

Integration of Rental Shophouses in the Design of the PT Bakrie Sumatera Plantation Tbk. Plantation Museum with a Local Colonial Architectural Approach in the Bunut Shoe Shopping Area, Kisaran

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Abstract (English)

This article discusses the design strategy of the PT Bakrie Sumatera Plantation Tbk. Plantation Museum, which is integrated with the urban context in the Sepatu Bunut area, Kisaran. The research begins with the problem of low public interest in history and the challenge of creating a museum that is not isolated from city life. Through a design-based research approach with mixed methods (field studies, interviews, literature studies and comparative studies), this study proposes a mixed-use development concept that combines commercial and cultural functions. The main strategy is to integrate rental shophouses as front elements inspired by the adaptation of local colonial architecture—such as the tripartite facade composition, arcades, and opening patterns—into a contemporary design language. The shophouses function as active buffers and gateways, connected to the museum building behind them through a transitional plaza. As a result, this article offers a model of a museum as a “living heritage” that is economically sustainable, spatially integrated with the city morphology, and able to bridge the narrative of colonial plantation history with the dynamics of the local creative economy (Sepatu Bunut) today, thus becoming a precedent for similar developments in Indonesia’s historic cities.

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Introduction

The gap between Indonesia's rich history and the low level of public interest in history learning remains a significant challenge to national education [1]. Empirical studies show that monotonous conventional teaching methods are a major contributing factor, with more than 50% of students expressing disinterest in history subjects [2]. In this context, museums emerge as crucial alternative institutions, no longer merely repositories of artifacts, but as edutainment spaces capable of presenting historical experiences in an immersive and contextual manner [3]. The multifaceted function of museums—as vehicles for conservation, education, research, and recreation—is officially recognized by the government as a strategy to strengthen historical understanding and national identity [4]. The urgency of establishing innovative and relevant museums is particularly evident in highlighting the historical narrative of plantations, a sector that has formed the socio-economic foundation of many regions in Indonesia since the colonial era [5].

Kisaran City, Asahan Regency, North Sumatra Province, is a prototype region shaped by a long history of plantations, beginning with the Dutch colonial tobacco company *Nederland Asahan Tabak Maatschappij* in 1891, which then evolved through various ownerships until becoming PT Bakrie Sumatera Plantations Tbk in the modern era.

Kisaran City developed rapidly during the Dutch colonial period as a center of plantation activity, resulting in the emergence of various supporting facilities such as a post office, shops, factories, hospitals, administrative offices, employee housing, and other facilities

that remain today as historic buildings. Kisaran has continued its independent production under the "Bunut Shoes" label since around 1987.



Figure 1. (a) HAPM Kisaranclub/ Bakrie club, (b) Kantor Hollandsch-Amerikaansche Plantage Maatschappij/ Kantor PT Bakrie Sumatera Plantation Tbk, (c) Catharina Hospitaal/ Rumah Sakit ibu Kartini



Figure 2. Pasar kota kisaran di masa pemerintahan Belanda



Figure 3. Lokasi Pasar kota kisaran

During the colonial era, Kisaran Market was developed as a commercial area for the trade of goods and agricultural products, with rows of buildings sharing a uniform architectural style. To this day, Kisaran Market serves as the city center and retains most of its old buildings as important elements of the historic landscape. The approximately 24-hectare market area is adjacent to various other colonial buildings and was once the administrative center of a Dutch plantation managed by the Hollandsch-Amerikaansche Plantage Maatschappij company.

The legacy of this plantation era is reflected not only in the physical buildings but also in its cultural derivatives, the most iconic of which is the Sepatu Bunut, a leather shoe with soles made from local rubber from the Asahan plantations and has become a key element of the region's creative economy since the 1970s [7]. The main distribution area for this product, known as the Sepatu Bunut Shopping Area, evolved from a colonial commercial structure and is now a living heritage site with the adaptive architectural character of colonial shophouses [8].

Within this context, this article examines the design strategy of the PT Bakrie Sumatera

Plantation Plantation Museum, which is organically integrated with the dynamics of the area through rental shophouses. This design strategy carries an approach to interpreting local colonial architecture as a form language that mediates between contemporary commercial functions and the narrative of plantation history, thus creating a museum model that is not isolated, but becomes a living and sustainable part of the city's development[9].

Literature review

2.1 Colonial Architectural Typology in Shophouses/Commercial Buildings in Kisaran City

According to Handinoto, colonial architecture in Indonesia is the result of a fusion of European and local cultures, creating a new architectural style by combining European decorative elements with local structural forms suited to Indonesia's tropical climate and conditions. Each period in the development of colonial architecture exhibits distinct characteristics, reflecting the social, political, and technological changes of the time.

The development of plantation towns in Sumatra in the late 19th to early 20th centuries created a distinctive typology of commercial buildings, primarily the ruko (shophouse). This typology emerged in response to the practical needs of the colonial economic system centered around plantations [9].



Figure 4. Tipologi Ruko di Kota Kisaran

The main characteristics of colonial shophouses in the market area of Kisaran include:

1. a linear and dense configuration along the main road,
2. a two-story structure with commercial functions on the ground floor and residential/warehouse space on the upper floors,
3. arcade elements or "pedestrian walkways" that create a semi-public transitional space between the street and the shops, and
4. the use of tall openings with shield or plan roofs with large overhangs to respond to the tropical climate.

Colonial shophouses are not static architectural objects. As living heritage, these buildings continually adapt to economic and social changes. In the Sepatu Bunut area of Kisaran, these adaptations are evident in facade modifications, the addition of commercial signage, and changes in function, while the basic structure and proportions of the original mass are often maintained [11]. This typology represents a hybrid between colonial economic logic, European architectural principles modified for the tropics, and the pragmatic needs of local communities, making it a valuable physical record of Indonesia's plantation history.

2.2 Theory of Inspiration and Adaptation in Contemporary Architectural Design

In the context of heritage-responsive design, the inspiration and adaptation approach is clearly distinguished from the replica or pastiche approach. Replicas tend to create a false impression (fake history) and ignore the context of technology, materials, and contemporary needs [12]. In contrast, inspiration and adaptation are creative processes involving abstraction, reinterpretation, and transformation of essential elements from reference sources into a new, relevant design language [13].

In the context of the Plantation Museum in Kisaran, this approach means not copying the details of colonial ornamentation outright. Instead, it identifies basic principles that can be adapted, such as:

1. The principle of vertical hierarchy (base-shaft-capital) on the facade, which can be translated into contemporary material compositions;
2. The principle of transitioning public to private spaces through modernized arcade elements or canopies; and
3. The principle of climate response through the arrangement of openings and shading. This process creates a new building that "dialogues" with history without getting bogged down in nostalgia, thus fulfilling a contemporary function while respecting the historical context [14].

2.3 Design of Building Complexes with Mixed-Use Programs (Commercial & Cultural)

The concept of mixed-use development has evolved as a response to the complexity of modern urban needs, by combining various functions in one integrated area to create vitality and sustainability [15]. The combination of commercial (rental shophouses) and cultural (museum) functions in one complex, as proposed for the PT Bakrie Plantation Museum, offers strategic advantages:

1. Financial Sustainability, where revenue from shophouse rentals can subsidize museum operations;
2. All-Day Vitality, as commercial activity keeps the area vibrant outside museum operating hours; and
3. Democratization of Access, where museums become more accessible to the public already in the commercial area [16].

The key to a successful mixed-use design lies in its integration and zoning strategy. Commercial functions (shophouses) are ideally placed on the outermost part, facing the main road to maximize visibility and access, while also acting as a buffer and gateway to the quieter cultural zone behind it. This integration must be supported by clear circulation and the creation of transitional spaces (such as plazas or alleys) that lead visitors from the bustling commercial area to the reflective museum area [17]. In this way, the complex becomes not just a collection of buildings, but an urban ecosystem that supports the economy, culture, and community.

Research Method

This research employs a design-based research approach operationalized through a single case study, namely the design of the PT Bakrie Sumatera Plantation Museum in the Sepatu Bunut area of Kisaran. This approach was chosen because it aligns with the research objectives, which not only analyze existing conditions but also generate architectural design proposals as concrete solutions. The research process is iterative and cyclical, with findings from each stage providing feedback to refine the next design stage.

Data collection was conducted using mixed methods to gain a comprehensive understanding.

1. Primary data collection is conducted to understand the physical context and user perceptions:

a) **Studi Lapangan (*Field Study*)**

Conducted direct observation, mapping, and photographic documentation of the site conditions and colonial-style buildings around the Sepatu Bunut area. The focus was on urban morphology, building mass characteristics, and public space activities. Some of the analyses obtained were:

1) location and size of the site



Figure 5. location and size of the site

2) Neighborhood



Figure 6. Neighborhood

3) Transportation and circulation

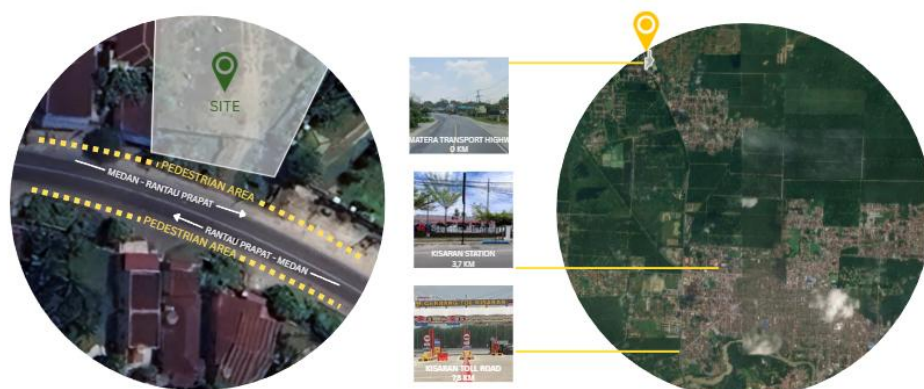


Figure 7. Transportation and circulation

3) Noise

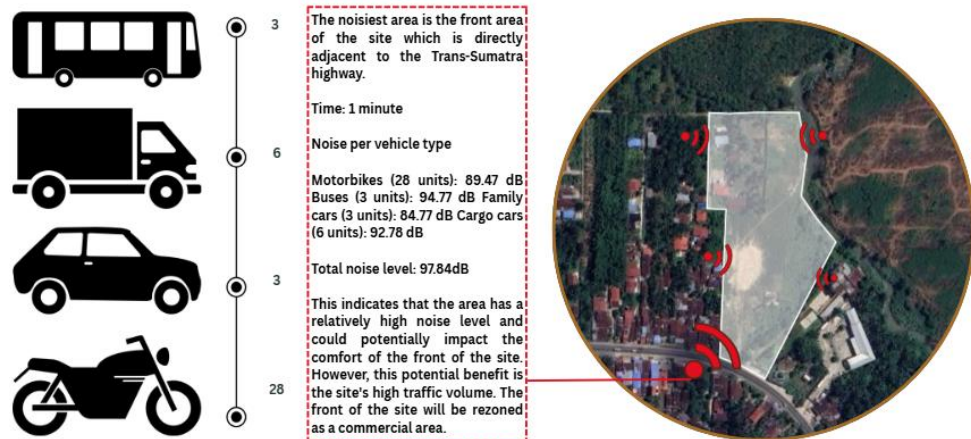


Figure 8. Noise

4) Colonial buildings around the site

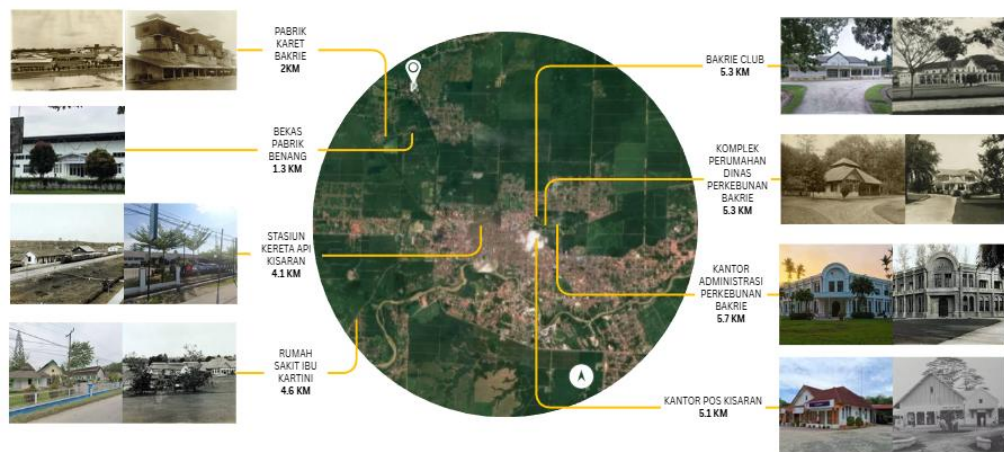


Figure 9. Colonial buildings around the site

- b) *Interview*: Conducted in a semi-structured manner with key informants, including traders in the Sepatu Bunut area, local historians, and representatives of PT Bakrie Sumatera Plantation. The aim was to uncover the meaning, history, perceptions, and hopes for the area and the planned museum.
2. Secondary Data Collection is used to build theoretical foundations and contestation
 - a) *Literature Study*: Me Examine theories related to Dutch East Indies colonial architecture, mixed-use development, and museum design from books, journals, and other scientific publications.
 - b) *Comparative Study*: Analyze similar case studies, such as museums integrated with commercial areas or new buildings adapting historical architectural language. This analysis aims to identify successes and failures that can provide lessons.

3. Problem Solving Method: *Design*

The design process is at the heart of this methodology, synthesizing all collected data into a spatial solution. The stages are as follows.

a) **Observation and Documentation of Existing Colonial Architecture.**

Field data and interviews were analyzed to identify authentic local colonial architectural elements in the Kisaran market area and the Sepatu Bunut shopping area.

a. a. Analysis of commercial building facades in the Kisaran City market



Figure 10. (a) shophouse with wooden materials on the second floor, (b) shophouse with brick material on both floors

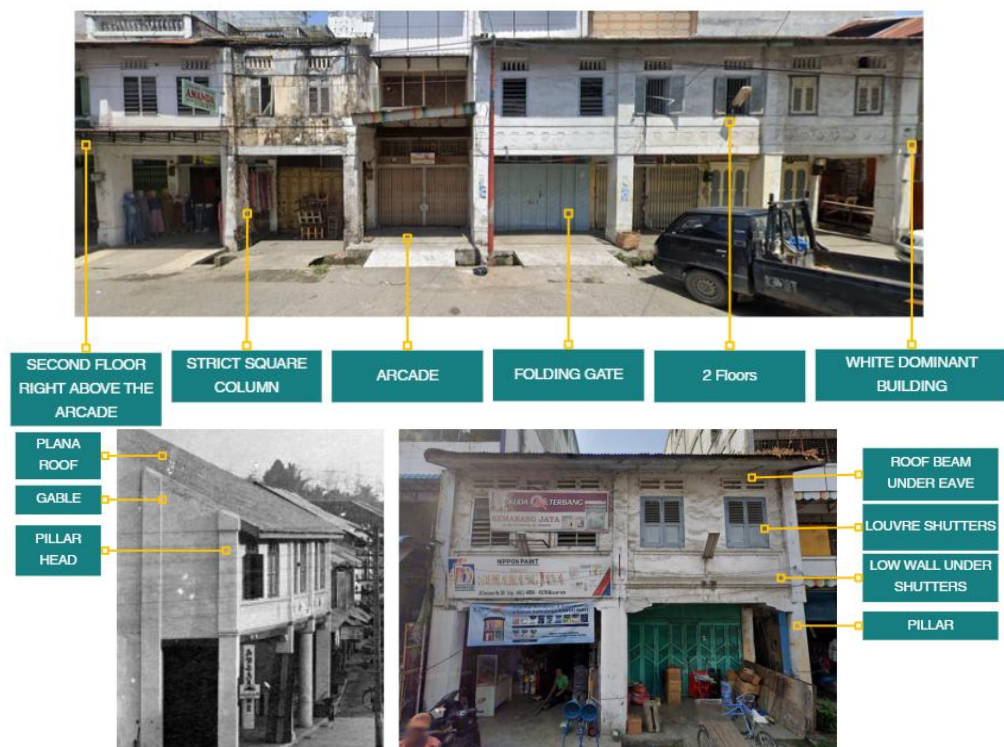




Figure 11. Analysis of commercial buildings in the city market of Kisaran

- b. b. Analysis of the facade of the Bunut shoe shop building in the Bunut shoe shopping area



Figure 12. Position of the shoe shop on the site



Figure 13. Analysis of the shoe store

- b) Integration of Inspiration into Design Programs

These principles and vocabulary are then integrated into the programming and mass concepts. This process occurs iteratively:

- **Zoning and Mass Configuration**

The principle of "commercial at the front, cultural at the back" is applied by designing rows of rental shophouses as buffers and gateways along the street. The massing is designed with proportion and scale in mind, harmonizing with the surrounding buildings.

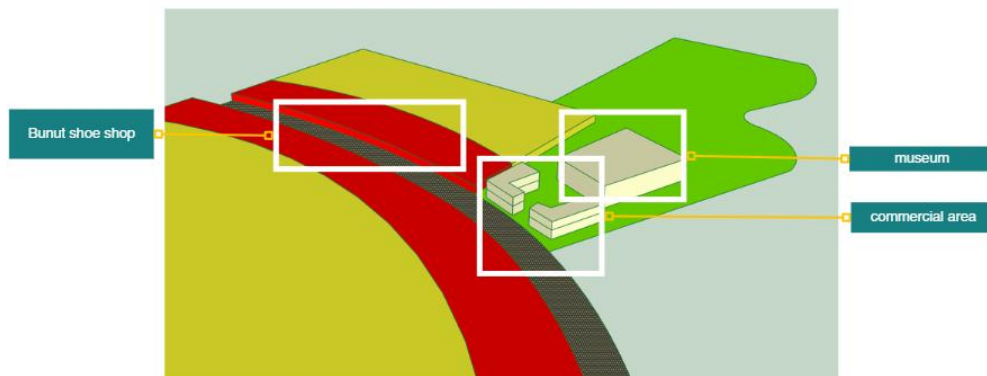


Figure 14. zoning area for rental shophouses and museums

Discussion

Based on field observations, the typology of colonial shophouses (ruko) in Kisaran City demonstrates a consistent form that characterizes the area. Analysis of several existing buildings in the Sepatu Bunut area revealed recurring morphological patterns, which were then abstracted into design principles for the rental shophouses within the PT Bakrie Sumatera Plantation Museum complex. This application is not a replica, but rather a contemporary interpretation while maintaining the local architectural essence. Some of the main principles adopted are:

1. Tripartite Vertical Facade Composition:

Kisaran colonial shophouses generally have a clear three-part facade composition:

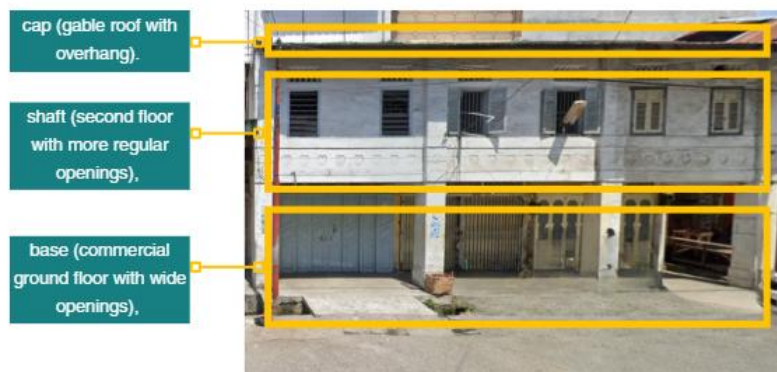


Figure 15. Composition of shophouses in Kisaran Market

In the rental shophouse design, the base is manifested as a shop area with large glass windows and glass doors, the shaft as an office/warehouse floor (partially), and part of the area is used as a sales area. In the shaft, the openings are arch windows with vertical proportions, while the cap is designed to follow the original typology of commercial buildings in the area.

2. Arcade or Street Venue System as a Transitional Space

The arcade element (terrazzo that shades pedestrians) is a universal feature that defines the public space in front of colonial shophouses.



Figure 16. Arcade systems in commercial buildings in the market range



Figure 17. Arcade system at the rental shophouse of PT Bakrie Sumatera Plantation Museum

In the new design, this element is not only retained but also enhanced as an active transitional space. The canopy that unites the entire row of shophouses is designed to be wider and integrated with street furniture, creating a semi-public porch that encourages interaction and acts as a visual buffer between street activity and the shop interiors.

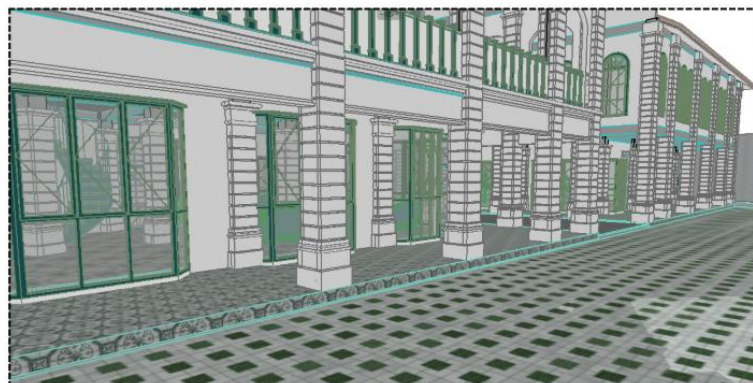


Figure 18. Arcade system at the rental shophouse of PT Bakrie Sumatera Plantation Museum

3. Materiality that Reflects Context

The material palette of colonial shophouses was dominated by painted plaster and wood. The new design incorporates a transformation of materials that maintains the spirit of texture and simplicity. The wooden frames are transformed into steel frames painted emerald green, echoing the typical color of colonial plantation buildings, while the walls retain their white plaster. This transformation conveys the honesty of modern materials while simultaneously resonating with the historical context.

The facade rhythm of the row of shophouses is dominated by the repetition of regular opening modules and vertical columns. Some of these include:

a. Modul dan pengulangan

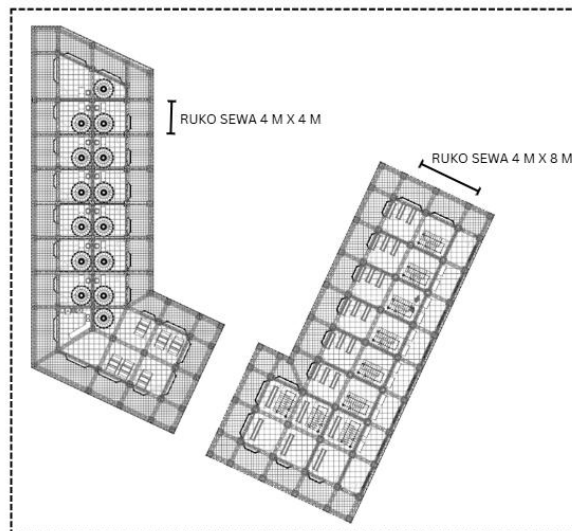


Figure 19. Size of each unit in the rental shophouse

The width of each shophouse unit is approximately the same, so it reads as a series of vertical planes repeating from left to right. On the ground floor, the main rhythm is formed by wide glass windows that are the size of the building's entire floor and glass doors that open almost the same. This area is flanked by paired walls/columns at each unit boundary. In the rental shophouse building, there are two types of units: 4 meters x 4 meters and 4 meters x 8 meters.

b. Vertical and horizontal accents

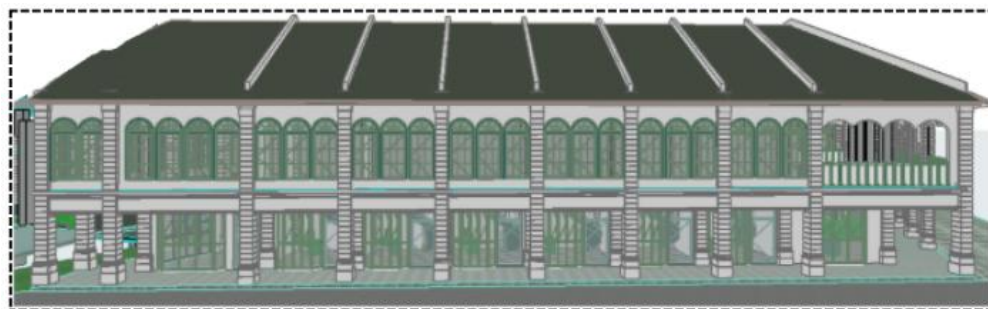


Figure 20. Vertical and horizontal accents on the rental shophouse of the PT Bakrie Sumatera Plantation Museum

The structural columns/beams and inter-unit walls form strong vertical lines, making the facade's rhythm feel more "dismembered" per shophouse rather than a unified whole. On the second floor, a continuous line of planks and gutters extends, creating a horizontal rhythm that unifies the row of shophouses. The planar roof with gables creates a distinct impression of dividing each shophouse unit.

4. Variation of openings and details



Figure 21. (a) second floor window, (b) ground floor window, (c) door

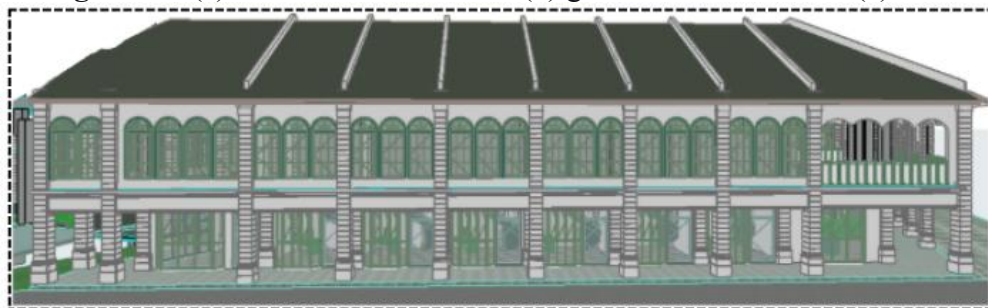


Figure 22. Variations in openings and details in the rental shophouse of the PT Bakrie Sumatera Plantation Museum

The variety of openings on the building facade provides an orderly but still dynamic composition, with a row of large curved windows on the second floor that form a strong horizontal visual rhythm. On the ground floor, openings in the form of wide glass panels dominated by transparent elements create a light impression and strengthen the visual connection between indoor and outdoor spaces, while vertical columns with horizontal striped profiles as well as detailed balustrades and window frames provide a subtle but bold articulation of the facade.

4. Zoning and circulation

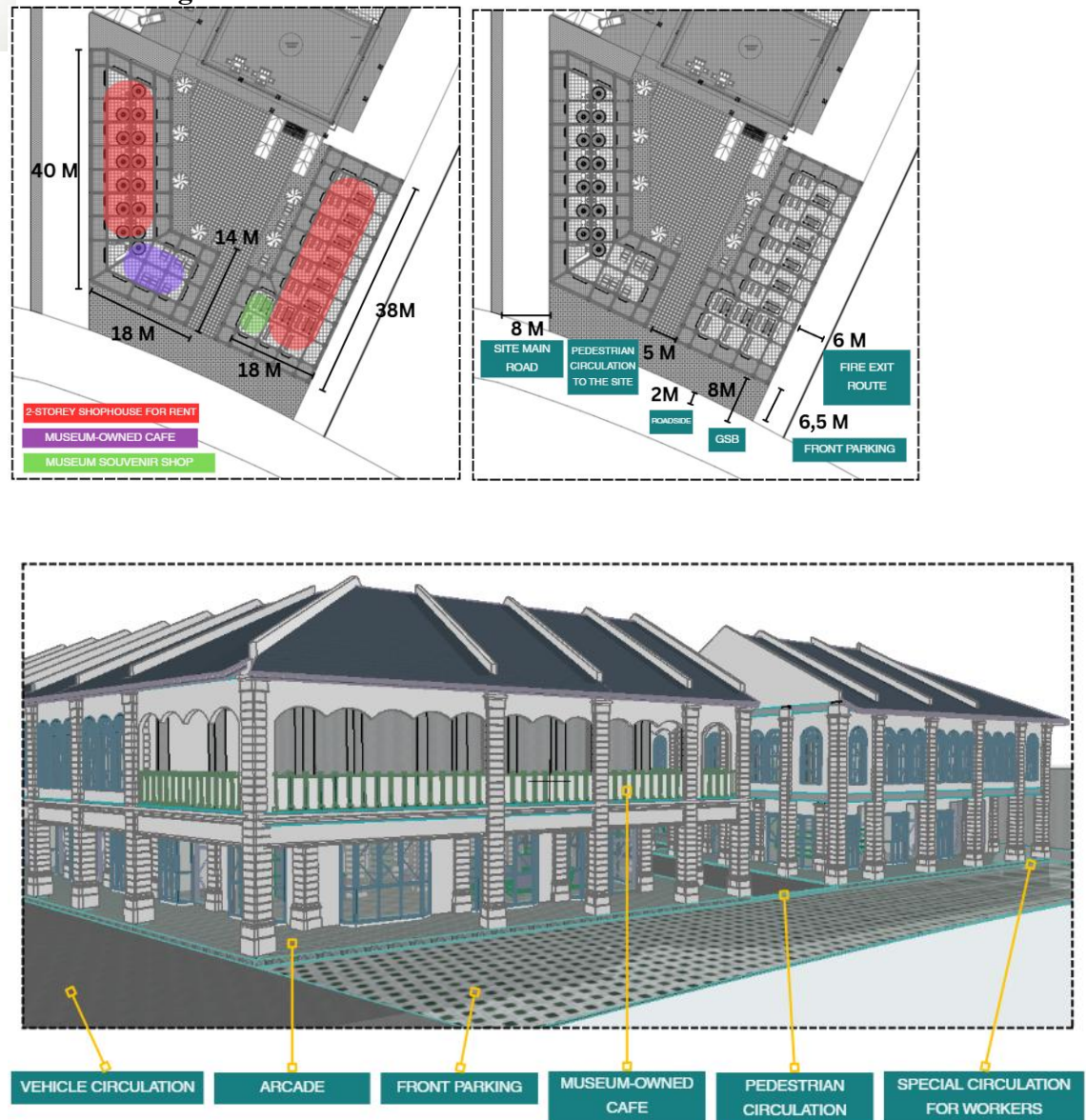


Figure 23. (a) zoning area of shophouses, (b) size of circulation around shophouses, (c) 3D presentation of shophouses and circulation around them

The cafe area on the top floor is designed as a museum-owned cafe that functions as a magnet for public activity to attract visitors to come and interact with the museum. The vehicle circulation system only uses one main route that circles the building, while the parking space in front is used exclusively for shophouse customers so as not to disrupt the flow of museum visitors. On the east side, a separate circulation route is provided for workers that connects directly to the Bunut shoe workshop area, while pedestrian circulation is placed in a corridor between the rows of shophouses that leads directly to the plaza as a meeting space that also functions as a temporary museum display area.

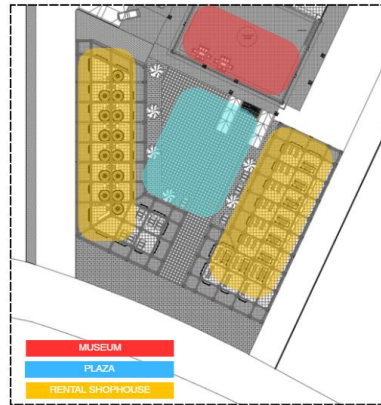


Figure 24. zoning area for shophouses and museum



Figure 25. illustration of the plaza area connecting the rental shophouses to the museum

The integration of the rental shophouses with the building mass of the PT Bakrie Sumatra Plantation Museum was achieved through the design of a transitional plaza space between the retail and museum zones. This plaza serves as a shared public space that blurs the rigid boundaries between commercial and educational functions, naturally drawing visitors to the shophouses toward the museum area.

Spatially, the plaza serves as the main circulation node, connecting pedestrian access between the row of shophouses, the museum cafe, and the museum's main entrance. It can also host activities such as temporary exhibitions, performances, or displays of Bunut shoes, a local identity. In this way, economic activity in the shophouses and cultural activity in the museum reinforce each other: the shophouses receive a steady stream of visitors from the museum, while the museum gains additional traction from the vibrant retail environment surrounding the plaza.

Conclusion

The conclusion of this study shows that the integration of rental shophouses within the PT Bakrie Plantation Museum complex in the Sepatu Bunut area of Kisaran has successfully created a contextual and sustainable mixed-use development model. Through an adaptation approach—rather than a replica—to local colonial architectural principles such as tripartite facade composition, arcades, and climate response, this design produces a new building that harmoniously dialogues with the physical heritage of the area. The rental shophouses function effectively as commercial buffers and social gateways that direct visitors to the museum, while the transition plaza between the two becomes a hub of activity that unites economic and cultural functions. Thus, the museum is not an isolated institution, but rather an organic part of the urban ecosystem that revives the narrative of plantation history through contemporary interactions, while offering a relevant design precedent for similar developments in Indonesia's heritage cities.

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