

SHOPHOUSE FAÇADE DESIGNS IN THE PORT TOWNS OF THE ANDAMAN SEA AND MALAY PENINSULA

Pat Wongpradit^{1*}, Kreangkrai Kirdsiri¹ and William Chapman^{1,2}

¹ Faculty of Architecture, Silpakorn University, Thailand

² School of Architecture, University of Hawai'i at Manoa, United States of America

ABSTRACT

***Corresponding author:**
Pat Wongpradit
patwongpradit@gmail.com

Received: 10 March 2021

Revised: 13 August 2021

Accepted: 16 August 2021

Published: 25 August 2022

Citation:

Wongpradit, P., Kirdsiri, K.
and Chapman, W. (2022).
*Shophouse façade designs in
the port towns of the
Andaman Sea and Malay
Peninsula. Humanities, Arts
and Social Sciences Studies*
22(2): 452-465.

This study investigates the transformation of shophouse façades through the trade connection among the port towns of Southern Thailand and Malaysia. Focusing on four port towns – Kantang, Phuket and Takuapa in Thailand and Penang in Malaysia – during the 18th- 20th centuries, this research emphasises the role of field surveys and measurements to examine the physical characteristics and styles of buildings. The development of shophouse façades reflects a fusion of cultural influences from China, India and Europe, intertwined with local predispositions. The findings show that shophouse façades among port towns are similar in terms of architectural features and structural systems. In the early period, the local influence and Chinese immigrant culture were the major factors contributing to shophouse designs. Most of the buildings surveyed were simple in form and structure. The early shophouses were modest in size and height and were designed to suit the climate and environment. They also effectively employed local materials. Later in the 1890s, following the flourishing of marine trade in the era of tin mining and rubber, shophouse designs in the Southern port towns of Thailand began to be influenced by Penang, exhibiting an increasing adaptation of Western styles. Modern hydraulic cement was also introduced in construction from that period. It was not until the 1930s that new styles were influenced by architectural 'modernism' and the development of in-land transportation began to supersede earlier examples. This development was due in part to the intensification of trade routes, such as Thai southern railways and roads. Thereafter, shophouse designs returned to a simpler form again. The Art Deco and International Style, characterised by geometrical forms and built-in steel and glass combined with reinforced concrete, became the dominant materials for construction. As a result, the ornamentation, construction and styles of shophouses in Kantang and Takuapa were further amplified due to limitations in budget and artisans.

Keywords: Shophouse façade; Andaman Sea; Malay Peninsula; port town

1. INTRODUCTION

The maritime trade route from India to China via Southeast Asia (also known as Indochina) was long recognised by Western countries as a significant economic channel. The Southeast Asian area contained several

important trading communities and marked a key destination for docking during the monsoon season. Starting with the exchange of local goods with imports, the trading system evolved to become a complex mixture of manufacturers, exporters and sellers. Some of the early communities became important trading centres, serving as what are now identified as entrepôts or port towns and emporiums (Saraya, 2011).

In time, the 'Peninsula Shipping Route' established connectivity among seaports as a network. The significant port towns within this trading system were Malacca, Penang, Kelantan, Terranganu and Singapore on the Malay Peninsula and Phuket, Takuapa, Pattani and Songkhla on the Southern Peninsula of Thailand. In addition to ships and boats, the transportation included rafts, horse carts, horses, elephants and other animals. Traders also took advantage of long-serving routes, such as the Kra Isthmus, Takuapa River, Trang River, Kedah-Pattani and Kelantan-Melaka (Wheatley, 1961). These routes reflected the development of seaports in the upper and lower parts of the peninsula, all of which grew because of the trade (Wongpradit and Kirdsiri, 2018).

In addition to geographical factors favouring port towns, abundant natural resources also made the Thai Southern Peninsula and Malay Peninsula significant destinations for entrepreneurs — Chinese, Siamese and Portuguese—who are engaged in the maritime trade. Dutch and British merchants and shippers also continued to influence the area (Wongpradit and Kirdsiri, 2018).

Shophouse architecture in the port towns was the result of multiple layers of human settlement and trading practices over a long period. The types and styles of residences and businesses-combined in the distinctive shophouses of the region were a direct reflection of the natural environment and varied cultural overlays of the area. The built environment of peninsular Southeast Asia therefore comprises a unique *cultural landscape*. Due to the complexity of development and the striking layers of social, cultural and economic influences, local environmental attributes were gradually reduced and then replaced by a phenomenon known as *urbanisation*. Because of this, the overall character of the port towns and cities fall under the designation of *historic urban landscapes* (Office of Natural Resources and Environmental Policy and Planning, 2018).

Although shophouses and shophouse façade designs represented a multiplicity of cultural influences, the predominant underlayment was the tastes and building traditions of the Chinese and British. Nonetheless, local influences and the very notion of vernacular architecture, which are significant factors in the creation and replication of combined residential and commercial architecture in the region, should also be recognised (Wongpradit et al., 2015).

Shophouses, as a distinct architectural type that dominates the historic townscapes of Southeast Asia settlements, have attracted considerable scholarly interest over the last decades. Much of the literature has focused on urban development and the context of building types. Existing research recognises the critical role played by major streets built for urban transportation in the development of shophouses. Urbanism is indeed a significant factor of architectural innovation, restructuring movement with settlements and changing social practices in numerous ways. Shophouses were a building type developed to serve as a place of residence, a site for commerce and a place of manufacture, while contributing to the uniformity and efficiency of streets. Frequently, shophouses shared a street side passageway, which facilitated pedestrian traffic and provided an important amenity in the tropical climate of peninsular Southeast Asia (Chantavulasvong, 1978). This definition is consistent with the categorisation in the *Encyclopaedia of Vernacular Architecture* (Oliver, 1998), where a shophouse is listed under the 'Use' and 'Function' subject headings. As to these categories, the encyclopaedia's editor Paul Oliver considered shophouses as a pure expression of function (Oliver, 1998).

The development of shophouses coincided with the growth of cities, ports and international markets. One of the main attributes of shophouses, therefore, was their essentially 'modern' character. Such development could also be interpreted as a significant response to the earlier phase of globalisation. Architectural scholars have been interested in a wide variety of attributes associated with shophouses. Not surprisingly, the details and scope of a study depend on each specialty. Hence, we acknowledge the significance of shophouses but lack any kind of holistic synthesis.

This study seeks to explain and examine the underlying history and character of shophouses—the building type's generative origins—and the factors leading to changes in buildings' façades over time. Shophouses in the historic Thai port towns of Takuapa, Phuket and Kantang on the Andaman Sea are employed as case studies in this research. The further aim of this work is to explore the relationship between buildings in those port towns and those in George Town, Penang in Malay Peninsula, which was the principal trading centre for the Straits Settlements.

2. RESEARCH QUESTIONS

The major research questions in this study are as follows: (a) what are the underlying reasons for changes in shophouse façade designs in port towns located in the Andaman Sea and Malay Peninsula? (b)

Which are external influences from the traditions of European design? (c) What was the impact of the design predilections of overseas Chinese? (d) To what degree do shophouses reflect traditional local design and building practices and locally generated innovations?

3. LITERATURE REVIEW

The characteristics of shophouses were provided by Davison and Tan in their overviews of the building type (Davison, 2010; Tan, 2015). Shophouses are typically two or three storeys with a narrow width and deep footprint. Generally, the ground-floor façade is recessed from the street edge, whereas the upper façade projects into the road line, creating a passageway that covers the pavement below. This upper wall transfers its load to the column. In each block, shared party walls divide each shophouse and neighbours on either side (Davison, 2010). Normally, shophouses are built continuously along the road. Therefore, the area in front of the buildings serves as a covered walkway (see Figure 1). The structure and general materials in shophouses are principally timber and masonry (Tan, 2015).

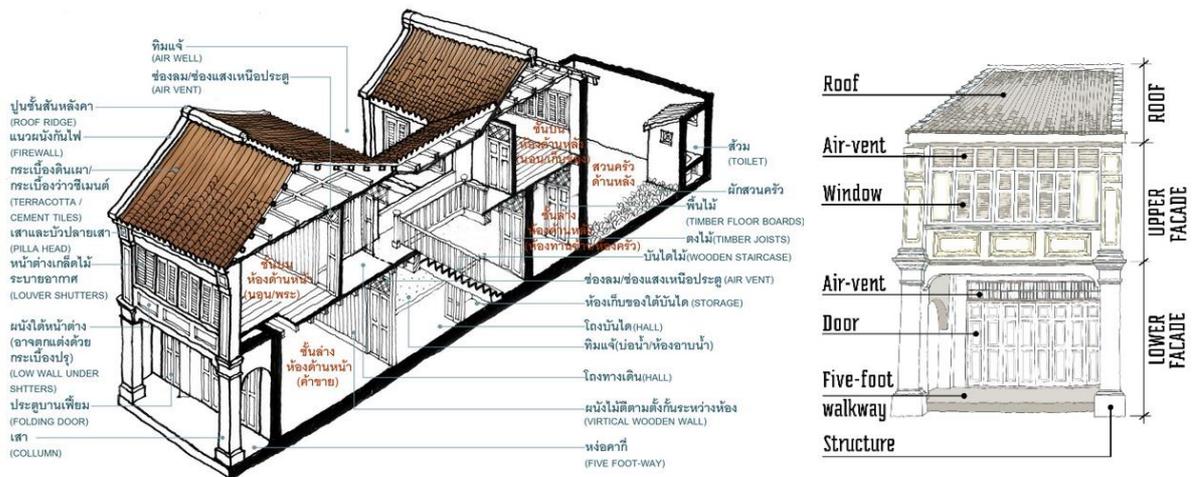


Figure 1: Illustration of the Architectural Elements of a Shophouse Façade Selected as a Case Study (Adapted from the isometric drawing of a Southern Chinese from Penang shophouses (Tan, 2015))

Shophouses are a unique building type, which directly grew out of the culture of the region, specifically that of Chinese migrants from mainland China. According to the *Encyclopaedia of Vernacular Architecture*, shophouses emerged as a result of Chinese influence in the area of Malay Peninsula and came to be a part of local identity. As the port towns of the area became prosperous, shophouses and shophouse designs became increasingly sophisticated, spreading from one community to another (Oliver, 1998). In addition to the cultural ‘substrate’ of Chinese-influenced shophouses, English architectural traditions began to have an impact throughout the straits and Andaman Sea area, largely due to the presence of the British East India Company in Southeast Asia. Subsumed by the British crown after the Indian Rebellion of 1857, the British-controlled monopoly had a particular influence on the Straits Settlements after 1862, including Penang, Singapore and Malacca. The capital of this trading network was George Town, Penang. As prosperity increased in the port towns of the Malay Peninsula, shophouse designs acquired increasing elaboration and served as the main structure of urban development in the region.

Previous research on shophouses has investigated and analysed numerous aspects of the building type’s evolution and designs. One such study examined the role of shophouses in defining the identity of the old town in Thalang Road, Phuket. This study, initiated by Sahachaisaeree and Pimonsathean, focused on regeneration along with the conservation of shophouses as an ‘urbanscape’ (King Mongkut’s Institute of Technology Ladkrabang, 1997).

Several other studies have had a more comparative approach, such as ‘A Shophouse Study Report: A Case Study of Shophouses in Phuket, Thailand and Singapore’ (Jirasakwittaya and Arkarapotiwiwong, 2000). In addition, other research has emphasised the local context over similarities in function, plan and design. A good example is *The Study of Shophouse Development in Trang Province* (Wongpradit, 2000) and *The Shophouse in Historic Urban Landscape of Phuket Old Town* (Sittichoke, 2017). A recent study by Wongpradit and Kirdsiri has focused on the evolution of façade design in port towns. This last study has identified seven specific types and three overarching periods significant to understanding shophouse development (Wongpradit and Kirdsiri, 2018).

This short literature review clearly indicates that very little work has been done on shophouses in the western seaports of the Southern Peninsula of Thailand. There has been limited investigation on specific areas, but little effort has been made to synthesise information across these several port towns along the Andaman Sea. The methodology has also lacked a sense cohesion and consistency. Moreover, although a number of studies have discussed and examined the physical features of shophouses, little effort has been devoted to better understand the factors underlying their design and evolution.

4. METHODS AND SCOPE OF STUDY

The research process is divided into two parts:

Part 1: The first step in this process has been to review the literature to set the research direction and differentiate the development of shophouse styles. The literature review also reveals aspects of culture, economics, culture and politics in study areas allowing for a broader understanding of the history and surrounding context. Reference to maps and old photos, which display physical characteristics, topology and architectural styles, provide additional information on buildings and their historical context. The correlation of data with information from the field study (Part 2) serves to synthesise the information and raw field data, helping to identify important shifts in design over time.

Part 2: The collection of survey data began with an examination of maps derived from satellite imagery to make a rapid survey and on-the-ground photography and observation. The data are then organised according to the following criteria to select specific shophouses as case studies.

- contains a sufficient variety of architectural characteristics
- possesses authenticity of architectural ornamentation
- has been in continuous use
- has an occupant available for an interview

The choice for measurement was based on the identification of representative examples and outstanding and rare features. Once buildings were selected for measurement, the research team made appointments with owners to ask for permission to record their buildings. This process included measured drawings, photographs, interviews and additional library and archival research. Finally, data collection was systemised, and architectural ornaments of façades were classified.

The area scope of this study consists of the urban centres of four port towns, all of which featuring continuous histories of habitation. A significant criterion for selection was that the case study properties should be situated in streetscapes displaying a great number of shophouses and a wide variety of architectural styles. For this study, the authors selected towns from the selected seaports, namely, Takuapa, Pangnga; Phuket old town; Kantang in Trang in the Andaman Sea of Thailand; and George Town, Penang, Malaysia.

The study was based on an analysis of the architectural elements of shophouses (consisting of façades, including the roof, upper and lower façades, windows, doors, air ventilation, five-foot walkway, structure and materials). Shophouses built from 1790 to 1970 were selected as the study samples. The results of the research are presented here and also in a longer publication entitled *Reflections on the Shophouse Façade Development of the Andaman Sea–Malay Peninsula Port Towns*. The evolution of shophouse façades in the port towns located in the Andaman Sea and Penang in Malay Peninsula (Wongpradit and Kirdsiri, 2018) is illustrated in Figure 2.

5. RESULTS

5.1 Early shophouse style (1790s–1900s)

The principal early influence on shophouse designs was the urban traditions of Chinese in Southern China. These prototypes were in no way uniform, and the diversity in the character of early Southeast Asian shophouses built by Chinese immigrants are presented in Figure 3 and Table 1. Typically, shophouse buildings had one or two storeys and relatively low elevations. They featured gable and hipped roofs, covered (at an early period) by nipa palm leaves¹ and ceramic tiles. Upper elevations were (and are, in present examples) relatively short compared to lower elevations. Walls typically consist of timber or mixed timber and masonry, with the

¹ Nowadays there is no evidence of roof covered with nipa palm leaves. Data received from old photos and the interviewee: Sanguan Kittichet. 31th March 2015.

masonry serving as an infill between vertical supports. These structures later evolved to concrete posts with wood and masonry infills.

Typology of Shop House in Andaman Sea-Malay Peninsula Port Town

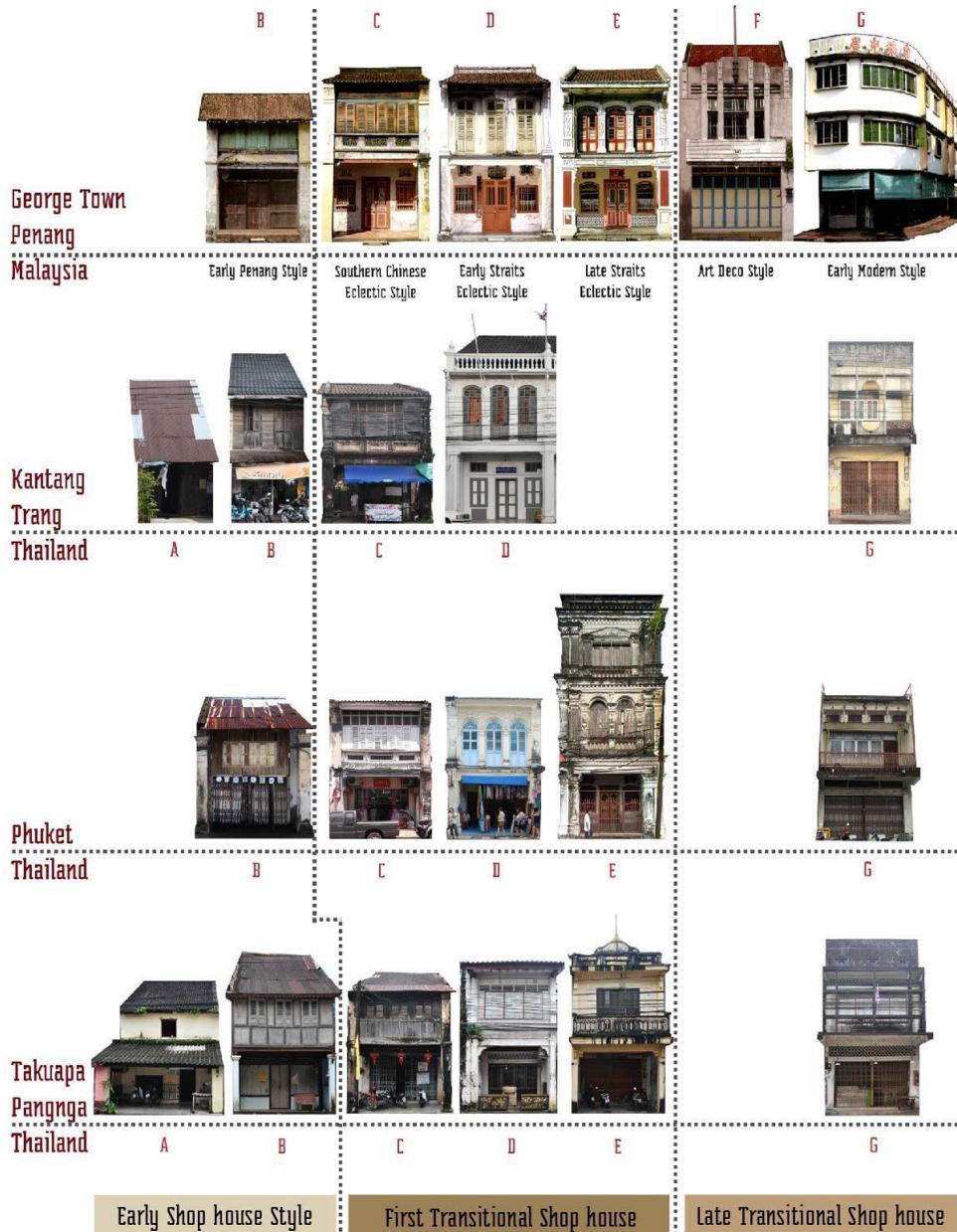


Figure 2: Illustration of the Development of Shophouse Characteristics in the Andaman Sea–Malay Peninsula Port Towns. (By the researcher, adapted from Reflections on the Shophouse Facades Development (Wongpradit, 2018))

Doors and windows varied and included double-swing doors, folding doors and vertical plank doors (บานฝาตั้ง²), the latter of which were particularly suited for trading and transporting goods. Most entrances and windows featured ventilation screens above doors and windows, which generally have the same width as the door or window frames. Some shophouses have double casement doors and windows constructed of timber. In Penang, a five-foot walkway spanned the street-facing façade, which was paved in terracotta tiles, with the overhanging second storey consisting of a wood floor supported by joists. Takuapa, Phuket and Kantang feature shophouses with five-foot walkways and others with cantilevered covers. In terms of the structure of the

² Vertical timber planks that can be inserted into top and bottom wooden rails and also taken out to create large openings. Sometimes, it secures with horizontal timber or steel bar inside for better strength.

buildings, Penang had only loaded bearing wall, but Takuapa, Phuket and Kantang contained buildings with load-bearing walls and skeleton frames.



Figure 3: Illustration of Shophouse Façades in the Early Shophouse Style

Table 1: Demonstration of Architectural Ornaments in the Early Shophouse Style

			A-B			
	Roof	Upper and lower façade	Window/Air ventilation	Door/Air ventilation	Arcade	Material/Structure
George Town, Penang	Gable	- Simple low wall and full-width timber panels or louvered shutters.	- Full-width timber panels or louvered shutters.	- Removable vertical timber panelling creates a large opening. - Lattice for ventilation above door height. - Central door and two square shutter openings.	- Five-foot walkway	- Masonry (Load bearing wall)
Kantang	Gable/Hip	- Flat wall timber panel and wood windows grouped in 2-3 sets.	- Full-height timber-framed openings with full-width air vent and solid door height.	- Removable vertical timber panelling creates a large opening. - Lattice for ventilation above door height.	- Roof awning	- Wood (Col & Beam) - Skeleton
Phuket	Gable	- Flat wall timber panel and full-width timber windows.	- Full-width timber panels or louvered shutters.	- Removable vertical timber panelling creates a large	- Five-foot walkway	- Wood (Col & Beam / Skeleton) - Masonry
Takuapa	Gable	- Simple low wall and full-width timber panels or louvered shutters. - Flat brick wall with central window in 1 set	- Full-width timber panels or louvered shutters.	- Removable vertical timber panelling creates a large opening. - Central door and two square shutter openings.	- Five-foot walkway - Roof awning	- Wood (Col & Beam / Skeleton) - Masonry

The topography of the Bay of Bengal prevented the establishment of deep seaports along the Indian East coast largely due to the sea's shallow bottom and the presence of sand dunes, clay and mangrove forests along the coast. As a result, ships needed to anchor in open seas. Moreover, few ports emerged along the Indian coast (Saraya, 2011). The geographic morphology of the coasts of the Andaman Sea and Malay Peninsula was conducive for building ports. Accordingly, several port towns of Southern Thailand and the Malay Peninsula emerged. With the development of trade, ships from East India were required to stop by port towns, which was attributed to the following reasons: (1) to resupply and repair ships; (2) to shelter from the monsoon before crossing the Strait of Malacca to the Gulf of Thailand and South China Sea; (3) to serve as an interchange centre for the transfer of goods from the sea to the in-land by railway trains, such as the Kantang and Butterworth Railway in Penang; and (4) to provide British and Indian traders a way to expand tin trading in port towns in the Andaman Sea and Malay Peninsula (Ryan, 1983) and Phuket and Takuapa in southern Thailand. These

factors stimulated the transition from simple trading stations to important seaports with substantial numbers of Indian, Chinese, British and other traders who were settled permanently.

Captain Francis Light³ (1740–1794) first proposed Penang as a free port under the colonial rulers of the British East India Company. This declaration led to Penang's rapid population growth, which quickly expanded through the addition of over 8,000 immigrants. They included indigenous native Malays and marine traders from China, India and Burma. (Ryan, 1983). When the British established the Straits Settlements in 1825, Penang became the capital and served as the headquarters. After that time, the population growth rate of the Straits Settlements rapidly increased, again as a consequence of Chinese immigration to Penang. The motivation of the Chinese immigrants was the opportunity to grow in this new town due to the shortage of labour and rapid commercial expansion. Administrative rules allowed traders to run their businesses with the help of kinsmen and family members abroad. The first group of Chinese immigrants mostly consisted of labourers and artisans living in the Straits Settlements (Ryan, 1983). Following this group, another wave of Chinese immigrants travelled to the Andaman Sea ports in Thailand initially to work in tin mines and later to open businesses.

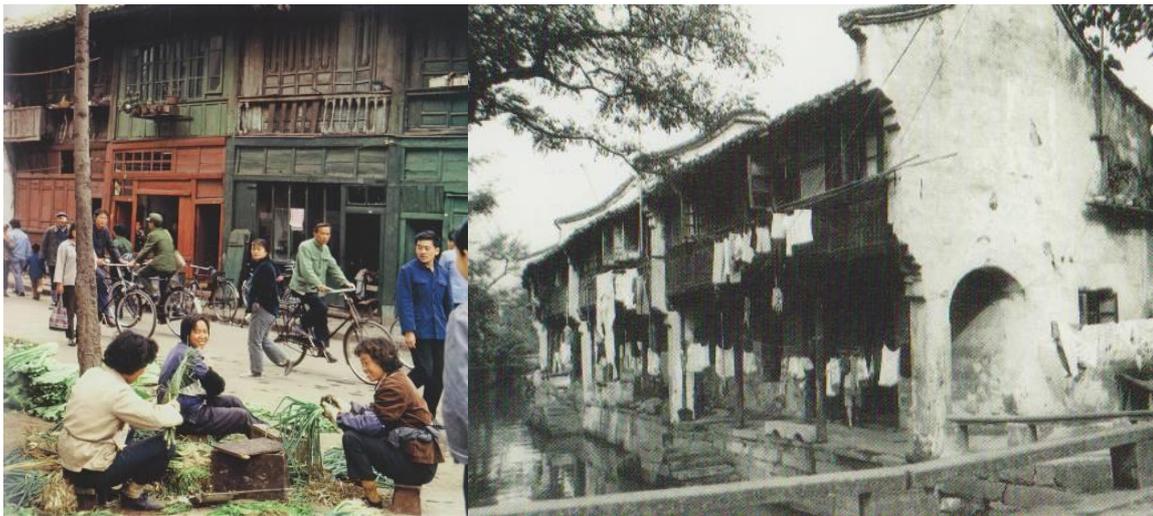


Figure 4: Pictures of Shophouses in Yunan and Jiangsu, China
(From Singapore Shophouse (Davison, 2010))

Figure 4 demonstrates how shophouses in the study area closely resemble shophouses in southern China. This finding verifies the high level of cultural transmission, particularly in the form of housing. The overseas Chinese imported not only a template for design but also traditions in construction materials and labour. Chinese lifestyles and traditions therefore had a major influence on the artistic repertoire and architectural practice in the region. Nonetheless, details were often simplified, and local natural materials, such as brick, sand, wood and nipa palm leaves, substituted those of China.

5.2 First transitional shophouse (1890s–1940s)

Shophouse façade designs were derived from traditional Chinese examples of Southern China and traditions of Western building and housing types. Figure 5 and Table 2 reveal that the 2–3-storey shophouses of this second period have a high level of architectural elaboration and design. In the early period, gable forms with ridges and parapets hid the roof and therefore ceramic tiled roofs. Upper elevations in the early period were decorated with Chinese capitals and jalousie windows and with ventilation grills or openings above. The walls below windows typically featured solid walls or Chinese glazed tiles.⁴ Gradually, decorative ornaments were applied to the façades. Later, Western ornaments were popularly used, which included Doric and Ionic capitals. Double casement windows and pillars and walls decorated with stucco were also common. The tops of windows featured fanlights, decorated with stained glass, which reveals the strong Western influence. In Penang, shophouses were built with only masonry walls. In Takuapa, Phuket and Kantang, walls were made of wood (in the early period) and brick masonry. Party walls were almost always formed by masonry, as it were fire breaks between buildings.

³ Opening as a free port, it provoked a rapid population growth in Penang. However, in terms of administration, the income tax was lower than expenses. Requesting for financial assistance from British East India Company became essential. In 1801, an agreement to levy 5% tax on incoming and outgoing goods was proposed. Since then, Penang was no longer a free port.

⁴ Chinese glazed tile hollowed glazed ceramic tile is normally green colour and used as ventilation block.

Most shophouse designs included decorative column bases at the ground-floor level. Doors were generally folding doors, combined with different types of ventilation openings above. The main façades nearly always feature double casement doors in the centre and two casement windows flanking the door. Again, these openings typically include a transom for ventilation above. All of these elements were mainly constructed of wood. The five-foot walkways in Penang were regulated to set back for at least 5 feet. Initially, this area featured a terracotta tile floor, but overtime, the paving changed to a checkerboard tile pattern and Western glazed tile.⁵ In Takuapa, Phuket and Kantang, there were five-foot walkways combined with a cantilevered canopy. In Penang, the shophouse structure relies on load-bearing walls. In Takuapa, Phuket and Kantang, the buildings had load-bearing walls and skeleton frames. Significantly, Portland cement was used not only for structural but also for wall surface coating.



Figure 5: Illustration of Shophouse Façades in the First Transitional Shophouse Style

Table 2: Demonstration of Architectural Ornaments in the First Transitional Shophouse Style

	C-D-E					
	Roof	Upper and lower façade	Window/Air ventilation	Door/Air ventilation	Arcade	Material/Structure
George Town, Penang	- Gable - Gable with parapet	- Low brick wall with indented panels, green ceramic air vents. - Flat wall panel/Raised plaster frame/architrave with central keystone. - Decorative plasterworks (architrave, pilasters, cornices, glazed, etc.)	- Full-width timber louvred shutters. - Full-height timber-framed openings with fanlight and door height louvred shutters. - Full-height timber-framed openings with internal balustrade, glazed fanlight and door-height louvred shutters.	- Removable vertical timber panelling creates a large opening. - Lattice for ventilation above door height. - Central comb door and solid inner door/two square shutter openings plus air vents. - Dado panel below window with ceramic majolica tiles.	- Five-foot walkway	- Masonry (Load bearing wall) - RFC (Col & Beam/Skeleton)

⁵ This tile can be merely found in Penang and Phuket.

Table 2: Demonstration of Architectural Ornaments in the First Transitional Shophouse Style (Continued)

	C-D-E					
	Roof	Upper and lower façade	Window/Air ventilation	Door/Air ventilation	Arcade	Material/Structure
Katang	- Gable with parapet	- Low brick wall with moulded decorative. - Flat wall panel/Raised plaster frame/architrave with central keystone.	- Full-width timber louvred shutters. - Full-height timber-framed openings with fanlight and door height louvred shutters.	- Removable vertical timber panelling creates a large opening. - Lattice for ventilation above door height. - Central solid door and two square shutter openings.	- Five-foot walkway	- Wood (Skeleton) - Masonry (Load bearing wall) - RFC (Skeleton)
Phuket	- Gable with parapet	- Low brick wall with indented panels, green ceramic air vents. - Flat wall panel/Raised plaster frame/architrave with central keystone. - Decorative plasterworks (architrave, pilasters, cornices, glazed, etc.)	- Full-width timber louvred shutters. - Full-height timber-framed openings with fanlight and door height louvred shutters. - Full-height timber-framed openings with internal balustrade, glazed fanlight and door-height louvred shutters.	- Removable vertical timber panelling creates a large opening. - Lattice for ventilation above door height. - Central comb door and solid inner door/two square shutter openings plus air vents.	- Five-foot walkway	- Wood (Skeleton) - Masonry (Load bearing wall) - RFC (Skeleton)
Takuapa	- Gable with parapet	- Low brick wall with moulded decorative. - Low brick wall with moulded decorative and full-width windows.	- Full-width timber louvred shutters. - Full-height timber-framed openings with fanlight and door height louvred shutters.	-Removable vertical timber panelling creates a large opening. -Air vent above door height.	- Five-foot walkway - Roof awning	- Masonry (Load bearing wall) - RFC (Skeleton)

Urban development in the port towns of the Straits Settlements followed the longstanding conventions of British town planning. Singapore, one of the most significant port towns, was an exemplar of these concepts. Designed by Sir Thomas Stamford Raffles, the Raffles Town Plan was written in 1823 and applied in 1828 (Kong, 2011). This plan was adapted from experience and observation from the planning of Georgetown in Penang. One of the outstanding shophouse components was the inclusion of a five-foot-wide covered arched pedestrian called Five-Foot Way (Wan Ismail, 2005). This walkway is called a *kaki lima* in Penang and a *knorr kar ki* in Phuket. The purpose of this arcade was to create a sun and rain shield for pedestrians.

The arcade had in fact several functions. Initially, this designed element was consistent with the climate in the monsoon zone near the equator (Wongpradit et al., 2015). It also served as a place to store or display goods during opening times. Finally, the five-foot way provided a sense of architectural unity to shophouse rows, making it a complete urban design (Wan Ismail, 2005).

Considering the front elevation of shophouses in Takuapa, Phuket or Kantang (see Figure 6), the five-foot way is also one of the elements in buildings, just as it was in Penang and Singapore. However, the passageways in these Thai ports did not follow the same restricted condition of the Straits Settlements. Most significantly, the cantilevered roof substituted as a covering for the passageway, which was often not linked from property to property.

Wanliphodom pointed out in Thalang Historical Seminar 1984 that communities in the western coast of the Thai Peninsula did not directly stem from agriculture, like many other areas, but from the smelting industry. Hence, the character of this local community is distinctively different from others. This knowledge required an adjustment for the research on buildings in the west coast of Thailand, although the results did not significantly differ. The most important factors remained the site's place within the network of a trading route and the adjustment of buildings to commercial needs (Organizing Committee of Commemoration for His Majesty's the King, Committee of Document and Archive Processing, 2001).

Throughout the region, the Chinese largely functioned as middlemen in a goods exchange at the regional and international levels. Most of these merchants enjoyed some level of capital accumulation from the Straits Settlements prior to launching businesses in the southern part of Siam. Furthermore, the Chinese communities enjoyed strong family-based business relations throughout the Malay Peninsula under organisations and associations. As a result, Chinese dealers easily created a business network and took risks in large enterprises, such as tin mining and tax farming, in the southern seaports (Songprasert, 1987).



Figure 6: Illustration of the Covered Walkways That Were Adapted into Several Forms, such as Cantilevered Roofs and Covered Passageways, Which Were Supported with Columns or Roof Brackets

All these factors had impacts on shophouse designs: (1) Chinese population; (2) European (mostly British and British colonial) influence, in terms of planning and urban design and for architectural elements and styles; (3) the trade itself. As shown in the similarities of the façades, eclectic-style shophouses, which emerged from a blend of Chinese and Indian architecture styles, was popular in the early period of the growing tin trade. Variations certainly existed among the buildings from town to town. Compared with architectural decorative features on the façades of shophouses in TakuaPa, shophouses in Phuket are more highly decorated. Both port towns were tin mining centres, but Phuket was more accessible and the economy was more robust. Wealth, therefore, had an influence, but it was not the only factor. To understand this variation in designs, further research, especially interviews with owners, is necessary.

Each of the Thai port towns had their own special niche. For Kantang, tin mining was the main factor in the emergence of this port town and shophouse development. The key cause was its geographical position between the Andaman Sea and Trang River estuary. In 1893, Phraya Ratsadanupradit Mahitsaraphakdi (Khaw Sim Bee Na Ranong) requested royal permission to relocate the centre of the Trang government to the Kantang district, which contained a seaport convenient for trade with other seaports. In 1909, King Chulalongkorn (King Rama V) completed cooperation negotiations with England to launch the Southern railway continuing from Petchburi to the Southern peninsula. The major route pointed in the direction of Hat Yai and ended in Malaya. In addition, an interchange existed for the Kantang Branch Line, which continued south from Thung Song Junction in Nakhon Si Thammarat Province to Kantang in Trang Province. This 93-kilometre-long route opened in 1912. The Kantang station was assumed to be in a strategic location because it was the sole Siamese railway station among the port towns of the Andaman Sea. The station allowed for the connection between rail transportation and the sea, leading to a stable trade and political relationship between Thailand and Britain. As a result, Siam did not need to rely on a goods transfer at the Butterworth railway station in Penang but could deal with shipping and merchants independently (Wongpradit et al., 2015).

The analysis on the shophouse style in Kantang revealed that shophouses in the earliest stage were diverse in character. Kantang was the original capital of Trang Province. One of the interviewees explained that in 1912-1913, Phraya Ratsadanupradit Mahitsaraphakdi (Khaw Sim Bee Na Ranong) was assigned to become the governor of Trang. This governor brought architectural drawings and plans from Penang to serve as blueprints for shophouses located in the middle of Tub Tieng (present Amphoe Mueang Trang). It can be assumed that this shophouse pattern was employed in the construction of other shophouses in Kantang (see Figure 7). Following World War II, the numbers of artisans available to build shophouses significantly dropped. As a result, there were no real innovations in the design up to the end of the period, which is identified here as the Second Eclectic-Style Shophouse (Type D). This development corresponded with the diminished role of Kantang in the area. The appearance of what might be considered 'Early Modern' relating to the introduction of rail transportation and later roads and factors are discussed in section 5.3.



Figure 7: Illustration of the Shophouses Located in the Middle of Tub Tiang, Trang, Constructed Through Reference to Models in Penang

During the heyday of the tin trade, seaports in the Andaman Sea and Malay Peninsula became the centre of regional trade, resulting in the ever-increasing economic liquidity. The construction of houses and shophouses for commercial business turned these ports into dense townscapes, extending out to the suburbs. The predominant style of shophouses was Chinese mixed with Western, which gave primacy to decorative architectural ornaments. Information gained from this field study revealed the extent to which shophouses in the Andaman Sea area has patterns directly based on houses in Penang. Nevertheless, the overall tendency was increased simplification as a result of limitations in cost, materials and artisan. Thai contractors mostly relied on local materials, such as wood, clay bricks, lime mortar, ventilation block and ceramic tile, with some materials, such as glass, cast iron and printed tiles, still being imported.

5.3 Late transitional shophouse (1930s–1970s)

In the 1920s, the Art Deco style began and immediately sparked an international fashion in architecture and decorative arts (The Paris Exhibition 1925). Art Deco offered a new technology, rooted in the past but also looking forward to new materials and technologies. By the end of the decade, the Art Deco and newer expressions of European modernism combined to dominate design around the world (Tan, 2015). These styles had a significant impact on emerging architecture in Southeast Asian in the 1930s. Figure 8 and Table 3 demonstrate how shophouses with 2–3 floors have a strong sense of verticality, a proclivity of the various forms of Europe modernism. Figure 8 shows a gable-roofed building surmounted by a flagstaff. Improvements in reinforced concrete construction led, in turn, to a reliance on slab roofs. Initially, the upper façade tended to be decorated with vertical and horizontal mouldings in Shanghai style. Horizontal ventilation screens divided the spaces above steel-framed windows. The solid wall beneath the end framed the building's name or a shop sign.

As the building of shophouses progressed, vertical and horizontal sunscreens were installed along façades and covered metal frame glass windows (in the Malay Peninsula). The windows were adapted to timber frame glass windows (in the Andaman Sea). Masonry walls and concrete walls were used together. At the lower floor levels, doors were made of timber and metal and had steel ventilation above. In later examples, shutter doors were used instead. The five-foot walkway was expressed in the form of reinforced concrete panels cantilevered from structural beams to create a column-free sidewalk. Reinforced concrete was used as the structural material in the skeleton frame.

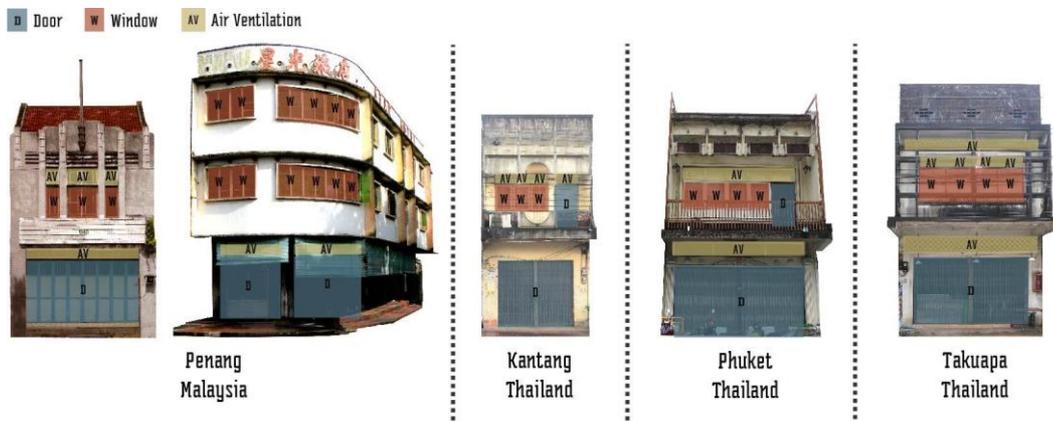


Figure 8: Illustration of Shophouse Façades in the Late Transitional Shophouse Style

Table 3: Demonstration of Architectural Ornaments in the Late Transitional Shophouse Style

	F-G					
	Roof	Upper and lower façade	Window/Air ventilation	Door/Air ventilation	Arcade	Material/Structure
George Town, Penang	- Gable with parapet - RFC. flat slab	- Brickwork with Shanghai plaster finish decorated with horizontal or vertical band. - Horizontal and vertical RFC shading fins.	- Metal-framed windows grouped in three sets with sea-green coloured glass. - Sometimes wrapping in front of internal structural columns on corner sites.	- Timber or metal folding panels creates a large opening. - Central doors, timber, glass and decorative metal ventilation panels. - Metal grille for ventilation above door height. - Simplified square openings between structural columns.	- Five-foot walkway	- RFC. (Col & Beam / Skeleton)
Katang	-Gable with parapet - RFC. flat slab	- Horizontal and vertical RFC shading fins.	- Full-width timber window with glass.	- Removable vertical timber panelling creates a large opening.	- Slab awning	- RFC. (Col & Beam / Skeleton)
Phuket	-Gable with parapet - RFC. flat slab	- Horizontal and vertical RFC shading fins.	- Full-width timber window with glass.	- Removable vertical timber panelling creates a large opening. - Full-width ventilation above door height.	- Slab awning	- RFC. (Col & Beam / Skeleton)
Takuapa	-Gable with parapet - RFC. flat slab	- Horizontal and vertical RFC shading fins.	- Full-width timber window with glass-square light and full-width air vent above windows.	- Removable vertical timber panelling creates a large opening. - Full-width ventilation above door height.	- Slab awning	- RFC. (Col & Beam / Skeleton)

The Art Deco and Modern styles were largely found among the shophouses of Penang only.⁶ However, Early Modern-style shophouses were a typical part of the architectural assemblage for all Thai seaports. Especially, in Bangkok, buildings with a nod to modernism became increasingly common by the mid-1930s (Prakitnonthakan, 2007). Perhaps, the most notable were the ranges of four-storey buildings flanking Ratchadamnoen Avenue constructed in 1937. The notion of modernity played a major role in building styles and modern political ideology.

The uniqueness of Early Modern-style shophouses lent a special quality to the new generation of shophouses. The style is distinguishable in parapets masking flat roofs and gables (Prakitnonthakan, 2009).⁷ Particularly, in Bangkok, where the Building Construction Control Act (B.E. 1940) stated that roofs of commercial buildings and public buildings must have flat roofs, the new style fit well with the requirements (Bangkok Metropolitan Administration Act, 1940). As a result, awning and cantilevered sunshades came to be harmoniously joined with building mass. Door and window elements typically consisted of metal frames and glass panels. In the case of shophouses in Penang, the covered walkway relied on cantilever concrete sunshades without columns or an evident structure to support.

Because of these developments, a shift in the direction of architectural fashion occurred. For the first time, the new shophouses in the port towns of the Andaman Sea appeared to take their direction from Bangkok rather than Penang. With the Siamese revolution in 1932, radical changes in political, economic and social structures occurred throughout Thailand. The relations between port towns in the Andaman Sea and Malay Peninsula significantly decreased, and contacts with Thailand's capital were increased by railways and newly cut roads, bringing the provinces more in line with governmental planning and commercial development at Thailand's centre. Notably, for example, Phet Kasem Road was specifically built to link Bangkok with southern cities. These new communication and transportation networks additionally promoted the transmission of construction materials, technologies and techniques from Bangkok (Wongpradit et al., 2015).

⁶ There are several forms of Art Deco Style in Penang, which were different from Thailand's Western seaports. It was a result of the trading with Shanghai that passed through Singapore, which is also a part of the Straits Settlements. See more details on Art Deco Style in *Penang Shophouses* (Tan, 2015).

⁷ Example of buildings along Ratchadamnoen Avenue: Construction technology and geographical condition are the factors of building high gable roofs with parapet walls to cover the roofs. This is to present modernity in exterior appearance. See further details in *The Art and Architecture of the People's Party: Political Symbols in Ideological Aspect* (Prakitnonthakan, 2009).

With the increase in rail and road transport, the influence of construction materials from the centre of the country began to play a significant role. In addition, styles influenced by international ideas of modern construction technology and the effects of the post-World War II era began to have impacts on the Early Modern-style shophouses.

Thus, it is difficult to precisely analyse changes in the architectural fashion based on strictly defined eras of time. Each style overlaps other periods of style, before and after. Frequent changes in architecture reflect shifts in society, politics, transportation and cultural trends, including economics and technology, which is particularly indicated in this study.

6. CONCLUSIONS

Shophouse façade designs in the port towns of the Andaman Sea and Malay Peninsula can be divided into three periods of time: The first one is the Early Shophouse Style, in which the shophouse façades have a wide variety of forms throughout the region. The chief similarity in all study areas is attributed to the fact that the shophouses were built in simple forms and possessed uncomplicated structures. The geographic location of port towns and their connection to the maritime trade route was the key reason for the prosperity of these port towns. Initially, as free ports, these towns attracted the migration of multiple cultures to settle and built shophouses for commercial and residential uses. Local or self-produced materials were used, and construction and design relied on local labour and expertise. Shophouses in this period were significantly influenced by local traditions and the building forms of overseas Chinese.

The second period, i.e., the Early Transitional Shophouse Style, is characterised by combined Chinese and Western influences. In terms of façade patterns, architectural features and construction system are rather similar, and details in the materials used are different. However, the causes and determinants of emerging shophouse styles are different based on the role that each city plays in the social and economic lives of the communities. The founding of the Straits Settlements in the 1820s promoted Penang as a headquarters. Accordingly, shophouses in the area were regulated to provide recessed covered walkways. By contrast, there were no such regulations in the Andaman seaports. Nonetheless, the covered walkway was adopted there largely for practical reasons, resulting in a number of variations to the shopfronts. With the prosperity generated by the tin trade, Penang became a trading hub between the port towns of Phuket and Takuapa. The Modern shophouse style was also transmitted at this time. Conversely, Kantang was somewhat removed from this nexus, serving as its own distribution centre due to its close relationship with the Trang River Estuary, a major old distribution rail route. Although the basic design for shophouses came from models (and actual blueprints) in Penang, Kantang's shophouses were simpler and less decorated than those in Penang—largely due to a lack of local artisans and smaller budgets.

The last style, i.e., the Late Transitional Shophouse Style, reflected revolutionary changes in transportation and communication in the 1930s. Shophouses of this era were influenced by international ideas of design and advances in construction technology. Modern materials and technologies helped spawn a new wave of Art Deco shophouses in Penang, spreading eventually to the building practices of the port towns of the Andaman Sea and Malay Peninsula. Subsequent developments in Thailand particularly reflected further changes in transportation and a greater reach of metropolitan Bangkok into one-remote provinces.

ACKNOWLEDGEMENTS

This article, entitled *Shophouse Facade Designs in the Port Towns of the Andaman Sea and Malay Peninsula*, is a part of the Ph.D. thesis on 'The Port Towns and Row house in the Western part of Southern Thailand and Malay Peninsula: The Synthesis of History and Architectural Development' by Pat Wongpradit, Ph.D. Candidate, Vernacular Architecture Programme, Faculty of Architecture, Silpakorn University. Under the research funding of the Royal Golden Jubilee, PhD Programme, funded by the Thailand Research Fund (TRF), Class 18th and the Excellence Center for Integrated Research Center for World Heritage, Creative City, and Historic Urban Landscape in Southeast Asia.

REFERENCES

Bangkok Metropolitan Administration Act. (1940). *Building Construction Control Act, B.E.1940*. Bangkok: Nitivech. [in Thai]

- Chantavulasvong, S. (1978). *A Study of Some Aspects of Shop-House Architecture*. Master's Thesis. Chulalongkorn University, Thailand. [in Thai]
- Davison, J. (2010). *Singapore Shophouse*. Singapore: Talisman Publishing.
- Jirasakwittaya, C. and Arkarapotiwiang, P. (2000). *Shophouse Study: Case Study of Shophouses in Phuket, Thailand and Singapore (Thai Architecture Report)*. Bangkok: Silpakorn University. [in Thai]
- King Mongkut's Institute of Technology Ladkrabang. (1997). *Feasibility Study of Improving the Attractiveness of in a Street Environment Located in Phuket Old Town: Talang (Final Report)*. Bangkok: King Mongkut's Institute of Technology Ladkrabang. [in Thai]
- Kong, L. (2011). *Conserving the Past, Creating the Future: Urban Heritage in Singapore*. Singapore: Urban Redevelopment Authority of Singapore.
- Office of Natural Resources and Environmental Policy and Planning. (2018). *Conservation and Development of the Old Town in Thailand*. Bangkok: ET Publishing. [in Thai]
- Oliver, P. (1998). *Encyclopedia of Vernacular Architecture of the World*. Cambridge: Cambridge University.
- Organizing Committee of Commemoration for His Majesty's the King, Committee of Document and Archive Processing. (2001). *Culture, Historical Development, Identity, and Wise Wisdom in Phuket Province*. Bangkok: Ministry of Education. [in Thai]
- Prakitnonthakan, C. (2007). Memories and power on Ratchadamnoen Avenue. *Muangboran Journal* 33(4): 67-86.
- Prakitnonthakan, C. (2009). *The Art and Architecture of the People's Party: Political Symbols in Ideological Aspect*. Bangkok: Matichon.
- Ryan, N. J. (1983). *The Making of Modern Malaysia and Singapore*, translated by P. Sirisuk. Bangkok: The Foundation for the Promotion of Social Sciences and Humanities Textbooks Project. [in Thai]
- Saraya, T. (2011). *The History of Indian Ocean*. Bangkok: Muangboran Publishing. [in Thai]
- Sittichoke, P. (2017). *Shophouse in Historic Urban Landscape of Phuket Old Town*. Master's thesis. Silpakorn University, Thailand. [in Thai]
- Songprasert, P. (1987). China's modernization: The opportunity for Chinese Capital in Thailand. *Journal of Political Economy* 6(1-2): 89-106. [in Thai]
- Tan, Y. W. (2015). *Penang Shophouse*. Penang: Phoenix Press.
- Wan Ismail, W. H. (2005). *Houses in Malaysia Fusion of the East and the West*. Johor: Penerbit UTM.
- Wheatley, P. (1961). *The Golden Khersonese: Studies in the Historical Geography of the Malay Peninsula before A.D. 150*. Kuala Lumpur: University of Malaya Press.
- Wongpradit, P. (2014). *The Study of Shophouse Development in Trang Province*. Master's thesis. Silpakorn University, Thailand. [in Thai]
- Wongpradit, P. and Kirdsiri, K. (2018). Reflections on the shophouse facades development of the Andaman Sea-Malay Peninsula port town. *The Architectural Journal of The Association of Siamese Architects under Royal Patronage* 2: 41-53. [in Thai]
- Wongpradit, P., Kirdsiri K. and Panin, O. (2015). Contexts affecting architectural form of shophouse and its development, historic urban landscapes of Tub-Tiang, Trang Province. *Journal of Najua Architecture, Design and Built Environment* 29: 205-222. [in Thai]