

# Spatial Pattern Adaptations in Shophouse Buildings: A Case Study of Pasar Besar Street

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**Abstract**— *The characteristic of the existence of shophouses in Chinatown is the adaptation of the Chinese community as immigrants who build houses while trading in their new environment. However, it has survived for generations to this day, which can be seen in one of the many Chinatowns in Indonesia, namely the Chinatown Area of Malang City. This research aims to find out how the spatial form in the shophouse in Pasar Besar Street, Chinatown Area, Malang City, Indonesia is formed by the behavior of the Chinese community as immigrants in adjusting to the social and cultural conditions of Malang City. This study was conducted applying qualitative and descriptive research techniques and purposive sampling techniques. Based on the inner space pattern analysis in 10 Cases of Shophouse Buildings in the Pasar Besar Street, a synthesis is carried out in the form of visual images that represent it. The spatial arrangement pattern in the shophouse consists of space-forming elements, namely orientation, space function, space organization, space zoning, space hierarchy, and circulation that prioritize economic aspects of trading, aspects of functionality in utilizing space, and socio-cultural aspects of Chinese society which also follow the surrounding environment.*

**Keywords**— *Spatial patterns, architectural elements, shophouse, Chinatown.*

## I. INTRODUCTION

Chinese settlements in various Indonesian cities, including Java Island, grew under the rule of the Dutch colonial government, which influenced their settlement and trading activities within designated areas [1]. The policy encouraged the Chinese community to strengthen their territory as a form of identity defense, such as tradition, language, religion, and cultural practices [2]. The area then developed into a Chinese-dominated settlement known as Chinatown, which is generally a commercial area and trading center, as the Chinese have been working as traders since they arrived in the area [3, 4].

One of the characteristics of the Chinatown area is high density, so adjustments to building architecture are needed to overcome land limitations, namely shophouses [5,6]. Shophouses combine residential and business functions in one building, including the trading function on the first floor, while the residential function is behind the business or on the top floor if the building is multi-story [7]. The limited land causes residents to sacrifice their yards. Therefore, shophouses owned by the surviving Chinese community generally do not have courtyards or gardens.

Chinese residences in Malang City are scattered to the northeast of Town Square. They occupied areas on the edge of arterial roads and established a private market under the Dutch colonial government, which later developed into Pasar

*Pecinan* or Pasar Besar, the oldest and largest trading center in Malang City. Pasar Besar is located in the Pasar Besar Street, which today still retains its trade and service functions through shophouses [8]. When the Dutch colonial government built housing, the Chinese community followed the Dutch housing style, which is a continuous double house facing the street, both with multi-storey floors and without multi-storey floors, known as *stadswoningen* or town houses [9].

The existence of shophouses in Chinatown reflects the adaptation of the Chinese community as immigrants who built houses and trading places in their new environment. This form of architecture has survived for generations and can still be seen in various Chinatowns in Indonesia, including in the Chinatown Area of Malang City. The Shophouse in Pasar Besar Street, Chinatown, Malang City is the outcome of the Chinese community's adaptation to the form of Dutch Colonial Architecture while retaining its distinctive characteristics of Traditional Chinese Architecture in the organization of the space inside.

Previous research on the Pasar Besar Street, Chinatown Area, Malang City, on a micro and macro scale has been conducted by several researchers. On a micro-scale, the research discusses changes in the interior space of shophouses in this corridor which are influenced by the development of trade activities [10]. The architectural style of the shophouses in the corridor combines European and Chinese Architecture with the dominance of the *Nieuwe Bouwen* architectural style from the Netherlands [11]. The facade composition of the shophouses includes exterior elements such as roofs, sun shades, windows, doors, and ornaments that affect the visual quality of the buildings in the Pasar Besar Street [12].

Macro-scale research identified the characteristics and history of the Pasar Besar Street as the oldest and most significant economic area in Malang City [13]. The visual image in the Chinatown area of Malang City is influenced by node elements, such as road intersections that become activity centers and paths, which are the main paths or corridors accessed by the public when visiting the area [14].

In contrast to previous research, in this study, the discussion related to spatial patterns in shophouses is an essential point because it is to see how the spatial form in shophouses in the Pasar Besar Street, Chinatown Area, Malang City is formed by the behavior of Chinese people as immigrants in adjusting the social and cultural conditions of Malang City. Shophouses are a characteristic part of the historic Chinatown Area of Malang City, so they must be preserved. The findings of this study will contribute to

understanding how the surrounding social and cultural components influence the shape of the spatial pattern of a shophouse.

II. METHODS AND MATERIALS

The research method used is qualitative, which describes the reality of phenomena determined naturally in a descriptive way [15]. These phenomena are obtained through data collected through interviews, field observations, and reviews of previous studies related to research problems. The selection of research objects is determined based on the purposive sampling method, a sampling technique from various data sources found based on special considerations or criteria from researchers.

Research on Shophouse as a research object is located in the Pasar Besar Street, Chinatown Area, Klojen District, Malang City. The Pasar Besar Street is an arterial road to Chinatown, established in the Dutch Colonial era [17]. Its existence is close to *Alun-Alun* or Town Square, the center of Malang City, and Eng An Kiong Temple as a place of worship for the Chinese community [18]. The research location map can be seen in Fig. 1.



Fig. 1. Research Location

The criteria for the research object is a shophouse that is 50 years old or older according to the Indonesian Cultural Heritage Law No. 11 of 2011 to get a building that is still maintained in its authenticity or has not undergone changes of more than 50% in terms of its architecture.



Fig. 2. Shophouses on Pasar Besar Street

Pasar Besar Street has 144 buildings, with details of 137 buildings with service and trade functions, 2 with health functions, 1 with lodging functions, and 4 with bank functions. The shophouses included in the 137 buildings with the function of services and trade were found around 60 ancient shophouse buildings that are 50 years old or more, and they illustrate the architectural style of the buildings in the past. Then, the buildings were examined again by observing still intact buildings with trade and service functions and activities.

There were 10 shophouse building cases (BC) that fit the criteria of the research object and research boundaries and will be further analyzed according to the variables or units of observation. The sample of shophouses in the study can be seen in Fig 3.

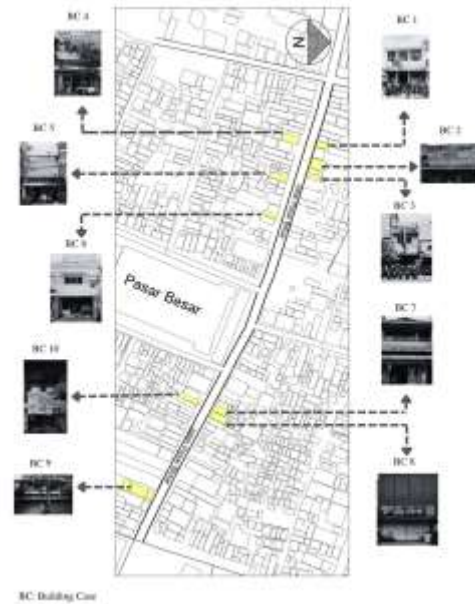


Fig. 3. Shophouse Building Case (BC)

This research focused on the spatial aspects of the building, namely the pattern of inner space, and found the elements that form the space in the building based on previous research. The elements that become the research observation unit include orientation [19], space function [20, 21], space organization [22], space zoning [23, 24], space hierarchy [25], circulation of space [26], and axial planning [27, 28].

Creating operational definitions for each element provides a clear understanding of how to systematically measure and observe these elements. The operational definition of the unit of observation aims to support in-depth and structured analysis and explain the interaction between elements and the formation of functional and aesthetic indoor space patterns in Table I.

Data collection through interviews, literature studies, and field observations of the Shophouse enabled in-depth analysis of the elements that form the inner space pattern: orientation, space function, space organization, space zoning, space hierarchy, space circulation, and axis lines. Data from interviews provided the views of the building owner, literature studies provided the theoretical basis, and field observations provided tangible evidence.

This analysis is interpreted in the form of a narrative that explains the characteristics of each element and is complemented by graphic visualizations such as plans, diagrams, and sketches that facilitate understanding of the spatial layout and flow of movement within the building. The result is a comprehensive overview of the spatial character of the Shophouse, showing how the elements interact and form a functional and aesthetically pleasing pattern of interior spaces.

TABLE I. Operational Definition: Observation Unit for Indoor Spatial Patterns

No.	Observation Unit	Operational Definition
1	Orientation	Orientation refers to the placement of buildings and spaces in relation to external factors such as sun, wind, views, and central access.
2	Space Function	The function of the space is the main purpose or activity performed and designed for it, whether for residential, commercial, leisure, or service activities.
3	Space Organization	Space organization is the arrangement and relationship between spaces in a building that creates a functional and aesthetic layout.
4	Space Zoning	Space zoning is dividing space in a building into areas based on its function and use. This zoning helps organize and group different activities in one building.
5	Space Hierarchy	Space hierarchy is the level or order of importance and privacy of spaces in a building. This hierarchy determines which spaces are more important or more private than others.
6	Circulation of Space	Space circulation refers to the pathways and movement patterns designed to connect different spaces within a building. It includes accessibility, ease of navigation, and flow of movement.
7	Axial Planning	Axis lines are imaginary lines that determine balance and symmetry in space design. They help arrange architectural elements to create a harmonious composition of space.

### III. RESULTS AND DISCUSSION

Based on the analysis of interior space patterns in 10 shophouses in Pasar Besar Street, a synthesis is made in the form of visual images that represent the characteristics of each element forming the interior space pattern, namely orientation, space function, space organization, space zoning, space hierarchy, circulation of space, and axial planning. The following is a study of the spatial pattern in the Shophouse based on the elements that form the inner space pattern, which will be described in detail and comprehensively. This analysis provides a comprehensive picture of each element's role in creating the shophouse building's spatial character in the research location.

#### A. Orientation

The orientation of the building determines the direction in which the Shophouse faces the main road. This orientation facilitates user accessibility to the Shophouse, with the business or commercial space located at the front of the building. The business space in the Shophouse has extensive openings to incorporate natural lighting and ventilation and make it easier for visitors to recognize the building's function. The orientation of the building facing the street is also caused by the arrangement of shophouses that are parallel and connected due to the limited land in Fig. 4.

Orientation in the shophouse space is generally found in the shop space, which has an orientation direction to the main road. This orientation facilitates user accessibility to the Shophouse, directly directed to the business or commercial space at the front of the building's face. The business space in

the Shophouse has extensive openings to incorporate natural lighting and natural ventilation while making it easier for visitors to recognize the function of the building. In contrast, other spaces traversed by the corridor will be oriented towards the corridor or depend on the furniture layout, the direction of doors and windows, and the preferences of occupants in determining the direction of view in the room. The placement of furniture, the position of doors and windows, and the will of the occupants play an essential role in determining the orientation of these spaces. More private or functional spaces, such as bedrooms or kitchens, are usually arranged to provide optimal comfort and privacy for the occupants (Fig. 5).



Fig. 4. Shophouse Building Orientation

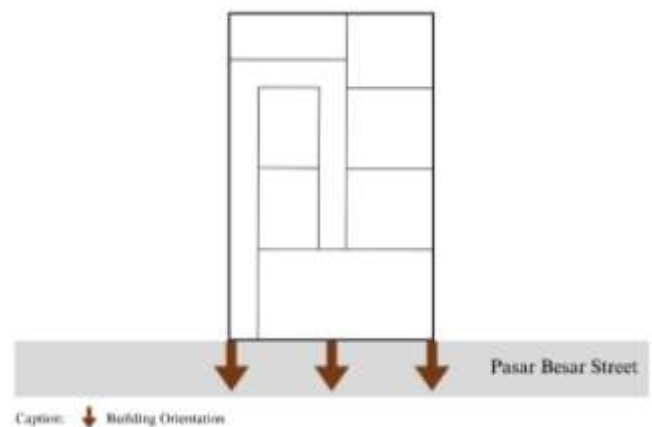


Fig. 5. Space Orientation of the Shophouse

#### B. Space Function

Inter-space circulation in the Shophouse is found in the corridor or hallway connecting spaces. The Shophouse in Pasar Besar Chinatown, which functions as a service and trade, integrates business and residential space in one building unit. Dividing space based on its function aims to achieve efficiency and comfort in shophouses that could be more spacious. The function of space in the Shophouse is categorized into four main areas: residential area, trading area, resting area, and complementary area in Fig. 6.

Residential areas include spaces used for social and family activities. These spaces are essential for fulfilling social needs and a sense of belonging. Examples are living rooms, family rooms, and altars for gathering and interaction. Commercial areas are spaces dedicated to business activities. They are usually located at the front of the building for easy customer access. This space includes shops with different types of merchandise designed to attract attention and facilitate buying and selling interactions.



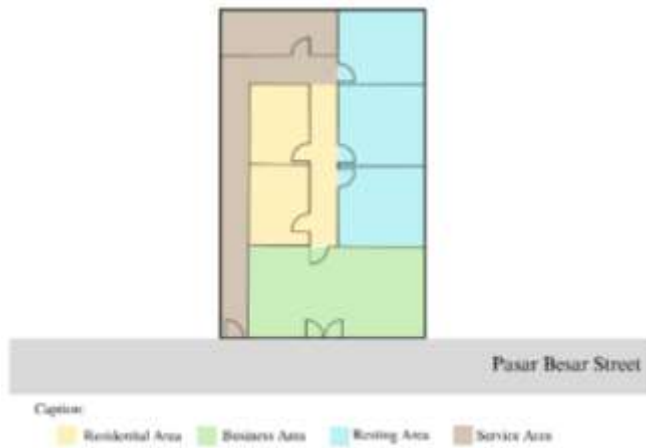


Fig. 6. Space Function of the Shophouse

The resting area consists of spaces with a high degree of privacy, such as bedrooms, to fulfill the need for privacy and rest. Service areas include spaces that support daily activities, such as kitchens, storerooms, and laundry rooms. These spaces are essential to support the primary function of the building and improve the quality of life of its residents. The kitchen, for example, is designed to fulfill cooking and food storage needs, while the laundry room provides facilities for cleaning (Fig. 7).



Business Area  
Store room located at the front of the building



Residential Area  
Residential space located behind the store room

Fig. 7. Business and Residential Functions of the Shophouse

This division of space functions increases the efficiency of space use and supports the harmonious integration of commercial and residential needs in one building. Thus, the Shophouse in Pasar Besar Chinatown can function optimally, fulfill the various needs of its residents, and support the sustainability of economic and social activities.

### C. Space Organization

The spatial organization of the Shophouse is based on functional relationships between spaces, forming a similar rectangular arrangement. This type of organization is a cluster, which groups spaces of different functions and sizes but interrelated. Space organization allows flexibility and adaptability in its use. The behavior of space users influences the design and organization of space.

When viewed based on the floor plan, spaces that have similar functions are placed close together, such as commercial function spaces at the front of the building, and further back are spaces with residential functions, such as

living rooms, family rooms, and bedrooms. In shophouses, the occupants' behavior integrates business and residential spaces efficiently. Each space has a clear function according to the needs of the occupants (Fig. 8.).

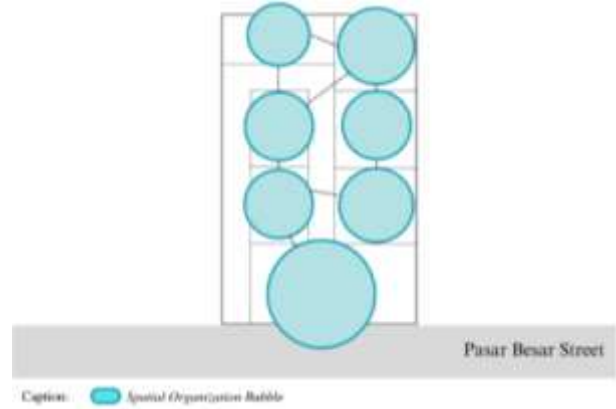


Fig. 8. Space Organization of the Shophouse

### D. Space Zoning

Zoning is space placement based on nature and function according to the occupants' needs. In a shophouse, space zoning is divided into public, semi-public, semi-private, private, and service zones. Zoning reflects the level of privacy and social interaction within the Shophouse and how spaces are organized within the building. The public zone includes spaces easily accessible to anyone without restrictions, such as the business space at the front or back of the building that serves as the center of economic activity (Fig. 9.).

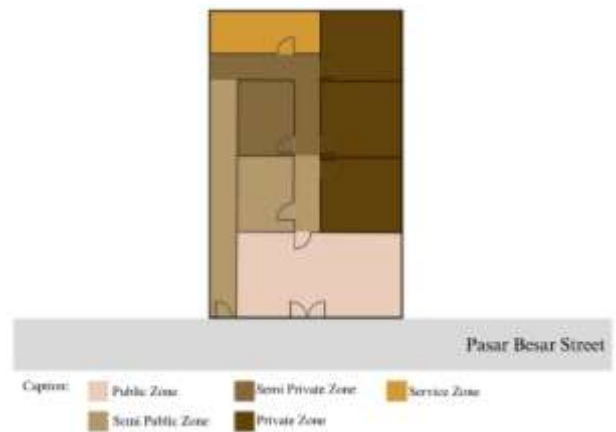


Fig. 9. Space Zoning of the Shophouse

Semi-public zones are transitional spaces between public and private with limited access, such as corridors and balconies used for receiving guests or relaxing. Semi-private zones are spaces used by occupants for family interaction, such as living rooms.

The private zone includes spacious spaces, such as bedrooms and bathrooms. The service zone is a space for support needs, such as the kitchen, laundry room, and warehouse, usually located at the back of the building. Chinese people in shophouses value privacy highly, so there is a clear separation between public and private spaces. The

business space as the public zone is easily accessible from the outside, reflecting the importance of commercial functions in the Shophouse.

The service zone at the back ensures that household operations do not interfere with the main activities. The zoning in the Shophouse reflects the functional and cultural adaptation of Chinese society, organizing space based on the need for privacy, social interaction, and operational efficiency.

**E. Space Hierarchy**

The differences in functional, formal, and symbolic roles between form and space manifest individual and cultural values. These differences play an important role in forming a visible and hierarchical order. This principle of hierarchy is reflected in the spatial arrangement of Traditional Chinese Architecture, including in shophouses, where each space is divided sequentially into levels or value distinctions.

This spatial hierarchy is characterized by the level or difference in value of each space, which is divided into sequential gradations, from the front, general or public, to the back, unique or private, even sacred. In a shophouse, the highest level is usually found in the business space at the front of the building. It is prominent, easily accessible, and has a strong visual appeal. While at the back or top of the first floor, there is a living or family space that is more private and smaller than the business space.

Not infrequently, in some shophouses, there are areas for cultural or spiritual activities, such as family altars or shrines. These areas are carefully placed as they have high symbolic significance. Thus, the hierarchy of spaces in a shophouse reflects functionality and formal and symbolic aspects that influence the experience and activities within (Fig. 10).

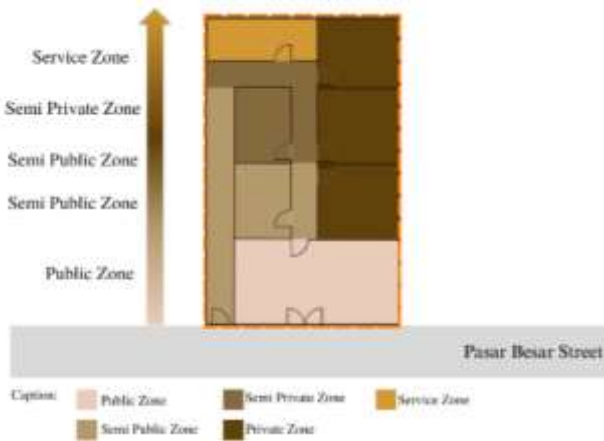


Fig. 10. Space Hierarchy of the Shophouse

**F. Circulation of Space**

Circulation in the Shophouse is categorized into central, inter-space, and secondary. The main circulation to the building is through the main entrance, and access passes through the Jalan Pasar Besar corridor. Inter-space circulation in the Shophouse is found in the corridor or hallway connecting spaces in Fig. 11.

Some shophouse buildings have side doors as secondary access. This door serves to access the building without going

through the main door. However, side doors are rarely used because the buildings are close to each other. The circulation of the inner space in the building is in the form of a corridor that extends along the building, is linear or straight, and passes through the spaces in Fig. 12.

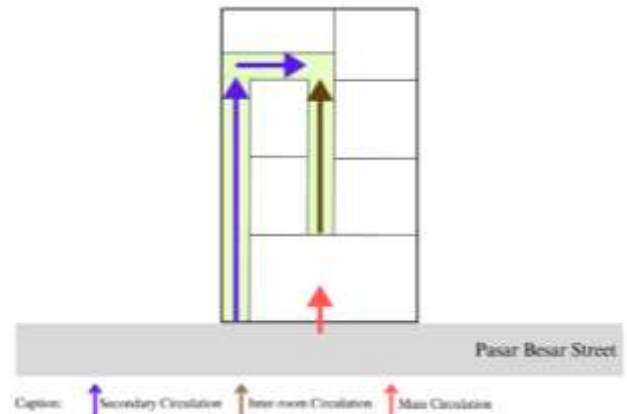


Fig. 11. Circulation of Space in the Shophouse



Fig. 12. Main and Secondary Circulation of the Shophouse

**G. Axial Planning**

The axis line is essential for organizing form and space in architectural planning. In the shophouse building, the axis line creates balance and symmetry of space. Analysis of elements such as orientation, function, space organization, zoning, space circulation, and space hierarchy shows that the axis line forms a harmonious space pattern in Fig. 13.

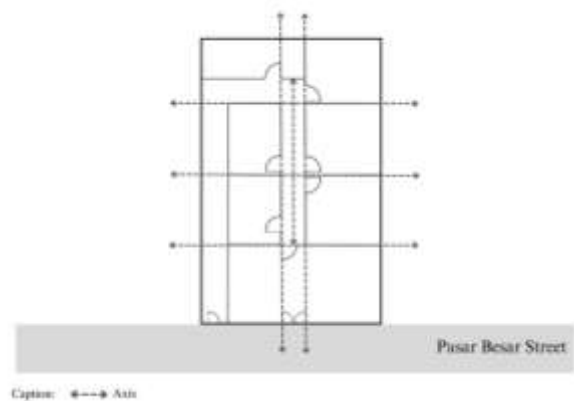


Fig. 13 Axial Planning on Shophouse

This principle is similar to axial planning in Chinese

Traditional Architecture. The axis line organizes the circulation flow from the entrance to the end of the building through critical points, dividing the space with symmetry even though the shophouse building has a narrow lot and is adjacent to other buildings.

#### IV. CONCLUSION

Shophouses in the Pasar Besar Street, the oldest and largest commercial area in Malang City, have served as service and trade centers since the arrival of the Chinese community and continue to do so today. The shophouses are over 50 years old and have been passed down to future generations in Chinese households, reflecting their culture of passing down businesses to descendants. The existence of shophouses in this corridor also shows the adaptation of the Chinese community as immigrants who successfully settled with other communities in Malang City.

The spatial arrangement pattern of the Shophouse consists of space-forming elements such as orientation, space function, space organization, zoning, space hierarchy, circulation, and axis lines. These elements reflect the economic aspects of trading, the functionality of space utilization, and the socio-cultural aspects of the Chinese community. The absence of courtyards in shophouses in the Pasar Besar Street is due to land limitations, which is a form of adaptation of the Chinese community.

The orientation of shophouse buildings generally faces the front of the building to facilitate accessibility. Spaces are separated according to function, organization, and zoning: shop space at the front and more private residential space at the back or above the shop space if it is multi-story. This separation forms a hierarchy of spaces, where the shop space has a higher hierarchy with larger size, easy accessibility, and high visual appeal to attract customers. Meanwhile, residential spaces are minor, private, and located at the back of the building.

In addition to the main door as the central circulation, there is a side door as a secondary circulation for residents so as not to interfere with the central circulation in the shop space. The placement of the altar in the living or family room reflects the religious culture of the Chinese people according to their beliefs. The Shophouse's spatial arrangement also adapts Chinese Traditional Architecture's rules, such as axial planning that organizes space based on function, location, and symmetrical composition.

The elements that form this spatial pattern form the spatial character of the Shophouse owned by the Chinese community in the Chinatown Area of Malang City. This spatial arrangement shows the identity and symbolization of Chinese descendants even though they live in a new environment.

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