Project Description

The land area used for the design is 16.222m² or about 1.6 Ha. The location for the design of the Brayan Traditional Market is in KL. Yos Sudarso Street, Pulo Brayan City, Medan Barat, Medan City District, North Sumatra. The environment around the site provides several facilities that support the existence of a traditional market. Some of the facilities found are commercial areas for eating and drinking, pharmacies, ATMs, banks, hospitals, electronic stores, etc. This location is also adjacent to the Deli River to facilitate the flow of drainage in the building (Figure 1).

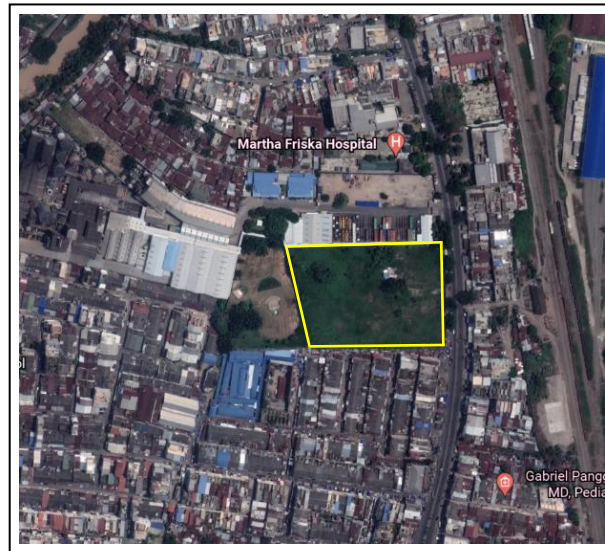


Figure 1. Project Location

Source: Google Earth [15].

3.2 Mass Concept

The building is split into two parts: a building for parking and sales, and another for services. Additionally, each building is separated into several zones, including public, semi-public, and service spaces. In a conventional market, the public area is the space allotted to users, hence it must be the largest. As a result, the positioning of public spaces will be maximized and exposed, with obvious and user-friendly access and circulation. such that the selling-functioning masses are situated in the middle. Because they have the potential to produce noise that could impair user comfort, service areas like utility buildings and traditional market upkeep are situated in a location that is fairly far from the public area, mainly behind the main building (Figure 2).

This building's mass composition responds to the curvature of the site while still maintaining a straightforward form. The Brayan Tax building's front has a dynamic form because it is well known that the majority of conventional market structures are merely rectangular in shape. To provide a distribution of target areas between customers and employees, the building's mass is also separated into two categories based on functions and needs. The people who are there mostly to trade are in the middle and facing the main road. While the parking masses are situated close to the main building and are conveniently accessible to boost activity efficiency.

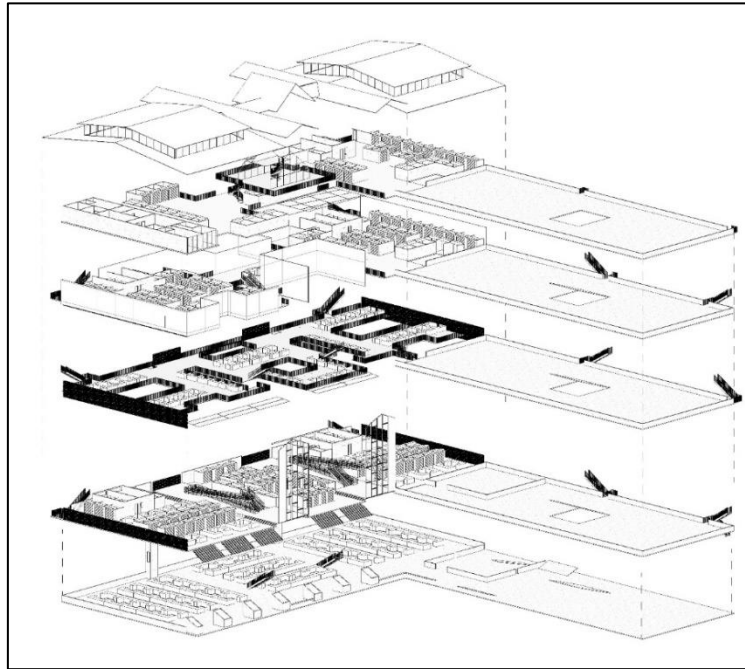


Figure 2. Mass Form Analysis

3.3 Accessibility

There are ramps and ladders available for vertical movement. The principal means of vertical circulation inside this historic market building is the staircase. The ramp can be used to travel up and down using a trolley and is also accessible to those who use wheelchairs (Figure 3).



Figure 3. Vertical and Horizontal Circulation

3.4 Facade Concept

The application of secondary skin is as a protection/barrier rather than 100% of the sun's heat entering the building. Secondary skin can also be installed with patterns and arrangements in such a way that it can give a building its character and characteristics. One way to implement a more natural secondary skin is to add vines to buildings. In addition to helping filter sunlight, vines also add to the aesthetics of the building (Figure 4).



Figure 4. CNC Cutting as Building Facades

3.5 Lighting Concept

Skylights serve a similar purpose to windows but are often located on the room's ceiling. Typically, glass, fiber, or polycarbonate are the materials employed (Figure 5).



Figure 5. Application of Skylights in Building

A void is a room with no furniture amid a two-story or higher building. Another common name for void is the double ceiling. The void's purpose is to capture more sunlight depending on the sun's angle and direction (Figure 6).

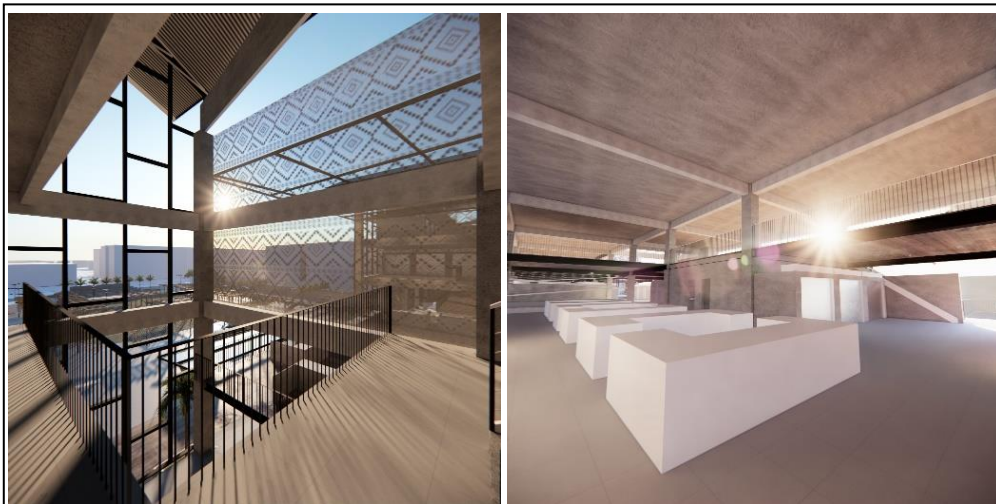


Figure 6. Application of Voids in Buildings

4 Conclusion

A comfortable and fresh market can be achieved by implementing a good air circulation and lighting system. Good air circulation and lighting have a big influence in solving the main issue of traditional markets today, namely odor. Other problems that are hot, stuffy, and dark are also resolved. Therefore, the application of Green Architecture in this building is very suitable.

5 Acknowledgment


This project, which is a study of Openings As an Important Aspect of Traditional Market Design Font, this design is expected to be a design solution to A comfortable and fresh market that can be achieved by implementing a good air circulation and lighting system. Good air circulation and lighting have a big influence in solving the main issue of today's traditional markets, namely odor. Other problems, namely heat, stuffiness, and darkness, are also resolved. The Department of Architecture, Faculty of Engineering, Universitas Sumatera Utara, and all those who helped with the study and design are acknowledged by the author.

6 Conflict of Interest

The authors whose names are listed below certify that the manuscript does not have a conflict of interest.

Vieka Thinsie Houward

This statement is signed by all the authors to indicate agreement that the above information is true and correct (a photocopy of this form may be used if there are more than 10 authors):

Author's name (typed)	Author's signature	Date
Vieka Thinsie Houward		22 Agustus 2023

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