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The Architectural Styles of Mosques in Malaysia: From Vernacular to Modern Structures

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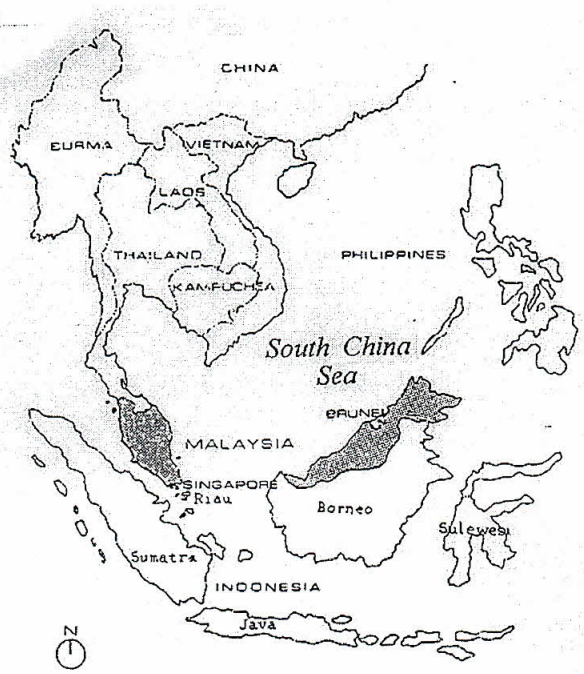
Penang, Malaysia

Abstract: With the majority of its Population being Muslims, the Moslems, the mosque is a common building found in most urban and rural areas in Malaysia. The varying architectural styles of the mosques including the vernacular, colonial and modern mosques have displayed particular design characteristics. A total of 34 mosques built in Malaysia, particularly in the Malay Peninsula were surveyed and inspected using the mosque survey forms. This paper presents comparative analyses of the mosques built during different periods in the Malaysian history. It also studies the changes in the mosque architecture in the country from vernacular and colonial influences to modern structures. Generally, there are five main factors, which govern the architectural styles of the mosques in Malaysia. The are ethnic culture, climatic conditions, colonialism, technology utilisation and the political environment. These factors largely determine the design of the mosques, building forms, shapes and sizes; and mosque be considered as national heritage partly due to their historical and architectural values, particularly in accentuating the historical development of Malaysia.

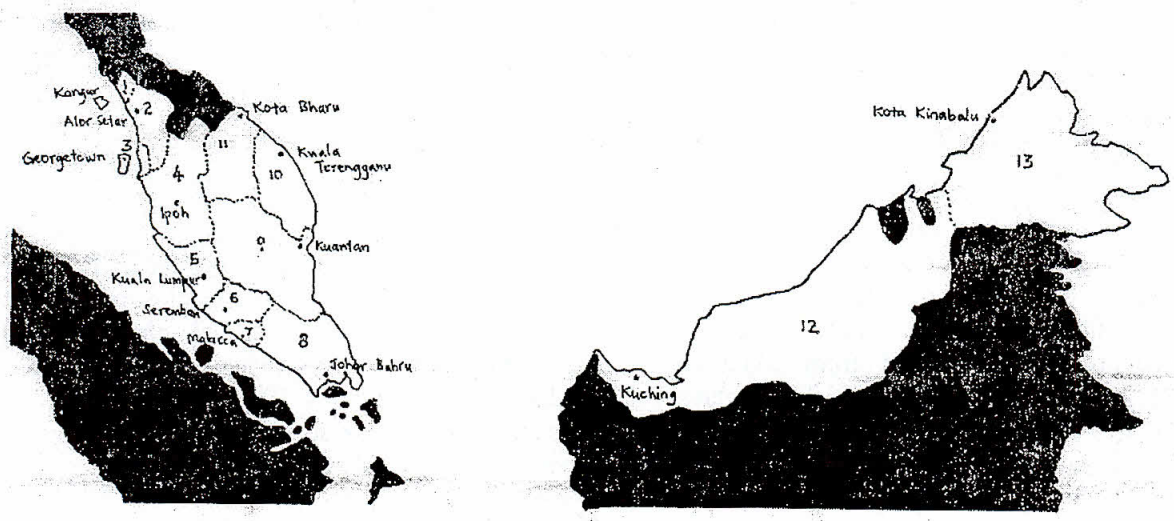
Introduction

Malaysia, which is situated in the heart of South-east Asia, consists of thirteen states; eleven in the Malay Peninsula and the two states of Sabah and Sarawak in the northern quarter of Borneo (Fig. 1). Malaysia or formerly known as Malaya gained her independence from the British on 31 August 1957. The formation of Malaysia in 1963 included the eleven states in the Malay Peninsula, Sabah, Sarawak and Singapore. Due to political circumstances, Singapore was separated from Malaysia in 1965. Presently, Malaysia has a population of 21.9 million comprising of the Malays 51%, Chinese 35%, Indians 10% and the remaining 4% are formed by other ethnic groups such as the Dayaks, Kadazans, Thais, Eurasians, Indonesians and Arabs. The Malaysian government is a parliamentary democratic system with a Prime Minister as the Head of the Government and an elected Yang Di Pertuan Agong (King), whom is one of the nine Sultans, serving five-year terms as the Supreme Head of State.

With the majority of its population being Muslims, the mosque is a common building found in most urban and rural areas in the country. The varying architectural styles of the mosques displayed particular design characteristics, which are reflective of many factors including ethnic culture, colonialism, technology utilization and the political environment. Using the methods of building surveys and inspection to record the various types of mosque architecture in Malaysia, this paper presents a comparative analysis of the mosques built during different periods in the Malaysian history. The paper also studies the changes in the mosque architecture in Malaysia from vernacular and colonial influences to modern structures.



Southeast Asia.



STATES OF MALAYSIA:

1. Perlis
2. Kedah
3. Penang
4. Perak
5. Selangor
6. N. Sembilan
7. Malacca
8. Johar
9. Pahang
10. Terengganu
11. Kelantan
12. Sarawak
13. Sabah

Fig. 1: Malaysia and its location

The Coming of Islam to Malaysia

In 1887, an inscribed stone was found on the banks of Tarsat River at Kuala Brang, Terengganu, which is a state in the East Coast of the Malay Peninsula. The inscriptions on the stone, which referred to a Malay kingdom, ruled by Islamic Law, were dated 4 Rejab 702 Hijrah (22 February 1303). This historical evidence has proven that Islam first came to Malaysia, particularly the Malay Peninsula in the early 14th century [5, P. 25]. However, besides the inscribed stone, no other evidence either the ruins or historical records of architectural styles and building materials used in mosques during that period was discovered.

The growth of Islam in the Malay Peninsula became more prominent in the early 15th century during the Malay sultanate of Malacca. Under this kingdom, Islam was disseminated to all areas in the Malay Peninsula. Malacca was then established as an important center for the spread of Islam in the region. Many mosques of the traditional architectural style were built to hold prayers and other activities associated with the teachings and dissemination of Islam. The architectural style and building materials of the mosques built during this period were similar to that of the traditional Malay houses. The buildings were raised on stilts and timber was largely used for building structures. Attap (*Nipah* thatch) and clay tiles roofs were commonly used in both the mosque and Malay houses (Fig. 2).

Due to its strategic location facing the Straits of Malacca, Malacca in the 15th century had flourished as a port city, which became an important trading centre for spices, textiles and pottery highly in demand by both Europeans and Asians. Muslim merchants and traders from India, the Middle East and Indonesia came to Malacca to trade as well as to spread Islam. Some of them had settled in many parts of the Malay Peninsula and had built mosques and Quranic schools (madrasahs) in their community. For instance, the Acheen Street Mosque area in Georgetown, Penang, Malaysia was the earliest settlement of the Muslim Achenese community on the island. The settlement, which was established by merchants and traders headed by Tengku Syed Hussain Al-Aidid from northern Sumatera, Indonesia in the early 1800's, includes a mosque with an ancient well, a minaret, rows of shophouses, traditional townhouses and a cemetery (Fig. 3). Besides the Achenese settlements, there are other Muslim settlements in Malaysia including the Indians, Javanese, Pakistanis and Arabs. They are highly distinguished by the ethnic cultures, languages and also the distinctive architectural styles of their mosques. Although Islam is the official religion in Malaysia, all the ethnic communities enjoy freedom of worship. Many new mosques have been built in the country to cater for the increasing number of the Muslim population, particularly in new housing estates in both urban and rural areas.

Colonial Occupation and British Architecture

The Malay sultanate of Malacca came to an end when the Portuguese conquered Malacca in 1511. The Malay sultans and their families fled to other states in the Malay Peninsula. Some became the sultans of the respective states while others seeked military assistance from Indonesia and the Dutch. In 1641, the Dutch, who controlled most parts of Indonesia, defeated the Portuguese in Malacca and conquered the Malay Peninsula. In the 18th century, the British, who had earlier colonised Sumatera, made an agreement with the Dutch to exchange Sumatera for Malacca and other states in the Malay Peninsula. The first British settlement and military support was in the island of Penang when Captain Sir Francis Light gained the island by mutual agreement from the Sultan of Kedah in 1795.

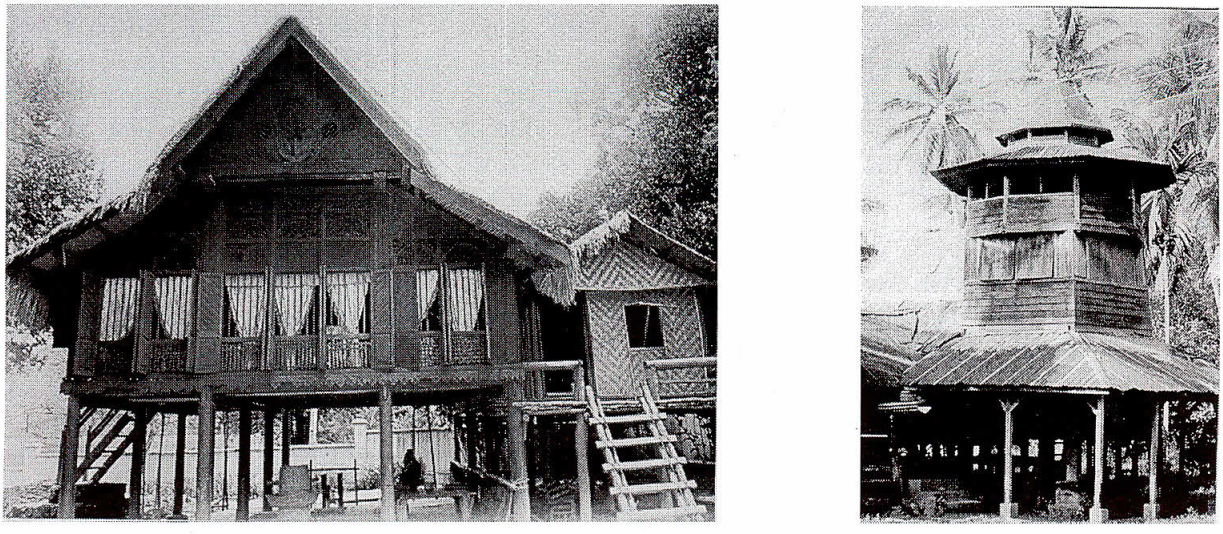


Fig. 2: Attap (*Nipah* thatch), clay tiles roofs and timber structures are commonly seen in both Traditional mosques and Malay houses.

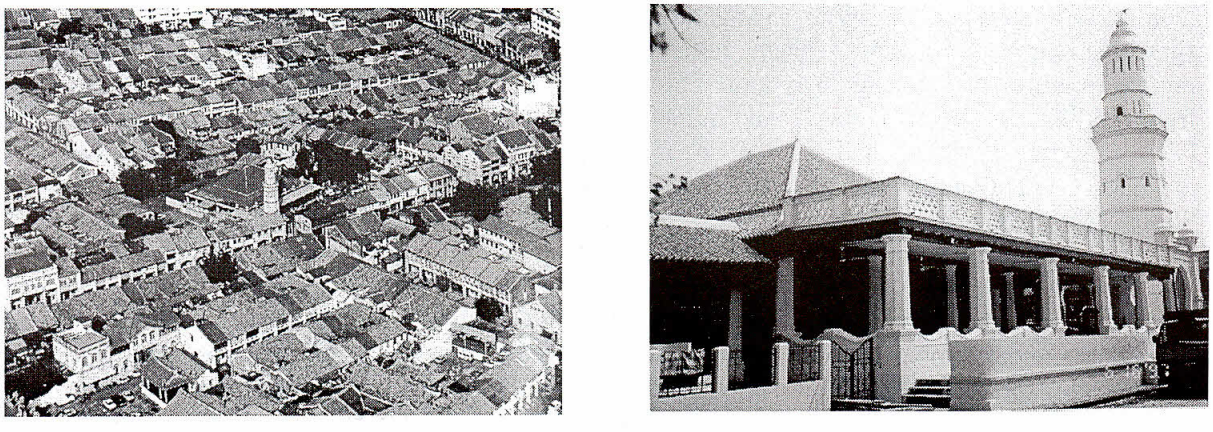


Fig. 3: The Acheen Street Mosque area in Georgetown, Penang was the earliest settlement of the Muslim Achenese community on the island.

As a country which had been colonised by the Portuguese (1511-1641), Dutch (1641-1795) and British (1795-1957), the remains of its colonial architecture can still be found in most major cities including Malacca, Georgetown, Kuala Lumpur, Johor Bahru, Ipoh, Kuching and Kota Kinabalu. The Portuguese and Dutch architecture are primarily found in Malacca. Examples of the Portuguese architecture include the Porta de Santiago Gate built in 1511 (Fig. 4). However, during the Dutch occupation both buildings were destroyed and left in ruins. The Dutch architecture includes the Stadhuys building built between 1641-60 for the Dutch Governor. Today, these buildings still remained intact and are well maintained. The Stadhuys building was renovated and converted into a state museum (Fig. 5).

The 160-year of British occupation in Malaysia has brought about major changes in the local architectural scenes, particularly in many parts of the British settlements including major cities, plantation estates and military areas. The British colonial buildings range from

official residences of British resident-generals and other buildings to railway stations and public buildings. A. Ghafar Ahmad in his book entitled *British Colonial Architecture in Malaysia 1800-1930* has classified the British colonial buildings found in Malaysia into 12 categories [1, p.30]. These include the mosques/churches, forts/military, palaces, clock towers, prisons, government offices, institutional/commercial, residential, schools, railway stations, hotels/guest houses; and miscellaneous buildings/monuments. All these buildings portray distinctive design characteristics, which are similar to their contemporary designs in England.

Aesthetically, British colonial architecture in Malaysia is essentially a hybrid. The buildings can be classified into four main architectural styles, namely the Moorish influence, Tudor, Neo-Classical and Neo-Gothic (Fig. 6). The buildings were designed and built by trained architects, contractors, bricklayers, soldiers or even priests. Some British architects and engineers, who had previously worked in India and other parts of the British Empire, were inspired by the Moghul architecture and had incorporated such architectural styles into the designs of government offices and railway stations in the Malay Peninsula. This was accomplished with due respect to the Islamic faith of the local Malays, particularly the sultans. The Moorish influence can be seen in many buildings in the heart of Kuala Lumpur city such as the majestic Sultan Abdul Samad Building built in 1897, the Railway Station built in 1911; and the Railway Administration Headquarters built in 1917 (Fig. 7).

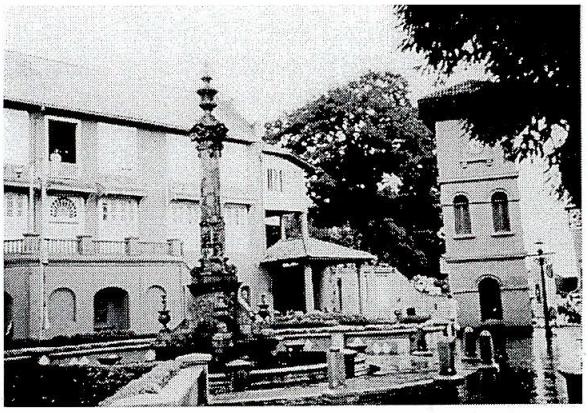


Fig. 5: Examples of the Dutch architecture in Malacca: The Studhuys buildings built in 1641-60 .

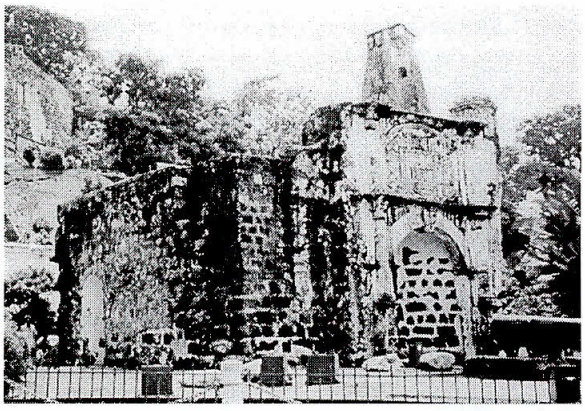


Fig. 4: Examples of the Portuguese architecture in Malacca: The Porta de Santiago Gate built in 1511.

Incidentally, there had been non-Muslims British architects and engineers who were responsible for the design and construction of mosques in Malaysia. The architectural styles of these mosques differed very much from the vernacular mosques. Examples of some British architects and engineer who were responsible for the design of mosques in Malaysia are as follows (Fig. 8):

- Architect A.B. Hubbuck who designed the Jamek Mosque (1909), Kuala Lumpur
- Architect H.A Neubronner who designed the Kapitan Keling Mosque (1916), Georgetown, Penang
- Architect L. Keste Ven who designed the Sultan Sulaiman Mosque (1932), Kelang, Selangor
- Engineer J.Goman who supervised the Zahir Mosque (1912), Alor Setar, Kedah.

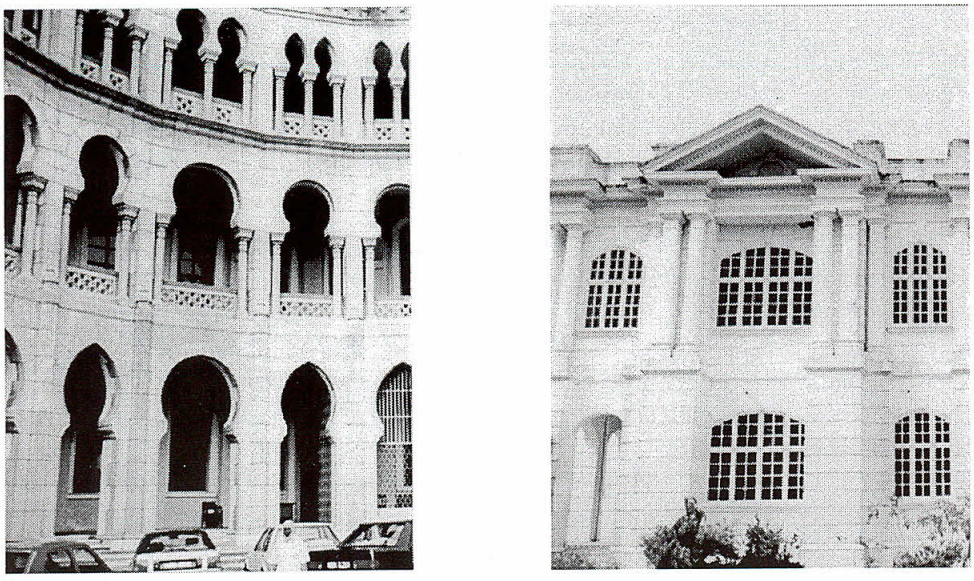


Fig. 6: The British colonial buildings in Malaysia can be classified into four main architectural styles: the Moorish influence, Tudor, Neo-Classical and Neo-Gothic.

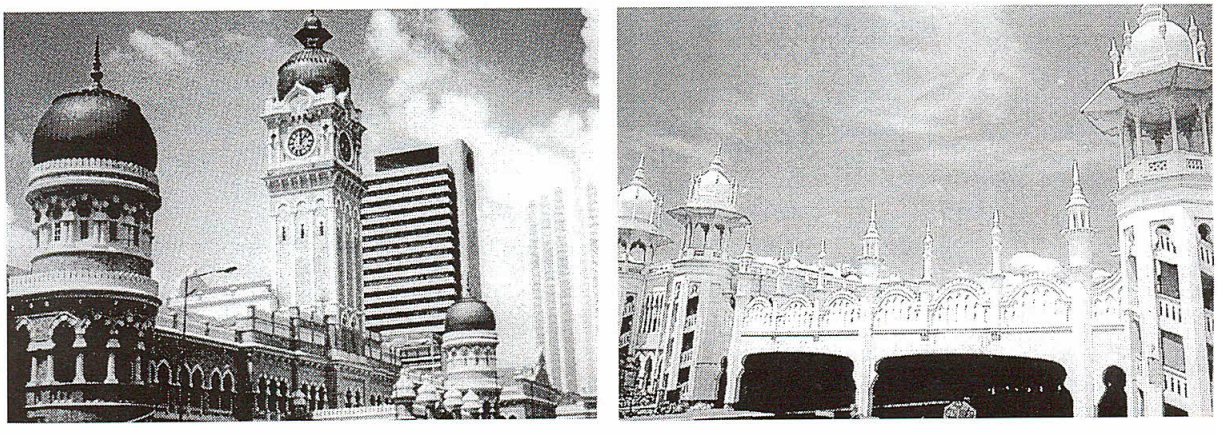


Fig. 7: Examples of the British colonial buildings with Moorish influence in Kuala Lumpur: Sultan Abdul Samad Building built in 1897 and Railway Station built in 1911.

Methodology: Selection of Mosques and Building Surveys

A total of 34 mosques built in Malaysia, particularly in the Malay Peninsula were surveyed and inspected in this study. The locations of the mosques surveyed represent a geographical cross-section of various architectural styles throughout the Malay Peninsula. This includes mosques located in Penang Island, along the west and East Coast, in central regions and a few remote places (Fig. 9). Table 1 shows a list of mosques surveyed, year built, architectural styles and influences. The selection of the mosques was based upon key criteria, which are as follows:

- Year built (18th Century to date)
- Architectural styles (vernacular, colonial influence or modern)
- Status of mosques (National, State, District, Village)
- Locations (states in the Malay Peninsula)

Several building surveys and inspections covering site investigations, structural survey, building condition and defects; and photographic study were carried out to establish the different architectural styles of mosques in Malaysia. The study also includes comparative analyses between the traditional mosques and the colonial-influence mosques built during the British occupation in the country. The architectural styles of the modern mosques are also studied and classified in order to have a better understanding of the changes in the mosque architecture from vernacular and colonial influences to modern structures.

Since there is no central body for recording characteristics of mosque buildings in the country, the identification of the mosques surveyed in the study was based on the following procedures:

- Collecting any possible record at various agencies, local institutions and conservation bodies such as museums, archives, libraries, universities, Heritage of Malaysia Trust, Conservation and Urban Design Unit of Kuala Lumpur and Penang Heritage Trust.
- Conducting a mosque survey in major cities, towns, districts and villages.
- Carrying out verbal interviews with people expected to have some knowledge about mosques built in or around their area.

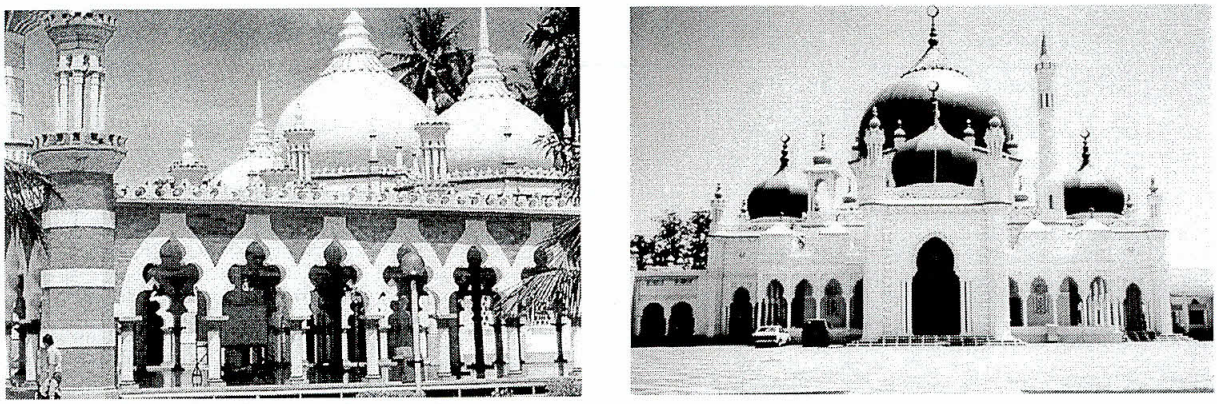


Fig. 8: Examples of mosques in Malaysia which were built by British architects and engineers: Jamek Mosque built in 1909 in Kuala Lumpur, and Zahir Mosque built in 1912 in Alor Setar, Kedah.

Once the mosques had been recognized and identified, a building survey together with structural and site inspections were carried out. Each mosque was studied externally and internally following permission from the mosque authority. The architectural styles and building structures were noted and recorded on mosque survey forms. Key information recorded in the forms include the name of mosque, address, mosque authority, date of built, name of architect/builder, construction area, date gazetted (listed) if applicable (under the Malaysian Antiquity Act 1976), description of mosque, maps and photographs of mosque and proposals for mosque maintenance.

Table 1: The list of mosques surveyed in the study

No	Name of mosque	Location	Year built	Architectural styles	Architectural influence
1	Tengkera	Malacca	1728	Vernacular	Regional
2	Kampung Hulu Melaka	Malacca	1728	Vernacular	Regional
3	Kampung Laut	Nilam Puri, Kelantan	1730	Vernacular	Traditional
4	Kampung Keling	Malacca	1748	Vernacular	Regional
5	Abidin	Kuala Terengganu	1808	Colonial	Moorish influence
6	Acheen Street	Georgetown, Penang	1808	Colonial	Moorish influence
7	Langgar	Kota Bharu, Kelantan	1871	Vernacular	Traditional
8	Sultan Abu Bakar	Johor Bahru, Johor	1892	Colonial	Moorish influence
9	Jamek	Ipoh, Perak	1898	Colonial	Moorish influence
10	Indian	Ipoh, Perak	1908	Colonial	Moorish influence
11	Jamek	Kuala Lumpur	1909	Colonial	Moorish influence
12	Syed Alwi	Kangar, Perlis	1910	Colonial	Moorish influence
13	Zahir	Alor Setar, Kedah	1912	Colonial	Moorish influence
14	Ubudiah	Kuala Kangsar, Perak	1912	Colonial	Moorish influence
15	Paloh	Ipoh, Perak	1912	Vernacular	Traditional
16	Kapitan Keling	Georgetown, Penang	1916	Colonial	Moorish influence
17	Al-Muhammadi	Kota Bharu, Kelantan	1922	Colonial	Moorish influence
18	Kampung Raja	Seremban,N. Sembilan	1924	Vernacular	Traditional
19	Jamek	Muar, Johor	1925	Colonial	Moorish influence
20	Alauddin	Kelang, Selangor	1925	Colonial	Moorish influence
21	Kampung Tinggi (Old)	Bagan Serai, Perak	1929	Vernacular	Regional
22	Tanjung Keling	Malacca	1930	Vernacular	Regional
23	Sultan Sulaiman	Kelang, Selangor	1932	Colonial	Art-Deco influence
24	Jamek	Pontian, Johor	1938	Colonial	Art-Deco influence
25	Sultan Ahmad I	Kuantan, Pahang	1964	Modern	Modern structures
26	National	Kuala Lumpur	1965	Modern	Modern structures
27	State	Seremban,N. Sembilan	1967	Modern	Modern structures
28	State	Kangar, Perlis	1972	Modern	Modern structures
29	Sultan Idris Shah II	Ipoh, Perak	1978	Modern	Modern structures
30	State	Penang	1980	Modern	Modern structures
31	Al-Malik Khalid	USM, Penang	1982	Modern	Islamic influence
32	Sultan Abdul Aziz	Shah Alam, Selangor	1989	Modern	Islamic influence
33	IbaiKampungCendering	Kuala Terengganu	1994	Modern	Islamic influence
34	KLCC	Kuala Lumpur	1998	Modern	Modern Structures



Fig. 9: A total of 34 mosques were surveyed throughout the Malay Peninsula.

Architectural Styles of Mosques in Malaysia

Based on the mosque surveys, the architectural styles of the mosques in Malaysia can be classified into 3 types with corresponding built periods, which are as follows:

Vernacular Mosques (18th century to date)

For a tropical country such as Malaysia where heavy rainfall and warm sunshine occur all year round, the design of the vernacular mosques reflects most of the characteristics of the traditional Malay houses. The architectural style of the vernacular mosques are influenced by four major factors including climatic conditions, availability of building materials, craftsmanship and ethnic background. Examples of some building features which were built in response to the warm and humid climatic conditions are pitched roofs to enable rain water to run off quickly, stilts to raise the mosques above ground level to avoid floods; and many openings including louvered windows, fanlights and carving panels to allow natural cross ventilation of air. Building materials such as timber, bamboo, bricks, stone, clay tiles and attap are widely used in the vernacular mosques as they are easily available locally. Like the Malay houses, the vernacular mosques portray high level of craftsmanship. This can be seen in the windows, fanlights, carving wall panels, fascia boards and well-designed *minbar* with intricate flower motifs (Fig. 10). Such craftsmanship generally reflects the owners' status and wealth, particularly for the Malay houses [4, p. 36].

It is important to highlight that there are two types of architectural styles under the vernacular mosques category, namely the traditional and regional influence. The traditional mosques usually reflect the strong influences of the Malay houses, way of life and environment. Conversely, vernacular mosques with regional influence can be distinguished by their two or three-tiered roofs with decorative roof ridges and clay tiles, octagonal minarets and buildings which are square in shape. The regional influence mosques in Malaysia are similar to that of the old mosques built in many parts of Indonesia. This is partly because some of the Malays in Malaysia are the descendants of various ethnic groups from Indonesia. For example, the Malays of Javanese descent came from the Island of Java, the Malays of Banjar descent originated from Kalimantan on the Island of Borneo; whilst the Malays of Bugis descent were from the Island of Sulawesi. Examples of the vernacular mosques with traditional influence are Kampung Laut Mosque, Nilam Puri, Kelantan (1730's), Langgar Mosque, Kota Bharu, Kelantan (1871), Paloh Mosque, Ipoh, Perak (1912) and Kampung Raja Mosque, Seremban, Negeri Sembilan (1924) (Fig. 11). Examples of the vernacular mosques with regional influence are Tengkera Mosque, Malacca (1728), Kampung Keling Mosque, Malacca (1748), Old Mosque of Kampung Masjid Tinggi, Bagan Serai, Perak (1929) and Tanjung Keling Mosque, Malacca (1930) (Fig. 12).

Colonial Mosques (1795 to 1957)

There are a number of mosques built during the British occupation of Malaysia between 1795 and 1957. Some of the mosques were designed by local architects and designers whilst others were designed and supervised by British architects and engineers from the Public Works Department. Most of the mosques built during the colonial period are architecturally different from the vernacular mosques in terms of scale and proportion, form, features and building materials. Domes (either onion-shaped or top-shaped), turrets, classical columns, pilasters, pointed arches, keystones, pediments and plastered renderings on cornices and capitals are common features found in the colonial mosques. Effectively, the British architects, at the turn of the century, had combined the Moorish influence and the classical styles to portray an Islamic image to the mosques. For example, the Sultan Abu Bakar Mosque in Johor Bahru, Johor has four wings with minarets, pinnacles and domes as well as classical elements (Fig. 13). Another interesting example is the Jamek Mosque in Muar, Johor that is a combination of Baroque classical style and the Moorish influence (Fig. 14). Rather than a mosque, the building depicts a public building commonly built in the 17th and 18th century Europe that features a complexity of forms and decorative elements.

Many of the colonial mosques were built to appeal to the Malay societies particularly the Malay rulers [2, p.17]. Some mosques were built in the proximity of royal palaces and were even named after the respective sultans. For example, the Ubudiah Mosque in Kuala Kangsar, Perak was built close to the Bukit Chandan Palace, whilst the Abidin Mosque in Kuala Terengganu was named after the late Sultan Zainal Abidin II, the ruler of Terengganu.

Following the period of the mosques of Moorish influences with classical features, the Art-Deco influences on mosques became more visible in the 1930's. This period incidentally coincided with the Art-Deco trend in western architectural development. The key features of the Art-Deco influences include simple geometric shapes, cubic masses and plain surfaces. However, there are relatively few colonial mosques of the Art-Deco influences in the country compared to the ones with Moorish influences with classical features. Examples of the colonial mosques with the moorish influences (including classical features) are Acheen Street Mosque, Georgetown, Penang (1808), Abidin Mosque, Kuala Terengganu, Terengganu (1808), Sultan Abu Bakar Mosque, Johor Bahru, Johor (1892), Jamek Mosque, Ipoh, Perak (1898), Indian Mosque, Ipoh, Perak (1908), Jamek Mosque, Kuala Lumpur (1909), Syed Alwi Mosque, Kangar, Perlis (1910), Zahir Mosque, Alor Setar, Kedah (1912), Ubudiah Mosque, Kuala Kangsar, Perak (1912), Kapitan Keling Mosque, Georgetown, Penang (1916), Al-Muhammadi Mosque, Kota Bharu, Kelantan (1922), Alauddin Mosque, Kelang, Selangor (1925) and

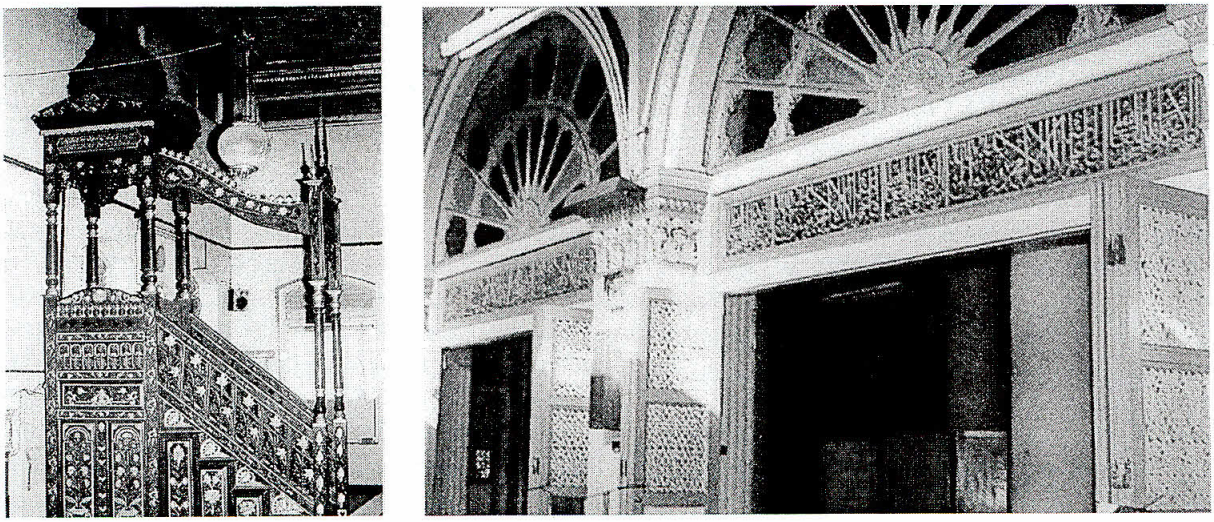


Fig. 10: The high level of craftsmanship in vernacular mosques can be seen in the windows, fanlights, carving wall panels, fascia boards and well-designed mimbar with intricate flower motifs.

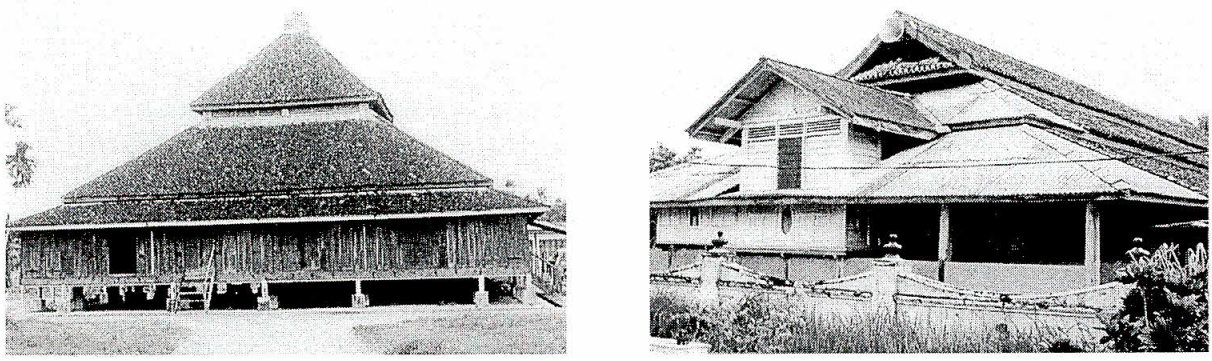


Fig. 11: Examples of the vernacular mosques with traditional influence: Kampung Laut Mosque, Nilam Puri, Kelantan built in 1730's, and Langgar Mosque, Kota Bharu, Kelantan built in 1871.

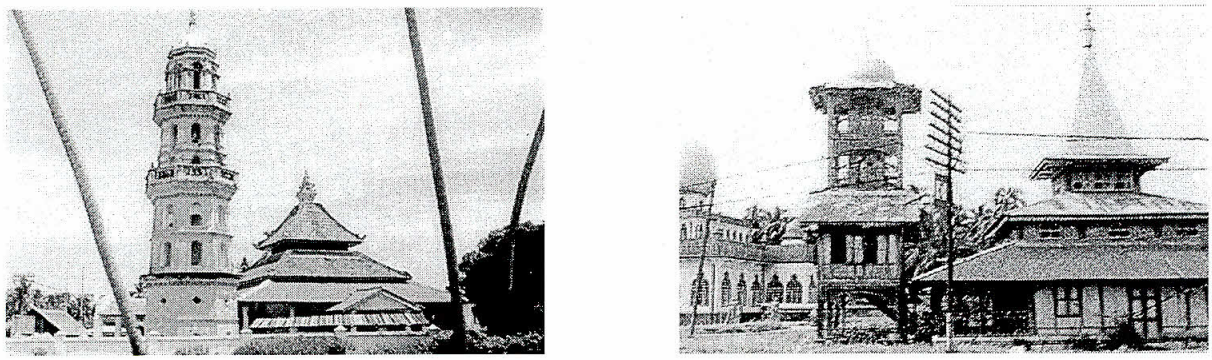


Fig. 12: Examples of the vernacular mosques with regional influence are Tanjung Keling Mosque, Malacca built in 1930, and Old Mosque of Kampung Masjid Tinggi, Bagan Serai, Perak built in 1929.

Jamek Mosque, Muar, Johor (1925) (Fig. 15 & 16). Examples of the colonial mosques with Art-Deco influence are Sultan Sulaiman Mosque, Kelang, Selangor (1932) and Jamek Mosque of Pontian, Johor (1938) (Fig. 17).

Modern Mosques (1958 to date)

Many local architects were involved in the design of new mosques in Malaysia since independence. The architectural styles of the modern mosques have changed gradually in parallel with the development in structural advances, construction methods, contemporary designs of mosques as well as increased local interests toward Islamic architecture. With the advent of science and technology, modern mosques are constructed in a larger scale to accommodate the increasing number of Friday congregations. Concrete, bricks, steel, stone and marble are commonly used in the construction of modern mosques. Onion-shaped or top-shaped domes, tall minarets and high ceilings are common features found in the modern mosques. The modern mosques usually incorporate well-designed landscape elements including plants, water features, patterned pavements, garden lightings and signages.

The architectural styles of the modern mosque can be classified into two categories. The first category is the modern styles, which emphasise the advancement in building technology and engineering. For example, the National Mosque in Kuala Lumpur has a minaret of 245 feet in height and an umbrella-like roof (Fig. 18). The mosque was constructed of reinforced concrete faced with Italian marble. Its main prayer hall can accommodate more than 3,000 people for prayer at one time whilst its surrounding galleries, topped with numerous small domes, can hold an additional of 5,000 people. The mosque also has a number of rooms used for various functions such as a library, offices, royal guest rooms, Imam's room and store rooms.



Fig. 13: The Sultan Abu Bakar Mosque in Johor Bahru, Johor built in 1892 with four wings with minarets, pinnacles and domes as well as classical elements.

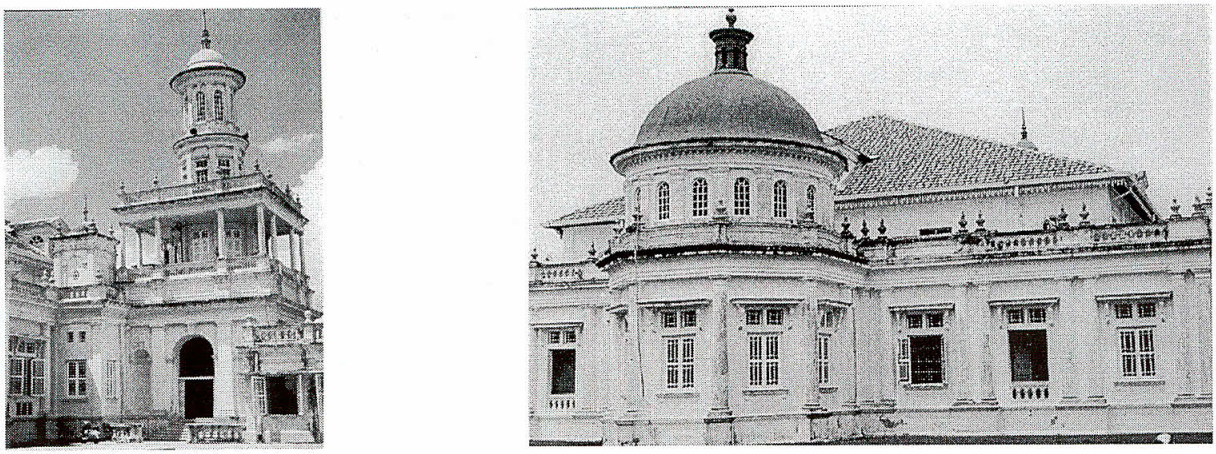


Fig. 14: The Jamek Mosque in Muar, Johor built in 1925 combines Baroque classical style and the Moorish influence.

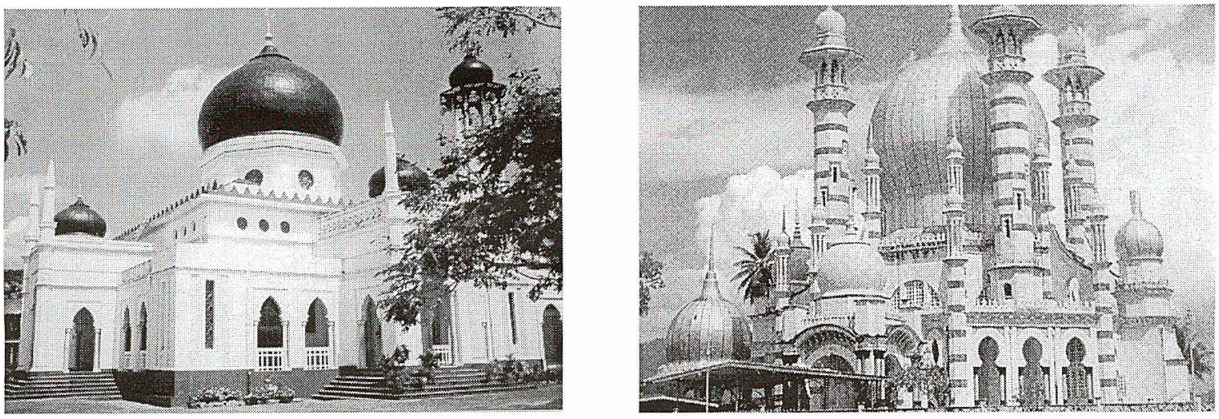


Fig. 15: Examples of the colonial mosques with the Moorish influences (including classical features) are Syed Alwi Mosque, Kangar, Perlis built in 1910, and Ududiah Mosque, Kuala Kangsar, Perak built in 1912.

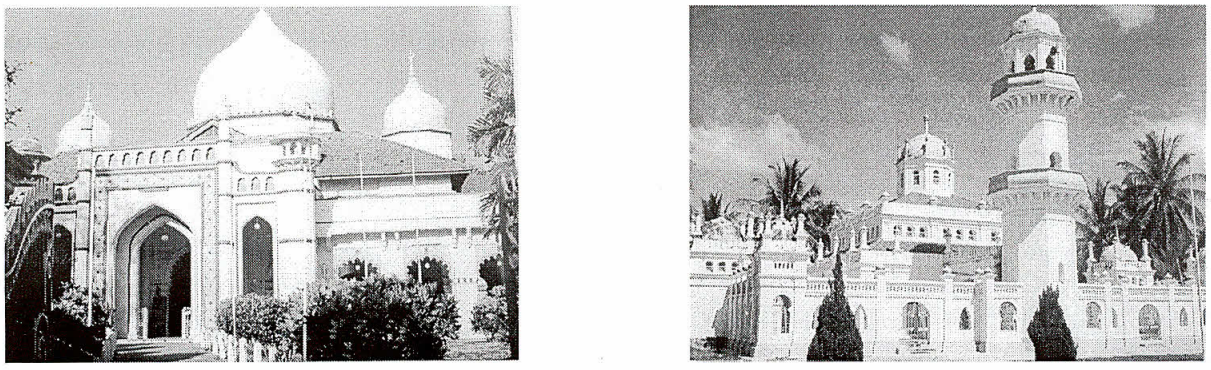


Fig. 16: Examples of the colonial mosques with the moorish influences (including classical features) are Kapitan Keling Mosque, Georgetown, Penang built in 1916, and Alauddin Mosque, Kelang, Selangor built in 1925.

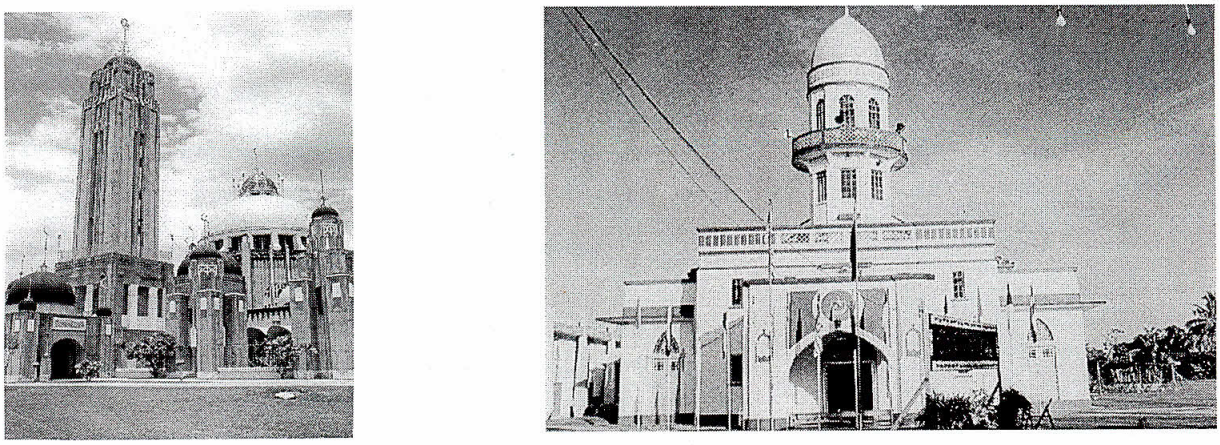


Fig. 17: Examples of the colonial mosques with Art-Deco influence are Sultan Sulaiman Mosque, Kelang, Selangor built in 1932, and Jamek Mosque of Pontian, Johor built in 1938.

The second category of modern mosque is the Islamic influences, which incorporate the styles of many mosques found in Islamic countries including Turkey, the Middle East and Northern Africa. For instance, the design and colour of the Sultan Abdul Aziz Mosque in Shah Alam, Selangor was reflective of the infamous Ottoman mosque in Istanbul, Turkey (Fig. 19). The mosque has four high minarets at the four corners of the building surrounded by well-kept landscape. Another example is the white-colour Ibai Mosque at Kuala Terengganu, which was built on water, and its architecture bears a resemblance to the Northern African mosque. Examples of modern mosques with modern structures are Sultan Ahmad I Mosque, Kuantan, Pahang (1964), National Mosque, Kuala Lumpur (1965), State Mosque, Seremban, Negeri Sembilan (1967), State Mosque, Kangar, Perlis (1972), Sultan Idris Shah II Mosque, Ipoh, Perak (1978), State Mosque, Penang (1980) and KLCC Mosque, Kuala Lumpur (1998) (Fig. 20). Examples of modern mosques with Islamic influence are Al-Malik Khalid Mosque, Universiti Sains Malaysia, Penang (1975), Sultan Abdul Aziz Mosque, Shah Alam, Selangor (1989) and Ibai Mosque of Kampung Cendering, Kuala Terengganu, Terengganu (1994) (Fig. 21).

Comparative Analyses of the Mosques

Comparative analyses of the 34 mosques selected for this study, classified by the 3 built periods, are presented in this section. Four key aspects of these mosques are compared and contrasted to establish the common features and differences between the mosques of various periods. The key aspects are scale and elements of mosques; building materials; wood carvings and plastered renderings; and facilities and fixtures.

Scale and Elements of Mosque

In terms of scale and proportion, the size of the vernacular mosques is usually much smaller compared to the colonial and modern mosques. The smaller-sized vernacular mosques may be associated with a smaller population threshold targeted for such mosques. Due to their relatively bigger sizes, the colonial and modern mosques are classified as the District, State, Royal or National mosques by the mosque authority.

As far as the elements of the mosques are concerned, the colonial mosques feature a richer vocabulary in architecture compared with the vernacular and modern mosques. Most colonial mosques have distinct architectural features such as onion-shaped or top-shaped domes, turrets, classical columns, pilasters, pointed arches, keystones, pediments and plastered renderings on cornices and capitals.



Fig. 19: The design and colour of the Sultan Abdul Aziz Mosque, Shah Alam, Selangor (1989) reflect the infamous Ottoman mosque in Istanbul, turkey.

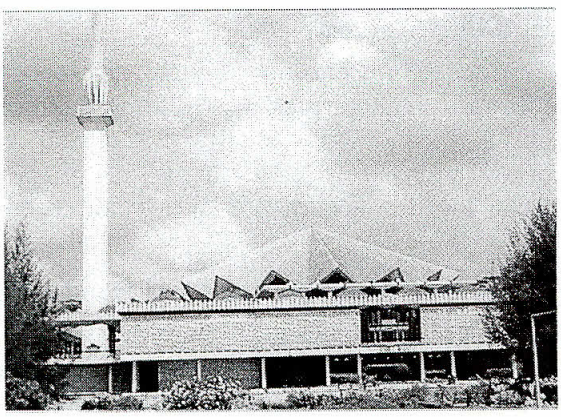
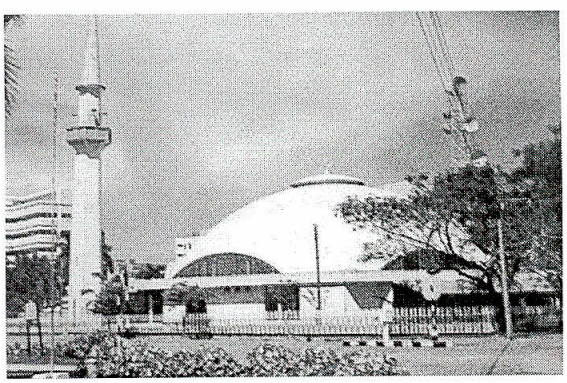


Fig. 18: The National Mosque in Kuala Lumpur (1965) has a minaret of 245 feet in height and an Umbrella-like roof.



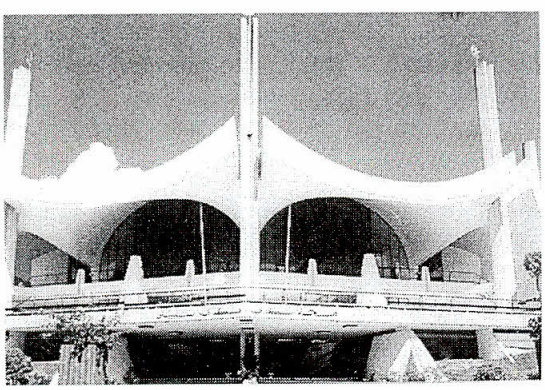


Fig. 20: Examples of modern mosques with modern structures are Sultan Ahmad I Mosque, Kuantan, Pahang built in 1964m and State Mosque, Seremban, Negeri Sembilan built in 1967.



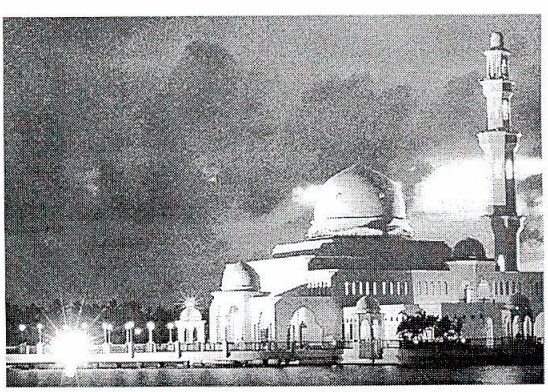


Fig. 21: Examples of modern mosques with Islamic influence are Al-Malik Khalid Mosque, Universiti Sains Malaysia, Penang built in 1975, and Ibai Mosque of Kampung Cendering, Kuala Terengganu, Terengganu built in 1994.

Building Materials

Timber is used excessively in the construction of the vernacular mosques. Attap and clay tiles are widely used for roofing. However, as the need for building bigger mosques arised during and after the British colonial period, other building materials including concrete, brick and steel were used to replace timber. With the advancement of construction technologies, modern mosques have been built with reinforced concrete and steel structures.

Wood Carvings and Plastered Renderings

Most of the vernacular mosques have fine wood carvings of flower motifs, particularly on wall panels, fanlights, windows and mimbar. On the other hand, plastered renderings are commonly found in the colonial mosques, especially on cornices, column capitals, pilasters, arches as well as around windows and doors. Interestingly, some of the modern mosques have incorporated both the wood carvings and plastered renderings especially on the interior walls.

Facilities and Fixtures

Most of the facilities in all types of mosques have been upgraded to satisfy the growing number of prayers or users. For example, some vernacular mosques which used to have a common ablution pool have now installed rows of water outlets for the convenience of the users. Modern lighting fixtures have also replaced the traditional oil lamps. Some modern mosques have installed air-conditioning units in the prayer halls and laid modern carpets.

Conclusions

This study adopted the method of building surveys and inspections to record the various types of mosque architecture in 34 selected mosques across Malaysia. This paper presents a comparative analyses of the mosques built during different periods in the Malaysian history and studies the changes in the mosque architecture from vernacular and colonial influences to modern structures. The study has classified the three types of mosques, namely the vernacular mosques, the colonial mosques and the modern mosques. The common characteristics of all these mosques have been discussed in the paper to provide a better understanding of the architectural styles of these mosques and the factors which influence these styles. Generally, there are five main factors which govern the architectural styles of the mosques in Malaysia. They are ethnic culture, climatic conditions, colonialism, technology utilization and the political environment. These factors largely determine the design of the mosques, building forms, shapes and sizes; and mosque locations.

Mosques of the vernacular and colonial styles should be considered as national heritage partly due to their historical and architectural values. Like the traditional Malay houses, mosques of such styles portray unique characteristics which enrich the local architectural scene. All mosques which are historically and architecturally significant should be listed or gazetted in order to protect the buildings from being demolished. The practice of building conservation which includes the works of repair and maintenance may guarantee the building life span. It is a process which leads to the prolongation of the life of cultural property. [3, p. v] Building conservation should be seen as a way of preserving particular aspects of Malaysia's history and development. In most cities and towns in Malaysia, the mosques are usually more distinctive than other buildings. Sometimes, mosques of unique architectural styles become the landmarks and focal points in the streets. This has resulted in the formation of a unique identity and image to the urban fabric which may enhance the Muslim communities and cultures.

With current rising awareness of the need for building conservation and preservation in the country, it is increasingly vital to consider the state of building conditions and proper building maintenance programme to uphold such buildings. Historic mosques such as the vernacular and colonial mosques are prone to building defects and such practices of keeping building intact are crucial. In an effort to preserve and conserve historic mosques, the Government through the Department of Museum and Antiquity has gazetted a number of old mosques under the Antiquities Act 1976. Examples of mosques which have been preserved and conserved are the Jamek Mosque, Kuala Lumpur; the Ubudiah Mosque, Kuala Kangsar, Perak; the Sultan Abu Bakar Mosque, Johor Bharu, Johor; and the Acheen Street Mosque, Georgetown, Penang. It is important to acknowledge that both the vernacular and colonial mosques are historically and architecturally significant, particularly in accentuating the historical development of Malaysia.

References

[1] Ahmad, A.G. *British Colonial Architecture in Malaysia 1800-1930*. Kuala Lumpur: Museums Association of Malaysia, 1997.

[2] Nasir, A.H. *Mosques of Peninsular Malaysia*, Kuala Lumpur: Berita Publishing Sdn. Phd., 1984.

[3] Feilden, B.M. *Conservation of Historic Buildings*, London: Butterworth Scientific, 1982.

[4] Nasir, A.H. *Traditional Malay Wood Carving*, Kuala Lumpur: Dewan Bahasa dan Pustaka, 1987.

[5] Yeang, K. *The Architecture of Malaysia*, Amsterdam: The Pepin Press, 1992.

الطرز المعمارية للمساجد في ماليزيا:
من العمارة التقليدية إلى الحديثة

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ملخص البحث : تنتشر المساجد في معظم قري ومدن ماليزيا إذ أن غالبيـــة ســكانها مــن المســلمين. بــالرغم مــن التبــاين في الطــرز المعمارية للمساجد، بما في ذلك التقليدية وطرز المستعمرات، والعمارة الحديثة، فإنه يمكـــن التعــرف علــي خصــائص تصميميــة مشــتركة للمساجد في ماليزيا. لقد تمت دراسة ٣٤ مسجداً شيد في ماليزيا، وخاصـــة في شـــبه جزيـــرة الملايـــو، وذلـــك باســـتخدام نمـــاذج مســـح واستبيان خاصة. يقدم هذا البحث دراسة مقارنة للمساجد الـــتي شـــيدت في الحقـــب التاريخيـــة المتعاقبـــة في ماليزيـــا بالإضافـــة إلى تحليـــل للتطورات في عمارة المساجد بدءاً بالعمارة التقليدية المحلية، فتأثيرات عمارة المستعمرات، وحـــتى عصـــر الإنشـــاءات الحديثـــة.

عموماً هنالك خمسة عوامل تحدد الطراز المعماري للمسجد في ماليزيـــا وهـــي: حضـــارة المجموعـــة العرقيـــة، العوامـــل المناخيـــة، تأثـــيرات الاستعمار، استخدامات التكنولوجيا، والمناخ السياسي. هذه العوامل تحدد لمـــدى بعيـــد تصميـــم المســـجد وهيئـــات المبـــاني وأحجامـــها. كما يمكن اعتبار المساجد إرث قومي هام وذلك نسبة للقيم التاريخيـــة والمعماريـــة المرتبطـــة بالمســـاجد ونســـبة لأنهـــا تعـــبر عـــن التطـــور التاريخي في ماليزيـــا.