



**BES: Journal of Built Environment Studies**

P-ISSN: 2746-9077 E-ISSN: 2746-9069  
 Journal Home Page: journal.ugm.ac.id/v3/BEST  
 DOI: 10.22146/best.v4i1.5209



**ADAPTATION OF MAINLAND CHINA ARCHITECTURAL CHARACTERISTICS ON CHINESE PERANAKAN HOUSES IN YOGYAKARTA**

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**ABSTRACT**

This paper lists the architectural characteristics of Chinese Mainland Architecture in terms of architectural heritage conservation. Chinese residing in various countries can strongly maintain their culture, showing a distinctive architectural identity. The concept experienced adaptation to various natural and cultural contexts of countries outside their home country, the four-seasons country, Mainland China. The current situation of fast-growing construction, developments, and alteration of cultures and nature is both an opportunity and a threat to old Chinese housing. This paper aims to identify and understand architectural characteristics enabling physical conservation holistically. Research methods are in stages, the first stage being a literature review on typology and principles of Chinese architecture; the second stage is to structure and analyze the characteristic architectural findings; and the third stage is to draw conclusions from the process of interpretation, answering the research questions. A holistic literature review is needed to understand and categorize each housing based on its architectural characteristics.

**Keywords:**

Architectural characteristics, Chinese Peranakan, Residential

**ARTICLE INFO**

Received 26 July 2022

Accepted 26 July 2022

Available online 31 May 2023

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**1. Introduction**

There are many cultural heritages in Indonesia as place identity. Among them is Chinese Peranakan culture which can be traced to the 5th century on their expedition to Sumatra (Fitriyana, 2020). Chinese immigrants' architectural archetype is strongly influenced by their origin culture, e.g., elementary forms, architectural style, symmetrical forms, and function-based spatial arrangements. Several architectural elements persist, e.g., the type of roof shape, spatial configurations, the building structure, building envelope, situation and location, orientation, and ornamentation (Fauzy, Antariksa, and Salura, 2011; Fauzy, 2012). Culture is everything passed on or passed down from one person to another as a community member, from the learning process to imitating an example, but not something passed on and passed down genetically. One can learn traditional culture's complexities by tracing the extensive history and fundamental theory (Zhang, 2018).

However, Yogyakarta, a fast-growing tourism destination in Indonesia, is causing changes in function and land ownership. Most Old Chinese Peranakan Housing is situated in strategic locations and historical areas due to strong economic and political influences from the 17th to 19th CE. This condition threatens Chinese Peranakan architecture and its unique, diverse characteristics

(Shamsuddin, Sulaiman, and Amat, 2012). Unique characteristics must be maintained in a historical area (Garnham, 1985). Protection of buildings, environment, and activities are main efforts to consider in preserving architectural heritage. In order to preserve and develop, explorations of cultural meaning are required. Archetypes in studying culture as elements, forms, and basic structures that underlie human works, can be used in studying architecture (Arinto, 2018).

Residential houses are groups of spaces accommodating residents' daily activities, as basic buildings and media to express residents' imagination and desired expression of residents (Kumala, 2017). Architecture is the design process and development realization, solving problems considering existing natural, social, economic, and political conditions in a context to accommodate user activities. Architectural systems consist of space, structure, and enclosure (Ching, 2007). Building characteristic is one of the attributes, special properties that are not common, having distinguished feature and quality. Characteristics of the building are shown through physical and non-physical forms. Characteristics must be able to describe or reflect the architecture of the building that can be understood in both verbal and pictorial form. The physical form of a building is the easiest part to observe because the visual

impression of an object is easier to digest and absorb by human memory. Therefore, the physical form can reflect the characteristics of a building (Rachmawati, 2009).

In the case of architectural styles, architectural characteristics consist of spatial systems, physical systems, and stylistic systems. A spatial system is the organization of space, which includes the relationship between spaces, space hierarchy, orientation, and others. The physical system includes the use of materials, structures, and construction. A stylistic system is a component that shows a form or building element of a building (Habraken, 1978). In the concept of type, the idea of transformation allows architecture to reconstruct links to the past, forming a metaphorical relationship with certain 'moments' identified in the form of the building (Moneo, 1978). In the context of urban landscapes, typology is closely related to the structure of the city: color, texture, style, character, personality, and uniqueness, which shows evidence of period differences in architectural styles and also in various urban arrangements (Mohamed, Harun and Abdullah, 2017).

Previously, researches on Chinese Peranakan architectural characteristics was done separated from cultural meaning, paying attention to factors and impact of transformation on form and spatial function (Anggraini et al., 2007; Januastuti and Artiningrum, 2018); on serial vision and townscape (Halim and Widyastuti, 2019); on ornaments application (Sari, 2021), on modules and openings (Rangkuty and Widyastuti, 2019). In order to preserve the typology of Chinese Peranakan houses, a holistic study for a deeper understanding of the adaptation of architectural characteristics needs to be carried out. architectural characteristics are derived from common characteristics of Mainland China dwellings.

## 2. Literature Review

In Mainland China, the house is seen as a vehicle to success, among five factors being *yiming* (destiny); *eryun* (wheel of fortune); *san feng shui* (art of placement); *shi daode* (virtue); and *wu dushu* (individual background). Success is measured by five patrilinear generations living under one roof and working on a family business managed by the head of the family. Elders live in bedrooms close to the hearth and main hall on the ground floor, and kids and females live on the backhouse or upper floor with sufficient courtyards. Of the five factors, *feng shui* can be cultivated physically. Therefore, it is important to do it optimally. *Feng shui* is a study of nature, integrating nature with the environment and architecture. Good *feng shui* in a building depends on proper placement and orientation with good energy (*qi*). The *feng shui* concept applies to landscape, interior, public buildings, and residential/residential scales. Important elements considered in *feng shui* are location, orientation, placement, spatial organization, the ratio of building elements, and the application of elements to increase luck. *Feng shui* is personalized to the building user based on the family name and birth date, which is later translated into *Taiji Bagua* diagram consisting of recommendations related to elements, colors, placement, and orientation (Lip, 2010).

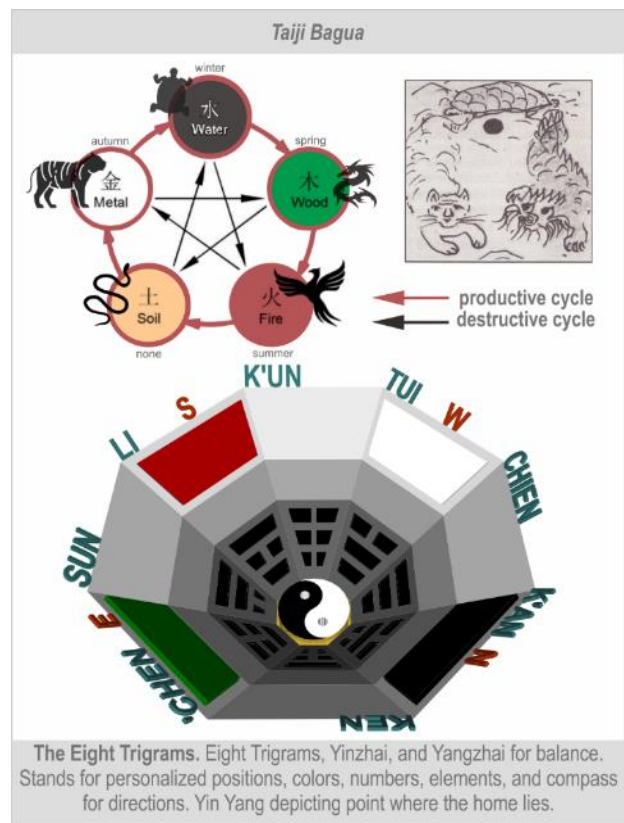


Figure 1. Personalized Recommendation for Living Space  
Source: Illustrated by the Author (2022)

The hearth and Living Room with ancestral altar are essential. In small houses, those functions are accommodated within the same room with a fire pit that goes up, creating a skywell. The fire in the fire pit will never be extinct from time to time. The fire pit is also a holy place. The simple action of leaping over the fire pit is regarded as

irreverent behavior (Deqi, 2004). Therefore, this research studies the physical characteristics in relation to structure and house typology, spatial characteristics in relation to common room types available in Mainland China dwellings, and stylistic characteristics attached to physical characteristics or inserted into a room in relation to *feng shui* and common beliefs.

**3. Research Method**

Content analysis and literature review were conducted on secondary data about architectural characteristics, Mainland China architecture, Chinese Peranakan architecture, and Chinese Peranakan in Yogyakarta in the scope of architectural science. Observative studies based on parameters drawn from secondary data were conducted to acquire primary data on Chinese Peranakan architecture in Yogyakarta. To understand comparative studies about architectural characteristics between Mainland China architecture and Peranakan Chinese architecture in Yogyakarta were conducted based on physical, spatial, and stylistic architectural systems. This research uses descriptive qualitative methods involving literature reviews from relevant journals, statutes, and publications as a comparison against study cases in Yogyakarta. At the same time, use descriptive writing to depict findings from case studies. It also engages in systematic learning from earlier publications, provides more information to be discussed in the current research, and is synthesized at the end to form an inductive conclusion.

**4. Results and Discussions**

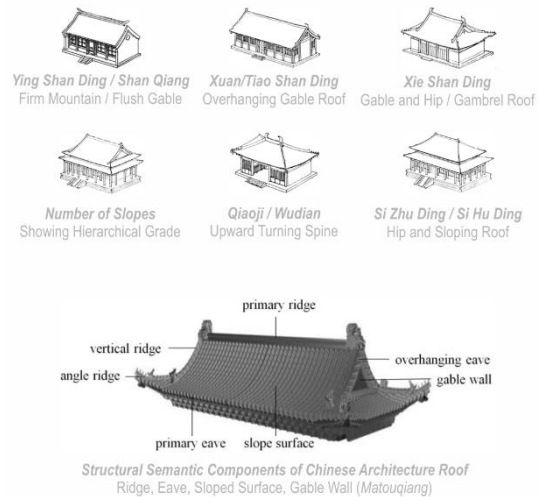
**4.1 Mainland China Dwellings**

Six courtyard houses in Mainland China are selected as study cases, observations on physical, stylistic, and spatial systems. For spatial systems, the main activities are trading, with workshops, inns, study rooms, and libraries. For stylistic systems, cases show the application of common Chinese beliefs, rites, and *feng shui* in symbolization around the house. One case in Hong Kong shows a different style, influencing the Western Rococo style. On physical systems, all houses use gable roofs, Jian modules, and lattice panels for partitions and openings. Case number one and two have Huizhou style, Yaodong style for number three, Jinshi Di for number four, Dayuan for number five, and Tulou for number six.

Based literature review, position and orientation is important, therefore Table 1 provide information of nearby altitude, highland, and waterbody.

**Physical Systems**

Physical systems consisted of general building elements e.g. structure, enclosure (building envelope), opening and gate, roof, floor, ceiling, with ornaments attached to add value, meaning, or to increase luck. Roof materials are mud compositions, thatch, clay tiles, wood, and stone shingles. Variations of ridge profiles are *chiwei* (owl tail), *zhengwen* (animal's mouth), *jiwen* (ridge mouths), swallowtail, horseback, and tile-weighting. *Ding* (roof) consisted of slope, gable, ridge and eave. Numbers of slopes shows hierarchy, extensive eaves for spatial purpose to increase floorage.



**Figure 2. Roof Types in Mainland China Dwellings**

Source: Knapp, Spence and Ong (2006)

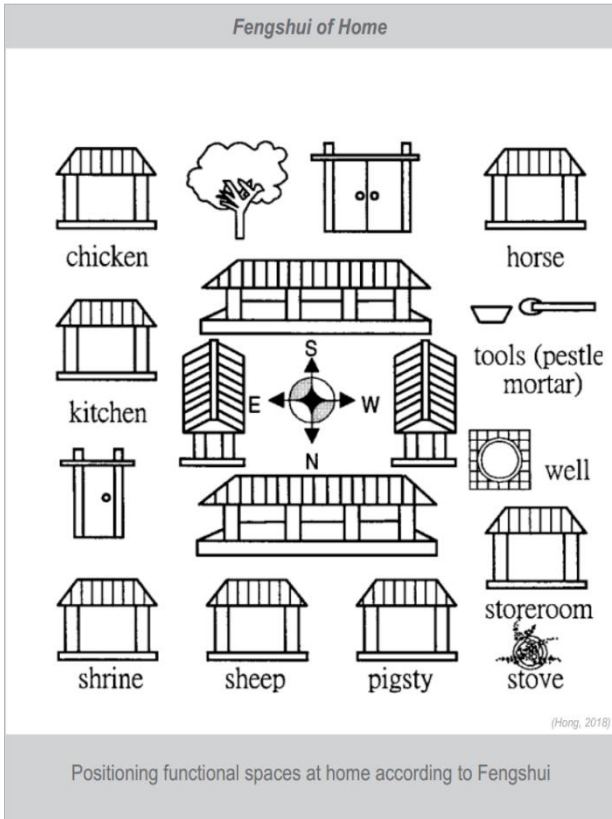
Structure in MCHA consisted of *jian* as a module of column 3.3 – 3.9 meters width and 4.8 – 6.6 meters depth. The foundation is *taixie* style, consisting of timber frames and rammed earth to raise the ground level. For column and beam structure itself is referred to as *tailiang* framing system. The structure accommodates roof structure to support a sloping roof (Ronald G Knapp, 2010). Variations of pillars and transverse tie beams are also called *chuandou* framing systems. As for joinery is with mortise and tenon, usually carved with ornaments. The enclosure is high white plastered brick walls, *hangtu* (tamped earth), adobe brick, fired brick, stone, wooden logs/planks, bamboo, wattle, and daub. Openings are usually lattice panels with functions of windows, partitions, and doors in three parts on the upper portion of transparent lattice, middle cross board with carvings, and lower vertical panel with low relief. Most study cases use *jian* module, with columns and beams from wood and mortar, gable and sloping roofs, and lattice panel openings.

**Table 1.** Table of Selected Study Cases

| Name                | Location  | Main Activities                   | Hillside          | Waterbody         | Position |
|---------------------|-----------|-----------------------------------|-------------------|-------------------|----------|
| Wang Ganchen's Hall | Anhui     | Trading and Education             | Huangshan         | Zhongchuan Stream | Highland |
| Wang Dinggui's Hall | Anhui     | Trading                           | Yellow Mountains  | Nan Lake          | Highland |
| KangBaiWan Manor    | Henan     | Agriculture and Trading           | Tai'an Mountain   | Yiluo River       | Lowland  |
| Man Chung Luen's    | Hong Kong | Trading, Agriculture, and Fishery | -                 | Pearl Delta River | Lowland  |
| Ma & Feng Residence | Sichuan   | Vinegar Trading and Workshop      | Jinping Mountains | Jialing River     | Highland |
| De & Lu Residence   | Guangdong | Agriculture and Trading           | Fujian Mountains  | Gan River         | Highland |

### Spatial Systems

Spatial systems consist of spatial configuration reflecting user activities; spatial organization of I, L, U, and rectangular shape; a spatial organization based on privacy, e.g., guest area, service area, and private area (female back house) connected by *tianjing* (courtyard garden and skywell) as open space and separated by walls; spatial order based on symmetry and hierarchy.



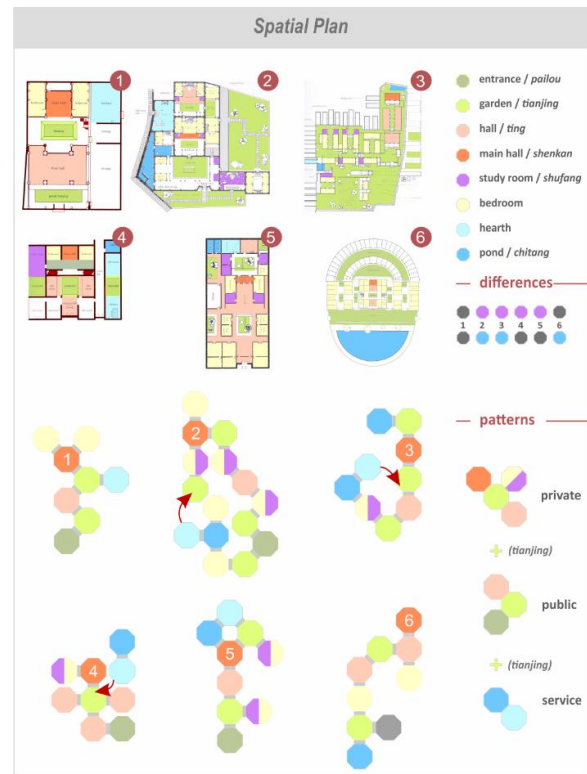
**Figure 3. Spatial Plan**

Source: Illustrated by the Author (2022), Lai *et al.*, (2019)

The public area consisted of an entrance, side rooms (gate guards), a garden (*tianjing*), and halls (*ting*). Variations of halls are; *zhentang*, *zhengting*, *zhengwu* (middle/main hall); *dating* (great hall); *gongting* (common hall); *tingtang/tingwu* (hall); and *shenkan* (shrines, ancestral hall). The private area consisted of the main hall, *shufang* (study room), and bedroom. Service area consisted of a hearth, storage, and *chitang* (fish pond). Figure 3 shows common recommendation on orientations and configurations of spaces within the house in Mainland China.

From study cases, as shown in Figure 4 separation between private, public, and service zone can be seen through adjacency. Each zone separated and connected with *tianjing* (courtyard), Main Hall placed relatively in the center of configurations, circulation path from entrance is leading to secondary halls, leading to the main hall. Main hall always placed close to bedrooms for elders and has access to hearth. Although adjacent and or having access to halls, most hearths and private areas are not visually continuous from public users, only visible from afar.

Private areas consisted of main hall, study room, bedroom, private courtyards and halls. Bath activity is done inside pavilion, explaining wet area being only close to hearth, which is service area.



**Figure 4. Spatial Plan**

Source: synthesized by author, 2022

### Stylistic Systems

Stylistic systems consisted of ornaments attached to general building elements and its properties.



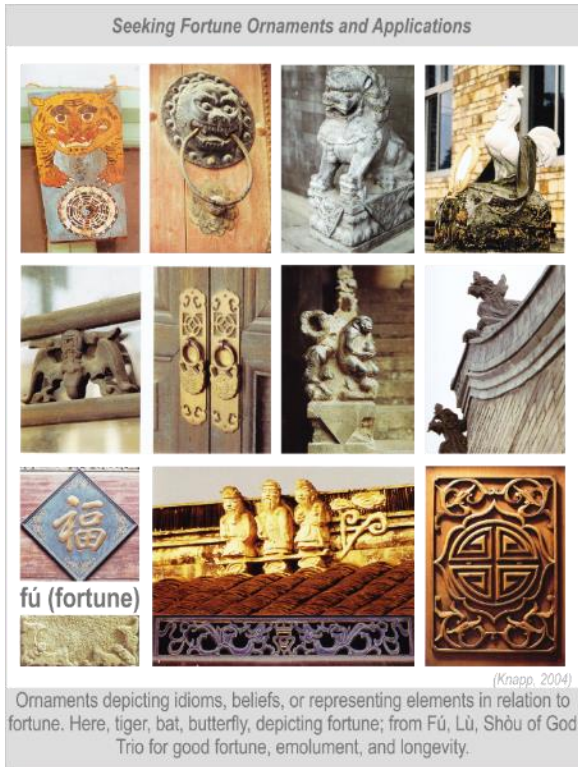
**Figure 5. Stylistic Characteristics on Mainland China Dwellings**

Source: Synthesized by the Author (2022)

Placement orientation, ratio, materials, colors, shape, and meaning/function are properties of stylistic systems observed to acquire a deeper understanding of Chinese

Architecture. Often, houses are decorated with festive and seasonal decorations to celebrate big days in Chinese tradition, e.g., Chinese New Year, Dragon Boat Festival, Spring Festival, and Autumn Festival.

(Chinese Zodiac), and spider. Plants are crane, pine tree, cypress, lotus, peach, peonies, hibiscus, and chrysanthemum.



**Figure 6. Fu Ornaments and Applications**  
Source: Synthesized by the Author (2022)

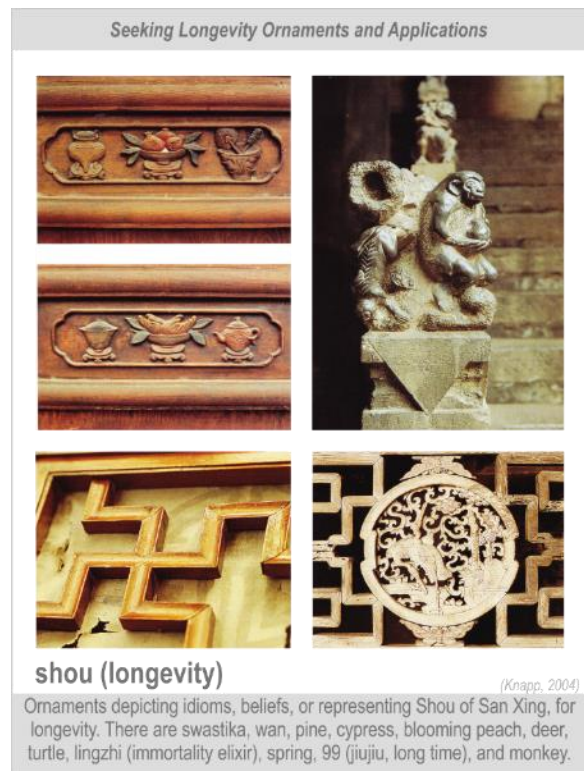
For stylistic systems, in most cases, the buildings are situated adjacent to waterbody and hills-mountains as surrounding views. It has a south orientation, having an ancestral hall (to host ritual activity), ponds, and applying *feng shui* to increase luck through ornaments. Aside from stylistic architectural ornaments (found in Man Chung Luen's *rococo*-style-influenced house), *feng shui* and beliefs ornaments can be grouped into; home stabilizers & defenders at the front, social templates in halls, amulets on bedrooms and beds, ceremonial and celebration decoration, written words, good fortune emblems, and harmony enhancer.

Natural elements like sky elements, such as the sun, moon, clouds, and sea elements, like waves and mountains, are used with materials that usually consist of clay, stone, wood, ceramics, acrylic, and bamboo. These materials showcase the natural color of the materials in monochrome (black, white, grayscale) and bright colors (red, yellow, blue, green) or with the application of golden powders. Stylistic symbols usually decorate structural elements, walls, openings, and installations. For carvings and ornaments, usually in the form of *hanzi* characters, images/reliefs of God or Chinese Characters, symbols/diagrams, plants, and animals. For decorations in the form of Chinese Gods and sayings.

Most animals depict *Fu Lu Shou (xi) Xing*, Gods of fortune, emolument, and longevity. "Fu" (福) means happiness, good fortune, blessing, and luck. Animals are *weilongwu* (dragon), *mao* (tiger), rooster, bats, butterfly, tortoise, deer, hare, monkey, carp, goldfish, 12 *shio*



**Figure 7. Lu Ornaments and Applications**  
Source: Synthesized by Author (2022)



**Figure 8. Shou Ornaments and Applications**  
Source: Synthesized by Author (2022)

Symbols and diagrams are *taiji*, backward *swastika*, Chinese coins, *Buddha's hand*, *lantern*, *dasha*, *menchen*, *shong kui*, *nianhua*, *zaojun*, *yangzhai*, *yingzhai*, *daojing* mirror, and *bagua*. For sayings and writings are (*Jiang*)

*Taigong zai chi, Zhushen tuiwei, Shang Liang, Lu Ban Jing, Taishan Shi Gandang, Taishan zai ci.* For couplets are *Duilian, Chunlian, Menlian, ruyi, five fu, jin yu tonghe, jin yu mantang.* Sayings can also be depicted in the physical form of animals and decorations of coins, installations, fountains, and statues.

#### 4.2 Adaptations of Chinese Peranakan Houses

This study selected three Chinese Peranakan houses aged more than 100 years in Yogyakarta city as study cases. The location of the selected houses is two houses in Ketandan and one house in Kranggan. All three houses have wells within a 1 km radius of the river and south of Merapi Mountain. Two cases are situated in urban areas, close to traditional markets, and fall into the shophouse type. The other one is in an urban village with a secondary function as a female-only boarding house.

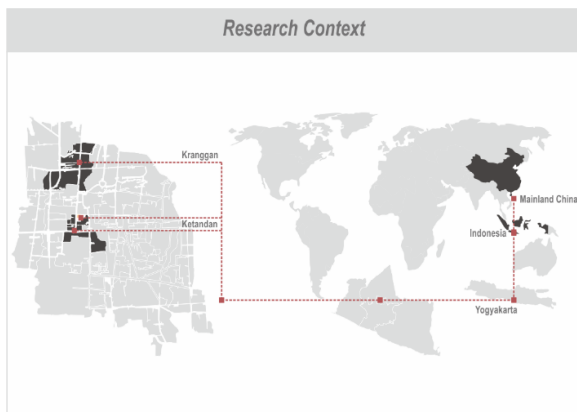


Figure 9. Research Context

Source: Illustrated by the Author (2022)

#### Physical Systems

Below are illustrations of the building façade and detailed opening. Façade is a building elevation facing the street.



Figure 10. Physical Systems: Facades and Opening

Source: Illustrated by the Author (2022)

Most houses are already built with firm concrete and steel structures mixed with wood and concrete. All three houses have 35 to 40 cm thick high walls. Ceilings are supported with wooden beams and panels. Main openings are similar to lattice windows, with transparent upper parts secured with a trellis and a solid wooden body divided into parts. Stairways are narrow in shophouse type, and inside doors are similar for one shophouse and the boarding house. Most houses have concrete and ceramic tiles floor. The upper structure has sloping roofs, and shophouses have a horse-head (*matouqiang*) gable wall. Two of the three cases have their main openings divided into three sections, similar to *wangcheng* plan (see Figure 10). However, both houses only open the middle door. Construction technology applied for joints and building envelopes differs from Mainland China architecture in adaptation to local and Western culture, still maintaining the original firm concept.

#### Spatial Systems

Below are illustrations of spatial layouts, color-coded based on functions, and diagrams illustrating circulation and zoning. For spatial characteristics, zoning is defined by doors and levels instead of a garden (*tianjing*). Both shophouses place the main bedroom on the ground level adjacent to the living room. Shophouses with fewer open spaces provided voids on the corner of their house to add sunlight and natural ventilation into the hearth.

Most houses have terraces, sitting rooms, and living rooms separately. The hearth is always on the east of the wet area (according to *feng shui*); in two cases, a hearth is more reachable than the wet area. According to *feng shui*, rooms with similar functions have relatively similar allocated space.

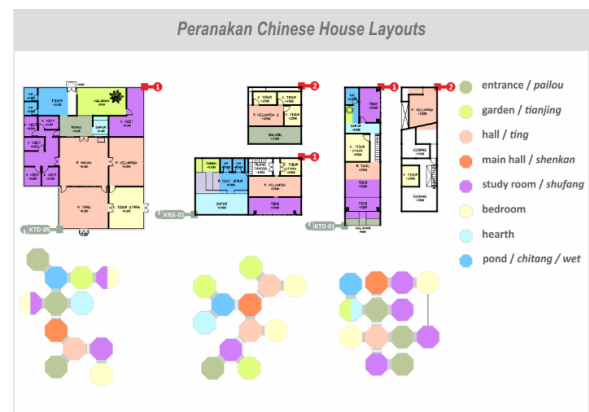


Figure 11. Spatial Systems: House Layouts

Source: Illustrated by the Author (2022)

Clear zoning and limitation on access are similar to Mainland China Architecture. However, land shortage causes adaptation by limiting accessibility and defining zones based on privacy and function. All three houses follow a North-South orientation according to *feng shui*. The ancestral table is placed relatively in the middle of the house as the center point. Most respondents confirmed their knowledge of *feng shui* by learning from books or listening to acquaintances with more profound *feng shui* knowledge.

**Stylistic Systems**

Stylistic systems are found in decoration (amulets, stickers, images, statues) and ornament (carving, profiles, reliefs). Most of them were found inside the gate. Carvings are found on wooden panels, wooden columns, and wooden railings. For openings, an adaptation is found in the form of *krepyak* window panel. The stylistic characteristics of *feng shui* Taiji Bagua, Yin Yang, floral, swastika, symbols, and Fu Lu Shou ornaments are found. With beliefs and rites, Door God, Ancestral Rite (*Zhou* Rites) Instruments, Kwan Im Goddess, and amulets are found. Fortune, wealth, and longevity-seeking decorations were symbolized in many forms, from writings representing luck, Fu Lu Shou Xing statues, *jinyu mantang* vases representing wealth, and *swastika* symbols representing longevity. Adaptations are mostly found in crafting style with acculturation of local and Western influences.

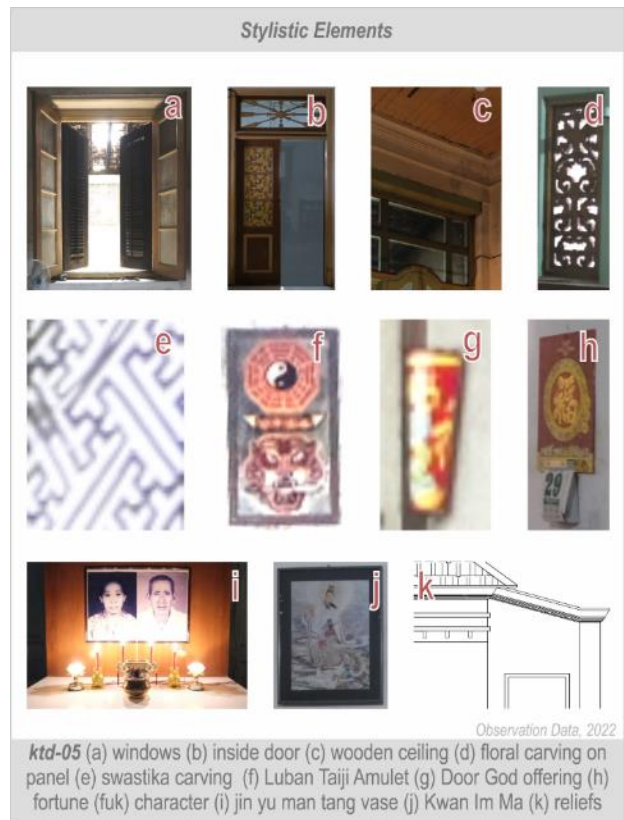
Adaptation of the physical characteristics of the Chinese Peranakan House is found in the form of detailed structural joints and construction technology, with high walls, sloping roofs, and a column-beam firm structure. Adaptation of spatial characteristics in Chinese Peranakan House is found in the distinguished ways of limiting accessibility and defining zones based on privacy and function. Orders, placement, and orientations are relatively similar to Chinese Mainland House. Adaptation of stylistic characteristics in the Chinese Peranakan House found in the distinguished detailed carvings with local and Western influences for decorations and ornaments in relation to beliefs and faith are similar to Chinese Mainland Architecture in terms of form and placement. Below is an illustration of stylistic elements found in three cases.



**Figure 12. Stylistic Elements of krg-03**  
Source: Illustrated by the Author (2022)



**Figure 13. Stylistic Elements of ktd-01**  
Source: Illustrated by the Author (2022)



**Figure 14. Stylistic Elements of ktd-05**  
Source: Illustrated by the Author (2022)

## 5. Conclusion

Architectural Characteristics of Peranakan Chinese Dwellings originated from Mainland China, shown through spatial and stylistic systems with attachment to *feng shui*, tradition, and beliefs. In contrast, the concept is still firm for physical systems but adjusting construction technology and available local materials.

## 6. References

- Anggraini, L. *et al.* (2007) 'TIPE BANGUNAN RUMAH TOKO CINA DI KETANDAN YOGYAKARTA Berdasarkan Bentuk-Fungsi DI KETANDAN YOGYAKARTA Berdasarkan Bentuk-Fungsi TESIS untuk memenuhi sebagian persyaratan mencapai derajat Sarjana S-2 Program Studi Teknik Arsitektur Jurusan Ilmu-Ilmu Teknik', (January).
- Arinto, F. E. (2018) 'Pelestarian Arsitektur Berdasarkan Architectural Archetypes Melalui Metode Grafis', *ARTEKS, Jurnal Teknik Arsitektur*, 3(1), p. 37. doi: 10.30822/artk.v3i1.158.
- Ching, F. D. K. (2007) *Architecture: Form, Space, and Order*. Third Edit. New Jersey: John Wiley & Sons, Inc.
- Deqi, S. (2004) *Chinese Vernacular Dwelling, China International Press*.
- Fauzy, B. (2012) 'Konsep Kearifan Lokal Dalam Arsitektur Rumah Tinggal Masyarakat Kota Pesisir Utara Jawa'.
- Fauzy, B., Antariksa and Salura, P. (2011) 'Memahami Relasi Konsep Fungsi, Bentuk dan Makna Arsitektur Rumah Tinggal Masyarakat Kota Pesisir Utara di Kawasan Jawa Timur,' *DIMENSI (Journal of Architecture and Built Environment)*, 38(2), pp. 79–87.
- Fitriyana, N. (2020) 'SEJARAH SINGKAT MASUK DAN BERKEMBANGNYA AGAMA BUDHA DI SUMATERA SELATAN', pp. 1–19.
- Garnham, H. L. (1985) 'Maintaining the Spirit of Place: A Process for the Preservation of Town Character', in.
- Habraken, N. J. (1978) *General Principles about the way built environments exist*. Stichting Architecten Research.
- Halim, G. and Widyastuti, D. T. (2019) 'Kajian townscape koridor kawasan pecinan', *Prosiding Seminar Nasional Desain dan Arsitektur (SENADA)*, 2, pp. 613–619.
- Januastuti, V. and Artiningrum, P. (2018) 'Pengaruh Perubahan Fungsi Ruang Dan Bentuk Rumah-Toko Terhadap Karakteristik Arsitektur Cina Di Pecinan Pasar Lama Tangerang', *Vitruvian*, 8(1), p. 49. doi: 10.22441/vitruvian.2018.v8i1.006.
- Knapp, R. G., Spence, J. and Ong, A. C. (2006) *Chinese Houses: The Architectural Heritage of a Nation*. Tuttle Publishing. Available at: <https://books.google.co.id/books?id=ADgG6teUdcwC>.
- Kumala, T. (2017) 'Karakteristik Pencahayaan Alami dan Kesesuaiannya terhadap Standar Rumah Sehat pada Non-engineered Houses di Daerah Perkotaan', *PROSIDING SCAN*, 8("EDUCATION...PUTTING ECO-DNA IN OUR KIDS"), pp. 207–217.
- Lai, P. Y. *et al.* (2019) 'Spatial differentiation of heritage trees in the rapidly-urbanizing city of Shenzhen, China', *Landscape and Urban Planning*, 181, pp. 148–156. doi: 10.1016/j.landurbplan.2018.09.017.
- Lip, E. (2010) *All You Need To Know about Feng Shui*. reprinted. Edited by L. M. Lin. New Industrial Road, Singapore: Marshall Cavendish Editions.
- Mohamed, S. A., Harun, N. Z. and Abdullah, A. (2017) 'Typo-morphology as an approach for the conservation of the early Malay towns', *Asian Journal of Environment, History and Heritage*, 1(2), pp. 143–154.
- Moneo, R. (1978) 'On Typology', *Oppositions* 13, pp. 23–45.
- Rachmawati, E. (2009) *STASIUN KERETA API KOTABARU MALANG ( TINJAUAN BERDASARKAN KARAKTERISTIK DAN FAKTOR-FAKTOR YANG MEMPENGARUHI ARSITEKTUR BANGUNANNYA)*. Universitas Gadjah Mada Yogyakarta.
- Rangkuty, G. I. U. and Widyastuti, D. T. (2019) 'Tipologi Arsitektur Fasad Bangunan Pecinan Melayu Kasus: Jalan Perniagaan Kampung Cina Melayu Bagansiapiapi, Rokan Hilir,Riau', *Talenta Conference Series: Energy and Engineering (EE)*, 2(1). doi: 10.32734/ee.v2i1.413.
- Ronald G Knapp (2010) 'Chinese Houses of Southeast Asia.'
- Sari, P. A. D. P. (2021) 'TRANSFORMASI ARSITEKTUR RUMAH TOKO (SHOPHOUSE) KAWASAN PECINAN KOTA LAMA JALAN GAJAH MADA DENPASAR', 4, pp. 269–280.
- Shamsuddin, S., Sulaiman, A. B. and Amat, R. C. (2012) 'Urban Landscape Factors That Influenced the Character of George Town, Penang Unesco World Heritage Site', *Procedia - Social and Behavioral Sciences*, 50(July), pp. 238–253. doi: 10.1016/j.sbspro.2012.08.031.
- Zhang, D. (2018) 'Cultural Symbols in Chinese Architecture 2 . Yin Yang Symbol in Chinese Culture', 1(May), pp. 1–19. doi: 10.18282/adr.v1i1.556.