

SEO RYEUNG JU *Kyung Hee University*

SAARI BIN OMAR* *University of Malaya*

A Typology of Modern Housing in Malaysia

Modernization of cities and housing in Malaysia is a reflection of the history of the establishment of colonial trading ports for worldwide maritime trade and exchange. In cosmopolitan cities, new housing typology appeared from the influence of various ethnic immigrants and with the fusion of traditional Malay housing characteristics. This study is to focus on classifying the housing typologies of Malaysia which were formed through the modernization process of cities. The typologies of modern housing in Malaysia can be classified into two categories. The first category is the 'transformation of traditional housing'. The representative typology of this group is the ubiquitous shophouse. The shophouse was originally brought in by the Chinese immigrants from the south coast of China and transformed into the Malaysian urban landscape. The other typology is a detached-house known as the bungalow, which was the housing style combining the Malay traditional timber house and European palazzo. The second category is the 'modern urban housing typology'. Modern urbanization after the independence from the British in 1957 required the maximum utilization of land. To accommodate new social and economic needs, the new typologies were developed in the form of medium-density terrace houses (row houses) and high-density apartment. In the suburban areas, the British terrace house was adopted and developed into unique Malaysian terrace house and semi-detached house

based on the British system of land sub division. In premium area of the city, luxurious housing type in the form of high-end condominium is one of the popular housing for upper middle-class and high-class society.

Through the colonization and modernization, the British brought in multi racial immigrants into Malaysia, and it resulted in the formation of a unique social and cultural background of a plural¹ society that consists of Malays, Chinese, Indians and other minority groups.² This phenomenon is the most important factor and characteristic of Malaysian modernization.

The modernization of Malaysian housing is also the process of a fusion of traditional Malay housing and a variety of culture and architecture from China, India and European Colonial countries. The international style trend became dominant in 1960s after the country gained independence.

Therefore Modern housing in Malaysia has been developed and influenced through social and cultural exchange with various ethnic and culture and architecture.

This work was supported by Kyung Hee University Research Fund. (20070680)

Professor, Dept of Housing & Interior Design, Kyung Hee University, Korea (jcl@khu.ac.kr)

*Assistant Professor, Dept. of Architecture, University of Malaya, Malaysia

Key Words: Malasia, modern housing, housing typology, shophouse, bungalow, semi-D house, condominium

-
1. 'Plural society' could be defined as a society comprising two or more elements of social orders which live side by side, yet without mingling, in one political unit. This society is characterized by cultural diversity, politically organized cultural communities and the salience of ethnicity. Furnival, J. S. (1980) 'Plural Society' in E. Hans-Dieter (ed.), *Sociology of South East Asia: Reading on Social Change and Development*. Oxford University Press, Kuala Lumpur, quoted in Saari (1990) p3
 2. The populations of Malaysia Kuala Lumpur consist of Malays (56.1%), Chinese (33.1%), Indians (10.29%) and other minority groups. MTR(Mid Term Review) of the Fourth Malaysia Plan 1981-1985, 1984

As defined by Widodo (2003), the history of modern architecture in Asia was the history of how Asians had become modern.

The cosmopolitan cities of Malaysia attracted a global interest due to its rapid economic development and urbanization process.

This study is to expand housing research scope by exploring Southeast Asia housing. As a first step, we start with Malaysia.

Our ultimate goal is to understand Malaysian unique housing lifestyle. But, to do that, we need to understand the physical housing characteristics first. This study is to understand the contemporary housing prototypes in Malaysia from a broad perspective, and to systematically summarize the findings, before going deeper into specific research.

The methodologies in this study are literature reviews³ and field surveys. Field surveys of major cities in Malaysia have been carried out three times since 2008.⁴ To confirm our understanding, interviews with local housing expertise were also conducted.⁵

This study was carried out in several steps.

3. For the general understanding and framework of the study Chen's Encyclopedia of Malaysia Vol. 5; Architecture was reviewed. For the detailed information on each chapter, the references were as follows;

- Development of Kuala Lumpur; Gullick's Old Kuala Lumpur
 - Shophouse; URA (1995). Chinatown Historic District
 - Bungalows; Jenkins & Waveney's The Planter's Bungalow; A Journey down the Malay Peninsula and Davison's Black and White; The Singapore House 1898-1941
 - New Town Development and Urban Housing; Saari Bin Omar's Class, Ethnic Relations and the Unconventional Housing in Malaysia and Lee Boon Thong's New Towns in Malaysia: Development and Planning Policies
4. 20~27th January 2008, 6~12th August, 2008 and January~April 2009
5. We met and interviewed a lot of local housing experts. The persons who are mainly related with this article are as follows.
- General Informations: Ar. Helelna Aman Hashim and Associate Prof. Ar. Saari Omar of University Malaya
 - Traditional Malaysian Housing: Emeritus Prof. Ezrin Arbi and Adnan HJ. Abullah of University Malaya and Honourable Secretary Shansuri B. Suradi of Members Boards of Management/ Representative of Kg. Baharu
 - Shophouse: Ar. Lim Take Bane of University Malaya and Ar. Law Siak Hong of Perak Heritage Society
 - New Town Planning: Associate Prof. Saniah Ahmad Zaki of Universiti Teknologi Mara
 - New Town Development: Chief Executive Officer Koe Peng Kang of Bandar Eco Setia Sdn Bhd, Project Manager Tan Siow Chung of Setia Alam Sdn Bhd. and Assistant Vice President Firdaus Shah of Sime Darby
 - Condominium Architect: Ar. Zani Mufti

First, the representative housing typologies in contemporary housing was selected. It was conducted through literature review and housing statistics.

Second, literature review and interviews with expertise were conducted to know how the specific typologies have been evolved and formulated historically.

Third, field study was conducted to find out the representative cases for each housing typologies.⁶

In conclusion, as the first step of our Southeast Asia study, the present housing typologies of Malaysia and classified it into two major categories.

MODERNIZATION OF MALAYSIA

Establishment of Early Town

The maritime trade and exchanges with Arabs, Chinese, and Indians served as a momentum to make changes in Malay Peninsula from about the 5th century.

Due to active economic trades that centered on coastal *kampong* (village), these traditional villages were developed into the early towns in Malaysia. The major towns were Melaka, Alor Setar on the west coast, Johor Bahru to the south, and Kota Bharu, Kuala Terengganu, Pekan on the east coast. The main physical features of early towns were the *istana* (palace), the mosque and a market. However, those early towns still had rural images.

Melaka was ruled by the three western colonial powers; the Portuguese from 1511, the Dutch from 1641 and the British from 1824. Throughout the colonial period, the fabrics and shapes of the town had gradually been changed. Well-aligned streets, town squares, shophouses churches, bungalows, monastery, hospitals palaces and administrative buildings were introduced. The colonial power has changed the style of architecture and its decorative elements that resulted in Melaka became an exhibition of various architectural styles of the colonialist.

6. The detail case studies were not explained enough in this article. But for the next article, it will be studies according to its typology.

With the British occupying Penang in 1786, the town was named George Town after the King George III of Great Britain and was developed as the trading post of the East India Company. The various ethnic groups such as Europeans, Chinese and Indian Muslims established their own settlement in the town center and built their unique style of buildings. British churches, Chinese temples, Hindu temple, Indian Muslim mosques appeared at the same period.

The town was planned according to a grid pattern influenced by Great Britain. Masterpieces such as classical churches, administrative halls, hotels and bungalows, showed the wealth and power of colonialists. The religious buildings and shophouses were mostly built in the form of the eclectic style with their ethnic characteristic and traditions were assimilated.

Development of Capital City: Kuala Lumpur

Kuala Lumpur (KL) was a little inland commercial town for about 80 years, from 1859 to 1939. However, within a period of 60 years, it has grown as the largest city in the Malay Peninsula. The city was developed as the collection center for tin mines along the Klang River. KL experienced rapid changes in 1880 when the state capital of Selangor was relocated to Klang. (Capital of Federated Malay States). The Colonialist constructed a new government building and bungalows in the European quarter on the west side of the river, and the Chinese traders constructed shophouses in the east bank. The streets were laid in a grid pattern and building blocks were divided with narrow front plot. It had narrow streets for service between the back sides of shophouses that were called 'sanitary lane'. After the establishment of Sanitary Board (town council) in 1890, the sanitary and safety issues became important criteria in the development of the city.

During the colonial period, European classical style buildings were built by the colonialist. However, the style were adapted and recreated in the vernacular architectural style of diverse immigrants' ethnic architecture.

The Bangunan Sultan Abdul Samad (1897), a remarkable landmark of KL was built in a British



Figure 1. *The Bangunan Sultan Abdul Samad*

'Raj' style that was first evolved in India in the 1870s. The style was a combination of the principles of Gothic architecture, with its arches and strong vernacular lines, and the decorative features of buildings of Muslim India and the Middle East. The style also combines the grand proportions and classical symmetry of European historic buildings with the decorative Indo-Islamic features of the Mogul courts (Chen, 1998).

The important decorative elements of this building were bulbous domes with copper covering, stepped pediment topped by an ogee arch, spiral staircases of clock towers and twinned arches. To accommodate the tropical hot climate, it applied the deep verandas surrounding the buildings. Chen (1998) mentioned this eclectic architecture as a 'Strait Eclectic'

Important changes were made in architectures and city planning of KL in the 1920s and 1930s due to the strong influences of European architecture style. Art Deco style buildings were introduced to replace Strait Eclectic Style.

Anglo-Oriental Building (1936), was built in reinforced concrete structure and masonry walls, had strong horizontal and vertical banding device and were plastered with Shanghai plaster. Art Deco was applied primarily in new commercial buildings, cinemas and shophouses.

With the independence in 1957, the strong desire to define the architectural identity of a new nation brought worldwide trend of International Style for the architecture of government buildings, schools, hospitals, offices and universities. The international

Table 1. *Chronology of Malaysia*⁷

1786	A British Settlement is Established on Penang by Francis Light
1791	The East India Company(EIC) and Sultan Abdullah of Kedah sign an Agreement on the Cession of Penang
1818	Melaka is Returned to the Dutch
1819	Raffles Established a Free Port on Singapore Island
1824	The Anglo-Dutch Treaty gives British Influence over the whole of the Malay Peninsular
1826	Formation of the Straits Settlements (Penang, Singapore and Meleka)
1840	The Importance of Tin Increases, Bringing an Influx of Chinese Tin Miners to the Western Coast
1858	The Strait Settlement are Passed from the Control of EIC to the British Government
1880	Kuala Lumpur becomes the state Capital of Selengor
1880s	Large-scale Expansion of the Mining in Perak
1885	The First Railway Line, between Taiping and Port Wels, is Opened
1890s	The First Rubber Estanted are Planned in Malay Peninsula
1891~5	Rising by Malay Chiefs in Pehang Against British rule
1895	Johor's Constitution, the First for a Malay Estate, is Adopted by the State Council
1896	Selangar, Perak, Negri Sembilan and Pahang are united as the Federated Malay States (FMS) with a Resident General in Kuala Lumpur, the Capital and a High Commissioner in Singapore
1909	The Federated Council is Established as a Legislative Body for the Federated Malay States The Rail Link from Pahang to Johor Bahru is Completed, with Ferry Service to Singapore
1914~18	World War I.
1923	The Labor Code Makes it Compulsory for Estates to Provide Schools for the Children of their Workers
1941~45	Japanese Invasion of the Malay Peninsula
1945	British Reoccupy Malaya
1957	The Federation of Malaya is Granted Independence from the British Government
1965	Singapore Leaves Malaysia and becomes an Independent Nation

⁷The table was abstracted from the chronology of Cheah Boon Cheng (2001)'s.



Figure 2. *Anglo-Oriental Building*
(Source: Chen (1998), p101)

style of Malaysia was not much different from the globalized internationalism based on new technology and functionalism. However, modern architecture in Malaysia tried to design a more socially and

historically relevant buildings with the sensitivity to hot and humid tropical climate.

New Town Development

The trial to modernization of Malaysian architecture gave a significant implication to the urban planning. The new township development started with Petaling Jaya (PJ) as a satellite town at the post war and pre-independence period. It was addressed to relieve the concentration of population resulting from the economic recovery after the war, and to resolve the problem of unauthorized squatters that have grown rapidly in KL.

PJ was designed in accordance to the British town planning principles. (Lee Boon Thong, 1987) The township was a complex of residential, industrial and commercial purposes, government buildings,

public and religious facilities, and other uses. A wide array of housing prototypes such as walk-up flats (limit of 4-story), detached houses (also known as a bungalow), semi-detached houses and terrace houses were built. The commercial buildings in this new township were mostly built in the style of the modern architecture. However, the houses were mostly built with pitch roof and wide openings for cross ventilation although they're in the modern in style.

The planning principles and building designs of PJ were applied again in other suburban areas of KL since the 1970s. The most known projects were Subang Jaya, Taman Tun Dr. Ismail, Taman TAR, Bandar Utama, Bandar Sunway and Cheras in Klang Valley. Those townships were designed to provide mass housing for the middle class that has increased rapidly. The planning of the many townships was not much different from PJ's. However, the housing styles seemed like an exhibition field of new housing prototypes.

Based on the literature review and interviews with local housing expertise in Malaysia, the typologies of modern housing in Malaysia can be classified into 2 categories.

The first category is the one that derived from the "transformation of traditional housing". With the arrival of the colonialist and the new ethnic groups, they brought their own housing styles and adapted it to Malaysian vernacular material and customized it to the tropical climatic condition. The example is the shophouse that was brought by the Chinese immigrants from the south coast of China and transformed into the Malaysian housing of early town. The bungalow was another typology built by the colonialist that combined the Malay traditional timber house with European palazzo.

The second category is the "modern urban housing type" resulted from rapid economic and urbanization process after the independence. Modern urbanization emphasized the maximum utilization of land. To accommodate new social and economic needs, the new typologies were developed in the various forms of medium and high density housing typologies within the new townships. Walk-up flats, apartment, detached houses, semi-detached

houses and terrace houses were developed in the architectural style of international functionalism modified for the tropical climate and using new materials and technology.

TRANSFORMATION OF TRADITIONAL HOUSING

Shophouse

The shophouse is a unique urban housing form found in Southeast Asian historic cities. The definition of shophouse is a narrow, small scale terraced structure that provides business for a ground floor and residential purpose for an upper floor. Shophouses were built in rows with uniform facades in grid pattern networks of roads and back lanes. Elongated with a narrow frontage, the standard width of the building ranged between 4 and 6 meters, and the depth ranged at least 2 to 3 times longer than the width. The shophouse is generally two or three story-high. There are masonry party walls between units to prevent a fire. Internal courtyards (air wells) and jack roof provided natural ventilation for the house. The street facade of the ground floor has continual arcades, what is called the 'five-foot way' for the sake of regularity and conformity and they provide a shelter for pedestrians from the hot sun and torrential rainfall.

The derivatives of the shophouse were the elongated Melakan townhouse. Although a shophouse was analogous in an architectural style, a house without shops like in case of Melaka could be classified as a townhouse. The archetype of shophouse was originated from Chinese immigrants who came from the southern coastal provinces of China in the 19th century, and it became a common housing typology in early towns. The early Malaysian shophouse started from the colonial town of George Town in Penang.

The shophouse was originally constructed with timbers and attap roofs. However, after a big fire in KL in 1881, the shophouses were required to be built with bricks party walls and tile roofs.

The decorative style that appeared on the facades of shophouses evolved chronologically according to



Figure 3. *Shophouses, Jalan Ngor in Penang*

the influence of the design style in Europe, such as Neo-Gothic, Baroque and Neo-classical, Dutch Patrician, Art Deco and International Style. However, the style could be adapted by ethnic or personal taste, fashion and technological circumstances.

Bungalow

The word, 'Bungalow' is derived from Bengal House of India. It means a timber structure with a thatched roof and a veranda (Chen, 1998), while King (1995) defined 'Bungalow' as a peasant's hut in rural areas of Bengal in the 17th century of India. The prevalent meaning of it is a detached house with one-story that aims to offer leisure or to be a holiday house. The meaning varies depending on ethnic, cultural and political circumstances. The early usage of the word, Bungalow in Malaysia is found in Francis Light's testament of 1793 that "he would leave his Garden House and Bungaloe in George Town to his wife". (Chen, 1998) The commercial agriculture (e.g., rubber, coffee or tea plantation) was reinvigorated at that time, and the word, 'bungalow' had always been a common term for any staff's house on the estate. The bungalow was named "Garden House" or "Planter's Bungalow" at that time. Bungalow was also named "Colonial Bungalow" which functioned as dwellings for government officials (Jenkin & Waveney, 2007).

The typical Malaysian bungalow is a spacious, airy, detached, two-story house constructed with timbers or bricks. The facade of bungalow has full length windows with molded reveals, timber shutters and balustrade rails. These features were derived

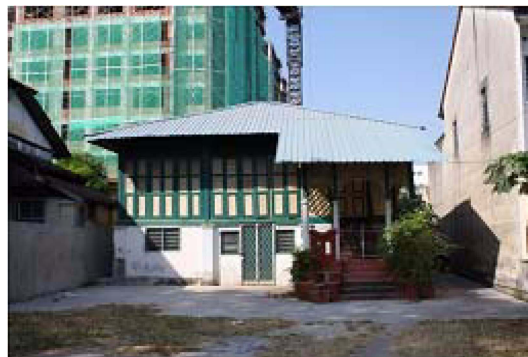


Figure 4. *Indio-Malay Style Bungalow, Jalan York in Penang*

from the vernacular Malay timber house that was adapted to hot and humid climates. These bungalows were also developed by the early immigrants who indigenized the various housing traditions from their home town to various centers of Malaysia.

The oldest bungalow in Penang was built in early 1800s, adopting the Anglo-Indian Style that was characterized by combining the European and the Asian Style. The ground floor was built with bricks and the upper floor was built with timbers. The walls of upper floor had full length windows with louvered and paneled shutters for ventilation. The steps or staircase connected directly to the upper floor, which was similar to a feature of vernacular house. It can be called Indio-Malay or Jawi Peranakan⁸ Style.

From the late 19th to the early 20th century, many luxurious bungalows⁹ were built for wealthy immigrants in early towns. This style was called 'Strait Eclectic', due to the combination of the Chinese, Malay, Indian and European architectural styles. (Chen, 1998) The various styles were built from the memories of immigrant builders and adopted from pattern books.

Bungalow is also another typology that shows how vernacular timber houses were transformed into a new dwelling typology that is suitable to hot and humid climate.

8. who is half-Indian and half-Malay child

9. Chen (1998) defined the bungalow that was built from late 19th and early 20th century as a "mansion". But in the light of meaning of 'a detached house', it can be classified same with the bungalow. So the mansion was classified as the same housing typology as bungalows in this study.



Figure 5. Teh Bunga's House, Strait Eclectic Style Lorong Hutton in Penang

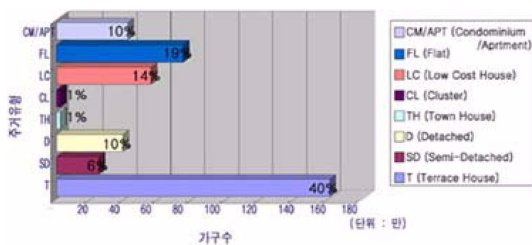


Figure 6. Housing Stock of Malaysia (Source: Ceic, 2007.9)

URBAN HOUSING TYPOLOGY

With the rapid urbanization of all major cities in Malaysia, the government under different five-year development plans provides sufficient housing for all income groups.

The types of supply housing are divided into three broad categories; low-cost, medium-cost and high-cost housing. Medium and high-cost housing is entirely produced by the private sector. Low-cost housing is mainly provided from government housing programs and about 30 percent of low-cost housing quota was supplied by private developers constructing new housing development (KLSP 2020¹⁰).

Since the scope of this study is to find out the representative housing typology, the housing supply, delivery and distribution issues were excluded.

According to the recent statistics, illustrated in

10. KLSP 2020(Kuala Lumpur Structure Plan 2020) is the planning discipline of the local authority to explain the vision and goals for the development. It proposes the policies and regulations for economics, land use, industry, transportation, housing and environment of administrative district.



Figure 7. Town Plan of Setia Alam, KL

Fig. 4, the most common housing typologies are terrace house (40%), flat (19%), detached house (10%) and semi-detached house (6%).¹¹

Medium and Low Density Housing

The medium and low-density housing is generally developed based on the new township planning principles.

Commercial and public facilities, schools and mosques are located in the center of the town. Streets were systematized in a grid pattern with main roads and feeder roads. The planning layout consisted of housing blocks. In general, one block consisted of one typology of house; one block for terrace houses and one for detached houses. The house lots in a block were linearly divided and service lanes were placed in between linear lots.

Detached House The word of detached house means a single unit of house built of bricks and concrete, and surrounded by its own garden. It is generally known by local people as a bungalow. It may be single or multiple stories in height. If it is more than 2 stories, there are a living room, a kitchen in the ground floor, more than 4 rooms in the 2nd and 3rd floor, and well-arranged parking lots and landscapes. The minimum lot size for this type is 360 sq meters. There are remarkable contrasts within this typology according to the size of lots, the built-up area, and the scale of housing and the extent of facilities. New bungalows are developed as a gated

11. In Fig. 6, there is a category of low cost house. But the scope of this study is to find out the representative housing typology. Therefore the housing supply, delivery and distribution issues were excluded.

community that was equipped with a security system and convenient facilities such as gymnasium, pools and other shared amenities.

Terrace House (Link-House or Row-House) The terrace houses were constructed linearly linked in rows, sharing common bearing walls and can be single or multiple stories. It is the most prevalent housing typology in Malaysia. It is sometimes named as a 'link-house or row-house' also. The extent of each row cannot exceed 96 meter according to fire department regulations, so a maximum of 16 houses can be constructed in a row.

The width of the individual unit is more than 6 meter for high-cost housing and 4.3 meter for low-cost housing. Normally, the built-up area of each unit is 130~170 sq meters. For low cost house, the minimum built-up area is 50 sq meters (Saari, 1990).

The plot size of the end unit is twice as big as the intermediate unit in the middle of a row. Design and planning of a unit are nearly monotonous due to the limitation of space. Typically, there are a living room and a kitchen on the ground floor. On the second floor, there are the main bedroom at the front and two bedrooms at the back. These restricted planning often resulted in the extension of buildings into the

Table 2. Middle and Low Density Housing Typology (Setia Alam and Setia Eco-park Town, 2008)

Typology	Detached House (Bungalow)	Terrace House (Link House)	Semi-Detached Housing
Plot Plan			
Ground Plan			
General Views			

setback space by the owner in order to increase the living space. One local expert explained that this phenomenon was regarded as a resident's freedom of self-transformation and also showed one of the reasons for the general preference for terrace house.

Semi-detached House (or Duplex House) The semi-detached house is two houses sharing one bearing wall, with each having a part of the garden. It is generally called 'Semi-D' in a local term, and it combines the benefit of a detached house and the effectiveness of land use of a terrace house. . The minimum lots size of a semi-detached house is 288 sq meters and is built in the form of a 2 or 2.5 story building (Saari, 1990).

Semi-detached houses are generally classified a medium to high-cost house with a minimum of 3 bedrooms, 2 bathrooms, a kitchen, a combined dining and living space with 1 utility room at the ground floor.

This type of houses tends to share the bearing wall back-to-back rather than side-by-side. This type of arrangement, if viewed from the main road, will give the appearance of a detached house or a bungalow.

High-density Housing

Cluster House (Quadrant Double Story House or Cluster-Link House) Saari(1990) listed a cluster house as 'cluster-link double story house' and 'cluster house & quadrant double story house'. He defined 'cluster-link double story house' as housing with a density of more than 123 units of a house per hectare. He also defined 'cluster terrace house & quadrant double story house' whereby four units are attached together with a breezeway in the center. This typology can be classified as a cluster-link house of four units attached together, regardless of density. It can be understood as an application of 'Semi-D' in more high density setting to provide a low-cost housing.

The cluster house is not a common typology.¹² It was developed as a pioneer project by the architect, Tay Kheng Soon at Cheras, KL in 1976. The

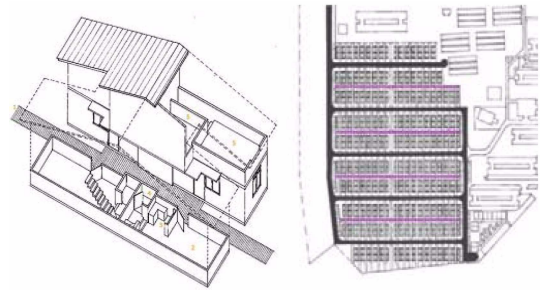


Figure 8. Cluster Housing in Cheras, 1976
(Source: www.arkitektenggara.com)



Figure 9. Perspective Images of Cluster House
(Source: Advertisement Material of Setia Alam, 2008)

government planned to build houses for low-income group in an urban area costing not more than 5,000RM per house. Total households were 676 and the density was 60 units per acre.

The houses are 2 stories and in back-to-back clusters of four units around 2.5 meter wide 'breezeway' in the center. The ground floor consists of a living, dining, kitchen and bathroom. The first floor consists of two bedrooms.

However, in a recently developed township in Setia Alam (2008), this typology was being applied again but for high cost housing.

Flat / Apartment House Saari (1990) defined a flat as a walk-ups four story housing block or a high-rise housing block equipped with lifts.

There are not many differences between a flat and apartment in the aspect of housing typology. But flat is regarded as low-cost housing with maximum floor space of 60 sq meter, and apartment more as medium-cost housing with an area above 60~80 sq

12. It constitutes 1% of houses built as in Fig. 6.



Figure 10. Apartment Putra Ria, Japan Bangsar, KL, Built At 1996, Managed By Dbkl



Figure 11. (Top Left) Villa Pavilion (Top Right) Airwell in Corridor Designed by Zaini Mufti Architect, 2007

meter.(Saari, 1990) Flat is generally developed as a high-density housing type. It is a mass housing equipped with basic facilities for the community.

Condominium The Condominium gets popular among higher income urban dwellers who demanded better living condition, account of privacy, crime prevention and high quality finished. From the viewpoint of housing typology, a condominium is similar to an apartment. But the prevalent meaning in general, it is a higher cost urban mass housing.

In the beginning, the general types of condominium were developed as a 3 to 4 story flat-type building with well designed landscape and facilities. Recently there have been many high-end condominium projects under construction in the prime area around the Petronas Twin Towers, KL.

Therefore, condominium can be classified into two categories. The first category is the low-rise (less



Figure 12. High-end Condominium Projects Under Construction in Prime Area Around the Petronas Twin Towers, KL

than 10 story) apartment type equipped with shared facilities such as outdoor swimming pools, barbecue equipments, tennis courts, gymnasium and so forth. The second category is a high-rise, skyscraper type which is usually located in the premium civic center. Some condominiums were built together as a complex or located nearby by shopping malls, offices, or hotels. The purchase of Condominium seemed overheated from the late 1980s to 1990s.

The characteristic of a condominium unit in Malaysia is not much different from the globalized unit that was planned for an international life pattern of an expatriate in another country. However, the unit cannot be designed without consideration of local tropical climates, culture and lifestyles of Malaysian.

Ventilation is the most important issue in designing a condominium or apartment unit. The corridor should be open for natural lighting and has an airwell between corridors and units to protect privacies. Windows facing the corridor are designed with blinds, so as to provide visual privacy when it is opened. Utility space should be opened to outside to dry laundries and all the bathrooms should have a window for ventilation.

CONCLUSION

As part of on-going research in Malaysian housing, this study explores further theoretical supplements through more precise statistics, literature reviews, and interviews with experts.

The main outcome of this study draws that the typologies of modern housing in Malaysia can be classified into 2 categories.

The first category is the 'historic housing prototypes' developed in the early part of the 20th century from the colonial influence and the migration of various different ethnic groups. The most representative examples for this category are the shophouse and the bungalow.

Second category is the 'modern urban housing prototypes' that was developed with the rapid industrialization and urbanization after the independence in 1957. Mass housing prototypes were needed and developed in 1960s and 1970s to provide housing for the rapidly increase urban population. The low and middle density housing such as detached house, terrace House, semi-detached house were developed with the establishment of suburban townships that was based on the British town planning principles. High-density flat, apartment and condominium are typologies out of the international style that was introduced in the 1980s and 1990s together with the development of new material and technology.

The current housing development in Malaysia is driven by the rapid economic development of the country as part of the globalization process.

Unfortunately the vestiges of traditional shophouse disappear gradually from the historic city centers. However, comparing with other high-density global cities, Malaysia is still able to keep the socio-cultural value of low and middle-income community which has benefited form, eco-friendly and community-friendly urban mass housing development.

This study was the first step of our Southeast Asia housing study. Through the broad understanding of general typologies of modern housing, future research will continue and go deeper to understand unique life patterns inside each housing typologies.

*This paper is the revised version of the one presented in 'Proceedings; Spring Conference of the Korean Housing Association, 2008.

REFERENCES

- Chen, V. F. (1998). *Architecture; Encyclopedia of Malaysia Vol.5*. Singapore: Archipelago Press.
- Cheah, B. K. (2001). *Early modern history [1800-1940]; Encyclopedia of Malaysia Vol. 7*. Singapore: Archipelago Press.
- Davison, J. (2008). *Black and white; The Singapore house 1898-1941*. Singapore: Talisman.
- Gullick, J. M. (1994). *Old Kuala Lumpur*, Singapore: Oxford University Press.
- Jenkins, P, & Waveney (2007). *The planter's bungalow; A journey down the Malay Peninsula*. Singapore: Editions Didier Millet.
- King, A. (1995). *The bungalow; The production of a global culture*. New York: Oxford University Press.
- Lee, B. T. (1987). *New towns in Malaysia: Development and planning policies*. Oxford University Press.
- Urban Redevelopment Authority (1995). *Chinatown historic district*. Singapore.
- City Hall of Kuala Lumpur. (2000). *Kuala Lumpur structure plan 2020*. Kuala Lumpur: DBKL.
- Widodo, J. (2003). Modern in Singapore. *DOCOMOMO* 29.
- Saari, B. O. (1990). *Class, ethnic relations and the unconventional housing in Malaysia*. Master's Thesis, Architectural Association Graduate School, London.

Received January 2, 2010

Revised February 20, 2010

Accepted April 20, 2010