



Architectural Physical and Spatial Characteristics of Chinatown Shop Houses in Singaraja City, Bali

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Abstract—Since North Bali is in a very advantageous location and can support navigation technology systems that are still basic, trade relations can be established through ships that frequently travel through the northern Bali region. Beginning in the northern region and a region that was influenced by the Port of Buleleng, Chinatown shophouses began to grow throughout time. The study uses a qualitative descriptive methodology to explain the conclusions drawn from both primary and secondary sources of information. The architectural features of Chinatown shophouses are discussed in this study, including their physical characteristics, figural qualities connected to their shapes and materials, and spatial characteristics relating to their functions and zoning of space. Physical characteristics are categorized into types of buildings according to the number of floors and the materials used, and the typology is based on the era in which the shophouse was constructed. The results of this study on spatial character reveal that a building's ground floor is divided into front, middle, and back, with the front zone serving a commercial function, the middle zone serving a residential function, and the back zone serving a service function. On both the ground floor and the top floor, the altar room is always located in the front zone.

Keywords: Shop houses; Chinatown; characteristics; physical; spatial

I. Introduction

The coastal areas of the archipelago as trade traffic routes were quite heavily influenced by immigrants, almost some places in this part of the world were touched by the expansion of the Chinese empire, where the Southeast Asian region was the area that was most closely and continuously known in their historical records as Nanyang or southern sea (Knapp, 2010 in Roesli and Rachmayanti, 2014). Geographically, northern Bali has a very strategic position, is conducive and supports navigation technology systems that are still simple, this condition facilitates the existence of trade relations contacts through ships that sail intensively around the northern Bali region (Yudiana, 2013). The role of ethnic Chinese who have carried out their main trade in port cities in the archipelago has

participated in shaping the trade sector in Indonesia. Geertz stated that the island of Bali in the 19th century had an important role in trading activities in the kingdom, the relationship between Chinese traders and the kingdoms in the archipelago caused the migration of ethnic Chinese to Indonesian territory. During the Dutch colonial period, the existence of ethnic Chinese became stronger because of their trading skills needed by the colonialists. Chinese traders then controlled the market economy from villages, cities to trading in large ports (Septia, 2016). The presence of ethnic groups outside of Bali such as Javanese, Bugis, Arab and Chinese, in general they live in areas with centers of economic activity such as ports and markets. On the architectural side, there is a shophouse as a product of interaction from the existence of economic and development relations showing a mix and cultural adaptation, this has an

impact on residential and commercial functions in one location together. A shop house is a typical settlement in an old city which is a legacy from the Sung dynasty in 960-1127, while a shop house is known as a ruko, which is the designation of buildings in Indonesia which are generally made of more than 1 floor (usually up to 5 floors) where there are more than 1 function, for example a residential function and a commercial function, where the lowest floor is used for business premises and the floor above is used as a residence (Wicaksono, 2007 in Januastuti and Artiningrum, 2018). Shophouses found in various cities around the world are said to be buildings of Chinese architecture. Adaptation to local conditions results in diversity in its formation (Wahyuasih, 2007 in Januastuti and Artiningrum, 2018).

Significant activity every day at the Port of Buleleng has had an impact on the area around the port which has started to become a trading area. Rows of shops began to appear in this area, as a means of buying and selling port distribution goods. These shops are mostly owned by ethnic Chinese, known as traders, with this process having a significant impact on the development of residential building architecture as is the case in several Chinatown areas in Indonesia, namely with the emergence of shophouses with Chinatown architecture which can be distinguished from the architecture of other local residential buildings. Based on data from the Urban Redevelopment Authority (2011), there are typical shophouse elements consisting of:

1) The wall is the main structure, as well as a separator between shophouses

2) The wooden structure refers to the main and secondary parts, this structure extends between walls and its function is to support each floor, there are wooden floors and wooden rafters that support the roof.

3) Courtyard or open space in the middle of the building, this area functions as natural ventilation and lighting in the shophouse building, this is adapted from an environment with a tropical climate to create comfort in space.

4) The backyard, located at the back of the shop and limited by a wall, functions as a service area and for kitchen and toilet needs.

5) Wooden windows, the shape of these wooden windows tends to be designed in a French or Casernent style, there are louvers for air circulation and lighting in the shophouse building.

6) Wooden stairs, this refers to the construction of stairs inside the shop house, there are various ornaments on the stair railing.

7) Building facades that tend to face the street, facades from the architectural periodization period will have a different aesthetic approach.

8) Placement of columns in front of the building supports the corridor for pedestrians

9) Pedestrian paths are prepared in the front area of the shop house with the aim of protecting pedestrians from the weather and comfort when doing activities.

10) On the roof, it is very visible in the construction of the roof, which uses a wooden structure with a V-profile terracotta tile of natural color without glaze. Shophouse Shophouses built from the 1990s onward tended to use flat, unpolished tiles to keep them natural, known as Marseilles tiles.

Chinatown shophouses are still commonly found in commercial areas in Singaraja City. As a manifestation of the high economic activity at that time, especially traders from China began to build residences as well as places to work, called shophouses. To be able to determine the physical and spatial characteristics, there is a general physical explanation that defines a Chinatown shop house, namely having a geometric pattern with a rectangular building shape, extending backwards, terraced and facing the road, having a building width of between 3 to 6 meters and a length of up to 2 up to 4 times the width of the building which is an adjustment from ethnic immigrants to limited urban land for the benefit of living and trading (Utomo, 1990 in Sari, 2021). The use of materials in the form of a wooden structure for the roof frame, there is a roof consul called Cheng-gong or Tiao which consists of two frames to support the gording embedded in the wall, on the roof using a gable type with a crown-shaped wuwungan, while on the walls using brick material, where the use of this material is inseparable from the development of Dutch architecture, and for the floor material using polished granite, brick or wood. The spatial characters of shop houses in general are terraces, living rooms, business rooms, dark alleys, family rooms, bedrooms, ancestral altars, balconies, kitchen dining rooms, bathrooms, storerooms and bathrooms. In the front room is a type of public space, from the living room to the family room is a transition from semi-public space to private space. The rear area is designated as a bedroom for older people. The location of the door from the main bedroom is in a dark hallway, there is a space under the air outlet which functions as a washing room and a well so that air circulation makes the room comfortable (Pratiwo, 2009). The figure below is the basic pattern of a Chinatown shop house building with the following descriptions 1) Terrace, 2) Living Room, 3) Shop or workshop, 4) Dark Hallway, 5) Family Room, 6) Bedroom, 7) Ancestral Altar, 8) Airhole or airwell, 10) Balcony, 11) Dining Room, 12) Kitchen, 15) Bathroom, 16) Warehouse and 20) WC.

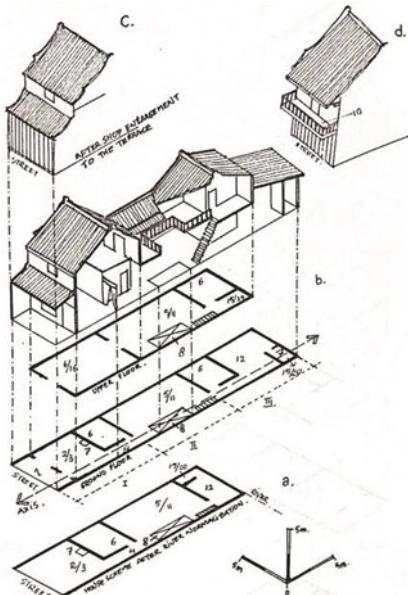


Figure 1. Basic Pattern of Space in a Chinatown Shop House
(Source: Pratiwo, 2009)

The function of a shop house usually starts in a market area with the main activity being trade, where there is a port or river as a place for distributing trade goods. The house in the context of shop-house (ruko) is a primary need in addition to the main livelihood activity. Rows of shop houses became the initial buildings in the history of business activities, especially trading activities in one area, then the next development became a trade and service center with various business activities that became an integral part of a city (Erdiono, et al, 2012).

The role of the city in carrying out various activities in various aspects to meet the needs of human life. Singaraja City was once the most advanced city in Southeast Asia during the colonial era (Pageh, 1998). Singaraja City was once the capital of the Lesser Sunda Islands and the capital of the Province of Bali. The form of adaptation of the architectural style can be seen in the typology of the facade. As one of the most influential cities in its time and even today. The periodization of the development of Chinatown shop houses starts from the north and then moves towards the downtown area. The northern area is an area that has been influenced by the Dutch East Indies government since the 1910s.

II. Method

This research uses a qualitative descriptive method by describing the findings based on primary data and secondary data. Primary data was obtained by conducting field observations and conducting in-depth interviews with trusted sources related to Chinatown shop house ownership, and from secondary data used as background knowledge in conducting field observations. This study discusses the architectural side of Chinatown shophouses in the physical aspect related to figural quality related

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Figure 2. Research Location Delineation
(Source: Indirahajeng, 2023)

The research location is in Singaraja City, Buleleng Regency, Bali Province. Singaraja City was once the capital of the Lesser Sundas which had an impact on various aspects, one of which was the economic aspect which has survived to this day.

The stages of the research were carried out in several stages as follows:

- 1) mini tour on road delineation related to the development periodization of the development area of Buleleng Port and commerce in Singaraja City
 - 2) Synchronizing data obtained in the field with previous literature data (data can be in the form of documentation in the form of photographs and old and recent maps)
 - 3) Collect primary data and secondary data, then carry out the analysis process
 - 4) re-drawing of the results of field findings in the form of sketches of the shape of facades and spaces in shophouse buildings, in this stage, the image reconstruction process is assisted by analysis results during interviews and old photographs to support the drawing process
 - 5) image reconstruction and analysis of primary and secondary data to answer the physical and spatial characteristics of the architecture of Chinatown shop houses.



Figure 3. A sample of a Chinatown Shophouse building in Singaraja City
 (Source: Indirahajeng, 2023)

III. Results And Discussion

Rapoport (1979) argues that architecture is a form of development (construction) that is able to change the physical environment based on an order based on values (which become goals) chosen by humans, both individually and in groups or society. Architecture is an intuition that is built for various visual and architectural forms which become a cultural phenomenon as a manifestation or other description of the culture being built. Architecture is a form of culture that is formed from human adaptation to their environment and will continue to change according to the times. Habraken (1978) in Febrianto (2018) stated that in recognizing architectural character, it can be identified with the physical system which is a system of structure and building materials and the spatial system is a system of spatial organization in buildings.

A shophouse is a typical Chinese building that has a dual function, namely as a residence (residence) as well as a place of business (trade). Shophouses are built in a row with shared walls between shophouses, an organization like this is believed to be based on fengshui so that the residents are always lucky (Pratiwo, 2010), this is manifested in the structure of the walls between shophouses that are interrelated.

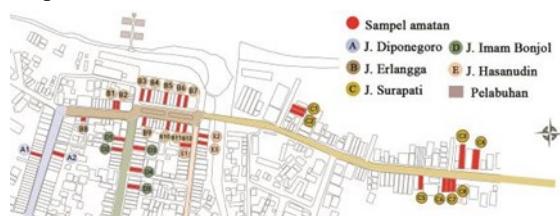


Figure 4. Distribution of Chinatown Shop Home Observation Units
 (Source: Indirahajeng, 2023)

The observed buildings house Chinatown shops totaling 30 units located in 5 road corridors namely on the corridors of Jalan Diponegoro, Jalan Surapati, Jalan Erlangga, Jalan Imam Bonjol and Jalan Hasanudin. The selection of the sample on the

street location is related to the periodization of the development of shophouses which were established during the initial periodization in the 1920s to 1970s. The entire observation unit of the shop houses is still inhabited by the owners and descendants of Chinese descendants who still live and actively trade in the Chinatown shop houses. In the physical character analyzes the building based on the number of floors and the type of material and in the spatial character analyzes based on the function of space and space zoning.

Physical Character

According to Habraken (1983) Building elements are various elements needed in the formation of a building, such as building facades, floor elements, walls, ceilings and roofs. Where these elements are closely related to building materials, the building elements in question are initially formed from a concept, then produce a product.

The physical characteristics of the shop house building include the analysis of the number of storeys of the building and the use of materials in the Chinatown shop house building structure. Classification based on the number of floors of Chinatown shop houses, found four types of floors namely shop houses with one floor, shop houses with one and a half floors, shop houses with two floors and shop houses with three floors. One-story buildings have a building height of 6 to 8 meters, one-and-a-half-storey buildings have a building height of up to 7 meters, two-story buildings have a height of 8 to 10 meters and three-storey buildings have a height of up to 11 meters.

Classification of buildings based on material is divided into three namely the sub structure (lower structure), super structure (middle structure) and upper structure (upper structure). There are parts that have not changed, namely the upper structure which continued to use wooden easel frames from 1920 to 1970, the super structure, namely the walls, the entire building still uses brick material, the inner space has wooden planks as the second floor, stairs and stair railings made of wood, where this material was used from 1920 to 1970, the part that has undergone material changes is in the sub structure, namely the use of floor material, which in 1920 used terracotta brick floors, then since 1930 until 1970 developed using tiled floors and tiled floors.



Figure 5. Use of shop building materials
 (Source: Indirahajeng, 2023)

In the unit of observation, there is the use of materials in the form of flooring (see Figure 4 code B) of terracotta, tiles and ceramics, parts of the walls using bricks with lime plaster (see Figure 4 code C), parts of the wooden plank floor as the top floor (see Figure 4 code A) and the use of wood materials as a roof truss structure.

Typology of Physical Characters

The typology of buildings based on the number of floors in the initial periodization, namely in the 1920s, buildings with 1.5 and 2 floors were found, from 1930 to 1950 buildings with 1 and 2 floors were found, in 1970 only buildings with 3 floors appeared. Typology of buildings based on material found uniformity in the upper structure using wood and the sub structure using bricks, while the super structure in the 1920s used terracotta brick floors, developing in 1930 started using tiled floors and from 1950 to 1970 using ceramic floor materials .

Spatial Character

Habracken (1978) in Febrianto (2018) explains the spatial system is a spatial organization system in a building. A shop house is a typical Chinatown building found in coastal cities of Southeast Asia which has two functions in one building. In accommodating two functions in one building, there are divisions and characteristics of Chinatown. The manifestation of adaptation to local conditions has resulted in diversity in spatial formations. This has given a variety of spatial characters, especially in the architecture of Chinatown shop houses in Singaraja City.

On the first floor there is a business space function in a commercial area, which has direct access to the road. The residential area is at the back, consisting of a bedroom, living room then there is a kitchen, bathroom and well, the storage area is in the middle or back of the house. The position of the altar always faces the road and is in the front both on the ground floor and on the top floor.

Ashley Wagner (2017) describes the back of the main floor as a residential, storage area, office or kitchen. In the shop house building there is a connecting passage in the form of an alley which is the domain of the residential area of the shop house. This is in accordance with the spatial conditions of the Chinatown shop house building in Singaraja City, namely the front part functions as a commercial function, the middle part as a residential function and the back part as a service function. The hallway is a connecting space between commercial functions, residential functions and service functions.

Table 1. Room Name Description
 (source : Writer's Analysis, 2023)

Code	Room Name	Code	Room Name
RU	Ruang Usaha	KM	Kamar mandi
A	Altar	S	Sumur
KT	Kamar Tidur	G	Gudang
RK	Ruang Keluarga	T	Tangga
D	Dapur	B	Balkon

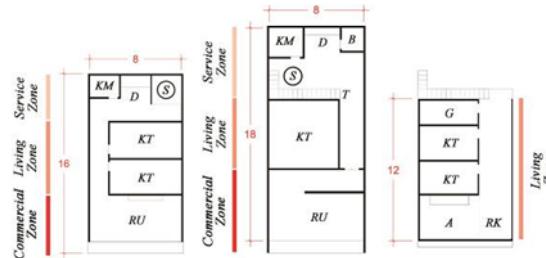


Figure 6. Plan of the Primary Building (left) and Primary and Secondary Buildings (right)
 (Source: Indirahajeng, 2023)

The function of the primary building is a building that consists of basic functions as residential and commercial which consists of the commercial zone which has a business room, the living zone has bedrooms and the service zone is a kitchen, wells, bathrooms. In the secondary function there is the addition of supporting space in the commercial zone section where there is an altar, the living zone has an additional living room and/or altar, and the service zone has the addition of a warehouse function.



Figure 7. Altar in the Business Room
 (Source: Indirahajeng, 2023)

Spatial character typology

In the development period from 1920 to 1970 there was a development of the function of space, where the front remained as a commercial function, the middle part as a residential function and the back as a service function, there was a development of secondary space from 1920 to 1970.

Spatial zoning in this typology will be associated with the periodization of the year each observation unit was founded. There are 2 types of typology spatially, namely the shophouse building which has a primary room and a secondary room. The primary space structure is divided into three zones, namely the commercial zone, living zone and

service zone. The commercial zone has a position at the front of the building, because this section is a commercial function, making it very easy for ongoing accessibility. The living zone is located on the ground floor from the middle to the back and the second or third floors of the building. The service zone is part of the living zone but is separated because this space is used to support the needs of other spaces and has unity between spaces such as kitchens, wells and bathrooms which have flexible placements but are not separated from one another.

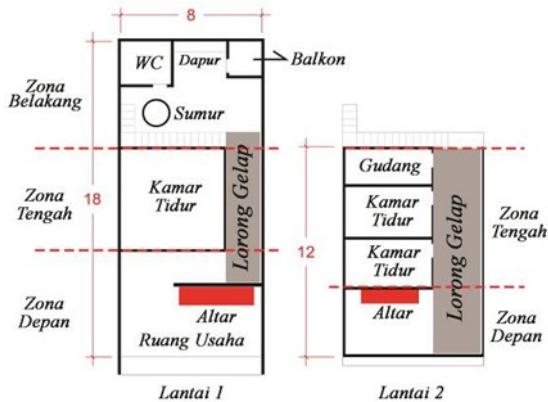


Figure 8. Zoning Space In Shop Houses
 (Source: Indirahajeng, 2023)

Spatial character based on zoning space is divided into three parts, namely the front is the commercial zone, the middle is the living zone and the back is the service zone. The position of the altar is always at the front of the building so that it is always in the commercial zone if it is on the ground floor and in the living zone if it is on the top floor, while the position of the dark aisle as a connecting or circulation route between functions (commercial and residential functions) is on the side right or left because the building doesn't have a significant length, this dark alley doesn't look like a passage, but like a connecting area or corridor.

The position of the altar is in the front in the period 1920 to 1970, in 1920 it shows the position of the altar in the front, middle and back. The position of the altar is dominated in the front in each period, both on the first and second floors facing directly to the street.

IV. Conclusion

The architecture of Chinatown shop houses in Singaraja City has physical characteristics, namely buildings with 2 floors, a typology of buildings with 1.5 floors only existed in the 1920s and a typology of 3-storey buildings only appeared in the 1970s. The use of wood material in the roof frame structure, brick material in the wall structure, wood flooring material in the upper floor structure and the use of terracotta floor material (1920s to 1930s), tile materials (1930s to 1950s) and ceramic materials (1950s to 1970s). Physical characteristics are divided into building classifications based on the number of floors and building materials, where the

typology is related to the period of the year in which the shophouses were built. Spatial character, the building with the ground floor is divided into 3 zones, namely the front zone (commercial function), middle zone (residential function), and rear zone (service function), and the upper floor is divided into front, middle and rear zones where the three zones This is a residential function. Secondary room is only found in 2 and 3 floor buildings with the position of the dominant secondary room being on the ground floor in the middle or back. The position of the altar room is always in the front zone on the ground floor and the front zone on the top floor. Development periodization and location segmentation do not give significance to the spatial character.

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