

# THE INFLUENTIAL FACTORS OF THE HERITAGE SHOPHOUSES' ARCHITECTURAL DESIGN IN URBAN HISTORIC DISTRICTS IN MALAYSIA: A REVIEW

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## ABSTRACT

*Heritage shophouses are the primary architectural legacy that has greatly characterised the place identity of the urban historic district in Malaysia since the 17th century through its distinctive architectural design character. In contrast to the modern building design that is seen as contextually isolated from the place identity of the urban historic district, the architectural identity of heritage shophouses is seen as successful in fitting into the place identity due to its significantly responsive architectural identity to contextual factors. This paper aims to systematically review the influential factors on the Malaysian heritage shophouse design which constitutes its architectural identity through content analysis. This paper extracts scholars' studies on heritage shophouse architectural design features, heritage shophouse morpho-typologies, and the factors that influence its architectural identity development. Heritage shophouses in Malaysia are morphologically categorized into Early Heritage Shophouse styles, Eclectic Heritage Shophouses, and Non-Cultural Heritage Shophouse styles. Regardless of their architectural styles, all heritage shophouses are characterized by the façade articulation, the interior design including the spatial organization*



*system, and the building construction materials. Every element is primarily influenced by the tropical topographical climates and material sources as a basic architectural adaptation, the building development standards set by the colonial regimes, cultural assimilation, and the advancement of building construction and materials. The findings of this study can help architects how to prioritize design considerations in developing their new architectural intervention design ideas in the urban historic district to preserve its valuable historical characteristics.*

**Keywords:** *Heritage shophouses, Architectural design factors, Urban place identity*

## **INTRODUCTION**

The urban historical district is one place that possesses a strong character and urban identity. Urban identity is a collective of characteristics in an urban place that shows continuity and distinctiveness qualities (Ujang, 2012) which is also described as a “genius loci” by Schulz (1979). In Malaysia, people usually refer to George Town and Malacca’s old commercial areas as urban historical districts with strong urban identity due to their outstanding value of cultural heritage. Shamsuddin (2011) suggests that the place identity in the urban historic districts is constituted by tangible and intangible elements. The tangible elements include architectural heritages, traditional streets pattern, urban spaces like an urban square, the ‘Padang’, landscapes, and spaces between buildings. Meanwhile, the intangible elements are unphysical things that characterize the urban identity which comprises people’s activities and the place meanings that are shaped by peoples’ beliefs and perceptions of the historic components (Shamsuddin, 2011) or environmental experiences (Ujang, 2012). However, the intangible elements’ attributes are always manifested through the symbols in the tangible elements of the place. On top of that, Ujang (2012) argues that Malaysian cities are the architectural manifestation of multicultural layers over time.

Among the elements, Shamsuddin (2011) suggests that architectural heritage is seen as the main element constituting the urban historic district. It characterizes the urban historic district through spatial and visual attributes

(Soosani, 2013; Semes, 2009; Ismail & Shamsuddin, 2005). The heritage shophouse in Malaysian urban historic districts is considered the main architectural heritage that significantly characterizes its place. The heritage shophouses' building organization is set in the form of clusters complete with identical architectural features reflecting its community's lifestyle (Ali et al., 2015; Elnokaly & Wong, 2015; Chiong, 2014). On top of that, its architectural character also is very responsive to its context which is successfully associated with and strengthens the identity of the place. In other words, the local context significantly influences heritage shophouses' design. Although many heritage shophouse styles morphologically developed over time in urban historic districts, their architectural design juxtaposition is found harmoniously fit to each other and constitutes a unique townscape and urban identity.

Today, most modern buildings' design focus on individual identity and create a sense of placelessness which isolate them from the place's character and result deterioration of the urban identity (Lambe & Dongre, 2016; Shamsuddin, 2011). Thus, to preserve the urban identity, it is good if modern architects learn from the heritage shophouses' design. There are many studies done regarding the heritage shophouse design which would be a good reference to responsively design a modern building in the historic urban district. Therefore, this paper aims to make a systematic review of the studies of the factors that influence Malaysian heritage shophouses' design that contributes to its architectural identity constitution.



**Figure 1. George Town Historic District Aerial View**

(Source: Tan, 2015)

# METHODOLOGY

A literature review is conducted over the published online databases and books focusing on heritage shophouse design in Malaysia. The relevant materials are identified using the keywords; heritage shophouse, traditional shophouse, and Malaysian traditional architecture. The study explores the architectural features of heritage shophouses, the typologies of heritage shophouses, and the factors that influence their architectural development. Using the content analysis method, the study process is carried out in 3 stages. In stage 1, the relevant literature is identified and reviewed to get an overview of the research topic. Next, in stage 2, the reviewed contents are categorised and organised in table form according to the sub-topic and research questions set. Lastly, in stage 3, the evidence for each category is extracted and analysed toward finding the factors that influence the architectural design of heritage shophouses. The study's objective is to expand the understanding and illustrate the breadth of knowledge available on the architectural design of heritage shophouses and how it responds to the surrounding context to constitute its architectural identity in the urban historic districts.

What is heritage shophouse (HSH)?	
<p><b>The authors &amp; the article's title</b></p> <p>Tan, Y. W. (2015) Penang Shophouses: A Handbook of features and materials: Tan Yeow</p> <p>Wool culture &amp; heritage research studio. 1st ed. Penang, Malaysia: Phoenix Press Sdn Bhd</p>	<ul style="list-style-type: none"> <li>SH is the <b>urban building type/ form with multiple functions</b> such as residential, commercial, or mixed use. Historically, it usually arranged with a shop or business premises on the ground floor which often is a family business, whilst on the upper floor is on the upper floor, thus providing convenience, shelter, and security. P1</li> <li>Normally, it <b>built in a rows or terraces</b> with <b>interconnected 5-footway at the front</b>, with each house <b>sharing side party walls</b> with its neighbours. Usually, it has <b>2-3 storey high with narrow front width</b> and deep <b>longitudinal rear</b>. P1</li> <li>Each SH <b>reflecting the introduction of new technologies and the influences of global architectural traditions, fashion, building techniques over a different time period</b>. Therefore, it contributes significantly to the special character of the historic city. P6</li> </ul>
<p><b>The points extracted &amp; the page reference from every article</b></p> <p>Khoo, S. N., &amp; Berbar, H. (2009). Heritage houses of Penang.</p>	<ul style="list-style-type: none"> <li>the SH is perhaps <b>the most common urban form in Southeast Asia</b>, where many early commercial towns were <b>characterized by a grid iron of streets</b> outlining blocks of SHs. P54</li> <li>SHs are strongly <b>associated with Chinese traders and shopkeepers</b>. In fact, the originated from the Hokkien term "tanchehu" meaning <b>shop and house</b>. This is a building which <b>combines the functions of house and shop</b>. Long, narrow shophouses are built in a row, with building fronts running up to the property line to optimise valuable commercial frontage and sharing the party walls to economise on space and building materials. Shophouse rows create streets; such streets sprang up along the waterfront and marketplace of the early commercial town to <b>take advantage of emerging business opportunities</b>. P56-57</li> <li>SH is one of the <b>traditional Chinese house types in Malaysia</b> and the surrounding regions including Indonesia, Singapore, and Thailand. It also known as the attached house, rowhouse, and terrace house as it being attached to one another. P21</li> <li>The floor plan, elevation and ornamentation of the building <b>reflect their desire to follow the house type in Southern China</b>. The people tradition and values were translated into a physical form as they settled into the Malayan environment. P21</li> <li>Normally in SH, the Chinese have a <b>family-operated business</b> where family lived upstairs and help the shop downstairs. P21</li> <li>The SH first appearance in Melaka during the Dust occupation. P22</li> </ul>
<p><b>The summary of all extracted points</b></p>	<p><b>Summary</b></p> <ul style="list-style-type: none"> <li>A heritage shophouse or a vernacular shop-house is the main architectural heritage type that spread and dominated the major towns in South Asia, especially Malaysian old towns before World War II</li> <li>mixed-use residential and business programs built in the elongated form towards the back</li> <li>also known as a long row of queer little Malay and Chinese cottages, row house, terrace house, and attached house as it is attached and linked to one another in one row via 5-footways</li> </ul>

Figure 2. The Sample of Content Analysis Table

Source: Author

## FINDING AND DISCUSSION

This section covers the findings and discussion on the heritage shophouse background, its typical architectural design features, the heritage shophouse styles, and the factors that influence their architectural design.

### What is a Heritage Shophouse?



**Figure 3. Heritage Shophouses in Kuala Lumpur**

(Source: Author)

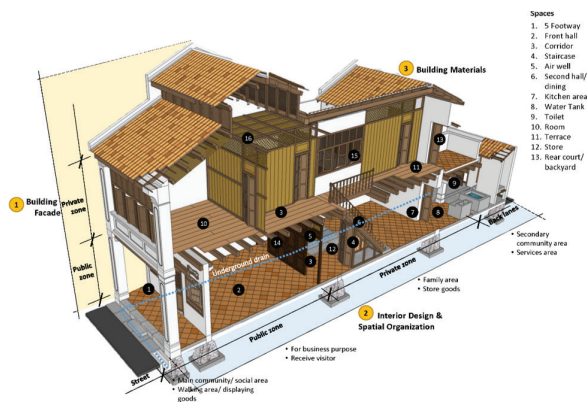
A heritage shophouse or a vernacular shop-house is the main architectural heritage type that spread and dominated the major towns in South Asia, especially Malaysian old towns before World War II (Ali et al., 2015; Shamsuddin, 2011; Khoo & Berbar, 2009; Sabah & Abdul Samad, 2009; Chen, 2007; Ismail & Shamsuddin, 2005). As recorded by Chiong (2014) and Shamsuddin (2011), in Malaysia, heritage shophouses can be found in many urban historic districts like Malacca, Kuala Lumpur, George Town, Johor Bahru, Muar, Batu Pahat, Alor Setar, Ipoh, Taiping, Kuala Terengganu, Kuantan, and Kuching. It is also known as “Rumah kedai” in the Malay language (Zwain & Bahauddin, 2021; Ng, 2020) and “Tiamchhu” in the Hookean term (Khoo & Berbar, 2009). It is a building type with mixed-use residential and business programs built in the elongated form towards the back (Tan, 2015; Chen, 2007). On the other hand, a heritage shophouse is also known as a long row of queer little Malay and Chinese cottages, row house, terrace house, and attached house as it is attached and linked to one another in one row via 5-footways (Tan, 2015; Shamsuddin, 2011; Ismail, 2005; Ismail & Shamsuddin, 2005). Although the terminology of “shop and house” has been used by Francis Light in 1793, it was officially applied in the 1946 Annual Report on Singapore (Savage, 2001).



Ismail (2005) and Khoo & Berbar (2009) also suggested that the heritage shophouse is one of the Chinese traditional house types that is strongly associated with Chinese traders who took the business advantages in the town. The Chinese immigrants brought the building style of their homeland to the Malay states and assimilated with the environmental particulars, local culture, and colonial regulation that morphed to create a truly unique vernacular architecture (Wagner, 2017, Elnokaly & Wong, 2015, Hashim & Ghafar, 2005). The heritage shophouse was initially a single-storey building, then it evolved and known as a building with archetypal 2 - 3 stories with mixed-multifunction programs where the traders and their families lived and run their businesses together (Ali et al., 2005; Tan, 2015; Davison & Invernizzi, 2010; Khoo & Berbar, 2009; Chen, 2007). In multi-story heritage shophouses, the business area is located at the ground floor whilst the family accommodation area is located on the upper floors (Sabah & Abdul Samad, 2016; Malaysia, 2009; Chen, 2007). However, the zones are divided horizontally for a single-story heritage shophouse where the business area is located at the front and the family area is at the rear of the house.

## Heritage Shophouse's Typical Architectural Features

Regardless of the heritage shophouse styles, common architectural design features are applied in all heritage shophouses in Malaysia that set their typical architectural identity in urban heritage districts (Chen, 2007; Ng, 2020).



**Figure 4. Heritage Shophouse Typical Features Summary**

(Source: Author)

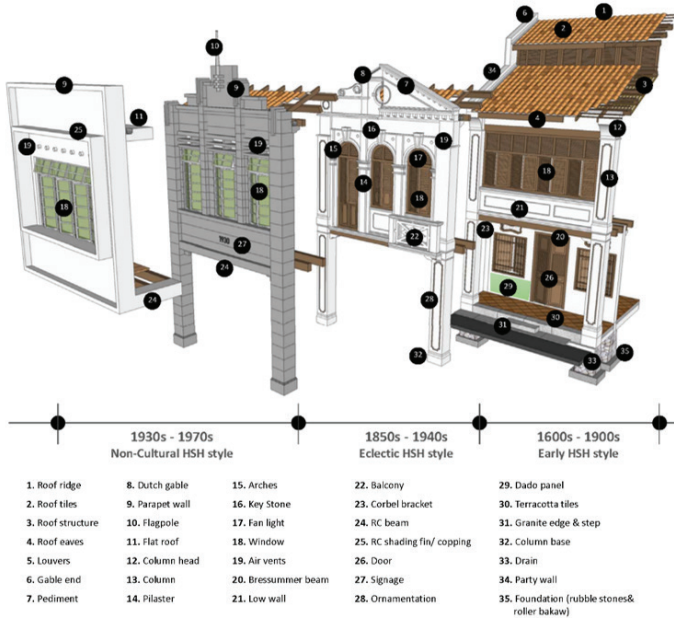
Figure 4 summarises the typical architectural features of a heritage shophouse in a Malaysian urban historic district. The heritage shophouse architectural features can be described through 3 main sections: the façade, interior design as well as its spatial organization, and building materials. Tan (2015), Davison & Invernizzi (2010), and Chen (2007) described heritage shophouses are normally built with a narrow rectangular floor plan or narrow frontage which is around 6 - 7 meters wide and 30 meters deep. Chen (2007) added that sometimes the depth of the shophouses could reach 60 meters. It is due to the colonial authority's taxation approach, which is based on the width of the premise lot (Davison & Invernizzi, 2010). Physically, the heritage shophouses are organized side by side, forming a linear organization composition and attached by a sharing party wall between shophouse units (Tan, 2015; Davison & Invernizzi, 2010; Chen, 2007). Then, the rows of shophouses are organized in a grid-iron pattern of the streets where the shophouses' main façade is facing the main road to optimize the valuable commercial frontage in taking advantage of the business opportunities in the town (Ismail, 2015; Khoo, 2009).

## The Heritage Shophouses Facade

The front façade is one of the iconic architectural features of heritage shophouses design in Malaysia which is rhythmically articulated by a 5-foot walkway and the recessed ground floor front wall, an upper floor façade, and the roof. Tan (2015), and Tan & Fujita (2014) emphasized that the front façade is the most important part of the heritage shophouse design as it can be perceived from the street view. Ismail & Ching (2016) added that design attention is given to the front façade design due to its location as a space for formal and trading activities and to show the wealth of the premise owner. Moreover, the heritage shophouses' style is also determined by the front façade design (Tan, 2015).

On the ground floor level, there is a 5-footway which is a public covered walkway in the front area of the heritage shophouses that faces the main street to link all premises in a row (Ng, 2020; Tan, 2015; Khoo & Berbar, 2009). Its external wall is shifted backwards from the street line creating a walkway sheltered by upper-floor structures (Sabah & Abdul Samad, 2016; Khoo & Berbar, 2009; Chen, 2007). The 5-footway is also called a "kaki lima" (Ng, 2020), verandah way (Ismail & Shamsuddin 2005),

covered arcaded way, and sidewalk way (Ismail, 2005) where it allows people to walk and browse the items in the shops and sheltered from the rain and the heat of the sun simultaneously (Shamsuddin, 2011). The idea of a 5-foot walkway was introduced by Stamford Raffles in Singapore in 1822 and later applied in Malaya Straits Settlements' towns (Awang & Denan, 2017; Shamsuddin, 2011; Khoo & Berbar, 2009; Ismail, 2005). Thus, it is considered an architectural design innovation of the colonial power to architecturally adapt to the local environmental condition (Hashim & Ghafar, 2005). Nevertheless, the width range of the 5-footways is 5-7 feet (Davison & Invernizzi, 2010; Chen, 2007). In addition, the main entrance, openings, signage, and wall finishes in the external wall are articulated symmetrically as a response to the feng shui requirements (Ismail, 2005).



**Figure 5. Heritage Shophouses Façade Design Variation Summary**  
(Source: Author)

Normally, the facade articulation is enriched at the top floor facade by a series of shuttered windows, air vents, cultural-based decoration motifs and details, popped-up pilasters and other structures, and parapet or gable walls. The wall area is minimised, and the shuttered windows application is optimized which is either composed in a continuous full-width window



composition or a tripartite composition with a door height size (Tan, 2015). In the early version of the heritage shophouse, the openings in the wall mainly are shuttered windows with less cultural-based decorations as it is just a response to the local climate (Ismail, 2005). Then, as time goes by, the air vents and other architectural detailing and ornamentation are added due to the cultural influences, and the building construction technology development (Tan, 2015; Chen, 2007). There are ornamentations on walls that are mainly influenced by Chinese cultural motifs intertwined with other cultures' motifs including European classical and Malay Motifs due to the interest of Chinese people toward the western styles and assimilation to the local Malay cultures (Tan, 2015; Ismail, 2005). Ali & Ahmad (2020), Zwain & Bahaiddin (2017), and Teuling (2010) highlight the intricate ornamentation expression on the front façade is also due to the purpose of the owner to show off their wealth and status in their community. The more intricate the ornamentation, the wealthier the owner.

Tan (2015) and Chen (2007) explained that the roof design of heritage shophouses is mainly a pitched roof at the front and a flat roof that shelters the rear part of the house. Besides that, the roof design is also complemented by many cultural-based architectural ornaments and detailing to enrich its architectural character, especially at the gable, gable ends and roof ridge (Tan, 2015). Initially, the roof design is exposed which can be perceived from the street level, but then it has been hidden by a parapet or gable wall for decoration expansion or advertisement, or signage placement. As highlighted by Chen (2007), and Chun et al. (2005) that the usage of parapet or gable walls together with other western elements in façade design is more popular in Federated Malay States' towns than in Straits Settlement's towns which are much more alike the European architecture. Therefore, all façade elements of the heritage shophouses are composed by responding to the local climate conditions, socio-culture, regulations set, construction technology, and building materials.

## **The Interior Design and Spatial Organization**

Next, the heritage shophouse architectural identity also can be perceived through the interior design including the spatial organization system, and the air well. Although Ismail & Ching (2016), Chen (2007), and Chun et al. (2005) argued the elongated form of the heritage shophouse



layout is governed by the urban grid and streets pattern to meet the development regulations, Zwain & Bahauddin (2020) emphasized that the interior design features are significantly influenced by the cultures. The spatial organization system in heritage shophouses is based on privacy preference, which is very synonym with the Asian culture, especially the Chinese where the business and accommodation area are segregated either horizontally via internal partitions or vertically via floor level (Teuling, 2010; Ismail, 2005). In single-story heritage shophouses, the front area is for commercial or business activities whilst the rear part of the house is the family area (George Town World Heritage Incorporated, 2017). Meanwhile, in the multi-stories heritage shophouses, the zoning system is organized vertically where the business activities are mainly conducted at the ground floor level while the accommodation or family living area is on the upper floor (Zwain & Bahauddin, 2021; Harding, 2018; Han & Beisi, 2015; Chen, 2007). Following this, the spaces provided in the heritage shophouse usually are the main hall to receive a visitor or to run businesses, a small courtyard, an informal living area, a dining area, a kitchen, a toilet, and bedrooms (Zwain & Bahauddin, 2020; Khoo & Berbar, 2009; Chen, 2007; Ismail, 2005). Savage (2001) exemplified the type of business run in heritage shophouses including lodgings, retail, wholesales, offices, storage, tea and coffee houses, prostitution, and pawnshops, some of them still in operation to this day.

Furthermore, Zwain & Bahauddin (2021) emphasized the air well is one of the important elements in internal spatial organization and design. The uniqueness of this space lies in its design influences and functions. The design of the courtyard is based on Chinese culture and the belief that it is to bring luck, wealth, and health into the house. It is a transition space between the business and accommodation area and at the same time provides natural ventilation and lighting into the house for 'chi energy' flow as well as to collect rainwater to be drained off to the street (Zwain & Bahauddin, 2020; Zwain & Bahauddin, 2018; Tan, 2015; Khoo & Berbar, 2009). In addition, the location of the courtyard between the heritage shophouses in the Federated Malay States and the Straits Settlements is different where the Federated Malay States' shophouses courtyard is located at the sideway, while the Strait Settlements' shophouses courtyard is at the centre (Ng, 2020; Zwain & Bahauddin, 2017). Next, at the rear of the premise, there is a rear court, kitchen, and storage bounded and connected to the back lanes

(Singapore Urban Redevelopment Authority, 2022; Wagner, 2017; Chun et al., 2005). However, this area is considered less important and receives less conservation attention even though it contributes to the development of the shophouse's daily and socio-culture activities which is prone to a big alteration (Ismail & Ching, 2016). In addition, unlike the front façade which morphologically transforms over time, the floor layout remains almost unchanged or just has a very minimal alteration due to the people's activities in the premise remaining the same and governed by the urban layout pattern (Awang & Denan, 2017; Tan & Fujita, 2014; Chun et al., 2005; Hashim & Ghafar, 2005; Fels, 1994).

### **Heritage Shophouses Building Construction Material**

Lastly, the selection of building construction materials is also significant to heritage shophouse architectural identity development, which is influenced by the tropical climate, the regulations set, and the building construction technology. Dai & Zhou (2019), Chen (2007), and Ismail & Shamsuddin (2005) highlighted that historically, heritage shophouses construction started with timber construction due to material availability. Then, the building materials changed to masonry-based construction type due to the safety and health solution through new regulations upon big tragedies occurred like big fires, floods, and diseases in many British governed towns including Singapore 1880 to 1890 (Khoo & Berbar, 2009; Chen, 2007; Ismail, 2005; Chun et al., 2005). In addition, there were also other guidelines set together including the guidelines for town roads and sanitary, 5-foot walkways, and party walls (Chen, 2007, Ismail & Shamsuddin, 2005, Savage, 2001).

Generally, Tan (2015) and Tan & Fujita (2014) described the plastered clay brick and cement brick as mainly applied for party walls and external walls through a load-bearing construction system whilst the clay tiles panels application is a roof finish. Then, it is finished with either normal paint, or ornamented by a mural, stuccoworks, and decorated tiles or dado panels. Besides that, George Town World Heritage Incorporated (2017) and Tan (2015) added that masonry materials are also applied in other places such as the roof ridge, pilasters, column head, and parapet walls. Furthermore, timber materials are commonly used for upper flooring structures, the bressummer beam, internal wall partitions, staircases, roofing components,



doors, windows, and decorations which are suitable for tropical climate conditions (Singapore Urban Redevelopment Authority, 2022; Zwain & Bahauddin, 2018; Tan, 2015). Then, starting around 1910 concrete and rolled steel are introduced which affected the heritage shophouses' height and their structural span (Baroldin, & Din 2018; Tan, 2015; Teuling, 2010). Wegner (2017), Tan (2015), Teuling (2010), and Hashim & Ghafar (2005) described the concrete application is to reduce the use of timber and lime mortar as well as increase the climatic response that is applied in the ground floor structure, air vent fabrication, horizontal structures, and architectural decorations. The introduction of new finishing materials for building façades also affected the appearance and architectural style of heritage shophouses which include the glasses, grilles, Shanghai plaster, and mosaic (Ng, 2020; Tan, 2015).

Figure 6 summarises 5 main influential factors in the heritage shophouse architectural design development which include the tropical climate, socio-culture, building construction technology and material resources, building development standards, and urban design. It is also understandable that these 5 factors are considered the most in the heritage shophouses design. These factors impact the heritage shophouses' façade and roof design, spatial organization and environment setting as well as the structural components. Among the main factors, the socio-culture is the most influential factor that significantly affects heritage shophouse architectural design development and follows by the building construction technology and material resources as well as the tropical climate. These 3 factors influence the heritage shophouses' design almost in all levels of detail which is from the formal attributes to the small components in the building. This finding is parallel to the idea by Ismail (2018) and Torabi & Brahman (2013) that architectural identity is the manifestation of how people live and their responses to local regionalism character. The manifestation of socio-culture mostly can be found in the building façade and roof design which could be perceived and experienced by people from the street view. Furthermore, the development of technology in building construction and the availability of the materials impact the heritage shophouse's building height, flooring numbers, mass, and visual attributes such as the building façade and roof. The introduction of masonry-based and steel construction methods makes the building form and structure span wider and taller. On top of that, the articulation of the building façade also became more complex

which was in line with the preferences of people at that time. To continue, the building development standards and urban design only influence the formal attributes of heritage shophouses such as the main types of building materials to be used in the construction, the general shape, organization, and orientation of the heritage shophouses’, and the application of 5-footways.

Heritage shophouses' architectural elements		Sub-factors	
Heritage shophouses' architectural elements	Structural components	Factors	Sub-factors
	Spatial organization & environment setting	Factors	Sub-factors
Finishes	/ / /	Tropical climate	Ventilation
Roofing	/ / /	Tropical climate	Sunlight & heat
Floor numbers	/ / /	Tropical climate	Heavy rain
Staircase	/ / /	Socio-culture	Religion & belief
Flooring	/ / /	Socio-culture	Tradition & lifestyle
Openings	/ / /	Socio-culture	Economic activities
Main structures	/ / /	Socio-culture	Architectural styles
Internal walls & partitions	/ / /	Socio-culture	Clays
External walls	/ / /	Socio-culture	limes
Party wall	/ / /	Socio-culture	Timbers
Back & side lanes	/ / /	Socio-culture	Cement & Concrete
Internal partitions	/ / /	Socio-culture	Glazing/ glasses
Courtyard/ Air well	/ / /	Socio-culture	Steels
Accommodation area	/ / /	Socio-culture	Stones
Business area	/ / /	Socio-culture	Paint & chemical
External spatial composition	/ / /	Socio-culture	Ceramic/ porcelain
Internal Zoning/ spatial organization	/ / /	Socio-culture	Taxation
Façade finishes	/ / /	Socio-culture	Fire fighting
Parapet wall & pediment	/ / /	Socio-culture	Health & safety
Roof gable & gable end	/ / /	Socio-culture	Services
Roofing	/ / /	Socio-culture	Tropical climate
Balcony	/ / /	Socio-culture	Grind iron pattern
Horizontal structures	/ / /	Socio-culture	Compact land-use
Vertical structures	/ / /	Socio-culture	Street pattern
Signage	/ / /	Socio-culture	
Ornamentation & detailing	/ / /	Socio-culture	
Air vents & lattices	/ / /	Socio-culture	
Windows	/ / /	Socio-culture	
Doors	/ / /	Socio-culture	
External walls	/ / /	Socio-culture	
5-foot walkways	/ / /	Socio-culture	
		Building's construction technology & material resources	
		Building development standard	
		Urban design	

Figure 6. The Summary of the Influence Factors in Heritage Shophouse Architectural Design

(Source: Author)



Next, analysing from the other angle of view, the most responsive part of the heritage shophouse is the building facade and roof. Thus, it matches many scholarly ideas where the building facade is the main part of the building to manifest the architectural ideation which resulted from the context responses. It is mainly influenced by socio-culture, building construction technology as well as material resources, and tropical climates. As explained in the previous section, the heritage shophouse façade design initiated with a simple design and less decoration due to the simple building design responses to the local topographical character and the limitation of the material availability. Then, it developed and became more complicated due to the impact of people's activities and lifestyles, social culture assimilation, and the introduction of new architectural styles and construction materials over time. Next, the spatial organization and environmental setting especially in the internal part of the heritage shophouse also significantly influenced by the socio-culture factor besides responding to the tropical climate and urban design. However, it received less impact from the development of building construction technology which makes the layout remains almost unchanged. Generally, the heritage shophouses' main building materials are clay, lime, and timber which are available in the local places and are applied in almost all parts of the building. It is also influenced by the building development standard set by the colonial government to overcome the fire hazardous, health, and safety issues in their time. Then cement, concrete, steel, and glazes are introduced to replace those previous materials in building construction to show technological advancement and cultural assimilation symbols expression, especially on the building facade.

## **Heritage Shophouse Styles**

The study also makes a comparison with the architectural style evolution of heritage shophouses' facades in Malaysia. It is because this is the most affected part by the changes of the context factors over time as well as the place for the owner to express their identity and status (Ali & Ahmad, 2020; Chiong, 2014; Li, 2007). Then, this situation created many heritage shophouse styles that developed morphologically over time (Wegner, 2017). Figure 7 summarises the heritage shophouses styles in the old towns of Straits Settlements and the Federated Malay States that were studied the most by previous scholars. Malaysian urban heritage districts own many collections of heritage shophouse styles that are morphologically developed

over time. The morphological transformation of heritage shophouses' style is due to its design adaptation toward the influential context factors changes over time (Ng, 2020; Zwain & Bahauddin, 2017). There are many heritage shophouse styles, but they can be grouped into 3 main categories including the Early Heritage Shophouse styles, the Eclectic Heritage Shophouse styles, and the Non-Cultural Heritage Shophouse styles.

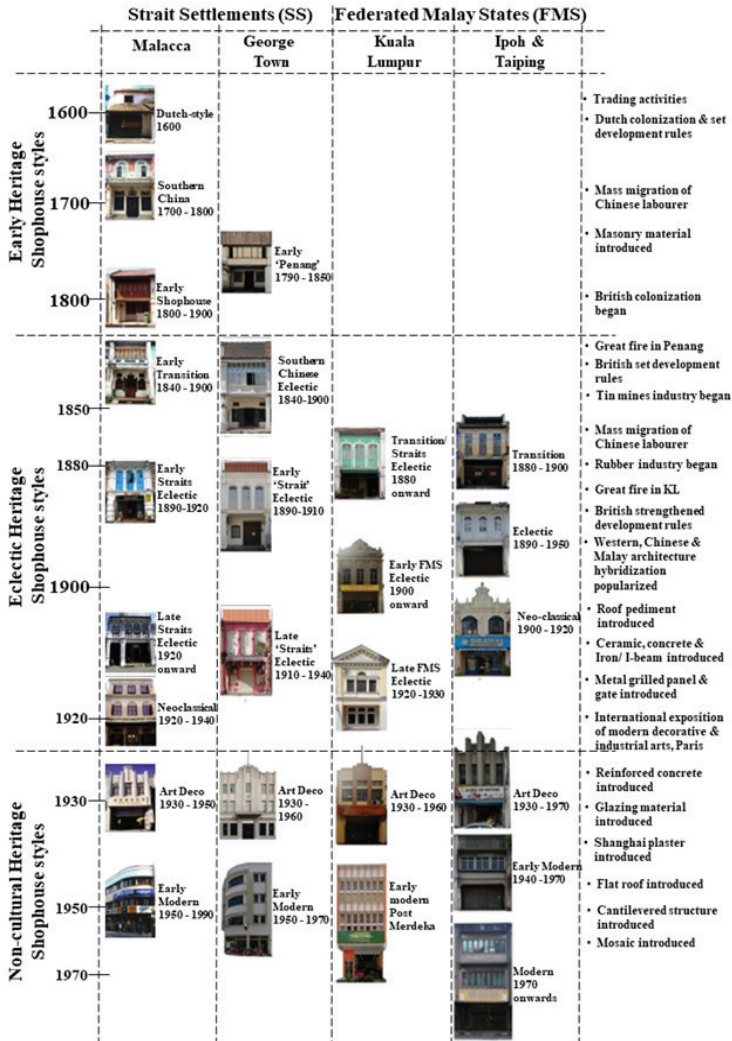


Figure 7. The Summary of Heritage Shophouses' Morphological Architectural Styles in Malaysia

## **The Early Heritage Shophouse Styles**

Historically, heritage shophouses were built much earlier in the Straits Settlements than in the Federated Malay States and other places (Ng, 2020; Malaysia, 2009). The early heritage shophouse styles category comprises the Dutch shophouse style, the Southern China shophouse style, and the Early shophouses of Malacca and Georgetown. The earliest shophouse in Malaysia was built by the Chinese traders in Malacca around the 1600s even before the Dutch colonization that came for maritime trading activities (Weebers et al., 2015; Teuling, 2010; Malaysia, 2009; Chun et al., 2005). Then, in George Town, the construction of the heritage shophouse started in the 1790s (George Town World Heritage Incorporated, 2017; Tan, 2015). Baroldin & Din (2018), Tan (2015) and Weebers et al. (2015) explained that the architectural design of the early heritage shophouses in both Straits Settlements is simple. They are built at a modest height which is either in a single or 2 stories floor level as well as having a symmetrical fenestration and a porch or 5-footways at the front. The plastered brick wall, lime mortar, timber-based framing, openings, and roof structures as well as interlocking roof clay tiles are the main building materials. Furthermore, Teuling (2010) added that the application of more feng shui principles and Chinese ornamentations started around the 1700s in the Southern China shophouse style due to more Chinese migration into the lands. Other than that, the building program started with only residential and later around the 1700s commercial was added.

## **The Eclectic Heritage Shophouse Styles**

Then, during British colonization, the design of heritage shophouses continued to evolve to the eclectic shophouse styles because of the introduction of new building by-laws to improve safety and health issues, the introduction of western architecture styles and the mass migration of the Chinese labour to the towns for business and job opportunities (Ng, 2020; Zwain & Bahaudin, 2018; Tan, 2015; Chen, 2007; Ismail, 2005). On top of that, Chiong (2014) and Ismail (2005) highlighted the transformation of heritage shophouses' design, especially at the front façade as the result of the improvement in living standards and wealth of the middle-class citizen group around the 1900s. It is the way the community in expressing its cultural identity and celebrates the eclecticism and hybridity with others in



the pluralistic Malayan milieu. In the Eclectic Shophouse Styles category, the heritage shophouse design especially the building façade became more complex due to the morphological hybridization of the Chinese, Western and Malay cultures (Ng, 2020; Zwain & Bahauddin, 2017; Elnokaly & Wong; 2015). Mamat & Aziz (2020), Zwain & Bahauddin (2020), Tan (2015) and Chiong (2014) described that Chinese culture and beliefs are the main influence on the façade that has been applied in ornamentations and signs, symmetrical composition, column head, roof ridge and gable end which represent the prayer for luck, fortunes, and prosperity. Next, windows and shutters, timber materials use, roofing, carvings, and the verandah way are influenced by Malay architecture which is the way to adapt to tropical climates. Then, the western architectural elements such as the pediment, parapet wall, French window, tripartite windows composition, keystone, and pilasters represent the grandeur, status, and power. In Malacca, the heritage shophouse styles under this category are including the Early Transition Shophouse, the Early Straits Eclectic Shophouse, the Late Straits Eclectic Shophouse, and the Neo-Classical Shophouse (Baroldin & Din, 2012; Teuling, 2010; Malaysia, 2009). While in George Town, there is the Southern Chinese Eclectic Shophouse, the Early Straits Eclectic Shophouse and the Late Straits Eclectic Shophouse (George Town World Heritage Incorporated, 2017; Tan, 2015; Malaysia, 2009). Furthermore, during this period, the development of heritage shophouses also flourished in the Federated Malay States' main towns such as Kuala Lumpur, Ipoh, and Taiping due to the mines and rubber industries activity (Harding, 2018; Ali et al., 2015; Chen, 2007). In Kuala Lumpur, there are the Straits Eclectic Shophouse, the Early FMS Shophouse and the Late FMS Shophouse (Ng, 2020; Chun et al, 2005). While in Ipoh, there are the Transitional Shophouse, the Eclectic Shophouse and the Neo-Classical Shophouse (Ali et al., 2015).

## The Non-cultural Heritage Shophouse Styles

Lastly, the Non-Cultural Heritage Shophouse style is comprising the Art Deco Shophouses style and the Early Modern Shophouse style. Even though this category is included in the heritage shophouses category, Ali & Ahmad (2020) and Elnokaly & Wong (2015) considered it non-cultural heritage shophouses because many cultural-based elements have been removed. Chen (2007) recorded that around the 1930s, the Art Deco Shophouse style took place in all Malaysian old towns and continued with



the Early Modern Shophouse style after Malaysia's independence. Tan (2015), Chen (2007) and Li (2007) explained the Art Deco architectural style can be considered a precursor to the Modernism architectural style which was the impact of the International Exposition of Modern Decorative and Industrial Art in Paris in the 1925s. Other than a heritage shophouse, this architectural style also influenced other buildings' designs including the institution buildings, villas, and monuments. In the Art Deco architectural style, all cultural ornamentations are removed and replaced with clean surfaces with Shanghai plaster, emphasizing geometrical and parallel vertical and horizontal lines elements, stepped parapet wall and a coloured glass window with steel frames (Ng, 2020; Ali et al., 2015; Tan, 2015; Chen, 2007). Furthermore Tan (2015) and Chen (2007) observed that in some Art Deco buildings, a flagpole with a simple ornamental motif, the signage of the year built, and the business name are added. Next, from the impact of the international modernism movement, the Early Modern Shophouse style offered simpler architectural design features by emphasizing the rectilinear form, free ornamentation, and new construction materials application which constructed only for functional reasons (Baroldin & Din, 2018; Tan, 2015; Teuling, 2010).

## **CONCLUSION**

The heritage shophouse is the main type of architectural heritage that significantly characterises the urban historic district in Malaysian through its strong architectural identity. Unlike the modern building design that is seen contextually isolated from the urban historic district, the heritage shophouses' design is considered successful in intertwined with the place identity due to its architectural identity that significantly responds to the context influence factors. The contextual factors that influence the heritage shophouses' architectural design are including the tropical climate, which is also a basic consideration in architectural design, the socio-culture of the place as the major factor, building construction as well as material resources, building development standards, and the urban design. Furthermore, the architectural adaptation of heritage shophouses design to the context factors has morphologically created various heritage shophouses styles that can be classified into the Early Heritage Shophouse styles, the Eclectic Heritage Shophouse styles, and the Non-Cultural Heritage Shophouse styles. The

findings of this study could help the designer to prioritise the factors that influence or to be considered in designing new architecture in the urban historic district to smoothly intertwine into the urban fabric and preserve its valuable historical character.

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## AUTHORS' CONTRIBUTION

All authors have contributed to the design of the research. The data collection and analysis were undertaken by the researcher. All authors have read and approved the final manuscript.

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## CONFLICT OF INTEREST DECLARATION

The authors declare no potential conflict of interest in this research.

## REFERENCES

- Wan Ali, W. N., Abdul Hadi, N.H., Ishak, N. R. (2015, October 7-8). An overview on the typology of shophouses' façade at the heritage area in Ipoh City. *Postgraduate Conference on Global Green Issues (Go Green)*, UiTM (Perak), Malaysia
- Ali, W. N. W., & Ahmad, A. G. (2020). Taxonomy of Traditional and Modern Architectural Styles of Heritage Shophouse Facade at Ipoh, Perak, Malaysia. *International Journal of Academic Research in Business and*



*Social Sciences*, 10(11), 1426–1437.

Awang, A. H., & Denan, Z. (2017, October 9-10). From Shop Houses to Shop Offices: Evolution of Modern Shop Offices Design In Malaysia. 3rd Putrajaya International Built Environment, *Technology and Engineering Conference (PIBEC3)*, 9 – 10 October, 2017. Hotel Bangi-Putrajaya, Bangi, Malaysia. ISBN 978 – 967- 2072- 10- 2

Mohd Baroldin, N., & Mohd Din, S. A. (2018). Conservation Planning Guidelines and Design of Melaka Heritage Shophouses. *Asian Journal of Environment-Behaviour Studies*, 3(8), 61-70. <https://doi.org/10.21834/aje-bs.v3i8.279>

Chen, V. F. (2007). *The encyclopedia of Malaysia Vol 5: architecture* (Vol. 5). Archipelago Press.

Chiong, F. W. E. (2014 August 23 -27). Evolution of the Chinese shophouse facade in Malaysia: Manifestations of a diasporic people. 23rd International Conference of Historians of Asia 2014 (IAHA2014). <http://www.iaha2014.uum.edu.my/>

Council of Europe. (1975). *Declaration of Amsterdam*. Congress on the European Architectural Heritage. <https://www.icomos.org/en/and/169-the-declaration-of-amsterdam>.

Chun, H. K., Hasan, A. S., & Noordin, N. M. (2005, September). An influence of colonial architecture to building styles and motifs in colonial cities in Malaysia. In *8th International Conference of the Asian Planning Schools Association*.

Dai, M., & Zhou, X. (2019, November). Research on the Overseas Chinese Shophouse Culture in Penang, Malaysia in Qing Dynasty A Case Study of Penang Island. In *3rd International Conference on Art Studies: Science, Experience, Education* (ICASSEE 2019) (pp. 190-192). Atlantis Press.

Elnokaly, A., & Wong, J. F. (2015, January). *Demystifying vernacular shop houses and contemporary shop houses in Malaysia; a green-*

shop framework. The 30th International PLEA conference 2014 (pp. 295-303).

Fels, P. T. (1994). Penang's Shophouse Culture. *Places*, 9(1), 46-55.

George Town World Heritage Incorporated. (2017). *Building Typology: Traditional Shophouses* [PowerPoint Slides]. <http://gtwhi.com.my/images/HC2017/02%20170812-GTWHI-Pg%20Shophouse.pdf>.

Han, W., & Beisi, J. (2015). A morphological study of traditional shophouse in China and Southeast Asia. *Procedia-Social and Behavioral Sciences*, 179, 237-249.

Harding, A.J. (2018), "Five-foot ways as public and private domain in Singapore and beyond", *Journal of Property, Planning and Environmental Law*, 10(1), pp. 36-55. <https://doi.org/10.1108/JPEL-10-2017-0031>

Hashim, H. A., & Ab Ghafar, N. (2005 November 13-16). Exploring historical shop-house and townhouse vernacular architectural design and elements as a solution for successful passive low energy housing. *In The 22nd Conference on Passive and Low Energy Architecture*. Beirut, Lebanon.

Ismail, W. H. W., & Shamsuddin, S. (2005, September). The old shophouses as part of Malaysian urban heritage: The current dilemma. *In 8th International Conference of the Asian Planning Schools Association* (pp. 11-14).

Ismail, H. W. (2005). *Houses in Malaysia: Fusion of the East and the West*. Penerbit UTM.

Ismail, W. H. W., & Ching, L. H. (2016). Back lanes as social spaces in Chinatown, Kuala Lumpur. *Environment-Behaviour Proceedings Journal*, 1(3), 293-299

Ismail A. S (2018) *Pemikiran Frank Lloyd Wright ke arah pembentukan identiti seni bina kebangsaan*, Penerbit UTM Press, Universiti



- Khoo, S. N., & Berbar, H. (2009). *Heritage houses of Penang*. Marshall Cavendish Editions.
- Lambe, N., & Dongre, A. (2016). Contextualism: An Approach To Achieve Architectural Identity And Continuity. *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, 3(2)).
- Li, T. L. (2007). A study of ethnic influence on the facades of colonial shophouses in Singapore: a case study of Telok Ayer in Chinatown. *Journal of Asian Architecture and Building Engineering*, 6(1), 41-48.
- Malaysia Government, (2009), *Nomination Dossier. Historic Cities of the Straits of Malacca: Melaka and George Town*. Executive Summary. Submitted to UNESCO, online, <http://whc.unesco.org/en/list/1223/documents/>
- Mamat, M. J., & Aziz, M. F. A. (2020). The Entity-Identity Relationships of Old Shop Houses in Perak Through Facade Design. *PLANNING MALAYSIA*, 18(13).
- Ng. J. (2020, March 2). Old Shophouse of Kuala Lumpur. <https://www.youtube.com/watch?v=XXVOEQ10gYA&t=309s>.
- Sabah, O. A., & Abdul Samad. M. H. (2016). Penang/Georgetown's Shophouse Facade and Visual Problems, Analytic Study. *In Proceeding ICOLASS'16* (pp. 96-105).
- Savage, V. (2001). Singapore shophouses: Conserving a landscape tradition. *SPAFA Journal (Old series 1991-2013)*, 11(1), 5-22.
- Semes, S. W. (2009). *The future of the past: A conservation ethic for architecture, urbanism, and historic preservation* (1st ed). W. W. Norton & Company
- Shamsuddin, S. (2011). *Townscape revisited: Unravelling the character of the historic townscape in Malaysia*. Penerbit UTM Press.

- Soosani, L. (2013). *Questioning the compatibility of the infill architecture in historic environment, case study: walled city of Nicosia* (Doctoral dissertation, Eastern Mediterranean University (EMU)-Doğu Akdeniz Üniversitesi (DAÜ)).
- Tan, Y. W. (2015) *Penang Shophouses: A Handbook of features and materials: Tan Yeow Wooi culture & heritage research studio*. 1st ed. Penang, Malaysia: Phoenix Press Sdn Bhd.
- Tan, C. S., & Fujita, K. (2014). Building Construction of Pre-war Shophouses in George Town Observed Through a Renovation Case Study. *Journal of Asian Architecture and Building Engineering*, 13(1), 195-202.
- Teuling, D. M. J. (2010). *Rebirth of the Malacca Shophouse: A typological research: Traditional Values in a Contemporary World* (Master thesis). Retrieved from <https://repository.tudelft.nl/islandora/object/uuid:3f87afa3-4fe7-493c-9e43-9ea2e45ddfbe>
- Torabi, Z., & Brahman, S. (2013). Effective factors in shaping the identity of architecture. *Middle-East Journal of Scientific Research*, 15(1), 106-113
- Ujang, N. (2012). Place attachment and continuity of urban place identity. *Procedia-Social and Behavioral Sciences*, 49, 156-167
- Singapore Urban Redevelopment Authority (2022). *Conservation principles: Understanding the Shophouse*. <https://www.ur.gov.sg/Corporate/Guidelines/Conservation/Conservation-Guidelines/Part-1-Overview/Understanding-The-Shophouse>.
- Weebers, R. C., Ahmad, Y., & Zuraini, M. A. (2015). *Architecture and Typology of "Dutch" shophouses in Melaka*. August, 0–18.
- Zwain, A., & Bahauddin, A. (2017). The traditional courtyard architectural components of eclectic style shophouses, George Town, Penang. *International Transaction Journal of Engineering Management & Applied Sciences & Technologies*, 8(2), 69-77.
- Zwain, A., & Bahauddin, A. (2018 September 13-14). The architectural



openings of the traditional courtyard “late straits” eclectic style shophouses, Penang case studies: lot nos. 3, 5 and 7 Lorong Ikan, George Town. *3rd International Conference on Rebuilding Place (ICRP2018)*. ISBN 978-967-5741-62-3

Zwain, A., & Bahauddin, A. (2020). Identity formation of the traditional courtyard shop houses interiors: Case Study in George Town, Penang. *Journal of Akademika*, 90(2), 103-114.

Zwain, A., & Bahauddin, A. (2021). Architectural Identity design of shophouses in George Town heritage city: Significance and definition. *International Journal of Design*, 1(1), 7-16.