

A Comparative Analysis of Traditional Shophouse and its Subsequent Diffusion in Southeast Asia

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DOI: <https://dx.doi.org/10.47772/IJRISS.2024.8120250>

Received: 07 December 2024; Accepted: 17 December 2024; Published: 16 January 2025

ABSTRACT

The tangible and intangible features, also combinedly denoted as the character-defining elements, is embedded from the value of cultural resources, shaping the uniqueness of an area. Despite the fact that the cultural heritage makes a place significant and imparts its distinctive character, it is also necessary to look for its basis and its influence on the local community. However, uptill now no specific elements are listed to analyse them. The developmental process of urban settlement in Southeast Asia has been displaying a diversified hybrid tendency from the rise of Maritime Silk Road till now, following the globalizational impacts of economic, cultural, political, technological aspects mainly. This has resulted in cultural fusion, which seems to weaken the cultural boundary of regions and times all over the world, along with a gradual loss of urban or architectural characteristics. During this process of cultural fusion it is difficult to recognize the commonness and individuality between local and foreign culture to arouse regional identities and integrate foreign advanced civilizations.

For generations mixed-use urban settlements have been the major practice in Southeast Asia, thus the separation of residential and commercial activity sometimes become unbecoming. Hence, based on typology and contextual evaluation, this research tries to identify the key features of traditional shophouses in different Southeast Asian countries, that can contribute to the distinctive character of a town as well shape the urban context. The paper also demonstrates the cultural exchange and interaction of the traditional shophouses with the Maritime Silk Road. A literature review and an observational survey was conducted on shophouses of Malaysia, Thailand, Vietnam, Singapore, Indonesia and Bangladesh, to dig out the character determining elements that can define the overall value of a place and so are worthy of being preserved and maintained. In a broader perspective various features like “location”, “urban context”, “spatial organisation”, “architectural styles and features” and “materials” are analyzed in different levels. The paper infers a compulsive outcome referring that tangible and intangible character-defining elements are the most significant features in characterizing the shophouses and therefore shaping the spatial forms and tectonic modes of a town..

Keywords : Shophouse; Character; Cities; Architecture; Significance

INTRODUCTION

The varied and inclusive Southeast Asian culture have significantly shaped its peoples' production and lifestyles. The growth and expansion of commercial activities has caused in great transformation across Southeast Asia. The emergence of commercial port towns or cities is the result of trading and navigational progress (Wang & Jia, 2016). With the development of global trade and cultural communication, Southeast Asia reserve comparatively abundant and diversified civilizations. Urban or architectural forms in these region, which are considered as the cultural physical or material carrier, can manifest cultural change through historical periods. They should, at the same time, retain the dual functions of both regional inheritance and epochal characters. The changing social structure in different historical periods is reflected in the transformation of both urban morphology and building typology in Southeast Asian cities and their buildings (Wang & Jia, 2016).

In remote antiquity, communication among different regions in the world was slow, even stagnant, because of

the technical restrictions. After the advent of Silk Road through Asian regions, as well as the Age of Discovery which was a historical period of European exploration in the 15th and 16th centuries, global movement was expanded significantly (O'Rourke and Williamson, 2002). However, from the early 19th century, with the development of industrialization and informatization, modern transportation and electronic communication have weakened the cultural boundary of regions and times all over the world, along with a gradual loss of urban or architectural characteristics (Wang & Jia, 2014). The questions of how to choose between local identity and international interference and how to mediate between regional diversity and globalization become very urgent in the 21st century (Tzonis & Liane, 2003). In reaction to this crisis, it is necessary to rethink architecture from the past era of the initial globalization, to retain regional traditions, while at the same time to accommodate foreign features, based on the cultural, regional and epochal characters of a particular place.

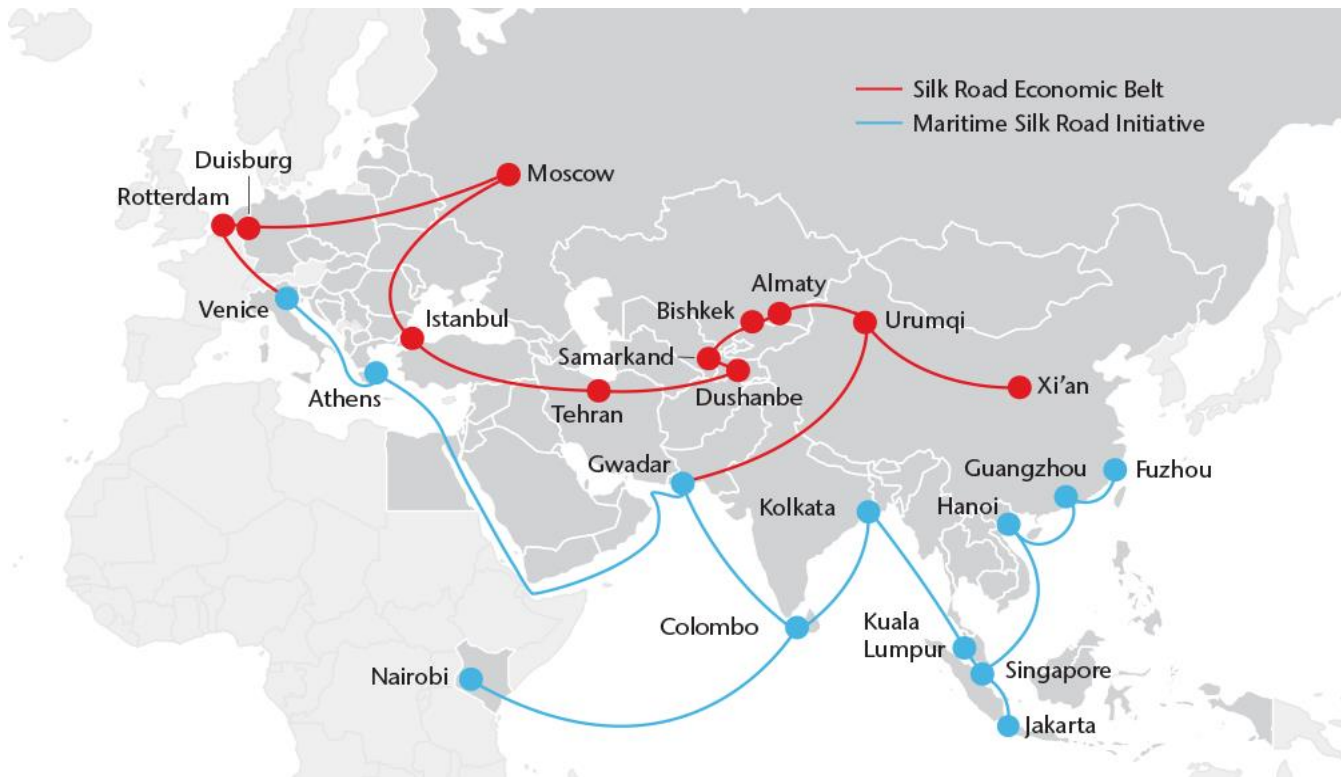


Figure 1 Ancient Silk Road & Maritime Route (Visual Capitalist, n.d.)

The maritime paths were changing all the time throughout historical periods. In the Chinese Tang Dynasty, the route from China to Arabia started in Guangzhou, via Vietnamese waters, Strait of Malacca, Bay of Bengal, Indian Ocean and Persian Gulf to Basra. With the thriving overseas trade in the Song and Yuan Dynasty, the sailing scope was expanded and many other routes were developed. One representative line was from Quanzhou to Persia, via Java, Bay of Bengal and South Asian Subcontinent (Wen, 1987). Because of Zheng He's seven voyages to the Western Seas, Maritime Silk Road peaked in the Ming Dynasty. The Southeast Asian countries that had been visited by Zheng He include Vietnam, Thailand, Cambodia, Malaysia, Philippines, Indonesia, etc. Besides official navigation, private trading on sea was also very flourishing in this period. In 16th to 19th century, with the colonial rule of European countries and the impact of modern civilization, the maritime rights were gradually turned over to European countries. Although affected by colonization, the coastal trade among Asian countries was not interrupted, which can be regarded as "Modern Maritime Silk Road" (Chen, 1996).

China and Southeast Asia were closely associated by Maritime Silk Road in different historical periods. The navigation brought them not only material wealth but also cultural fusion. Along the Road, these two regions realized cultural exchange with each other, and in the meantime absorbing outstanding civilizations from ancient Indian and Arab regions. In the following colonial period, both China and Southeast Asia experienced struggle, emulate and integration between vernacular and foreign cultures in varying degrees, thus forming their own definite hybrid and symbiotic cultural appearances. From a perspective of structuralist perspective, the changing process rather than products, can be viewed as a laying of various cultural influxes into the local culture by the evolution of transplantation, adaptation, accommodation and hybridization or fusion (Widodo, 2004).

A number of aspects of the sustainable development of the port cities of Southeast Asian countries need to be addressed, including inclusiveness and cohesion among various cultures, along with the adaptability and flexibility of traditional dwellings. As cultural carriers which can express the symbols, values and principles of human civilizations, the large number and variety of houses provide not only residential areas but also social spaces (Waterson, 1990). Therefore, this article tries to connect house forms to their cultural identities and social implications. Furthermore, the relationship between different regions will also be studied. Just as there is no boundary for culture, the changes of lifestyle and aesthetic caused by spread make housing in different regions inherently connected. Thus the primary causes of variations of urban forms and dwelling types can be readily recognised by evaluating the both the macro and micro levels of spatial features.

Definition of the ‘shophouse’

The generation or development of housing forms depend on two kinds of driving factors – natural factors and cultural factors. These factors, both cultural and natural, which are the motivation of architectural form, play a decisive role in this whole process (Rapport, 1969). Natural factors, which can be observed as the physical basis of form generation, are easy to be perceived and utilized, for example geographical and climatic conditions, materials etc. On the country, cultural factors are the main reasons of housing forms’ development. They are always imperceptible and invisible, like national customs, religions and life styles. The interaction and synergy of these two kinds of driving factors bring us hybrid forms of houses.

A ‘shophouse’ is an individual house that has a particular settlement pattern including both ‘shop’ (on a busy commercial street) and ‘house’ (providing accommodation) (Hung & Adrian, 2020). They are a flexible combination of spaces for accommodation and business (Le, 1999) and exhibit diverse forms of façades. Constructed in different parts of the world, shophouses are not all similar. Due to their historical value, a great part of them is still in well-preserved conditions in some countries (Le, 2016).

After the rise of “Silk road”, especially “Maritime Silk Road”, the former sealed condition of the Asian continent was broken. The navigation brought China and South Asia not only material wealth but also cultural fusion. A series of commercial and cultural phenomenon, which was affecting and promoting the development of architectural or architecture in these regions, was the continuity produced by the “Road”, including trade exchange, communication of culture and religions, immigration, colonial occupation, etc. While among all kinds of traditional houses, the initial carrier that can reflect the trade and cultural exchanges on Maritime Silk Road should be one kind of traditional houses with commercial function, which area called “Shophouse” in Asia. Usually in Southeast Asia, shophouse looks like a normal town house with a store on the ground floor and facades occupied with advertising products (Le, 2016).

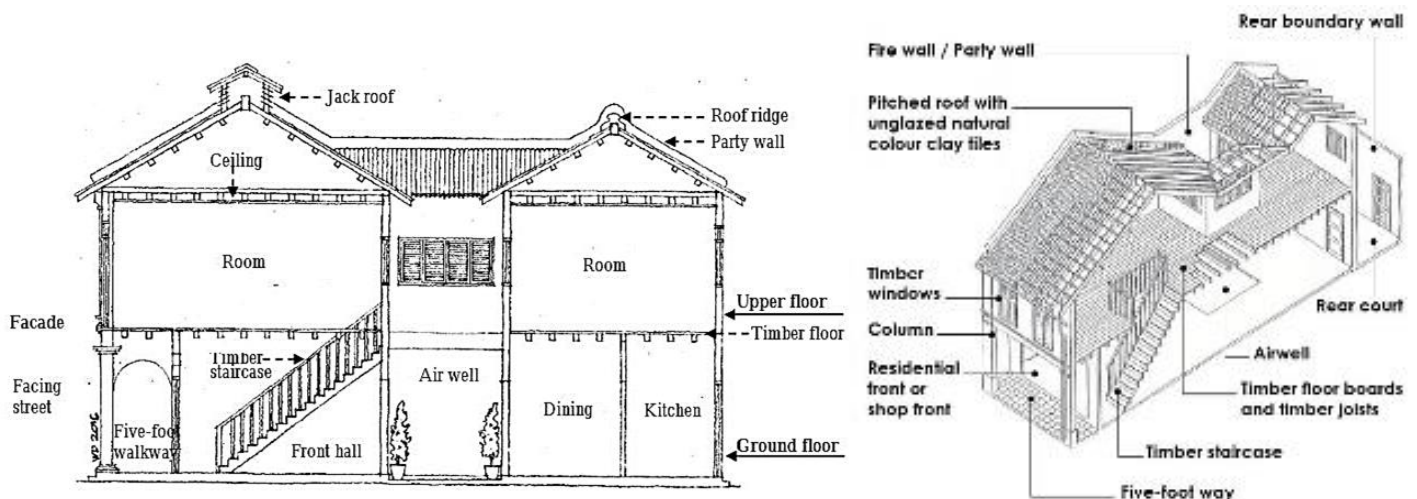


Figure 2 Key elements of a typical shophouse (Pinterest.com, n.d.)

Character-defining elements of ‘shophouse’

There are always different ways of identifying the significant historic and heritage values that lie on a building.

For Nelson (1988), every building portrays its own significant character, especially the shape, craftsmanship, materials, decorative details, interior spaces and features, and surrounding environment. A discussion on the quality of design came later which mentioned that the character of building design depends on the architectural approach that compliments the authenticity and integrity of its historical values (Parks Canada, 2011).

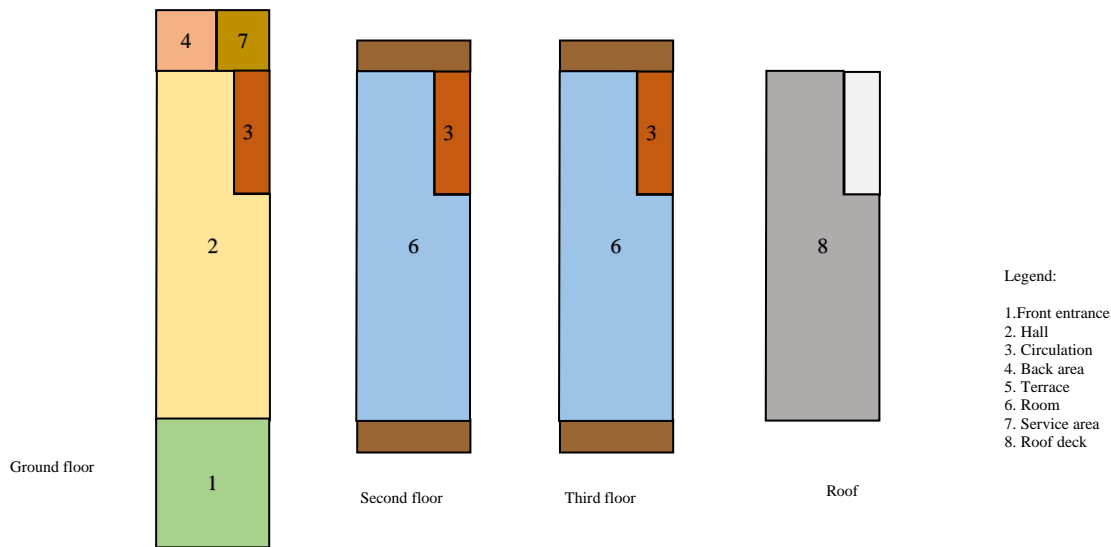


Figure 3 Spatial features of a typical shophouse (Mashudur, 2020)

Tangible Character-Defining Elements: Every element that contributes to the spatial configuration of a town such as size, shape, construction design, materials, colour and ornaments of buildings conveys to the significant identity and image of a town, therefore, each element is crucial to be preserved and protected (Idid, 1995).

Intangible Character-Defining Elements: Intangible elements of CDE include the use of the building, social culture, associations with town’s history, and sound. Azmi et al. (2015) stressed that buildings’ use does play a critical role in defining the economic and social values of buildings in a town. On the other hand, the associations of a place with a town’s history are a crucial element.

The principal characteristic of a ‘shophouse’ dwelling is the shape of the house. It is very long and narrow as a tube, so they are also known as ‘tube houses’ which are facing a street (Hung & Adrian, 2017). Typically built in a row, next to one another along a street, with no gaps or spaces in between each other shophouses (Le, 2016). It contains a single party wall separating shophouses on either side which were built of brick and plastered (GTWHI, 2015). The width is generally 3m to 5m and the length may vary from 20m up to 50m, even 100m (Hung & Adrian, 2017). The narrow linear form is sectioned by air-well for natural ventilation and daylight. ‘Shophouses’ can comprise one storey or more up to a maximum of five. All ‘shophouses’ are allocated along, and perpendicular to, streets and alleys. Thus, people can approach at the main façade of buildings from road or alley (Hung & Adrian, 2017). Generally a five feet walkway is noticed, with the overhanging upper storey over the first storey in the front to form a shaded or arcaded pedestrian along the streetside. For planning of a residential neighborhood, the ‘shophouse’ land plots are divided both regularly and irregularly. The land coverage of ‘shophouses’ in core districts of the city can be up to 100%; meanwhile, in lower dense regions, the land cover is up to 80%. The ground floor is normally used to run a family business or it is rented out and accommodation for occupants is organized on upper floors. Jack roof or sometimes courtyard is used for ventilation and air movement..

METHODOLOGY

This paper attempts to establish that the visual and functional characteristic of the cities developed along the Maritime Silk Road are strongly influenced by the distinctive characteristics of the shophouses, established there during different trading explorations. Adopting a qualitative approach, traditional shophouses in different Southeast Asian areas are studied through morphology and culturology analysis, where the main tool used is case study analysis along with observation, architectural data documentation, and visualizing materials.

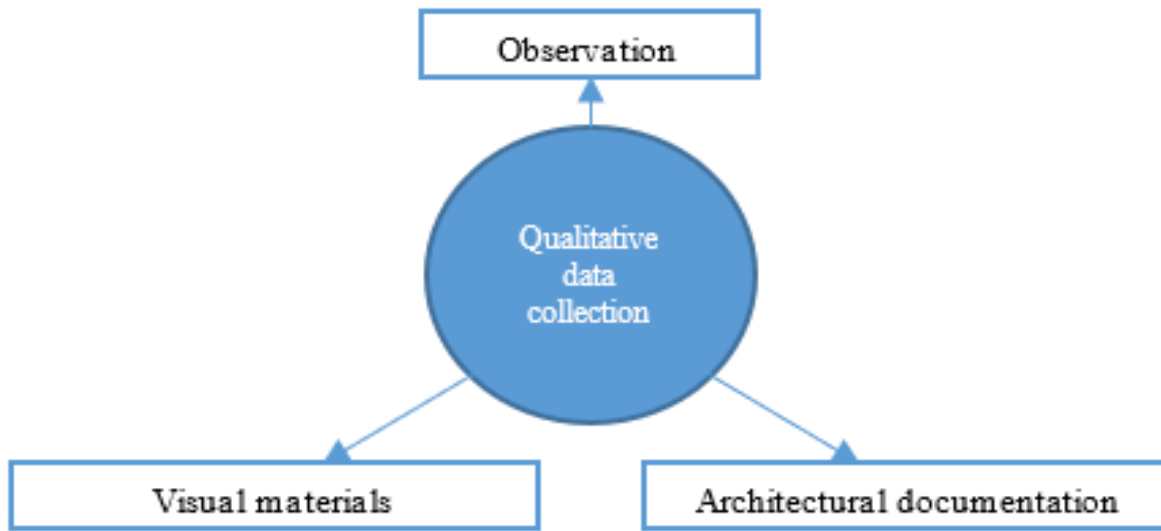


Figure 3 Methodology (Mashudur, 2020)

The analysis has been done in two stages; of which the first stage covers an in-depth understanding of the concept of character-defining elements of historic shophouses. This include a precise and comprehensive review of relevant literature to establish the background of this research as well to identify character-defining elements of shophouses. Latter the impact of the visual elements, found in the study areas on every form, element or relationship are established by direct observation and photography of the existing buildings. Five different aspects including “location”, “urban context”, “spatial organisation”, “architectural styles” and “materials and features” are focused in this study. Further , by comparative analysis of shophouses located in the six commercial cities located in Penang, Bangkok, Singapore, Hongkong, Hoi An and Dhaka, which have been profoundly influenced by their “containing roads”, the spatial forms and determinig characteristics shophouses are expounded.

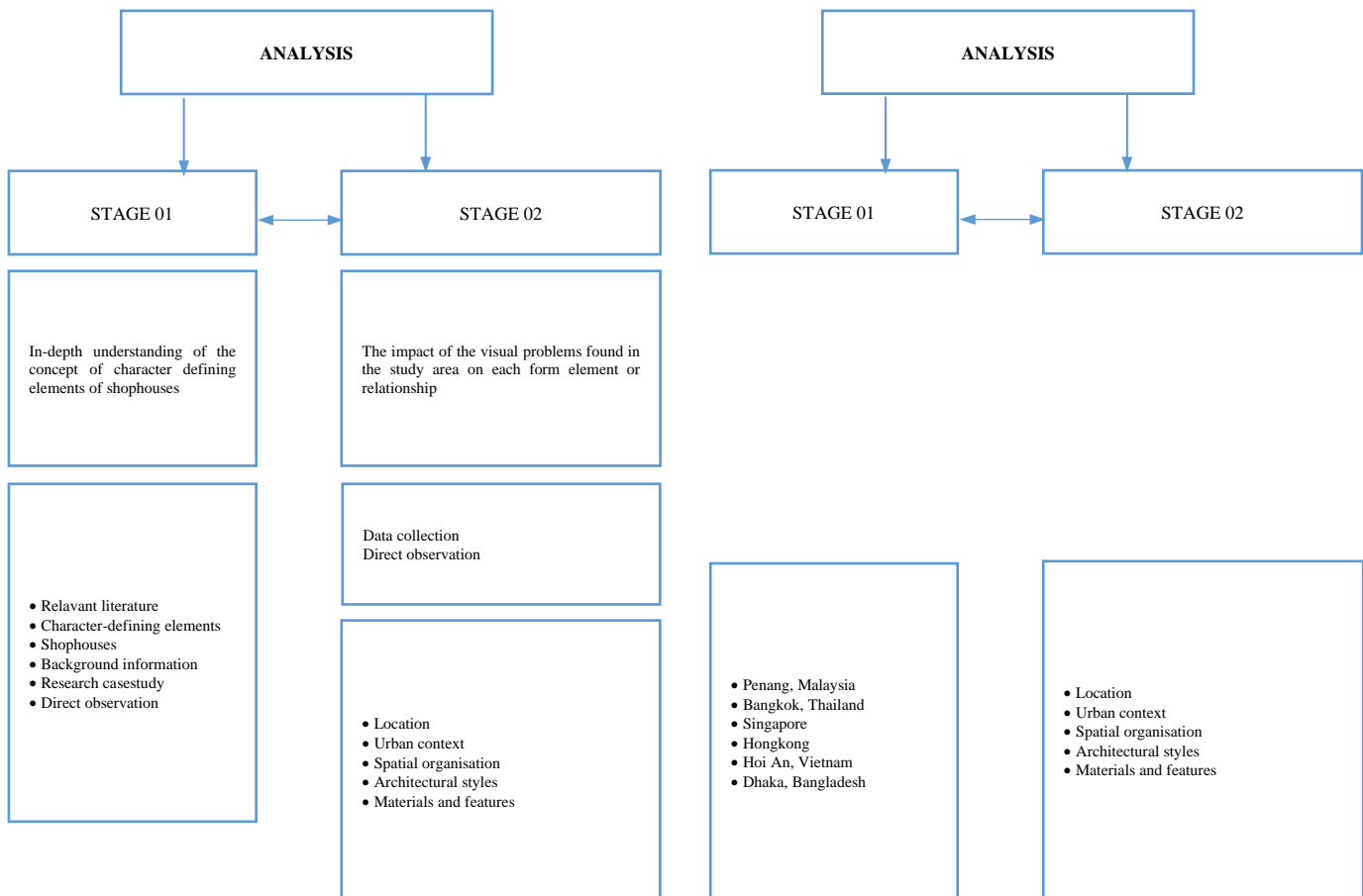


Figure 4 Conceptual framework (Mashudur, 2020)

Historical significances of six cities & shophouses

Shophouse kind of buildings can be found in most Chinese and Southeast Asian areas, especially in those commercial cities with hybrid culture. Both shop space and dwellings are contained in this “mixed—use” structure, and both commerce on streets and living style in houses are well arranged here. Shophouses can be viewed as the interactional product of economic and building relationships (Davis, 2012). These buildings, in which the families that ran the shop lived upstairs or in the back, were originally variations of local dwelling houses, with the rooms along streets transformed into stores (Chen, 2000).

Penang: George Town, the capital city of the state of Pulau Pinang (Penang), Malaysia, was maeked as a UNESCO World Heritage Site (WHS). Currently, is In the late 18th century, the city begins as the first British Straits Settlement along the Straits of Melaka. The city’s architecture has been influenced by the existence of numerous ethnicities, like Chinese, Indians, Arabs, the local Malays, Siamese, Achenese, Burmese and Europeans, settled over the centuries (Zahari Z. et al. 2018). The city boasts a rich collection of historic building in numerous styles including the Indo-Malay Palladian Style, Anglo-Indian Bungalows, Early Shophouses, Early Transitional Style, Early Eclecticisim Shophouse, Sino-Anglo Bungalows, Neo-Classical Style, Art Deco Style, Early Modern Style, in addition to many religious structures such as mosques, churches, Chinese and Hindu temples (Zahari Z. et al. 2018).

Bangkok: In 1782, Bangkok, then known as Bang Makok, a tiny settlement recognized as a backwater village opposite the bigger Thonburi Si Mahasamut on the banks of the Chao Phraya River, not distant from the Gulf of Siam. From 1350 to 1767 Ayuthaya served as the royal capital of Siam, and throughout this time European powers tried without success to colonies the kingdom. (Wikipedia, 2020). During that time various markets and western-influenced shophouses were constructed instead, and since then, Tha Tian has been converted to a vibrant transportation node and wholesale marketplace. Even until today the area is an active commercial community in the conservation district (Yongtanit P, 2005).



Figure 5 Early 19th century shophouses (Google Image, n.d.)

Singapore: Sumatran Srivijaya Empire was established as the first settlement at Singapore in the 2nd century AD. It was identified as an island in Singapore's location and noted as an significant international trading port by the great Greek cartographer, Claudius Ptolemaeus. In 1819, Britain's Stamford Raffles established the modern city of Singapore as a British trading post in Southeast Asia (Szczepanski K, 2020). The shophouses of Singapore was first introduced by Stamford Raffles who specified in his Town Plan for Singapore the uniformity and regularity of the building, the material used as well as features of the buildings such as a covered passageway

(Charles Burton Buckley, 1902). After the colonial era, shophouses became old and dilapidated, leading to a fraction of them abandoned or razed (by demolition work or, on occasion, fire) (Kaye, B., 1960).

Hong Kong: The region, that is today Hong Kong, was established by the Han Chinese dynasty in the 7th century. In 1513 the Portuguese voyager Jorge Alvares arrived in Hong Kong and soon after trading started between Portugal and China, although, shortly the trading stopped due to the battles took place between the two countries. In the latter years, in 1699, the East India Company of Britain arrived and started trading with Britain and eventually gained control of Hong Kong at the end of the first Opium war in 1842 (Roos D. 2020). The city worked as a major port for trading with southern China. On the island's major Chinese settlements, one of which was Tai Ping Shan, the earliest form of Hong Kong shophouse was found. Prior to the bubonic epidemic in 1894, the scheme of these buildings was mostly similar in appearance and construction with those found in towns and cities of Southern China during this period (Gwulo, n.d.).

Hoi AN: The ancient town Hoi An is located on the north bank near the mouth of the Thu Bon River in Viet Nam's central Quang Nam Province. Since the 15th till 19th centuries, this active trading port traded widely both with the countries of Southeast and East Asia and as well with the rest of the world, denoting itself as a remarkably well-preserved example of Southeast Asian trading port and also the centre of commerce, being still occupied and functioning (UNESCO World Heritage Centre, n.d.). The diverse communities of the indigenous inhabitants of the town is marked as a living heritage. Hoi An has been successful in preserving and restoring its charming roots, though the large-scale trading, which had long moved elsewhere and was declared as a UNESCO World Heritage site in December 1999 (Kolbuc J. 2020).

Dhaka: Before the capital of the Muslim Mughal dynasty of Bengal province (1608–39 and 1660–1704) the city did not rise to prominence until the 17th century, however the city's history can be traced to the 1st millennium CE. It was the hub of a prosperous sea trade, attracting English, Portuguese, Armenian, French, and Dutch traders. With the exclusion of the provincial capital to Murshidabad (1704) and the fading of the muslin industry, Dhaka entered a period of decline. Under British period in 1765, Dhaka was founded as a municipality in 1864, but it continued to lose prominence until it was designated the capital of Eastern Bengal and Assam province (1905–12). Dhaka served as a commercial centre and seat of learning in the early 20th century. It was named the capital of East Bengal province (1947) and of East Pakistan (1956) when the region became a part of Pakista at the end of the British rule. During the war of independence in 1971, city was suffered heavy damage but appeared as the capital of Bangladesh (Encyclopædia Britannica, n.d.).

Comparative Study of Shophouse

Locations

Most of the areas are located in the urban area as well as expand in the neighborhood territory since the pre-war era. Penang shophouses illustrates influences of Chinese, Malay, Indian and European styles (Akram & Azizi, 2017); in response to the local environment it's matured and merged together beautifully. On the other hand shophouses emerged in Bangkok along with development of road transportation during the late 19th century. After connecting with the rail based public transport the shophouses in urban area which are easily accessed by mass transit could be adapted to support new activities along the urban development. Its flexibility in space configuration, affordable construction cost and high benefit for business investors made it a popular building type. In Singapore, physical expansion of the colonial town and an increase in the local population, the opening of the Suez Canal in 1869 which shortened the sailing time between Europe and Asia, and attracted more traders from Europe (Tze, 2007). Later areas are expanded and adapted with local and contextual environments. However, traditional Chinese shophouses are a major historic building typology found in old districts of Hong Kong. Many traditional shophouses were built between 1840s and 1960s, which evolved into several distinct types (Ho-Yin & Lynne, 2016). Hoi An was prospered as a commercial trading port, where the East and West meet on the Silk Road of the Seas from the very early stage of city developments. The lively town was home to Dutch and Portuguese trading companies, a Chinatown, and a Japan Town, and it was where trading ships of the Japanese Shogunate made frequent visits during those times (JCIC, 2016). In contrast, Tanti Bazar is about in the central part of the old city. Tanti Bazar is one of the oldest mohallas and important commercial centres in Old Dhaka. This area was reputed for the famous Muslin and Tussor of the Bengal and it's belonged to the Tanti

(weavers) community from the Pre-Mughal period (Fatema, 2013).


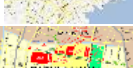




Table 1. Context analysis of different cities shophouse area

	Name of the Area	Urban	Sub-Urban	Neighbour-hood	Location map
Penang	George Town	✓	X	✓	
Bangkok	Siam	✓	X	✓	
Singapore	Little India, Chinatown	✓	X	✓	
Hong Kong	Wanchai	✓	X	✓	
Hoi An	Saigon-Cho Lon, Quang Nam	✓	✓	✓	
Dhaka	Tanti Bazar, Old Dhaka	✓	X	✓	

Urban Spatial configurations and Street Interface

Almost every single shophouse areas are remarkably recognized as a comprehensive and well-planned town as it has its own unique pattern of town which in fact becomes an image and identity of each town. This refers that the organisations of shophouses in this township is in rows of precise widths and are significantly linked to each other. A number of blocks of these rows are separated by streets and a formal or informal grid iron pattern is then formed. There is noticeable regularity in the urban plan and each building is regularly organized with an axis which goes across several internal courtyards. The units are closely placed side by side with the continuous development along streets.

Table 2. Accessibility analysis of shophouse area in different cities

	Road map	Primary road	Secondary road	Teritary road	Impact
Penang		X	✓	✓	- Noise - Messy
Bangkok		✓	✓	X	- Noise - Messy
Singapore		X	✓	✓	- Character - Noise - Messy
Hong Kong		X	✓	✓	- Character - Noise
Hoi An		✓	✓	X	- Character - Noise - Messy
Dhaka		X	✓	✓	- Noise - Messy

The whole settlement which belongs to Compounded Type is developed horizontally, using the streets as boundaries. The sites are divided by mostly subordinate streets, with buildings arranged on both sides of them (Table 2). According to different natural and cultural factors, the types of street interface in these six cities were derived from their own features in the evolutionary process, which can connect external commercial space to internal living space, and hence commercial interface plays an important role in the spatial construction of

traditional shophouse. Both individuality of each shophouse and the integrity of the entire lane should be considered in the scheme of street interface. the commercial interface usually has the characteristics of both ductility and directivity for this kind of shophouse. All of the shophouses areas have their uniform colonnades on the first floor to reflect ductility and directivity of street commercial interface. At the same time, different decorations are adopted on the second or above floors which proclaim diversity and variability to the whole street interface.

Spatial Organization of buildings

The spatial organization of those shophouses can be viewed as a typical type in most Asian areas. Originally, the combination of both trading and residential use constitutes a typical feature of shophouses in the all six cities. A majority of the early shophouses are two-storey buildings which vary in sizes. The plane shape, narrow in width and long in depth, is also very common in Southeast Asian countries. In each building, space is symmetrically organized with an axis, sometimes goes across an internal courtyard. All rooms are connected by a straight corridor extending through the whole depth of the house. the corridor was designed into a linear shape in order to provide convenience for the goods' transportation in early stages. However, with sight unobstructed, the privacy of the whole family was always affected.

To deal with this problem, the later type was improved by arranging the corridor in a continuous linear pattern (Table 3). This transformation can enrich the privacy, as well as increase some variations to the inner space. Usually the front part of the building contains the shophouse along with a store, whereas the living space is found in the front portion of the upper storey, which may or may not accompany a store. The services like cooking, washing, bathing and toilet are arranged at the back part of the courtyard (Table 4). From this liner arrangement against a vertical plane, both the features of Chinese courtyard dwelling and the styles of Dutch Bungalow can be found out (Widodo, 2004).

Table 3. Comparative analysis of different cities spatial organizations

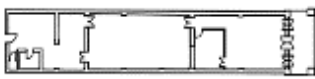





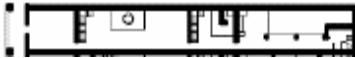



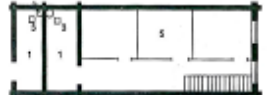

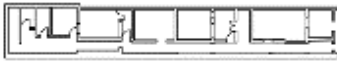
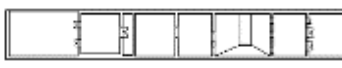

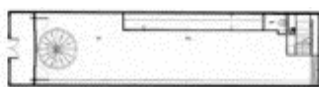


	Ground floor	Other floor	Building
Penang			
Bangkok			
Singapore			
Hong Kong			
Hoi An			
Dhaka			

Table 4. Different cities typical shophouses functional arrangements analysis

Penang	Originally, it was a combination of both trading and residential use. Modern ones are extensively used for commercial purposes only
Bangkok	Traditionally it had residential and commercial uses only. Modern shophouses are now

	multifunctional where more than one activity takes place in a single building.
Singapore	Multi-functional; upper floor - combined commercial and residential functions ground floor - only for business and trading purpose
Hong Kong	Shophouses were the main housing form for the vast majority of the Chinese until the 1950s, being bi-functional buildings, accommodated both residential and commercial activities until demolished in 1997.
Hoi An	Single or multi-functional; both residential and commercial or only houses each of them on the upper floor, while ground floor for typical business and trading purposes
Dhaka	Single or multi-functional; both residential and commercial or only each of them is found on the upper floor while the ground floor are typically used for only business and trading puposes

The architectural design and Styles

The communication between China and Southeast Asia were strengthened in the Maritime Silk Road and developed a chain of commercial and cultural phenomenon accordingly. Throughout different historical periods the South Chinese immigrants settling in the coastal areas of Southeast Asia, many Chinese building types, as well as vernacular shophouse in South China, were also brought to the new positions. Merging with local natural and cultural settings, these buildings progressively changed and molded their own characteristics. Around the 16th century, shophouses in coastal trading cities of Southeast Asia became unique buildings because of the arrival of western colonists, that can be regarded as a combination with native, western and South Chinese styles (Table 5). In the beginning of 20th century, with the original shophouses no longer adapting the new residential and commercial requirement in China, some building types were spread back to Chinese coastal cities from Southeast Asia by Overseas Chinese. It is obvious that cultural exchange and interaction along Maritime Silk Road, from this process of transmission, no matter in ancient or modern times, are always affecting the architectural development in these regions.

Table 5. Comparative analysis of different cities architectural style

Penang	Early Penang style 	Southern Chinese Eclectic 	Early Straits Eclectic Style 	Late Straits Eclectic Style 	Art Deco Style 
Bangkok	Early style 	Transitional stage 	Modern stage 		
Singapore	Early style 	1st transitional style 	Late style 	2nd transitional style 	Art Deco style 
Hong Kong	First generation 	Second generation 	Third generation 	Fourth generation 	
Hoi An	Rudimental 	Traditional 	Shop-New 	Shop-Commercial 	Rowhouse 
Dhaka	Linear type 	Courtyard type 	Lightwell 	Commercial tower 	Mixed-use tower 

Commonly, shophouse is a special building type, a kind of Terrace house which is basically spread between 18-20 century in the towns of South Asia. It has features that make it recognizable as a building type, some of these

characteristics are: multi-functional (as it has commercial activity in ground floor and residential in the upper floor(s)), facing the street (so it has an important facade), built in a row, low rise building (2-3 floors usually), longitudinal built area proportion, and last but not least; it has a five-foot walkway, which is a semi-open space in front of the ground floor facade, usually covered by arcaded gallery or bounded by columns (GTWHI, 2015) (Table 6).

Table 6. Comparative analysis of different cities architectural styles

<p>Penang</p>	<p>Early Penang style (1970s-1850s):</p> <ul style="list-style-type: none"> - simple facade - low height - built by raw materials 	<p>Southern Chinese Eclectic style (1840s-1900s):</p> <ul style="list-style-type: none"> - facade has some details - openings for ventilation - some ornamental elements 	<p>Early Straits Eclectic Style (1890s-1910s):</p> <ul style="list-style-type: none"> - has more details and decorations - full length venetian windows 	<p>Late Strait Eclectic Style (1910s-1930s):</p> <ul style="list-style-type: none"> - European influence - imported materials - ornamental details on facade 	<p>Art Deco Style (1930s-1960s):</p> <ul style="list-style-type: none"> - Replacing old facade with a new western inspired one - straight lines are the main characteristic - metal flipping door covers ground floor area
<p>Bangkok</p>	<p>Early style (1862-1896)</p> <ul style="list-style-type: none"> - usually low (two storeys) - technology and style from Chinese immigrants - Made of wood - Load bearing walls used 	<p>Transitional stage (1936-1980)</p> <ul style="list-style-type: none"> - Skeleton concrete frame - Height of 2-3 stories 	<p>Modern stage (1980 to present)</p> <ul style="list-style-type: none"> - Height of 3-7 stories - Prefabricated floor slab, frameless window and aluminium frame used 		
<p>Singapore</p>	<p>Early style</p> <ul style="list-style-type: none"> - usually low (two storeys) and squat, - rectangular windows on the upper floor - minimal ornamentation - ethnic nature 	<p>1st transitional style</p> <ul style="list-style-type: none"> - more vertically proportionate - decorations using plaster and tiles were used, - small glass panels - simplicity and relatively 	<p>Late style</p> <ul style="list-style-type: none"> - striking, varied and eclectic ornamentation - framing of windows with columns and pilasters - cultural influences like roof eaves (Malay) and decorative tiles (Peranakan) 	<p>2nd transitional style</p> <ul style="list-style-type: none"> - ornamental elements like wall tiles with Art Deco motifs - Simple and streamline - reflecting the economic situation of the time 	<p>Art Deco style</p> <ul style="list-style-type: none"> - motifs like column, orders, arches & keystones - lesser use of decorative wall tiles - emphasizes proportion and composition - noticeable plaque carrying the construction

		restrained ornamentation.		- cross-braced glass window panels	date of the building
Hong Kong	<p>First generation (1840s-1890s)</p> <ul style="list-style-type: none"> - Made of Chinese grey brick walls, timber beams and clay tiles - No ornamentation 	<p>Second generation (1900s-1920s)</p> <ul style="list-style-type: none"> - Reinforced concrete used for cantilevered balconies 	<p>Third generation (1930s-1940s)</p> <ul style="list-style-type: none"> - exhibited a combination of classical and art-deco elements - transitioned from a traditional style to a more modern one 	<p>Fourth generation (1950s)</p> <ul style="list-style-type: none"> - Made of reinforced concrete and six stories high 	
Hoi An	<p>Rudimental</p> <ul style="list-style-type: none"> - usually low (two storey) and residential - minimal ornamentation - access : Street, Canal 	<p>Traditional</p> <ul style="list-style-type: none"> - 2-3 floors - Shop on outside periphery borders to street - Colonial ornamentation - Access: street & in back alleyways 	<p>Shop-New</p> <ul style="list-style-type: none"> - 3-5 floors - Shop on ground floor, residential - minimal ornamentation - Access: street 	<p>Shop-Commercial</p> <ul style="list-style-type: none"> - 4-9 floors - Basically commercial, limited residential use - minimal ornamentation - Access: street 	<p>Rowhouse</p> <ul style="list-style-type: none"> - 3-5 floors - residential - minimal ornamentation - Access: street
Dhaka	<p>Linear type</p> <ul style="list-style-type: none"> - usually low (2/3 storeys) & residential cum commercial - minimal ornamentation - access : Street 	<p>Courtyard type</p> <ul style="list-style-type: none"> - 2-3 floors - Minimal / Colonial ornamentation - Central courtyard - Access: street & in back alleyways 	<p>Lightwell</p> <ul style="list-style-type: none"> - 3-4 floors - Shop on ground floor, residential - minimal ornamentation - Light well for ventilation - Access: street 	<p>Commercial tower</p> <ul style="list-style-type: none"> - 4-5 floors - Basically commercial, limited residential use - minimal ornamentation - Access: street 	<p>Mixed-use tower</p> <ul style="list-style-type: none"> - 3-5 floors - Commercial & residential - minimal ornamentation - Access: street

Materials and features of Street Interface

Building materials such as brick, concrete, wood or steel illustrate the historical timeline or specific period of

when the building was constructed. As the shophouses are dominated with pre-war buildings, these buildings are constructed from the materials and construction technique during that era, particularly load-bearing wall from bricks, cement, and reinforcement steel and modern style of shophouses are constructed from reinforced concrete. In addition, some of the cities shophouses are used terracotta roof tiles are the typical roof materials that characterize the town (Table 7).

Table 7. Comparative analysis of different cities shophouses materials

	Wall	Window	Structure	Facade	Other features
Penang	<ul style="list-style-type: none"> Built of bricks, cement, or reinforced steel 	<ul style="list-style-type: none"> Wooden frame with louver Tinted glass was added to windows in the 2000s 	<ul style="list-style-type: none"> Reinforced concrete structure 	<ul style="list-style-type: none"> Decorative facade with a mixture of Malay Chinese and European ornaments 	<ul style="list-style-type: none"> Terracotta roof tiles used as roof material
Bangkok	<ul style="list-style-type: none"> Brick walls 	<ul style="list-style-type: none"> Wooden frame with glass 	<ul style="list-style-type: none"> Reinforced concrete Beam column structure 	<ul style="list-style-type: none"> Uniformed facade, acts as a shading device Different types of signage are attached to the exterior 	
Singapore	<ul style="list-style-type: none"> Built of brick and plastered 	<ul style="list-style-type: none"> Wooden frame with louver Wooden frame with glass 	<ul style="list-style-type: none"> Brick wall structure Beam column structure 	<ul style="list-style-type: none"> Decorations blended with motifs originated from other architectural elements that went into a series of evolution 	<ul style="list-style-type: none"> Roof overhangs Maximum openings for cross-ventilation Cantilever floor (verandah or anjung) Jack roof system for cool and hot air circulation
Hong Kong	<ul style="list-style-type: none"> Traditional Chinese grey brick used until 1935 After 1935, reinforced concrete was used 	<ul style="list-style-type: none"> Wooden frame with louver Wooden frame with glass 	<ul style="list-style-type: none"> Brick wall structure Beam column structure 	<ul style="list-style-type: none"> Included cantilevered balconies 	<ul style="list-style-type: none"> Roof overhangs Many typology included kitchen but not toilets
Hoi An	<ul style="list-style-type: none"> Built of brick and plastered 	<ul style="list-style-type: none"> Wooden frame with louver Wooden frame with glass 	<ul style="list-style-type: none"> Reinforced concrete structure 	<ul style="list-style-type: none"> No specific character architectural elements that went into a series of evolution 	

		<ul style="list-style-type: none"> ● Aluminium frame with glass 			
Dhaka	<ul style="list-style-type: none"> ● Built of brick and plastered 	<ul style="list-style-type: none"> ● Wooden frame with louver ● Wooden frame with glass 	<ul style="list-style-type: none"> ● Reinforced concrete structure ● Brick wall structure 	<ul style="list-style-type: none"> ● No specific character 	<ul style="list-style-type: none"> ● Courtyard ● Lightwell

These buildings gradually evolved and formed their own characteristics by combining with native natural and cultural settings. On the shape, material and pattern of the commercial interface, local characters can be reflected. Around the 16th century, as a mixture with western, local and South Chinese styles and largely affected by early modern European Architecture because of the arrival of western colonists, shophouses in coastal trading towns of Southeast Asia became exceptional buildings that can be regarded. Focusing on the decoration of parapet, window, balcony, portico, etc., their facades along streets are filled with western elements. In other words, shophouses can be viewed products of the cultural fusion while most row houses balance the traditions with European Mediterranean styles by an eclecticism method.

DISCUSSION

From the morphology and culturology analysis of shophouse in Southeast Asia, the following observations can be discussed. Initially, most of the shophouses are developed on the basis of traditional dwellings, following Chinese traditional or local ethical code. The metropolitan form is continuously developed horizontally, with roofs and cornices of the houses connected together. The street boundary usually highlights its ductility and directivity. The shophouses are one-story, partially two-story buildings, with their internal space connected by courtyards or corridors. In the past time, local inhabitants or immigrants gradually brought this building type to the coastal areas of Southeast Asia along Maritime Silk Road.

Furthermore, Southeast Asia is deeply affected by western colonial culture. In this region have more European Mediterranean features are found in the early shophouses. These structures can be regarded as a beautiful and unique example of mixture with local, western, and South Chinese styles.

According to its character defining elements various shapes are also found. Moreover, they also differ among different styles; from simple shapes in the Early style, with increased complexity as moving further in time, then began to be less detailed and more simple shapes in the Later Style, and even less in the Early Modern Style. Under those circumstances, its architectural style has many different visual properties, related to its new building techniques, materials, and even peoples' aesthetic taste. In the original state, variety of pigments are used for coloring facades; off-white, indigo, and ocher, in addition to pastel colors range like rose pink, baby blue, light yellow, etc. Traditionally, finishing materials used for the walls are: lime plaster, lime wash, and false brick render.

The basic cultural characteristics are always reflected from two aspects including regional distinctiveness and blending adaptability are establishing in the development process of Architecture. For local culture, the regional distinctiveness always provides insistence and respect. Their blending adaptability can play significant role when other cultures are brought into the local one at the similar period, thereby creation the cultural fusion more effective and suitable. Nowadays, with the rapid expansion of globalization, a better understanding of the cultural phenomenon caused by Maritime Silk Road has thoughtful significance to the Modern Architecture.

CONCLUSION

This research indicates that the character defining elements of the shophouses can contribute to the distinctive character of a place, containing the shophouses as noticed from the case study analysis of the six cities. The

observational survey further confirms that the shophouses are the most noticeable structures to depict the characteristic appearance of the city bearing the shophouses. An association of town with the history influences the most significant element that characterizes shophouses, which indicates that shophouses should be protected and even conserved if necessary as these houses portray the most influential element for shaping a town's historical evolution and hence its characteristic appearance. Based on this important finding, both the government and the local users should recognize and appreciate this intangible element of a town's history.

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