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A STUDY OF AFFECTED ELEMENTS IN ADAPTIVE REUSE OF HERITAGE BUILDINGS AS MUSEUM IN IPOH OLD TOWN PERAK

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ABSTRACT

The adaptive reuse process involves analysing the existing building's characteristics, such as its structural integrity, spatial layout, and historical significance, and determining how it can be creatively adapted to serve a new purpose. Overall, adaptive reuse is a sustainable and creative approach to architecture and urban planning, allowing existing buildings to be repurposed and given new life while preserving their historical and cultural value and contributing to the vitality of communities. The number of adaptive reuse projects is increasing in Ipoh Old Town. This research aims to study the rate of maintained and modified elements in adaptive reuse practices for heritage shophouses in Ipoh Old Town Perak. This research conducts a qualitative method which consists of observation and three case study buildings on heritage shophouses that practice adaptive reuse as a museum. However, this research will only focus on the adaptive reuse of museums in Ipoh Old Town. All the data obtained was represented in the forms table and networking diagram. It can conclude that the highest rate of modified elements is 73% occupied in case study 1, Time Tunnel. Meanwhile, the highest rate of maintained elements is 86% occupied by case study 2, Ho Yan Hor.

Keywords: Adaptive Reuse, Heritage Buildings, Shophouses, Affected Elements

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INTRODUCTION

According to the National Heritage Act 2005, adaptive restoration of heritage buildings involves all or a portion of the exterior restoration with the interior adapted to a modern functional use (Al-Obaidi et al., 2017). Most of the heritage buildings in Malaysia went through this approach known as adaptive reuse. Abdulhameed et al. (2014) stated that most believe that adaptive reuse is the best and only way to preserve the heritage of the past. By that, heritage buildings' value remains the same as adaptive reuse approaches were used. Furthermore, there is an opportunity for the public to perceive and attract tourists to the newborn spaces by the value of historical buildings (Abdulhameed et al., 2014).

Adaptive reuse of heritage buildings is a method towards conservation of heritage buildings, as it extends the building's life and avoids demolition waste, encourages the reuse of embodied energy and provides significant social and economic benefits to society. (Yung et al., 2014) mentioned that the adaptive reuse of historic buildings is becoming widely acknowledged as a sustainable conservation strategy. Several factors, including the increasing number of old buildings, limited availability of new land, and technological changes, are driving the expansion of its popularity.

Nowadays, many heritage buildings are being abandoned. Some abandoned buildings are shop houses, especially in old town areas. The increase in property values has led the owners to refurbish their old buildings and replace them with new buildings to gain a profit. (Dewiyana et al., 2016) mentioned accelerating records of deterioration and abandonment in most heritage location cases in Malaysia. Most of these heritage buildings needed a financial source to maintain their function. (Mohd Omar & Abdul Ghani, 2019) stated that the problems are that they were unable to maintain the structure, which was deteriorating because of a lack of funding, that a few owners did not want to lease their structures directly and instead allowed them to rust without proper care, and that several shophouses that had been burned down had no repairs made by the owners.

LITERATURE REVIEW

Adaptive Reuse

The term "adaptive reuse" refers to the functional adaptation of historic structures to fit newly proposed uses and coexist in an environment that is different from the original (Abdulhameed et al., 2019). According to (Yildirim et al., 2012), adaptive reuse is the action or process of preserving something to keep it alive through modernization, total conversion to a new purpose, or even a combination of the two. Adaptive reuse of old buildings is a new kind of maintainable city renewal. According to (Mohamed et al., 2016), adaptive reuse is known as the act of modifying a building

to accommodate uses that are different from those originally intended. It is necessary to modify a building by changing the capacity, function or performance for different purpose use, and making use of existing structural elements to preserve a heritage building. (Abdulhameed et al., 2019) mentioned that adaptive reuse in architecture refers to the process or state of change that fits a new environment or condition, or the resulting change.



**Figure 1: Adaptive Reuse of Cinema as BookXcess in REXKL
(Source: Thomas, 2022)**

According to (Celadyn, 2019), the concept of retaining and reusing existing buildings discovered in architectural design and identified as "a significant sustainability priority". Using an adaptive reuse can extend the life of a building by retaining all or the majority of the building features, including the building elements and interior materials. According to (Dorothy, 2004), this type of revitalization is not limited to buildings with heritage significance; it can also be employed in the case of obsolete structures. Compared to the initial process of building a new structure, adaptive reuse is much faster (Arpitha, 2022). Creating a new structure typically takes much longer than rehabbing an existing structure. This includes energy conservation where energy, labour and materials required could be reduce. The importance of this process is that it could extend the life span of existing buildings. There are many advantages of adaptive reuse, (Abdulhameed et al., 2019) mentioned that heritage building preservation increases future generations understanding of the past and creates a sense of continuity and belonging in the communities where people live. This process provides a valuable insight into the past and characterizes societies.

Heritage Buildings

In today's society, heritage buildings in particular are receiving an increasing amount of attention when it comes to adaptive reuse (Arfa et al., 2022). There are many structures that could be modified to accommodate new uses because they no longer serve their original function. A heritage building is typically referred to as a structure that needs to be preserved due to its historical, architectural, cultural, aesthetic, or ecological value (Proptiger, 2016). According to UNESCO, the term "heritage building" define to historic buildings which based on their value are subject to legal

preservation. However, all historic buildings are not considered as heritage buildings as the term “historic building” refers to all buildings of a certain period not necessarily under legal preservation. According to Malaysia Department of Valuation and Property Services (2013), Ipoh carries the greatest number of pre-war shophouses in Perak, representing most of the 2,567 pre-war shophouses in the Kinta district. Perak has 16% of the country's heritage buildings, second after Penang (Idid, 1995; as cited in William et al., 2014). Heritage building is a structure considered to have cultural, historical, or architectural significance and is therefore protected and preserved for future generations to appreciate it.

Shophouses

Shophouse is one of the popular building types in South East Asia. During the colonial period, it was introduced in a strait maritime settlement of Melaka, Penang and Singapore (Hassan et al., 2019). Nowadays, many of the shophouses have applied adaptive reuse into the new function to the buildings such as cafes, restaurants, hotels (Yung et al., 2014). This new function of the shophouse could preserve a heritage value of the building and prevent the building from being abandoned. The types of shophouses are as the following below;

i. Standard shophouses

Standard shophouses are often designed to be narrow and deep so that many businesses can be accommodated along a street. Each building's footprint is narrow in width and long in depth. These are the most common type of shop house, featuring a shop on the ground floor and a residence on the upper floors.

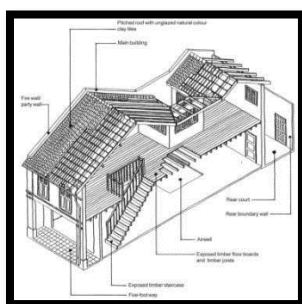


Figure 2: Standard Shophouses
(Source: Standard Singapore, 2015)

ii. Peranakan shophouses

Peranakan shophouses are a shophouse found in Singapore and other Southeast Asian countries. Peranakan culture is a hybrid Southeast Asian culture with influences from China, Malay, and India, as well as esoteric Portuguese, Dutch, and Indonesian traces. Many shophouses were built between the 1840s and the mid-1900s and are heavily influenced by Peranakan (Straits Chinese) culture. The shophouses have elaborately carved wooden door gates, or half doors, as well as richly colored ceramic tiles and shuttered windows. These are a type of shop house

that originated in the Peranakan culture of Malaysia and Singapore. They are known for their ornate facades and intricate details.



Figure 3: Peranakan Shophouses
(Source: Royle, n.d)

iii. Art Deco shophouses

These shop house types were built in the Art Deco style, popular in the 1920s and 1930s. The Art Deco style is said to have originated in Paris and inspired the rest of the world (Shang, 2019). Art Deco was popular until the 1950s when it was adapted to suit local tastes and culture. Such adaptations included incorporating business names written in Chinese characters and prominently featuring them in the facade design. Their geometric shapes and bold colours characterize them.



Figure 4: Art Deco Shophouses
(Source: Shang, 2019)

Museum

Museums are part of a people's cultural heritage and, as such, their presentation to tourists (Vareiro et al., 2020). A museum is where objects of cultural, historical, or artistic significance are collected, preserved, and displayed for public viewing. In Malaysia, museum activities began with establishing of the Perak Museum in Taiping in 1883 (Department of Museum Malaysia, n.d). Museums can be dedicated to various subjects, including art, history, science, and technology. They can be found in many buildings, such as purpose-built structures, historic houses, and former industrial sites. Museums often have several different functions, which are museums collecting objects and artifacts of cultural, historic, or artistic significance, often to

preserve them for future generations (Simon, 2023). Other than that, museums are responsible for preserving the objects in their collections, using best practices for conservation and restoration to ensure that they are protected from damage and deterioration.

Ipoh

The name Ipoh comes from a local tree called pohon epu, which is now more commonly known as pokok ipoh (Francis Ng, 2012). The poisonous sap of this plant was used by local indigenous people to coat the tips of their blowpipe darts for hunting, along with *Strychnos latex*. Ipoh is a city located in the state of Perak, Malaysia. It is located by the Kinta River. It was founded in the 1880 by a Chinese man named Yau Tet Shin who discovered large deposits of tin in the area during the tin mining boom, which brought a large number of Chinese immigrants to the area.

RESEARCH METHODOLOGY

The methodology used for this research is qualitative methods which are perceived to yield the best results by the research objectives. This research methodology will be composed of several stages, starting with literature review from journals, articles, websites and books. The primary data conducted with observation of three case study. The selection of case study has been done based on the function of the building which is museum. The selection of the 15 building elements are made based on the architectural elements according to adaptive reuse principle. The observation has been done in the Ipoh Old Town area only. The analysis is then conducted on the results from observation, which is the primary data for this research.

ANALYSIS AND FINDINGS

Table 1: Rate of Maintained and Modified of Elements in Adaptive Reuse Practices of Heritage Buildings in Ipoh Old Town Perak

Architectural Elements According to Adaptive Reuse Principle	TIME TUNNEL		HO YAN HOR		HAN CHIN PET SOO	
	Maintained	Modified	Maintained	Modified	Maintained	Modified
Front Façade		X	X		X	
External Wall	X		X		X	
Internal Wall	X		X		X	
Ground Floor		X	X		X	
Upper Floor		X	X			X
Column Structure		X	X		X	
Staircase Structure		X	X		X	
Roof Structure	X		X			X
Doors	X		X		X	
Windows		X	X		X	
Roof Finishes		X	X			X

Ceiling Finishes		X	X		X	
Wall Finishes		X		X	X	
Floor Finishes		X	X		X	
Building Facilities		X		X		X
Total Element Maintained	4 (27%)		13 (86%)		11 (73%)	
Total Elements Modified	11 (73%)		2 (14%)		4 (27%)	
Total No. of Elements Observed	15 (100%)		15 (100%)		15 (100%)	

Based on Table 1 above, the observation findings summarise three case studies of adaptive reuse practices of heritage shophouses as museums in Ipoh Old Town Perak. There are 15 total elements observed.

From the table above, Time Tunnel complied with four maintained elements, accounting for 27%. Meanwhile, Ho Yan Hor had a significant rate of maintained elements, with 13 maintained elements accounting for 87%, and Han Chin Pet Soo complied with 11 maintained elements accounting for 73%. Ho Yan Hor is well maintained because most elements are original structures except for wall finishes and building facilities. For Time Tunnel, most of the building elements were modified since this building had a major renovation due to the different tastes of the new building owner. Lastly, Han Chin Pet Soo had achieved almost all maintained elements, second after Ho Yan Hor, except for renovating an additional upper floor building structure that affected some elements.

DISCUSSION

From the findings obtained, 12 out of 15 common elements are affected by the process of adaptive reuse. Time Tunnel has a significant rate of modified elements compared to the other two case studies, Ho Yan Hor and Han Chin Pet Soo. Ho Yan Hor occupied the significant rate of the maintained element, followed by Han Chin Pet Soo. From the previous diagram, the most affected element is the upper floor. Meanwhile, external walls, doors and internal walls are the most maintained element

in the three buildings. The common building elements that are affected by adaptive reuse practices are ranked as below:

- i. External Wall
- ii. Internal Wall
- iii. Doors
- iv. Ground Floor
- v. Column structure
- vi. Staircase Structure
- vii. Roof Structure
- viii. Windows
- ix. Wall Finishes
- x. Ceiling finishes
- xi. Floor finishes
- xii. Front Facade

The data analysed show the results obtained from the. The current building condition is well-conserved since the buildings are well-maintained by the owner. Besides, there is no major renovation made by the owner that affects other building structures except that case study 3 had an additional storey. In summary, building element's Time Tunnel Museum is the most affected by adaptive reuse practices. 10 out of 15 elements were modified.

CONCLUSIONS AND RECOMMENDATIONS

It can be concluded that the study of rate of maintained and modified elements in adaptive reuse practices for heritage shophouses in Ipoh Old Town Perak is evaluated. The adaptive reuse of heritage buildings in Ipoh Old Town has contributed to the preservation of the environment. Society viewed the principle of adaptive reuse favourably as a means of preserving historic structures. When there is more positive feedback than negative feedback, efficiency is achieved. The current building condition is well-conserved by the owner even though the highest rate of modified elements is 73% in case study 1, Time Tunnel. Ho Yan Hor contrasts with Time Tunnel with the rate of modified elements is only 14%. Han Chin Pet Soo's rate of modified elements is 27%. Other than that, the rate of maintained elements occupied by Ho Yan Hor and Han Chin Pet Soo is 86% and 73% contrast with Time Tunnel is

23%. Ho Yan Hor and Han Chin Pet Soo have the highest rate of maintained elements in adaptive reuse practices for heritage shophouses in Ipoh Old Town Perak.

Based on this topic's findings, analysis, and studies, a few suggestions and recommendations must be provided to improve further research. Apart from that, it is suggested to maintain the original features of the buildings to appreciate the style of past craftsmanship and historical features, heritage structures must be conserved. The significance of heritage will be preserved if the building parts are kept the same. It was suggested that the main elements of the building should be maintained using the conservation concept to preserve the heritage value of the buildings.

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