

**UNIVERSITI TEKNOLOGI MARA**

**OCCUPANTS SATISFACTION TOWARDS INDOOR  
ENVIRONMENTAL QUALITY OF PLATINUM  
GREEN-CERTIFIED OFFICE BUILDING**

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## ABSTRACT

The quality of the indoor environment has become a vital component for buildings due to the time spent indoors. To this extent, the performance of the indoor environment is considered as part of the greenery criteria by green rating schemes such as the Green Building Index in Malaysia. This study aim is to study occupants' indoor environmental quality (IEQ) satisfaction of Green-Certified Buildings in Malaysia. This research applied a case study approach over two Platinum-certified office buildings. Post-occupancy evaluation is employed integrating full-scale measurement with an occupants' survey with quantitative method. The measurement was carried out from May to August, and questionnaires were retrieved to evaluate occupants' satisfaction with aspects of the indoor environment. Thermal comfort, indoor air quality, acoustic, lighting and furniture are considered as the main study variables. The findings of full-scale measurement indicated high relative humidity, and low air velocity and illuminance. While occupants reported overall indoor environment quality (IEQ) comfort, a significant correlation of variables was observed. The main sources of dissatisfaction were identified as overcooling around 24 °C, high relative humidity (RH), around 70% RH, glare, and background noise around 51.9 dB. Statistically, a significant difference between occupants' responses to IEQ was identified, although Building A is labelled with a Platinum certificate. This study comprehensively assesses the IEQ performance of GBI Platinum-certified tropical office buildings. At the end, I can conclude that end-users of Building A which is one of the GBI Platinum-certified, preferred to work in open areas with more natural light than the minimal lux level.

*Keywords: green building, indoor environmental quality (IEQ), occupant satisfaction, post-occupancy evaluation..*

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## TABLE OF CONTENTS

<b>AUTHOR'S DECLARATION</b>	ii
<b>ABSTRACT</b>	iii
<b>ACKNOWLEDGEMENT</b>	iv
<b>TABLE OF CONTENTS</b>	v-vi
<b>LIST OF TABLES</b>	vii-viii
<b>LIST OF FIGURES</b>	ix-x
<b>CHAPTER 1: INTRODUCTION</b>	<b>1</b>
1.1 Background of the study	1
1.2 Problem Statement	2
1.3 Research Aim	3
1.4 Research Objectives	3
1.5 Research Questions	4
1.6 Significance of the study	4
1.7 Limitations and Delimitations	4
1.8 Definition Key Terms	5
1.9 Conclusions	5
<b>CHAPTER 2: LITERATURE REVIEW</b>	<b>6</b>
2.1 Introduction	6
2.2 Indoor Environmental Quality (IEQ)	6
2.3 Factors affecting indoor environmental quality (IEQ)	7
2.3.1 Spatial factors	7
2.3.2 Environmental factors	8
2.4 Green Building Certification in Malaysia	9
2.5 Conclusion	11
<b>CHAPTER 3: METHODOLOGY</b>	<b>12</b>
3.1 Introduction	12
3.2 Research Design	12

## CHAPTER 1: INTRODUCTION

### 1.1 Background of the study

Indoor environment quality (IEQ) refers to the state of the environment within an interior environment. Indoor environment quality has a substantial impact on occupants' happiness, health, comfort, productivity, and behaviour. Therefore, it is an important study topic (Fisk, 2012) as buildings become more complex, advancement of materials and climate change. In addition, studies in the field of IEQ continually adapt to human expectations. Disregarding IEQ will result in varying discomfort that will lead to health deterioration and diseases to end-users.

One of the health concerns that is a result of poor IEQ is Sick Building Syndrome (SBS). Sick building syndrome (SBS) has been recognised as a health concern since the 1970s, and poor indoor air quality (IAQ) is one of the IEQ factors that might lead to it (Crook & Burton, 2010). Later on, the focus shifted from health concerns to the comfort of the residents.

There are various researches that have looked into occupant comfort and satisfaction in terms of indoor air quality, characteristics such as thermal quality, acoustic quality, lighting quality. (Nicol & Humphreys, 2012). Researchers also assessed IEQ, suggesting that the permissible ranges of IEQ variables might vary depending on the situation. Sadick et al. (2020) assessed the value of IEQ in Ghanaian offices with a tropical environment. According to the findings, increasing IEQ has a favourable influence on occupant productivity. Furthermore, it has been discovered that the temperature of the interior air is an important influence in the thermal comfort and perception of IEQ factors in workplaces in tropical regions (Geng et al., 2017). According to Nematchoua et al. (2019), workers' productivity in Cameroon workplaces drops substantially when the temperature rises above 28 degrees Celsius.

Following the advent of green buildings, studies were conducted to compare the IEQ of green and conventional buildings. According to a recent comparative study, the