

**6th UNDERGRADUATE  
SEMINAR ON BUILT  
ENVIRONMENT  
AND TECHNOLOGY  
(USBET) 2023**

**SUSTAINABLE BUILT  
ENVIRONMENT**

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# e-Proceeding

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# THE CONSERVATION TECHNIQUE OF HERITAGE BUILDING TAKE PLACE IN MALAYSIA: A CASE STUDY AT SULTAN SULEIMAN ROYAL MOSQUE, SELANGOR

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## ABSTRACT

*Heritage is described as the meaning attached to the past in the present. However, there are several heritage buildings that have been abandoned and are in poor condition. Aside from that, there are also heritage buildings and memorial statues that have already collapsed and failed structurally as a result of our modernisation. Therefore, the objectives of this paper are to investigate the techniques of conversation of heritage buildings in Malaysia and to appreciate the significance of heritage buildings in Malaysia. In order to achieve these objectives, a case study of a significant building with a long history and rich culture in Selangor that has successfully gone through a conservation process will be involved. This research will be produced using systematic data, which will include primary and secondary data. The primary data will be collected based on library-based research focusing on materials such as books, journals, articles and thesis papers. The secondary data will be collected by internet-based resources, including government publications, Non-governmental Organization (NGO) websites and archived news. Site observation and interviews will also be included in this research. The findings from this research project show that repair and preservation techniques are used for the main building. While the restoration techniques were used for the ablution wing.*

**Keywords:** *conservation, heritage building, techniques, materials, Malaysia.*

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## **INTRODUCTION**

Old and historical structures serve as a reminder of a community's cultural identity. However, there are many heritage buildings that are abundant but not maintained. Building conservation is relatively new in the country, leading to issues with historic structures. Some heritage buildings and memorial statues have collapsed or faced structural failures due to the challenges posed by modernization.

Heritage preservation is essential because it gives a location or community personality, distinction, and a sense of identity. Heritage buildings should be preserved, conserved, and protected for a number of reasons, including their value as educational resources for people of all ages, their contribution to local economies through tourism, and their role in developing sustainable communities through adaptive reuse. Without the conservation of buildings, it becomes difficult to understand and learn about our own cultural practices, behaviors, ancestors, architecture, and social interactions (Graham B., 2002).

The purpose of the study is to appreciate the importance of heritage buildings in Malaysia and investigate conservation techniques used in the country, with a focus on the Sultan Suleiman Royal Mosque in Klang, Selangor. The main aim of this research is to study on how conservation techniques of heritage buildings take place in Malaysia. Based on a case study which is Sultan Suleiman Royal Mosque located in Klang, Selangor.

## **LITERATURE REVIEW**

Heritage is created by attaching significance and values in what our predecessors left behind. It is generally understood to include three key entities: material culture, the natural environment and the built environment. As pointed out by Ashworth (2001), The heritage of a civilization or a people is unique and serves as a strong basis for future growth. It encompasses biodiversity, collections, past and continuing cultural practices, knowledge, living experiences, landscapes, historic places, sites and built environments (ICOMOS, 1999).

Malaysia has numerous cities and locations with historical and cultural significance that should be preserved for future generations. A historical structure has sentimental importance for future generations to recall. ICOMOS (Burra Charter Article 1.4, 1999) has defined it as the process of conservation and conserving the cultural significance of a place that can preserve.

National Heritage Act, 2005 (Act 645) states that "conservation" includes preservation, restoration, reconstruction, rehabilitation and reconciliation or were affiliates. "Maintenance" under Act 645 are measures aimed to stop further deterioration, decay or dilapidation of buildings, monuments and sites.

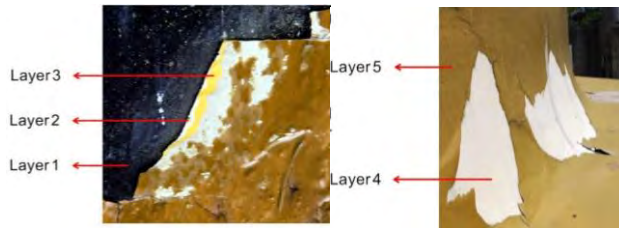
According to the conservation principle, building conservation should maintain as much of the original building fabric and structure as possible. Based on this premise and the objective of maintaining our national heritage in its "true nature" or genuine worth, it has emerged as a significant barrier and cause for concern, especially in the assessment and decision-making processes related to conservation. In 2000's, professional Building Conservators and Architect Conservators has been introduced in conservation projects. The corporations within professionals and the Department of National Heritage have flourished conservation field in Malaysia especially in the local construction landscape. The experience and guidance from national and international standards such as ICOMOS (International Conservation of Monuments and Sites) in conservation practice also increase Malaysia's heritage building conservation practices and procedures.

## **METHODOLOGY**

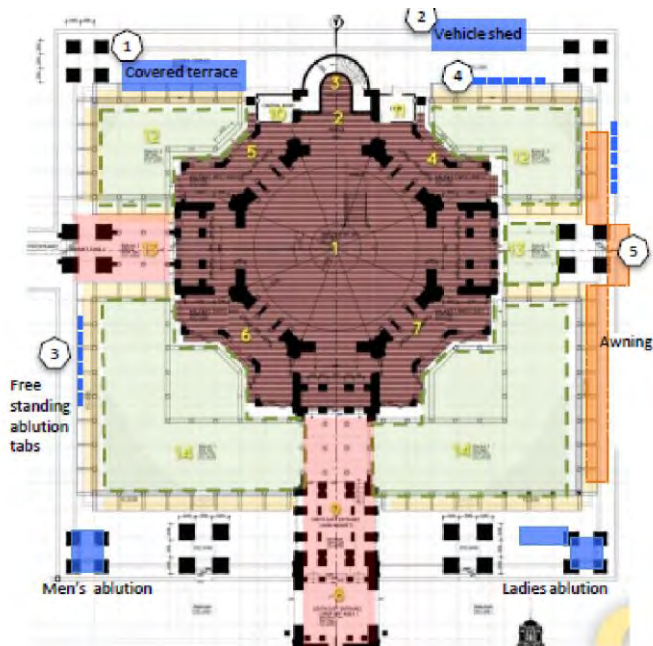
The chapter outlines the various modes of research and information necessary for the analysis, with a focus on investigating the techniques of heritage building conservation in Malaysia. The proposed method utilizes a quantitative approach and consists of several stages, including library-based research, literature review, interviews, and site analysis, aimed at better understanding and addressing the research objectives. To assemble the required information that are needed for this study from other researchers towards their research and their study. Previous studies that were collected from journals, articles, books, thesis and internet source that have been accepted such as google scholar and scopus. Therefore, all the data that have been compiled for guidance during throughout this study and investigation and completing the data of the study. Site observation will also be included in this research. Area of study was carried out in Sultan Suleiman Royal Mosque located at Klang, Selangor. The rationale behind this choice is from the sense that it is a significant building with long history and rich in culture in Selangor that have successfully gone through a conservation process. Hence, there is a possibility of obtaining all necessary and relevant data from this heritage building. Observation of site context that may attribute to building condition. Lastly, an interview was conducted with Puan Kamariah at her office located at level 23, Menara PJD Kuala Lumpur. She is one of the teams involved in the conservation project of the Sultan Suleiman Royal Mosque.

## RESULT AND FINDINGS

Removal work was done early. The work started with the removal of latter day modifications such as awnings, metal decks, signage, etc. Then the preservation, restoration, repair, and rebuilding activities was carried out. Repairing the domes such as scraping all paints, repair and repainting is the first step in the conservation process, which then moves on to other building components.



**Figure 1: Layer of colour on the mosque's domes**



**Figure 2: The ancillary buildings and structures that were demolished.**

The cleaning and repair of the bush-hammered fair faced concrete was one of the largest and most visible undertakings of the conservation project. The cleaning process is by using armex soda sprayed at low-pressure with an adjustable pressure regulator.





**Figure 3: Process of cleaning the fair faced façade using armex soda.**

Then continued with cleaning and repairing the coloured glazing mainly in the central dome and large window panels that are mostly in dirty and dilapidated condition. All coloured glazing glass were first cleaned using water jet sprayed at low-pressure, then were repair or replace in all areas. Special attention was given to replicate exact colors in the case of replacement of glazing (Jabatan Warisan Negara & Jabatan Agama Islam Selangor, 2019).

In order to fully restore the building to its original 1933 design while preserving the 1950 extension, a visual separation between the original main prayer hall and extended prayer area was created by applying a different colour paint at the ceiling/soffit of the 1980's extension area. The plaster ceiling that were damaged by the water stained were repaired before it was painted new.



**Figure 4: Scope of Work of Sultan Suleiman Royal Mosque**

During the conservation process, the mural and 'bas-relief' painting were rediscovered while conservation work was carried out in 2016 as the mural were covered with a coating of white paint and cement during the renovation in the 1970s.

The action taken to save and restore the mural painting as it was originally stated is by carry out several steps which are documentation and technical inspection. Follow by curative conservation which are surface cleaning, strengthening treatment and image reintegration. Final step is the preventive conservation by applying a protective layer coating.



**Figure 5: Cleaning process of the 'bas-relief' surface**



**Figure 6: Process of applying the strengthening treatment**

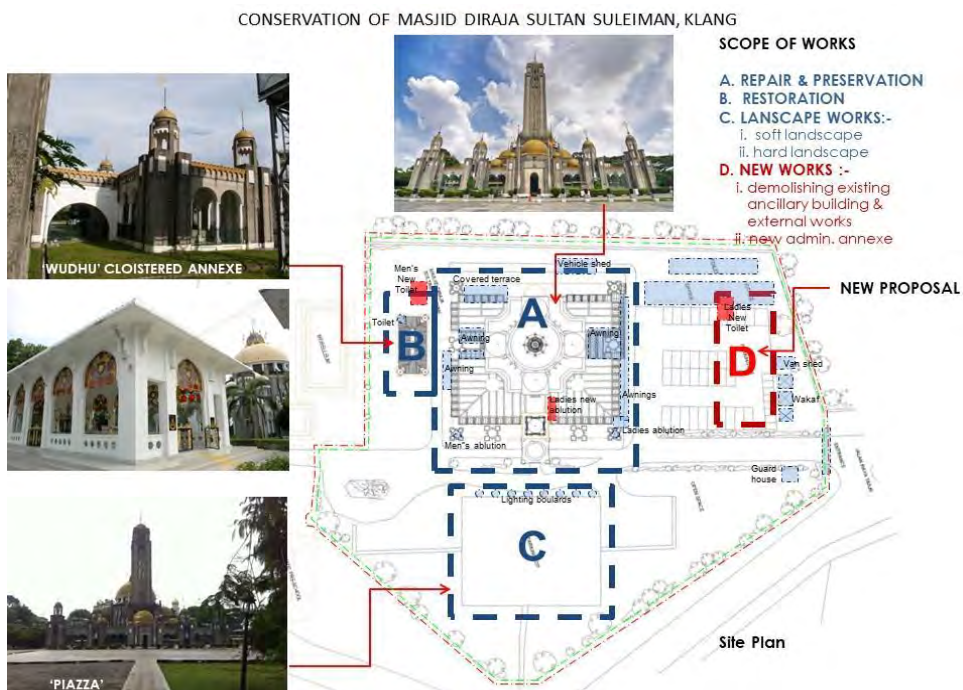


**Figure 7: Image reintegration in progress**



**Figure 8: Process of applying the protective layer coating**

Other conservation work including restoring the wrought iron and cast-iron work, repair and replace the exterior mosaic tiles work and removing ceramic tiles from the main mosque. While the restoration work in this project includes the restoration of the mihrab area and ablu-tion area. New changes on the soft and hard landscaping including the circulation and parking layout were also made. This conservation project involves construction of a new administration building for the mosque.



**Figure 6: Scope of Work of Sultan Suleiman Royal Mosque**

## **CONCLUSIONS**

Based on the finding, the very first stage was carried out by doing historical research and archival records. Then measured drawing. After measured drawing was done, dilapidation survey and building investigation. After diagnosing the defect of heritage buildings, the conservator prepared the proposal or method of statement on technique to repair and conserve this heritage building. After the completion of the preliminary work, the primary conservation efforts begin. By doing this, the appearance of old historic buildings is made evident. The process is begin from the top to the down of the mosque. Removal work was done early. The work started with the removal of latter day modifications such as awnings, metal decks, signage, etc. Then the preservation, restoration, repair, and rebuilding activities was carried out.

Building conservation is considered important for preserving Malaysia's history, culture, and architectural heritage. Mosques, including the Sultan Suleiman Royal Mosque, often serve as distinctive landmarks and focal points in urban areas, enhancing Muslim communities and cultures. It is suggested that efforts should be made to raise public and local awareness of heritage preservation through education, donations, knowledge sharing, and partnerships with workshops or museums. The government should also play a crucial role in systematically preserving historic places and values through effective management and systems.

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