

SUSTAINABLE INTERIOR DESIGN ON  
RESIDENTIAL BUILDINGS FOR ECO-LIFESTYLE  
ENHANCEMENT

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## SUPERVISOR'S APPROVAL

'I hereby acknowledge that I have read this works and in my opinion this works is sufficient interns of scope and quality for the submission and award of a Bachelor Degree of Technology Management (Innovation) with Honors'

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SUSTAINABLE INTERIOR DESIGN ON RESIDENTIAL BUILDINGS FOR ECO-  
LIFESTYLE ENHANCEMENT

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This Report Submitted In Partial Fulfillment of The Requirements For The Award  
Bachelor of Technology Management (Technology Innovation) With Honors

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## DECLARATION

“I hereby declare that this thesis entitle “Sustainable Interior Design on Residential Buildings for Eco-lifestyle Enhancement” is my own work except for the quotations summaries that have been duty acknowledged”

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Name : KIING TECK WEI  
Date : .....

## DEDICATION

I dedicated this research to my parents, and supervisor, who taught me to think, understand and express. Thank you for motivation, inspiration and guidance to pass through the process of this research.

## ACKNOWLEDGEMENT

I would like to express my grateful to my parents for their support and love to motivate me in completed this final year project. Next, I sincerely appreciate and thank for the help, teaching, monitoring, support and contribution to my beloved supervisor Dr Chew Boon Cheong who teach me the right ways to write a thesis, point out my mistake and help me to get a better understanding about my topic. Millions of appreciation and infinite of gratitude to all those assist and support either directly or indirectly completed this research.

## ABSTRACT

Developing a sustainable interior design in residential buildings is necessary in today's marketplace because the interior design project have brought significant impact to the environment. The traditional interior design also has brought harmful and negative effects on human's mental and physical health. Currently the interior design more enhances aesthetic as major dimension practice in interior space design and it only focus on luxury and fashion in residential internal space design. Criteria of sustainable is the primary reason for sustainable interior design process to be implemented. In Malaysia, the demand of the residential become higher in the domestic market, therefore all design industry has to implement the sustainable interior design process into their every design projects. In this research, there are few design companies was selected at Kuala Lumpur and Melaka to investigate how all this companies are capable to implement the sustainable interior design. The research is based on the six criteria of sustainable and eleven sustainable way adopted in some of the interior design process that advocated by Oti and Tizani (2011), Bongwiwe and Kelly-Anne (2013), Winchip (2011), and Nur Ayalp (2012). A qualitative interview is conducted to collect respondents' answer for data analysis. The data is analyzed by qualitative methods.

## ABSTRAK

Dewasa ini, usaha untuk membangunkan reka bentuk dalaman rumah yang mampan menjadi amat penting dalam pasaran hari ini. Hal ini disebabkan projek reka bentuk dalaman telah membawa kesan negatif kepada alam sekitar. Reka bentuk dalaman tradisional juga membawa kesan buruk dan negatif pada kesihatan mental dan fizikal manusia. Pada masa ini, reka bentuk dalaman lebih mengutamakan estetik sebagai amalan dimensi dalam reka bentuk projek dan memberi tumpuan kepada mewah dan fesyen di kediaman reka bentuk dalaman. Kriteria mampan adalah sebab utama untuk melaksanakan sebuah proses reka bentuk dalaman rumah yang mampan. Di Malaysia, permintaan kediaman menjadi lebih tinggi di pasaran tempatan. Oleh itu, semua industri reka bentuk perlu melaksanakan proses reka bentuk dalaman yang mampan dalam setiap projek reka bentuk mereka. Dalam kajian ini, sekumpulan bilangan reka bentuk syarikat telah di kawasan Kuala Lumpur dan Melaka telah dipilih untuk menyiasat bagaimana syarikat-syarikat mampu untuk melaksanakan reka bentuk dalaman yang mampan. Kajian ini adalah berdasarkan kepada enam kriteria mampan dan sebelas cara mampan pakai dalam beberapa proses reka bentuk dalaman yang diperjuangkan oleh Oti dan Tizani (2011), Bongiwe dan Kelly-Anne (2013), Winchip (2011), dan Nur Ayalp (2012). Wawancara kualitatif dijalankan untuk mengumpul jawapan daripada responden untuk analisis data. Data dianalisis dengan menggunakan kaedah kualitatif.



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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of the Research

Nowadays, interior design project brings significant impact to the environment (Sian Moxon, 2012). Currently, the indoor space design has consumed a lot of energy, fully use of heavy gases emission electronic machine, and without implement ventilation in an indoor space. According to Hayles (2015), traditional interior design more enhances aesthetic as major dimension practice in interior space design and it is focus on luxury and fashion design in an indoor living environment. From here can see that traditional design have not concerning the importance of energy saving and emission reduction to the environment. Kang and Guerin (2009) also indicate that functional and aesthetic aspects have utilized as the major approach of traditional interior design. That is means that the traditional interior design approach is just aim to achieve a good quality of functional in an interior space and appear aesthetics to human senses. Besides that, Kang and Guerin (2009) remark that interior designers select the materials that according to the client's favors, requires, cost and aesthetics. All these can conclude that traditional interior design do not utilize the sustainable as main and important components in an internal space design project. Thus, traditional interior design approach has brought harmful pollution and negative impacts to the environment.

According to Moxon (2011), there are about 90% of time that human use to spend in an indoor environment and it has brought out majority impact to the human and environment. Furthermore, Hayles (2015) also notes that traditional interior design brings harmful and negative effects on human's mental and physical health. Jennifer from University of Arkansas (2013) states that volatile organic compounds (COVs) are found in all types of interior finishes and product. These VOCs are emitting as gases and can cause nose and eye irritation as well as serious respiratory illness. Therefore, sustainable interior design must be fully adopting and implement in the interior design project to overcome and eliminate human health issues.

Leddy (2013) defines the sustainable design as "a design philosophy that seeks to maximize the quality of the built environment, while minimizing or eliminating negative impact to the natural environment". Therefore, sustainable interior design has to be the fundamental requirement of the living space design for human and also become the stake of the art of interior design industry. However, Hayles (2015) mentions that clients begin understand what impact and role from them to the environment and they now also seeking the interior design that implement environmentally responsible and sustainable design. Therefore, the emergence of sustainable interior design is driven by the weaknesses of existing interior design which consume more resources, high carbon emission, causes negative impacts on the environment and the generation of a large amount of waste. This is because the existing interior design emphasis on the beauty and luxurious feeling while has ignored the sustainable component in the entire design project.

In order to achieve the sustainability in interior design, it is important to pay attention on what are the criteria of sustainability that can be adopt in interior design process to make the whole process become more sustainable. Therefore, the purpose of this research is to identify the criteria of sustainable interior design, investigate the sustainable interior design process, and provide an innovation suggestion to reinforce the sustainability of interior design to the market.

## 1.2 Problem Statement

Sustainable interior design is one of the ways that towards conserving the environment. Through initiatives of every sector especially design industry sector, it contributes towards a more sustainable indoor environment. Thus, the research question constructed as follow:

1. What are the criteria of sustainable interior design?
2. What are the processes that involve in sustainable interior design?
3. How the innovation suggestion in order to widen the acceptance of sustainable interior design in Malaysia's market?

## 1.3 Objectives

The objective of this research is to investigate the effort taken by all selected design companies in Kuala Lumpur and Melaka to implement sustainable interior design in their residential design project. Thus, the objectives of the research are stated as below:

1. Identify the criteria of implementation sustainable interior design.
2. To investigate the process that involve in sustainable interior design.
3. To propose innovative suggestion for widen the acceptance of sustainable interior design in Malaysia's market.

#### **1.4 Scope, Limitation and Key Assumptions of the Research**

The scope of this research will only take into the professional that expert in interior design field and only covers the design company at Kuala Lumpur and Melaka. The main target is the companies that have implement the sustainability on interior design field at Kuala Lumpur and Melaka. There will selected approximate 8 design companies from Kuala Lumpur and 11 design companies from Melaka. The directors, managers, senior designers and interior designers who work at this few companies will be the respondents of this research. There are 30 interior designers from this 15 design companies will be target as the respondents. The respondents will be divided into four main categories, the first category will be 9 respondents from director, the second category will be 2 respondents from manager level, the third category will be 2 respondents from senior designer level and 17 respondents from interior designer level. The purpose of selecting 30 interior designers is to ensure the data is accurate and to ensure the reliability of research. All the answer from the respondents will be recorded correctly and completely. At the end, the outcome will see the sustainability in their residential project and provide the new innovation suggestion that to increase the widen acceptance of sustainability on interior design.

The limitation to implement research is the researcher assumes the respondents provide the honest answer. Besides that, the researcher assumes the respondents have adequate knowledge to a part of respondents for primary data collection. Furthermore, the researcher assume the respondents selected have more experience in sustainable interior design when he or she can provide justifiable answer.

The key assumptions of this research consist of the data information collection like interview from this 17 companies and the accuracy of data information that will be collected from them. For data information collection, researcher assumes the respondents will response with a truehearted honest answer the questions ask by researcher that relate to sustainable interior design.

## **1.5 Importance of the Research**

The research able provide valuable contribution to this 17 companies, society and environment. The research result or output will be able contribute to this 17 companies' development and widen the acceptable of sustainable interior design in the Malaysia' market. This is because this research will investigate the innovation suggestion to increase the acceptance of the sustainable interior design in current market.

Besides that, in this research will also determine the criteria of sustainable interior design that can contribute to this 17 interior design companies and the others similar or related industry. The research result and outcome of the research will able benefit to the society, especially to the people who are interested in sustainable interior design field. They can learn a lot from this research and as the reference or guideline that to operate their sustainable interior design field.

Lastly, the research will be significant to the environment by applying the sustainable interior design in every design. It is hope that the reader who read this research can implant the mindset of sustainable interior design. It will help whole world be more concerning in environmental sustainable interior design.

## **1.6 Summary**

In the beginning of this chapter explains to people what the research about. However most important thing is that the objectives of this research are identify the criteria of sustainable interior design, investigate the process of sustainable interior design and propose the innovative suggestion for widen acceptance of sustainable interior design in Malaysia's market. Besides that, the following will includes the

purpose, key assumption, contribution and limitation of the research. The main objective of the research is to call the attention of public to wake up and protect future health of the Earth and its inhabitants and future generation, indeed, for future of humanity and our planet. A better way to overcome the issues of interior design is implement sustainability principle into every construction industry. All the construction industry has to implant the mindset of sustainability interior design for every interior designer. Furthermore, the profile of the interior design issues should be rising up so that it can attract attention of all interior designer the importance of sustainable interior design.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section discusses about the relevant of literature review used in the research. It is identifying the criteria of sustainability and the sustainable interior design process. The literature review utilizes several such as books, journals, articles and internet sources. At the end, all the result will construct a theoretical framework. In section 2.2, researchers review about the theoretical concept of criteria of sustainability into interior design; section 2.3 is the application of theory which is the process of sustainable interior design; section 2.4 reviews about the conclusion of whole discussion in literature review; and section 2.5 is the review of theoretical framework.

#### **2.2 Criteria of Sustainable Interior Design**

The criteria are designs to improve energy consumption by optimizing building orientation, minimizing solar heat gain through the building envelope, harvesting natural lighting, adopting the best practices in building services including use of renewable energy, and ensuring proper testing, commissioning and regular

maintenance (GBI Malaysia, 2009). Criteria of sustainability have to fully implement in the interior design in order to provide an eco-friendly indoor environment in human living space. Oti and Tizani (2011) mentions ecological sustainability, economic sustainability and social and cultural sustainability are the aspects that summaries the intrinsic relationship sustainable development has with the construction industry and more specifically the building. In this three aspects of sustainable have six dimensions that apply a sustainable development in a building. The six dimensions of sustainability are shows at Figure 1.

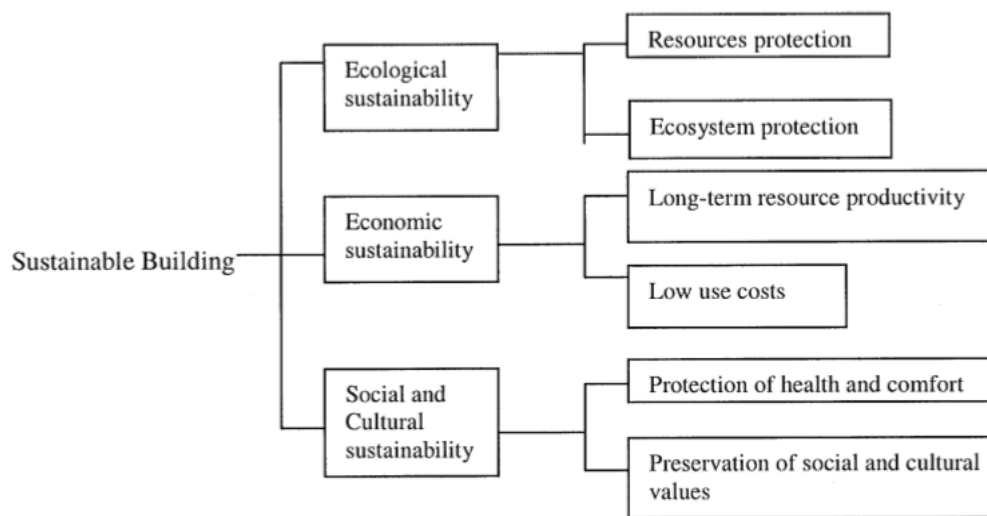


Figure 1: Dimensions of Sustainability Building

Source: Oti and Tizani (2011)

### 2.2.1 Resources Protection

Resource protection can be meant as to achieve more with less. Akadiri, Chinyio, and Olomolaiye (2012) point out resources protection is the management of the human use of natural resources to provide the maximum benefit to current generations while maintaining capacity to meet the needs of future generations. It can be the major issues that discusses about the sustainable development in building design.