

GUIDANCE TOWARDS CONSERVATION DECISIONS: A LITERATURE REVIEW OF HISTORICAL RESEARCH DOCUMENTATION ASPECTS

Nur Aina Iylia Husa^{1*}, Siti Norlizaiha Harun²
& Mohd Nurfaizal Baharuddin³

*Corresponding Author

^{1,2}Department of Built Environment Studies and Technology,
College of Built Environment, Universiti Teknologi MARA, Shah Alam, Malaysia

³Department of Built Environment Studies and Technology,
College of Built Environment, Universiti Teknologi MARA,
Perak Branch, Malaysia

2021633622@student.uitm.edu.my, Sitin009@uitm.edu.my
& Nurfa644@uitm.edu.my

Received: 26 May 2024

Accepted: 21 November 2024

Published: 31 December 2024

ABSTRACT

The core concepts of conservation in Malaysia are rooted in the principles of conservation and documentation. These principles lead to the beginning of conservation efforts through the conduction of historical research in the preliminary study, which resulting an initial study report. Historical research is essential to acknowledge the authenticity and significance values of a heritage building as according to Article 6 of the Burra Charter, "the cultural significance of a place and other issues affecting its future are best understood by a sequence of collecting and analysing information before making decisions.". Performing a background study of the place and its extent, as well as looking into its history, usage, associations, and materials can help to comprehend its significant values, which will eventually assist in determining what kind of conservation approach should be undertaken. The objective of the study is to identify historical research aspects that exert an influence on judgements regarding conservation through support by a study of the literature on principles of conservation and documentation, historical research and building characters, which anticipates resulting in historical



research aspects that will be documented for the pre-conservation phase.

Keywords: *Heritage building, Conservation principles, Documentation principles, Historical research, Decision to conserve*

INTRODUCTION

The phrase "conserve" is defined as "to save something". This encourages everyone to further explore the types of conservation efforts adopted and how they are carried out (Cardoso et al., 2018). According to Harun (2011), conservation is an effort to prevent the decay of heritage buildings. The concept of conservation is to preserve the authenticity of heritage based on historical and actual evidence. A heritage building constitutes one of a nation's historical buildings, embodying considerable value and importance for the collective heritage and identity of the country (Naquiuddin. M et al., 2013). Architectural styles express the captivating history and importance of each heritage building in Malaysia (Mat Hasan et al., 2019). We can define principles as a set of rules that must be adhered to (Ontario Heritage Trust, 2023). The principles of conservation ethics firmly promote a positive professional manner that is suitable for heritage buildings, with a focus on preserving the architectural integrity in accordance with the authentic original aesthetic quality (Jabatan Warisan Negara, 2013, 2017). Prior to commencement of conservation efforts, a preliminary study is conducted encompassing the investigations into the history and background of the building. Before suggesting a proper conservation approach, it is essential to look into the building's history and context in order to fully comprehend it. The focus of this study lies in the examination of historical research documentation, which serves as a guide for conservation decision-making.

Heritage Building

The term "heritage" pertains to locations, buildings, structures, and artifacts that bear historical, artistic, or architectural significance. Three key aspects are considered when assessing a place's eligibility for heritage registration: its historical significance, its integrity, and the surrounding environment (Al-Sakkaf et al., 2020). A heritage building is a structure that possesses architectural, aesthetic, historical, or cultural significance

and has been officially recognised as such by the local or competent body responsible for the area where the building is situated. Heritage buildings hold significant cultural and historical value as prominent landmarks (Mat Hasan et al., 2019). Historic buildings play important roles in history by preserving both historical events and cultural beliefs. The nation boasts a considerable number of historic buildings, which encompass both recorded narratives and physical structures such as monuments. Each of these buildings possesses its own unique history (Harun S. N., 2020). The preservation and restoration of the remaining historical buildings in the country are crucial, since they function as visible representations of the nation's sense of nationalism and patriotism. Over time, heritage buildings gradually decay due to several factors, including neglect, expensive maintenance requirements, inadequate guidelines, and a limited awareness of management procedures. Conservation is the sole approach capable of preventing the deterioration of heritage buildings (Zolkafli et al., 2017).

Principle of Conservation

Principles can be described as a collection of regulations that must be adhered to. This concept fundamental and serves as the cornerstone in numerous fields. The concepts of conservation are taken from international charters and philosophies (Ontario Heritage Trust, 2023). The conservation process must adhere to the principles of conservation. It encompasses all elements related to the ideals that make up the characteristics and ethics of authenticity and aesthetic quality in the execution of preservation works (Jabatan Warisan Negara, 2013, 2017). This study incorporates three principles: the Burra Charter, the Conservation Principles by the New South Wales Heritage Office, and Garis Panduan Pemuliharaan Bangunan Warisan by the National Heritage Department Malaysia. The image below illustrates the principles of conservation.

All three of these conservation principles emphasize the importance of preserving cultural significance by adopting a respectful approach toward the building's history and its setting. The initial context or environment typically contributes to the overall importance of the building. Depriving the building of its early setting may result in the loss of its significance. New intrusions into the setting should be avoided, or at the very least, any encroachments should be sympathetic and respectful. In addition, the

aforementioned principles highlight the need for minimal alterations and disturbances, promoting a cautious approach to safeguard the fabric and integrity of heritage buildings. Another principle involves distinguishing between existing materials with new materials. While it is important to use similar techniques and materials to maintain authenticity and respect for the structure, it is necessary to clearly identify the new materials from the old ones. Lastly, the principle involved relative degrees of cultural significance may differ the action undertaken. It is important to note that relative degrees of cultural significance can vary; if a building holds great importance to a nation, it is imperative to preserve the building in its original form, maintaining its structure, materials, and arrangement.

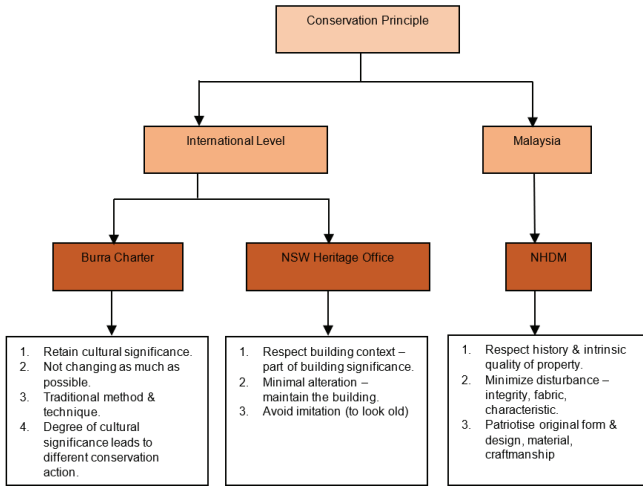


Figure 1. Principle of Conservation

Source: Author

Principle of Documentation

Apart from conservation principles, the conservation project incorporates principles of documentation from its inception to its conclusion, guaranteeing a structured and guided approach. Documentation can encompass both the act of documenting and the resulting documentation. A document serves as both literal and symbolic evidence to substantiate facts. It must be recorded to accurately reflect or demonstrate information (Buckland, 2018). Letellier (2007) has described documentation as “Today’s recording is tomorrow’s documentation” by means of every record that can

be collected and compiled into documentation. Documentation provides these places with meaning, understanding, definition, and recognition of their cultural importance and values. According to Jabatan Warisan Negara (2017), the effectiveness of a conservation project relies on the availability of specific information that drives decision-making. By utilising proper documentation and recording methods, relevant information can be collected and utilised to make accurate decisions. The primary focus of this study is the NHDM's first principle of documentation, which aims to highlight the significant values associated with history, culture, architecture, and engineering.. By adhering to this documentation principle, the preliminary research entails creating an initial study report that emphasizes crucial aspects such as the historic overview of heritage building and site, its construction and development as well as the purpose and function of the building (Jabatan Warisan Negara, 2013, 2017).

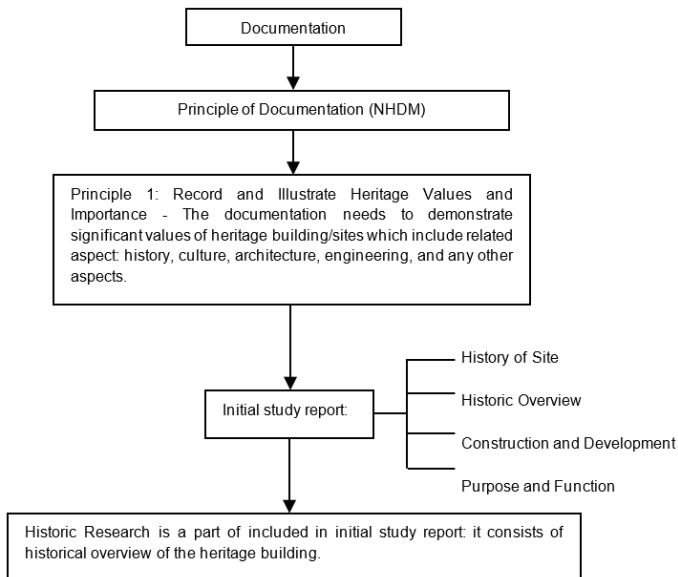


Figure 2. Principle of Documentation

Source: Author

Historical Research Character

According to Harun (2022), “factors that will shape the decision including whether to restore or rehabilitate and to what extent, involve understanding its history; its architecture; and the present condition of its

materials, finishes, and systems”. The decision for conservation is determined not only by the character, but also by its historical and architectural significance, as well as the condition of its material finishes and systems. Both can be utilised to make logical and informed decisions on conservation. During the stage of assessing building history, conservators can enhance their inquiry by focusing on key questions, which will provide them with guidance and support in identifying relevant information. According to Zancheti et al. (2009), based on Venice Charter (1964) which, as mentioned in article 16, states “...in all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs...”, this article pertains to the concept discussed in the NHDM documentation that stresses the importance of four primary components in heritage buildings: history, culture, architecture, and engineering. Therefore, the production of a historical research component is grounded in a principle, which in turn might influence decisions for the conservation of heritage buildings. Based on figure 3 below, heritage building ‘character’ is assessed during historical research according to the influence of foreign and local factors along the time zone of the building lifecycle. The presence of both natives and outsiders, such as immigrants and nomads, had an ambiguous impact on the development of heritage building. As said by Harun (2022), the numerous questions that can be added as guidance factors. These questions concern the original character of the building, which is connected to its history and previous occupants. The goal of historical research is to comprehend how the building has changed over time, as it relates to residents, events, and equipment, or even furniture. The data sources can be collected from numerous documents such as written documents, photographs, oral histories and even multimedia (Khalil et al., 2021).

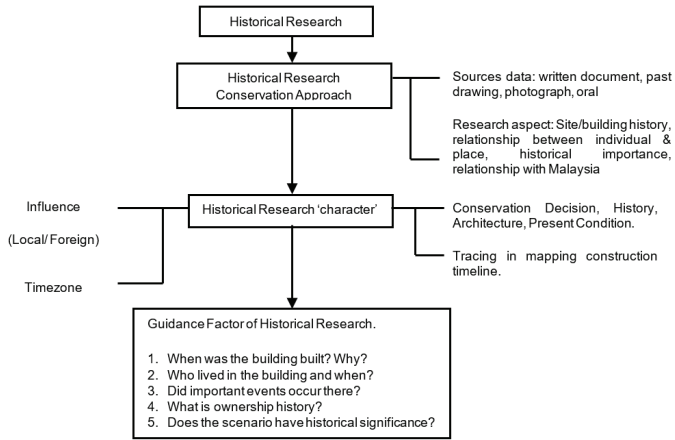


Figure 3. Historical Research Character

Source: Author

Historical Research Aspect

This study provides an exploration of principles of conservation, documentation and its relationship with historical research character and aspect. The principles of conservation and documentation receive recognition.. Three principles, two from an international level and one from a local level, form the basis of historical research. In the context of conservation documentation, the first principle set by the National Heritage Department of Malaysia is applied, guiding the preparation of the initial study report in the preliminary research phase. Historical research is a crucial component of this report, where an understanding of the 'character' of historical research serves as a guiding factor for determining various aspects, including history, culture, architecture, and construction engineering, in alignment with the principles of documentation.

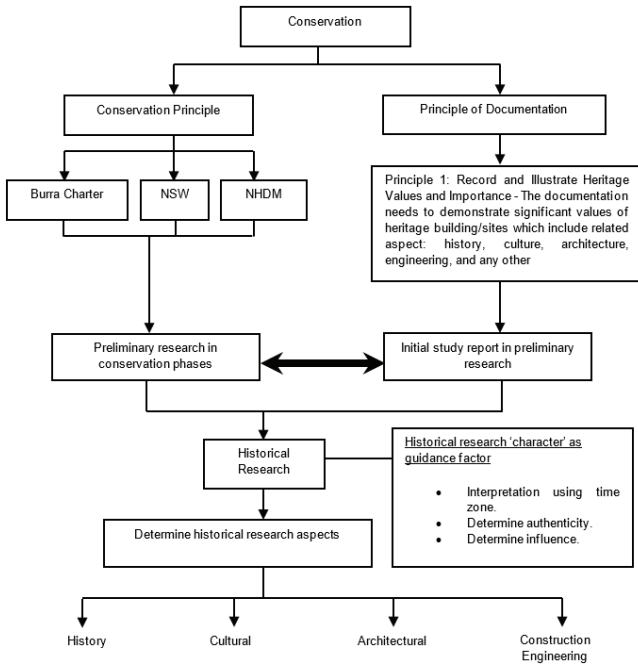


Figure 4. Historical Research Aspects

Source: Author

Based on figure 4 above, the research has developed an analysis conducted from a literature review, which consists of four primary aspects such as history, culture, architecture, construction, and engineering. These aspects are developed as a guidance in assessing historical research. Based on literature study, the analysis of historical research aspects is shown in Table 1 below.

Table 1. Historical Research Literature Review Analysis

Historical Research Aspect	Analysis of LR	Sources
1. History	H-1 Building Function	(Australia ICOMOS, 2013; Azizi et al., 2016; Darmawan & Enis, 2016; Harun, 2022; Historic England, 2016; New South Wales. Heritage Office., 1995b; Wan Ali & Ahmad, 2021)
	H-2 Building Era/ Years of Built/Date	(A. K. Birabi, 2006; Baroldin & Din, 2012; Harun, 2022; Historic England, 2016; Mcdonald, 1994; Wan Ali & Ahmad, 2021)
	H-3 People/Owner/ Users/Community	(Abd Wahab et al., 2008; Australia ICOMOS, 2013; Azmi et al., 2014; Baharuddin et al., 2022; Harun, 2022; Hazmi Bachek et al., 2014; Historic England, 2016; Impey, 2015; Jones & Leech, 2015; Mcdonald, 1994; New South Wales. Heritage Office., 1995a)
	H-4 Sequence of Development/ Chronology	(Baharuddin et al., 2022; Impey, 2015; Lee, 2002; Mcdonald, 1994; New South Wales. Heritage Office., 1995a; M. A. A. Rahman et al., 2012)
	H-5 Past Events	(Azmi et al., 2014; Harun, 2022; Impey, 2015; Jones & Leech, 2015)
	H-6 Relation with Achievement	(Azmi et al., 2014; Mcdonald, 1994)
	H-7 Building Changes	(Azizi et al., 2016; Baroldin & Din, 2012; Mcdonald, 1994; National Institute of Building Sciences, 2023)
2. Culture	C-1 Economic	(Baharuddin et al., 2022; Hew et al., 2014; Historic England, 2016; Mohd Lazim & Said, 2020; Wan Ali & Ahmad, 2021)
	C-2 Social	(Azmi et al., 2014; Baharuddin et al., 2022; Dann & Wood, 2004; Harun, 2011; Historic England, 2016; Pacescu & Thiery, 2015; Sauti et al., 2018)
	C-3 Political	(Azmi et al., 2014; Baharuddin et al., 2022; Glenn, 2003; Sauti et al., 2018)
	C-4 Ecological	(Caesarina et al., 2020; Leissner et al., 2015)

3. Architecture	A-1 Material	(Baharuddin et al., 2022; Cebron Lipovec & Van Balen, 2008; Döndüren & Şişik, 2017; Impey, 2015; Jones & Leech, 2015; Mcdonald, 1994; Worthing & Dann, 2002; Zahari & Bahari, 2011)
	A-2 Building Form/Type/Design	(A. K. Birabi, 2006; Baharuddin et al., 2022; Jones & Leech, 2015; Mcdonald, 1994; Mehr, 2019)
	A-3 Decorative Elements	(Baroldin & Din, 2012; Mcdonald, 1994; Zahari & Bahari, 2011)
	A-4 Layout/Space	(Azmi et al., 2014; Baroldin & Din, 2012; Hasbollah & Baldry, 2014; Impey, 2015; Mcdonald, 1994)
	A-5 Color Scheme	(Azmi et al., 2014; Harun, 2011; Historic England, 2016; Ivanova et al., 2021; Mcdonald, 1994)
	A-6 Roofing Design	(Baroldin & Din, 2012)
	A-7 Ornament	(Baroldin & Din, 2012; Caesarina et al., 2020)
	A-8 Craftmanship	(Cebron Lipovec & Van Balen, 2008; Harun, 2011; Karakul, 2022)
	A-9 Architectural Style	(Baharuddin et al., 2022; Hazmi Bachek et al., 2014; Historic England, 2016; Mcdonald, 1994; Mohd Abdullah et al., 2020; Saad Fathalla, 2022; Wan Ali & Ahmad, 2021)
4. Construction	CE-1 Construction Method/Technique	(Abd Wahab et al., 2008; Clark & Clark, 2001; Dann & Wood, 2004; Harun, 2011; Karakul, 2022; Mehr, 2019; Rani et al., 2018; Worthing & Dann, 2002)
	CE-2 Early Technology	(Caesarina et al., 2020; Harun, 2011; Impey, 2015; Mcdonald, 1994; N. B. A. Rahman et al., 2022)
	CE-3 Geographical Area	(Caesarina et al., 2020; Impey, 2015; Mcdonald, 1994)

Historical Research Literature Review Analysis

Building Function

The conservation decisions made for a historical building are influenced by its building function, as the original purpose of a historical building can contribute to historical significance (Azizi et al., 2016). Understanding the building function of historic buildings is crucial, particularly to comprehending any alterations to their function and the potential impact on its historical significance (Darmawan & Enis, 2016).

Years of Built/Era

In the field of conservation, the term "building era" refers to the specific time period of a building's original construction. Understanding the era of a building holds significant importance in the realm of conservation as it supports the identification of suitable approaches for the preservation and

restoration of said building (A. K. Birabi, 2006).

People/Owner/Community

According to Harun (2022), the decision to conserve involves a thorough understanding of history by reviewing the building's original characters associated with people who lived in the building and when they lived in the building. According to Azmi et al. (2014), a location or a place is significant and affiliated with a community or cultural group in a specific area for social, cultural, educational, or spiritual reasons. As a result, it fosters a positive sense of place and identity among residents.

Chronology

Chronology is one of the most essential concerns for both experts and the public. "How old is it?" is a valid inquiry that any person interested in the past would ask. The basis for archaeological and historical dates differs. Written documents provide historical dates, whereas estimates of time determine archaeological dates (Lee, 2002).

Past Events

If a location connects to past events, developments, or cultural sites that hold great significance to its history, it can acquire historical significance. Additionally, it can demonstrate technical or creative accomplishments from a specific era or have a significant association with the life or contributions of an individual, group, or organisation that played a key role in shaping that location. The presence of tangible evidence supporting this association enhances and adds to the claimed historical significance (Azmi et al., 2014).

Relation with Achievements

Heritage buildings possess numerous interpretations and significance for individuals and locations, contingent upon the specific time period. Heritage structures hold significance and play a role in shaping the identity of a location. Quality typically closely links the value of unique historic items (Azmi et al., 2014). A revived awareness of history and a nostalgic yearning for the past motivate the current fascination with heritage. However, the appreciation for specific traits of past achievements also drives it (Feilden & Jokilehto, 1998).

Building Changes

Most structures change with time. Tracing the historical changes throughout time is akin to "excavating" the building, resembling an archaeological investigation (McDonald, 1994). A heritage building undergoes multiple alterations, additions and demolitions over its lifetime. This could potentially have an indirect influence on the extent to which the long-standing lifestyle, culture, and social structure may undergo changes (Baroldin & Din, 2012).

Economic

According to Baharuddin et al. (2022), "a historic building is one that gives us a sense of wonder and makes us want to know more about the people and culture that produced it." It has symbolic values, he continued, including economic and other qualities. Examining the economic issues that have impacted the development of these historic buildings is a crucial component of historical research. Throughout history, there has been a continuous increase and development in economic activity, leading to the creation of many buildings that have gained heritage or historical status (Mohd Lazim & Said, 2020).

Social

Heritage itself is viewed as the meanings linked in the present to the past and is regarded as a knowledge defined within society (Harun, 2011). Historic buildings work as indicative representations of social identity, reflecting the values, ambitions, and accomplishments of a community. Architecture plays a pivotal role in the construction of identity, serving as a tangible and physical embodiment of a society's historical past (Pacescu & Thiery, 2015).

Political

A historic building is one that inspires awe and a desire to learn more about the people and cultures who created it. Baharuddin et al. (2022) stated that it possesses many values including political. It is similar to Fielden (2003) and Sauti et al., (2018) who believe that a building can be considered as historical if it fits many aspects including political value. Historic significance deeply embeds building heritage, and these buildings typically play a significant role in the locality's history. Ecological

Cultural ecology encompasses the entirety of the relationship between humans as a cultural element and the natural environment as an ecological entity. Structures with multiple components are an example of how people have adapted to their environment. Climate and natural conditions significantly influence the structural components and architectural styles of buildings, serving as indicators of the identity and distinct features of cities in various climatic zones (Caesarina et al., 2020).

Material

In order to properly understand the structure and development of the location, it is crucial to recognise the form and condition of each of its parts and materials (Impey, 2015). An investigator must possess the skills and proficiency to meticulously examine and analyse materials while showcasing a thorough understanding of historical construction techniques and technology (McDonald, 1994). It is necessary to conduct a variety of inspections at different intervals. These should be adjusted to match the significance and vulnerability of the element or material (Baharuddin et al., 2022).

Building Form/Design

The majority of buildings undergo changes as time progresses. Compared to other building types, housing is likely to undergo extensive reconstruction, reflecting a variety of options for expanding living space or eliminating unneeded areas (McDonald, 1994). The physical composition of a historical building, known as its fabric, and its unique characteristics, such as its visual components and architectural design, convey its value. The visual components and structural layout of a building can provide valuable understanding of its historical significance (A. K. Birabi, 2006).

Decorative

In order to comprehend building and setting, it is crucial to understand the architectural background, which encompasses the architectural character comprising decorations and artwork on the facade or inside (The Getty Conservation Institute, 2009). The ability to track the evolution of the building and its modifications throughout time is somewhat facilitated by the historical study of the decorative elements (McDonald, 1994).

Layout and Space

The utilisation of space within heritage buildings serves as a manifestation of the local community's identity, memories, events, and sources of inspiration (Hasbollah & Baldry, 2014). Owners occasionally modify the interior arrangement to accommodate their preferences, demands, and abilities. This has an indirect impact on the extent to which lifestyle, culture, and social systems have evolved over time (Baroldin & Din, 2012).

Color Scheme

The colour scheme of a structure is important, and if there is no reference for it, the substitute material must be harmonious with the original's look, aesthetics, texture, dimensions, colour, materials, and form (Harun, 2011). It is stressed that the role of colour in establishing place is its explanation of the theory of identity and place (Azmi et al., 2014).

Roofing Design

The presence of a roof greatly influences the architectural character of historic buildings. The architectural design and roof qualities often mirror the local climate, regional customs, and the accessibility of materials. Every heritage building possesses a distinctive roofing design that may be discerned based on the specific time period in which it was constructed (Baroldin & Din, 2012).

Ornament

Architecture encompasses the features of aesthetic attractiveness, practicality, and structural integrity. Every aspect and ornamentation of a building has to be in alignment with a single fundamental objective, leading to a cohesive and easily recognisable structure (Jokihleto, 1999). Building ornamentation frequently involves a blend of native and foreign design elements. The colours of buildings typically consist of natural hues or combinations of dark and light shades. Heritage buildings often employ large columns to enhance the appearance of their facades (Caesarina et al., 2020).

Craftsmanship

"Craft" refers to a specific type of manufacturing that involves the expert use of tools to create objects by hand (Karakul, 2022). When dealing with historic buildings, traditionally created pieces of material or

traditional locally developed crafts were necessary to preserve the material authenticity of the place (Cebren Lipovec & Van Balen, 2008). To achieve accurate documentation, one must possess an in-depth understanding of craftsmanship, considering both its tangible and intangible aspects (Karakul, 2022).

Architectural Style

All buildings, particularly heritage buildings, undergo the natural process of aging and are susceptible to various intervention procedures, including preservation, deterioration, replacement, or redesign. In order to restore and preserve the original architectural design, it is necessary to refer to complete details regarding architectural styles and materials (Wan Ali & Ahmad, 2021). The purpose of an in depth investigation is to examine the utilisation of the building over various periods and to comprehend how its layout and decorations would have been interpreted by individuals of that time. This necessitates a thorough examination of both the exterior and interior structure of the building, with a specific focus on architectural styles (Historic England, 2016).

Construction Methods and Techniques

According to Clark & Clark (2001) and Worthing & Dann (2002), it is essential to understand the significance of the building and the potential repairs, especially when employing traditional materials and techniques. This is because historical buildings are fragile and should be treated with respect for every aspect of characteristics. The building's construction approach is considered important as it unifies the historical context. The conservation technique must adhere to conventional practices based on information about the original building method and technique, as well as historical research, while maintaining harmony with the historic character (Harun, 2011).

Early Technology

To identify a place's cultural and natural heritage values, its history, fabric, and character must first be recognised, as well as the technologies used in its construction (Impey, 2015). A heritage building contains evidence of prior technology innovation (Harun, 2011). Knowing the history of system technology can assist in forecasting the physical evidence that may be discovered and how it will look once found (McDonald, 1994).

Geographical Area

The term "place" refers to everything that can influence a person's "sense of place,". It embraces the notion that, regardless of size, a specific geographic location may be a component of multiple overlapping "places" defined by various characteristics (Impey, 2015). Climatic and natural conditions have a profound influence on building components and styles; architecture is one indicator of the identity and features of cities in various climatic zones (Caesarina et al., 2020).

CONCLUSION

As a result, the principle of conservation and documentation serves as a framework for initiating historical research. By recognising these aspects, it provides helpful insight to the conservation team in determining the most effective way for conserving the heritage building. These characteristics can serve as comprehensive proof that is not only important for conservation but also for future applications.

ACKNOWLEDGEMENT

I would like to convey my special thanks to all the co-authors for their support and valuable comments on this article. In addition, I'd want to express my gratitude to the FRGS members of UiTM Teknologi MARA, who allowed me to become part of their team while providing an indirect contribution to the writing of this paper.

AUTHOR CONTRIBUTIONS

Thank you to all authors for the endless commitment and contribution in terms of time, efforts and knowledge sharing. All authors have contributed to the research idea and design including reading and approval of the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest in preparation of this article.

REFERENCES

- A. K. Birabi. (2006). New Building Services Systems in Kampala's Built Heritage: Complementary or Conflicting Integrals? *Proceedings from the International Conference on Advances in Engineering and Technology 2006*, 655–670.
- Abd Wahab, L., Kamal, K. S., & Ahmad, A. G. (2008). Pilot Survey On The Conservation Of Historical Buildings In Malaysia. *International Conference On Built Environment In Developing Countries 2008* "Sustaineble Built Environment: Bridging Theory And Practice." <https://mp.ra.ub.uni-muenchen.de/22478/>.
- Al-Sakkaf, A., Zayed, T., & Bagchi, A. (2020, August 24). A Review of Definition and Classification of Heritage Buildings and Framework for their Evaluation. *2nd International Conference on New Horizons in Green Civil Engineering (NHICE-02)*. <https://www.researchgate.net/publication/341160581>.
- Australia ICOMOS. (2013). *The Burra Charter: the Australia ICOMOS charter for places of cultural significance 2013*.
- Azizi, N. Z. M., Razak, A. A., Din, M. A. M., & Nasir, N. M. (2016). Recurring Issues in Historic Building Conservation. *Procedia - Social and Behavioral Sciences*, 222, 587–595. <https://doi.org/10.1016/j.sbspro.2016.05.217>.
- Azmi, N. F., Ahmad, F., & Ali, A. S. (2014). *Place Identity: A Theoretical Reflection*. Vol.39.
- Baharuddin, M. N., Bahardin, N. F., Harun, S. N., Abd Manap, M. D., & Ab Rashid, M. S. (2022). Assessing Critical Risk Factors for Heritage Conservation Projects in Compliance with National Heritage Act 2005 (ACT 645). *Journal of the Malaysian Institute of Planners*. 20.

- Baroldin, N. M., & Din, S. A. M. (2012). Documentation and Conservation Guidelines of Melaka Heritage Shophouses. *Procedia - Social and Behavioral Sciences*, 50, 192–203. <https://doi.org/10.1016/j.sbspro.2012.08.027>.
- Buckland, M. (2018). Document Theory. *Knowledge Organization*, 45(5), 425–436. <https://doi.org/10.5771/0943-7444-2018-5-425>.
- Caesarina, H. M., Hasanah, A., & Chang, B. (2020). *Cultural Ecology of Heritage Building Adaptation in Tropical Cities*. <https://doi.org/10.13140/RG.2.2.22741.45281>.
- Cardoso, F., Achig-Balarezo, M. C., & Barsallo, G. (2018). Preventive Conservation Tools in Southern Ecuador. *Journal of Cultural Heritage Management and Sustainable Development*, 8(2), 207–220. <https://doi.org/10.1108/JCHMSD-06-2017-0033>.
- Cebron Lipovec, N., & Van Balen, K. (2008). Preventive conservation and maintenance of architectural heritage as means of preservation of the spirit of place. *16th ICOMOS General Assembly and International Symposium*. <http://stephweb.com/capstone>.
- Clark, C. M., & Clark, K. (2001). *Informed Conservation: Understanding Historic Buildings and Their Landscapes for Conservation* (illustrated). English Heritage.
- Dann, N., & Wood, S. (2004). Tensions and omissions in maintenance management advice for historic buildings. *In Structural Survey*, 22(3), 138–147. <https://doi.org/10.1108/02630800410549035>.
- Darmawan, E., & Enis, A. S. (2016). The Changing Function of Heritage Building for Roling Tourism Planning Progress. *Procedia - Social and Behavioral Sciences*, 227, 712–719. <https://doi.org/10.1016/j.sbspro.2016.06.137>.
- Döndüren, M. S., & Sişik, O. (2017). Materials, used in historical buildings, analysis methods and solutions puroposals. *E3S Web of Conferences*, 19. <https://doi.org/10.1051/e3sconf/20171903019>.

- Feilden, B. M., & Jokilehto, J. (1998). *Management Guidelines for World Cultural Heritage Sites*.
- Fielden, B. M. (2003). *Conservation of Historic Buildings* (Architectural Press, Ed.; Third Edition). Elsevier.
- Glenn, M. (2003). *Architecture Demonstrates Power*.
- Harun, S. N. (2011). Heritage building conservation in Malaysia: Experience and challenges. *Procedia Engineering*, 20, 41–53. <https://doi.org/10.1016/j.proeng.2011.11.137>.
- Harun S. N. (2020). *Pemuliharaan Bangunan Warisan*. Dewan Bahasa Dan Pustaka.
- Harun, S. N. (2022). *Decision to Conserve, How? Conservation Method & Practiced*. In Lecture Slide (Unpublished). FSPU UiTM.
- Hazmi Bachek, S., Zainudin, H., & Ain Haron, N. (2014). *Preservation of Culture and Built Heritage in New Urban Development: A Case Study on Little India Brickfields*, Kuala Lumpur. <https://doi.org/10.7763/IPEDR>.
- Hew, W. W. L., Tong, D. Y. K., & Goh, G. G. G. (2014). Revitalisation of the Old Township of Ipoh, Malaysia. *In Journal of Place Management and Development*, 7(1), 57–73. Emerald Group Publishing Ltd. <https://doi.org/10.1108/JPMD-05-2013-0015>.
- Historic England. (2016). *Understanding Historic Buildings: A Guide to Good Recording Practice*.
- Impey, E. (2015). *Conservation Principles, Policies and Guidance*.
- Ivanova, A., Marinova, I., & Karavelov, L. (2021). Role of colors in historical buildings preservation. *European Scientific Journal*.
- Jabatan Warisan Negara. (2013). *Garis Panduan Pemuliharaan Bangunan Warisan*.
- Jabatan Warisan Negara. (2017). *Garis Panduan Pemuliharaan Bangunan Warisan*.

Jones, S., & Leech, S. (2015). *Valuing the Historic Environment: A Critical Review of Existing Approach to Social Value*.

Karakul, Ö. (2022). *Traditional Craftsmanship in Architecture, Conservation and Technology*. <https://www.researchgate.net/publication/360218975>.

Khalil, A., Stravoravdis, S., & Backes, D. (2021). *Categorisation of Building Data in the Digital Documentation of Heritage Buildings*. <https://doi.org/10.1007/s12518-020-00322-7>/Published.

Lee, Y. K. (2002). *Building the Chronology of Early Chinese History*.

Leissner, J., Kilian, R., Kotova, L., Jacob, D., Mikolajewicz, U., Broström, T., Ashley-Smith, J., Schellen, H. L., Martens, M., Van Schijndel, J., Antretter, F., Winkler, M., Bertolin, C., Camuffo, D., Simeunovic, G., & Vyhlídal, T. (2015). Climate for culture: Assessing the impact of climate change on the future indoor climate in historic buildings using simulations. *Heritage Science*, 3(1). <https://doi.org/10.1186/s40494-015-0067-9>.

Letellier, R. (2007). *Recording, Documentation, and Information Management for the Conservation of Heritage Places: Guiding Principles*.

Mat Hasan, H. S., Ad Wahab, L., Ismail, D., & Mat Hasan, H. S. (2019). Preliminary Study on Authenticity in Adaptive Reuse of Heritage Building in Ipoh, Malaysia. *International Journal of Recent Technology and Engineering*, 7(6S2), 2277–3878. <https://www.researchgate.net/publication/337317459>.

Mcdonald, T. C. (1994). *Understanding Old Buildings: The Process of Architectural Investigation*.

Mehr, S. Y. (2019). Analysis of 19th and 20th century conservation key theories in relation to contemporary adaptive reuse of heritage buildings. *Heritage*, 2(1), 920–937. <https://doi.org/10.3390/heritage2010061>.

Mohd Abdullah, M. S., Suratkon, A., & Syed Mohamad, S. B. H. (2020). Criteria for adaptive reuse of heritage shop houses towards sustainable urban development. *International Journal of Sustainable Construction Engineering and Technology*, 11(1), 42–52. <https://doi.org/10.30880/>

ijscet.2020.11.01.005.

Naquiuddin, M, Noorsuhaida, Asyikin, N, & Mohd Nawi, M. N. (2013). Isu di Dalam Penyelenggaraan Bangunan Warisan di Malaysia. *Prosiding Simposium Teknologi, Operasi & Logistik (SIPTIK IV)*, 245–249.

National Institute of Building Sciences (2023). *Historic Preservation*.

New South Wales. Heritage Office. (1995a). *How to carry out work on heritage buildings & sites*. The Office.

New South Wales. Heritage Office. (1995b). *Principles of conservation work on heritage places*. Heritage Office.

Ontario Heritage Trust. (2023). *Eight Guiding Principles in the Conservation of Historical Properties*. Ontario Heritage Trust. <https://www.heritagetrust.on.ca/pages/tools/tools-for-conservation/eight-guiding-principles>.

Pacescu, A., & Thiery, V. (2015). Building Place Identity through Heritage. *Postmodern Openings*, 6(2), 89–101. <https://doi.org/10.18662/po/2015.0602.07>.

Hasbollah, H. R., & Baldry, D. (2014). Conserving cultural values of heritage buildings from the facilities management perspective in Malaysia. *Journal of Facilities Management*, 12(2), 172–183. <https://doi.org/10.1108/JFM-06-2013-0031>.

Rahman, M. A. A., Akasah, Z. A., & Zuraidi, S. N. F. (2012). The Importance of On-Going Maintenance in Preserving the Heritage Listed Buildings. *International Journal on Advance Science Engineering Information Technology*, 2(2), 83–85.

Rahman, N. B. A., Ahmad, M. H., Daud, R., Rahim, S. A. A., Sharkawi, N., Abdullah, S., Arshard, W. N. R., & Mahdzar, S. S. S. (2022). *Architectural Value in Tanggam System on the Traditional Malay House*. Lecture Notes in Civil Engineering, 223, 193–201. https://doi.org/10.1007/978-981-16-8667-2_21.

- Rani, W. N. M. W. M., Tamjes, M. S., & Wahab, M. H. (2018). Governance of heritage conservation: Overview on Malaysian practice. *Journal of Social Sciences Research*, 2018(Special Issue 6), 847–851. <https://doi.org/10.32861/jssr.spi6.847.851>.
- Saad Fathalla, N. (2022). The Significance of Ornaments and Motifs in Heritage Buildings of Alexandria, Egypt. *International Journal of Creativity and Innovation in Humanities and Education*, 5(1), 70–85. www.egyptfuture.org/ojs/.
- Sauti, N. S., Mohd Yusoff, N., Abu Bakar, N. A., Kaamin, M., & Akbar, Z. A. (2018). Visual Inspection in Dilapidation Study of Heritage Structure Using Unmanned Aerial Vehicle (UAV): Case Study As-Solihin Mosque, Melaka. *Politeknik & Kolej Komuniti Journal of Life Long Learning*, 2. <https://www.researchgate.net/publication/330531720>.
- Mohd Lazim, F. S., & Said, S. Y. (2020). Townscape Appraisal and Contribution of Physical Features Towards the Character of Ipoh Old Town. *Journal of the Malaysian Institute of Planners*, 18(2), 97–108.
- The Getty Conservation Institute. (2009). *Preventive Conservation in the Context of a Historic House Museum: A Case Study*. Getty (Conservation Research Foundation Museum).
- Wan Ali, W. N., & Ahmad, A. G. (2021). Systematic Inventory for Heritage Shophouse Facades in Ipoh, Perak, Malaysia. *Planning Malaysia*, 19(5), 108–120. <https://doi.org/10.21837/pm.v19i19.1064>.
- Worthing, D., & Dann, N. (2002). Approaches to the repair of traditional timber-framed buildings: the application of conservation philosophy into practice. *Structural Survey*, 18(4), 136–147. <http://www.emerald-library.com>.
- Zahari, N. F., & Bahari, M. M. (2011). A comparative study of before and after conservation work (Floor). Case study: Pejabat Pos Lama, Ipoh, Perak. *Procedia Engineering*, 20, 305–310. <https://doi.org/10.1016/j.proeng.2011.11.170>.

- Zancheti, S. M., Hikada, L. T. F., Ribeiro, C., & Aguiar, B. (2009). *Judgement and Validation in the Burra Charter Process: Introducing Feedback in Assessing the Cultural Significance of Heritage Sites.*
- Zolkafli, U. K., Zakaria, N., Ahmad Sekak, S. N. A., & Rahmat, I. (2017). Managing Heritage Conservation Projects in Relation with Quantity Surveying Profession: The Case of Malaysia. *Journal of Design and Built Environment*, Special Issue, 85–94.

