

FACTORS THAT CONTRIBUTE TO PROBLEMS IN LANDSCAPE
MANAGEMENT IN THE OFFICE BUILDING

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DEDICATION

This thesis is dedicated to my father, mother and my siblings, who are stand behind me throughout my journey. To my friends thank you for your moral support

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In preparing this thesis, I was in contact with many people, researchers, academicians, and practitioners. They have contributed towards my understanding and thoughts. In particular, I wish to express my sincere appreciation to my main thesis supervisor, Dr. Izran Sarazin Bin Mohammad, for encouragement, guidance and critics. Without continued support and interest, this thesis would not have been the same as presented here.

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ABSTRACT

Interior Landscape in office buildings is rising in Malaysia because of the benefit from it. The interior landscape can give more ambiance of harmony and calming effect in the buildings. Other than that the indoor environment becomes more fresh and stimulating. Rising on the interior landscape nowadays contribute to a few problems towards the building with the interior landscape. The aim of this research is to identify the factor that contributes to the problem in the interior landscape in the building. The objective of this study is to identify the main problem on Interior landscape in buildings and determine the critical factors that contribute to the Interior landscape management. This scope of research is focused on the facilities manager, landscape manager, and landscape contractor in Malaysia. This study uses a quantitative method to achieve the objective in this study. The questionnaire has been distributing to the responsible people that managing the interior landscape and being dealing with the issue from the beginning of designing the interior landscape to the ending which is managing the interior landscape. Finding on this study for industries it can use to be the framework before design the interior landscape and things that should consider For management team in order to make sure the maintenance and operation for interior landscape are long lasting the result on this study can become a checklist. To the body of knowledge this research help as starting to understand what is the main problems that interior landscape in the building has been had. Also, help to identify what are the current situation happen in industries.

ABSTRAK

Landskap Dalaman di bangunan pejabat semakin meningkat di Malaysia kerana manfaatnya. Landskap dalaman dapat memberikan kesan suasana harmoni dan menenangkan di dalam bangunan. Selain itu persekitaran dalaman menjadi lebih segar. Peningkatan pada landskap pedalaman kini menyumbang kepada beberapa masalah dalam bangunan yang terdapat landskap dalaman. Tujuan penyelidikan ini adalah untuk mengenalpasti faktor yang menyumbang masalah dalam landskap dalaman di dalam bangunan. Objektif kajian ini adalah untuk mengenalpasti masalah utama mengenai landskap dalaman bangunan dan menentukan faktor kritikal yang menyumbang kepada pengurusan landskap dalaman. Penyelidikan ini memberi tumpuan kepada pengurus kemudahan, pengurus lanskap, dan kontraktor landskap di Malaysia. Kajian ini menggunakan kaedah kuantitatif untuk mencapai matlamat dalam kajian ini. Soal selidik telah diedarkan kepada orang-orang yang bertanggungjawab yang menguruskan landskap dalaman dan menangani masalah ini dari awal merancang landskap pedalaman hingga akhir yang mengurus landskap pedalaman. Dapatan kajian ini untuk industri yang boleh digunakan untuk menjadi kerangka kerja sebelum mereka bentuk landskap dalaman dan hal-hal yang perlu dipertimbangkan Untuk pasukan pengurusan ia boleh digunakan untuk memastikan penyelenggaraan dan operasi untuk landskap dalaman berkekalan hasil kajian ini boleh menjadi senarai semak untuk mengekalkan lanskap dalaman. Penyelidikan ini membantu sebagai permulaan untuk memahami apa masalah utama yang ada pada lanskap dalaman yang terdapat di dalam bangunan. Selain itu, membantu untuk mengenal pasti keadaan semasa yang berlaku di industry landskap dalaman.

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LIST OF ABBREVIATIONS

FM	-	Facilities Management
ILAM	-	Institute landscape Architect Malaysia
BIFM	-	British Institute Facilities Management
IFMA	-	Institute Facilities Management Association

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discussed on research background and problem statement on interior landscape. Also discussed on the function and benefit interior landscape and the problem on maintaining the interior landscape in building.

1.2 Research of Background

The rising behind interior landscape not exclusively is an improvement and beautification of the interface, more critical is as indicated by the diverse prerequisites of indoor space recreation space, in particular, the irrational inside space recreation to be useful, agreeable space. The most imperative methods are to isolate the inside space plan. Method should according to the requirements of its space characteristics and function, but also characteristics and psychological factors. Interior landscape design should create creating an aesthetic feeling, appeal, and calmness towards the user.

Building nowadays, with the improvement of human creatures is one of the fabric conditions of individuals live. Development in expansion to the variables such as the decoration of the appearance and development points of interest, and the foremost critical things, is through the development substance to encompass space. Space is the foremost critical substance, is the exemplification of the architectural function, is the soul of the building. Within the past a period of insides space plan, creators tend to center on three major indoor interfacing the enhancement and excellent and disregard the utilize of insides space work.

A few architectural interior space can meet the requirements of individuals to operate, but there are moreover numerous open building insides space and made strides

inside space, can't fulfil people's needs specifically. Reengineering space, it is based on the first building space frame of space, to meet individuals in work and life to the distinctive needs of space work. Division strategy primarily has three categories, one is through the physical space, alter the estimate of the particular space, shape; The moment is the virtual space, through the fabric, colour, lighting, other on the affect of mental; Three may be a free space, by utilizing levels of disjunctive space, furniture and beautifications. These three strategies can be utilized alone within the plan home and can be utilized in comprehensive.

As humans dwelling trendy enhancement and the pursuit of a better excellent of life, an increasing number of is also excessive to the requirement of interior design, the humans have not only live on to satisfy the basic physiological desires, and pay greater attention to indoor design value of the mental desires and cultural level. Will plant landscape in be being designed indoors, fusion and use, can add energy and vigour for blunt indoors space, and can make humans and flowers landscape, intimate touch. incorporated into the plant panorama within the indoors layout has end up a brand new wishes and fashion, representing the destiny development direction of interior design

The development of interior landscape design concept in Malaysia is becoming popular and significant due to the increasing awareness towards the environment and the quality of life. The interior landscape design is a concept that combined interior element and exterior landscape design into a building. Nowadays there are various types of building in Malaysia, for example malls, offices, shopping complex and residential building include interior landscape in building.

Plants can offer assistance with this by decreasing carbon dioxide levels, expanding humidity, lessening levels of benzene and nitrogen dioxide, decreasing airborne clean levels and keeping the temperature down. Plant too offer assistance to discuss quality, decrease push and by and large fair make individuals more joyful. Plants offer assistance workplaces gotten to be calmer, as they have the capacity to decrease foundation commotion by retaining a few of the sound. Plant offer assistance workers ended up more relaxed, and make the office environment more invigorating.

Having plants inside too makes an inviting environment for anyone going by your trade. They provide the impression that a place is warm, welcoming and comfortable.

However there are few issues in overseeing the interior landscape that the issue continuously same regarding the building. The disappointment in interior landscape plan at the early organize of insides scene would lead to lacks within the following organize after construction. Error in the plan isn't as it was compromising the scene environment, but also affected the building clients. Uncomfortable conditions within the building such as commotion, insufficient lighting, temperature, high humidity and other physiological divisions may cause dissatisfaction and increment in building investing. The defective plan can happen due to an increment of support taken a toll.

Irrigation system for recirculating irrigation systems is recirculates water in a recirculating system, the source of water is an irrigation tank which is either remote-controlled or directly underneath the green wall. The irrigation tank is filled manually on a regular basis to provide an adequate supply of irrigation water. Water is pumped from the tank to the green wall. Water is distributed to the plants in the wall. Gravity pulls excess water downward. Excess drainage water collects at the bottom of the wall and is fed back to the tank. This water is then used over and over (recirculates). The problem is the water is leaking, smelly and part or the irrigation component is not functional.

Lighting issue, Plants growing outdoors, in greenhouses or close to windows are exposed to a balance of wavelengths of light from the sun, including the blue and red light that plants need. In settings interior landscape plants receive little or no natural light, additional light from artificial sources must be provided for adequate plant growth. Light provides the energy plants need to make the food required for them to grow and flower. Plants are the only organisms able to use the energy from light to produce sugars, starches and other substances needed by them as well as by other living organisms. However lack of adequate light is the most common factor limiting the growth of plants for interior landscape and the result plant are died.

Plant selection are needed to creating an interior landscape which is vital to choose the right plants. Most plants favour specific conditions within their viable growth. Some require a lot of water and some hardly need any. Some thrive in abundant sunshine, while others like shade. Placing plants in areas that they naturally prefer reduces their required maintenance. By seeking out type of plants and locations to place the plants it can reduced the rate of died plants

.Problem for interior landscape also include the maintenance, where sustainable landscaping or self-sufficiency landscape encompasses a variety of practices that have developed in response to environmental issues. These practices are used in every phase of landscaping, including design, construction, implementation and management of residential and commercial landscapes. However this concept cannot be applied to interior landscape because all plant need maintenance. Because of Sustainable landscaping or self-sufficiency landscape approach there are example case which self-sufficiency landscape are unsuccessful. Because plants and the equipment cannot be separate in order to make sure the interior landscape successful the continuous schedule maintenance need to be done.

All cases above are the main issue in managing the interior landscape design in the building. The issue on managing the interior landscape in Malaysia are handle by facilities manager. Facilities manager will assist to make sure the interior landscape can be function as required. Today in Malaysia an issue on maintenance on interior planting maintenance cannot be solve. To solve the issue there should be a way to identify what are the factors that contribute to interior planting maintenance. All the factors that contribute to interior planting maintenance should be determine.

1.3 Problem Statement

To identify interior landscape management issue it is vital to know cause to the problem and beinng identified. As in quality management, “Through the structured problem solving, identifying the root cause and implement a solution that prevents recurrence and contributes to quality continuous improvement”. (Kairong Liang & Qi Zhang).

However there are no empirical data and research on the statement above. Unfortunately the study on interior landscape management research cases are very limited and almost not existed. Table below is the listed previous research on the interior planting and the sub area that has been covered. Most of the research focus on the design of the interior landscape itself and the physiological effect towards human.

Table 2.1: Previous study

Topic	Year	Author	Summary
Sustainable workplaces: improving staff health and well-being using plants	2009	Andrew smith	Psychological Building Humidity
Healthy productive workplace towards case for interior plantscaping	2010	Andrew Smith, Matthew Tucker, Michael Pitt	Psychological Building Humidity
Healthy workplace plantscaping for indoor environmental quality	2011	Andrew smith, Michael Pitt	Humidity Air quality
The effect of indoor plants on human comforts	2013	Qin et al.	Psychological Humidity
Vertical landscape for passive cooling in tropical house	2014	Agung Murthi Nugrono	Humidity
Safe design of skyrise greenery in Singapore	2014	Michael Behm	Psychological Building
Residential Landscapes, Environmental Sustainability and Climate Change	2014	Steven B. Scyphers	Design Psychological Building
Indoor plant works	2015	Fraser Torpy	Psychological
Indoor Vertical Greenery System In Urban Tropic	2016	Wang et al.	Noise Design Air Quality
User's Preference of the Plan Introducing Interior Landscape into Apartment Housing	2015	Shu Chun Lucy Huang	Planting Arrangement Design Psychological
Indoor living plants effects on office environment	2017	Andrew J. Smith	Psychological Building Design
landscape adaptation to the challenge of climate change	2018	Behdad Alizadeh	Psychological Building

Based on the table that show the study from 2009 to 2018 there is no study on interior landscape management. Study from 2009 until 2013 show the study are focus

on the building, psychology, humidity, air quality and it focuses on the office building where the study more on behaviour workers towards the interior landscape.

During 2014 to 2015 the study focus on the vertical greenery in residential building, where applying the sustainable landscape is rising. This study focus on human comfort in the residential building. Other than that it also show the study on building and design for the interior landscape.

Based on table from 2016 to 2018 the study focus on planting arrangement and design of the interior landscape but still include the psychological and noise in the study. All study above not showing the study on management of interior landscape. From the previous research back ground show there is problem in interior landscape but the factors that contribute to the problem not being study.

Basically there no study on the factor that leads to interior planting maintenance problems. Determine all the factor on interior planting maintenance should be study in order to guide a good management of interior planting management. Therefore, this study are important to solve factors in interior planting management problems because without the main factor the problem solution cannot be determine. If this topic not being study landscape management will always having a problem in managing the interior landscape.

This study provide a knowledge on the real problem on managing the interior landscape maintenance in Malaysia and help manger to identify the problem of interior landscape. In summary the interior landscape management should be identified to ensure interior landscape maintenance can be operated smoothly to fulfil the intention or function interior landscape in buildings.

1.4 Research Question

The main question addressed in this research is managing the interior landscape maintenance in the building and in order to find the answer this is the following question:

- i. What are the critical factors that contribute to the Interior landscape management?

1.5 Research Aim and Objective

The aim of this research is to identify the factor that contribute the problem in interior landscape on the building. To achieve this research aim of this study this following research objectives were established:

- i. Identify main problem on Interior landscape in buildings.
- ii. Determine the critical factors that contribute to the Interior landscape management.

1.6 Scope of Research

This scope of research is focus on the facilities manager, landscape manager, and landscape contractor in Malaysia. This profession is responsible managing the interior landscape and being dealing with the issue from beginning of designing the interior landscape to the ending which is managing the interior landscape.

1.7 Outline of Research Methodology

Research methodology refers to the procedural framework within which the research is conducted. Table 1.3 presents the summary of research processes involved in this study. Details of the research processes are discussed in Chapter 4.

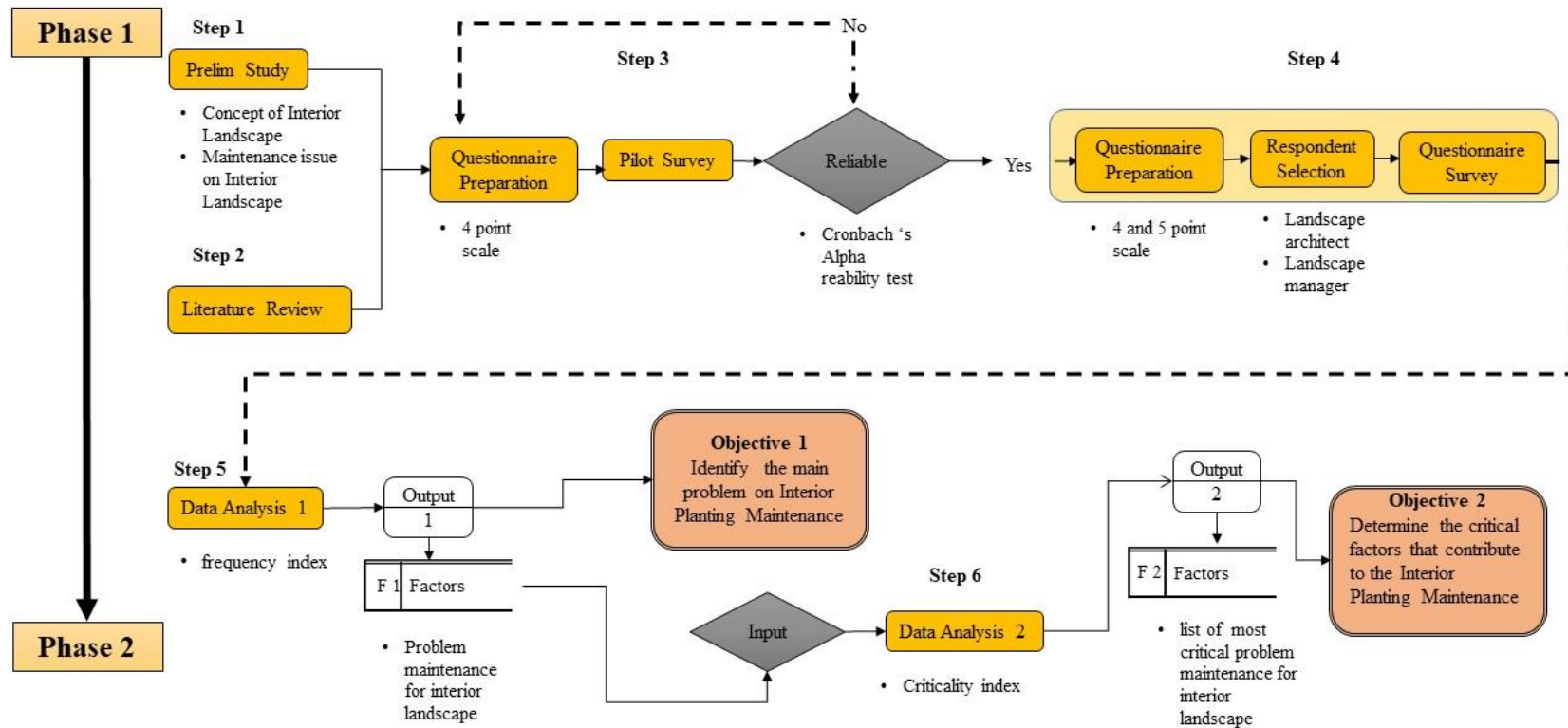


Figure 1.1 Research Methodoly

1.8 Organisation of Chapters

The thesis is structured into seven chapters outlined as follows:

Chapter 1:

This chapter presents the overview of the complete research involving the background of the research, problem statement, research gap, research questions, research aim and objectives, scope of research, research contributions and outline of research methodology and structure of the thesis.

Chapter 2:

This chapter provides a comprehensive review on relevant literature covering the overview of interior landscape concept in terms of definition type of interior landscape, significance of interior landscape in building, the function and benefit of interior landscape. It also discussed on maintenance for interior landscape in more detail. Also requirement for interior landscape maintenance in building.

Chapter 3:

This chapter presents the methodology involved in conducting this study. It includes a review of research philosophy, research approach, data collection in terms of sampling, instrument and selected area for empirical study, data analysis, model development and validation processes.

Chapter 4:

This chapter describes the results of data analysis from questionnaire survey. It presents the interior landscape issue in Malaysia.

Chapter 5:

This chapter explains the results of data analysis from interview. It helps to determine the factor that contribute to interior landscape maintenance in Malaysia.

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