



**UNIVERSITI PUTRA MALAYSIA**

**DESIGN FRAMEWORK FOR ABLUTION SPACES IN MOSQUES IN  
MALAYSIA**

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MALAYSIA**

By

**HAYDER JAWAD SHAKIR HARATY**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfillment of the Requirements for the Degree of Doctor of Philosophy**

**March 2019**

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

## **DESIGN FRAMEWORK FOR ABLUTION SPACES IN MOSQUES IN MALAYSIA**

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**HAYDER JAWAD SHAKIR HARATY**

**March 2019**

**Chairman : Associate Professor Nangkula Utaberta, PhD**  
**Faculty : Design and Architecture**

Mosques are places for Muslim prayers and other social activities to be performed. They are built to worship the Almighty Allah at all times, as well as for providing an environment that responds to the needs of devotees and educating the future generation by the Quranic verses and the Prophet's teachings. Deriving from the Holy Quran and the Prophet, purity is compulsory at all times for Muslims, and it has many denotations that are applicable during prayers and the day. The ablution room is integrated into all mosque designs because it is an unseparated element. Malaysian mosques have been questioned in their application of some of the Islamic regulations to uniform a space that is hygienically clean, and that can respond to the needs of Muslims. The design of the ablution room in Malaysian mosques is encountering a serious issue related to the spaces' hygiene. Although the ablution room has been designed to respond to a Muslim's need to conduct the ablution practice and to clean a person spiritually and physically, several problems related to its design aspects were revealed. This research investigates the cleanliness of the Malaysian ablution space. It examines how the design aspects of the ablution rooms of the Iconic Malaysian Mosques impacts the cleanliness of the area and its users. Five case studies were selected for this study. Three methods of study were utilised: physical observation, architectural drawing analysis, and interviews. Aspects of design form, ventilation, cleaning status and user's experience were discussed. The findings of this research suggested that the larger mosques in Malaysia were suffering from serious hygiene issues that resulted from many aspects including poor design, ventilation systems and users' abuse. The research suggested some design guidelines for future and existing ablution areas that would significantly improve the condition hygienically.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

## **RANGKAKERJA BAGI REKABENTUK RUANG WUDUK MASJID DI MALAYSIA**

Oleh

**HAYDER JAWAD SHAKIR HARATY**

Mac 2019

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**Fakulti : Rekabentuk dan Senibina**

Masjid bukan sahaja tempat solat Muslim tetapi juga untuk aktiviti kemasyarakatan yang lain. Masjid-masjid dibina untuk menyembah Allah Yang Maha kuasa serta mewujudkan ruang-ruang yang memenuhi keperluan para penganut. Ia juga merupakan ruang untuk pendidikan generasi akan datang mendalami ayat-ayat Al-Quran dan ajaran Nabi. Merujuk dari Al-Quran dan cara-cara nabi, kesucian diri secara mengambil wudhu adalah wajib pada setiap masa untuk umat Islam dan banyak keterangan mengenainya ketika sembahyang serta masa-masa yang lain. Ruang wudhu adalah tempat membersihkan diri, secara rohani dan fizikal, telah secara semulajadi disatukan ke dalam reka bentuk masjid. Masjid di Malaysia mempersoalkan penggunaan peraturan Islam yang dikenakan ke atas ruang, dengan penekanan terhadap kebersihan dan unsur responsif kepada keperluan pengguna. Walaupun ruang wudhu dirancang untuk memenuhi keperluan umat Islam, terdapat beberapa isu yang terdapat mengenai reka bentuk ruang wudhu dan aspek kebersihannya. Penyelidikan ini menyiasat pengurusan ruang wudhu di masjid-masjid di Malaysia; dengan mengkaji bagaimana aspek reka bentuk ruang wudhu di masjid-masjid Malaysia yang ikonik memberi kesan kepada pengguna dan kebersihan ruang. Lima kajian kes dipilih untuk kajian ini. Kajian ini menggunakan tiga kaedah kajian iaitu pemerhatian fizikal, analisis lukisan seni bina, dan wawancara. Aspek reka bentuk, pengudaraan, status pembersihan dan pengalaman pengguna dibincangkan. Penemuan kajian ini mencadangkan bahawa masjid-masjid yang lebih besar di Malaysia dipengaruhi oleh isu-isu kebersihan yang serius yang disebabkan oleh banyak isu termasuk ketidaksesuaian reka bentuk, sistem pengudaraan yang lemah dan penyalahgunaan pengguna. Penyelidikan ini telah mencadangkan garis panduan reka bentuk untuk ruang wudhu semasa dan masa hadapan bagi memperbaiki kondisi kebersihan yang lebih ketara.

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## LIST OF ABBREVIATIONS

MOTAC	Ministry of Tourism, Art and Culture
JAKIM	<i>Jabatan Kemajuan Islam Malaysia</i>
MIM	Malaysian Iconic Mosque
HVAC	Heating Ventilation and Air-conditioning System
ITC	Islamic Tourism Center
UBBL	Uniform Building By-Laws
DBKL	<i>Dewan Bandaraya Kuala Lumpur</i>
PPT	<i>Garis Panduan Pembangunan Selangor and Perbadana Putrajaya</i>
ADA	Architectural Drawings Analysis
<i>Wudu</i>	Ablution in Islam
<i>Surau</i>	Small prayer room which is usually in complex buildings
<i>telekung</i>	Clothing worn by mostly a Muslim woman during their daily prayer to cover their whole body except their face
REHVA	Representatives of European Heating and Ventilating Associations
<i>Sahn</i>	A courtyard in Islamic architecture. Most traditional mosques have a large central <i>sahn</i> , which is surrounded by a corridor

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

This chapter discusses the background and statement of the problem of this study. It explores the context of the research related to the mosque's design in Malaysia and its essential facilities. It also discusses the issue of the current configuration of the ablution spaces in Malaysian mosques and presents the recent pieces of evidence. The second part of this chapter states the research objectives, questions and the structure of the thesis.

### 1.2 Research Background

Currently, any country's superiority is measured by its architectural development and the city planning design. Many cities are famous for specific buildings that are considered monumental and recognisable by their names. However, Islamic architecture has gone through numerous changes that give the current style of the Islamic pattern its uniqueness. The history of Islamic cities has shown considerable evidence of the richness of Islamic architecture, elements and details.

The recent and rapid development taking place in Malaysia and the construction of many modern buildings has led to many fluctuations in its historical and traditional architecture. Mosques are the identity of this country that, for several years, had the designers' and planners' attention. They gave priority to reproducing monumental buildings that reflected the country's identity and heritage. Many mosques built in the last several decades were grand in scale and revolutionised the architectural identity of mosques in Malaysia and globally.

In Malaysian history, the country's heritage was rich in mosque architecture. Mosques in many Malaysian provinces displayed various designs and used different elements to construct a large number of mosques that reflected the country's culture and people. Provinces like Terengganu, Melaka and others have very famous traditional mosques. Researchers attempted many studies to document and record the physical planning drawings as part of preserving the country's heritage.

Mosques, as a place for Muslim prayers and other social activities, were built to worship the mighty Allah. It was an environment that responded to their needs of educating future generations of the Quranic verses and the Prophet teachings. Derived from the Qur'an and Prophet, purity was compulsory at all times for Muslims, and it had many meanings that were applicable during prayers and the day. Muslims were required to pray five times a day, and they needed to perform an ablution action before

praying. The ablution room was always integrated into every mosque design because it was an unseparated element of its design.

Ablution is a ritual activity that requires a Muslim to clean specific parts of the body in a sequence, starting by washing the face, hands, forehead and both feet. It is required before each prayer, sometimes washing two or three times (Zakaria, Salleh, Harun & Rashid, 2015). Cleanliness is one of the important aspects of Islam, and it has physical and mental attributes to the human being. The ablution gives the purity a wholesome concept that should be obtainable by buildings, clothing and surrounding areas. It provides a healthy dynamic environment and community (Rahim, 2005).

Özdemir & Frank (2000) define the cleanliness and purity as a Muslim's important value. They are an aid to worship – a preparation. Without them, the canonical prayer is considered invalid. The Qur'an frequently refers to the terms cleanliness and purity because they are ideal in Muslim piety and consciousness. Özdemir further explains the dimensions of purity and cleanliness as the internal one refers to as the emptying or cleaning the self of all pride that might result from the love of self, and of being an Allah-fearing person. The external dimension is the physical hygiene. In Islam, external and internal are not separated as faith and action.

Prophetic experience is identified by the idolater's correspondents that dirt and impurity both internally and externally. Purity and cleanliness are categorised as religious, like studying and learning about truth and religion. Being in a state of uncleanness is not allowed during canonic prayer. Ablution is necessary as a ritual act of purity and cleanliness. Ablution or *wudu* is the status of being clean and pure for praying. The Qur'an and hadith demand it. Muslims are obligated for ablution because it is a revelation from Allah. It is bedrock and the heart. Lack of ablution makes the prayer unacceptable.

Prophet Muhammad (PBUH) introduced the ablution practice for Muslims. He carried out the Quranic teachings and requirements of his followers. In emulation of the Prophet and his trusted instruction, Muslims followed his steps with the same manners. It kept the unity, solidarity and security of Muslims everywhere (Özdemir & Frank, 2000).

According to several studies conducted by Mokhtar (2005), Nur (2016), Suhaimi (2010) and Zulkifli (2016), the Mosques in Malaysia raised several concerns related to the cleanliness of spaces. The studies investigated several mosques and their facilities that focused on the ablution room and prayer area. The hygienic problem was revealed from several sites that had to be studied and improved because it impacts the user's health and social life.



The ablution room is always crowded during praying hours. Therefore, it is essential to develop these facilities to avoid any unwanted consequences in the future. From the reports of the researchers, the main issues revealed included dirty locations, size, ventilation, user mistreatment and inexperienced staff. These issues led to bad smells, unclean spaces, and diseases. This suggests a need to be further studied in order to create spaces that are designed appropriately and to be considered in the future designs, as well as existing ones.

### **1.3 Malaysian Iconic Mosques**

The iconic design sets new standards in its field and is a benchmark for other products. It involves the use of material, construction and site of a building. An iconic landmark can be religious or non-religious building that attracts people from different places (Beekers & Tamimi Arab, 2016). The iconic building carries architectural supremacy and power with emphasis on its aesthetics (Kessler, 2015). However, the term “Iconic Mosques” is defined by the Islamic Tourism Centre (ITC) and the Ministry of Tourism, Art and Culture Malaysia MOTAC. ITC’s “Mosque Trails in Malaysia” contains a list of 53 mosques<sup>1</sup> in Malaysia that are classified as monumental places and attractions for tourists (Islamic Tourism Centre, 2013). ITC uses the term “iconic” because it describes the architectural styles of the world’s greatest mosques globally that are adopted in many Malaysian Mosques, while others incorporate local elements and design motifs. Malaysian mosques are for Muslims to congregate in prayers. Some of them carry historical values, and some are simply fine works of art. Iconic mosques in Malaysia attract many tourists who seek the pleasure of enjoying these stunning monuments.

### **1.4 Research Issue**

The aim of this research is focused on studying the ablution rooms of Malaysian mosques regarding sanitation factors. Although the ablution room is considered a sacred place to perform the religious activity of ablution, numerous pieces of evidence show that this space has suffered from several factors that make it questionable regarding hygiene. The ablution room is a space in which the ablution activity is carried out, and it is required of all Muslims before proceeding to the prayer hall to pray. Several researchers have discovered the ablution room is suffering from a cleanliness issue. While Malaysia is moving towards modernisation, the need for bigger spaces to contain as many people as possible for the prayer hall has forced architects and designers to find alternative solutions to address this matter. The answer is to build the mosque’s facilities either underground or enclosed within the building to allocate more space for the prayer hall. Constructing the ablution room underground reveals the issue of hygiene as one of many factors that could be resulting from unclean areas. The ablution room activity involves using water and building it underground or within an enclosed space could risk the loss of ventilation. Others suggest that factors

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<sup>1</sup> The full list of 53 Iconic Mosques is in the appendix part Table A - 29

including lack of cleaning staff, expertise, ventilation, space, and material can impact the space's hygiene.

Issues related to the design of the ablution space in the Malaysian mosques are vital for Muslims users and need to be investigated. Muslims must be in the state of ablution. Cleanliness is a priority before initiating the prayer. Several reports indicate that facilities involving the use of water might carry the risk of health hazards if they are not designed properly. Furthermore, there are no guidelines to be followed in order to control the ablution space's health and sanitation. Ignoring such an important and essential part of the mosque's architecture design might result in poor hygienic consequences. Skin diseases, fungus and unwanted smells can result. The previous investigation demonstrates the existence of these in some of the spaces in Malaysia, including multi-storey buildings (shopping complexes) and individual mosques.

The issue reported by Mokhtar (2005) is that the proximity of the ablution room to the entrance and the prayer area could be one of the factors relating to the cleanliness level of the ablution spaces. Failures in proper design can increase the chance of skin diseases between users. Environmental factors including humidity and airflow also determine the space's hygiene and can cause bad smells, fungi and bacterial accumulation (Sapri, Muin, Sipan, & Adjei Twum, 2014). Another report by Zulkifli (2016) suggests that Muslim communities should pay more attention to the ablution room cleanliness and mosques overall. There are several factors including inexperienced workers and users' mistreatment that are affecting the hygiene of the space. Moist, ventilation and space accessibility have also been highlighted by Hamid, Taib, Wahab, & Alias (2015) as an important factor in the hygiene of Malaysian mosques. Investigations of the ablution rooms by Maher (2016) and Suhaimi (2010) suggests the issue of ventilation is an epidemic in Malaysian mosques and have caused poor ventilation, black footprints and repulsive ablution rooms, mostly gathered from public concern. Maher also stated that between the issues, the location of the ablution room in a dirty basement, poor ventilation and improper treatment of space were also reported.

The design of the ablution room in Malaysian mosques is encountering a serious issue related to its hygiene. Although the ablution room has been designed to respond to a Muslim's need to conduct the ablution practice and to clean a person both spiritually and physically, several problems related to its design aspects have emerged. There is an urgent need to investigate the ablution spaces in Malaysians mosques and evaluate those spaces from a cleanliness perspective. The current design of these spaces needs to be studied by understanding the issues that impact on the ablution area's cleanliness. There are several ways to apply this to enhance the ablution room space from a hygienic point of view. Hence further analysis needs to be conducted to uncover the solutions to this issue.

## **1.5 Research Questions**

The main research question is: How does the design of the ablution areas of the Iconic Malaysian Mosques generate a healthy and clean space?

Sub RQ1: What is the issue with the current design of the ablution spaces in the Malaysian Iconic Mosques regarding hygiene considerations?

Sub RQ2: What are the present design characteristics of the ablution space in the Malaysian Iconic Mosques?

Sub RQ3: How can the ablution space design in Malaysian Iconic Mosques be improved to generate a healthier space?

## **1.6 Research Aim**

The purpose of this research is to uncover the issue of the current situation in the ablution rooms of Malaysian mosques and their cleanliness. It aims to investigate how the design aspects of the ablution rooms affect the cleanliness of space and users. Furthermore, this study contributes to having a better understanding of the elements and factors that can improve these spaces hygienically. It also recommends these elements to be integrated into the current and future design of the ablution room.

## **1.7 Research Objectives**

The objectives of this research are as follow:

1. To determine issues and problems with the design of the ablution area in Malaysian Iconic Mosques.
2. To analyse factors and design considerations that contribute to the 'clean' ablution area in Malaysian Iconic Mosques.
3. To propose a design framework for the current and future design of Malaysian ablution rooms.

## **1.8 Significance of Study**

The study is significant to the following:

1. Islam is the federal religion of Malaysia, and Muslims are representing the majority of this country. Therefore, it is crucial to design according to their needs.
2. The study will significantly assist to provide a space that considers good hygiene spiritually and scientifically for Muslim users of ablution rooms.

3. The research also helps to ensure more meaningful Islamic spaces that consider Muslim's needs.
4. The finding of this study will benefit the Muslim society in Malaysia and foster cleanliness as an essential element of users' health.
5. For future researchers, this study will help them to understand the current situation of the iconic Malaysian mosques and ablution rooms from a hygienic perspective. Such research has not been critically investigated in previous studies.
6. The ablution space is an essential part of mosque design, and not many studies have been done on them.
7. Malaysia is one of the leading countries in constructing modern mosques, and it is crucial to have a reference for new and current design of its elements.

## **1.9 Methodology**

The research utilised three methods of study to investigate the characteristics of the ablution spaces within five Malaysian Iconic Mosques. The research was a qualitative approach that used physical observation, architectural drawing analysis and structured interview. The case studies consisted of five Iconic Mosques defined by the ITC and the Ministry of Tourism, Art and Culture in Malaysia (MOTAC). The physical observation investigated the characteristics of the existing design of the ablution spaces and their current condition. The second method was an architectural drawing analysis that the researcher used to manually sketch and redraw the existing layout plan of the ablution spaces. These sketches were subsequently transferred to a software application to generate more accurate drawings. The interview was divided into two sections. The first was conducted with the management of the mosques, and the second part was with experts in the area of architecture.

## **1.10 Study Scope**

The study focused on investigating the iconic mosques in Malaysia that were considered a monumental construction and represented the Islamic country architecture, as well as serving the country from social and cultural aspects. MOTAC defined these iconic mosques as rich in history and architecture that represented the aesthetic of Malaysia and its modernity. The ablution room, one of the leading facilities in any mosque, was selected as a case study for the highlighted research to further analyse in the methodology section. Five case studies were selected for further discussion in this research. The study focused on analysing the current design form of the ablution spaces to understand the hygiene factors.

### **1.11 Expected Knowledge Contribution**

This study contributes the following:

1. To provide deep insight into the solutions for improving ablution spaces in Malaysia.
2. To increase awareness between Muslim prayer and the importance of hygienic spaces to avoid any unexpected issues as a result of users' mistreatment of the ablution room.
3. To generate a design framework on the space's hygiene to help improve the current Malaysian standards that architects will benefit from in future designs.
4. Malaysia has been one of the leading countries in constructing modern mosques; it is crucial to have a reference for new and current design of its elements.

### **1.12 Thesis Structure**

This dissertation is divided into six chapters dedicated to introducing, analysing and summarising the findings. Chapter One is an introduction to this research as it explains, in brief, the research issue and its objectives. Chapter Two is the literature review that details previous research carried out in this area. Chapter Three is the research design and methodology and the tools used for the data collection and analysis. Chapter Four is the result and analysis of data using three different approaches. Chapter Five is the discussion and data validation of the findings in relation to the literature review. Moreover, Chapter Six is the conclusion and further recommendations.

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