The Adaptive Reuse of Obsolete Shophouses in the Core Zone of Melaka, Malaysia as Boutique Hotels

Nor Syahila Binti Ab Rashid

BSc (Arch Studies), MSc (Building)

Department of Architecture and Built Environment

Faculty of Engineering

Thesis submitted to the University of Nottingham

for the degree of Doctor of Philosophy

January 2020

Abstract

Rapid economic development and restructuring mean that there are more old and obsolete buildings in large cities. Many of these buildings represent different eras and building typologies. Some, such as the distinctive shophouses of Southeast Asia, are important heritage legacies. The desire to undertake research related to the adaptive reuse of shophouses arises from the abandonment and demolition of many of these unique urban assets. However, preserving shophouses for their original use might not necessarily be appropriate as the nature of uses can change over time. Therefore, adaptive reuse is suggested to extend the service of such buildings and to avoid obsolescence being used as a justification for demolition.

The aim of this research is to find the best formulas for revitalising and converting obsolete shophouses in the Core Zone of Melaka, Malaysia for suitable uses. In this context, this research demonstrates a highly detailed understanding of the adaptive reuse process for the conversion of shophouses to hotel-type accommodation (boutique hotels), which is an important reuse function for these shophouses. This research incorporates qualitative research through fieldwork and the case study approach. An on-site survey, observations and interviews were conducted as the primary means of data collection to gather information from the researcher herself as the surveyor and observer as well as from interviewees associated with the conversion process. Content analysis was used as the primary means of analysis for the collected data, with the assistance of NVivo software, to enable the development of key themes.

The research findings indicate that the majority of conservation projects in this area involve reuse, with cafés and restaurants being the most popular choice for partially reused shophouses, and hotels and motels for fully reused shophouses. Legal provisions, tourism demand, inscription demand, profitability, outdated original function, building vacancy and accessibility are considered contributing factors for these reuse activities. Functional and social obsolescence are identified as the key reasons these shophouses become obsolete. The results confirm earlier findings on the important role and beneficial impact of the adaptive reuse of shophouses. Nevertheless, there are major concerns regarding constructional, spatial, servicing and financial barriers. These elements should be considered when converting Malaysian shophouses for other functions, particularly for use as boutique hotels.

Conversion into boutique hotels is highly regulated, and this research emphasises the possibility of disruption of the original character of the building, and potential loss of authenticity, when complying with the building codes. In addition, there is controversy as to the ideal approach to making shophouses in this area reach the minimum standards for a boutique hotel. The findings of this study have implications for theory development, practice and application, and future research. A better understanding of the adaptive reuse process could be the basis for improved policy and design interventions for obsolete shophouses in this area, keeping them in active use. Their survival is crucial to maintaining the continuous inscription of Melaka on the UNESCO World Heritage List.

Prologue

My deep passion for conservation and rehabilitation of buildings, particularly in adaptive reuse, began when I was an undergraduate student at the International Islamic University Malaysia (IIUM), and a postgraduate student at the University of Malaya (UM). During my Bachelor's degree, I was involved in preparing the measured drawings for House No. 69, Acheen Street in George Town, Penang. In 2003, this project was an entry in the Mubin Sheppard Memorial Prize (MSMP) competition organised by the Malaysia Heritage Trust. Although it did not win any prizes, it stimulated my awareness of the need to conserve Malaysia's built heritage.

When I started my academic career at the Politeknik Merlimau, Melaka (PMM), I actively participated in various activities involving building conservation. For example, I supervised the measured drawings project for Tengkera Mosque in Melaka (the second oldest mosque in Malaysia). The project was given an Honourable Mention in the 2008 MSMP. In addition, in 2008, I was awarded the MSMP Measured Drawings Grant to carry out research on the Malacca High School in Melaka (the second oldest recorded school in Malaysia). The research outcome gained Honourable Mention in the 2011 MSMP.

In the early 2000s, the Melaka State Government and local communities worked together to improve the local economy via tourism by revitalising out-migration heritage buildings. This initiative encouraged investors to adapt these buildings for new uses. This phenomenon has changed my perception on heritage conservation: in certain circumstances the preservation of heritage buildings in their original use may not be appropriate as the nature of uses can change over time. This was an inspiration for my Master's degree study of the suitability of the adaptive reuse of historic residential buildings as national memorials. The manuscript was presented at the 2008 Mini Seminar PMM, the 2009 4th ASEAN Post Graduate Seminar in Built Environment and the 2013 KAWANS International Research Seminar. In 2014, it was published in the Journal of Design and Built Environment.

My personal interest in shophouses was prompted when, for my Master's degree, I conducted an interview with Mr. Rosli Haji Nor who, at that time, was the Director of Conservation Division, National Heritage Department (JWN). Although my research involved the adaptive reuse of historic residential buildings, Mr. Nor suggested doing the same research on shophouses. As a consequence, after earning my Master's degree, and continuing my academic career in the Universiti Sains Islam Malaysia (USIM), I came to the United Kingdom to pursue my PhD degree on the adaptive reuse of obsolete shophouses.

The relevance of this research is significant, especially as Melaka was inscribed as a UNESCO World Heritage Site in 2008. The research findings are expected, not only to extend the current state of knowledge on the obsolescence and adaptive reuse of shophouses, but also to impact policy and the future successful adaptive reuse of obsolete shophouses in the Core Zone of Melaka as boutique hotels.

Acknowledgements

Firstly, I would like to express my sincere gratitude to my primary supervisor, **Professor Tim Heath** for his continuous support for my PhD study and related research, for his patience, motivation and immense knowledge. His guidance helped me at all times during my research and the writing of this thesis. I could not have imagined having a better supervisor and mentor for my PhD study. My sincere thanks go also to my additional supervisor, **Dr. Wang Qi**, who always inspired new ideas, and without whose precious support it would not have been possible to conduct this research. My appreciation is due to the **Faculty of Engineering lecturers, staffs and students** for their advice and assistance.

Apart from my supervisors, I would like to thank my thesis examiners: **Dr. Florian Wiedmann** and **Dr. Yuri Abdul Hadi**, for their insightful comments and encouragement, and also for the hard questions which prompted me to widen my research from various perspectives.

I am particularly grateful to my sponsors, the **Ministry of Education Malaysia (MOE)** and the **Universiti Sains Islam Malaysia (USIM)** for providing financial support through the SLAI Scholarship (Hadiah Latihan Skim Latihan Akademik IPTA).

I wish to acknowledge the willingness to take part in the study of the following participants. I appreciate the time they took from their hectic schedules to spend time and share information with me:

- **The hotelier, the architect in charge and the hotel supervisor** of Fomecs Boutique Hotel, Jalan Hang Jebat, Melaka
- **The hotelier, the architect in charge and the hotel manager** of Jonker Boutique Hotel, Jalan Tokong, Melaka
- **The hotelier, the architect in charge and the hotel manager** of Timez Modern Heritage Hotel, Jalan Hang Kasturi, Melaka
- **The Assistant Administrative Officer**, Tourism Licensing Unit (Melaka Branch), Ministry of Tourism and Culture Malaysia (MOTAC)
- **The Research and Development Manager**, Tourism Promotion Division (BPP), Melaka State Government
- **The Conservation Architect**, Department of Building Control, Melaka Historic City Council (MBMB)
- **The Assistant Planning Officer**, Department of Planning, MBMB
- **The Assistant Valuation Officer**, Department of Properties Valuation, MBMB

In addition, I am grateful to **Mr. Rosli Haji Nor**, the former Director of Conservation Division, National Heritage Department (JWN) and General Manager of Melaka World Heritage Office for suggesting the starting point of this research.

Last but not least, I would like to thank my dearest family: my mother, **Mariah Abdullah**, my husband, **Ezwan Salod** and my son, **Eric Kasyfi Ezwan** for supporting me spiritually throughout the writing this thesis and in my life in general.

Thank you all for your encouragement!

Table of Contents

ABSTRACT ..... **ii**

PROLOGUE ..... **iii**

ACKNOWLEDGEMENTS ..... **iv**

TABLE OF CONTENTS ..... **v**

LIST OF FIGURES ..... **x**

LIST OF TABLES ..... **xvii**

GLOSSARY OF TERMS, ABBREVIATIONS AND ACRONYMS ..... **xx**

CHAPTER 1 - INTRODUCTION

1.1 Introduction **1**

1.2 Background of the Research **1**

1.3 Research Gap **3**

1.4 Research Questions **5**

1.5 Research Aim and Objectives **5**

1.6 Research Significance **7**

1.7 Research Scope **7**

1.8 Research Methods and Data Collection **8**

1.9 Structure and Organisation of the Thesis **10**

1.10 Summary **12**

CHAPTER 2 - BUILDING OBSOLESCENCE AND ADAPTIVE REUSE

2.1 Introduction **14**

2.2 Understanding Building Obsolescence **14**

2.3 Categorisation of Building Obsolescence **16**

2.3.1 Physical Obsolescence **17**

2.3.2 Functional Obsolescence **18**

2.3.3 Technological Obsolescence **19**

2.3.4 Economic Obsolescence **19**

2.3.5 Environmental Obsolescence **20**

2.3.6 Locational Obsolescence **21**

2.3.7 Social Obsolescence **22**

2.3.8 Legal Obsolescence **24**

2.4 Minimising Building Obsolescence **25**

2.5 Theory and Practice of Adaptive Reuse **26**

2.6 Policies Associated with Adaptive Reuse **30**

2.7 Adaptive Reuse in the Malaysian Context **32**

2.8 Drivers of and Barriers to Adaptive Reuse **34**

2.8.1 Structural Aspects **37**
2.8.2 Constructional Aspects **39**
2.8.3 Spatial Aspects **40**
2.8.4 Servicing Aspects **42**
2.8.5 Financial Aspects **44**
2.8.6 Environmental Aspects **48**
2.8.7 Locational Aspects **50**
2.8.8 Social Aspects **52**
2.8.9 Legal Aspects **55**
2.9 Summary **58**

CHAPTER 3 - SHOPHOUSES

3.1 Introduction **60**
3.2 Overview of Shophouses in Southeast Asia **60**
3.2.1 Malaysia **62**
3.2.2 The Philippines **63**
3.2.3 Vietnam **64**
3.2.4 Laos **65**
3.2.5 Singapore **66**
3.2.6 Thailand **68**
3.2.7 Indonesia **69**
3.2.8 Myanmar **70**
3.2.9 Cambodia **71**
3.2.10 Brunei **72**
3.2.11 Timor-Leste **72**
3.2.12 Summary of Subchapter 3.2 ..... **72**
3.3 Evolution of Malaysian Shophouses **73**
3.4 Shophouses in Melaka **79**
3.4.1 Shophouses in an Urban and Street Context **79**
3.4.2 Styles of Shophouses **80**
3.4.3 Characteristics of Shophouses **88**
3.4.4 Legal Provisions for the Heritage Conservation of Shophouses **101**
3.5 Inscription of Melaka as a UNESCO World Heritage Site **107**
3.5.1 Implications of World Heritage Listing **107**
3.5.2 Impact of Obsolescence on Shophouses **112**
3.5.3 Adaptive Reuse Practices for Shophouses **115**
3.6 Summary **119**

CHAPTER 4 - RESEARCH METHODOLOGY

4.1 Introduction **122**
4.2 Research Design **122**

4.2.1 Qualitative Research **123**
4.2.2 Qualitative Data **127**
4.2.3 Qualitative Analysis **132**
4.3 Research Structure **134**
4.3.1 Determination of Research Questions **135**
4.3.2 Selection of the Study Area and Case Study Buildings **136**
4.3.3 Preparation of Data Collection **141**
4.3.4 Data Collection in the Field **145**
4.3.5 Data Analysis and Interpretation **149**
4.3.6 Preparation of Thesis **154**
4.4 Ethical Considerations **155**
4.4.1 Maximise Benefit and Minimise Risk and Harm **155**
4.4.2 Respect Rights and Dignity **156**
4.4.3 Inform Participants **156**
4.4.4 Conduct with Integrity and Transparency **157**
4.4.5 Define Lines of Responsibility and Accountability **157**
4.4.6 Maintain Independence of Research and Make Explicit Conflicts of Interest **158**
4.5 Summary **158**

CHAPTER 5 - THE CORE ZONE OF MELAKA: THE STUDY AREA

5.1 Introduction **160**
5.2 Background of the Core Zone of Melaka **160**
5.3 Classification as Shophouses **164**
5.4 Activities of Shophouses **167**
5.5 Adaptive Reuse Practices for Shophouses **169**
5.5.1 Activity Zoning **175**
5.5.2 Building Category **175**
5.5.3 Architectural Style **176**
5.5.4 Tourism Dependency **180**
5.5.5 Preservation as Intangible Heritage **183**
5.5.6 Vacancy and Dilapidation **186**
5.5.7 Circulation and Access **189**
5.6 The Synthesis of Research Objective 1 ..... **201**
5.7 Summary **206**

CHAPTER 6 - THE CASE STUDY BUILDINGS

6.1 Introduction **208**
6.2 Background of the Case Study Buildings **208**
6.2.1 Case Study 1: Fomecs Boutique Hotel **209**
6.2.2 Case Study 2: Jonker Boutique Hotel **216**
6.2.3 Case Study 3: Timez Modern Heritage Hotel **224**

6.3 Factors of Obsolescence **235**
6.3.1 Physical Obsolescence **235**
6.3.2 Functional Obsolescence **237**
6.3.3 Technological Obsolescence **238**
6.3.4 Economic Obsolescence **240**
6.3.5 Environmental Obsolescence **242**
6.3.6 Locational Obsolescence **243**
6.3.7 Social Obsolescence **244**
6.3.8 Legal Obsolescence **247**
6.3.9 The Synthesis of Research Objective 2 ..... **248**
6.4 Drivers of Adaptive Reuse **249**
6.4.1 Structural Aspects **250**
6.4.2 Constructional Aspects **252**
6.4.3 Spatial Aspects **255**
6.4.4 Servicing Aspects **257**
6.4.5 Financial Aspects **260**
6.4.6 Environmental Aspects **263**
6.4.7 Locational Aspects **266**
6.4.8 Social Aspects **268**
6.4.9 Legal Aspects **271**
6.4.10 The Synthesis of Research Objective 3 ..... **274**
6.5 Barriers to Adaptive Reuse **276**
6.5.1 Structural Aspects **277**
6.5.2 Constructional Aspects **279**
6.5.3 Spatial Aspects **283**
6.5.4 Servicing Aspects **286**
6.5.5 Financial Aspects **290**
6.5.6 Environmental Aspects **294**
6.5.7 Locational Aspects **296**
6.5.8 Social Aspects **298**
6.5.9 Legal Aspects **302**
6.5.10 The Synthesis of Research Objective 4 ..... **305**
6.6 Summary **306**

CHAPTER 7 - GOVERNMENT POLICIES

7.1 Introduction **309**
7.2 Government Policies **309**
7.2.1 Preservation of Shophouses **310**
7.2.2 Adaptive Reuse of Shophouses as Boutique Hotels **312**
7.3 The Synthesis of Research Objective 5 ..... **324**
7.4 Summary **327**

CHAPTER 8 - CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction **329**
8.2 Conclusions **329**
8.3 Implications **338**
8.4 Recommendations **340**
8.5 Limitations and Considerations **344**
8.6 Summary **347**

BIBLIOGRAPHY 349

APPENDIX A: ETHICS APPROVAL A-1

APPENDIX B: FIELDWORK COVER LETTER B-1

APPENDIX C: ON-SITE SURVEY C-1

APPENDIX D: DIRECT OBSERVATIONS D-1

APPENDIX E: PARTICIPANT INFORMATION SHEET E-1

APPENDIX F: PARTICIPANT CONSENT FORM F-1

APPENDIX G: SEMI-STRUCTURED INTERVIEWS G-1

List of Figures

All figures that are not referenced are by the author.

Figure 2.1 Maville House, an obsolete lace factory in Nottingham that was left in empty and vacant state after 'severe fire damage' in 2017 is set to be converted into 30 new apartments..... **15**

Figure 2.2 Tate Modern in London has emerged from a disused power station to an international centre of Modern and Contemporary art. **28**

Figure 2.3 The Stadthuys in Melaka was built by the Dutch as the office of the Dutch Governor and Deputy Governor, which is now home to the History and Ethnography Museum. **34**

Figure 3.1 The Maritime Silk Road according to the expeditions of Zheng Ho from 1405 to 1433, which linked China and Southeast Asia (marked in red). **61**

Figure 3.2 Shophouses are usually seen in the urban quarters of most Southeast Asian countries. **61**

Figure 3.3 Shophouses in George Town, Malaysia. **63**

Figure 3.4 Shophouses in Vigan, Philippines. **64**

Figure 3.5 Shophouses in Hoi An, Vietnam. **65**

Figure 3.6 Shophouses in Luang Prabang, Laos. **66**

Figure 3.7 Shophouses in Singapore. **67**

Figure 3.8 Shophouses in Bangkok, Thailand. **68**

Figure 3.9 Shophouses in Yogyakarta, Indonesia. **69**

Figure 3.10 Shophouses in Yangon, Myanmar. **70**

Figure 3.11 Shophouses in Phnom Penh. **71**

Figure 3.12 Melaka and George Town, Penang (Malay: Pulau Pinang) (marked in red) have been inscribed as UNESCO World Heritage Sites – Historic Cities of the Straits of Malacca in 2008. ..... **74**

Figure 3.13 Shophouses seem to be the dominant heritage building typology in the Core Zone of George Town. **75**

Figure 3.14 Melaka in the 16th century, during the Portuguese occupation, where the current position of shophouses in the Core Zone is located on the left (marked in red). **76**

Figure 3.15 The Core Zone of Melaka in 1890, during the British occupation, where Chinese shophouses were introduced to satisfy the needs of Chinese immigrants. **78**

Figure 3.16 Urban spatial layout of shophouses in Melaka can be classified as Compounded Type. **80**

Figure 3.17 Styles of shophouses in Melaka in chronological order. **81**

Figure 3.18 The facade of a Dutch style shophouse. **82**

Figure 3.19 The facade of a Southern China style shophouse. **83**

Figure 3.20 The facade of an Early Straits Eclectic style shophouse. **84**

Figure 3.21 The facade of a Late Straits Eclectic style shophouse. **85**

Figure 3.22 The facade of an Art Deco style shophouse. **86**

Figure 3.23 The facade of a Modern style shophouse. **88**

Figure 3.24 An axonometric view of a typical shophouse in Melaka and also other major cities in Malaysia. **89**

Figure 3.25 The original design of the structure of the main roof should be retained and restored. **92**

Figure 3.26 The original design of the facade should be retained and restored. **94**

Figure 3.27 The original design of the five-footway should be retained and restored. .. **95**

Figure 3.28 A new roof of pitch profile over the kitchen courtyard is permitted. **97**

Figure 3.29 The addition of toilets internally is permitted. **99**

Figure 3.30 A lightweight transparent roof cover for the air well is permitted. **100**

Figure 3.31 The installation of air-conditioning compressor units on the front facade is strictly prohibited. **105**

Figure 3.32 Proper drainage should be provided to avoid splashes of water against the building or foundation walls. **106**

Figure 3.33 The Maritime Greenwich, United Kingdom is a good example where authenticity, conservation and sustainability were placed in a good balance of strategic importance. **108**

Figure 3.34 Shirakawa-mura, Japan has seen a large increase in the number of tourists after the inscription. **109**

Figure 3.35 The inscription revitalises local products such as silk carpets, textiles and silver in Bukhara, Uzbekistan. **110**

Figure 3.36 It is a matter of pride for Maharashtra that two out of the first four recognised World Heritage Sites in India are located in the state. **111**

Figure 3.37 An obsolete shophouse at Lorong Hang Jebat, Melaka due to natural causes. **113**

Figure 3.38 A shophouse at Jalan Hang Jebat, Melaka that was converted into a gallery. **116**

Figure 3.39 Mind map of interactions between shophouses, building obsolescence and adaptive reuse as the main elements in this research. **121**

Figure 4.1 The flow chart of research design. **123**

Figure 4.2 Six steps of organising and conducting the research effectively. **135**

Figure 4.3 The flow chart of the case study buildings selection. **140**

Figure 4.4 The flow chart of qualitative data collection for this research. **148**

Figure 4.5 An overview of data analysis process in qualitative research. **149**

Figure 4.6 The flow chart of qualitative data analysis for this research. **153**

Figure 5.1 Melaka World Heritage Site comprises two main zones: the Core Zone (Property Zone) and the Buffer Zone. **162**

Figure 5.2 The Core Zone (Property Zone) of Melaka consists of two major areas: the St. Paul's Hill Civic Zone and the Historic Residential and Commercial Zones. **163**

Figure 5.3 The St. Paul's Civic Zone (marked in red). **164**

Figure 5.4 The Historic Residential and Commercial Zones (marked in red). **164**

Figure 5.5 Shophouses that meet the literal definition dominate 40% of the entire heritage buildings in the Core Zone of Melaka. **166**

Figure 5.6 There are 75% of the shophouses in the Core Zone of Melaka that are still in use; 25% are fully vacant. **168**

Figure 5.7 A modest proportion (31%) of the shophouses in the Core Zone of Melaka have undergone adaptive reuse practices. **169**

Figure 5.8 There are 20% of the shophouses in the Core Zone of Melaka were partially reused; 11% were fully reused. **171**

Figure 5.9 The percentage of current uses of the ground floor spaces of partially reused shophouses in the Core Zone of Melaka. **172**

Figure 5.10 The percentage of current uses of the upper floor spaces of partially reused shophouses in the Core Zone of Melaka. **172**

Figure 5.11 A partially reused shophouse at Jalan Kampung Pantai, which serves as a café on the ground floor and as a residence on the upper floor. **173**

Figure 5.12 The percentage of current uses of fully reused shophouses in the Core Zone of Melaka. **174**

Figure 5.13 Fully reused shophouses at Jalan Tukang Emas, which serve as hotels and motels. **174**

Figure 5.14 Most shophouses in the Core Zone of Melaka are categorised under the mixed-use zone (marked in red). **177**

Figure 5.15 Most shophouses in the Core Zone of Melaka are classified under Category IIB (marked in red). **178**

Figure 5.16 The Dutch style shophouses are dominant in the Core Zone of Melaka (marked in red). **179**

Figure 5.17 Tourist arrivals to Melaka from 2000 to 2016. ..... **180**

Figure 5.18 Melaka's tourist receipts from 2000 to 2016. ..... **181**

Figure 5.19 Average length of stay in hotels in Melaka from 2000 to 2016. ..... **182**

Figure 5.20 Average occupancy rate for hotels in Melaka from 2000 to 2016. ..... **182**

Figure 5.21 Twenty-nine percent of the shophouses in the Core Zone of Melaka have been fully preserved, while 31% have undergone adaptive reuse. **183**

Figure 5.22 Traditional trades (Chinese medical shop) inside a fully preserved shophouse at Jalan Kampung Pantai. **185**

Figure 5.23 Jalan Tokong is known as the 'Street of Harmony'. **185**

Figure 5.24 Twenty-five percent of the shophouses in the Core Zone of Melaka are fully vacant, while 31% have undergone adaptive reuse. **186**

Figure 5.25 A vacant shophouse on Jalan Tun Tan Cheng Lock, which has been the victim of illegal dumping. **188**

Figure 5.26 Pedestrian movement in the Core Zone of Melaka. **189**

Figure 5.27 Pedestrian walkways are provided on Jalan Tun Tan Cheng Lock due to the absence of continuous five-footways, but restriction along these walkways complicate pedestrian mobility. **191**

Figure 5.28 This back lane that connects Jalan Hang Jebat with Jalan Kubu should be reserved for pedestrians rather than being used as private car parks. **191**

Figure 5.29 Traffic flow in the Core Zone of Melaka. **192**

Figure 5.30 Heavy traffic flow in the Historic Residential and Commercial Zones during the weekend. **193**

Figure 5.31 Jalan Hang Jebat has the highest traffic flow in the Historic Residential and Commercial Zones. **194**

Figure 5.32 The closure of Jalan Hang Jebat to vehicles for the Jonker Street Night Market during the weekend cause severe traffic congestion on the surrounding streets. **194**

Figure 5.33 Parking facilities in the Core Zone of Melaka. **195**

Figure 5.34 On-street parking and illegal parking make Lorong Hang Jebat narrow and create discomfort for road users. **196**

Figure 5.35 Proposed centralised parking facilities in the Core Zone of Melaka in 2011 (marked in red). **197**

Figure 5.36 Centralised parking at Kota Laksamana is privately managed, where users have to pay higher parking fees than public car park. **197**

Figure 5.37 Public transit in the Core Zone of Melaka. **198**

Figure 5.38 The bus stop on Jalan Laksamana is used only to drop off passengers. **199**

Figure 5.39 Proposed Panorama bus stops in the Core Zone of Melaka in 2011 (marked in red)..... **200**

Figure 5.40 Proposed river transport from the Melaka Sentral to Kota Laksamana in 2011 (marked in red). **200**

Figure 5.41 The river cruise service that runs along the Melaka River Water Promenade is focused solely on tourism, making the fares relatively expensive as public transit. **201**

Figure 6.1 The position of each case study building in the Core Zone of Melaka. **209**

Figure 6.2 The past appearance of Fomecs Hotel in 2005 before the conversion process took place. **211**

Figure 6.3 The recent appearance of Fomecs Hotel in 2017 after the conversion process was completed in 2012. ..... **211**

Figure 6.4 The ground floor plan of Fomecs Hotel before the conversion process took place. **212**

Figure 6.5 The ground floor plan of Fomecs Hotel after the conversion process was completed in 2012..... **213**

Figure 6.6 The first floor plan of Fomecs Hotel before the conversion process took place. **214**

Figure 6.7 The first floor plan of Fomecs Hotel after the conversion process was completed in 2012. ..... **215**

Figure 6.8 The past appearance of Jonker Hotel in 2005 before the conversion process took place. **217**

Figure 6.9 The recent appearance of Jonker Hotel in 2017 after the conversion process was completed in 2010. ..... **217**

Figure 6.10 The ground floor plan of Jonker Hotel before the conversion process took place. **218**

Figure 6.11 The ground floor plan of Jonker Hotel after the conversion process was completed in 2010..... **219**

Figure 6.12 The first floor plan of Jonker Hotel before the conversion process took place. **220**

Figure 6.13 The first floor plan of Jonker Hotel after the conversion process was completed in 2010. ..... **221**

Figure 6.14 The second floor plan of Jonker Hotel before the conversion process took place. **222**

Figure 6.15 The second floor plan of Jonker Hotel after the conversion process was completed in 2010..... **223**

Figure 6.16 The past appearance of Timez Hotel in 2015 before the conversion process took place. **225**

Figure 6.17 The recent appearance of Timez Hotel in 2017 after the conversion process was completed in the same year. **225**

Figure 6.18 The ground floor plan of Timez Hotel before the conversion process took place. **226**

Figure 6.19 The ground floor plan of Timez Hotel after the conversion process was completed in 2017..... **227**

Figure 6.20 The first floor plan of Timez Hotel before the conversion process took place. **228**

Figure 6.21 The first floor plan of Timez Hotel after the conversion process was completed in 2017. ..... **229**

Figure 6.22 The second floor plan of Timez Hotel before the conversion process took place. **230**

Figure 6.23 The second floor plan of Timez Hotel after the conversion process was completed in 2017..... **231**

Figure 6.24 The third floor plan of Timez Hotel before the conversion process took place. **232**

Figure 6.25 The third floor plan of Timez Hotel after the conversion process was completed in 2017. ..... **233**

Figure 6.26 The fourth floor plan of Timez Hotel after the conversion process was completed in 2017..... **234**

Figure 6.27 The physical deterioration of Timez Hotel was due to vacancy and abandonment for nearly four to five years prior to the conversion. **236**

Figure 6.28 The previous use of Timez Hotel as a residence (apartment) was no longer relevant for current needs. **238**

Figure 6.29 Each floor of Timez Hotel had a toilet and a shower to be shared by all of the residents of the floor. **240**

Figure 6.30 A deep inside corridor in Timez Hotel disallowed natural ventilation, led to poor indoor air quality. **243**

Figure 6.31 The design of the facade windows of Timez Hotel had no historical value to be preserved..... **246**

Figure 6.32 The existence of dried timber in Timez Hotel present specific concerns related to fire safety..... **248**

Figure 6.33 The conversion of building where Timez Hotel is now situated is preferable to demolition, as the process has less impact on adjacent buildings. **251**

Figure 6.34 Concrete beams were strengthened, and floor materials were replaced to ensure the structure of Fomecs Hotel is stronger for heavier loads. **252**

Figure 6.35 The heritage significance of Art Deco style in Jonker Hotel with a touch of Baba and Nyonya was retained. **253**

Figure 6.36 In order to meet modern demands, timber louvre windows in Fomecs Hotel were fitted with internal glass window to facilitate the use of the air-conditioning system. **254**

Figure 6.37 Flexible building layout in Timez Hotel allows spaces on the upper floors to be adjusted to provide guest rooms with windows for natural lighting and ventilation. **256**

Figure 6.38 New passageways were created on the upper floors of Jonker Hotel to allow efficient circulation between the lots. **257**

Figure 6.39 The cooling system were installed in Fomecs Hotel to supply modern demands. **259**

Figure 6.40 The lift in Timez Hotel is useful to improve accessibility for disabled people. **259**

Figure 6.41 The conversion of Jonker Hotel into a boutique hotel generates higher profits as opposed to its original function as a shophouse..... **261**

Figure 6.42 Energy costs in Timez Hotel were mitigated by the installation of Low-E glass for heat reduction. **263**

Figure 6.43 The use of recycled and rejected tiles on the floor of Timez Hotel has mitigated carbon emissions. **264**

Figure 6.44 The retention of an open space on the ground floor of Fomecs Hotel without the use of air-conditioning can improve the indoor air quality of the building. **265**

Figure 6.45 The popularity of the Jonker Street Night Market has made Jonker Hotel a favourable location for tourists to stay. **267**

Figure 6.46 A back lane behind Fomecs Hotel is to provide an adequate loading area for this boutique hotel and the coffee shop on the ground floor. **267**

Figure 6.47 The well in Timez Hotel was conserved to symbolise a former lifestyle. .. **269**

Figure 6.48 Airborne and impact noise between floors was reduced by installing soundproof timber flooring in all the guest rooms in Jonker Hotel. **271**

Figure 6.49 Staircase 1 in Jonker Hotel has been preserved and refurbished to serve as a fire escape to meet the requirements of UBBL 1984. ..... **273**

Figure 6.50 Registration with MOTAC permits Fomecs Hotel to comply with tourism requirements and gain tourism incentives, in which this boutique hotel is presently rated as 2-star. **274**

Figure 6.51 Within a heritage area, the conversion will be more challenging than the construction of a new building as it can cause damage to adjacent buildings. **278**

Figure 6.52 The courtyard floor in Jonker Hotel was constructed using concrete, which was one of the biggest problems because it had been affected by water damage that required structural repair. **279**

Figure 6.53 95% of the materials in Timez Hotel were new since the previous materials were non-durable and unsuitable for retention. **281**

Figure 6.54 Roof leaks in the ceilings of Jonker Hotel due to heavy rain signifies the need for increased maintenance as it ages. **282**

Figure 6.55 Due to inflexible building layout, the non-heritage one-storey warehouse at the back of Fomecs Hotels was demolished and reconstructed as two-storeys to accommodate more guest rooms. **285**

Figure 6.56 There is some confusion as to the circulation in Jonker Hotel from the guest rooms on the second floor heading to the lobby on the ground floor, since Staircase 3 is only accessible to the first floor. **285**

Figure 6.57 The outdated plumbing system in Timez Hotel was demanded to be upgraded for improved performance. **288**

Figure 6.58 There is no lift to the first floor of Fomecs Hotel where the guest room with facilities for disabled people is located (Room 818). **289**

Figure 6.59 The number of hotels in the Core Zone of Melaka has doubled over the past five years resulting in supply exceeding demand, for example Tang House is just a few steps from Jonker Hotel. **291**

Figure 6.60 Achieving the economies of scale is challenging due to limited spatial capacity, while the hotelier of Timez Hotel intends to accommodate more guest rooms to generate more profits. **292**

Figure 6.61 The demolition and reconstruction of the non-heritage structure at the back of Fomecs Hotel has contributed to noise pollution in the surrounding area. **295**

Figure 6.62 The energy load in Jonker Hotel has increased due to the use of air-conditioning and higher servicing requirements. **295**

Figure 6.63 The busy and narrow street in front of Fomecs Hotel has complicated the transport of construction equipment to the site during the conversion process. **297**

Figure 6.64 The narrow street in front of Timez Hotel has made it difficult for the hotelier to provide adequate parking for the guests. **298**

Figure 6.65 The big karaoke stage in front of Fomecs Hotel has contributed to noise nuisance for the guests of this boutique hotel. **300**

Figure 6.66 The conversion has reduced the privacy of the neighbours, forcing the height of load-bearing walls between Timez Hotel and the neighbouring buildings to be increased. **301**

Figure 6.67 Jonker Hotel was not provided with step-free access, however the hotelier has made a proposal to install a lift behind these windows which used to locate Staircase 3. ..... **303**

Figure 6.68 A combined compressor for the air-conditioning system was hidden on the roof of Timez Hotel to fulfil the requirements of the Conservation Guidelines for Melaka. **304**

Figure 7.1 Traditional trades (rattan handcraft) in shophouses should be protected as intangible heritage. **311**

Figure 7.2 Limited spatial capacity enables the hoteliers to maximise space utilisation. **314**

Figure 7.3 Hotel oversupply can cause some of them do not last long. **316**

Figure 7.4 The Core Zone of Melaka is now ideal for car-free movement..... **318**

Figure 7.5 The conversion of shophouses into boutique hotels can create conflicts between protecting heritage values and satisfying modern demands. **323**

List of Tables

All tables that are not referenced are by the author.

Table 3.1 A brief guide to conservation works on the roof of shophouses in Melaka. **90**

Table 3.2 A brief guide to conservation works on the facade of shophouses in Melaka. **92**

Table 3.3 A brief guide to conservation works on the five-footway of shophouses in Melaka. **95**

Table 3.4 A brief guide to conservation works on the rear area of shophouses in Melaka. **96**

Table 3.5 A brief guide to conservation works on the shophouses interior in Melaka. ... **97**

Table 3.6 A brief guide to conservation works on the shophouses features in Melaka. .. **99**

Table 3.7 A brief guide to the installation of mechanical and electrical systems on shophouses in Melaka. **104**

Table 3.8 A brief guide to the installation of sanitary, plumbing and drainage systems on shophouses in Melaka. **105**

Table 3.9 Benefits and burdens of World Heritage Site inscription on image and recognition of sites. **108**

Table 3.10 Benefits and burdens of World Heritage Site inscription on overcrowding and local community life..... **108**

Table 3.11 Benefits and burdens of World Heritage Site inscription on local culture and commercialisation. **109**

Table 3.12 Benefits and burdens of World Heritage Site inscription on management and conservation. **110**

Table 3.13 Benefits and burdens of World Heritage Site inscription on local identity, community spirit and local pride..... **110**

Table 4.1 Strengths and limitations of qualitative research. **125**

Table 4.2 Strengths and limitations of fieldwork. **126**

Table 4.3 Strengths and limitations of the case study approach. **127**

Table 4.4 Strengths and limitations to using surveys. **128**

Table 4.5 Strengths and limitations to using observations. **129**

Table 4.6 Strengths and limitations to using direct observations. **130**

Table 4.7 Strengths and limitations to using interviews. **130**

Table 4.8 Strengths and limitations to using semi-structured interviews. **131**

Table 4.9 Strengths and limitations to using documents. **131**

Table 4.10 Strengths and limitations to using audio-visual materials. **132**

Table 4.11 Strengths and limitations of content analysis. **133**

Table 4.12 Strengths and limitations of cross-case analysis. **134**

Table 4.13 Identification of fully reused shophouses that satisfied the selection criteria for case study buildings. **139**

Table 4.14 Key topics for potential interviewees. **144**

Table 4.15 Details of data collection from interviews. **147**

Table 4.16 Coding and categorising..... **151**

Table 5.1 Breakdown of shophouses in the Core Zone of Melaka. **166**

Table 5.2 Breakdown of the current uses of shophouses in the Core Zone of Melaka. **168**

Table 5.3 Breakdown of adaptive reuse practices for shophouses in the Core Zone of Melaka. **170**

Table 5.4 Breakdown of fully preserved and converted shophouses in the Core Zone of Melaka. **184**

Table 5.5 Breakdown of fully vacant and converted shophouses in the Core Zone of Melaka. **187**

Table 6.1 Cross-case comparisons in terms of physical obsolescence. **235**

Table 6.2 Cross-case comparisons in terms of functional obsolescence. **237**

Table 6.3 Cross-case comparisons in terms of technological obsolescence. **239**

Table 6.4 Cross-case comparisons in terms of economic obsolescence. **241**

Table 6.5 Cross-case comparisons in terms of environmental obsolescence. **242**

Table 6.6 Cross-case comparisons in terms of locational obsolescence. **244**

Table 6.7 Cross-case comparisons in terms of social obsolescence. **245**

Table 6.8 Cross-case comparisons in terms of legal obsolescence. **247**

Table 6.9 Factors of obsolescence affecting all of the case study buildings and their contributions to the existing body of knowledge. **249**

Table 6.10 Cross-case comparisons in terms of structural drivers of adaptive reuse. . **250**

Table 6.11 Cross-case comparisons in terms of constructional drivers of adaptive reuse. **252**

Table 6.12 Cross-case comparisons in terms of spatial drivers of adaptive reuse. **255**

Table 6.13 Cross-case comparisons in terms of servicing drivers of adaptive reuse. .. **257**

Table 6.14 Cross-case comparisons in terms of financial drivers of adaptive reuse. ... **260**

Table 6.15 Cross-case comparisons in terms of environmental drivers of adaptive reuse. **263**

Table 6.16 Cross-case comparisons in terms of locational drivers of adaptive reuse. . **266**

Table 6.17 Cross-case comparisons in terms of social drivers of adaptive reuse. **268**

Table 6.18 Cross-case comparisons in terms of legal drivers of adaptive reuse. **271**

Table 6.19 Drivers of adaptive reuse affecting all of the case study buildings and their contributions to the existing body of knowledge. **275**

Table 6.20 Cross-case comparisons in terms of structural barriers to adaptive reuse. **277**

Table 6.21 Recommendations for structural barriers to adaptive reuse. **279**

Table 6.22 Cross-case comparisons in terms of constructional barriers to adaptive reuse. **280**

Table 6.23 Recommendations for constructional barriers to adaptive reuse. **282**

Table 6.24 Cross-case comparisons in terms of spatial barriers to adaptive reuse. **283**

Table 6.25 Recommendations for spatial barriers to adaptive reuse. **286**

Table 6.26 Cross-case comparisons in terms of servicing barriers to adaptive reuse.. **287**

Table 6.27 Recommendations for servicing barriers to adaptive reuse. **289**

Table 6.28 Cross-case comparisons in terms of financial barriers to adaptive reuse... **290**

Table 6.29 Recommendations for financial barriers to adaptive reuse. **293**

Table 6.30 Cross-case comparisons in terms of environmental barriers to adaptive reuse. **294**

Table 6.31 Recommendations for environmental barriers to adaptive reuse. **296**

Table 6.32 Cross-case comparisons in terms of locational barriers to adaptive reuse. **296**

Table 6.33 Recommendations for locational barriers to adaptive reuse. **298**

Table 6.34 Cross-case comparisons in terms of social barriers to adaptive reuse. **299**

Table 6.35 Recommendations for social barriers to adaptive reuse. **301**

Table 6.36 Cross-case comparisons in terms of legal barriers to adaptive reuse..... **302**

Table 6.37 Recommendations for legal barriers to adaptive reuse. **305**

Table 6.38 Barriers to adaptive reuse affecting all of the case study buildings and their contributions to the existing body of knowledge. **306**

Table 7.1 Impact of preservation of shophouses from a government perspective. **311**

Table 7.2 Impact of adaptive reuse of shophouses on constructional aspects from a government perspective. **313**

Table 7.3 Impact of adaptive reuse of shophouses on spatial aspects from a government perspective **314**

Table 7.4 Impact of adaptive reuse of shophouses on servicing aspects from a government perspective **315**

Table 7.5 Impact of adaptive reuse of shophouses on financial aspects from a government perspective **317**

Table 7.6 Impact of adaptive reuse of shophouses on environmental aspects from a government perspective. **318**

Table 7.7 Impact of adaptive reuse of shophouses on locational aspects from a government perspective **319**

Table 7.8 Impact of adaptive reuse of shophouses on social aspects from a government perspective **321**

Table 7.9 Impact of adaptive reuse of shophouses on legal aspects from a government perspective **324**

Table 7.10 Drivers of adaptive reuse of shophouses from a government perspective and their contributions to the existing body of knowledge **325**

Table 7.11 Barriers to adaptive reuse of shophouses from a government perspective and their contributions to the existing body of knowledge **325**

Table 8.1 The way in which the research in this thesis differs from the existing body of knowledge in the context of factors of obsolescence. **333**

Table 8.2 The way in which the research in this thesis extends the existing body of knowledge in the context of factors of obsolescence. **333**

Table 8.3 The way in which the research in this thesis reflects the existing body of knowledge in the context of drivers of adaptive reuse. **334**

Table 8.4 The way in which the research in this thesis differs from the existing body of knowledge in the context of drivers of adaptive reuse. **334**

Table 8.5 The way in which the research in this thesis extends the existing body of knowledge in the context of drivers of adaptive reuse. **334**

Table 8.6 The way in which the research in this thesis reflects the existing body of knowledge in the context of barriers to adaptive reuse. **336**

Table 8.7 The way in which the research in this thesis differs from the existing body of knowledge in the context of barriers to adaptive reuse. **336**

Table 8.8 The way in which the research in this thesis extends the existing body of knowledge in the context of barriers to adaptive reuse. **336**

Table 8.9 Comparisons between drivers of and barriers to adaptive reuse of shophouses from a government perspective. **337**

Glossary of Terms, Abbreviations and Acronyms

TERMS	
Jalan	Street
Lorong	Lane
Sdn. Bhd.	Private Limited Company (Pvt. Ltd.)
ABBREVIATIONS	
BCA	Building Code of Australia
BPP	Tourism Promotion Division
CMP	Conservation Management Plan
GDP	gross domestic product
GTWHI	George Town World Heritage Incorporated
IWK	Indah Water Konsortium (national sewerage company)
KPKT	Ministry of Housing and Local Government Malaysia
MBMB	Melaka Historic City Council
MBPP	Penang Island City Council
MELAKA JPBD	Melaka State Town and Country Planning Department
OCBC	Oversea-Chinese Banking Corporation
PENANG JPBD	Penang State Town and Country Planning Department
SAP	Special Area Plan
TNB	Tenaga Nasional Berhad (electric utility company)
UBBL 1984	Uniform Building By-Laws 1984
ACRONYMS	
Act 133	Street, Drainage and Building Act 1974
Act 171	Local Government Act 1976
Act 172	Town and Country Planning Act 1976
Act 645	National Heritage Act 2005
Act 685	Persons with Disabilities Act 2008
BOMBA	Fire and Rescue Department of Malaysia
CAQDAS	Computer Assisted Qualitative Data Analysis Software
Conservation Guidelines for Melaka	Guidelines for the Conservation Areas and Heritage Buildings for Melaka World Heritage Site
Enactment No. 6 1988	Preservation and Conservation of Cultural Heritage Enactment 1988
Guidelines for Boutique Hotels	Guidelines for Classification of Tourist Accommodation Premises for Boutique Hotels Category
HVAC	heating, ventilation and air-conditioning
ICOMOS	International Council on Monuments and Sites
MOTAC	Ministry of Tourism and Culture Malaysia
PAM	Malaysian Institute of Architects
UNESCO	United Nations Educational, Scientific and Cultural Organization

Chapter 1



Introduction

1.1 Introduction

The first chapter aims to provide an overview of the main points of this research and to awaken the reader's interest. This chapter has an organisational pattern of eight primary subchapters: background of the research, research gap, research questions, research aim and objectives, research significance, research scope, research methods and data collection, and structure and organisation of the thesis.

1.2 Background of the Research

The existence of historic urban quarters in cities results in a growing number of obsolete buildings in keeping with the character, the identity and the idea of a meaningful place (Tiesdell et al., 1996). Many of these buildings represent different eras and building typologies. Some, such as the distinctive shophouses of Southeast Asia, are important heritage legacies. The desire to perform research related to the adaptive reuse of shophouses arises from the abandonment and demolition of many of these unique urban assets (Kaye, 1961; Ismail & Shamsuddin, 2005). It is current practice that no shophouse in the Core Zones and Buffer Zones of Melaka and George Town, Penang in Malaysia, which were jointly inscribed as the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites in 2008, will be altered or demolished if there is any possible way of keeping it in its original condition (Melaka JPBD, 2011; Penang JPBD, 2013). However, preserving these shophouses for their original use might not necessarily be appropriate as the nature of uses can change over time (Melaka JPBD, 2011; Penang JPBD, 2013). As a result, many researchers, such as Zawawi and Abdullah (2011), have suggested adaptive reuse as a sustainable option to extend the service of these buildings and to avoid obsolescence being used as a justification for demolition. Adaptive reuse as a means of ensuring the preservation of heritage buildings, and of avoiding their demolition due to

obsolescence, has become one of the key elements of conservation practice for Malaysian shophouses.

The aim of the research in this thesis is to find the best formulas for revitalising and converting obsolete shophouses in the Core Zone of Melaka for suitable uses. The relevant literature shows that there has been insufficient research discussing the dimensions of obsolescence as well as the drivers of and barriers to the adaptive reuse of shophouses in this area as boutique hotels. This is particularly true when it comes to the involvement of professional experts. Shophouses are highly significant in the World Heritage Site status of the area. Therefore, Malaysia should redouble efforts to ensure the conservation of this type of heritage building (UNESCO World Heritage Centre, 2016c), and research on this matter should be encouraged. As a means of doing so, it is essential to understand the definition and issues concerning building obsolescence, adaptive reuse and shophouses, and to illustrate the interactions between them as the main elements of this research. This research incorporates qualitative research through fieldwork and the case study approach. An on-site survey, observations and interviews were conducted as the primary means of data collection to gather information from the researcher herself as the surveyor and observer as well as from interviewees (building owners, professional experts, specialist users and government officers) associated with the conversion process.

This thesis reports the findings of a detailed study to explore the current state of adaptive reuse practices for the shophouses in the Core Zone of Melaka. This study includes an examination of the factors of obsolescence as well as an analysis of the drivers of and barriers to adaptive reuse as boutique hotels. The perspective of government officers regarding the preservation and conversion of these shophouses into boutique hotels were also reviewed. As a result, several recommended strategies to remove or reduce the impact of the barriers identified and to refine the existing government policies, were made. This should help in decisions as to whether or not to proceed with an adaptation. If the potential use does not have economic merit, an alternative use that could be supported by local demand should be identified (Gause et al., 1996). This is consistent with Melaka JPBD (2011), in which evaluating best use is one of the most important and sensitive assessments to be made by the Melaka Historic City Council (MBMB), because the survival of these shophouses depends on the identification of economically viable uses. In general, the best way to secure the preservation of heritage buildings is to keep them in active use,

and their survival is essential to secure the continuous inscription of Melaka as a UNESCO World Heritage Site.

1.3 Research Gap

The extent to which, at the present time, adaptive reuse practices have been implemented for obsolete shophouses in the Core Zone of Melaka is a matter for debate. There is a demand for a clear and comprehensive definition of how these shophouses should be adapted for new uses. Making no changes or changing everything cannot be seen as adaptive reuse (Chua & Deguchi, 2011). A list of non-permissible activities is provided in the Conservation Management Plan (CMP) and the Special Area Plan (SAP) for the Melaka World Heritage Site to protect its outstanding universal value and to ensure the survival of such buildings. However, government policies on adaptive reuse were not widely discussed in these two plans, especially in regard to conversions into boutique hotels. Chua and Deguchi (2011) believed that, in addition to existing guidelines, there should be an additional mechanism as a means of controlling adaptive reuse practices in this area.

Currently, the building owners and professional experts are required to submit conservation documents to MBMB for change of use. This is in line with the findings of Bullen and Love (2010) showing that decision-making will depend on the drivers and barriers that are particular to each heritage building. Ironically, these documents are categorised as confidential and cannot be revealed publicly even to researchers; their contents cannot be shared as a common guide. To address this issue, the on-site survey and observations were carried out to explore the current state of adaptive reuse practices for the shophouses in the Core Zone of Melaka. Several issues were investigated to establish why reuse activities occurred in this area. A similar survey by Chua and Deguchi (2011) encompassed all types of heritage buildings in this area and did not concentrate on shophouses. Interviews with government officers were also conducted to review government policies concerning the preservation of shophouses, and also their conversion into boutique hotels.

Across the literature, there is ample research on most categories of obsolescence of shophouses as discussed in detail in Subchapter 3.5.2. This has been examined in studies by Chan (2005) in Singapore, Wee et al. (2014) in Ipoh, Malaysia, and Yung et al. (2014)

in Hong Kong. However, it should be emphasised that the history, urban and street context, styles, characteristics and legal provisions for the heritage conservation of shophouses in other countries and cities may differ from those in Malaysia, and specifically in Melaka. In the meantime, issues associated with shophouses in Melaka that were suggested by Ismail and Shamsuddin (2005) may be classified as obsolescence related. It should be noted that the sole focus of this study was demolished shophouses rather than converted shophouses. Nowadays demolition of shophouses is no longer permitted in the Core Zone of Melaka. To fill this gap, eight factors of obsolescence in converted shophouses in this area have been examined based on interviews with the building owners, professional experts and specialist users. These factors are as follows: physical, functional, technological, economic, environmental, locational, social and legal.

In recent years, there have been studies on many aspects of the adaptive reuse of Malaysian shophouses. Studies by Chua and Deguchi (2011), Henderson et al. (2013), Ismail (2013), Jasme et al. (2014), Mydin et al. (2014a, b), Dewiyana et al. (2016), Wahab et al. (2016), Mei and Ahmad (2017) and Zubir et al. (2018), are discussed in detail in Subchapter 3.5.3. However, there is insufficient research concentrating on the conversion of shophouses in the Core Zone of Melaka into boutique hotels, which is an important reuse function for these shophouses. In addition, the above studies only explored this process through conducting surveys, observations and interviews with hoteliers and their employees rather than acquiring the views and experiences of the professional experts who are more competent in this area. The studies by Henderson et al. (2013) and Zubir et al. (2018) closely resemble this research. However, Henderson et al. (2013) did not acquire information from professional experts and did not focus on shophouses. Meanwhile, Zubir et al. (2018) only concentrated on boutique hotels in George Town. To meet the gap, nine aspects of adaptive reuse in converted shophouses in this area have been examined based on interviews with the building owners, professional experts and specialist users. These aspects are as follows: structural, constructional, spatial, servicing, financial, environmental, locational, social and legal.

1.4 Research Questions

With the purpose of filling the research gap, the following five research questions for further study of the adaptive reuse process of obsolete shophouses in the Core Zone of Melaka as boutique hotels have been defined based on issues identified in previous studies:

- ***Question 1****: What is the current state of adaptive reuse practices for Malaysian shophouses?*
- ***Question 2****: How is the life cycle of Malaysian shophouses affected by obsolescence?*
- ***Question 3****: What are the drivers surrounding the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and how could they minimise the impact of obsolescence?*
- ***Question 4****: What are the barriers surrounding the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and how can the impact of the barriers identified be removed or reduced?*
- ***Question 5****: How can the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels be influenced by government policies?*

1.5 Research Aim and Objectives

In parallel with the research questions, the aim of this research, which is to find the best formulas for revitalising and converting obsolete shophouses in the Core Zone of Melaka for suitable uses, has been achieved through the following five refined research objectives:

- ***Objective 1****: To explore the current state of adaptive reuse practices for Malaysian shophouses*

The first objective is to explore the extent of current adaptive reuse practices for shophouses in the Core Zone of Melaka using content analysis. Through this objective, the major type of heritage building, the most popular activities of shophouses, the most widespread conversion options for partially and fully reused shophouses, and the contributing factors to reuse activities in this area are identified and discussed.

- ***Objective 2****: To examine the dimensions of obsolescence in Malaysian shophouses*

The second objective is to examine the factors of obsolescence in shophouses in the Core Zone of Melaka using content analysis and cross-case analysis. Through this objective, the most significant factors affecting all of the case study buildings are discovered and reviewed.

- ***Objective 3****: To identify and analyse the drivers of the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels*

The third objective is to identify and analyse the drivers of the adaptive reuse process of obsolete shophouses in the Core Zone of Melaka as boutique hotels using content analysis and cross-case analysis. Through this objective, the most significant drivers affecting all of the case study buildings are discovered and reviewed.

- ***Objective 4****: To identify and analyse the barriers to the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and to make recommendations that could be implemented to remove or reduce the impact of the barriers identified*

The fourth objective is to identify and analyse the barriers to the adaptive reuse process of obsolete shophouses in the Core Zone of Melaka as boutique hotels using content analysis and cross-case analysis. Through this objective, the most significant barriers affecting all of the case study buildings are discovered and reviewed. This objective is also to make recommendations focusing on removing or reducing the impact of the barriers identified. As a result, the issues related to all of the case study buildings are addressed.

- ***Objective 5****: To review government policies associated with the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels*

The fifth objective is to review the policies of federal, state and local governments associated with the adaptive reuse process of obsolete shophouses in the Core Zone of Melaka as boutique hotels using content analysis. Through this objective, the government perspective on the preservation and conversion of these shophouses is identified and discussed.

1.6 Research Significance

The research findings will be of general benefit to society because the adaptive reuse practices for obsolete shophouses in the Core Zone of Melaka play an important role in keeping them in active use, which enables the continuing inscription of Melaka as a UNESCO World Heritage Site. The growing demand for converting these heritage buildings into boutique hotels, as the most dominant trend for fully reused shophouses in this area, justifies the need for more effective conversion procedures. Therefore, the building owners and professional experts who apply the recommended strategies derived from the research findings will be able to streamline the process by removing or reducing the impact of the barriers identified. Clarification of existing government policies related to the process will mean that government officers will be better informed as to what should be emphasised to building owners and professional experts.

For the researcher herself, although this research does not fully encompass the broad diversity of adaptive reuse activities, a very detailed understanding of the adaptive reuse process to hotel-type accommodation, an important reuse function for these shophouses, will be gained. This research will help other researchers to uncover previously unexplored related critical areas. Consequently, the best practices of conversion procedures on these shophouses can be outlined in order to ensure successful adaptive reuse projects in the future. At the same time, these ideas could be applied to the same field in other Southeast Asian countries. The implications of this research on theory development, practice and application, and future research are explored further in Subchapter 8.3.

1.7 Research Scope

The scope of this research has been defined at a preliminary stage to prevent an ambiguity regarding the research goals. The original intention was to compare the adaptive reuse practices for obsolete shophouses between Melaka and George Town. However, since difficulties due to confidentiality issues were experienced while attempting to obtain the Inventory of Heritage Buildings in the Heritage Zone of George Town from the Penang Island City Council (MBPP) and the George Town World Heritage Incorporated (GTWHI), it was decided that this research would focus on Melaka only as the study area. The

concentration was on shophouses with confirmed previous and/or current functions as a retail area on the ground floor and living quarters on the upper floor(s). Identification of these shophouses was based on the available data on 1,075 heritage buildings from the Inventory of Heritage Buildings in the Heritage Zone of Melaka (to identify previous function) which was collected from MBMB and updated by the on-site survey (to identify current function). This is to ensure that the subjects of this research meet the literal definition of a shophouse, and that the study achieves its aim and objectives. As a result, 432 shophouses were identified and several issues were investigated using the on-site survey and observations to establish why reuse activities occurred in this area.

Three case study buildings were chosen from 432 shophouses based on five selection criteria. Two of the originally planned five case study buildings were not completed as a result of lack of cooperation. The selection criteria, and their justification, are explained in detail in Subchapter 4.3.2. The interview sessions were conducted with the building owner, a professional expert and a specialist user in each of the case study buildings to obtain information related to history and ownership, factors of obsolescence, and drivers of and barriers to adaptive reuse. Professional experts, because of their capabilities and willingness to answer all related questions, provided the greater part of the information. The input of experts helps to fill the gap in the research area concerning insufficient research on the views and experiences of those who are more familiar with the process. However, the need for the involvement of professional experts in this research resulted in the undiversified reuse activities. A decision was made to focus on the conversion of fully reused shophouses into boutique hotels rather than on other uses. In addition, interview sessions with the three tiers of government comprising federal, state and local government officers were carried out in order to gain their perspective regarding the preservation and conversion of shophouses in this area into boutique hotels.

1.8 Research Methods and Data Collection

This research is entirely qualitative in nature. Over the course of Year Two, the data collection process was conducted in the Core Zone of Melaka for nearly four months from February to May 2017. The research involved fieldwork in 1,075 heritage buildings and the case study approach applied to three of 432 shophouses. The on-site survey and

observations were used to collect qualitative data on all shophouses in the study area. Interviews were employed as the primary means of data collection from 14 interviewees. Interviewees included the hoteliers as the building owners, the architects in charge as the professional experts, the hotel managers or supervisors as the specialist users, and the federal, state and local government officers. The qualitative research technique, involving observations and interviews has been widely undertaken in most studies associated with the adaptive reuse of Malaysian shophouses. Photographs and architectural drawings were used to show the area and to provide a good overview of the existing physical properties of the studied buildings. In the present research, photographs and drawings are helpful in reminding interviewees of details relating to older conversions (Remøy & van der Voordt, 2014). Apart from that, public documents have also been collected from the government officers to support the analysis of this research.

The organisation and conduct of this research, involved six steps based on studies by Stake, Simons and Yin (as cited in Soy, 1997), Soy (1997) and Creswell (2014). These steps were as follows: (1) determining the research questions, (2) selecting the study area and case study buildings, (3) preparing to collect the data, (4) collecting data in the field, (5) analysing and interpreting the data, and (6) preparing the thesis. The data collected were analysed using NVivo software to enable the development of key themes which should be given due consideration during the adaptive reuse decision-making process (Bullen & Love, 2011b). The use of NVivo in content analysis has been frequently applied by other researchers who used interviews to explore the adaptive reuse process. Concurrently, cross-case analysis was undertaken in most studies associated with the adaptive reuse of Malaysian shophouses. The research methodology, as discussed in detail in Chapter 4, is divided into three main parts comprising research design, research structure and ethical considerations. Meanwhile, several limitations were encountered during the research process and some measures were taken to overcome them to ensure the achievement of the aim and objectives of the research, as outlined in Subchapter 8.5.

1.9 Structure and Organisation of the Thesis

This subchapter describes the main elements of this thesis consisting of eight chapters as follows, where the subchapters Introduction and Summary are included as the beginning and end of all these chapters:

- ***Chapter 1****: Introduction*

The first chapter aims to provide an overview of the main points of this research and to awaken the reader's interest. This chapter has an organisational pattern of eight primary subchapters: background of the research, research gap, research questions, research aim and objectives, research significance, research scope, research methods and data collection, and structure and organisation of the thesis.

- ***Chapter 2****: Building Obsolescence and Adaptive Reuse*

The second chapter summarises and synthesises the current knowledge surrounding building obsolescence and adaptive reuse. This chapter has an organisational pattern of seven primary subchapters: understanding building obsolescence, categorisation of building obsolescence, minimising building obsolescence, theory and practice of adaptive reuse, policies associated with adaptive reuse, adaptive reuse in the Malaysian context, and drivers of and barriers to adaptive reuse.

- ***Chapter 3****: Shophouses*

The third chapter summarises and synthesises the current knowledge surrounding shophouses. This chapter has an organisational pattern of four primary subchapters: overview of shophouses in Southeast Asia, evolution of Malaysian shophouses, shophouses in Melaka and inscription of Melaka as a UNESCO World Heritage Site.

- ***Chapter 4****: Research Methodology*

The fourth chapter describes the specific and systematic qualitative procedures used to identify, select, process and analyse information about this topic using fieldwork, the case study approach, the on-site survey, observations and interviews. This chapter has

an organisational pattern of three primary subchapters: research design, research structure and ethical considerations.

- ***Chapter 5****: The Core Zone of Melaka: The Study Area*

The fifth chapter seeks to meet the first objective of this research. This has been done by explaining the background of the study area, as well as analysing the qualitative data collected from the on-site survey and observations of the shophouses in the study area. These data are compared to the information provided in the CMP and SAP for the Melaka World Heritage Site. This chapter also discusses the findings that highlight how the research in this thesis reflects, differs from and extends current knowledge of the chosen research area. This chapter has an organisational pattern of five primary subchapters: background of the Core Zone of Melaka, classification as shophouses, activities of shophouses, adaptive reuse practices for shophouses and the synthesis of Research Objective 1.

- ***Chapter 6****: The Case Study Buildings*

The sixth chapter seeks to fulfil the second, third and fourth objectives of this research. This has been done by explaining the background of the case study buildings regarding history and ownership, as well as analysing the qualitative data collected from the interviews with the building owners, professional experts and specialist users associated with the case study buildings. Content analysis and cross-case analysis were adopted to examine the themes, similarities and differences across cases. This chapter also discusses the findings that highlight how the research in this thesis reflects, differs from and extends current knowledge of the chosen research area. This chapter has an organisational pattern of four primary subchapters: background of the case study buildings, factors of obsolescence (and the synthesis of Research Objective 2), drivers of adaptive reuse (and the synthesis of Research Objective 3) and barriers to adaptive reuse (and the synthesis of Research Objective 4).

- ***Chapter 7****: Government Policies*

The seventh chapter seeks to satisfy the fifth objective of this research. This has been done by analysing the qualitative data collected from the interviews with the

government officers who are involved with the conversion of shophouses in the study area into hotel-type accommodation. These data are compared to the findings provided by the case study buildings in Chapter 6. This chapter also discusses the findings that highlight how the research in this thesis reflects, differs from and extends current knowledge of the chosen research area. This chapter has an organisational pattern of two primary subchapters: government policies and the synthesis of Research Objective 5.

- ***Chapter 8****: Conclusions and Recommendations*

The eighth chapter draws conclusions from the findings of Chapters 5, 6 and 7 and makes recommendations. This chapter features the most widespread conversion options for partially and fully reused shophouses, and factors contributing to reuse activities in the study area. In addition, it highlights the most significant factors of obsolescence, and the most significant drivers of and barriers to adaptive reuse affecting all of the case study buildings. This chapter also provides recommendations for the removal or reduction of the impact of the barriers identified, and the impact of government policies in this area. This chapter has an organisational pattern of four primary subchapters: conclusions, implications, recommendations, and limitation and considerations.

1.10 Summary

The related literature shows that there has been insufficient research discussing the dimensions of obsolescence as well as the drivers of and barriers to the adaptive reuse of shophouses in the Core Zone of Melaka as boutique hotels. This is especially true when it comes to the involvement of professional experts. With the purpose of fulfilling this research gap, five research questions for further study have been defined based on issues arising in previous studies. The aim of this research, which was to find the best formulas for revitalising and converting obsolete shophouses in this area for suitable uses, has been achieved through the five refined research objectives. These questions and objectives encompass the current state of adaptive reuse practices in 432 shophouses, the dimensions of obsolescence as well as the drivers of and barriers to adaptive reuse in three case study buildings, recommendations to remove or reduce the impact of the barriers identified, and government policies associated with the adaptive reuse process. The research findings are

expected to be of benefit to society and to the researcher. This chapter also provides a brief discussion of research methods and data collection, and outlines the main elements of this thesis consisting of eight chapters: introduction, literature review (2 chapters), research methodology, findings and discussion (3 chapters), and conclusions and recommendations.

Meanwhile, the next chapter (Chapter 2), consisting of seven primary subchapters, will summarise and synthesise the current knowledge surrounding building obsolescence and adaptive reuse.

Chapter 2



Building Obsolescence and Adaptive Reuse

2.1 Introduction

The second chapter summarises and synthesises the current knowledge surrounding building obsolescence and adaptive reuse. This chapter has an organisational pattern of seven primary subchapters: understanding building obsolescence, categorisation of building obsolescence, minimising building obsolescence, theory and practice of adaptive reuse, policies associated with adaptive reuse, adaptive reuse in the Malaysian context, and drivers of and barriers to adaptive reuse.

2.2 Understanding Building Obsolescence

Fast economic growth and restructuring has resulted in a large number of obsolete buildings in large cities, as reported by Tan et al. (2014). Uncertainty about the future of an area can cause gradual deterioration of old-fashioned buildings and infrastructure. These factors can cause values and prices in the declining district to fall further and property to be similarly devalued (Heath, 2002). According to Douglas (2006, p. 25), the term 'obsolescence' means: *"…a measure of an object's usefulness over time. It indicates the tendency of assets and operations to become out-of-date, outmoded, or old-fashioned"*. Tiesdell et al. (1996), Carmona et al. (2010), Thomsen and van der Flier (2011a) and Pinder et al. (2012) have expressed similar views that, in practice, obsolescence is commonly regarded as the decreasing performance of buildings due to rising expectations.

Pinder and Wilkinson (2000) discovered that obsolescence may occur if there is an alteration in the requirements or in factors relating to the use of a building. In most cases, obsolete buildings still keep functioning but they fall below contemporary standards. In certain cases, the buildings can only be declared obsolete when they have become totally impractical for all viable uses (Ashworth & Perera, 2015). For example, buildings for particular uses with short spans, low ceilings or roofs, small doors or windows, and unusual

configurations can result in problems related to their use and reuse in their current state (Douglas, 2006). In time, dilapidation happens leading to partial disuse and eventual redundancy, vacancy and depreciation. Meanwhile, the differences between obsolescence, redundancy and vacancy should be clarified. Douglas (2006) defined redundancy as a result of obsolescence; while obsolescence and redundancy are the main triggers for vacancy (see Figure 2.1).



Figure 2.1 Maville House, an obsolete lace factory in Nottingham that was left in empty and vacant state after 'severe fire damage' in 2017 is set to be converted into 30 new apartments.

It is important to determine whether the building is obsolete in its current use or for any possible use (Tiesdell et al., 1996; Carmona et al., 2010), for instance the obsolescence of a warehouse near the city centre can be addressed by converting it for residential use. It may be obsolete for its current use, and, in certain cases, demolition and redevelopment for a new use can be considered as a way of overcoming the problem (Carmona et al., 2010). Burton (1933) noted that obsolescence can be identified as a combination of two elements, in some cases being attributable to internal conditions and in other cases to external conditions. Internal conditions involve factors that occur inside the buildings or infrastructure, while external conditions mean factors that occur outside the buildings or infrastructure (Butt et al., 2010). The impact of building obsolescence can be classified into correctable, meaning cost-efficient to rectify; and non-correctable, meaning

not cost-efficient to rectify, at least at the current time (Douglas, 2006; Carmona et al., 2010).

Correctable obsolescence can be controlled by the building owners via the selection of appropriate building materials, and high-quality maintenance and refurbishment (Cheong, 2010). Douglas (2006) perceptively stated the factors of correctable obsolescence as poor acoustics, unsatisfactory fire and/or thermal performance, inadequate structural or spatial capacity, construction defects, inadequate or relatively inflexible layout, poor amenities or facilities, and inadequate services, where these factors can be prevented by means of routine maintenance or repair. This is basically accomplished through adapting the property and fixing the physical problems. Non-correctable obsolescence results from inappropriate features that cannot be controlled by the building owners, whereby they cannot be fixed, unless a new and different characteristic is incorporated into the building (Cheong, 2010). Redevelopment of the property is usually the more likely outcome. This situation takes place mostly because of economic and environmental factors such as poor location, inadequate building morphology, inadequate site and unsatisfactory microclimate (Douglas, 2006). The best that can be done to prevent non-correctable obsolescence is to integrate flexibility into building design to enable easier alterations and adaptations in the future, as advocated by Cheong (2010). However, this strategy is only applicable to new buildings and is not relevant to old buildings.

2.3 Categorisation of Building Obsolescence

As an outcome of change, obsolescence can have wide range of causes. Previous studies categorised obsolescence into eight factors relating to the following factors:

- ***Physical*** *(Burton, 1933; Tiesdell et al., 1996; Douglas, 2006; Langston et al., 2008; Irlander, 2009; Carmona et al., 2010; Reed & Warren-Myers, 2010; Langston, 2011a, b; Thomsen & van der Flier, 2011a, b; Mine, 2013; Wilkinson et al., 2014)*
- ***Functional*** *(Burton, 1933; Tiesdell et al., 1996; Slaughter, 2001; Allehaux & Tessier, 2002; Douglas, 2006; Langston et al., 2008; Irlander, 2009; Butt et al., 2010; Reed & Warren-Myers, 2010; Langston, 2011a, b; Mine, 2013; Wilkinson et al., 2014)*

- ***Technological*** *(Langston et al., 2008; Langston, 2011a, b; Mine, 2013; Wilkinson et al., 2014)*
- ***Economic*** *(Burton, 1933; Tiesdell et al., 1996; Pinder & Wilkinson, 2000; Douglas, 2006; Langston et al., 2008; Irlander, 2009; Butt et al., 2010; Reed & Warren-Myers, 2010; Langston, 2011a, b; Mine, 2013; Wilkinson et al., 2014)*
- ***Environmental*** *(Butt et al., 2010)*
- ***Locational*** *(Tiesdell et al., 1996; Carmona et al., 2010; Thomsen & van der Flier, 2011a, b, 2013)*
- ***Social*** *(Douglas, 2006; Langston et al., 2008; Langston, 2011a, b; Mine, 2013; Wilkinson et al., 2014)*
- ***Legal*** *(Tiesdell et al., 1996; Douglas, 2006; Langston et al., 2008; Carmona et al., 2010; Langston, 2011a, b; Wilkinson et al., 2014)*

2.3.1 Physical Obsolescence

The physical life cycle of a building is the duration from construction to the moment when physical collapse is likely, as indicated by Langston (2011b). The factors of physical obsolescence comprise structure failure, physical deterioration, dilapidation and urban blight (Douglas, 2006). The deterioration of the building structure and fabric through the effects of time, weather, earth movement, traffic vibration and poor maintenance (Tiesdell et al., 1996; Carmona et al., 2010) may reduce its capability to meet both user expectations and performance requirements. In addition, Douglas (2006) suggested that the limited building morphology or structural configuration of an inflexible building may make easy adaptation to the same or other use impossible. In reality, however, most buildings never attain physical obsolescence since they are demolished or refurbished for a variety of reasons.

Physical obsolescence is an increased deterioration as a consequence of inadequate maintenance and repair routines (Wilkinson et al., 2014). A study by Wilkinson et al. (2014) showed that since individual buildings require individual levels of maintenance expenses, the maintenance budget must consider significant replacement cycles; this means that the figure is unlikely to be similar each year. Physical obsolescence can be estimated by examining the maintenance policy and performance. The useful life of a building is

effectively decreased if its components are not correctly maintained (Wilkinson et al., 2014). In the meantime, physical obsolescence can be divided into correctable and non-correctable situations. Inadequate structural or spatial capacity and construction defects are typically classified as correctable; removing support columns is usually considered non-correctable (Douglas, 2006; Irlander, 2009). Tiesdell et al. (1996) and Carmona et al. (2010) recommended that a building should be refurbished or repaired through regular and ongoing maintenance to reduce the possibility of demolition and abandonment.

2.3.2 Functional Obsolescence

According to Tiesdell et al. (1996), Langston et al. (2008) and Carmona et al. (2010), the functional life cycle of a building is the time from construction to the moment when it stops to function for the same purpose as it was originally designed or is currently used. The life cycle of a building can also depend on external factors such as inadequate parking or difficulties of access (Tiesdell et al., 1996; Carmona et al., 2010). This is discussed further in Subchapter 2.3.6. The factors of functional obsolescence comprise decreased utility, inadequacy, incapacity, errors and omissions in the building's layout or form, and technical advances (Douglas, 2006). Cheong (2010) suggested that the building may be deemed to be functionally outdated because of its ineffective layout such as insufficient floor-to-ceiling heights and closed-spaced structural columns. Furthermore, it may begin to be functionally incompetent due to its inflexibility to adapt to new information technology. It might not have a raised floor to accommodate various types of cables.

Insufficient flexibility in spatial layouts and problems in altering services when change takes place contribute to churn costs, churn being the term used for the disturbance of space due to functional change (Wilkinson et al., 2014). Functional obsolescence can be estimated by defining the degree of flexibility inherent in the design of a building. The useful life of a building is effectively decreased if its layouts are not amenable to alteration, as indicated by Wilkinson et al. (2014). In addition, functional obsolescence can be categorised as correctable and non-correctable. Typically, an inadequate or relatively inflexible layout is considered correctable. However, inadequate building morphology such as very inflexible layout is classified as non-correctable (Douglas, 2006). Carmona et al. (2010)

recommended several options to tackle this form of obsolescence and to rescue the building, such as changing the land use and embedding new technology.

2.3.3 Technological Obsolescence

Technological obsolescence arises when the building or component is no longer technologically viable and replacement is more cost effective due to anticipated lower operating costs or higher efficiency, as highlighted by Langston et al. (2008). The factor of technological obsolescence comprises changes in building services systems equipment (Sarja, 2002) such as technological innovation (Cheong, 2010). Cheong (2010) pointed out that, when several electrical and mechanical services are no longer technologically appropriate concerning performance, there may be efforts to improve efficiency through technological innovation. This technological change can sometimes make older buildings unsuitable for modern production processes (Douglas, 2006).

In the meantime, energy is needed to provide for the comfort of the occupants, so it is sensible to regard energy consumption as a measure of technology intensity in buildings (Wilkinson et al., 2014). Modern buildings have more technology implanted in them at the building stage than older buildings have. For that reason, the need for old technology to be upgraded or changed will have an impact on the obsolescence of older buildings. Expensive retrofitting will make upgrading less attractive. Technological obsolescence can be estimated by the building's operational energy consumption. The useful life of a building is effectively decreased if it is dependent on high levels of energy for the purpose of providing occupant comfort, as indicated by Wilkinson et al. (2014). However, buildings will require distinct amounts of energy depending on location and climate, and these amounts will continue to change according to the season (Wilkinson et al., 2014). Technological obsolescence is typically viewed as correctable. This would be true of poor acoustics, and unsatisfactory fire and/or thermal performance (Douglas, 2006).

2.3.4 Economic Obsolescence

Langston (2011b) pointed out that the economic life cycle of a building is the duration from construction to the moment when its occupation is regarded to be the least-

cost effective alternative for satisfying a particular objective. The factors of economic obsolescence comprise rental income levels, capital value versus redevelopment value, and oversupply or drop in demand (Douglas, 2006). Failure to generate a consistent operating revenue can lead to the building being economically outdated (Langston, 2011a; Wilkinson et al., 2014). Wilkinson et al. (2014) considered that economic obsolescence is influenced by the investment and return balance, not only for the building affected but for other investment prospects open to the building owner. The building can also begin to be obsolete if the land value exceeds the capital value of the building. This situation can occur while the physical life of the building is still viable, and it can lead to the building being replaced in order to generate better return from the asset (Cheong, 2010).

Economic obsolescence can be estimated by the position of a building relative to a major city, central business region or other primary market or business centre. The useful life of a building is effectively decreased if it is located in a low-density demographic area, as indicated by Wilkinson et al. (2014). Economic obsolescence arises as a result of factors external to the property, and accordingly it is considered non-correctable (Irlander, 2009) and difficult to foresee because of insufficient information on future development and the confidential nature of government policies. The continuous development of e-business activities, and the proximity to communication and transport centres will seem more important in the future for the purpose of overcoming this form of obsolescence (Wilkinson et al., 2014).

2.3.5 Environmental Obsolescence

A building becomes obsolete not only due to conventional factors like aging, wear and tear. But it also due to contemporary factors such as energy consumption efficiency, environmental pressures, legislation or regulations, change of use, clean and waste water management, water quality and resources, land use, land contamination or soil quality, changing occupier or end user demands, sustainable waste management, ecological concerns, health and safety, and climate change, as indicated by Butt et al. (2010). The factors of environmental obsolescence comprise high pollution, road congestion and urban decay (Cheong, 2010). Cheong (2010) indicated that environmental obsolescence will usually be more relevant to devaluation of land, rather than to devaluation of buildings. For

instance, an example of unsuitable land use would be nuisance noise levels from factory engines in an office located near a factory. It may cause office tenants to leave; as a result, the building revenue will decline. On this basis, environmental obsolescence can be described as external obsolescence (Ventolo & Williams, 2001). It can be classified as non-correctable obsolescence, for example there could be an unsatisfactory microclimate (Douglas, 2006).

However, this statement may be argued. Based on the findings in the studies by Gause et al. (1996) and Wilkinson et al. (2014), the impact of environmental obsolescence on land and buildings can reach an equilibrium. Environmental issues in older buildings not only involve internal air quality, internal environmental quality and sustainability issues, but can also involve the existence of hazardous materials such as asbestos in tile and pipe coating, lead-based paint, and polychlorinated biphenyls, which may pose unacceptable risks to human health. For that reason, Gause et al. (1996) suggested that some degree of environmental remediation is always required when reusing buildings built before the mid-1970s. Nevertheless, Wilkinson et al. (2014) insisted that environmental obsolescence should be subsumed within the category of technological obsolescence. Wilkinson et al. also emphasised the possibilities of social, legal and political obsolescence to demonstrate the growing environmental agenda, as the marketplace continues to become more sustainability aware.

2.3.6 Locational Obsolescence

According to Tiesdell et al. (1996), locational obsolescence is primarily an attribute of the functional activities within the area. The factor of locational obsolescence comprises changes in economic activities in the area due to a change in city planning such as relocation of the commercial area, and construction of new roads and motorways (Cheong, 2010). This may emerge from the relocation of the central business region. The introduction of modern building codes in the early 1900s prompted the rebuilding of downtown areas. In Europe this was largely done in the existing location. However, the tendency in the United States was to move the downtown area to a new location (Tiesdell et al., 1996). As a consequence, the previous location was subject to relative locational obsolescence and

depreciation because it was considered less fashionable and attractive by the users (Carmona et al., 2010).

Tiesdell et al. (1996) and Carmona et al. (2010) stated that locational obsolescence also occurs when the fixed location cannot cater for the change in building needs with respect to wider patterns of accessibility, labour cost and other factors. This condition operates between countries or between central and outer areas, for instance where firms move from the city centre to suburban industrial estates for more accessible locations (Tiesdell et al., 1996). Over a period of time, unrelated activities within the location may also generate locational obsolescence. Tiesdell et al. (1996) advocated that the location could begin to be outdated for activities for which the building was designed because of changes in accessibility to other activities, markets and suppliers, and to the transport infrastructure. Certain specific types of change can trigger this form of obsolescence. An example would be shops built near a hospital or railway station that is no longer in use. Therefore, locational obsolescence is identified as external obsolescence (Ventolo & Williams, 2001) and is usually considered to be non-correctable. For instance, sometimes, people have to live in a poor location on an inadequate site. This situation is irremediable and the only option to cure this locational obsolescence is to change the land use, as prescribed by Carmona et al. (2010).

2.3.7 Social Obsolescence

Fashion and style changes in society can contribute to the demand for building renovation or replacement, as pointed out by Langston (2011b), even though the buildings may have been fitted out with new materials and technologies. A consequence of this phenomenon could be social obsolescence, arising from perceptions and growing desires by occupiers, and it could be general to all uses or specific to a particular use (Tiesdell et al., 1996; Carmona et al., 2010). The factors of social obsolescence comprise demographic trends and shifts, changes in taste and style, and changes in expectations (Douglas, 2006). Nevertheless, perceptions can change over time, as emphasised by Tiesdell et al. (1996). For example, older buildings were likely to be demolished during the post-war period because of a desire for modernisation. Nowadays, such buildings might be appreciated due to their stability and their heritage values. On this basis, cultural (Douglas, 2006), aesthetic

or architectural (Douglas, 2006), and image or style obsolescence (Tiesdell et al., 1996; Carmona et al., 2010) may be assumed as subsets of social obsolescence where their attributes relating to the satisfaction of human needs and the perceptions of building appearances are concerned.

In spite of the fact that the image or style of a building can motivate market interest and raise property values or rental income streams, some buildings must be managed to improve their appeal to market preferences and directions, because they have a higher tendency to become obsolete as a result of social change (Wilkinson et al., 2014). Social obsolescence can be estimated by the connection between the building use and the marketplace (Wilkinson et al., 2014), such as dependence on external income, or trends in demand or relevance of service, as advocated by Langston (2011a). It can be seen that refurbishment is common for buildings that rely to a large extent on market investment for their survival. The purpose would be to give the building a new look and to initiate change for its own benefit. Furthermore, as soon as a building is completed, a virtual outline of potential social obsolescence can be set up based on the activities for which the building is designed (Wilkinson et al., 2014).

The useful life for commercial buildings, such as office buildings, warehouses and retail spaces, is effectively decreased if building feasibility is derived from external income, as stated by Wilkinson et al. (2014). Wilkinson et al. suggested that, for the sake of modelling social obsolescence, the floor area assigned to leasing could be used to determine the percentage of the total usable floor area. Their study revealed that if 100% of usage is leased, then social obsolescence is maximised; if 0% of usage is leased, then social obsolescence is minimised. Mixed developments can be satisfactorily correlated between these boundaries, and changes in this combination over time will have an equivalent impact on useful life (Wilkinson et al., 2014).

The useful life of non-commercial buildings such as residential, religious, educational and civic buildings is effectively decreased if there is a reduction in service demand, as specified by Wilkinson et al. (2014). Wilkinson et al. recommended that, for the purpose of modelling social obsolescence, the measurable trends in demand or relevance can be used. Their study discovered that some decisions may need to be made, in cases where there is no data. Buildings that serve growing social purposes (e.g. needed for an increased population) would be advised, as opposed to buildings serving declining

purposes (e.g. a decrease on religious observance) or depending on current trends and fashions (Wilkinson et al., 2014). Nonetheless, many buildings become socially outdated even though they are appropriate for their intended purpose, because an unsuitable location is a restriction on practical usage (Cheong, 2010).

2.3.8 Legal Obsolescence

As stated by Tiesdell et al. (1996) and Langston et al. (2008), amended fire or occupational health and safety regulations, as well as modernised building ordinances, may lead to legal obsolescence. The factors of legal obsolescence comprise changes in legislation or regulations, changes in planning policies, existing adverse legislation, and nuisance and hazards that lead to a building becoming dangerous (Douglas, 2006). Legal obsolescence occurs when the building fails to achieve certain minimum standards of functionality determined by a public agency (Tiesdell et al., 1996; Carmona et al., 2010). In this situation, to avoid the possibility of being demolished or abandoned due to the failure to satisfy the regulations for current use or for any use, the building with this form of obsolescence may be remedied by having new technology embedded into it (Carmona et al., 2010).

In recent years, the trend for setting higher levels of compliance for new buildings has generated a requirement for the future upgrading of older buildings with lower levels of compliance to prevent them from becoming obsolete more quickly (Wilkinson et al., 2014). Legal obsolescence can be estimated based on the quality of the original design. The useful life of a building is effectively decreased if the design was of low-quality, as indicated by Wilkinson et al. (2014). In parallel, Wilkinson et al. perceptively stated that high-quality design would recommend better quality materials, components and systems; deliver enhanced performance over cheaper alternatives; and incorporate sophistication and higher standards of solutions delivery. Their study discovered that the best indicator of building quality is price, whereby the cost to construct high-quality buildings can reach 100% or more over normal cost, while low-quality buildings may cost 50% or less.

Consistent with Wilkinson et al. (2014), political obsolescence may be assumed as a subset of legal obsolescence. However, legal obsolescence concentrates more on compliance with building codes. Political obsolescence can be estimated by the degree of

public and local community interest encompassing a project. The useful life is effectively decreased if there is a high level of (restrictive) political intervention anticipated, as indicated by Langston (2011a) and Wilkinson et al. (2014). The advantage of this approach is that it is possible to recognise officially that growing political intervention will influence the adaptive reuse potential. The disadvantage is the problem of evaluating the degree of public and local community interest, and whether it will have a positive or a negative impact (Wilkinson et al., 2014).

2.4 Minimising Building Obsolescence

According to Tiesdell et al. (1996), addressing the obsolescence of heritage buildings, as well as extending their economic life, must be taken into consideration while revitalising historic urban quarters. Nutt et al. (as cited in Douglas, 2006) found that dealing with obsolescence often requires a different response, involving actions being considered with a view to expanding the usefulness of buildings, thereby lessening their relative obsolescence. Thomsen and van der Flier (2011a) pointed out that the professional skill of minimising obsolescence is vital among designers, developers and facility managers. ISO 15686-1:2000 and BS 7543:1992 (as cited in Douglas, 2006) have drawn attention to the fact that refurbishment and upgrading are the major approaches to dealing with obsolescence in heritage buildings. Fitch (as cited in Carmona et al., 2010) described refurbishment as conservation where it requires physical interference in the fabric of the building to ensure continuous performance.

Fitch (as cited in Carmona et al., 2010), Australia ICOMOS Incorporated (2013) and Vollenhoven (2018) defined conservation as all the processes of looking after a place (in this case an individual building) in order to retain its cultural significance, including preservation, restoration, reconstruction and adaptation. In effect, conservation can prolong the normal life of heritage buildings, but it requires them to be in active use, thereby providing the finance needed to maintain the historic fabric and to prevent obsolescence (Carmona et al., 2010). On this topic, a study by Douglas (2006) proposed that adaptation could be the best solution in such circumstances, as it has the ability to delay obsolescence by changing the function, capacity or performance of the building in order to ensure that the building continues to operate. In addition, Fitch (as cited in

Carmona et al., 2010) recommended adapting heritage buildings to contemporary requirements through reconstitution, replication, facadism, and demolition and redevelopment. However, demolition and redevelopment will only be selected when the building becomes fully obsolete, as indicated by Douglas (2006). The eight strategies used to minimise obsolescence in heritage buildings are explained in detail as follows:

Fitch (as cited in Carmona et al., 2010), Australia ICOMOS Incorporated (2013) and Vollenhoven (2018) described the following four strategies:

- ***Preservation****: Maintaining a building in its existing physical condition and delaying deterioration.*
- ***Restoration****: Returning a building to the earlier physical condition without the introduction of new material.*
- ***Reconstruction****: Returning a building to the earlier physical condition by the introduction of new material on the original site.*
- ***Adaptation****: Changing a building to suit the existing or new use (often referred to as adaptive reuse or compatible use), where the new use should be compatible with and have minimal impact on the cultural significance of the building.*

The following four strategies are extensions of Fitch (as cited in Carmona et al., 2010) as below:

- ***Reconstitution****: Reassembling piece-by-piece of a building, either in-situ or on a new site.*
- ***Replication****: Constructing a precise copy of an existing building.*
- ***Facadism****: Preserving the facade of a building, with a new building behind it.*
- ***Demolition and Redevelopment****: Knocking down a building and emptying the site, followed by new development.*

2.5 Theory and Practice of Adaptive Reuse

The evidence seems to indicate that obsolescence may gather a momentum that leads to either adaptation of the building for new uses or to the redevelopment of the site. It is difficult for non-correctable obsolescence to be fixed. However, Tiesdell et al. (1996)

and Douglas (2006) pointed out that there may be legal restraints such as preservation and control policies preventing a building with this problem from being demolished. Even though change is inevitable in historic environments, significant buildings should be managed to maintain their value, and decisions about changes must be rational, clear and reliable (English Heritage, 2008). Therefore, previous studies by Kincaid (2002), Douglas (2006), Thomsen and van der Flier (2011b), Zawawi and Abdullah (2011), Wilkinson et al. (2014) and Tan et al. (2014, 2015) have justified adaptive reuse as a sustainable solution to building obsolescence and an alternative to demolition and redevelopment. The justification is that this strategy keeps the buildings in active use. It would seem that repairing and restoring existing buildings for continuing significant use has begun to be increasingly viable in current architectural practice (Plevoets & van Cleempoel, 2013).

The term 'adaptive reuse' generally means: *"…renovation, rehabilitation, restoration, reuse or recycling"* (Thompson, 1977, p. vi) and to *"…repair or refurbish a building, and use it for a new purpose which is different from its original use for which it was designed"* (Chua & Deguchi, 2011, p. 779). Cantacuzino (1975), the Department of the Environment and Heritage (2004) and Hadi et al. (2013) have expressed similar views, in which they agreed that adaptive reuse is a process for rejuvenating an obsolete building making it useful for productive purposes. Luther (1988, p. 49) and Martin and Gamzon (as cited in Luther, 1988, p. 49) perceptively stated that a building may be restored or renovated within the context of adaptive reuse: *"The intent of restoration is to return the building's original character by restoring the original architectural details as closely as possible. The aim of renovation is to upgrade a building's materials and support systems while retaining its original appearance"*. Given this evidence, adaptive reuse can be concluded as a form of conservation that revitalises an existing building by improving and replacing the materials and support systems, and making it fit for a new purpose, which is distinct from its original use, while retaining its original appearance. Potentially, it will be a good solution for the owners of obsolete buildings to extend the life cycle of their buildings by changing the no longer relevant original use to an economically viable new purpose (Luther, 1988; Melaka JPBD, 2011; Penang JPBD, 2013). In other words, adaptive reuse gives new life to these buildings.

There are countless excellent examples of buildings that have undergone adaptive reuse. For instance, Tate Modern in London, United Kingdom, once a disused power station,

has become an international centre of Modern and Contemporary art, with millions of visitors every year (Gale, 2012) (see Figure 2.2). Another example is the Gasometers in Vienna, Austria, previously four municipal gas storage tanks. The tanks were decommissioned in 1985 and remained empty for seven years. Now, the structures house residential units, an entertainment centre, and retail and office space (O'Kelly & Dean, 2007). Ghirardelli Square in San Francisco was the first major adaptive reuse project in the United States. In the 1960s, it was transformed from an obsolete chocolate factory into a specialty shopping complex (Attoe & Logan, 1989). The old Hyde Park Barracks building in Sydney has also been converted from an old jail into a museum with the purpose of documenting the history of Australia's first settlers and convicts (Davies et al., 2013). There are many other examples of buildings with similar cultural significance throughout the world.



Figure 2.2 Tate Modern in London has emerged from a disused power station to an international centre of Modern and Contemporary art.

In recent years, the growing acceptance of adaptive reuse has become an increasing trend (Cantacuzino, 1975; Tiesdell et al., 1996; Heath, 2001; Kohler, 2006; Wilkinson et al., 2009; Bullen & Love, 2010), especially for heritage buildings. According to the Buildings Department (2012) and the Central Public Works Department (2013), heritage buildings comprise any building either declared or proposed as a monument, requiring

conservation or preservation and possessing cultural significance in terms of historical, architectural, artisanal, aesthetic, cultural, social, spiritual, environmental, ecological or scientific value. It must be recognised that, at the present time, heritage buildings offer a view of the past, provide character to communities as well as having a practical purpose. Therefore, they should be protected for future generations (Department of the Environment and Heritage, 2004). In this vein, Bromley et al. (2005) and Velthuis and Spennemann (2007) recommended that adaptive reuse is fundamentally a form of heritage conservation. For that reason, the strong desire of society to retain the cultural significance of heritage buildings encourages adaptive reuse practices. Adaptive reuse of heritage buildings has long ago become commonplace in traditional city centres throughout the world, as stated by Andersons (2000) and Bullen and Love (2010).

Adaptive reuse of heritage buildings may bring benefits to the local quality of life, particularly in economic, social and environmental terms. Therefore, these outcomes should be included in any assessment (Bullen & Love, 2010; Hadi et al., 2013). In addition, these functional outcomes, as well as the conceptual values of conservation, have strengthened the reuse of heritage buildings as a sustainable approach (Bullen & Love, 2011b). On that account, Cooper (2001) has advocated that the outcomes of adaptive reuse may comprise reductions (economic sustainability), retention (social sustainability), and improvements in material and resource efficiency (environmental sustainability). However, Bullen and Love (2011b) claimed that the contribution of heritage buildings to these sustainability outcomes has not been comprehensively explored. As a result, there is a conflict of interest between the protection of cultural significance and the development of a sustainable urban regeneration programme. Therefore, the actual contribution being made by the world heritage movement to the sustainable preservation of heritage buildings and monuments is highly questionable (Jäger-Klein, 2012).

Hence, numerous building owners, designers, developers and planners face the problem of whether to adapt for new uses or to demolish existing heritage buildings to meet changing economic and social demands, and sustainability issues, as reported by Bullen and Love (2010). The findings of their study show that decision-making related to adaptive reuse or demolition can be a perplexing process for the building owners and experts. However, at the same time, Bullen and Love felt that adaptive reuse can provide a more efficient and effective means of managing heritage buildings than demolition. Evidence

clearly recommends that the prospects created by adaptive reuse are greater than those offered by demolition and redevelopment (Ball, 1999; Cooper, 2001; Bullen & Love, 2010). Furthermore, Cantacuzino (1975) and Schmertz (1982) affirmed that although it is faster to demolish and rebuild today, it may use more energy and take years to design and erect a new building that might end up contributing to ecological and social problems.

2.6 Policies Associated with Adaptive Reuse

At the present time, the implementation of adaptive reuse throughout the world is based on the International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter 1964), which was developed by the International Council on Monuments and Sites (ICOMOS), a non-governmental professional organisation formed in 1965 and headquartered in Paris, as indicated by Australia ICOMOS Incorporated (2013). ICOMOS is closely associated with UNESCO, specifically in its role under the World Heritage Convention 1972 as a UNESCO's primary advice-giver on cultural matters related to World Heritage. According to the Charter, adaptive reuse is often referred to as the adaptation of a place (in this case an individual building), for a new use. The new use should have minimal impact on the current fabric and use, and it should retain associations and meanings. Wherever applicable, it should offer continued activities and practices, which suit the cultural significance of the place (Australia ICOMOS Incorporated, 2013). In other words, the building should continue to have a compatible use.

Based on the Charter, various adaptive reuse policies were developed by most major countries around the world to promote adaptive reuse practices for heritage buildings. For example, in New South Wales, Australia, the Adaptive Reuse of Heritage Places Policy has been drafted to set out the guidelines to be implemented in the adaptive reuse of places on lands managed by the Parks and Wildlife Group of the Office of Environment and Heritage (Office of Environment and Heritage, 2012). Another example is the City of Los Angeles Adaptive Reuse Program, which has been developed in the United States based on the Adaptive Reuse Ordinance to encourage adaptive reuse by facilitating the conversion of older, economically distressed or historically significant buildings into new uses such as apartments, condos, residential or work units, and hotels (City of Los Angeles Mayor's Office of Housing and Economic Development, 2006). There are also policies that

are unique to particular building types. An adaptive reuse policy for traditional farm buildings, as the most omnipresent historic building type in the English countryside, has been prepared in the United Kingdom. In addition to exploring options for future use ranging from repairing and retaining the use of the farmhouse in agriculture, a new significant use could be introduced (English Heritage, 2006). The adaptive reuse of shophouses in Singapore has occurred based on the Conservation Guidelines, meaning that the restoration process must be based on the '3R' fundamental principle: maximum Retention, sensitive Restoration and careful Repair (Urban Redevelopment Authority, 2011).

Nevertheless, active conservation implies far more than merely declaring heritage-listed buildings as required by the Charter. As stated by Cantacuzino (1975, p. viii), local governments must continue the logical process of conservation: *"…examine and classify the building stock in each area, earmark the danger points, anticipate redundancy, prepare strict criteria for sympathetic redevelopment, alternatively propose new uses or other means of preservation, and document buildings by measuring and photographing them…"*. If a new use is proposed for a particular heritage building, the following three standard criteria were designed by the Department of the Environment and Heritage (2004, p. 3) in Australia to ensure that an adaptive reuse project has minimal impact on the cultural significance of the building by:

- discouraging 'facadism' – that is, gutting the building and retaining its facade
- requiring new work to be recognisable as contemporary, rather than a poor imitation of the original historic style of the building
- seeking a new use for the building that is compatible with its original use

Cantacuzino (1975) also advocated that local governments must determine their conservationist policies in the wider context of local and structure plans to ensure balance between conservation and development as well as supporting the urban regeneration programme. Meanwhile, Latham (2000, p. 215) recommended the following 12 principles that are almost identical to the adaptive reuse policy of the Department of the Environment and Heritage (2004), but go further to ensure a successful adaptive reuse project by:

- identifying solutions that work 'with' the building and not 'against' it
- thinking laterally about the uses to which the building is to be put
- treating the elements of a building that need to be conserved as 'long-life' elements
- using sympathetic materials where new additions are to be made, either as an extension of past techniques, or in contrast to them (depending upon the nature of the brief, context, setting, etc.)
- using techniques of repair rather than restoration (and instructing the minimum rather than the maximum repair work necessary)
- ensuring that restoration, when it appears appropriate, is thoroughly researched and subject to the agreement of a second opinion before work proceeds
- maintaining proven techniques, natural materials and traditional craftsmanship, in preference to 'hi-tech' solutions
- adopting modern technology as a hidden means to preserve fabric in-situ, where traditional methods would (might) be destructive
- leaving work apparently just in good repair rather than newly repaired (or restored)
- the quality of the final product is determined by the choice of procurement route, the time devoted to detail design and the preparation of good contract documents
- considering the scope for interpretation of the building by the public and the user using the most innovative and appealing means
- balancing the demands of the user, and/or public access, with the maintenance requirements of the property

2.7 Adaptive Reuse in the Malaysian Context

It is essential to discuss the adaptive reuse practices for heritage buildings in the Malaysian context because this is central to the research in this thesis. According to the Laws of Malaysia (2006), heritage buildings in Malaysia can be described as a building or groups of separated or connected buildings, which are valuable with respect to architecture,

homogeneity and setting in the landscape that reflect outstanding universal value from the viewpoint of history, art and science. The minimum age for buildings to be listed as heritage buildings in Malaysia has been specified as 50 years old, based on the National Heritage Act 2005 (Act 645) (Rani, 2015).

As reported by Melaka JPBD (2011), the commitment to conservation in Malaysia started as early as the 1970s and found its tangible expression in the restoration of the Stadthuys in Melaka, which was built by the Dutch in 1650 (see Figure 2.3). The success of the adaptive reuse of heritage buildings in Malaysia can be seen in the Sultan Abdul Samad Building and the Central Market in Kuala Lumpur, and the Cheong Fatt Tze Mansion in Penang (Hadi et al., 2013). Several government buildings were identified to be reused as museums, memorials and art galleries to save cost and time, rather than constructing new buildings (Rashid, 2011).

Ever since Melaka and George Town, Penang were jointly inscribed as UNESCO World Heritage Sites in 2008 (UNESCO World Heritage Centre, 2016c), the number of conservation works has progressed rapidly. As a result, strategic planning was conceived as a means of ensuring the smooth proceeding of this initiative (Mydin et al., 2014b). The survival of heritage buildings in the historic cities of Melaka and George Town is essential to secure their continuous inscription as UNESCO World Heritage Sites. With the aim of reviving the cultural significance of the UNESCO World Heritage Sites, Henehan and Woodson (2004) noted that it is necessary to focus on building conservation ranging from complete restoration to adaptive reuse. Therefore, the Government of Malaysia paid serious attention to conservation works by enacting Act 645 (Kayan, 2006), whereby all state governments in Malaysia need to provide their own manual or set of guidelines for conservation work (Mydin et al., 2014b).

In the meantime, the Melaka and Penang State Governments prepared the Conservation Management Plan (CMP) and the Special Area Plan (SAP) for the Melaka and George Town World Heritage Sites to guide and control the development within the heritage area, in which the SAP was developed under the provision of the Town and Country Planning Act 1976 (Act 172) (Melaka JPBD, 2011; Penang JPBD, 2013). These two plans were submitted together to UNESCO for the purpose of nominating Melaka and George Town as UNESCO World Heritage Sites. For further clarification, the discussion on the CMP and SAP for the Melaka World Heritage Site can be found by referring to Subchapter 3.4.4, and the

drivers of and barriers to the adaptive reuse of Malaysian shophouses identified in previous studies can be seen in Subchapter 3.5.3.



Figure 2.3 The Stadthuys in Melaka was built by the Dutch as the office of the Dutch Governor and Deputy Governor, which is now home to the History and Ethnography Museum.

2.8 Drivers of and Barriers to Adaptive Reuse

The adaptive reuse of heritage buildings for other uses is a long and complicated process, because building preservations range from restoration to adaptive reuse (Hadi et al., 2013). In spite of the fact that the World Heritage Convention has established beneficial procedures and criteria for reuse selection of historic buildings, their application has been restricted because only autonomous assessment criteria have been considered in this matter (Wang & Zeng, 2010). Bullen and Love (2011c) have drawn attention to the fact that any assessment that considers the adaptive reuse of heritage buildings should also include criteria that ensure minimal impact on the cultural significance of the building. This is in keeping with the policy of the Department of the Environment and Heritage (2004), which indicated that the most successful adaptive reuse project will respect and retain the cultural significance of the building while adding a contemporary layer to it that offers value for the future. To make this happen, adaptive reuse may make changes resulting in a sizeable increase in usable space and the introduction of completely new standards and

services, particularly in circulation, lighting and air-conditioning, while maintaining the existing fabric of the building (Cantacuzino, 1975; Thompson, 1977).

Paradoxically, not all heritage buildings are suitable to be adapted for new uses. While adaptive reuse has been justified as an effective strategy for optimising building performance, there are always criteria for determining whether the building should be converted for a new use or simply demolished so that the site can be reused. It is suggested that any decision-making regarding adaptive reuse should be based on the drivers and barriers that are particular to each heritage building (Bullen & Love, 2010). This is intended to prevent a building from being obsolete faster because of an unsuitable use. Any assessment of suitability should aim to balance the needs of the occupants with considerations of sustainable adaptive reuse. According to Chua and Deguchi (2011), there should not be a 'one-size-fits-all' rule for the adaptive reuse of heritage buildings in a historic area. Instead, decisions should be made based on the concerns, expectations and wishes of the residents in an area. It would be very beneficial to study reused buildings, especially in presenting successful and less successful examples that could be referenced in the future as approaches to attaining sustainability (Bullen & Love, 2010). A successful adaptive reuse project should benefit the economy, the community and the quality of the urban space. The views of trusts, local government, amenity societies, rural development agencies and developers can help the professional teams to access a wide range of ideas and to offer an objective assessment of the possibilities (Latham, 2000).

According to Australia ICOMOS Incorporated (2013), regarding conservation practice, any changes to heritage buildings should be managed and implemented by people with relevant knowledge and skills. Therefore, Latham (2000) advocated that teamwork in adaptive reuse projects is essential for all surveying, briefing, conceiving, designing, costing, engineering, approving, funding, detailing, specifying, pricing, implementing, commissioning and occupying issues to be undertaken successfully. The involvement of professional teams in the design, management, technical and implementation skills area has become a growing trend in adaptive reuse projects (Latham, 2000), often replacing the traditional building owner-developer/architect/contractor arrangement. This effective and sustainable organisational pattern can integrate sustainable strategies into all phases of the project from the beginning, and, in turn, it can contribute to cost-saving measures in other areas (Rabun & Kelso, 2009).

As determined by Thompson (1977), any heritage building to be adapted for a new use needs close investigation by experts in several fields, such as the architect who can see the possibilities and the difficulties in reusing the building, the real estate/marketing consultant who can advise on rental or sale potential, the structural engineer who can give an opinion on the structural condition of the building and on what is needed to bring it into conformity with code requirements, and the contractor, if the job is being done on a pre-negotiated contract. These experts are fully aware of the impact that these constraints will have on the job. Other professionals such as mechanical and electrical engineers, civil engineers, sound engineers, building surveyors, land surveyors, quantity surveyors, land agents, interior designers, lighting designers, exhibition designers, landscape architects, clerks of work, solicitors, accountants, project managers, historians and archaeologists may be required to set the context (Latham, 2000). In addition, the role of local government should also be considered because the conservation officer is an advisor.

Therefore, when a building seems to be redundant in terms of its current function, the prime issue to be considered is whether it is more suitable or less suitable to be adapted for new uses (Kalman, 1991; Kincaid, 2002). Several studies have examined and identified nine aspects that can affect refurbishment, conversion and change of use decision-making based on the following aspects:

- ***Structural*** *(Sigsworth & Wilkinson, 1967; Kalman, 1991; Gause et al., 1996; Kincaid, 2002; Rabun & Kelso, 2009; Wang & Zeng, 2010; Remøy & van der Voordt, 2014)*
- ***Constructional*** *(Sigsworth & Wilkinson, 1967; Kalman, 1991; Kincaid, 2002; Rabun & Kelso, 2009; Wang & Zeng, 2010; Remøy & van der Voordt, 2014)*
- ***Spatial*** *(Sigsworth & Wilkinson, 1967; Kalman, 1991; Kincaid, 2002; Douglas, 2006; Wang & Zeng, 2010; Remøy & van der Voordt, 2014)*
- ***Servicing*** *(Sigsworth & Wilkinson, 1967; Kalman, 1991; Kincaid, 2002; Douglas, 2006; Rabun & Kelso, 2009; Wang & Zeng, 2010; Remøy & van der Voordt, 2014)*
- ***Financial*** *(Sigsworth & Wilkinson, 1967; Kalman, 1991; Gause et al., 1996; Heath, 2001; Douglas, 2006; Rabun & Kelso, 2009; Bullen & Love, 2010; Wang & Zeng, 2010; Remøy & van der Voordt, 2014; Wilkinson et al., 2014)*

- ***Environmental*** *(Sigsworth & Wilkinson, 1967; Gause et al., 1996; Kincaid, 2002; Douglas, 2006; Rabun & Kelso, 2009; Bullen & Love, 2010; Wang & Zeng, 2010; Wilkinson et al., 2014)*
- ***Locational*** *(Sigsworth & Wilkinson, 1967; Kalman, 1991; Gause et al., 1996; Heath, 2001; Kincaid, 2002; Remøy & van der Voordt, 2014; Wilkinson et al., 2014)*
- ***Social*** *(Gause et al., 1996; Douglas, 2006; Bullen & Love, 2010; Wang & Zeng, 2010; Young, 2012; Wilkinson et al., 2014)*
- ***Legal*** *(Kalman, 1991; Gause et al. 1996; Douglas, 2006; Rabun & Kelso, 2009; Bullen & Love, 2010; Wilkinson et al., 2014)*

2.8.1 Structural Aspects

According to Hadi et al. (2013), adaptive reuse is introduced to solve the structural aspects of the problem of heritage building obsolescence, because the physical nature of the building can become obsolete over time. Adaptive reuse allows the structure of the buildings to retain their historical integrity while meeting the needs of modern occupants (Worthing & Bond, 2007). Gause et al. (1996) perceptively stated that particular types of buildings can offer structural advantages for certain new uses. Warehouses, for instance, often have good parking available. This can be a positive aspect for most new uses, especially offices and retail space. The authors emphasised the fact that the structural integrity of older industrial facilities is usually very solid and that it can support the unconventional design and engineering approaches that might be necessary to suit the new use.

Nevertheless, adaptive reuse projects may create controversy in relation to the structural aspects. There can be a tendency to focus on the technical difficulties of heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). For example, Kalman (1991) discovered that dynamic cracks in the structural elements may become a serious problem and that they may need structural repair because a new use might impose additional loads and forces on the building. Kalman also advocated that a structural engineer should inspect the floor structure and calculate the amount of anticipated deflection under projected load conditions, especially when the intended use involves the placement of vibration-sensitive equipment.

As the building gets older, the structure will show more threats and defects, and there will be natural deterioration with the passage of time. This calls for increased maintenance during the adaptive reuse process (Shipley et al., 2006; Mydin et al., 2014b). In addition, adaptive reuse may not be a realistic option because planning control and building codes can limit the possibilities. For example, Mydin et al. (2014a) found that the restriction of regulations on extreme alterations intended to preserve the original character of a heritage building may expose heritage buildings with timber structures to fire as one of the most threatening hazards.

Formerly, buildings that were structurally sound could be adapted for new purposes without much in the way of theoretical reflection (Plevoets & van Cleempoel, 2012). Today, however, as time moves on, a heritage building being considered for conversion for a new use should be investigated by an architect, engineer or other qualified professionals as a means of providing an objective assessment of deterioration and deficiencies (Kalman, 1991). The factors related to the structural aspects that need to be observed include: type and condition of the structure; floor load capacity; and structural grid and section dimensions (Sigsworth & Wilkinson, 1967); intention to preserve, modify, remove or replace. Rabun and Kelso (2009) suggested a simple test that might be necessary in certain cases to reveal the challenges of the structural elements, in the event that a walk-around observation for adaptive reuse would not be sufficient.

A thorough investigation of the structural aspects of a heritage building will reveal the seriousness of any damage, identify problems that may need repair and ensure that the impact will not interfere with the proposed use. Bullen and Love (2010) suggested that whenever a heritage building is suitable for the particular proposed use, the extent of upgrading and adaptation required must be assessed to prevent excessive dilution of the cultural significance. Similarly, Mydin et al. (2014a) recommended that the existing building should be retained by strengthening, repairing and restoring its structural elements in the most sympathetic and least destructive way possible. A complete change to a heritage building could not be described as adaptive reuse (Chua & Deguchi, 2011).

2.8.2 Constructional Aspects

Like the structural aspects, adaptive reuse is introduced to overcome the problem of heritage building obsolescence in terms of constructional aspects, as the physical aspects of a building can become obsolete over time (Hadi et al., 2013). According to Bullen and Love (2011b) and the Department of the Environment and Heritage (2004), adaptive reuse is the only way to preserve and maintain the heritage significance of the fabric of a building, when the building can no longer function with its original use. Not only are the heritage buildings retained, the efforts, skills, education and styles of past workmanship of the original builders are also preserved as a testament to local history for future generation (Harun & Ismail, 2011). Mudarri and Fisk (2007) indicated that, through adaptive reuse, construction design is continuously restructured to meet modern demands, in step with the changes in technology and lifestyles.

Nonetheless, adaptive reuse projects may create controversy in relation to the constructional aspects. There can be a tendency to focus on the technical difficulties of heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). For example, Bullen and Love (2011b) found that it might be possible that the materials and components used in heritage buildings are no longer easily available and need to be manufactured to order. Even if they are available, there will be no guarantee of finding suitably qualified craftsmen domestically. In conservation strategy, authentic materials and construction techniques should be employed whenever possible, or equivalent materials with similar properties should be sourced (Mydin et al., 2014a).

Consistent with the findings of Bullen and Love (2010), perceived problems associated with the durability and natural depreciation of the external fabric, finishes and systems will influence the sustainability of heritage buildings, and will require more maintenance during the adaptive reuse process. The walls and roof serve not only to make the building solid and to keep out the weather, but also to establish its visual character (Kalman, 1991). Cracks in walls are common in older buildings and can often be easily repaired as part of normal maintenance procedures. Water penetration through the roof or the foundations is a common problem, and it may cause rot, dry rot or rising damp. Roof repairs should be a high priority and should precede the repair of any damage caused by

leaks. An insensitive effort to improve the appearance of heritage buildings can have disastrous effects on their appearance.

Kalman (1991) recommended that a heritage building being considered for conversion for a new use should be investigated by an architect, engineer or other qualified professionals as a means of providing an objective assessment of deterioration and deficiencies. The factors related to the constructional aspects that need to be observed include: type of construction and materials; cladding system and fenestration; partitioning and finish; and fabric age, condition and maintenance (Sigsworth & Wilkinson, 1967); intention to preserve, modify, remove or replace. Rabun and Kelso (2009) suggested a simple test that might be necessary in certain cases to reveal the challenges of the constructional elements, in the event that a walk-around observation for adaptive reuse would not be sufficient.

A thorough investigation of the constructional aspects of a heritage building will reveal the seriousness of any damage, identify problems that may need repair and ensure that the impact will not interfere with the proposed use. Bullen and Love (2010) suggested that whenever a heritage building is suitable for the particular proposed use, the extent of upgrading and adaptation required must be assessed to prevent excessive dilution of the cultural significance. Kalman (1991) recommended that the existing fabric, even minor elements such as cornices and porches that might be important and integral parts of the design should be retained in the most sympathetic and least destructive way possible. Facadism should be discouraged as it will mean gutting the building (Bullen & Love, 2011b). If exterior walls require cleaning, this should be done using a non-abrasive method such as steam, water or chemical cleaning. The Department of the Environment and Heritage (2004) proposed adding a contemporary layer to heritage buildings during adaptive reuse projects in order to offer value for the future. However, as in the case of the structural aspects, a complete change to a heritage building could not be considered to be adaptive reuse (Chua & Deguchi, 2011).

2.8.3 Spatial Aspects

According to Ball (1999) and Douglas (2006), adaptive reuse can be the most successful strategy for providing accommodation, particularly if a conservation strategy is

integrated into the design. In particular, public buildings were solidly built, and offer larger and more varied internal spaces and circulation areas (Kalman, 1991) than permitted 'plot ratio' for new buildings (Douglas, 2006). These large internal spaces can be decreased by subdivision while retaining their original appearance, in line with the Scottish Civic Trust (as cited in Douglas, 2006). Hadi et al. (2013) suggested that the reuse of an obsolete building to accommodate new activities, while maintaining its original character, represents a sustainable approach to preservation. In addition, older buildings, unlike new buildings, do not have to have a setback. Therefore, the owners of the building can make full use of the existing site (Douglas, 2006).

Nevertheless, adaptive reuse projects may create controversy in relation to the spatial aspects. There can be a tendency to focus on the technical difficulties of heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). Chua and Deguchi (2011) indicated that there could be a possible conflict of functions if the current uses cannot be adapted for new uses or vice versa. For instance, the building layout may be inappropriate and inefficient for any change of use (Shipley et al., 2006; Wilkinson et al., 2009; Bullen & Love, 2011a, c), especially when there are restrictions (Douglas, 2006). The disposition of space may inhibit efficient circulation of people or furniture, for example in galleries and storage areas, as stated by Kalman (1991). Apart from that, there is also an obstacle in relation to the more efficient use of the site because the building is already there (Douglas, 2006).

Kalman (1991) advocated that a heritage building being considered for conversion for a new use should be investigated by an architect, engineer or other qualified professionals as a means of providing an objective assessment of layout appropriateness. The factors related to the spatial aspects that need to be observed include: spatial configuration; floor plate size and floor depth; core and riser size and floor depth; core and riser size and locations; entrance and floor access arrangements; fire escape provisions; and planning grid dimensions (Sigsworth & Wilkinson, 1967); intention to preserve, modify, remove or replace.

A thorough investigation of the spatial aspects of a heritage building will determine the appropriateness and efficiency of the building layout, and ensure that the impact will not interfere with the proposed use. Bullen and Love (2010) suggested that whenever a heritage building is suitable for the particular proposed use, the extent of upgrading and

adaptation required must be assessed to prevent excessive dilution of the cultural significance. Similarly, Kalman (1991) recommended that it will be necessary to understand the layout of the building in order to plan for alterations that may be required. Measured drawings of the heritage building should be prepared under the direction of the project architect by including a plan of every floor, one or more vertical sections and exterior elevations. The location of load-bearing or non-load-bearing structural elements should be identified in the measured drawings because an adaptive reuse project may involve a certain number of structural changes to accommodate the spaces for the proposed use. Penetrating, altering or removing load-bearing walls or columns can be expensive or even impossible.

Next, the brief for the functional programme needs to be developed and, in adaptive reuse projects, this will differ significantly from new construction. The building owners and the consultants must judge whether the building is sufficiently adaptable to the requirements of the proposed use based on the brief. If the building is adaptable, the project team will continue the briefing process through to the technical programme, which will consider the constraints of the existing building (Kalman, 1991). The choice of design approach will be determined, to some extent, by the architectural and historic significance of the building. According to the Buildings Department (2012) and the Central Public Works Department (2013), if a building is heritage-listed, either declared or proposed, the design should attempt to emphasise its qualities sympathetically. In some cases, it may not be possible to incorporate the special technical needs required for the proposed use.

2.8.4 Servicing Aspects

Like the structural and constructional aspects, adaptive reuse is also introduced to overcome the problem of heritage building obsolescence in terms of the servicing aspects. This is because the physical life of the building can become obsolete over time (Hadi et al., 2013). Douglas (2006) pointed out that heritage buildings have already been provided with existing support systems. This means that the building owners can use most of the existing fittings and services to save the cost of purchasing and installing new components. Wherever possible, these support systems can be upgraded to meet the demands of proposed adaptation works, as prescribed by Martin and Gamzon (as cited in Luther, 1988)

and Douglas (2006). Nonetheless, adaptive reuse projects may create controversy in relation to the servicing aspects. There can be a tendency to focus on the technical difficulties of heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). According to Douglas (2006) and Bullen and Love (2010), older buildings, as opposed to new buildings, may have facilities that fail to meet current needs.

For instance, Kalman (1991) found that many older buildings will require new wiring and increased electrical services. This causes problems when the installation of new wiring could be awkward and expensive. In restoration work, wiring may need to be concealed. If a new transformer is needed, costs will rise even more. Care should be taken to make the transformer and the service meters inconspicuous. Embedded systems such as plumbing, electrical, heating and cooling, present special problems. They may still be functional, but they are likely to be outdated (Rabun & Kelso, 2009). In addition, Bullen and Love (2010) observed that there is no guarantee that converted heritage buildings will attract investors or tenants even if they use modern technology effectively. Adaptation does not necessarily overcome all the defects in performance. Often, these defects may be difficult and expensive to resolve (Douglas, 2006).

A heritage building being considered for conversion for a new use should be investigated by an architect, engineer or other qualified professionals as a means of providing an objective assessment of deterioration and deficiencies (Kalman, 1991). The factors related to the servicing aspects that need to be observed include: heating, ventilation and air-conditioning (HVAC) systems and distribution; duct space capacity; plant capacity and controls; power load capacity; information technology arrangements and capacity; plumbing system arrangements; and services age and condition; intention to preserve, modify, remove or replace (Sigsworth & Wilkinson, 1967). Rabun and Kelso (2009) suggested a simple test that might be necessary in certain cases to reveal the challenges of the servicing elements, in the event that a walk-around observation for adaptive reuse would not be sufficient.

A thorough investigation of the servicing aspects of a heritage building will reveal the seriousness of the damage, identify problems that may need repair and ensure that the impact will not interfere with the proposed use. Bullen and Love (2010) suggested that whenever a heritage building is suitable for the particular proposed use, the extent of

upgrading and adaptation required must be assessed to prevent excessive dilution of the cultural significance. Mydin et al. (2014a) recommended that the existing building should be retained by strengthening and repairing its servicing elements in the most sympathetic and least destructive way possible.

Rabun and Kelso (2009) advocated that it may be more practical to replace the outdated servicing elements before covering them up with modern finishes. In new buildings, electrical and mechanical systems typically make up 10% to 50% and 20% to 30% of the construction cost respectively. However, in existing buildings, the cost can be greater if a complete replacement is required. Therefore, to be cost effective, the existing electrical system should be maintained. This is because it would be unusual to find that electrical supplies and wiring are obsolete, inadequate or even hazardous for modern usages. Rabun and Kelso also recommended that reusing and replacing the HVAC and plumbing systems should be carefully planned, whenever possible. Even though most of the plumbing systems for the majority of buildings under consideration for reuse can be retained, the HVAC system may need to be replaced, unless the buildings already had some renovations in the past.

2.8.5 Financial Aspects

Financial aspects have proven to be a starting point for many building owners who are considering adaptation. Financial decision-making can be strongly linked to possible risks and to government incentives (Wilkinson et al., 2014). According to Jacobs (as cited in Christiaanse, 2012), the economic value of heritage buildings is inestimable and created by time. Even though the market sets the value of a building, there is substantial value in the style and character of heritage buildings (Douglas, 2006). Adaptive reuse can reduce the economic cost of continuous urban development and expansion. This is because the costs of reusing buildings are lower than the costs of demolition (Ball, 1999; Department of the Environment and Heritage, 2004; Douglas, 2006; Shipley et al., 2006; Wilkinson & Reed, 2008). Therefore, Hadi et al. (2013) concluded that this will lead to significant financial savings and profits. An effort to preserve the past for the future can generate considerable economic returns for building owners.

A previous study by Kalman (1991) showed that, often, the rehabilitation of heritage buildings has distinct economic advantages over new development. This can mean reduced cost per unit area of construction and being able to implement the project in a series of phases, thereby allowing work to proceed as money becomes available. The adaptation process is commonly much faster than for a new development because the infrastructure is already in place. This results in a shorter contract period and lower borrowing costs (Kalman, 1991; Douglas, 2006). Numerous heritage buildings were sold at a price below restoration costs, or purchased or leased below market price, sometimes for only a nominal cost. This makes for clear advantages in terms of costs in comparison with new properties (Kalman, 1991; Bone-Winkel & Matheis, 2012). Ellison et al. (2007) have drawn attention to the fact that the remaining utility and value of the heritage buildings could be improved by adapting and refurbishing them using an adaptive reuse process. Furthermore, adaptive reuse can increase government tax revenue, by preserving, renovating, rehabilitating or restoring a valuable old building (Thompson, 1977).

Nevertheless, adaptive reuse projects may create controversy in relation to the financial aspects. There can be a tendency to focus on the technical difficulties of heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). For example, Bullen and Love (2010) perceptively stated that there is limited research exploring the economic advantages of heritage buildings. There is also a situation where the building owners and developers have to consider the market environment by investigating the demand for a potentially reusable building. In this case, the effectiveness of a building is influenced by continuously changing market demands (Petersdorff et al., 2006). Low demand for reusable buildings will make the investment possibility impractical for developers. Rental income that can be earned from these buildings is unlikely to be as high as for new buildings that are more suited to contemporary requirements (Douglas, 2006).

Kalman (1991) and Bullen and Love (2010) emphasised that, even though adaptive reuse is often cheaper than new construction, the process may be expensive or unfeasible if the heritage building is not in a good structural condition, especially when the structure requires extensive strengthening. Estimating the cost of converting an existing building for a new use is considerably more difficult than estimating the cost of new construction (Gause et al., 1996). Bullen and Love (2010) stated that adaptive reuse would be uneconomic in

general, unless the building has some valued architectural traits or is heritage listed. It is also suggested that the age of materials, even if they have been refurbished, can make ongoing maintenance costs higher than for a new building (Douglas, 2006; Bullen & Love, 2010).

Therefore, there may be a possibility that heritage buildings are not being well maintained because of the high costs of repairs and maintenance (Kamal et al., 2005). For that reason, many existing buildings are becoming outdated and cannot be economically revalued to meet modern demands (Bullen & Love, 2010). This situation could drive up construction costs if there is an intention to conserve these buildings in the future (Douglas, 2006). From an environmental perspective, Douglas (2006) and Ellison et al. (2007) pointed out that refurbishing a heritage building in order to comply with the required standards with the aim of contributing to sustainability is likely to be more expensive than a standard reuse project. Apart from that, low-rise heritage buildings that did not fully make use of the available plot ratio or zoning were regarded to be an uneconomical proposal for reuse (Bullen & Love, 2010).

A heritage building being considered for conversion for a new use should be investigated by a real estate/marketing consultant, surveyor or other qualified professionals as a means of providing an objective assessment of the market potential, the relevant supply and demand situation, and competition and profitability (Bone-Winkel & Matheis, 2012). The factors related to the financial aspects that need to be observed include: current value; investment value; potential yield; increase in value post-adaptation; construction and development costs; and convertibility (Wilkinson et al., 2014). As indicated by Rabun and Kelso (1996), the pro forma analysis allows the building owner to explore the valuation of the property and to what extent modifications are cost effective, and thereby produce a positive return on the investment.

Kalman (1991) recommended that a detailed estimation of the capital construction costs must be made when the plans for an adaptive reuse project are completed by including a generous contingency sum, perhaps as high as 30% to allow for unforeseen work that may become evident only after construction has begun. This should be done with the assistance of a quantity surveyor. After the cost of the project has been estimated, sufficient capital funding must be obtained, including grants from government, foundations,

corporations, private donations, gifts-in-kind, waiving of services and charges, and bank loans (Kalman, 1991).

Kalman (1991) also stated that adaptive reuse projects can easily be phased to allow a limited capital budget to be extended over a period of time. This will also permit the facilities to be enlarged and altered gradually so that they are better suited to meet the changing needs of a potential use. Kalman suggested that a detailed operating budget that includes all projected expenses must be drawn up before making a final decision to proceed with the reuse project. There has to be an expectation that costs could increase if they are to cover energy aspects and building maintenance. To generate revenue, the converted heritage buildings can involve ancillary activities such as shops and restaurants. These activities may attract visitors, increasing the market for these activities (Kalman, 1991). Additional spaces may be found and used that can be leased to a commercial enterprise.

In the meantime, Gause et al. (1996) suggested that the first step a project manager should take in evaluating the feasibility of adapting an existing building for a new use is to perform a thorough analysis of the local market. Gause et al. advocated identifying a few alternative new uses that could be supported by local demand and then making detailed estimates of the costs of converting the building for each potential use. The best use for the building will emerge from a comparison of the income and potential costs of the alternative uses. Once the developer is convinced that a potential use has economic merit, more detailed analyses of the structure itself should be undertaken to identify the potential risks in design and construction, and to fine tune the cost and timing estimates (Gause et al., 1996).

An attempt to make heritage buildings appealing to developers as feasible reuse projects may rely heavily on the introduction of legislation that provides considerable financial benefits in the form of tax incentives. For instance, New York City's J-51 Program offers tax deductions and exemptions to developers who convert old buildings, not necessarily historic buildings, such as industrial lofts, into housing as a solution for affordable housing (Schmertz, 1982). Therefore, it can be seen that local demand and cost are amongst the major factors at play. Economic outcomes still have a tendency to be the point of reference for determining the suitability of heritage buildings for reuse, as stated by Bullen and Love (2010).

2.8.6 Environmental Aspects

According to Hadi et al. (2013), heritage conservation has been integrated with environmental and quality-of-life concerns in recent years. Many buildings with cultural significance have not been demolished. They have been converted for new uses with a focus on supporting sustainability within the built environment (Ball, 1999; Department of the Environment and Heritage, 2004; Douglas, 2006; Wilkinson et al., 2009). Cooper (2001) and Bromley et al. (2005) perceptively stated that a positive contribution to sustainability might be realised if more buildings could be reused and if demolition were kept to a minimum. Reusing the functionality of heritage building components and materials will mitigate carbon emissions, because it reduces energy expenditure. This can be done by saving building materials and transportation, reusing structural elements, and producing less waste, energy consumption and pollution (Douglas, 2006; Velthuis & Spennemann, 2007; Baum, 2012; Hadi et al., 2013; Remøy & van der Voordt, 2014). A study by Douglas (2006) found that many older buildings perform relatively well with respect to energy efficiency because of their high thermal capacity and slow thermal energy release, which reduces energy consumption.

In addition, Bullen and Love (2010) suggested that adaptive reuse is considered to be safer as it minimises the disturbance of hazardous materials and contaminated ground, and the risk of falling materials and dust, as no demolition work and new construction are required. Apart from allowing the indoor air quality to be improved, Bullen and Love also emphasised that adaptive reuse can prevent permanent loss of heritage. It can protect valuable environmental assets and also promote sensible use of natural capital consisting of renewable and non-renewable resources. As a consequence, it must be recognised that adaptive reuse can be considered as a sustainable alternative to demolition and redevelopment (Thomsen & van der Flier, 2011a; Zawawi & Abdullah, 2011; Tan et al., 2014, 2015). World Heritage properties also promote various continuous and proposed uses that are ecologically and culturally sustainable (Engels, 2015). As stated by Kalman (2014), the combination of heritage conservation and environmental concerns is central to the current sustainability agenda.

Nonetheless, adaptive reuse projects may create controversy in relation to the environmental aspects. There can be a tendency to focus on the technical difficulties of

heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). There is no guarantee that the internal or external environment of any heritage building will be improved (Douglas, 2006) and will become more environmentally sustainable after the adaptive reuse process. For example, Bartlett and Howard (2000) discovered that heritage buildings that were poorly designed and built in the past will not exceed their expected life, while environmentally sustainable buildings should be more sturdy, adaptable and durable in order to have an extended life. In some cases, there is a possibility that the heritage buildings may not meet the required standards for new buildings with respect to environmental flexibility (Bullen & Love, 2011b) and energy efficiency (Douglas, 2006). However, Bullen and Love (2010) observed that there is no guarantee that converted heritage buildings will attract investors or tenants even though they comply with environmental performance standards.

A problem often occurs when design professionals do not confront environmental factors during the adaptive reuse process. They wait until the design for the proposed use is finalised and submitted to the local government for approval. This may lead to the possibility of failure (Wang & Zeng, 2010). Nowadays, there is an urgent need to reduce carbon emissions from buildings. Therefore, any proposed development plan must protect and improve the natural built environment, as set out by the Department of Communities and Local Government (2015). For that reason, adaptive reuse is only suitable if the aims of environmental sustainability and reduced energy consumption are fully achieved (Thomsen & van der Flier, 2006).

Gause et al. (1996) indicated that some degree of environmental remediation is always required when reusing buildings built before the mid-1970s. The most frequently encountered polluting or poisonous substances that need to be eliminated from non-manufacturing facilities are asbestos in tile and pipe coating, lead-based paint and polychlorinated biphenyls. Gause et al. recommended that a heritage building being considered for conversion for a new use should be investigated by an environmental engineer or other qualified professionals as a means of conducting an environmental survey of the facilities. Buildings with excessive amounts of deleterious or hazardous materials may not be suitable for adaptive reuse. For example, asbestos may pose unacceptable risks to human health. However, this fact was challenged by Wilkinson et al. (2014) who proposed that these buildings can be converted as long as these issues are addressed.

Environmental concerns are also related to regulatory issues. For instance, the United Kingdom Building Regulations and the Building Code of Australia (BCA) have established minimum energy efficiency standards for some adaptive reuse projects.

The factors related to the environmental aspects that need to be observed include: type of internal air quality; internal environmental quality; existence of hazardous materials such as asbestos; and sustainability issues (Wilkinson et al., 2014). A thorough investigation of the environmental aspects of a heritage building will determine the extent of contamination in the structure itself and the estimated cost of removal, and ensure that the impact will not interfere with the proposed use. Bullen and Love (2010) suggested that whenever a heritage building is suitable for the particular proposed use, the extent of upgrading and adaptation required must be assessed to prevent excessive dilution of the cultural significance.

2.8.7 Locational Aspects

Location affects adaptation (Kincaid, 2002; Douglas, 2006). According to Wilkinson et al. (2014), the proximity of a converted building to a public transport network can be considered as an environmentally sustainable feature in adaptive reuse because it promotes car-free movement and reduces carbon emissions. Bullen and Love (2011b) and Yıldırım and Turan (2012) expressed similar views that adaptive reuse can convert heritage buildings into accessible and usable places. Bullen and Love (2011b) stated that reusing heritage buildings is preferable to replacing them, even though they have poor plot ratios and poor efficiency. Moreover, the quality of a new building, and the value of its location are not necessarily better than what went before (Ball, 1999). Hadi et al. (2013) commented that heritage buildings are always situated in advantageous locations in city centres.

Nevertheless, adaptive reuse projects may create controversy in relation to the locational aspects. Bullen and Love (2010) reported that adaptive reuse may be an unworkable option because planning can limit performance. For example, research by Luther (1988) suggested that, for nearly all design contracts in the private sector, the focus of attention is the building rather than the surrounding environment. Even though many heritage buildings are strategically located in busy urban quarters along established

transport routes, a constricted site may make it difficult to provide adequate loading areas and parking spaces (Kalman, 1991). Douglas (2006) also emphasised that the number of on-site parking facilities is considered vital for adaptive reuse, particularly when little or no public transport is available.

A heritage building being considered for conversion for a new use should be investigated by an architect, engineer, surveyor or other qualified professionals as a means of providing an objective assessment of location and land use (Kalman, 1991). The factors related to the locational aspects that need to be observed include: transport; access; land uses; existing planning zones; rezoning potential; and density of occupation (Wilkinson et al., 2014). Careful consideration should be given to a building's location and access. As indicated by Kalman (1991), if the potential use is for a public purpose, the converted heritage buildings should be easily accessible to the community. Location in the city centre or on a prominent public transport network will provide a better prospect for visitors. Other than that, the existing land use influences the potential for new or changed land use to some extent and this has been proven by the growing number of adaptations from office to residential use in Toronto, Canada during the 1990s arising from a proactive local government policy (Heath, 2001). A thorough investigation of the locational aspects of a heritage building will ensure that the impact will not interfere with the proposed use.

In parallel, Kalman (1991) recommended that the municipal zoning for the site should be investigated. Zoning is concerned with such factors as density, site coverage, setbacks and building height. The potential use of the existing buildings must be aligned with the uses that are permitted on a particular site. Kalman has drawn attention to the fact that buildings situated in residential areas may pose greater challenges than those situated in public areas. However, if changes on zoning are needed, local governments should be consulted before any decisions are made. Care should be taken if there is a new wing or an additional storey anticipated to ensure that these elements comply with existing zoning or that any necessary adjustment will be permitted by local government. It is also suggested that the zoning by-law should also specify the amount of off-street parking which must be provided (Kalman, 1991). This could be a serious and sensitive issue for a building in a residential neighbourhood, unlike buildings in city centre areas that have car parks available at evenings and weekends. Cars parked on quiet streets often bother local inhabitants, and local governments are sensitive to their reactions.

2.8.8 Social Aspects

Architectural, cultural and historic advantages have contributed to the importance of building conservation in the developed world (Douglas, 2006). The trend for adaptive reuse as a form of conservation fosters the growing creativity and innovation required in today's architectural practice. As stated by Petruzzelli (2008), heritage buildings being considered for new uses must have a strong sense of authenticity and inherent character in order to create a viable and regenerative development. Conserving urban environments can be defined as conserving the lifestyles and building forms of the past that recognised the character, landscape and history of historic urban quarters (Bullen & Love, 2010). It also promotes the concept of conservation as an approach to retain cultural significance through preservation, restoration, reconstruction and adaptation, as indicated in Fitch (as cited in Carmona et al., 2010), Australia ICOMOS Incorporated (2013) and Vollenhoven (2018). Apparently, preserving and reusing heritage buildings can be an important part of transforming urban environments into sustainable cities.

In the United States, for example, according to Young (2012), the opportunities for preserving and reusing historic buildings resulted from the destruction of the built environment because of urban regeneration and highway construction programmes as early as the 1940s. However, in 1954 and 1956, there was a gradual move, encouraged by federal funding, from new construction to conservation. This movement greatly affected the development of policies today, in which rehabilitation is promoted and demolition is not the only option available. This trend extended to the 1960s and 1970s. Unfortunately, in the 1970s, the withdrawal of invested funds was aggravated by an economic recession in numerous cities. Many properties began to deteriorate or were neglected completely. In the 1980s, there was change in preference from demolition to rehabilitation as a result of federal funding that was channelled to local governments (Young, 2012). These changes contributed to the revived interest in urban living in the built environment in the late 20th and early 21st centuries.

This trend also happened in the United Kingdom. As reported by Latham (2000), in the 1960s, the United Kingdom faced a sad episode in its urban history when a massive slum clearance programme removed whole sectors of inner city dwellings in the name of progress. These modern clearances replaced the familiar but condemned streets with a

variety of new housing forms, shopping precincts for a limited circle of high street retailers, and many featureless office blocks. Nevertheless, in the 1970s, people began to consider the future and the desire to preserve buildings grew. Latham also suggested that the real catalyst was to come in 1975, when the European Architectural Heritage Year used a mixture of education, subsidy and competitiveness to bring the movement to maturity. At the present time, conservation has come of age, and people now acknowledge the need to conserve the built heritage. Public awareness of, and interest in heritage building conservation has also flourished. The destruction of many significant buildings opened people's eyes to the value of these buildings (Petruzelli, 2008).

Social trends at the beginning of the 21st century demonstrate an increasing interest in living in urban quarters that offer a good quality of life, a short commute to work, walkability, local culture and entertainment prospects, and a sense of place (Young, 2012). Douglas (2006) and Langston et al. (2008) have expressed similar views that older buildings present social advantages such as essential heritage values. They can maintain the aesthetics of the streetscape, lend character and give prestige to the building owners. They also contribute to a sense of community and are often cherished by occupants for their pleasant working atmosphere. A reduction in the number of vacant and dilapidated buildings possibly adds vibrancy to communities, decreases crime and other unsocial behaviour, and improves living standards through further investment and rejuvenation, as recommended by Douglas (2006) and Langston et al. (2008). More broadly, adaptive reuse of heritage buildings can act as the pacemaker for urban development processes, especially in urban regeneration programmes where it can help to rejuvenate run-down urban quarters (Douglas, 2006; Schneider, 2012). On this basis it may be inferred that older buildings have significance and they also stand for the memories of society (Mine, 2013).

Nonetheless, adaptive reuse projects may create controversy in relation to the social aspect. The social factors influencing the continuous development and acceptance of preserving and reusing heritage buildings are widespread, and should be well recognised and accepted (Young, 2012). For instance, a recent experience by Wilkinson et al. (2014) showed that retaining cultural and social value may be valid in some cases. However, it is not suitable for very poor quality buildings or those that have a stigma related to a previous land use. Kucik (2004) suggested that stigma can make buildings inappropriate for adaptive reuse. However, the concept varies between countries. For example, in the United States,

prison buildings were deemed improbable to be appealing for conversion into residential units, although there was a successful example in Australia. Stigma concerns arising from the local social, cultural and traditional beliefs and environment could have an adverse effect on adaptive reuse decision-making.

In addition, the standards demanded by modern buildings and users for indoor air quality, thermal and acoustic performance may be not achievable, and this would prompt social protest against adaptation (Bullen, 2007). Furthermore, the creative element of a new building may be absent because adaptive reuse does not start with a blank canvas, even though creativity can be demonstrated by accommodating modern demands to old contexts. An extension of these arguments is the view that the architectural style of commercial buildings of the 1960s was no longer fashionable and that it was too unattractive to be retained and adapted, as emphasised by Douglas (2006) and Bullen (2007). Another criticism is that the social targets are not always achieved. The social goals of three major urban regeneration projects in the United Kingdom were all unsuccessful in relation to the desired social fusion of the project aims, although the economic goals were fulfilled (Bromley et al., 2005). Moreover, as stated by Wilkinson et al. (2014), hostile factors such as noise pollution, proximity to a noisy motorway or air traffic noise, and the presence of deleterious materials like asbestos, can give rise to social and economic obstacles that can make adaptation uneconomical.

A heritage building being considered for conversion for a new use should be investigated by an architect or other qualified professionals as a means of providing an objective assessment of the social impact on society and culture. The factors related to the social aspects that need to be observed include: community benefits in terms of historic listing; transport noise; retention of cultural past; urban regeneration; aesthetics; provision of additional facilities or amenities; proximity to hostile factors; and stigma (Wilkinson et al., 2014). A thorough investigation of the social aspects of a heritage building will ensure the impact will not interfere with the proposed use.

In parallel, Wilkinson et al. (2014) recommended that there should be some sort of selection method to ascertain which buildings should be retained, for example the heritage listing process that incudes buildings with cultural and social significance. It is a way of protecting architecturally or socially significant buildings for the broader benefit of society and culture (Ball, 2002). Even though there have been some eras during which buildings

were seen as too unattractive to be retained and adapted, for example commercial buildings in the 1950s and 1960s, it is likely that these buildings will be respected in the future if their external appearances are modified by adaptation.

Cantacuzino (1975) and Bullen and Love (2010) urged that the act of conserving portions of cities for the purpose of history, and then reusing those spaces for various uses, is being encouraged by increased calls for urban regeneration. Therefore, the social goals of adaptive reuse projects should be met. These goals encompass most of the social sustainability agenda such as creating job opportunities within the region, or providing affordable housing for local inhabitants (Wilkinson et al., 2014). Many cities now recognise adaptive reuse as a vital part of their urban regeneration programme even though many building owners and developers still consider that this process is not practical for heritage buildings. Therefore, the historic environment has begun to be a leading source of the urban regeneration process, with the conservation of heritage buildings as the key booster factor for this phenomenon (Strange & Whitney, 2003; Bullen & Love, 2010).

2.8.9 Legal Aspects

Concerning ownership, Kalman (1991) suggested that the heritage building to be adapted may be purchased outright, or may be leased, or, in some situations, a more innovative means of tenure could be arranged, such as shared use. Kalman observed that outright ownership through purchase provides the greatest degree of control and security of tenure. As an alternative, leasing may be the other option for an organisation with limited funds. It could have financial advantages by allowing the building to remain in public use at a nominal rent. Shared use is gaining popularity, whereby two or more different but complementary functions may take place under the same roof. Other than that, Bullen and Love (2010) advocated that the legal aspects should ensure that older buildings comply with modern building code requirements, thereby preventing them from becoming depressed, rundown and derelict.

Nevertheless, adaptive reuse projects may create controversy in relation to the legal aspects. There can be a tendency to focus on the technical difficulties facing heritage buildings, especially when they are undergoing renovation and refurbishment (Itard & Klunder, 2007). For instance, a building can have legal concerns associated with ownership,

transfer of ownership and leasing (Wilkinson et al., 2014). A previous study by Swallow (1997) showed that adaptation is affected by the tenure and the status of the person managing the process, whether he or she is the building owner or a tenant. It can be seen that purchase requires a considerable capital investment and the expense may place severe constraints on a low-budget non-profit organisation. Apart from that, there may be disadvantages to leasing because a landlord could assert rights of ownership and attempt to terminate the tenant's occupancy in the future. In addition, relatively few converted heritage buildings have taken advantage of shared use arrangements because of the specialised technical requirements of the buildings (Kalman, 1991).

Another legal aspect is the manner in which the building is occupied; an opportunity to adapt can arise if there is a single tenant before the lease lapses, rather than multiple tenants (Wilkinson et al. 2014). This is because, in multiple tenancies, it is improbable that all leases will lapse simultaneously. Therefore, the building may begin to be partly vacant before the building is available for adaptation. In addition, it is difficult for some older buildings to comply with building codes, especially when the codes involve the requirements for escape routes and the level of fire resistance (Douglas, 2006). Furthermore, according to Wilkinson et al. (2014), building codes globally embrace distinct coding systems regarding land use or building type. For example, in Australia the building classification may tend to favour one adaptive reuse over another to a greater or lesser extent. This could lead to more expensive and more complex processes such as the conversion of residential units for office classification under the BCA. In the meantime, there is a possibility that the degree to which a building can be adapted could be restricted by planning regulations. These conditions could have an impact on the feasibility of a proposal (Douglas, 2006). For instance, only permissible activities are allowed in heritage buildings in the Core Zone of Melaka for the sake of protecting the outstanding universal value of this UNESCO World Heritage Site.

Bullen and Love (2010) reported that adaptive reuse may be an unfeasible option as building codes can limit performance. Perceived problems are also associated with health and safety, whereby heritage buildings were commonly built without much thought given to fire protection and resistance. Most heritage buildings were constructed before there were building ordinances (Mydin et al., 2014a). In accordance with Melaka JPBD (2011) and Penang JPBD (2013), if a building to be conserved is presumed to be insecure, it should

be made secure using authentic materials and construction techniques. Examples of the growing trend for compliance can be seen in the form of disabled access requirements, smoke-free spaces, air circulation and cleaning protocols, toxic material avoidance, and energy performance targets. These factors can make older buildings begin to be obsolete faster as a consequence of their relatively lower rate of compliance (Wilkinson et al., 2014).

Kalman (1991) advocated that a heritage building being considered for conversion for a new use should be investigated by an architect, engineer, surveyor or other qualified professionals as a means of providing an objective assessment of the manner of tenure, and of the building code and fire code requirements. The factors related to the legal aspects that need to be observed include: ownership, meaning tenure; occupancy, either multiple or single tenants; building codes; fire codes; access acts; health and safety issues; and convertibility (Wilkinson et al., 2014). Rabun and Kelso (2009) suggested a simple test that might be necessary in certain cases to reveal the challenges of the fire code requirements, in the event that a walk-around observation for adaptive reuse would not be sufficient. A thorough investigation of the legal aspects of a heritage building will ensure that the impact will not interfere with the proposed use. Bullen and Love (2010) suggested that whenever a heritage building is suitable for the particular proposed use, the extent of upgrading and adaptation required must be assessed to prevent excessive dilution of the cultural significance.

In parallel, for an organisation with limited funds, Kalman (1991) recommended that it will be necessary to understand that the advocated ownership by purchase should be a priority only if secure occupancy is otherwise problematic, or if a major funding agency should insist upon ownership as a condition of financial support. Meanwhile, if the leasing option is chosen, the lease should be sufficiently long to allow the tenant to settle in securely and to plan for long-term stability. Relatively long-term control of the building could fulfil the eligibility requirement for some financial assistance programmes for upgrading and construction (Kalman, 1991). If the shared use option is chosen, an appropriate occupancy agreement should be drawn up among the users in the shared use arrangement.

Any significant alteration to a part of a building or a change in its use may require the entire structure to be brought up to conformity with the relevant building codes. Kalman (1991) has drawn attention to the fact that the regulations for fire separation of floors and partitions, and for emergency evacuation routes may be difficult to meet in some older

buildings. These codes control elements such as the width of corridors and stairways, the number of exits, the fire separation between walls and between storeys, the number of lavatories, and some other features of the building that relate to its use (Kalman, 1991). An architect who is experienced in rehabilitation work will be able to address these issues.

It would seem that one of the major challenges to the protection of heritage buildings is maintaining the architectural and historic significance to the greatest possible extent, while, at the same time, providing or ensuring a reasonable level of fire safety for the occupants and contents of the building (Salleh & Ahmad, 2009). If too many compromises are required, then it is possibly the case that the adaptive reuse project should not proceed, and an alternative use should be identified for that particular heritage building, or another building should be selected in its place.

2.9 Summary

The critical review and overview of building obsolescence and adaptive reuse presented in this chapter offers a number of key findings. In the relevant literature, it can be understood that obsolescence is commonly regarded as the decreasing performance of buildings due to rising expectations. It may occur due to internal or external conditions or a combination of these two elements, where the impact can be classified into correctable or non-correctable. Obsolescence can have wide range of causes, which can be categorised into eight factors. These factors are as follows: physical, functional, technological, economic, environmental, locational, social and legal. The ways to minimise obsolescence in heritage buildings are presented in the following eight strategies: preservation, restoration, reconstruction, adaptation, reconstitution, replication, facadism, and demolition and redevelopment.

Previous studies also justified adaptation for new uses or adaptive reuse as a sustainable solution for building obsolescence because it keeps the buildings in active use. Adaptative reuse can be defined as a form of conservation that revitalises an existing building by improving and replacing the materials and support systems, and making it fit for a new purpose, which is distinct from its original use, while retaining its original appearance. There are countless examples of buildings that have undergone adaptive reuse, especially in Malaysia and this is pivotal to the research in this thesis. Several studies

have examined and identified nine aspects that can affect refurbishment, conversion and change of use decision-making. These aspects are as follows: structural, constructional, spatial, servicing, financial, environmental, locational, social and legal.

Meanwhile, the next chapter (Chapter 3), consisting of four primary subchapters, will summarise and synthesise the current knowledge surrounding shophouses.

Chapter 3



Shophouses

3.1 Introduction

The third chapter summarises and synthesises the current knowledge surrounding shophouses. This chapter has an organisational pattern of four primary subchapters: overview of shophouses in Southeast Asia, evolution of Malaysian shophouses, shophouses in Melaka and inscription of Melaka as a UNESCO World Heritage Site.

3.2 Overview of Shophouses in Southeast Asia

A shophouse, as defined by Wakita and Shiraishi (2010), Henderson (2011) and Han and Beisi (2015), is a historic Asian 'mixed-used' building consisting of a small and narrow structure, with a retail area on the ground floor and living quarters on the upper floor(s). As a type of traditional Asian house with a commercial function, shophouses are a historic example reflecting trade and cultural exchanges on the Maritime Silk Road, which linked China and Southeast Asia (Han & Beisi, 2015) (see Figure 3.1). Shophouses are a vernacular architectural typology that is usually seen in Southern China and in the urban quarters of most Southeast Asian countries, such as Singapore, Thailand, Cambodia (Wakita & Shiraishi, 2010), Malaysia, the Philippines (Henderson, 2012), Indonesia, Vietnam (Hassan & Yahaya, 2012), Laos (UNESCO World Heritage Centre, 2016d) and Myanmar (Myint et al., 2006) (see Figure 3.2).

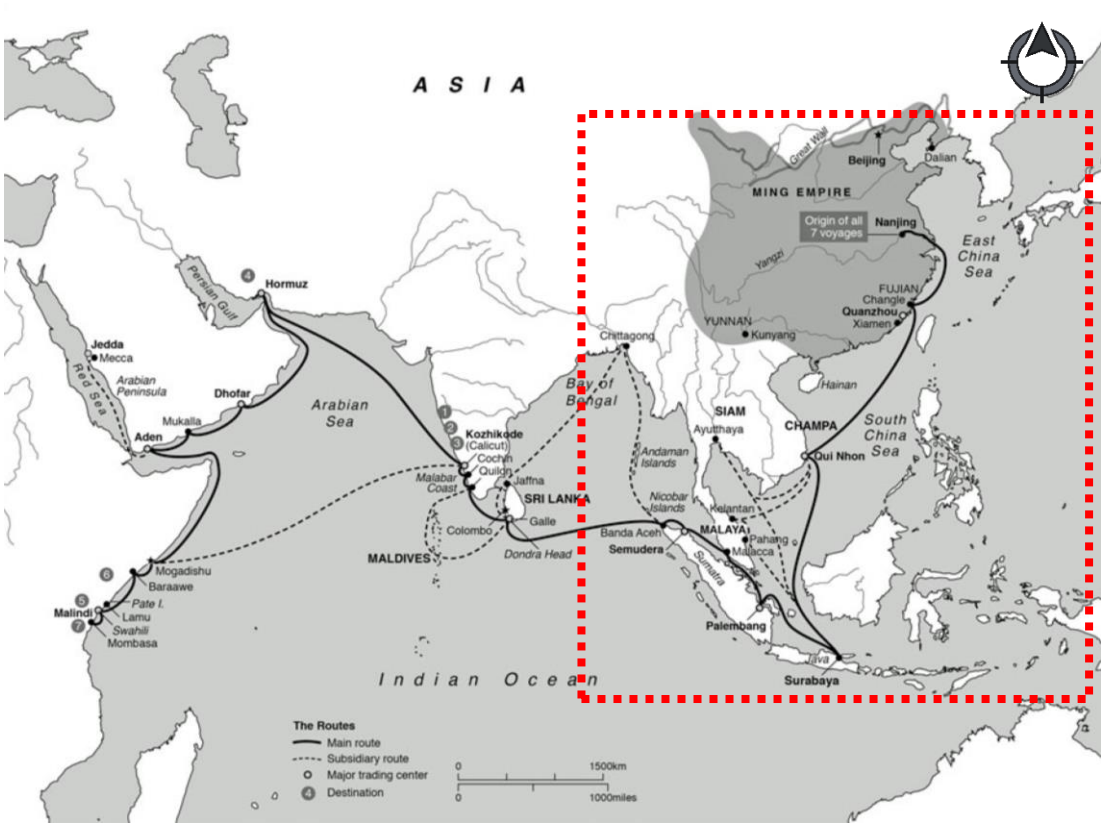


Figure 3.1 The Maritime Silk Road according to the expeditions of Zheng Ho from 1405 to 1433, which linked China and Southeast Asia (marked in red) (Sen, 2016, p. 610).



Figure 3.2 Shophouses are usually seen in the urban quarters of most Southeast Asian countries ("Southeast Asia", 2003).

Henderson (2011) and Ju and Omar (2017) perceptively stated that shophouses are typical and unique to Southeast Asia. They are often connected by a covered pavement about five feet wide known as a 'five-footway' (Wakita & Shiraishi, 2010; Henderson, 2011; Han & Beisi, 2015). The five-footway is a special characteristic of shophouses in Southeast Asia. The function is to shield pedestrians from the tropical sun and from heavy rain and they were originally erected in Singapore by Sir Stamford Raffles during the British occupation, as part of the 1882 Jackson Plan (Chen, 1998; Melaka JPBD, 2011). However, several shophouses do not have a continuous five-footway, especially those constructed during the Dutch colonial rule or before the implementation of the Jackson Plan (Lee, 2016). The exclusive relationship between shophouses and 11 Southeast Asian countries can be found below, mostly sourced from the UNESCO World Heritage Centre and from previous studies.

3.2.1 Malaysia

Melaka and George Town, Penang located in the west in Peninsular Malaysia, reflect a historic cultural fusion of the vernacular (Malay), Indian, Chinese and European influences. This fusion results in exceptional architecture, culture and townscape, for example the outstanding range of shophouses and townhouses (see Figure 3.3). These buildings represent various types and stages of development; some were established by the Portuguese in the 16th century, the Dutch (17th to 18th centuries) and the British (18th to 20th centuries) periods. The state governments concerned have developed the Conservation Management Plan (CMP) and the Special Area Plan (SAP) for the Melaka and George Town World Heritage Sites to guide and control the development within the heritage area, including preserving and converting shophouses (Melaka JPBD, 2011; Penang JPBD, 2013).

Shophouses were introduced to Malaysia by the second wave of Chinese immigrants at the time of the British occupation (Hassan & Yahaya, 2012; Mansor et al., 2012). Shophouses in Melaka and George Town receive more care and attention than those in other cities in Malaysia, as a result of the evolving heritage conservation commitments and the inscription of these two cities as UNESCO World Heritage Sites – Historic Cities of the Straits of Malacca in 2008. As reported by the UNESCO World Heritage Centre (2016c),

Melaka and George Town demonstrate a generally satisfactory state of conservation. However, greater efforts are necessary to ensure the conservation of shophouses such as to further improve the management plans and structures via the continuous conservation programmes.



Figure 3.3 Shophouses in George Town, Malaysia (Chow, 2018).

3.2.2 The Philippines

Vigan, which was founded in the 16th century, is the best example of a well-preserved organised Spanish colonial town in Asia. Vigan is located in the province of Ilocos Sur in the Philippines, and its architecture demonstrates a historic cultural fusion of the Philippines, China, Europe and Mexico resulting in an exceptional culture and townscape. However, it should be distinguished from the contemporary Spanish colonial towns in Latin America in the Historic Core. The Latin tradition in Vigan (known as the Mestizo District) is modified by the robust Chinese, Ilocano and Filipino influences (UNESCO World Heritage Centre, 2016a).

Most of the existing shophouses in Vigan were probably constructed in the mid-18th to late 19th centuries (see Figure 3.4). However, as reported by the UNESCO World Heritage Centre (2016a), very few shophouses remain unmodified or continue their original function as a retail area on the ground floor and living quarters for the building owners on the upper floor(s). Many shophouses have lost their originality because they have been completely

altered to allow new uses. A small number of shophouses have been abandoned and have deteriorated and become dilapidated. The realisation of the necessity to protect their originality has grown to a large extent since the nomination of Vigan as a UNESCO World Heritage Site – Historic Town of Vigan in 1999.



Figure 3.4 Shophouses in Vigan, Philippines (UNESCO World Heritage Centre, 2019a).

3.2.3 Vietnam

Hoi An, which is situated in Vietnam's central Quang Nam Province, illustrates a historic cultural fusion of the vernacular, Chinese, Japanese and European (French) influences to create this exceptional town. This town consists of a block of well-protected timber frame buildings, with brick or wooden walls, including shophouses, in use as commercial and domestic vernacular structures (see Figure 3.5). The remaining wooden structures and street plan are authentic, intact and represent a traditional townscape of the 17th and 18th centuries, in a manner which is incomparable in the region (UNESCO World Heritage Centre, 2016b).

Many of buildings in Hoi An were built from wood. As a result, they needed to be restored from time to time. Therefore, many of them with basic structures were rehabilitated in the 19th century, using traditional restoration techniques. Hoi An was listed as a UNESCO World Heritage Site – Hoi An Ancient Town in 1999, as reported by the UNESCO World Heritage Centre (2016b). The Master Plan for conserving, restoring and promoting Hoi An Ancient Town was approved by the Prime Minister in 2012 and it provides for the period up to 2025. Long-term management of the property should aim to enhance the living standards of the local inhabitants.



Figure 3.5 Shophouses in Hoi An, Vietnam (Buffay, 2018).

3.2.4 Laos

Luang Prabang, which is situated in northern Laos, is an outstanding example of a historic cultural fusion of Lao traditional urban architecture, and the 19th and 20th century European colonial style buildings. Luang Prabang architecture represents a combination of styles and materials. Most of the buildings are traditional wooden structures. Only the temples were built from stone, and one or two-storey brick houses represent the colonial

component of this town. According to Dearbon and Stallmeyer (2010), many of these Chinese shophouses were constructed by skilled Vietnamese labourers brought in by the French to execute French public works (see Figure 3.6). These shophouses combine commercial space on the ground floor with living space above or behind the shop area.

Luang Prabang was designated as a UNESCO World Heritage Site – Town of Luang Prabang in 1995, and all the noteworthy features, particularly the urban fabric and major monuments have been retained. However, as reported by the UNESCO World Heritage Centre (2016d), there are several threats to the site as a consequence of rapid urban expansion and strong economic forces, mostly related to tourism. These factors include building conversion, population departure and illegal construction. As a means of responding to new challenges, a wide buffer zone was established during the revision of the Urban Plan that was approved by the Prime Minister in 2012.



Figure 3.6 Shophouses in Luang Prabang, Laos (Zuma Press, 2016).

3.2.5 Singapore

Singapore used to be a typical colonial city, with a population that was half European and half native. It then became inhabited by Southern Chinese immigrants who

sought new lives in the trading post set up by Sir Stamford Raffles in the 19th century. According to Li (2007), these immigrants brought with them the 'blueprints' of the Southern Chinese shophouses which resulted in the unique typology of the Singapore shophouse (see Figure 3.7). A historic cultural fusion of the vernacular (Malay), Chinese and European (British) elements produced this type of shophouse as an expression of the eclectic and cosmopolitan nature of colonial Singapore. Erected between the 1840s and 1960s, these shophouses made up most of the pre-World War II urban fabric of the historic urban quarters as well as some other places in the country.

The shophouses in Singapore are small and narrow terraced houses with a covered five-footway at the front and they were used for commercial and residential purposes. They are generally two or three-storeys high and they are constructed in adjacent blocks with party walls. They still exist today, forming the bulk of gazetted conservation buildings in the country and they have been meticulously restored and conserved in accordance with the Conservation Guidelines, as reported by the Urban Redevelopment Authority (2016). Shophouses in Singapore are very similar to shophouses in Melaka and George Town in terms of styles and characteristics. This is because, as Straits Settlements, they were historically occupied by the same colonists, and because Singapore joined with Malaysia in 1963, becoming completely independent in 1965.



Figure 3.7 Shophouses in Singapore (DeeLish, 2011).

3.2.6 Thailand

In Bangkok, Thailand, the shophouses were constructed by King Rama IV and King Rama V in the 19th and 20th centuries to be rented out to ordinary people at low cost (see Figure 3.8). However, according to Sirisrisak (2009), the Master Plan of Conservation and Development of Rattanakosin, which was approved by the Cabinet on 4 July 1978, only concentrated on palaces, city and religious buildings. The legacy of the local inhabitants, such as the landscape of their everyday living, market and shophouses was not part of the Master Plan.

As a result of this phenomenon, a number of residences and shophouses which were judged to be insignificant were demolished. In order to deal with this issue, the city planning unit of the Bangkok Metropolitan Administration came up with special plans for the areas that were most impacted by the Master Plan, and these plans were successfully executed during the fiscal year 1997 to 1999. The conservation works on shophouses were mainly carried out by local communities with academic support from the local universities (Sirisrisak, 2009).

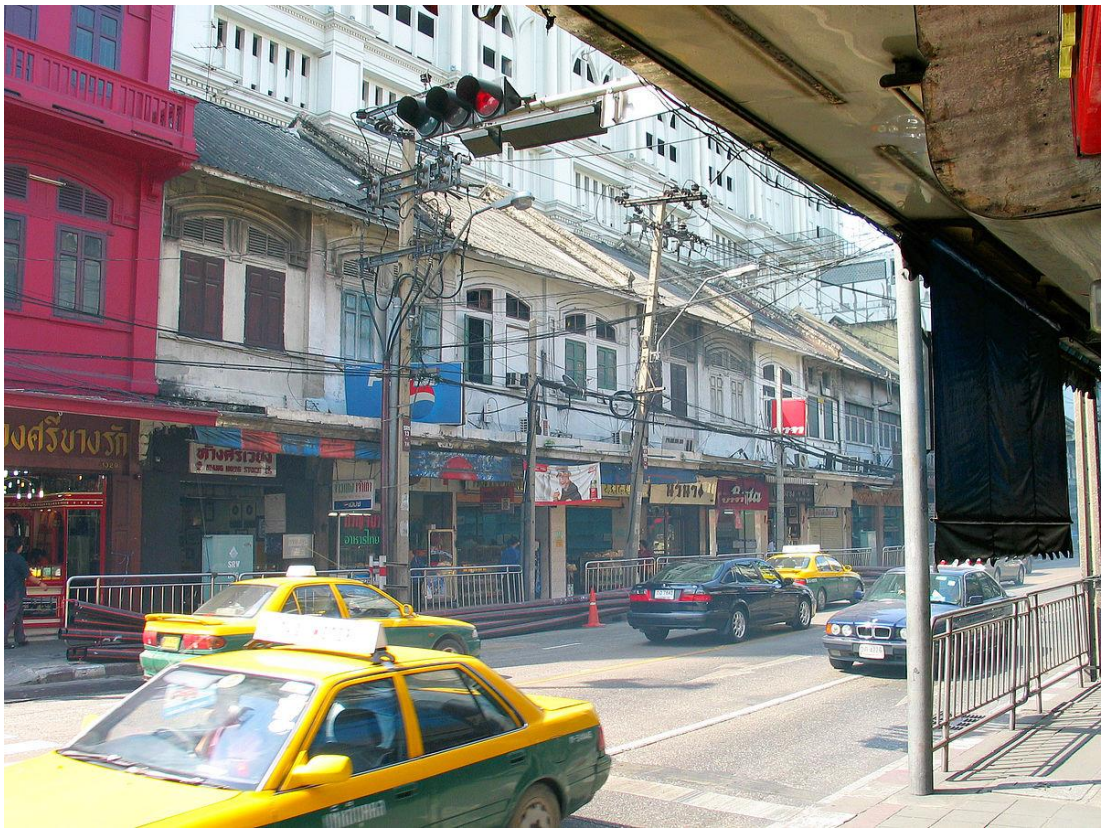


Figure 3.8 Shophouses in Bangkok, Thailand ("Charoen Krung Road", 2018).

3.2.7 Indonesia

According to Anggraini (2012), shophouses are not really the original type of residence in Yogyakarta, Indonesia. This was a new architectural typology introduced by Chinese Indonesians to the local inhabitants (see Figure 3.9). However, Anggraini suggested that the natives (Javanese) also established their own shophouse design, typically a single detached house with a segregated section for the shop, or the shop as part of the house plan but positioned in front of the rooms. Chinese shophouses became widespread in Java following the flood of Chinese immigrants from Southern China into Indonesia during the colonial period in the 16th century.



Figure 3.9 Shophouses in Yogyakarta, Indonesia ("Jalan Malioboro", 2019).

It has been suggested that the most primitive Chinese shophouses were converted farming houses that transformed the open space in the middle of the house into an air well. The orientation of the surrounding rooms inwardly to the air well was retained. Meanwhile, as in other Southeast Asian countries, the entire front section of the first floor of shophouses in Yogyakarta was employed for commercial purposes, living quarters being located at the back, on the second floor or in any additional areas. Most Chinese shophouses in this city that were constructed during the Dutch colonial period retain their original features for a

time. Over time, they were changed as a result of the influences or forces from locals (Javanese) (Anggraini, 2012) and from the colonial government (Dewi, as cited in Anggraini, 2012).

3.2.8 Myanmar

Yangon (formerly known as Rangoon), Myanmar (Burma) has a well-defined character in the clustering of its living quarters, which is very obvious in the downtown area, the most prominent being the Chinese district, commonly called 'Chinatown'. A study by Myint et al. (2006) found that typical Chinese shophouses, mainly two-storey, still survive, to a certain extent, in the downtown area. There are also three-storey many-shuttered shophouses in Yangon's Chinatown, in which each building is allowed to have a narrow staircase for every 25 feet of frontage (Birnbaum, 2000) (see Figure 3.10). They are similar to the Straits shophouses, although more massive in scale.



Figure 3.10 Shophouses in Yangon, Myanmar (Fesenko, 2018).

However, these shophouses are threatened by private construction companies, since this area has the highest land prices in Yangon City and the economic return is substantial, if they can be replaced with higher-storey buildings of the Hong Kong type,

usually consisting of eight floors. A more serious concern, as reported by Martin (2004), is that privately-owned buildings, such as Anglo-Indian shophouses, were not included in the heritage list prepared by the Myanmar government. This 1996 list included other colonial era buildings of a religious or official nature, even though these shophouses also served as vestiges of the British colonial rule of the early 20th century.

3.2.9 Cambodia

The shophouses in Phnom Penh, Cambodia, constructed when the country was under French rule in the 19th century, are generally composed of two-storey buildings with sloping roofs and veranda-ways on the ground floor. The field survey by Wakita and Shiraishi (2010) found that it was unlikely that French rule period shophouses would still be found in this country. It is believed that this type of shophouse has vanished due to massive urban regeneration after independence, from 1953 to the early 1960s. The absence of shophouses is also the result of the unpopulated city policy under Pol Pot, the confusion caused by the civil war of 1979 to 1991, and the rapid population influx occurring since 1993. Most shophouses are assumed to have been constructed after independence between the mid-1950s and the 1960s, while others were built after the 1990s (see Figure 3.11).



Figure 3.11 Shophouses in Phnom Penh (Mark, 2016).

3.2.10 Brunei

Brunei was a British protectorate from 1888 to 1984, as indicated by Singh (1984). There is no solid evidence of the existence of shophouses in this country. As specified by "Architecture of Brunei" (2012), the architectural style in Brunei has been transformed gradually over time and shows no sudden change, apart from during the introduction of Islam. The position of this country as a trading city for hundreds of years resulted in the slow influx of Indian and Chinese influences, until the arrival of Islam in the 1400s, which introduced major style changes. The most significant transformation at that time was a change of structure rather than a change of style. Many mosques and other Islamic buildings were built. With the passage of time, the British introduced several changes in terms of new construction techniques and materials. As a result, many commercial, public and religious buildings in Brunei nowadays were erected using this new technology.

3.2.11 Timor-Leste

Timor-Leste was colonised by Portugal in the 16th century and then invaded and occupied by Indonesia from 1975 until its independence, which was finally achieved in 2002, as noted by Gunderson (2015). As in Brunei, there is no solid evidence of the existence of shophouses in this country. As demonstrated in the "Architecture of Timor-Leste" (2012), even though Timor-Leste was exposed to the Portuguese influence for a long time, there are few Portuguese style buildings in this country, mostly churches or buildings in the capital, Dili. Consistent with the Portuguese construction techniques that traditionally use stone, concrete and other solid materials, this country nowadays has a reasonable number of modern buildings that are built mainly from concrete and glass.

3.2.12 Summary of Subchapter 3.2

Supporting the above evidence, recent studies by Hassan and Yahaya (2012), Mansor et al. (2012), Abdullah (2013) and Han and Beisi (2015) also acknowledged that the history of shophouses in Southeast Asia began when the Chinese immigrants gradually introduced this new architectural typology to the coastal areas of Southeast Asia along the

Maritime Silk Road. The historic reasons were to satisfy commercial and residential needs. Ismail and Shamsuddin (2005) and Melaka JPBD (2011) showed that these Chinese immigrants came mostly from the southern coastal provinces of China. It is believed that, since the 15th century, China wished to establish international relations with Southeast Asian countries.

With the arrival of Western colonists such as the Portuguese, the Dutch, the British, the Spanish and the French, shophouses in coastal trading cities of Southeast Asia became unique buildings as a result of the hybrid of vernacular, Southern Chinese and European styles. Kaye (1961), Ismail and Shamsuddin (2005) and Chun et al. (2005) stated that the shophouse form in Singapore and Malaysia signifies a distinctive amalgamation of Asian building design and construction with European colonial architecture and planning. The same is true of the Philippines, Vietnam, Laos, Indonesia, Myanmar and Cambodia, but not of Thailand. This is because Thailand is the only country in Southeast Asia that was never colonised by Europeans. In addition, there is no conclusive evidence of the existence of shophouses in Brunei and Timor-Leste.

Typically, the 19th and 20th century shophouse styles in Southeast Asia range from Early (1840s to 1890s), Transitional (separated into First in the early 1890s and Second in the late 1930s), Late (1900s to 1940s) to Art Deco (1930s to 1960s) during the colonial period, as clarified by the Urban Redevelopment Authority (as cited in Henderson, 2011). Nevertheless, after this era, the shophouses became old and dilapidated, and this led to some of them being abandoned, demolished or burned down (Kaye, 1961). As a result, the economic and socio-cultural roles of heritage have become officially recognised in most Southeast Asian countries (Henderson, 2012) with four of them (Malaysia, the Philippines, Vietnam and Laos) being inscribed as UNESCO World Heritage Sites referring to shophouses. There are now legal provisions for heritage conservation including the restoration of shophouses and their recognition as a remarkable indication of historic cultural fusion.

3.3 Evolution of Malaysian Shophouses

The evidence seems to be robust that Malaysia should be given more attention than other Southeast Asian countries regarding shophouses conservation. Shophouses can be

seen in many major cities in Malaysia such as Melaka, George Town, Kuala Lumpur, Ipoh and Taiping. Although shophouses in Melaka and George Town have been recognised as part of the UNESCO World Heritage Sites, as have shophouses in the Philippines, Vietnam and Laos, greater efforts are required to ensure the conservation of this unique heritage building typology (UNESCO World Heritage Centre, 2016c) (see Figure 3.12). Furthermore, Malaysia is the newest country declared among the UNESCO World Heritage Sites in Southeast Asia in relation to the protection of shophouses. Therefore, there is a possibility that conservation practices in Malaysia still need to be improved compared to those in other listed Southeast Asian countries. Malaysia is also the Southeast Asian country that was most frequently colonised by Europeans (Portuguese, Dutch and British) and this has resulted in the complex hybrid architectural typology of shophouses.



Figure 3.12 Melaka and George Town, Penang (Malay: Pulau Pinang) (marked in red) have been inscribed as UNESCO World Heritage Sites – Historic Cities of the Straits of Malacca in 2008 ("Large Detailed Administrative", 2015).

Gurstein (1987) stated that Malaysia began as a village-based society, and that it does not have a long historical urban tradition. The major urban quarters such as Melaka and George Town became part of strategic trade routes. In the past 200 years, as a result of colonialism, Kuala Lumpur, Ipoh and Taiping were established as centres of tin-mining

activity. Previous morphological studies indicated that the shophouses, markets and places of worship can be considered as the primary elements in the evolution of the historic urban quarters of Malaysia (Ismail & Shamsuddin, 2005). Shophouses became a momentous urban archetype, and they now seem to be the dominant heritage building typology in the Core Zones of Melaka and George Town (Melaka JPBD, 2011; Penang JPBD, 2013) (see Figure 3.13). There are more than two thousand shophouses in these two areas, mostly privately-owned and composed of two and three-storey buildings.

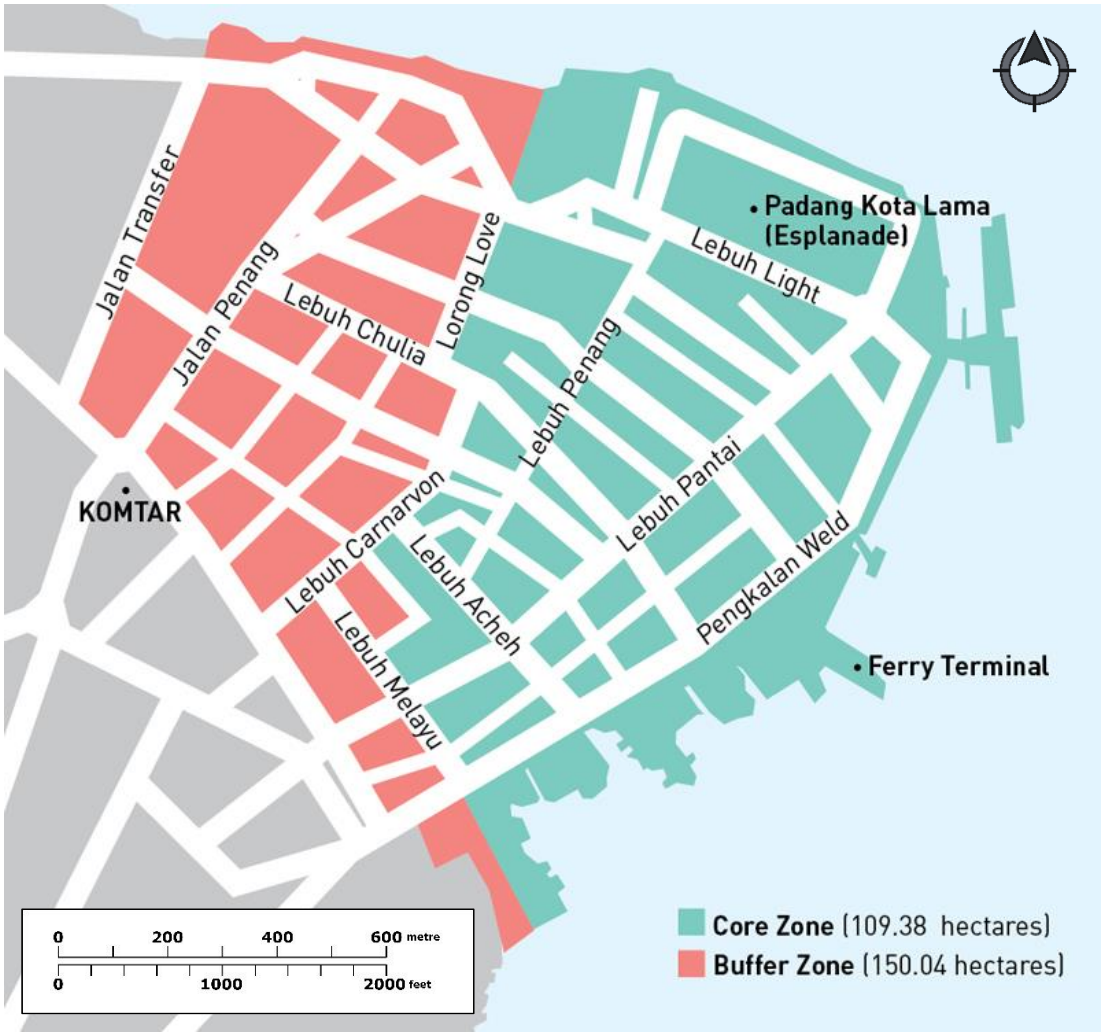


Figure 3.13 Shophouses seem to be the dominant heritage building typology in the Core Zone of George Town (Penang Global Tourism, 2018).

The UNESCO World Heritage Centre (2016c) clearly stated that Melaka and George Town have a history of over 500 years of trading and cultural interchanges between East and West in the Straits of Malacca. Asian and European influences have made a substantial impact on these two cities, resulting in a multicultural heritage comprising tangible and

intangible attributes. Melaka displays the early stages of this history that began with the Malay Sultanate in the 15th century until it fell to the Portuguese, the Dutch and the British in the 16th, 17th and 18th centuries (Ertan & Eğercioğlu, 2016; UNESCO World Heritage Centre, 2016c) (see Figure 3.14). This situation created a diversity of architectural typologies in Melaka including government buildings, churches, squares and fortresses. In the meantime, George Town represents the British period of the 18th century with its commercial and residential buildings, as described by the UNESCO World Heritage Centre (2016c). With a long urban history, both cities have experienced a hybrid of styles, mainly the Malay and Southern Chinese with the addition of various European cultures. The unique architectural and cultural townscape has resulted in their inscription as the UNESCO World Heritage Sites in 2008.

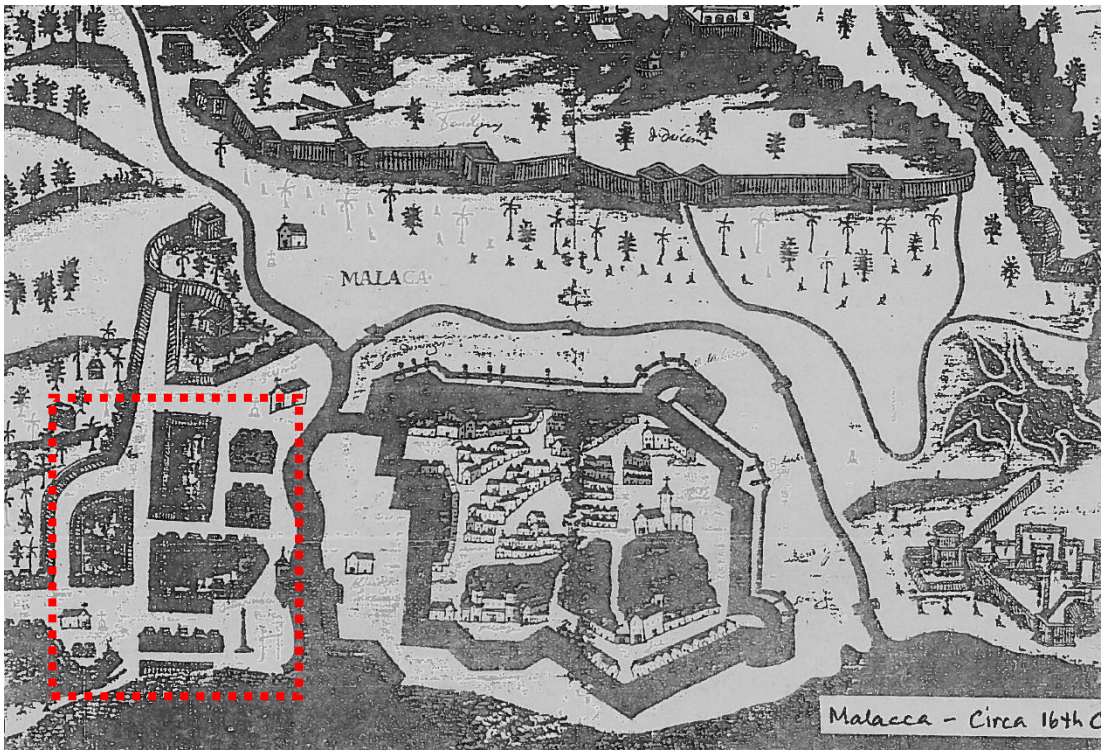


Figure 3.14 Melaka in the 16th century, during the Portuguese occupation, where the current position of shophouses in the Core Zone is located on the left (marked in red).

It is believed that the Melaka Malay Sultanate set up trade and close diplomatic relations with China in the 15th century leading to the arrival of the first wave of Chinese immigrants (Abdullah, 2013). However, there is no physical evidence to prove the shophouses were built in Melaka during this period. The 17th century Dutch style shophouses in Melaka can be assumed to be the most primitive shophouses documented in

Malaysia, as reported by Baroldin and Din (2012) and Mansor et al. (2012). These first shophouses can still be seen at Jalan Tun Tan Cheng Lock (Chen, 1998). They were originally known as rowhouses (Chen, 1998; Han & Beisi, 2015) or townhouses (Chen, 1998; Ju & Omar, 2017). Built by the Dutch, this architectural typology served as accommodation for the officers. They did not have trading activities or continuous five-footways (Ismail, 2012, 2013). They were converted into shophouses during the British occupation (Ismail, 2012, 2013; Ju & Omar, 2017) by Chinese immigrants (Ju & Omar, 2017).

According to Hassan and Yahaya (2012), Mansor et al. (2012) and Abdullah (2013), the second wave of Chinese immigrants were cheap labourers brought to Peninsular Malaysia by the British in the 1800s to work in the tin mining industry and in shipping and trading activities. Most of them came from several provinces of Southern China including Guangdong (traditionally romanised as Kwangtung), Fujian (Fukien), Zhejiang (Chekiang) and Jiangxi (Kiangsi), and from distinctive tribes such as the Hokkien, Cantonese, Teochew and Hakka. Therefore, a new architectural typology was required to satisfy the commercial and residential needs of these new immigrants. As a result, Chinese shophouses in the Southern China style were constructed in Peninsular Malaysia, and in Melaka and George Town at the time of the British occupation, as can be seen in the original blueprints (Li, 2007; Hassan & Yahaya, 2012) (see Figure 3.15). The existence of this new architectural typology made an aesthetic contribution to the development of shophouse architecture, especially in Malaysia.

It is believed that the close relationship between the Chinese and the British accounts for the influence of European architecture on Chinese shophouses. Hassan and Yahaya (2012) discovered that, during the British occupation, some Chinese labourers became small entrepreneurs. Hassan and Yahaya suggested that this occupational transition marked the evolution of shophouse architecture in Southeast Asia from *attap*[1] shophouses into fully European shophouses. European styles were adopted and the Chinese entrepreneurs associated themselves with the foreigners (Ahmad, 1994). The intermarriage between the male Chinese merchants and the local women of Malay origin at this time resulted in the formation of a new community known as the Chinese guard, Chinese

[1] *Attap* – Thatch made in Southeast Asia from palm fronds.

Peranakan, or Baba and Nyonya (Abdullah, 2013; Melaka BPP, 2016). This wealthy elite ethnic group is very significant for the Straits Eclectic style shophouses in Melaka and George Town, as shown by Ahmad (1994). Trade might be the main factor that contributed to the formation and existence of this new ethnic group.



Figure 3.15 The Core Zone of Melaka in 1890, during the British occupation, where Chinese shophouses were introduced to satisfy the needs of Chinese immigrants.

The fusion of various aesthetic traditions created a unique style in the shophouse designs of that period. Examples include shophouses in Melaka showing an assimilation of cross-cultural traditions between Malay style, Southern Chinese construction techniques and the Dutch tradition of systematic land division (Firley & Stahl, as cited in Han & Beisi, 2015). At the same time, the influences of the Chinese courtyard house and the Dutch bungalow can also be seen in these shophouses (Widodo, as cited in Han & Beisi, 2015). The exclusive shophouse designs of Melaka are without parallel anywhere in Southeast Asia. They are characterised by their multicultural heritage in the vernacular and Indo-Malay sculptured wooden panels and fascia boards, the Chinese mythical images, the Indian Mughal arches, the British neo-classical components of the Georgian and Regency periods, the fashionable Art Deco style and elements of modern architecture (Melaka JPBD, 2011).

3.4 Shophouses in Melaka

Shophouses in Melaka and George Town have been recognised as part of the UNESCO World Heritage Sites (UNESCO World Heritage Centre, 2016c). However, there are reasons why the research in this thesis only concentrates on shophouses in Melaka. These reasons are explained in detail in Subchapter 8.5. As mentioned in Subchapter 3.3, shophouses in Melaka were mainly subject to the Malay, Southern Chinese and European (Dutch and British) influences. The combination of these historic features characterises this architectural typology as a unique tangible heritage and this can be seen in their urban and street context, and their styles and characteristics that make a significant contribution to the inscription of Melaka as a UNESCO World Heritage Site. So as to secure the continuous inscription, a series of legal provisions have been enacted by the Melaka Historic City Council (MBMB) to protect shophouses in the city, particularly in the Core Zone and Buffer Zone of Melaka.

3.4.1 Shophouses in an Urban and Street Context

Han and Beisi (2015) indicated that the urban spatial layout of shophouses in Melaka can be classified as Compounded Type, like most urban settlements in other Asian countries (see Figure 3.16). The Compounded Type consists of two or three of the following settlement types: Banded (buildings are lined up, with their shop areas facing the street), Tree (the trunk and branches coexist in one settlement) and Enclosed (shophouses are divided into different enclosed groups) all of which can be accommodated in one settlement concurrently. According to different settings and planning requirements, two or three of these types are merged organically to illustrate their own spatial features. Therefore, the diversity of urban settlements can be fully demonstrated.

As a consequence, several shophouses in Melaka may be located in an area with strong spatial sequences and convenient traffic conditions, while others have busier traffic, especially at the intersections of the trunk and branches, something that should be considered by the authorities in traffic management plans. Meanwhile, there are shophouses with separate commercial and residential entries, leading to an inside network of narrow lanes that can be used as residential routes. This kind of settlement enhances

the privacy of nearby residents (Chua & Deguchi, 2011). According to Han and Beisi (2015), the street interface can be categorised into two types comprising double-sided streets and single-sided streets, based on the respective position of the streets and the building facade. In Melaka, most of the streets can be grouped as double-sided streets, with a commercial interface on both sides. This commercial interface consists of roof, facade and ground floor. It plays a substantial role in the spatial construction of historic shophouses by connecting external commercial space to internal living space.



Figure 3.16 Urban spatial layout of shophouses in Melaka can be classified as Compounded Type.

3.4.2 Styles of Shophouses

Melaka JPBD (2011) drew attention to the fact that the shophouses in Melaka and George Town possess identical building materials, construction techniques, ornamentation and elements. The variety of shophouse styles in both cities ranges from Dutch (Melaka only), Southern China, Early Shophouse, Early Transitional, Early Straits Eclectic, Late Straits Eclectic, Neo-Classical, Art Deco to Early Modern depending on the different period of their construction, as stated by Baroldin and Din (2012) and Mansor et al. (2012). In addition, there are also other shophouse styles such Palladian, Baroque, Chinese Urban Courtyard House and Straits Colonial but they are not viewed as significant because of the

small number of these buildings. Nevertheless, only six main shophouse styles in Melaka are taken into consideration by MBMB from the numerous styles that exist. This information has been inserted into the CMP and SAP as a reference for the building owners and professional experts. These six styles consist of: Dutch, Southern China, Early Straits Eclectic, Late Straits Eclectic, Art Deco and Modern (Melaka JPBD, 2011) (see Figure 3.17). They are described as follows:

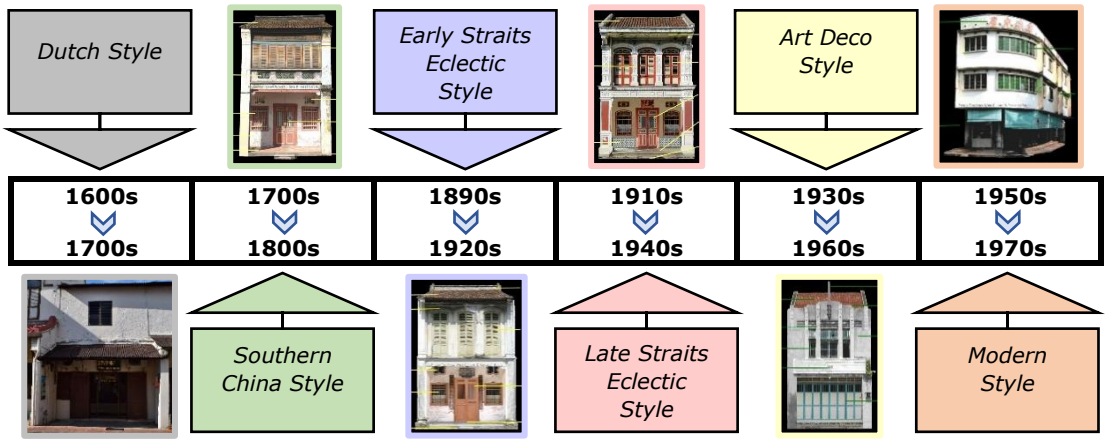


Figure 3.17 Styles of shophouses in Melaka in chronological order.

(a) Dutch Style (1600s-1700s)

The Dutch style shophouses are the earliest type of shophouse ever documented in Malaysia and they can only be found in Melaka, as reported by Baroldin and Din (2012) and Mansor et al. (2012), mainly at Jalan Tun Tan Cheng Lock (Chen, 1998) (see Figure 3.18). This type of shophouse was primarily built by the Dutch in the 17th century and the shophouses were originally known as rowhouses (Chen, 1998; Han & Beisi, 2015) or townhouses (Chen, 1998; Ju & Omar, 2017). These rowhouses were built to accommodate officers, and there were no trading activities or continuous five-footways (Ismail, 2012, 2013). They were converted into shophouses during the British occupation (Ismail, 2012, 2013; Ju & Omar, 2017) by Chinese immigrants (Ju & Omar, 2017).

Consistent with Baroldin and Din (2012) and Mansor et al. (2012), the Dutch style shophouses comprise one or two-storeys with a simple facade design, a central door with a window at each side, and limited openings on the upper floor with either one or two windows. There is no continuous five-footway to connect this shophouse to the neighbouring buildings; there is a private entrance porch. Buildings in this style used Dutch brick and lime plaster for the walls and timber for the roof structure.



Figure 3.18 The facade of a Dutch style shophouse.

(b) Southern China Style (1700s-1800s)

The Chinese population in Melaka came predominantly from several provinces of Southern China. The origin of this ethnic group can be tracked based on two circumstances: the first wave was the Chinese immigrants who migrated to Melaka during the Melaka Malay Sultanate in the 15th century (Abdullah, 2013), and the second wave was the Chinese immigrants who were brought by the British in 1800s to Peninsular Malaysia to work in the tin mining industry and in shipping and trading activities (Hassan & Yahaya, 2012; Mansor et al., 2012; Abdullah, 2013). However, there is no physical evidence to prove that Chinese shophouses were built in Melaka during the first wave of migration. Some of the Chinese immigrants worked as artisans, leading to the introduction of Chinese shophouses in the Southern China style in Melaka during the British occupation, as can be seen in the original blueprints (Li, 2007; Hassan & Yahaya, 2012), which include architectural details and descriptions of building materials (Penang Shophouse, 2016) (see Figure 3.19).

According to Baroldin and Din (2012) and Mansor et al. (2012), the architectural tradition of the Southern China style shophouses was based on a modified version of the 'Chinese National' or 'Northern Style', which is expressed in the symbolism of the ornamentations intended to convey luck, direction, seasons, wind and constellations. The primary design concept for this type of shophouse involved having a courtyard, emphasising

the roof, exposing the structural elements, and colouring the building, floor finishes and other elements. Buildings in this style used lime plaster for the walls and timber for the roof structure.

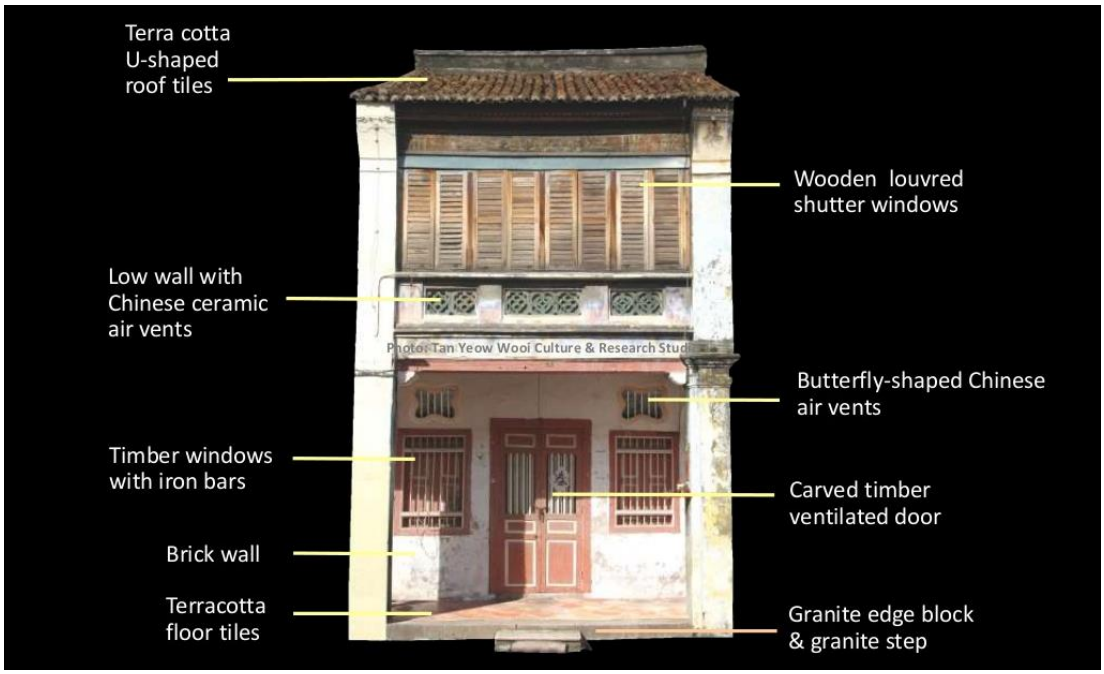


Figure 3.19 The facade of a Southern China style shophouse (Penang Shophouse, 2018f).

(c) Early Straits Eclectic Style (1890s-1920s)

The wealth from the boom in tin prices during this period allowed the decorative facades of shophouses to be upgraded (Penang Shophouse, 2016). Education and exposure to European culture led to the introduction of the decorative styles and materials of Western architecture, which eventually contributed to the emergence of the Straits Eclectic style. At the same time, according to Abdullah (2013), marriage between the Chinese and the Malays at this time resulted in a wealthy elite ethnic group known as the Chinese guard, Chinese Peranakan, or Baba and Nyonya. This was a significant group in the history of the Straits Eclectic style shophouses in Melaka and George Town (Ahmad, 1994).

The original Straits Eclectic style was developed with bipartite windows, or often tripartite moulded windows, as suggested by Lim (1993). The lower facade of the Early Straits Eclectic style shophouses generally incorporates Chinese air vents, a carved timber ventilated door, carved timber ventilated windows with iron bars, geometric pattern cement floor tiles, and granite edge block and step, as recorded by Penang Shophouse (2016) (see Figure 3.20). The air vents embody the economic elegance shown in the architectural

composition in the form of a square or a diamond (Baroldin & Din, 2012; Mansor et al., 2012). Penang Shophouse (2016) pointed out that the upper facade was composed of a row ridge with a variety of Chinese gable ends, 'V'- or 'U'-shaped terracotta roof tiles, plaster arches with central keystones, and full-length louvre windows (Venetians). The fanlights above the windows are usually arched or rectangular, finished with glazing, grille work or fixed timber louvres (Lim, 1993).

Studies by Baroldin and Din (2012) and Mansor et al. (2012) showed that the transitional styles of this type of shophouse were expressed in the restrained use of ornamentation on the facade. This style integrates many of the 'grand' classical features, which were redefined and adopted to suit the vernacular shophouses and may comprise pediments, pilasters, plaster arches and central keystones. In the meantime, the emergence of reinforced concrete in the 1910s enabled wider roof overhangs and more complex cantilevered brackets, which appeared from above the pilaster facades (Lim, 1993).

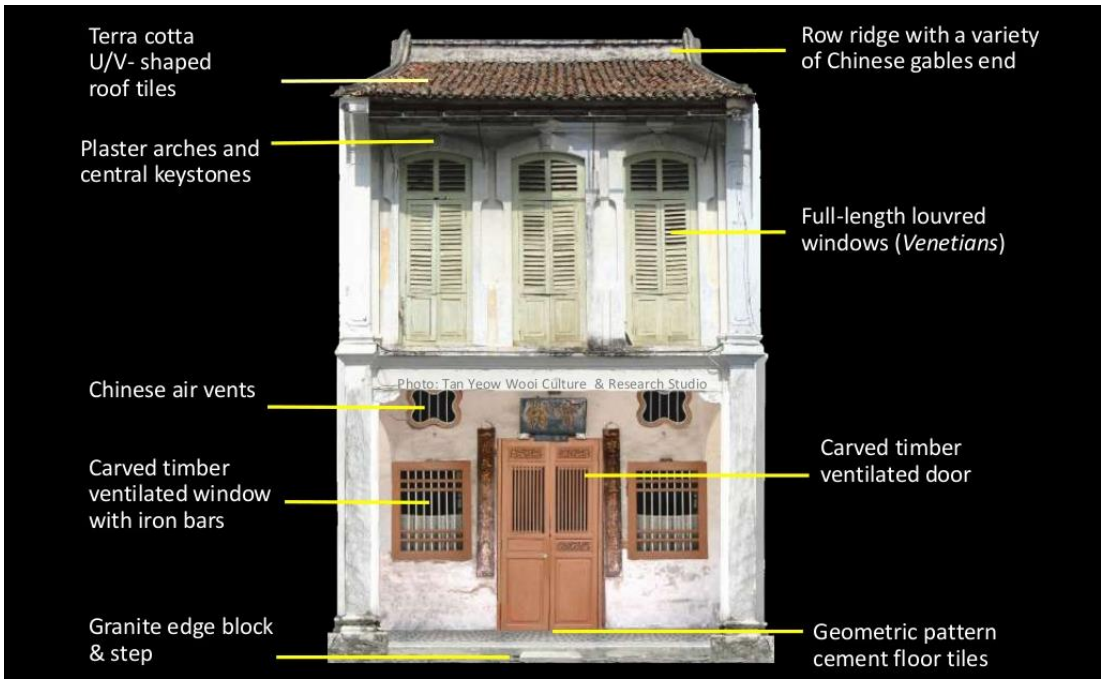


Figure 3.20 The facade of an Early Straits Eclectic style shophouse (Penang Shophouse, 2018d).

(d) Late Straits Eclectic Style (1910s-1940s)

According to Penang Shophouse (2016), the Late Straits Eclectic style is the most impressive style especially in the use of ornamentation, as a result of a boom in rubber prices that resulted in more complex decorative facades (see Figure 3.21). This trend was

encouraged by the availability of catalogues of materials enabling importation by shipping of decorative building materials from Europe, such as glazed tiles and cast iron. The lower facade of this type of shophouse was typically made of a carved timber ventilated door, Majolica ceramic wall tiles on the dado, geometric pattern cement floor tiles, and granite edge block and step (Penang Shophouse, 2016). The upper facade comprised 'V'- or 'U'-shaped terracotta roof tiles, overhanging eaves and ceilings (soffits), three-dimensional decorative plaster walls with intensive use of both Chinese and European ornamentations, and full-length louvre windows (Venetians) with fanlights. The low wall on the upper facade was decorated with bouquets of flowers, fruit, mythical images, geometric patterns and a combination of the classical orders (Lim, 1993).

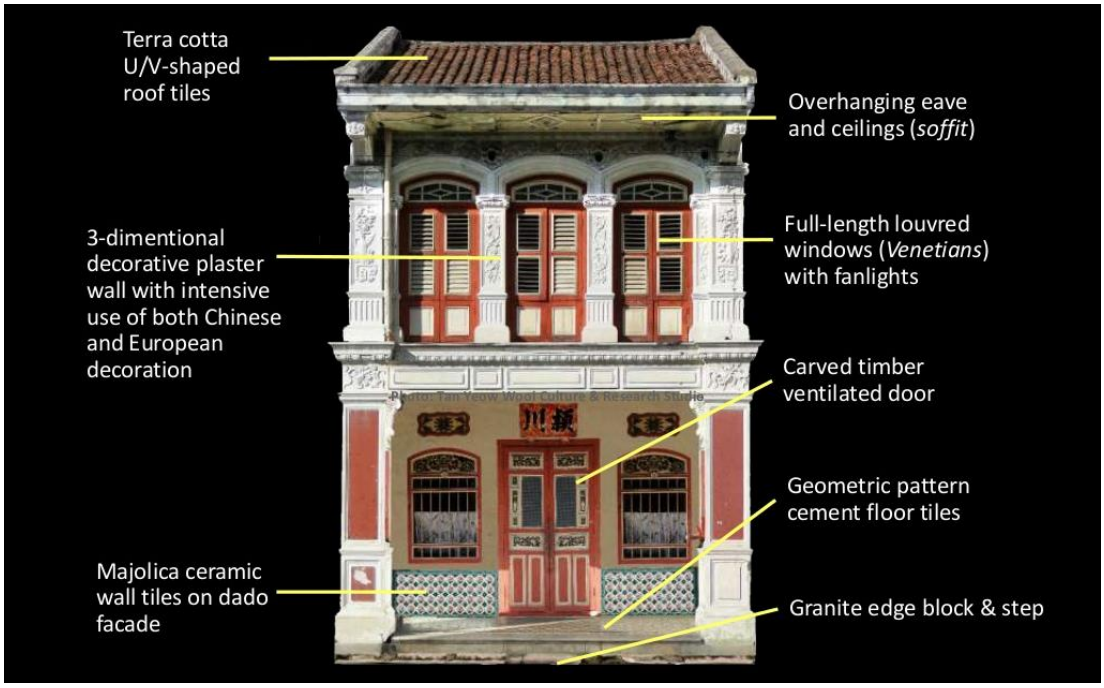


Figure 3.21 The facade of a Late Straits Eclectic style shophouse (Penang Shophouse, 2018e).

The tripartite windows on the facade of the Late Straits Eclectic style shophouses decreases the actual wall surface to the minimum and permits maximum ventilation, whereby the wall surface was substituted by columns or pilasters framing the windows, as pointed out by Baroldin and Din (2012) and Mansor et al. (2012). Chinese panel frescoes are frequently integrated with the Malay timber fretwork that fringes the cape of the roof. Brightly coloured ceramic tiles and plaster were carefully moulded into bouquets, festoons, plaques and other complex ornamentation appearing to reflect the creativity of the shophouse builders. As in the case of the Early Straits Eclectic style, the emergence of

reinforced concrete in the 1910s enabled wider roof overhangs and more complex cantilevered brackets above the pilaster facades (Lim, 1993).

(e) Art Deco Style (1930s-1960s)

The Art Deco style was promoted by rich local businessmen who had been influenced by their overseas education and exposure to Western popular culture in movies (Penang Shophouse, 2016) (see Figure 3.22). This phenomenon caused some commercial shophouses to ornament their facades in this fashionable style. According to Baroldin and Din (2012) and Mansor et al. (2012), this style was widespread and it was characterised by straight lines arranged horizontally and vertically along with other geometric elements, giving a strong horizontal and vertical emphasis to the structure. The luxurious classical ornamentation of the earlier shophouse styles became much more restrained in the designing of the Art Deco style shophouses, and in many cases ornamental facades were removed completely.

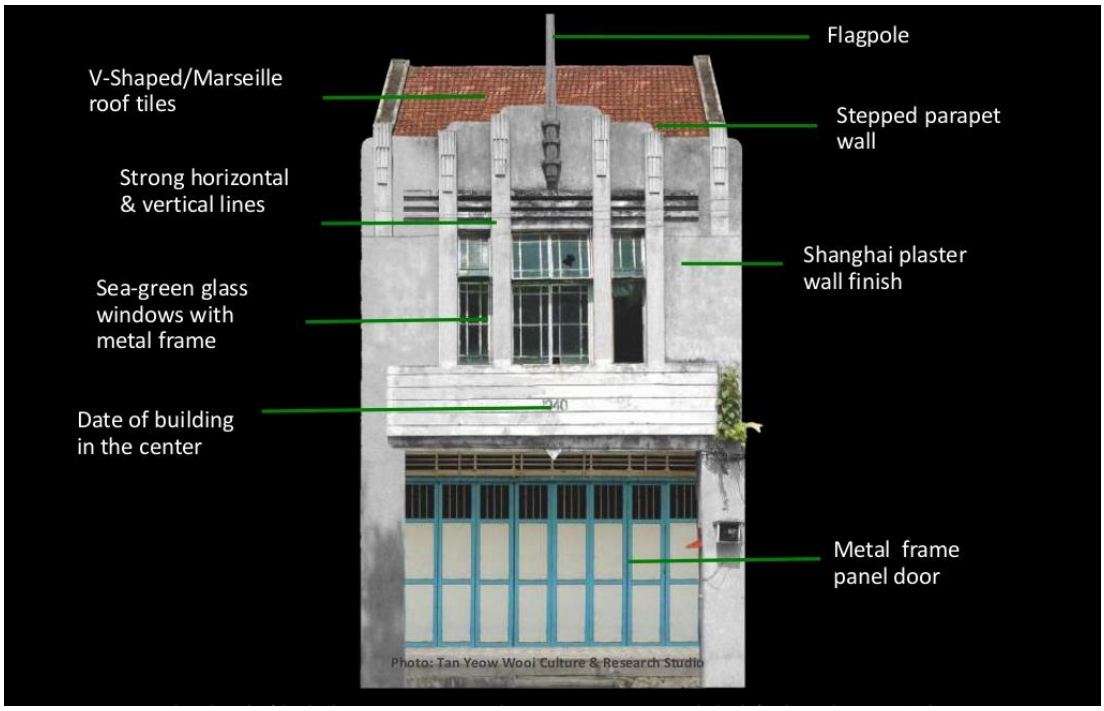


Figure 3.22 The facade of an Art Deco style shophouse (Penang Shophouse, 2018a).

The roofing material included 'V'-shaped or Marseilles tiles, while the entrance was composed of a metal frame panel door, as documented by Penang Shophouse (2016). Windows were organised into groups with sea-grass glass and metal frames, rather than the tripartite arrangement with full-length louvres that is typical of the earlier shophouse

styles. Common features of the Art Deco style shophouses include the flagpole (Penang Shophouse, 2016) and date of construction in the centre of the front facade (Baroldin & Din, 2012; Mansor et al., 2012), and a geometric pattern low wall (Lim, 1993). The continued use of reinforced concrete can be found in a stepped parapet wall in this type of shophouse (Penang Shophouse, 2016), where this type of material was generally used to create cantilevered planes and shading devices over the windows (Lim, 1993; Ahmad, 1994). Meanwhile, Shanghai plaster as a wall finish was also introduced during this period and was commonly used, as indicated by Baroldin and Din (2012) and Mansor et al. (2012).

(f) Modern Style (1950s-1970s)

The post-war economic recovery led to the growing number of buildings. According to Penang Shophouse (2016), the Modern style was initiated by European and overseas-trained architects who were influenced by the functional style of the modern movement (see Figure 3.23). This type of shophouse is simple in design, economic in materials and quick to build as a means of meeting modern demands. It allows corner buildings and balconies to be curved through the use of new building technology and materials. In keeping with developments in Western art and architecture from the end of the 19th century to the peak in the 1920s and 1930s, this style expresses modernisation in various movements, theories and attitudes that tend to discard past architecture (Baroldin & Din, 2012; Mansor et al., 2012). Walter Gropius, Le Corbusier and Mies van der Rohe were the significant figures in the trend towards a progressively less ornamented and more simplified architectural style.

Studies by Baroldin and Din (2012) and Mansor et al. (2012) found that the Modern style shophouses were formed by the character and aesthetic qualities derived from the simplicity and abstract relationship of solid surfaces with large and sharply outlined openings, rather than to the application of ornamentation. Similar to the Art Deco style, this type of shophouse also used sea-grass glass with metal frames for its windows (Penang Shophouse, 2016). The continued use of reinforced concrete can be seen in the erection of five-footways without pillars, horizontal and vertical shading fins, and a parapet wall to hide the flat or pitched roof. The trend became widespread in Malaysia after the war. Baroldin and Din (2012) and Mansor et al. (2012) drew attention to the fact that even though this

style can lack craftsmanship, local influences were not neglected. They were adapted to form a unique modern style.

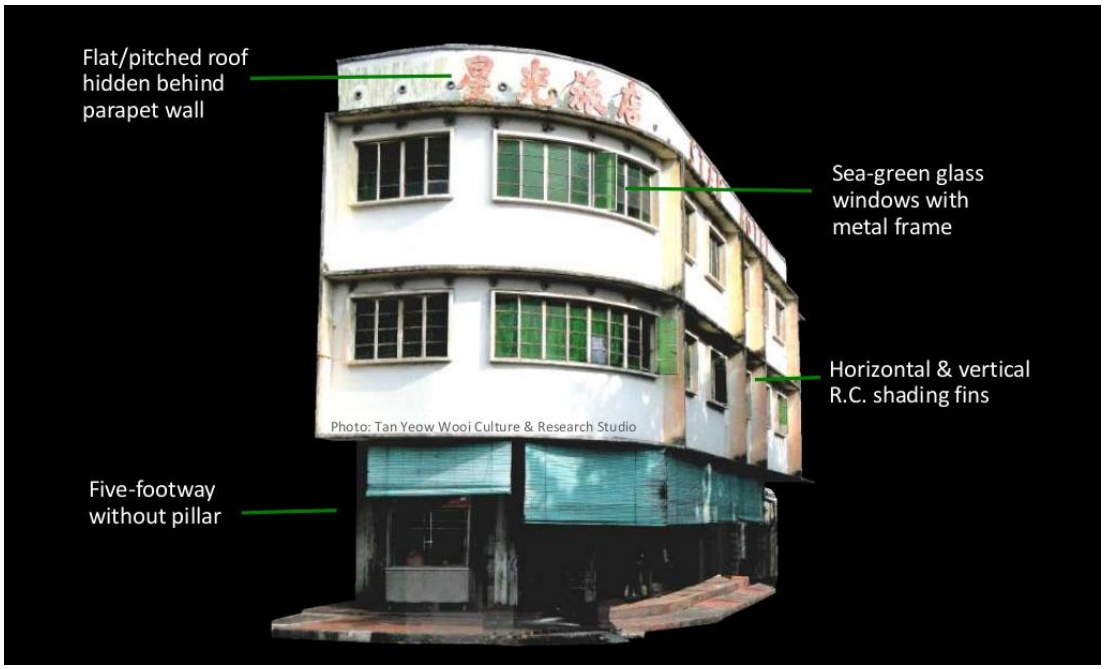


Figure 3.23 The facade of a Modern style shophouse (Penang Shophouse, 2018c).

(g) Summary of Subchapter 3.4.2

These styles show that the nature of the decoration and material reflects the culture of the original owner or builder, and that design evolved with modern influences over the years. The Dutch style shophouses were the most primitive shophouses documented, even though they were only converted from rowhouses or townhouses into shophouses during the British occupation. This is in keeping with the position of the Dutch as one of the earliest colonists in Melaka. Meanwhile, early shophouses in Melaka were greatly influenced by the Southern China style that was introduced by the second wave of Chinese immigrants. Over time, shophouses were gradually affected by Western cultures through Early Straits Eclectic, Late Straits Eclectic and Art Deco styles, becoming fully modernised in the Modern style in the era of Independence.

3.4.3 Characteristics of Shophouses

Similar to other major cities in Malaysia, shophouses in Melaka are narrow in width and long in depth, usually six to seven metres wide and 30 meters deep, sometimes

expanding to 60 metres (Chen, 1998) (see Figure 3.24). They consist of a small terraced building, with a retail area on the ground floor and living quarters on the upper floor(s) (Wakita & Shiraishi, 2010; Henderson, 2011; Han & Beisi, 2015). This architectural typology consists of mostly privately-owned, two or three-storey buildings constructed in adjacent blocks with party walls. Ismail and Shamsuddin (2005) noted that the building codes in the 1880s stipulated that all buildings including shophouses need to be constructed of hard-wearing materials like brick and tiles, with a covered pavement about five feet wide at the front known as a five-footway.

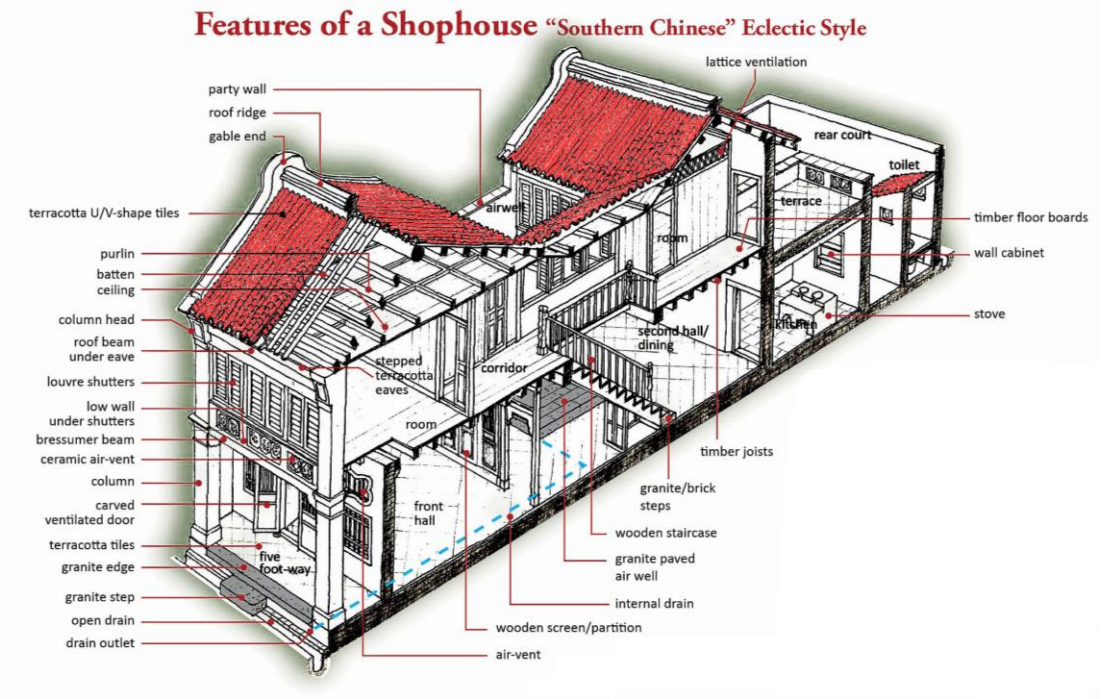


Figure 3.24 An axonometric view of a typical shophouse in Melaka and also other major cities in Malaysia (Penang Shophouse, 2018b).

Although Melaka JPBD (2011) observed the shophouses in Melaka may refer to buildings of the same form that operate exclusively as residences (townhouses), this point can be argued bearing in mind that the grouping of shophouses and townhouses is problematic for conservation efforts because they clearly represent two different typologies of heritage buildings. A previous study by Chen (1998) proposed that townhouses can be regarded as an imitative version of shophouses. Although the architectural typology appears to be almost identical, Chen emphasised that there are differences, for example the front facades of shophouses have openings to display goods along the full width facing the five-footway pavement, while townhouses tend to have a pair of half-doors in front of

the main door to provide privacy. Currently, several townhouses still remain in use in this area particularly at Jalan Tun Tan Cheng Lock. According to Melaka JPBD (2011), there are six characteristics that need to be respected in the restoration of a standard shophouse in Melaka. These characteristics consist of: roof, facade, five-footway, rear area, interior and features. They are described as follows:

(a) Roof

In a tropical climate, the primary function a roof is to provide protection from sun and rain (Hepler et al., 2013). Shophouses were typically constructed with pitched roofs on a timber structural frame covered with orange clay roof tiles. According to Melaka JPBD (2011), the following eight elements of the roof of the shophouses in Melaka should be considered: tiles for all roofs, structure of the main roof, ridge and gable, jack roof, skylight, dormer window, eaves and roof overhang, and gutters (see Table 3.1 and Figure 3.25).

Table 3.1 A brief guide to conservation works on the roof of shophouses in Melaka (based on Melaka JPBD, 2011).

Characteristic	Element	Original Design	Restriction
Roof	Tiles for all roofs	▪ Small size, 'V' or 'U' profile and unglazed natural colour terracotta tiles, where timber battens run ridge to eaves on horizontal timber purlins (roof beams) ▪ Interlocking clay or Marseilles roof tiles (Indian or French), where timber battens run horizontally supported by a roof truss system ▪ Marseilles tiles are not traditional to shophouses in Melaka	▪ Original roofing materials and eave details (fascia boards) should be retained and restored ▪ Original installation method and tile profile should be used
	Structure of the main roof	▪ Horizontal timber purlins (roof beams) installed between load-bearing walls (acting as a brace for the structural walls) ▪ Timber or metal truss system supporting battens for interlocking clay roof tiles or timber boards or profiled metal roofing sheets (shophouses on corner sites)	▪ Original form should be retained and restored ▪ Faulty members may be removed and replaced with matching members
	Ridge and gable	▪ Roof ridge with bricks ▪ Roof ridge with bricks and air vent tiles	▪ Original form should be retained ▪ Missing elements should be put back

Characteristic	Element	Original Design	Restriction
		▪ Raised gable wall (portraying cultural significance)	
	Jack roof	▪ Smaller roof elevated above the main roof (allowing natural ventilation of the upper floor) ▪ Timber structures vary from building to building	▪ Original roofing materials, eaves details (fascia boards), and ventilation louvres or glass should be retained and restored ▪ Existing jack roof should be retained ▪ New jack roof is prohibited ▪ Roof tiles should be identical to the main roof
	Skylight	▪ Not original to the architecture of Melaka	▪ Glass moulded Marseilles tiles are sometimes found on Marseilles tiled roofs
	Dormer window	▪ Not found in the architecture of Melaka	▪ New dormer window is prohibited
	Eaves and roof overhang	▪ Stepped terracotta flat tiles with brick corbel brackets at wall junction (shophouses without gutters) ▪ Exposed battens and fascia boards with brick or timber corbel (shophouses with overhanging roof) ▪ Reinforced concrete brackets and ceiling boards with patterned beading (post-1920s shophouses)	▪ Original eaves, overhang and support features should be retained and restored ▪ No new eave detail or support may be used
	Gutters	▪ Gutters and down pipes were introduced in the mid-1800s and became part of the overall design from the early 1900s ▪ Many buildings were without gutters (rain falls into the open drain below)	▪ Original form should be retained and restored ▪ Roofs without gutters should remain



Figure 3.25 The original design of the structure of the main roof should be retained and restored.

(b) Facade

A facade can be defined as the frontage of a building with the main entrance. For corner sites, it also includes the side of a building (Penang JPBD, 2013). Facades from different architectural eras will show different aesthetic approaches, because facades changed in line with new fashions and technological influences. Currently, numerous original shophouses facade styles can be seen in Melaka with the main styles ranging from Dutch, Southern China, Early Straits Eclectic, Late Straits Eclectic, Art Deco to Modern. According to Melaka JPBD (2011), the following three elements of the facade of the shophouses in Melaka should be considered: lower facade, upper facade and side facade (see Table 3.2 and Figure 3.26).

Table 3.2 A brief guide to conservation works on the facade of shophouses in Melaka (based on Melaka JPBD, 2011).

Characteristic	Element	Original Design	Restriction
Facade	Lower facade	▪ Central doorway and ventilation doors (pivot or hinged) always opened outwards to the five-footway (residential) ▪ Central doorway and solid doors (pivot) always opened inwards (residential)	▪ Original facade should be retained and restored using traditional materials (timber, lime plaster and lime wash) and methods ▪ Altered facade should be reinstated to original design ▪ Clear or frameless glass doors are permitted

Characteristic	Element	Original Design	Restriction
		▪ Security shutters were made of full-width timber panels (commercial) ▪ Openings (windows) for solid timber shutters were made of thick timber frames, vertical metal bars and horizontal timber transoms ▪ Timber framed air vents with decorative carved grilles or simple vertical bars were placed above the openings ▪ Carved timber panels sitting on carved lions were typical in shophouses ▪ Security devices (locks, steel bars and grilles)	▪ Clear, kampong or light tinted glass openings are permitted ▪ Existing roller shutters should be replaced with traditional security shutters ▪ New roller shutters, metal framed doors and reflective glass are prohibited ▪ New secondary glass doors and internal windows may be required if the internal space is being air-conditioned, or to cut down on external noise ▪ Original security devices should be retained and restored ▪ Signage should be installed in accordance with the Guidelines for Display of Signage
	Upper facade	▪ Decorative features were placed above the bressumer beam or below the roof beam, either painted or moulded with 3D Chien Nien shardwork, or moulded from lime mortar ▪ Upper floor shutters were made from timber with two panels of movable louvres, in some cases having one further solid panel at the base of each leaf ▪ Balustrades were placed behind the door height shutters and they were made of timber, occasionally of cast iron ▪ A low wall was placed above the bressumer beam and below the shutters, in some cases it was highly decorated ▪ In a few cases, a terracotta 'V'-shaped tiled canopy was projected from above the bressumer beam and below the low wall, out into the street	▪ Original facade should be retained and restored using traditional materials and methods ▪ Altered facade should be reinstated to original design ▪ Missing elements should follow the original design ▪ Clear, kampong or light tinted glass windows are permitted ▪ New secondary internal windows may be required if the internal space is being air-conditioned or to cut down on external noise ▪ Original canopy should be retained and restored ▪ Metal, asbestos or polyvinyl chloride roofing materials are prohibited
	Side facade	▪ In a few cases, openings in the sidewalls were part of the original design ▪ Protected by stepped bricks and terracotta tiles to form a slight projection from the main wall above the openings ▪ Openings were filled with solid or louvered timber shutters	▪ Original facade should be retained and restored ▪ New openings are prohibited



Figure 3.26 The original design of the facade should be retained and restored.

(c) Five-Footway

The five-footway has become a distinctive feature of shophouses in this region (Koh & Ho, 2009). Penang JPBD (2013) defined the five-footway as a shaded passageway below the upper floor of a shophouse that was designed as a public space with a minimum width of five feet. Chen (1998) and the Urban Redevelopment Authority (2016) suggested that this feature offers pedestrians linkages and that it safeguards them from the tropical sun and rain. At the same time, it allows the retailers to display goods along the pavement (Chen, 1998), and to perform prayer and thanksgiving to protect the occupants of the shophouses as a culturally significant space (Melaka JPBD, 2011). The continuous five-footway in Melaka was not traditionally part of the urban structure during the Dutch period. This feature was only implemented in Melaka during the British period (Lee, 2016). Five-footways were constructed in Singapore in the time of Sir Stamford Raffles as part of the 1882 Jackson Plan (Chen, 1998; Melaka JPBD, 2011). According to Melaka JPBD (2011), the following four elements of the five-footway of the shophouses in Melaka should be considered: walls, floors, drain and ceilings (see Table 3.3 and Figure 3.27).

Table 3.3 A brief guide to conservation works on the five-footway of shophouses in Melaka (based on Melaka JPBD, 2011).

Characteristic	Element	Original Design	Restriction
Five-footway	Walls	▪ Decorative wall tiles were originally placed as a dado panel below the two openings (windows) by the side of the main door. Lime mortar was used for the tiles.	▪ Original design should be retained and restored ▪ New tiles are prohibited
	Floors	▪ Finishes were composed of terracotta tiles, terrazzo tiles and mosaic ▪ A granite edge marked the street boundary	▪ Original finishes should be retained and restored using traditional or closest materials (colour and texture), and they should not be covered up by other materials ▪ Gloss ceramic tiles are prohibited ▪ A ramp in compliance with the requirements should be provided, if the level of adjacent units has more than one step
	Drain	▪ Open drain can be crossed using granite steps and bridge ▪ Drain edge was made of engineering bricks	▪ Original design should be retained and restored ▪ Missing elements should be reinstalled
	Ceilings	▪ Exposed upper floor structure of timber floor boards and timber joists (more usual) ▪ Exposed reinforced concrete floor (if any) ▪ In rare cases, ceilings may exist	▪ Original profile or design should be retained ▪ Any original decorative feature(s) should be retained and restored



Figure 3.27 The original design of the five-footway should be retained and restored.

(d) Rear Area

The rear area is an additional feature of the overall building form, and it was designed to allow for good drainage and ventilation, as reported by Penang JPBD (2013). According to Melaka JPBD (2011), the following two elements of the rear area of the shophouses in Melaka should be considered: rear court and rear facade (see Table 3.4 and Figure 3.28).

Table 3.4 A brief guide to conservation works on the rear area of shophouses in Melaka (based on Melaka JPBD, 2011).

Characteristic	Element	Original Design	Restriction
Rear Area	Rear court	▪ Includes kitchen courtyard and air well (roof cover, external staircase and rear boundary wall) ▪ In some cases, external staircases may exist alongside rear boundary walls. These were made of plaster and brick with an external opening on to the back lane	▪ New roof of pitch profile over the courtyard of a one-storey kitchen is permitted subject to the roof height requirements ▪ Roofing materials should be closed to the materials of the main roof ▪ Zinc, asbestos and metal deck roofing materials are prohibited ▪ New structure within the air well is prohibited ▪ External staircase should be retained ▪ Original height of rear boundary wall should be retained ▪ Any original decorative feature(s) should be retained and restored ▪ Increasing the wall height to accommodate minimum headroom requirements, but it should use matching construction, materials and finishes, and not impede neighbouring buildings (light and ventilation)
	Rear facade	▪ Includes windows, doors and air vents ▪ Openings were simpler than in the front facade, but used similar materials	▪ Original openings should be retained and restored, but may be changed subject to the design requirements ▪ New openings are permitted with similar materials as the front facade



Figure 3.28 A new roof of pitch profile over the kitchen courtyard is permitted.

(e) Interior

According to Melaka JPBD (2011), the following three elements of the interior area of the shophouses in Melaka should be considered: floors, ceilings and walls (see Table 3.5 and Figure 3.29).

Table 3.5 A brief guide to conservation works on the shophouses interior in Melaka (based on Melaka JPBD, 2011).

Characteristic	Element	Original Design	Restriction
Interior	Floors	▪ Include ground floor, upper floor(s) and mezzanine floor ▪ Mezzanine floor is not part of the original layout as high ceilings cool down the naturally ventilated spaces	▪ Existing ground floor level and changes in level should be retained ▪ Original layout, tile works or finishes should be retained and restored using similar or closest materials ▪ Damaged materials may be replaced with matching and similarly functional materials ▪ Existing upper floor(s) level and original structural members (timber main beams or steel I-beam, timber floor joists and timber floor boards) should be retained and restored ▪ Addition of toilets internally is permitted if existing structure is not compromised and damages to the original brick, granite, footings and mangrove piles caused by new

Characteristic	Element	Original Design	Restriction
			support structure on the ground floor are avoided ▪ Extension of toilets in the rear part is preferred ▪ Concrete floor may be used for wet areas (toilets and kitchen) ▪ Existing mezzanine floor should be retained if it meets the requirements ▪ New basement is prohibited
	Ceilings	▪ Exposed upper floor structure of timber floor boards and timber joists (more usual) ▪ Exposed reinforced concrete floor (if any)	▪ Original profile or design should be retained ▪ Any original decorative feature(s) should be retained and restored ▪ Exposed upper floor structure of timber floor boards and timber joists should be retained and restored ▪ Existing exposed reinforced concrete floor is permitted to remain ▪ False ceiling is permitted if the volume of internal space is retained and original features (cornices, arches, capitals and decorative stuccos) are not covered over ▪ Area of damages may be replaced with matching or similar materials
	Walls	▪ Include party wall and decorative features ▪ Majority of heritage buildings were constructed with bricks in the load-bearing walls ▪ Reinforced concrete column structure was introduced in the early 1900s in new construction; many buildings were redesigned and adapted from the original load-bearing brick buildings	▪ Repair work is permitted but should follow original design, materials and methods ▪ Material used should not harm the structural wall integrity and cause nuisance to neighbouring buildings ▪ Openings in the party wall for joint units may be permitted subject to stability of the building structure and value of the features to be removed ▪ New structure to support the wall above the openings should avoid damaging the original footings and mangrove piles ▪ Any original decorative feature(s) should be retained and restored



Figure 3.29 The addition of toilets internally is permitted.

(f) Features

According to Melaka JPBD (2011), the following three features of the shophouses in Melaka should be considered: air well, staircases, and colours and finishes (see Table 3.6 and Figure 3.30).

Table 3.6 A brief guide to conservation works on the shophouses features in Melaka (based on Melaka JPBD, 2011).

Characteristic	Element	Original Design	Restriction
Features	Air well	▪ Includes size, floor finishes, openings (windows, shutters and air vents on the upper floor) and roof cover ▪ Typically exists in shophouses with two pitched roofs or more ▪ Allows ventilation and cooling of the space below ▪ Allows access to maintain the pitched roofs ▪ Below it on the ground floor is a recessed area with granite pavement and edge, and a drain hole that leads to an internal drain usually flowing to the open drain in front of the shophouse	▪ Original size and location should be retained and restored ▪ Original finishes of granite pavement and edge should be retained and restored using similar or closest materials ▪ Levelling up the existing floor is prohibited ▪ Original openings should be retained and restored using traditional materials ▪ Damaged pieces may be replaced with traditional materials ▪ Installation of modern materials is prohibited ▪ A flat moveable roof cover is permitted, but the height should be lower than the eaves of the main roof ▪ Lightweight transparent or translucent roof cover is permitted

Characteristic	Element	Original Design	Restriction
			▪ Total cover up of air well is prohibited ▪ Other above ground structures or slabs are prohibited within the air well space
	Staircases	▪ Refer to internal staircase, which was commonly made up of a wooden structure with decorative timber balusters and balustrades	▪ Original position and design with fine craftsmanship should be retained and restored using traditional materials ▪ Repositioning is permitted if necessary ▪ Original artistic design of balusters and balustrades should be retained and reused ▪ Addition of staircase is permitted if necessary, but if it is made of reinforced concrete it should have timber finishes (balusters and balustrades)
	Colours and finishes	▪ Include exterior and interior finishes ▪ Each period of design history had preferred colour schemes, and this can be traced by scraping back to the original base layer ▪ Colour and materials should be chosen from this investigation	▪ Traditional materials such as lime wash or other breathable paint should be used ▪ Original finishes (tiles, fair-faced bricks or granolithic render – Shanghai plaster) should be retained and restored ▪ Painting over original finishes is prohibited ▪ Finishing materials should not harm the structural integrity ▪ Colour scheme or paint used should match and harmonise with the typical character of heritage buildings and streetscape



Figure 3.30 A lightweight transparent roof cover for the air well is permitted.

(g) Summary of Subchapter 3.4.3

The shophouses in Melaka reflect a historic cultural fusion of the Malay, Southern China, Dutch and British influences. Best practice in restoring shophouses entails an appreciation and understanding of the architecture of these buildings. This fusion is the product of factors like accessibility of building materials, skills and transportation as well as the tropical climate (Melaka JPBD, 2011). In addition, there are original characteristics consisting of roof, facade, five-footway, rear area, interior and features that need to be retained, restored or repaired. Certain elements may not be permitted, and conservation practices must comply with these guidelines. The process should be carried out in the most sympathetic and least destructive way, using original methods whenever possible, along with matching or similar materials.

3.4.4 Legal Provisions for the Heritage Conservation of Shophouses

According to Melaka JPBD (2011), the key federal laws that regulate heritage conservation planning and management in the Melaka World Heritage Site comprise the Town and Country Planning Act 1976 (Act 172); the Street, Drainage and Building Act 1974 (Act 133); the National Heritage Act 2005 (Act 645); and the Local Government Act 1976 (Act 171). The Laws of Malaysia (2016b, p. 5) defined Act 172 as for: *"…the proper control and regulation of town and country planning in Peninsular Malaysia and for purposes connected therewith or ancillary thereto"*. Act 172 involves the conservation of the urban heritage (Melaka JPBD, 2011). In addition, Act 133 intends to: *"…amend and consolidate the laws relating to street, drainage and building in local authority areas in West Malaysia, and for purposes connected therewith"* (Laws of Malaysia, 2016a, p. 9). Act 133 requires any person who plans to conduct any building works to submit conservation documents to MBMB for approval, as underlined by Melaka JPBD (2011).

In the meantime, the Laws of Malaysia (2006, p. 2) interpreted Act 645 as providing for: *"…the conservation and preservation of National Heritage, natural heritage, tangible and intangible cultural heritage, underwater cultural heritage, treasure trove and for related matters"*. Act 645 repeals all the provisions of the Treasure Trove Act 1957 (Act 542) and the Antiquity Act 1976 (Act 168) (Melaka JPBD, 2011). However, this act only gazettes heritage buildings rather than heritage areas and this is the main reason why it has not

been adopted by MBMB even though it has been mentioned in the CMP and SAP. The purpose of Act 171 is described as to: *"…revise and consolidate the laws relating to local government"* (Laws of Malaysia, 2012, p. 11). Some of the provisions of Act 171 can be used to regulate and control uses and activities that may affect the outstanding universal value of the Melaka World Heritage Site even though this act is not directly concerned with heritage conservation, as indicated by Melaka JPBD (2011).

In addition, Melaka and MBMB have also enacted state laws (enactments) and added several by-laws to the main acts for similar purposes. The relevant enactments and by-laws include the Preservation and Conservation of Cultural Heritage Enactment 1988 (Enactment No. 6 1988); the Uniform Building By-Laws 1984 (UBBL 1984) supporting Act 133; and Existing Regulations prescribed under Act 645, consisting of the National Heritage (National Heritage Register) Regulations 2007 and the National Heritage (Prescribed Forms) Regulations 2008 (Melaka JPBD, 2011).

Act 172 requires the preparation and adoption of a hierarchy of development plans incorporating the National Physical Plan at the federal level, the Structure Plan at the state level, and the Local Plan and the SAP at local government level. Melaka JPBD (2011) noted that, in particular, the comprehensive management and protection of heritage buildings, such as the shophouses in the Melaka World Heritage Site, will depend to a significant extent on the SAP. The preparation of CMP and SAP were carried out in 2011 by the Melaka State Town and Country Planning Department (Melaka JPBD) as the coordinator, and MBMB as the end user, so as to guide and control development in this area (Melaka JPBD, 2011). The CMP was developed to satisfy the general requirements of the World Heritage Committee on conservation management for the purpose of nominating Melaka as a UNESCO World Heritage Site, while the SAP serves as an appendix to ensure that the guidelines and recommendations of the CMP are implemented according to the Malaysian law. The SAP is not gazetted yet, but once it is gazetted, penalties will be imposed under the provision of Act 172 or Act 133 for non-compliance.

In the CMP and SAP, Melaka JPBD (2011) classified shophouses in the Melaka World Heritage Site under Category II, with most of them being placed under Category IIB. Unlike Category I buildings that should retain their authentic and original form, Category II buildings have two options either to continue with existing uses or to adapt for new uses. Continuing with existing uses would be with the addition of modern utilities that were not

found in the original form. For adaptation for new uses, the new uses should be compatible with the existing form and with permitted additions to the built fabric. Apparently, these two plans outline improvements in regulations for conserving heritage buildings in this area as opposed to the previous plans, policies and guidelines, for example the Action Plan for Conservation in the Historic City of Melaka in 2002. The Guidelines for the Conservation Areas and Heritage Buildings for Melaka World Heritage Site (Conservation Guidelines for Melaka) attached to these plans were designed as a means of guiding all decisions in the planning and development of Category I, IIA and IIAB buildings in this area. These decisions include repair, conservation, maintenance, alteration, extensions and compatible development issues (Melaka JPBD, 2011).

There are four documents that need to be submitted to MBMB for approval of conservation works for shophouses. These documents should comprise the Dilapidation Report, Repair Proposal Drawings, Building Plan Submission and Progress Reports, with the Heritage Impact Assessment report as an additional document if requested (Melaka JPBD, 2011). According to the Conservation Guidelines for Melaka, conservation works for shophouses have six characteristics consisting of: roof, facade, five-footway, rear area, interior and features (restrictions for these characteristics have been explained in detail in Subchapter 3.4.3), with utilities as an additional requirement. As pointed out by Melaka JPBD (2011), an improvement to utilities has the potential to disturb the integrity of this architectural typology. Most shophouses were built before the era of modern utilities like electrical, air-conditioning, tap water and sewerage systems (Melaka JPBD, 2011). Therefore, the installation of mechanical and electrical systems as well as sanitary, plumbing and drainage systems must be done with care and consideration. They are described as follows:

(a) Mechanical and Electrical Systems

As documented by Melaka JPBD (2011), mechanical and electrical systems that need to be installed with care and consideration during conservation works on shophouses in Melaka consist of: security surveillance, electrical conduits, air-conditioning units, satellite dishes, water tank, lift, kitchen exhaust fan and night lighting (see Table 3.7 and Figure 3.31).

Table 3.7 A brief guide to the installation of mechanical and electrical systems on shophouses in Melaka (based on Melaka JPBD, 2011).

Utility	Element	Restriction
Mechanical and Electrical Systems	Security surveillance	▪ Closed-circuit television cameras and equipment are permitted subject to the requirements of suitability, unobtrusiveness, positioning, and being visually discreet in design and colour ▪ They should be placed carefully to avoid damage to the facade and interiors. ▪ Installation contractors should seek permission from the relevant authorities.
	Electrical conduits	▪ Electrical conduit pipes are prohibited on the surface of the external facade. ▪ Tenaga Nasional Berhad (TNB) cable routing and meter should be within the five-footway or back lane of the shophouses. ▪ Internal wiring may be either in a visible conduit or a conduit buried in the existing walls.
	Air-conditioning units	▪ Air-conditioning pipes are prohibited on the external facade. ▪ They should be installed on the surface of the rear wall or the rear air well, and be properly encased and neatly laid out. ▪ Installation of air-conditioning compressor units on the front facade is strictly prohibited. ▪ They should be located where they are least visible from the exterior, for example below the five-footway on the party wall if there is sufficient headroom, or below the rear boundary wall, air well or roof at the rear courtyard or kitchen area. ▪ They should be covered by a frame with suitable design and material such as timber lattice or metal screen harmonising with the rear facade. ▪ Cooling tower air conditioners are prohibited since they can add too much humidity to the area, encouraging plant growth and potential damage.
	Satellite dishes	▪ Satellite dishes are prohibited on the external facade or front roof. ▪ They should be placed in the rear courtyard, if possible.
	Water tank	▪ Water tanks or other external installations should be placed where they are least visible from the exterior and covered using a timber lattice or metal screen harmonising with the rear facade. ▪ Shophouses on corner sites should avoid these components being visible from the street.
	Lift	▪ Installation of lifts is permitted for an extension or an annexed building. ▪ Lift shaft should not protrude from the front slope of the roof of the new building. ▪ Machine-room-less lifts are advisable and the pit should avoid damage to the foundations and footings.
	Kitchen exhaust fan	▪ Exhaust fan should be placed in the rear kitchen courtyard. ▪ Exhaust fan ducts should not be placed outside of the building. ▪ Exhaust discharged from kitchen hoods or stoves should not be directed into any public space.
	Night lighting	▪ Light fittings, if any, should be placed in the least obtrusive place and should be in harmony with the character of the building facade.



Figure 3.31 The installation of air-conditioning compressor units on the front facade is strictly prohibited.

(b) Sanitary, Plumbing and Drainage Systems

As documented by Melaka JPBD (2011), sanitary, plumbing and drainage systems that need to be installed with care and consideration during conservation works on shophouses in Melaka consist of: waste pipes, drainage and soil vent pipe (see Table 3.8 and Figure 3.32).

Table 3.8 A brief guide to the installation of sanitary, plumbing and drainage systems on shophouses in Melaka (based on Melaka JPBD, 2011).

Utility	Element	Restriction
Sanitary, Plumbing and Drainage Systems	Waste pipes	▪ Waste pipes and floor traps should be designed according to the regulations to avoid damage to the footings underground. ▪ Heritage floor tiles that are lifted to accommodate pipe works should be restored if possible.
	Drainage	▪ Proper drainage should be provided at the building perimeter to ensure the water does not splash against the building or foundation walls, or drain towards the building.
	Soil vent pipe	▪ Soil vent pipes should not protrude through the front roof or be visible from the streets.



Figure 3.32 Proper drainage should be provided to avoid splashes of water against the building or foundation walls.

(c) Summary of Subchapter 3.4.4

Three key federal laws regulate the heritage conservation of shophouses in Melaka comprising Act 172, Act 133 and Act 171. There are also several enactments and by-laws enacted for similar purposes such as Enactment No. 6 1988 and UBBL 1984. The SAP was prepared under the provision of Act 172 as an appendix to the CMP in order to guide and control development in the Melaka World Heritage Site. The Conservation Guidelines for Melaka were attached to these two plans, and they specified that the conservation works for shophouses need to consider roof, facade, five-footway, rear area, interior and features, with utilities as an additional requirement. As a continuation of Subchapter 3.4.3, there are some utilities that can be installed to meet modern demands, while others may not be permitted, and conservation practices must comply with these guidelines. The process should be carried out in the most sympathetic and least destructive way possible, as an improvement to utilities could potentially disturb the integrity of shophouses.

3.5 Inscription of Melaka as a UNESCO World Heritage Site

A World Heritage Site is defined as the site that possesses cultural and/or natural significance considered to be of outstanding universal value, which has been inscribed on the World Heritage List by the World Heritage Committee (Historic Environment Scotland, 2018). According to the UNESCO World Heritage Centre (2017), cultural heritage comprises monuments, groups of buildings and sites, while natural heritage encompasses natural features and natural sites. These cultural and/or natural heritage assets ought to be so exceptional as to surpass national boundaries and be of common interest for present and future generations. The nominations of these properties should be submitted by the State Parties and must satisfy one or more of 10 selection criteria as described in the Operational Guidelines for the Implementation of the World Heritage Convention provided by the UNESCO World Heritage Centre (2017).

As mentioned in Subchapter 3.2.1, Melaka and George Town were jointly inscribed as UNESCO World Heritage Sites in 2008. Shophouses in Melaka can be considered as the groups of urban buildings that belong to the 'historic towns which are still inhabited' category for inscription on the World Heritage List. The UNESCO World Heritage Centre (2017) stated that this category means that these towns have evolved and will continue to evolve under the influence of socio-economic and cultural change. The evaluation of their originality will be harder, and any conservation policy will be more complicated than for towns that are no longer inhabited or for new towns. This is largely due to the fragility of their urban fabric. Even though the nomination process is somewhat complex and some doubts exist as to the effectiveness of the inscription, the concept of World Heritage Sites has undeniably proven successful in attracting tourists to the designated sites, thereby bringing economic benefits (Jimura, 2011; Poria et al., 2011; Hassan & Rahman, 2015; Rasoolimanesh & Jaafar, 2017).

3.5.1 Implications of World Heritage Listing

Competition between developed and developing countries for the attainment of World Heritage Site status is growing, and inscription is often viewed as a double-edged sword (Smith, 2002). Previous studies have indicated that inscription can bring about both

positive and negative changes, mostly for tourists and local communities in and around World Heritage Sites (see Tables 3.9, 3.10, 3.11, 3.12 and 3.13, and Figures 3.33, 3.34, 3.35 and 3.36).

Table 3.9 Benefits and burdens of World Heritage Site inscription on image and recognition of sites.

IMAGE AND RECOGNITION OF SITES	
Benefit	**Burden**
▪ Makes the site well-known to the public (Smith, 2002) ▪ Enhances the site's image (Bianchi, 2002; Smith, 2002) ▪ Tends to work as a marker of authenticity and quality for international tourists (Bianchi, 2002; Smith, 2002) ▪ Brings huge prestige at the international and national levels, which then influences local planning decisions (Shackley, 1998; Smith, 2002)	▪ May invite conflict between local associations with the site and global ownership of it (Orbasli, 2000) ▪ May place additional pressures on the physical and natural environment, and local communities living near the site (Orbasli, 2000)



Figure 3.33 The Maritime Greenwich, United Kingdom is a good example where authenticity, conservation and sustainability were placed in a good balance of strategic importance (Breitz, 2015).

Table 3.10 Benefits and burdens of World Heritage Site inscription on overcrowding and local community life.

OVERCROWDING AND LOCAL COMMUNITY LIFE	
Benefit	**Burden**
▪ Keeps the site in a good condition for future generations (Jimura, 2011) ▪ Makes the site available to the public as much as possible (Jimura, 2011)	▪ May severely damage the physical environment by too much visitation, especially sites that are fragile and/or not well-managed (Smith, 2002) ▪ Potential for a huge increase in tourist numbers after inscription, which may, in

OVERCROWDING AND LOCAL COMMUNITY LIFE	
Benefit	**Burden**
▪ Offers the appropriate level of service standards for tourists (Hassan & Rahman, 2015)	turn, enhance problems such as overcrowding (Asakura, 2008) ▪ Local communities may regard the status as a nuisance as it could disrupt their previously quiet way of life (ICOMOS International Committee on Cultural Tourism, 1999)



Figure 3.34 Shirakawa-mura, Japan has seen a large increase in the number of tourists after the inscription (Su, 2014).

Table 3.11 Benefits and burdens of World Heritage Site inscription on local culture and commercialisation.

LOCAL CULTURE AND COMMERCIALISATION	
Benefit	**Burden**
▪ Revitalises local businesses (Airey & Shackley, 1998) ▪ Increases the number and variety of businesses (Jimura, 2011)	▪ May cause degradation and commercialisation as a result of enhanced publicity of a site (Bianchi & Boniface, 2002)



Figure 3.35 The inscription revitalises local products such as silk carpets, textiles and silver in Bukhara, Uzbekistan (Fesenko, 2015).

Table 3.12 Benefits and burdens of World Heritage Site inscription on management and conservation.

MANAGEMENT AND CONSERVATION	
Benefit	**Burden**
▪ Management and conservation plan of a site may be improved due to the nomination process (Smith, 2002) ▪ Encourages the participation of local communities in the preservation of their heritage (UNESCO World Heritage Centre, 2019b)	▪ Need to keep improving the management and conservation plan even after the listing (Bianchi, 2002; Smith, 2002) ▪ The level of conservation may decrease after inscription (Jimura, 2011)

Table 3.13 Benefits and burdens of World Heritage Site inscription on local identity, community spirit and local pride.

LOCAL IDENTITY, COMMUNITY SPIRIT AND LOCAL PRIDE	
Benefit	**Burden**
▪ Brings national, regional and local political support (Smith, 2002) ▪ A site can be a centre of nationalism through the enhancement of identity (Shackley, 1998) ▪ Enhances the ties among different agencies within the site (Jimura, 2002; Smith, 2002) ▪ The site can be a magnet for the local communities living in/around it (ICOMOS International Committee on Cultural Tourism, 1999) ▪ Increases local communities' interest in their town, which in turn leads to an increase in pride in their culture (Shackley, 1998; Evans, 2002)	▪ The invasion of tourists can weaken the spirit of local communities, which in turn may lead to a split between the site and its surrounding area (Jimura, 2011)



Figure 3.36 It is a matter of pride for Maharashtra that two out of the first four recognised World Heritage Sites in India are located in the state (Mazurkevich, 2016).

In conclusion, World Heritage Site status is expected to create a platform for enhancing local communities' pride, offering the optimal level of conservation and appropriate service standards for tourists, and encouraging proper management of the site, thus fostering economic and tourism regeneration. However, inscription also poses risks, as it could make a site overly touristic and commercialised. There is also a possibility that the buildings on a site, especially those that are privately-owned, will become obsolete due to their incompatibility with the current situation. However, such buildings cannot be demolished as a solution to obsolescence because the site has been listed as the World Heritage Site. Therefore, the next subchapter discusses what previous studies have said about the impact of obsolescence on shophouses in Melaka and how they can be resolved through adaptive reuse practices to secure the continuous inscription of this city on the World Heritage List.

3.5.2 Impact of Obsolescence on Shophouses

Obsolescence is a condition that often justifies demolition (Thomsen & van der Flier, 2011a). Recent research by Zawawi and Abdullah (2011) has shown that the threat of obsolescence requires shophouse owners in Kuala Lumpur to determine the scope of redevelopment. It could be adaptive reuse, rehabilitation, facade conservation or total redevelopment. Total redevelopment is intended to remove low-quality buildings, and this means demolition. On the other hand, adaptive reuse should be considered as a sustainable option. According to Chan (2005), functional obsolescence is generally the most pressing issue in shophouses within the conservation area in Singapore, arising from problems of disuse that need adaptation. Meanwhile, in the case of Ipoh, physical, functional, economic, social and locational obsolescence might impact shophouses, which makes adaptive reuse, rather than rehabilitation the preferable way to address obsolescence (Wee et al., 2014). Yung et al. (2014) applied the Adaptive Reuse Potential model to identify and prioritise existing shophouses in Hong Kong for potential adaptive reuse based on seven aspects of obsolescence that are closely related to sustainability: physical, economic, social, functional, technical, legal and political obsolescence.

In relation to Melaka, there is a need for a comprehensive study concerning the impact of obsolescence on shophouses at the present time. Problems related to shophouses in Melaka arising from natural causes, modernisation, legislation, gentrification, lack of funds, ownership and conflict of interest, attitudes and perceptions, upgrading and conservation, and heritage tourism, as revealed by Ismail and Shamsuddin (2005) may be categorised as obsolescence (see Figure 3.37). It should be pointed out that Ismail and Shamsuddin focused fully on demolished shophouses rather than on converted shophouses. However, nowadays, demolition is no longer permitted on shophouses in the Core Zone of Melaka. Since most of the shophouses are privately-owned, it is presumed that issues associated with the conservation of shophouses are the responsibility of the users, either the building owners or the tenants (Ismail & Shamsuddin, 2005; Wee et al., 2014). Latham (2000) also firmly believed that there is no such thing as a problem building, only a problem owner; a building will become a problem when certain attitudes are encountered in the building owners.



Figure 3.37 An obsolete shophouse at Lorong Hang Jebat, Melaka due to natural causes.

There are five factors of obsolescence result in the demolition of shophouses in Melaka based on previous studies. These factors consist of: physical, economic, environmental, social and legal. They are explained as follows:

(a) Physical Obsolescence

Physically, heritage buildings are subject to demolition as a result of natural causes due to deterioration (Jokilehto, 1999). This is consistent with the findings of Ismail and Shamsuddin (2005) that deterioration is usually the result of gravity, human action, climate change and environmental impact. According to Feilden (as cited in Ismail & Shamsuddin, 2005), human action causes the greatest damage.

(b) Economic Obsolescence

The cost of maintaining historic sites like Melaka is particularly high, especially in developing countries, where it falls to the respective countries to provide funding because UNESCO does not provide financial resources for these sites (Ismail & Shamsuddin, 2005). In Malaysia, there is no funding available for maintaining privately-owned heritage buildings like shophouses, and this increases the possibility of them being left in a dilapidated state, or demolished in favour of new construction so as to generate a greater economic return.

There is a growing perception by government leaders, developers and local inhabitants that the conservation of heritage buildings has been considered as a barrier to modernisation, as revealed by Rhgei and Nelson (as cited in Ismail & Shamsuddin, 2005). As a consequence, the tendency for conserving shophouses will only increase with improved potential for profit.

(c) Environmental Obsolescence

Shophouses are subject to demolition as a result of traffic congestion and river conditions (Ismail & Shamsuddin, 2005). It is of real concern that this architectural typology is also threatened by pollution. Pollution is often a consequence of heavy industry, high traffic volumes and inadequate waste disposal systems, rather than of tourism. A surprising trend is that several shophouses in Melaka (Ismail & Shamsuddin, 2005; Ismail, 2013) and George Town (Connolly, 2016, 2017) have been converted into swiftlet farms for harvesting the nest of the edible-nest swiftlet, which may harm the interior fabric.

(d) Social Obsolescence

The social pressures are one of the factors to be considered whereby there is an apparent lack of appreciation for shophouses (Heritage of Malaysia Trust, 2004), even though shophouses in Melaka provide the setting for public buildings, for example museums, and religious and historical monuments.

(e) Legal Obsolescence

The multi-ownership of shophouses can become an issue. Several shophouse owners no longer occupy their shophouses. Instead they rent them to tenants, which can lead to dilapidated conditions especially when tenants convert those shophouses for storage purposes (Baroldin & Din, 2012). Ismail and Shamsuddin (2005) indicated that, by some means, the ownership of shophouses had changed hands passing from the local inhabitants to foreigners particularly from Singapore and Taiwan. The lack of appreciation of the historic significance of shophouses among foreigners contributed to the demolition of three shophouses within the heritage area in Melaka in December 2002 (Ismail & Shamsuddin, 2005).

According to Melaka JPBD (2011), Melaka and MBMB have enforced several federal laws, enactments and by-laws for heritage conservation planning and management in the Melaka World Heritage Site. The CMP and SAP state that any person who wishes to conduct any building works must submit conservation documents as mentioned in Subchapter 3.4.4 to MBMB for approval (Melaka JPBD, 2011). Nevertheless, the success of current local legislation regarding shophouses is questionable. Some cases are related to the lack of control within local governments. The findings of the studies by Ismail and Shamsuddin (2005) and Baroldin and Din (2012) revealed that conservation practices in shophouses in Melaka are still ineffective.

Apart from that, the enforcement of the Control of Rent (Repeal) Act 1997 (Act 572) had a negative impact on shophouses in Melaka, even though it was introduced to help the building owners to increase the rent to cover maintenance costs. The rent increase caused many of the old tenants, who could no longer afford to pay the rent, to move out, while artisans and tradesmen had to cease operations or move elsewhere (Ismail & Shamsuddin, 2005). This situation resulted in several shophouses being left vacant which contributed to them being demolished.

3.5.3 Adaptive Reuse Practices for Shophouses

Adaptive reuse is recommended as a way to generate new life in heritage buildings (UNESCO World Heritage Centre, 2018) and to avoid obsolescence being used as a justification for demolition (Zawawi & Abdullah, 2011). As stated by Ismail and Shamsuddin (2005), change of use within shophouses is common. Yung et al. (2014) showed that, in the last two to three decades, the interest in conserving and converting shophouses has increasingly gained momentum in Southeast Asian countries. There have been several studies discussing the adaptive reuse process in Malaysian shophouses in recent years. However, these studies have concentrated on George Town rather than on Melaka. In relation to Melaka, a study by Chua and Deguchi (2011) showed that examples of adaptive reuse practices were found in shophouses within the heritage area of this city. The Jonker Walk Programme, which is a joint initiative between the Melaka State Government and local communities as a way of encouraging tourism to enhance the local economy, was initiated in 2000 to revitalise the shophouses which had undergone out-migration since the late

1970s. As a result, many investors started to buy or rent these buildings to adapt them for new uses. Most of them were converted into new uses for tourism purposes such as hotels, restaurants, art galleries, gift shops and souvenir shops (Chua & Deguchi, 2011; Melaka JPBD, 2011) (see Figure 3.38).



Figure 3.38 A shophouse at Jalan Hang Jebat, Melaka that was converted into a gallery.

This effort continued as soon as Melaka and George Town were jointly inscribed as UNESCO World Heritage Sites (UNESCO World Heritage Centre, 2016c). Since the inscription, there has been an upsurge in conservation projects. As a consequence, strategic planning has also been outlined to assure the smooth running of this process (Mydin et al., 2014b). The survival of shophouses as the dominant heritage building typology in the Core Zones of Melaka and George Town is essential to secure their continuous inscription as World Heritage sites. Adaptive reuse practices typically have a positive impact on shophouses (Ismail, 2013). The findings presented by Chua and Deguchi (2011) revealed that the adaptive reuse of shophouses in the Core Zone of Melaka can be grouped into partial and full reuse. Fully reused shophouses consisting of hotels, cafés, restaurants and art galleries have been known to present greater challenges than partially reused shophouses.

Adaptive reuse was used to overcome obsolete shophouses. Five drivers of the adaptive reuse of Malaysian shophouses have been identified in previous studies. These drivers consist of: structural, spatial, financial, environmental and social. They are explained as follows:

(a) Structural Drivers

From a structural point of view, it has been proven that adaptive reuse can enhance the stability and longevity of shophouses (UNESCO World Heritage Centre, 2018).

(b) Spatial Drivers

Mydin et al. (2014a) perceptively stated that this architectural typology can easily be adjusted because of its simple open structure which can facilitate the installation of utilities and other changes.

(c) Financial Drivers

Profit generated from adaptive reuse can assure the economic feasibility of shophouses, while retaining their historic features. The Heritage Tax has helped to promote conservation efforts around the Melaka and George Town World Heritage Sites (UNESCO World Heritage Centre, 2018). Wahab et al. (2016) have expressed similar views, suggesting that the conversion of shophouses for tourism purposes, such as hotels, is strategically sound. It helps to meet the requirements of tourism, and at the same time, it provides better economic returns and supports the Malaysian tourism sector.

(d) Environmental Drivers

Shophouses have the potential to satisfy the requirements of the Green Building Index, such as was successfully attained by Hotel Penaga in George Town (Dewiyana et al., 2016).

(e) Social Drivers

A study by Chua and Deguchi (2011) on the perceptions of local community and tourists in the Core Zone of Melaka highlighted that adaptive reuse can make this area livelier, safer and a good place to live, as well as promoting gentrification and rehabilitation.

Chua and Deguchi also emphasised that businesses operating in reused buildings tend to give a higher quality service.

However, there are also several issues related to adaptive reuse practices for shophouses (Ismail, 2013). Four barriers to the adaptive reuse of Malaysian shophouses have been identified in previous studies. These barriers consist of: constructional, servicing, social and legal. They are explained as follows:

(a) Constructional Barriers

The exploratory survey carried out by Ismail and Shamsuddin (2005) found that some works on conserving shophouses in Melaka cannot be qualified as conservation, because they did not go through the proper process due to a lack of craftsmanship and the shortage of authentic materials.

(b) Servicing Barriers

The growing demand for boutique hotels in Melaka, Penang and Singapore requires the heritage value of these shophouses to be blended with modern demands. This situation presents several challenges to be faced by the hoteliers and the authorities (Henderson et al., 2013). For example, the authenticity of shophouses may be affected when their structures, support systems and fire safety systems are upgraded to comply with UBBL 1984. This is because most of them were built before the formulation of these by-laws, as revealed by Mei and Ahmad (2017).

(c) Social Barriers

Adaptive reuse may reduce the privacy of those living within the heritage area and may cause this area to lose its heritage attractions (Chua & Deguchi, 2011). Furthermore, there is no guarantee that modern activities will be more interesting than traditional activities.

(d) Legal Barriers

Zubir et al. (2018) critically reviewed most issues concerning shophouses that have been converted into museum and hotels in George Town. Zubir et al. agreed with Jasme et

al. (2014), Wahab et al. (2016) and Mei and Ahmad (2017) that many of the owners of these buildings have difficulties meeting the requirements of the guidelines of the Penang Island City Council (MBPP) while still making a profitable investment. Even more concerning is the discovery by Mydin et al. (2014a, b) that most of the shophouses in George Town were provided with poor fire safety systems. Melaka has a lot in common with George Town. Most of the hoteliers were also neglecting the guidelines as set out by MBMB while completing the adaptive reuse process in their shophouses, particularly in relation to the structural and constructional aspects (Wahab et al., 2016). A study by Chua and Deguchi (2011) also discovered that there were several examples showing carelessness during the conversion of shophouses in the Jonker Walk Programme.

3.6 Summary

The critical review and overview of shophouses presented in this chapter offers a number of key findings. As historic Asian 'mixed-used' buildings, shophouses are usually seen in Southern China and in the urban quarters of most Southeast Asian countries. This architectural typology in Southeast Asia represents a hybrid of vernacular, Southern Chinese and European styles, a consequence of the arrival of Chinese immigrants and Western colonists. The historic significance of shophouses was recognised through the inscription of Malaysia, the Philippines, Vietnam and Laos as the UNESCO World Heritage Sites. In Malaysia, shophouses are the dominant heritage building typology in the Core Zones of Melaka and George Town. Nevertheless, there are reasons why the research in this thesis is focused on Melaka.

The urban spatial layout of shophouses in Melaka can be classified as Compounded Type. Generally, the six styles of shophouses consist of: Dutch, Southern China, Early Straits Eclectic, Late Straits Eclectic, Art Deco and Modern. The six characteristics that should be respected in the restoration of shophouses are as follows: roof, facade, five-footway, rear area, interior and features. Utilities can be an additional requirement necessary to meet modern demands. Act 172, Act 133, Act 171, Enactment No. 6 1988 and UBBL 1984 are the legal provisions that can be employed for the heritage conservation of shophouses, alongside the CMP and SAP to guide and control the development in this area.

The CMP was developed for the purpose of nominating Melaka as a UNESCO World Heritage Site. However, previous studies have indicated that inscription brought about several positive and negative changes. Specifically, it could make the site overly touristic and commercialised, which could, in turn, lead to obsolescence. Therefore, adaptive reuse should be considered as a sustainable option, especially when the demolition of buildings on a site is no longer permitted. In general terms, previous studies related to the demolition of shophouses in Melaka mainly discussed the following factors of obsolescence: physical, economic, environmental, social and legal. At the same time, they also identified several drivers of and barriers to the adaptive reuse of Malaysian shophouses, most of which involve the following aspects: structural, constructional, spatial, servicing, financial, environmental, social and legal. The next page illustrates the interactions between shophouses, building obsolescence and adaptive reuse as the main elements in this research arising from the literature review (see Figure 3.39).

Meanwhile, the next chapter (Chapter 4), consisting of three primary subchapters, will describe the specific and systematic qualitative procedures used to identify, select, process and analyse information about this topic.

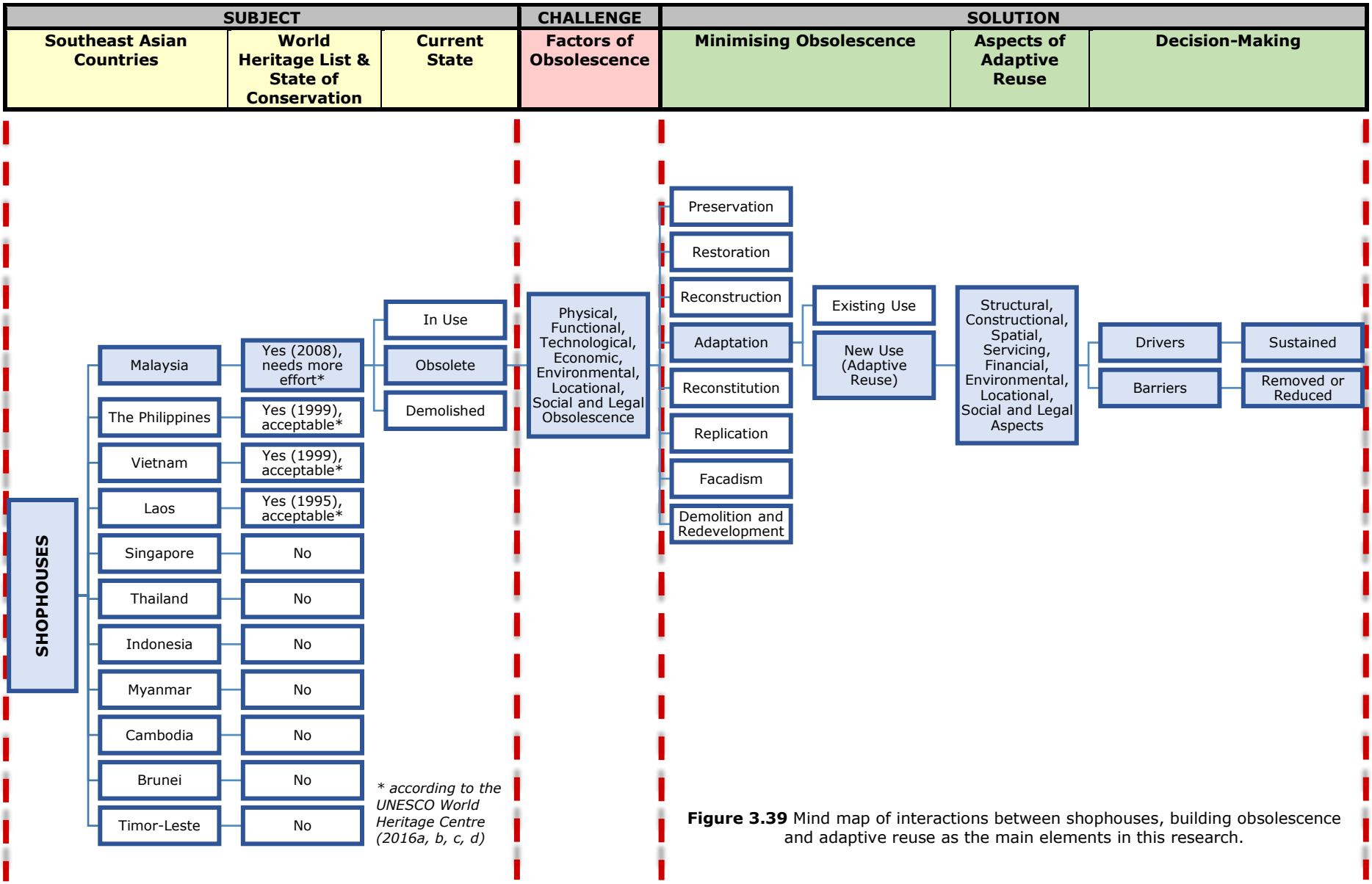


Figure 3.39 Mind map of interactions between shophouses, building obsolescence and adaptive reuse as the main elements in this research.

Chapter 4



Research Methodology

4.1 Introduction

The fourth chapter describes the specific and systematic qualitative procedures used to identify, select, process and analyse information about this topic using fieldwork, the case study approach, the on-site survey, observations and interviews. This chapter has an organisational pattern of three primary subchapters: research design, research structure and ethical considerations.

4.2 Research Design

As stated by Creswell (2014, p. 12), research design is defined as: *"…types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research design"*, and others have called them 'strategies of inquiry' (Denzin & Lincoln, as cited in Creswell, 2014). The methods available to researchers have evolved over the years in tandem with the evolution of the use of computer technology in data analysis. This evolution enables the use and analysis of complex models, and the application of new procedures by researchers conducting social science research (Creswell, 2014). It can be said that a research design is a research plan and framework that has been framed to find answers to research questions, as well as demonstrating the ability of researchers to tackle research problem in a coherent and explicit way. In planning the route to successful research, the research in this thesis started with a literature review, the identification of the research problem, the research questions, the research objectives, the research methodology, fieldwork, sampling, case studies, data analysis, and it ended with the conclusions and recommendations (see Figure 4.1). The research methodology had three aspects: qualitative research, qualitative data and qualitative analysis.

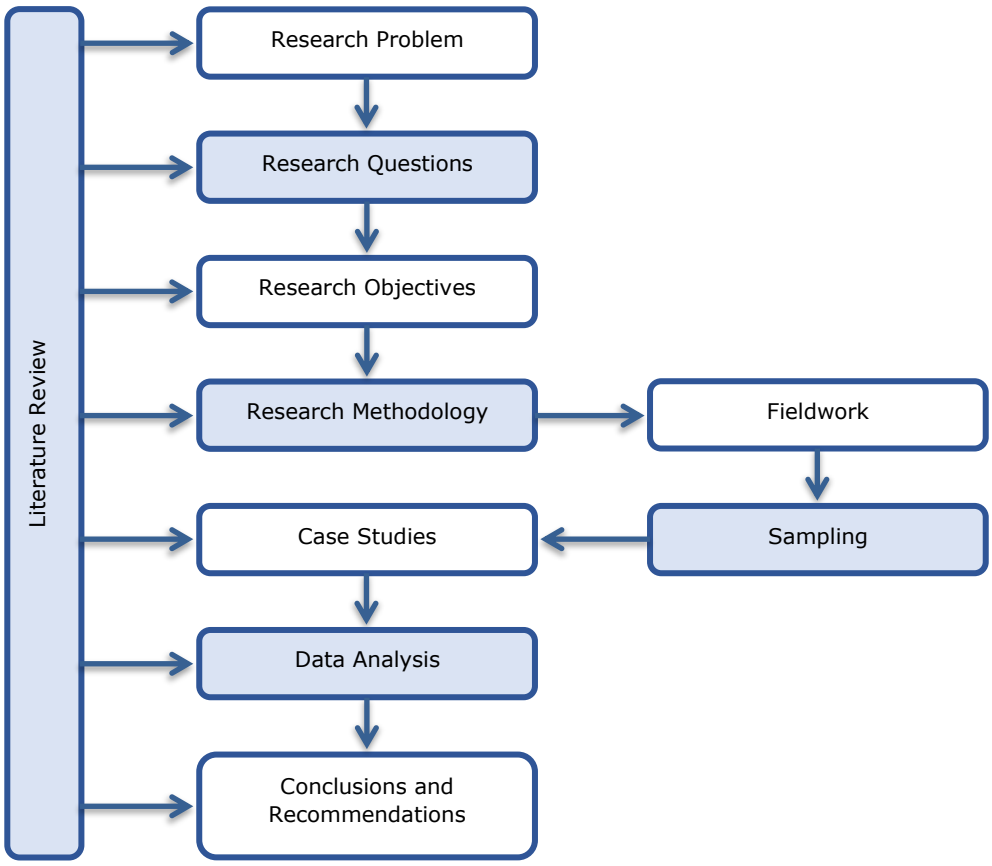


Figure 4.1 The flow chart of research design.

4.2.1 Qualitative Research

Lucas (2016) defined research methodology as a strategy to discover something about a topic. It consists of a set of practical and pragmatic activities that enables the researchers to ask the relevant questions and to attain some robust conclusions. Based on this definition, architectural research typically falls into two major methodological groups comprising qualitative and quantitative research. Newman and Benz (1998) clarified qualitative research as a naturalistic approach used when a researcher observes and interprets reality with the intention of developing a theory that will shed light on a topic by examining the 'how' and 'why' of decision-making. On the other hand, quantitative research is an obtrusive approach employed when a researcher starts with a theory (or hypothesis) and tests for validation or invalidation of the hypothesis. The field of qualitative research has grown substantially, its methods being applied primarily to health, nutrition and population issues; marketing and advertising; and social and cultural research (Boxill et al., 1997). However, in some cases, social research methods can be quantitative (Newman &

Benz, 1998) if they approach social phenomena through quantifiable evidence that relies heavily on statistics for results, or can be combined as part of a multi-strategy design.

Nevertheless, the research in this thesis, has focused on qualitative research because it is holistic, subjective, process-oriented (Oakley, as cited in Blaxter et al., 2010) and relevant to identifying patterns or themes (Lodico et al., 2010), in addition to insisting on the understanding of social phenomena (Fadul & Estoque, 2010) consistent with the intention of this research. In most cases, it can be seen that the more robust research form for investigating history, theory, philosophy and the social aspects of architecture will be qualitative, as recommended by Lucas (2016). O'Callaghan (2016) explained that qualitative research aims to find out how people and things interact in the environment. In effect, qualitative researchers seek to explore and explain the significance of people's behaviour, experiences and actions.

Qualitative research can be defined as follows:

> *…an approach or an attitude to data gathering, which comprises in-depth investigation of human perceptions, attitudes and experiences, as well as the associated processes by, and/or the contexts within which these occur. The approach results in value-added understanding of motivations and behaviours.*
>
> (Boxill et al., 1997, p. 43)

In architecture, qualitative research can be described as:

> *…simply, the understanding of qualities. These are often understood to be subjective rather than absolute understandings, so that the categorisation of facts becomes somewhat contested and based on individual or group perspectives. To many more accustomed to the hard sciences, qualitative research is uncertain and insufficiently accurate, but it has a role to play, particularly within the humanities-based study of architecture.*
>
> (Lucas, 2016, p. 36)

Based on the facts, it can be suggested that the social sciences have an important role in helping the architect to understand and to have some access to how people actually

live, what is important to them, and how something as fundamental as identity can be constructed through engagement with the built environment. Lucas (2016) perceptively stated that qualitative research on architecture through the lens of the social sciences can offer an understanding of architecture as a set of practices. This provides the opportunities for architects to adapt their approaches to meet the needs of clients and users, redrawing the processes of commissioning, designing and occupying buildings. While qualitative research may be imperfect and it is still in its early stages, it is now accepted as a form of research in many different academic and professional fields. It allows the researchers to conduct in-depth studies on various topics and offers the freedom to choose the topics of interest, as there is less of a possibility of constraints than there would be with other research methods (Yin, 2016). Boxill et al. (1997) expressed similar views which holds that qualitative research will continue for some time to come and will be slowly developed as the need for such in-depth information increases.

The literature shows that qualitative research was undertaken in most studies related to the adaptive reuse of Malaysian shophouses. There have been studies by Chua and Deguchi (2011), Henderson et al. (2013), Ismail (2013), Wahab et al. (2016) and Mei and Ahmad (2017) in Melaka; and studies by Henderson et al. (2013), Jasme et al. (2014), Mydin et al. (2014a, b), Dewiyana et al. (2016), Wahab et al. (2016), Mei and Ahmad (2017) and Zubir et al. (2018) in Penang. While qualitative research offers opportunities, Boxill et al. (1997, p. 46) suggested that researchers may be placed at risk when using this method (see Table 4.1).

Table 4.1 Strengths and limitations of qualitative research (Boxill et al., 1997, p. 46).

QUALITATIVE RESEARCH	
Strength	**Limitation**
▪ Allows for in-depth assessment of issues being researched ▪ Allows for investigation of highly sensitive issues ▪ Allows for comprehensive subjective evaluation based on interpersonal interaction over an extended period ▪ Can be moderated regarding location, schedule, content, pace and continuity, therefore allows flexibility ▪ Can be applied to a number of fields of investigation ▪ Can stand on its own and form complete data gathering techniques, or can be used at different phases of investigation ▪ Allows for concurrent 'observation' by interested parties with input where applicable	▪ Relies primarily on subjective assessments in data collection phase ▪ Allows limited extrapolation to the general population ▪ Utilises much smaller 'sample' units than quantitative techniques ▪ Seems deceptively easy to organise, implement, analyse and report ▪ Can be easily misused, misunderstood, due to relative naturalness of methods ▪ Can be costly on a per capita basis ▪ Has a relative lack of formal theoretical and operational guidelines, which limits the respectability afforded its methods ▪ Is not yet well known and/or accepted as a bona fide, formal research technique by the wider scientific community

QUALITATIVE RESEARCH	
Strength	**Limitation**
▪ Can often be implemented without multiple human resources ▪ Can offer particularly keen insight to the single researcher since he or she can be involved in all phases of method	

Creswell (2013) specified five major traditions, or approaches, in qualitative research: narrative studies, phenomenology, grounded theory, ethnography and case study. In addition to these approaches, fieldwork or field research is also characterised as qualitative research (Bhat, 2019b). The stress in this research was on fieldwork and the case study approach. Fieldwork is commonly used to describe research associated with a particular site, place or location (Lucas, 2016). Bhat (2019b) defined fieldwork as a qualitative method of data collection that aims to observe, interact with and understand people in their natural environment. For example, nature conservationists observe the behaviour of animals in their natural surroundings and the way they react to certain scenarios. In the same way, social scientists conducting fieldwork may conduct interviews or observe people from a distance to understand how they behave in a social environment and how they react to situations around them. There are significant advantages to using fieldwork, as emphasised by Bhat (2019b), who also listed limitations of this method (see Table 4.2).

Table 4.2 Strengths and limitations of fieldwork (Bhat, 2019b).

FIELDWORK	
Strength	**Limitation**
▪ It is conducted in a real-world and natural environment where there is no tampering of variables and the environment is not doctored ▪ Due to the study being conducted in a comfortable environment, data can be collected even about ancillary topics ▪ The researcher gains a deep understanding into the research subjects due to the proximity to them and hence the research is extensive, thorough and accurate	▪ The studies are expensive and time-consuming and can take years to complete ▪ It is very difficult for the researcher to distance themselves from a bias in the research study ▪ The notes have to be exactly what the researcher says but the nomenclature is very tough to follow ▪ It is an interpretive method and this is subjective and entirely dependent on the ability of the researcher ▪ In this method, it is impossible to control external variables and this constantly alters the nature of the research

The case study approach is relevant to 'how' and 'why' type questions and explanatory investigations (Kurul, 2007). To quote from Stake (as cited in Creswell, 2013), case study can be explained as a research method to develop an in-depth description and analysis of a small number of units either a single case or as multiple cases within a period

of time. This gives this method significance for psychology, law, political science and medicine. However, in certain cases, a case study can be based on a combination of quantitative and qualitative data, when the researcher may also collect numerical data. Alizadeh (2006) pointed out that the case study has become the dominant methodology in architectural research. Furthermore, across the literature that has been reviewed, it can be concluded that the case study approach is commonly and widely discussed and used, especially in regard to the social aspects of architecture. According to Cohen et al. (as cited in Blaxter et al., 2010, p. 74), there are several advantages to using the case study approach, while Blaxter et al. (2010, p. 74) pointed out that the limitations of this approach are linked to its advantages (see Table 4.3).

Table 4.3 Strengths and limitations of the case study approach (Blaxter et al., 2010, p. 74).

CASE STUDY APPROACH	
Strength	**Limitation**
▪ The data is drawn from people's experiences and practices and so it is seen to be strong in reality ▪ Allows for generalisations from a specific instance to a more general issue ▪ Allows the researchers to show the complexity of social life ▪ Can provide a data source from which further analysis can be made ▪ Because it builds on actual practices and experiences, it can be linked to action and its insights contribute to changing practice ▪ Because the data contained in it is close to people's experiences, it can be more persuasive and more accessible	▪ The very complexity of a case can make analysis difficult ▪ Is difficult to know where 'context' begins and ends, even though the contextualization of aspects of the case strengthens this form of research

4.2.2 Qualitative Data

Nigatu (2009) clarified qualitative data as data that is not easily measured in numbers and usually associated with concepts, opinions, values and behaviour of people in a social context. It can include transcripts of individual interviews and focus group discussions, field notes from observing certain activities, copies of documents, and audio or video recordings (Creswell, 2014). Data collection methods for fieldwork vary and can be a mix of surveys, interviews, case studies and observation (Bhat, 2019b). The case study approach employs various qualitative data collection methods such as interviews, participant observation and field studies (Hamel et al., 1993).

After considering all factors, an on-site survey, observations and interviews were chosen as the primary means of data collection for the research in this thesis. The on-site

survey and observations were used to collect qualitative data on all shophouses in the study area. SurveyMonkey Inc. (2019) indicated that these methods can lead to findings that more direct forms of research, such as focus groups and interviews, would miss. Interviews were employed to collect qualitative data about the case study buildings. This choice was based on this method's effectiveness, which enables the researcher to learn about events and activities that cannot be observed directly (Taylor & Bogdan, 1998; Creswell, 2014). Moreover, it generates extensive data that provides in-depth information on a small number of individuals, as stated by Lodico et al. (2010).

A survey design provides a quantitative or numeric description of the trends, attitudes or opinions of a population by studying a sample of that population (Creswell, 2014). From the sample results, the researcher generalises or draws inferences about the population as a whole. DeFranzo (2012) revealed that many researchers are tempted to do much of their data collection online. However, this is not always the preferred mode of data collection, especially if respondents are in hard-to-reach areas. For example, in this research, a survey was conducted by visiting the study area to gather information, a method known as the on-site survey. Surveys have several strengths and limitations, as listed by DeFranzo (2012) (see Table 4.4).

Table 4.4 Strengths and limitations to using surveys (DeFranzo, 2012).

SURVEYS	
Strength	**Limitation**
▪ Relatively easy to administer ▪ Can be developed in less time ▪ Cost-effective, but cost depends on survey mode ▪ Conducted remotely can reduce or prevent geographical dependence ▪ Capable of collecting data from a large number of respondents ▪ Numerous questions can be asked about a subject, giving extensive flexibility in data analysis ▪ With survey software, advanced statistical techniques can be utilised to analyse survey data to determine validity, reliability, and statistical significance, including the ability to analyse multiple variables ▪ A broad range of data can be collected (e.g. Attitudes, opinions, beliefs, values, behaviour, factual) ▪ Standardised surveys are relatively free from several types of errors	▪ Respondents may not feel encouraged to provide accurate, honest answers ▪ Respondents may not feel comfortable providing answers that present themselves in an unfavourable manner ▪ Respondents may not be fully aware of their reasons for any given answer because of lack of memory on the subject, or even boredom ▪ Surveys with closed-ended questions may have a lower validity rate than other question types ▪ Data errors due to question non-responses may exist. The number of respondents who choose to respond to a survey question may be different from those who chose not to respond, thus creating bias ▪ Survey question answer options could lead to unclear data because certain answer options may be interpreted differently by respondents. ▪ Customized surveys can run the risk of containing certain types of errors

According to Creswell (2014), qualitative observation occurs when a researcher takes field notes on the behaviour and activities of individuals at a research site. This method is the research process of using subjective methodologies to gather information or data (Bhat, 2019a). Since the focus of qualitative observation is on determining quality differences, it is much more time-consuming than quantitative observation, but the sample size used is much smaller and the research is extensive and much more personal. This type of observation deals with the five major sensory organs and their function – sight, smell, touch, taste and hearing. It does not involve measurements or numbers, but instead characteristics. Observations have several strengths and limitations, as listed by Creswell (2014, p. 191) (see Table 4.5).

Table 4.5 Strengths and limitations to using observations (Creswell, 2014, p. 191).

OBSERVATIONS	
Strength	**Limitation**
▪ Researcher has a firsthand experience with participant ▪ Researcher can record information as it occurs ▪ Unusual aspects can be noticed during observation ▪ Useful in exploring topics that may be uncomfortable for participants to discuss	▪ Researcher may be seen as intrusive ▪ Private information may be observed that researcher cannot report ▪ Researcher may not have good attending and observing skills ▪ Certain participants (e.g. children) may present special problems in gaining rapport

In fieldwork, qualitative observers may also engage in roles that vary from direct observation to participant observation (Bhat, 2019b). In this research, as recommended by Bhat (2019b), direct observation was selected because it offers contextual data on people, situations, interactions and surroundings. Also known as observational study, this is a method of collecting evaluative information in which the evaluator watches the subject in his or her usual environment without altering that environment (Holmes, 2013). This method is used when other data collection procedures such as surveys and questionnaires are not effective; when the goal is to evaluate an ongoing behaviour process, event, or situation; or when there are physical outcomes that can be readily seen. Direct observation can be overt, when the subject and individuals in a particular environment know the purpose of the observation, or covert, when the subject and individuals in the environment are unaware of the purpose of the observation. Direct observations have several strengths and limitations, as listed by Windsor (2016) (see Table 4.6).

Table 4.6 Strengths and limitations to using direct observations (Windsor, 2016).

DIRECT OBSERVATIONS	
Strength	**Limitation**
▪ Allows researcher to see what goes on with their own eyes – can make judgements and observe body language used ▪ Researcher can be more open minded as they're an outsider looking in – less likely to feel sympathy and therefore produce bias data ▪ More ethical if done overtly – no ethical issues if people are aware they are being observed	▪ Can lead to Hawthorne effect – people act differently as they know they are being observed ▪ May be hard to gain accurate results as watching from a distance ▪ Impression management ▪ Time consuming/costly

In qualitative interviews, the researcher conducts face-to-face interviews with participants, telephone interviews, or engages in focus group interviews (Creswell, 2014). Bullen and Love (2011b) stressed the fact that interviews can be used to understand the views and experiences of working practices associated with adaptive reuse. This method can be a crucial way of gaining research information from the wide range of people involved in architectural projects, from the architects to clients and user groups, as pointed out by Lucas (2016). Lucas recommended that the interviews should not always be conducted with the architects, but should also include building users, clients, local building authorities or planning officers. A different approach should be taken to interviewing each of these groups, and it should match their capacity to answer the questions. In some cases, interviews with other professionals such as engineers or project managers, or long-term users could be useful, especially if there are aspects of a building's ongoing operation that an architect cannot reveal. Interviews have several strengths and limitations, as listed by Creswell (2014, p. 191) (see Table 4.7).

Table 4.7 Strengths and limitations to using interviews (Creswell, 2014, p. 191).

INTERVIEWS	
Strength	**Limitation**
▪ Useful when participants cannot be directly observed ▪ Participants can provide historical information ▪ Allows researcher control over the line of questioning	▪ Provides indirect information filtered through the views of interviewees ▪ Provides information in a designated place rather than the natural field setting ▪ Researcher's presence may bias responses ▪ Not all people are equally articulate and perceptive

Klenke (2016) suggested that there are three types of interviews comprising structured interviews, semi-structured interviews and unstructured interviews. Typically, as stated by Lodico et al. (2010), most interview sessions in qualitative research have some degree of flexibility and the researchers may conduct either unstructured interviews or

semi-structured interviews. In this research, semi-structured interviews were selected because this is the most important form of interviewing in the case study approach as it is the richest single source of data, as emphasised by Gillham (2000a). By employing this type of interviews, the use of closed-ended and open-ended questions can be incorporated, resulting in an interview protocol evolving around a list of topics without fixed wording or order of questions (Klenke, 2016). Semi-structured interviews have several strengths and limitations, as listed by Klenke (2016, p. 132) (see Table 4.8).

Table 4.8 Strengths and limitations to using semi-structured interviews (Klenke, 2016, p. 132).

SEMI-STRUCTURED INTERVIEWS	
Strength	**Limitation**
▪ Positive rapport between the interviewer and interviewee ▪ Results in high reliability ▪ Address and clarify complex issues ▪ Reduce prejudgement on part of the interviewer through predetermining what will or will not be discussed due to few predetermined questions	▪ Dependent on skill of the interviewer to formulate questions during the interview and ability of the respondent to articulate answer ▪ Not very reliable ▪ Time consuming and expensive ▪ Depth of information difficult to analyse ▪ Limited generalisability ▪ Lack of validity

In addition, other types of data collection were utilised for this research, such as viewing documents and audio-visual materials. During the research process, a researcher may collect qualitative documents. These may be public documents (e.g. newspapers, minutes of meetings, official reports) or private documents (e.g. personal journals and diaries, letters, emails) (Creswell, 2014). Audio-visual materials may take the form of photographs, videotapes, art objects, computer messages, sounds and film. The use of documents and audio-visual materials has several strengths and limitations, as listed by Creswell (2014, p. 191-192) (see Tables 4.9 and 4.10).

Table 4.9 Strengths and limitations to using documents (Creswell, 2014, p. 191-192).

DOCUMENTS	
Strength	**Limitation**
▪ Enables a researcher to obtain the language and words of participants ▪ Can be accessed at a time convenient to researcher – an obtrusive source of information ▪ Represents data to which participants have given attention ▪ As written evidence, it saves a researcher the time and expense of transcribing	▪ Not all people are equally articulate and perceptive ▪ May be protected information unavailable to public or private access ▪ Requires the researcher to search out the information in hard-to-find places ▪ Requires transcribing or optically scanning for computer entry ▪ Materials may be incomplete ▪ The documents may not be authentic or accurate

Table 4.10 Strengths and limitations to using audio-visual materials (Creswell, 2014, p. 192).

AUDIO-VISUAL MATERIALS	
Strength	**Limitation**
▪ May be an unobtrusive method of collecting data ▪ Provides an opportunity for participants to directly share their reality ▪ It is creative in that it captures attention visually	▪ May be difficult to interpret ▪ May not be accessible publicly or privately ▪ The presence of observer (e.g. Photographer) may be disruptive and affect responses

4.2.3 Qualitative Analysis

According to Nigatu (2009), qualitative data analysis is a range of processes and procedures during which the researchers shift from qualitative data collection to the explanation, understanding or interpretation of the people, events and activities they are investigating. It is usually derived from an interpretative philosophy and can be described as the intention to explore the significant and symbolic context of qualitative data. Based on his study, qualitative data analysis can generally be categorised into five types: content analysis, narrative analysis, discourse analysis, framework analysis and grounded theory.

Nigatu (2009, p. 30) outlined the following five principles of qualitative data analysis:

- people differ in their experiences and understanding of reality
- a social phenomenon cannot be understood outside its own context
- qualitative research can be used to describe phenomenon or generate theory grounded on data
- understanding human behaviour emerges slowly and non-linearly
- exceptional cases may be yield insights in to a problem or new idea for further inquiry

Content analysis was selected as the primary means of data analysis for the research in this thesis since it can be an effective method for transforming qualitative material into quantitative data (Rubin & Babbie, 2017), and organising the substantive content of the interviews and then arranging them into categories (Gillham, 2000b). Gillham (2000b) stated that the main purpose of having categories is to allocate all the substantive statements of the interviews to them so that the range of data will be presented in an orderly manner.

Another researcher has expressed similar views that content analysis can be described as:

> *"…a method for systematically describing the meaning of qualitative material. It is done by classifying material as instances of the categories of a coding frame."*
>
> (Schreier, 2012, p. 1)

Creswell (2014) and Saldana (2016) recommended several major Computer Assisted Qualitative Data Analysis Software (CAQDAS) packages such as ATLAS.ti, MAXQDA and NVivo for the purpose of coding electronically. This software can store, organise, manage and reconfigure the data efficiently. The application of CAQDAS becomes crucial when the research involves interviews with multiple participants. In this research, NVivo was used to analyse the text derived from observations and interviews to enable the development of key themes. This process is similar to studies by Bullen and Love (2010, 2011b) and Conejos et al. (2013), which used interviews when researching the adaptive reuse process. Rubin and Babbie (2017, p. 424) indicated the following strengths and limitations of content analysis for researchers engaged in content analysis (see Table 4.11).

Table 4.11 Strengths and limitations of content analysis (Rubin & Babbie, 2017, p. 424).

CONTENT ANALYSIS	
Strength	**Limitation**
▪ Economy in terms of both time and money, since there is no requirement for a large research staff and special equipment ▪ Ease of correcting mistakes, where the researcher might be required to recode only a portion of the data rather than repeat the entire enterprise ▪ Permits the researcher to study processes that occur over long periods of time ▪ Seldom affects the subject being studied, because the books have already been written, the case records already recorded, and the speeches already presented	▪ Limited to the examination of recorded communications, which may be oral, written or graphic, but they must be recorded in some fashion to permit analysis ▪ Disadvantages in terms of validity, where problems are likely unless the researcher happens to be studying communication processes per se ▪ Disadvantages in terms of reliability, where in qualitative research there is probably nothing the researcher can do after the fact to ensure greater reliability in observation and categorisation

Cross-case analysis has an ability to mobilise knowledge from individual case studies so that knowledge from these cases can be incorporated for use in wider purposes (Khan & VanWynsberghe, 2008). As suggested by Ayres et al. (2003), through the cross-case analysis strategy, qualitative researchers can develop data interpretation that represents individual's experience and applies to all of the components that make up the data set. Mathison (2005) pointed out that cross-case analysis is a method of accumulating

data across cases and making generalisations, and that it is frequently adopted in qualitative data analysis associated with a case study approach. In order to establish a standpoint on generalisability, there are three considerations for case study researchers to deal with before commencing cross-case analysis, which are as follows: preserving the uniqueness of the case, diminishing the contextual detail of the case and selecting suitable cases for comparison (Khan & VanWynsberghe, 2008). There are both strengths and limitations of cross-case analysis, as indicated by Khan and VanWynsberghe (2008) (see Table 4.12).

Table 4.12 Strengths and limitations of cross-case analysis (Khan & VanWynsberghe, 2008).

CROSS-CASE ANALYSIS	
Strength	**Limitation**
▪ Extends the investigator's expertise beyond the single case ▪ Provokes the researcher's imagination, prompts new questions, reveals new dimensions, produces alternatives, generates models, and constructs ideals and utopias ▪ Enables case study researchers to delineate the combination of factors that may have contributed to the outcomes of the case, seek or construct an explanation as to why one case is different or the same as others, make sense of puzzling or unique findings, or further articulate the concepts, hypotheses, or theories discovered or constructed from the original case ▪ Enhances researchers' capacities to understand how relationships may exist among discrete cases, accumulate knowledge from the original case, refine and develop concepts, and build or test theory ▪ Allows the researcher to compare cases from one or more settings, communities, or groups in which this provides opportunities to learn from different cases and gather critical evidence to modify policy	▪ Triggers long-standing tension between deeply contextualised and particularistic case knowledge and multiple case study research ▪ Leads the cross-case analyst to be confronted with questions about the generalisability of the conclusions emerging from the analysis and the ability of the researcher to justify any comparison beyond the set of cases studied

4.3 Research Structure

The research structure explains how the research in this thesis uses fieldwork and the case study approach, through the research aim and the five refined objectives. Many prominent researchers such as Stake, Simons and Yin (as cited in Soy, 1997), Soy (1997) and Creswell (2014) have recommended strategies for organising and conducting the

research effectively. Consistent with their studies, the following six steps that ought to be used in this research have been identified (see Figure 4.2).

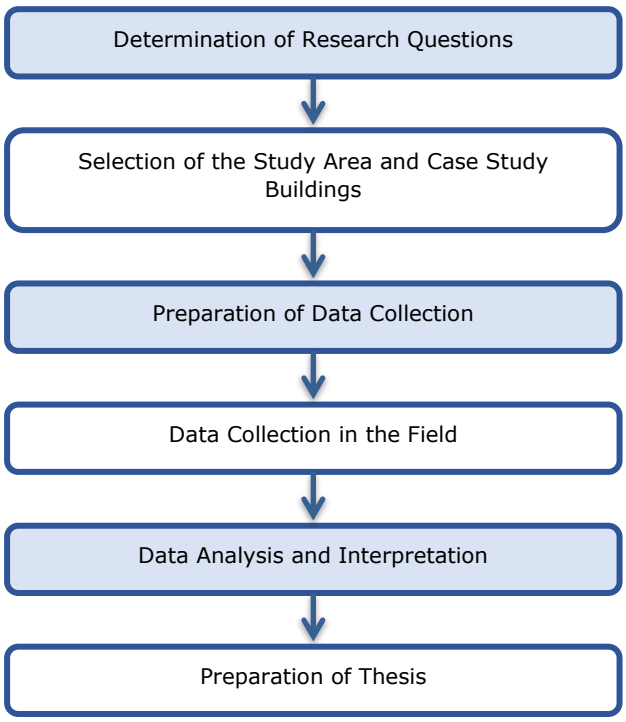


Figure 4.2 Six steps of organising and conducting the research effectively.

4.3.1 Determination of Research Questions

The research in this thesis is primarily interested in finding the best formulas for revitalising and converting obsolete shophouses in the Core Zone of Melaka for suitable uses. It begins with a review of the literature to find out what prior studies have determined about these issues and it used the literature to define the following five research questions for the study of examples of this architectural typology that have been converted into boutique hotels:

- ***Question 1****: What is the current state of adaptive reuse practices for Malaysian shophouses?*
- ***Question 2****: How is the life cycle of Malaysian shophouses affected by obsolescence?*
- ***Question 3****: What are the drivers surrounding the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and how could they minimise the impact of obsolescence?*

- ***Question 4****: What are the barriers surrounding the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and how can the impact of the barriers identified be removed or reduced?*
- ***Question 5****: How can the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels be influenced by government policies?*

4.3.2 Selection of the Study Area and Case Study Buildings

As a starting point for selecting the study area and case study buildings for this thesis, in December 2016, the researcher contacted the Melaka Historic City Council (MBMB) and the Penang Island City Council (MBPP) to ask for permission to access the database of shophouses in the Core Zones of Melaka and George Town, Penang that had undergone an adaptive reuse process. This is because the process requires the permission of local government, as reported by Melaka JPBD (2011) and Penang JPBD (2013). However, they did not have this particular data; they only had an inventory of heritage buildings in the heritage zones of the respective cities. MBMB agreed to provide a copy of this inventory. However, MBPP and the George Town World Heritage Incorporated (GTWHI) were not in a position to provide a copy of their inventory, since the information was categorised as being confidential. As a result of this limitation, in the end, the research in this thesis focused on an in-depth study of the Core Zone of Melaka as the study area, rather than comparing it with the Core Zone of George Town, which was the original intention.

It was difficult to identify the authentic shophouses in the Core Zone of Melaka, since the MBMB current practice is to list all shophouses and townhouses as 'shophouses' (Melaka JPBD, 2011) even though shophouses and townhouses are different from each other. Previous research by Chen (1998) proposed that townhouses could be regarded as an imitative version of shophouses, and several townhouses still remain in use especially at Jalan Tun Tan Cheng Lock. Unlike other heritage sites, this area has a combination of shophouses and townhouses. However, there were no official documents to differentiate them individually. Consequently, the researcher decided to develop her own database of shophouses in this area, whose previous and/or current functions have been confirmed as a retail area on the ground floor and living quarters on the upper floor(s). This ensured that

the buildings in this research meet the literal definition of a shophouse as set out by Wakita and Shiraishi (2010), Henderson (2011) and Han and Beisi (2015), and that the research achieves its aim and objectives. This is because adaptive reuse concerns the use of a building, and different uses have different implications for the process.

The new database of shophouses in the Core Zone of Melaka was initially extracted from the Inventory of Heritage Buildings in the Heritage Zone of Melaka prepared by MBMB in 2005 (to identify previous function) and updated by the on-site survey in February and March 2017 (to identify current function) (see Appendix C). The inventory contains basic information such as building number, street name, building style and date built. The on-site survey has four agendas to be examined, as follows: previous use (before 2005), previous use (2005), current use (2017) and nature of use. This enabled the identification of the heritage buildings that were originally and/or are functioning as shophouses. However, due to the restricted sources of information on the individual history of each building, the earliest information on previous uses that can be found in this inventory was from 2000 onwards. In addition, only the ground and first floor uses were recorded because many of the shophouses were two-storey and, in most other cases, any third floor tended to have the same function as the second floor.

Based on the on-site survey undertaken for this research, there were 432 out of the 1,075 heritage buildings in the Core Zone of Melaka that can be considered as shophouses based on the literal definition. The on-site survey also showed that a modest proportion (133) of the shophouses in this area have undergone adaptive reuse practices. These adaptive reuse practices can be classified into two categories: partial reuse and full reuse. The survey showed that 86 shophouses were partially reused, where there has been a change of use on the ground or upper floor, and the other floor has been preserved or left vacant; 47 were fully reused, where there has been a change of use on both the ground and upper floors.

This research relied on purposive sampling, which is the most common form of non-probability sampling (Merriam, 2009). This is because of the big number of shophouses in the Core Zone of Melaka. Rubin and Babbie (2010) defined purposive sampling as a technique that allows the researchers to select the samples based on their judgement and the purpose of the research. This method is suitable for qualitative research and it is used frequently by social scientists (Adler & Clark, 2015). According to Merriam (2009), to begin

purposive sampling, the selection criteria must first be established when choosing the people or sites to be studied and it should directly reflect the purpose of the research. In this instance, the selection of case study buildings was decided by the following five selection criteria:

- ***Criterion 1****: To meet the literal definition of a shophouse, the previous and/or current functions of the shophouses must be confirmed as a retail area on the ground floor and living quarters on the upper floor(s).*
- ***Criterion 2****: A priority of this research is that the shophouses must be adapted for new uses and still be in active use, thereby avoiding problems in obtaining information on the history and ownership of the building.*
- ***Criterion 3****: The shophouses must be fully reused because this poses greater challenges than partially reused buildings, resulting from the introduction of a totally new activity in the whole building.*
- ***Criterion 4****: The adaptive reuse process of shophouses must involve professional experts such as architects, engineers, project managers or other qualified professionals, in order to gather reliable information about the process.*
- ***Criterion 5****: All building owners, professional experts and specialist users of the selected shophouses must be willing to participate in this research. Otherwise, the data collected will not be comprehensive.*

The importance of professional experts in the adaptive reuse process of heritage buildings has been perceptively stated by Sigsworth and Wilkinson (1967), Thompson (1977), Kalman (1991), Latham (2000) and Australia ICOMOS Incorporated (2013). Recording the views and experiences of the professional experts, who are competent with this process, will ensure the conclusiveness and robustness of the findings. Apart from that, special attention was also given to fully reused shophouses in this area because they present greater challenges than partially reused shophouses (Chua & Deguchi, 2011). The significance of fully reused shophouses can be seen in most studies related to the adaptive reuse of Malaysian shophouses. There have been studies by Chua and Deguchi (2011), Henderson et al. (2013) and Wahab et al. (2016) in Melaka; and studies by Henderson et al. (2013), Jasme et al. (2014), Mydin et al. (2014a, b), Dewiyana et al. (2016), Wahab et

al. (2016) and Zubir et al. (2018) in Penang. As a result of applying this criterion, 47 fully reused shophouses out of 133 converted shophouses in the Core Zone of Melaka were identified, three of which satisfied the selection criteria for case study buildings (orange row) (see Table 4.13).

Table 4.13 Identification of fully reused shophouses that satisfied the selection criteria for case study buildings.

Database No.	Building No.	Street Name	Selection Criteria				
			Shophouse	Active Use	Fully Reused	Professional Expert	Participation
24	26	Jalan Kubu	■	■	■	■	
25	28	Jalan Kubu	■	■	■	■	
28	7	Jalan Hang Lekir	■	■	■		
29	11	Jalan Hang Lekir	■	■	■		
44	10	Jalan Hang Jebat	■	■	■		
52	27	Jalan Hang Jebat	■	■	■		
63	54	Jalan Hang Jebat	■	■	■		
72	74	Jalan Hang Jebat	■	■	■		
83	98	Jalan Hang Jebat	■		■		
88	**129**	**Jalan Hang Jebat**	■	■	■	■	■
89	**131**	**Jalan Hang Jebat**	■	■	■	■	■
97	4	Jalan Tukang Besi	■	■	■		
110	26	Jalan Tukang Besi	■	■	■		
117	36	Jalan Tukang Besi	■	■	■		
131	26	Jalan Tukang Emas	■	■	■		
132	28	Jalan Tukang Emas	■	■	■		
138	1	Jalan Tokong	■	■	■		
141	4	Jalan Tokong	■	■	■		
166	62	Jalan Tokong	■	■	■		
176	78	Jalan Tokong	■	■	■	■	
178	80	Jalan Tokong	■	■	■	■	
179	**82**	**Jalan Tokong**	■	■	■	■	■
180	**84**	**Jalan Tokong**	■	■	■	■	■
181	**86**	**Jalan Tokong**	■	■	■	■	■
187	108	Jalan Tokong	■	■	■		
198	11	Jalan Hang Lekiu	■	■	■		
205	19	Jalan Hang Lekiu	■	■	■		
210	29	Jalan Hang Lekiu	■	■	■		
217	43	Jalan Hang Lekiu	■		■		
221	11	Jalan Hang Kasturi	■	■	■		
226	**31**	**Jalan Hang Kasturi**	■	■	■	■	■
230	**33**	**Jalan Hang Kasturi**	■	■	■	■	■
235	40	Jalan Hang Kasturi	■	■	■		
260	68	Jalan Hang Kasturi	■	■	■		
267	77	Jalan Hang Kasturi	■	■	■		
277	3	Jalan Kampung Kuli	■	■	■		
295	16	Lorong Jambatan	■	■	■		
297	18	Lorong Jambatan	■	■	■		
299	20	Lorong Jambatan	■	■	■		
319	35	Jalan Kampung Pantai	■		■		
321	39	Jalan Kampung Pantai	■	■	■		
327	51	Jalan Kampung Pantai	■		■		
344	78	Jalan Kampung Pantai	■	■	■		
393	27	Lorong Hang Jebat	■		■		
401	59	Lorong Hang Jebat	■	■	■		
404	63	Lorong Hang Jebat	■	■	■		
407	73	Lorong Hang Jebat	■	■	■		
Total Number of Fully Reused Shophouses					**47**		

As mentioned in the previous paragraph, the following three samples have been selected as case study buildings for this research. Their history, ownership and characteristics are explained in detail in Chapter 6:

- ***Case Study 1****: Fomecs Boutique Hotel (129 & 131, Jalan Hang Jebat, 75200 Melaka, Malaysia.)*
- ***Case Study 2****: Jonker Boutique Hotel (82, 84 & 86, Jalan Tokong, 75200 Melaka, Malaysia.)*
- ***Case Study 3****: Timez Modern Heritage Hotel (31 & 33, Jalan Hang Kasturi, 75200 Melaka, Malaysia.)*

Coincidentally, these three case study buildings were made up of shophouses which were converted into boutique hotels. This is not surprising considering the researcher's personal observation during the on-site survey, 50% of the ongoing refurbishment projects in this area involve the same type of conversion, while the others maintain their original function as shophouses. In addition, this activity is the only type of hotel conversion permitted in this area (Melaka JPBD, 2011). The limitations encountered during the process of selecting case study buildings, including inaccessible government information, unidentified authentic shophouses, inaccurate data, undiversified reuse activities and lack of cooperation, and the measures taken to overcome them are set out in Subchapter 8.5. Meanwhile, the progression of the case study buildings selection is summarised below (see Figure 4.3).



Figure 4.3 The flow chart of the case study buildings selection.

Multiple case studies were selected because they allow comparison of findings across cases, they increase confidence in the eventual outcomes and they produce a stronger foundation for building the theory (Šarić, 2012). Furthermore, constructs and measures will be more accurately outlined, because it is easier to determine multiple construct dimensions to their fullest degree when using multiple cases. These three case study buildings were performed ex-post by arranging site visits, conducting interviews, taking photographs and studying architectural drawings. As suggested by Rabun and Kelso (2009), a simple test may be necessary in certain cases to learn about the challenges of the structural, constructional and servicing elements, and the fire code requirements, in case the walk-around observation for adaptive reuse is not sufficient. However, since each case study building has been adapted for a new use, no test needs to be undertaken and much of the information has been sourced from the professional experts associated with the adaptive reuse process of these buildings.

4.3.3 Preparation of Data Collection

Prior to conducting observations in the Core Zone of Melaka, a direct observation guide was designed in January 2017 to provide structure to the researcher's observations about the behaviour and activities of individuals at the research site (see Appendix D). This guide has seven agendas to be observed, as follows: activity zoning, building category, architectural style, tourism dependency, preservation as intangible heritage, vacancy and dilapidation, and circulation and access. Each agenda contains the following information: intended outcomes, observed outcomes, and notes on the process and interactions. Once the results were obtained, an issue surfaced that required more investigation through other methods of data collection, namely case studies and interviews.

The potential interviewees for the three case study buildings and the three tiers of government to be interviewed were identified in March and April 2017. In this research, much of the information related to the adaptive reuse process of these buildings has been retrieved from the architects in charge. This is because the architect is the leader of consultant team (Wasserman et al., 2000), who can see the possibilities and the difficulties in reusing the building (Thompson, 1977). Interviews were also conducted with the building owners, who are also the hoteliers, especially with regard to aspects of the buildings'

ongoing operation, for example the history and ownership of the building, and the financial aspects.

Although the architects' responses are potentially more detailed, the views and experiences of the specialist users such as the hotel managers or supervisors were also considered in this research. Lucas (2016) stated that specialist users can provide access to the daily functioning of the spaces designed by architects. Meanwhile, the interview sessions with officials were primarily intended to be carried out only with the local government officers from MBMB. However, since these buildings comprised boutique hotels, it was also decided to approach the federal government officer from the Ministry of Tourism and Culture Malaysia (MOTAC)[2] and the state government officer from the Melaka State Government in order to gain their perspective concerning the conversion of shophouses in the Core Zone of Melaka into boutique hotels.

All these potential interviewees make a unique contribution to the account of the life of a shophouse. Each of them is 'key' (Gillham, 2000b), and this is one of the reasons why the individual interview method was chosen for this research. Preparation to collect data was done by first contacting the individuals concerned to secure their cooperation, to describe the purpose of this research and to collect key contact information. After obtaining their consent to take part in the interviews, they were sent a set of key questions (see Appendix G) so that they could prepare. Key questions for each interviewee were as follows:

- ***Building Owner**: History and Ownership, and Financial Aspects*

Building owners were asked seven key questions. These questions provided information on the history of construction and ownership of the case study building, the reasons behind the conversion of the building into hotel-type accommodation, the cost and duration of the conversion process, and whether the conversion has had a positive financial impact. The preparation of these questions was in line with the financial aspects of adaptive reuse in the literature review. These questions were also relevant to achieve Research Objectives 2, 3 and 4.

[2] MOTAC has been rebranded as the Ministry of Tourism, Arts and Culture Malaysia in 2018.

- ***Professional Expert****: Factors of Obsolescence, Drivers of Adaptive Reuse, and Barriers to Adaptive Reuse*

Professional experts were asked 18 key questions. These questions provided information on the forms of obsolescence experienced by the case study building before its conversion into hotel-type accommodation. In addition, the questions asked about the drivers and barriers encountered by the building during and after its conversion. The preparation of these questions was in line with the categorisation of building obsolescence, the drivers of and barriers to adaptive reuse, and their impact on shophouses in the literature review. These questions were also relevant to achieve Research Objectives 2, 3 and 4, with most of the research findings related to the case study buildings retrieved from professional experts.

- ***Specialist User****: Drivers of Adaptive Reuse and Barriers to Adaptive Reuse*

Specialist users were asked 10 key questions. These questions provided information on the background of the case study building and the impact of adaptive reuse on the daily functioning of the spaces designed for the building. The preparation of these questions was in line with the drivers of and barriers to adaptive reuse, and their impact on shophouses in the literature review. These questions were also relevant to achieve Research Objectives 3 and 4.

- ***Federal Government Officer****: Adaptive Reuse of Shophouses as Boutique Hotels*

The federal government officer was asked 14 key questions. These questions provided information on the chronology and policies of the government in relation to boutique hotels in Malaysia, and the impact of converting shophouses in the Core Zone of Melaka into boutique hotels from a government perspective. The preparation of these questions was in line with the drivers of and barriers to adaptive reuse, and their impact on shophouses in the literature review. These questions were also relevant to achieve Research Objective 5.

- ***State Government Officer****: Preservation of Shophouses and Adaptive Reuse of Shophouses as Boutique Hotels*

The state government officer was asked two key questions. These questions provided information on the impact of preserving and converting shophouses in the Core Zone of Melaka into boutique hotels from a government perspective. The preparation of these questions was in line with the drivers of and barriers to adaptive reuse, and their impact on shophouses in the literature review. These questions were also relevant to achieve Research Objective 5.

- ***Local Government Officer****: Preservation of Shophouses and Adaptive Reuse of Shophouses as Boutique Hotels*

Local government officers were asked 24 key questions. These questions provided information on the background of shophouses and boutique hotels in the Core Zone of Melaka, the legal provisions for the heritage conservation of shophouses, the inscription of Melaka as a UNESCO World Heritage Site, and the impact of preserving and converting shophouses into boutique hotels from a government perspective. In addition, questions asked about the market value and property tax of the case study buildings. The preparation of these questions was in line with the drivers of and barriers to adaptive reuse, and their impact on shophouses in the literature review. These questions were also relevant to achieve Research Objective 5, with most of the research findings related to government policies retrieved from local government officers.

Then an individual interview session was scheduled. Since the data collected and examined also contains the architectural drawings and public documents in addition to the interview data, the intention to request copies as well as the necessity to plan for storage, classification and retrieval of these items was outlined during the interview sessions. The types of participants, and the key topics for each case study building and tier of government are summarised below (see Table 4.14).

Table 4.14 Key topics for potential interviewees.

Subject	Type of Participant	Key Topic
Case Study 1	Building Owner (Hotelier)	▪ History and ownership ▪ Financial aspects
	Professional Expert (Architect in Charge)	▪ Factors of obsolescence ▪ Drivers of adaptive reuse

Subject	Type of Participant	Key Topic
		▪ Barriers to adaptive reuse
	Specialist User (Hotel Supervisor)	▪ Drivers of adaptive reuse ▪ Barriers to adaptive reuse
Case Study 2	Building Owner (Hotelier)	▪ History and ownership ▪ Financial aspects
	Professional Expert (Architect in Charge)	▪ Factors of obsolescence ▪ Drivers of adaptive reuse ▪ Barriers to adaptive reuse
	Specialist User (Hotel Manager)	▪ Drivers of adaptive reuse ▪ Barriers to adaptive reuse
Case Study 3	Building Owner (Hotelier)	▪ History and ownership ▪ Financial aspects
	Professional Expert (Architect in Charge)	▪ Factors of obsolescence ▪ Drivers of adaptive reuse ▪ Barriers to adaptive reuse
	Specialist User (Hotel Manager)	▪ Drivers of adaptive reuse ▪ Barriers to adaptive reuse
Federal Government	Assistant Administrative Officer	▪ Adaptive reuse of shophouses as boutique hotels
State Government	Research and Development Manager	▪ Preservation of shophouses ▪ Adaptive reuse of shophouses as boutique hotels
Local Government	Conservation Architect	▪ Preservation of shophouses ▪ Adaptive reuse of shophouses as boutique hotels
	Assistant Planning Officer	
	Assistant Valuation Officer	

The research skills were developed during a formal training courses conducted by the University of Nottingham including 'Introduction to Qualitative Research' and 'Further Qualitative Research'. These training courses gave an overview of qualitative research and insights into observations and interviews as tools for data collection.

4.3.4 Data Collection in the Field

As emphasised by Bhat (2019b), a site visit is important to the success of fieldwork and should always be conducted outside of traditional locations and in the actual natural environment of the respondent(s). Hence, planning a site visit along with other methods of data collection is important. The researcher started data collection by arranging site visits to the Core Zone of Melaka. Observations were conducted concurrently with the implementation of the on-site survey in February and March 2017. This is because adaptive reuse practices for shophouses required data from multiple sources, namely the on-site survey and observations, aided by data from public documents. The classification as shophouses and the activities of shophouses involve full use of the on-site survey method. Data from these observations were recorded using field notes and supported with mapping and photographs. Field notes were written and expanded immediately after the completion

of observations. The notes should be detailed, and the words used should describe the subject being studied as closely as possible (Bhat, 2019b).

The researcher also arranged site visits to the three case study buildings in April and May 2017. The researcher introduced herself to the building owners and specialist users, familiarised herself with the existing buildings and took photographs, and then went on to conduct the interviews. Interviews were undertaken with the architects in charge as well as with federal, state and local government officers. The interviews were carried out in semi-structured form around a set of key questions, enabling further probing on any of the questions for the purpose of exploring a given response in-depth (Mitchell & Jolley, 2010). The data collected were intended to be recorded using an audio recorder and interview notes simultaneously. King and Horrocks (2010) strongly recommended having a full record of each interview in a qualitative research study. However, since only five out of 14 interviewees agreed to be audio recorded, the interview sessions with the other interviewees had to rely completely on interview notes, which may not be considered as a full record because of the time constraints involved.

The range of technologies for the audio recording of interviews has grown in recent years. Therefore, in this research, a Sony digital voice recorder was employed because it provides superior quality recordings. Note-taking during audio recorded interviews in this research served either of two main purposes: firstly, it acted as a back-up for the information obtained through audio recording (Bunting, 2005), and secondly, it was especially important in situations where the interviewees refuse to allow audio recording, arising from their cautious distrust as to what might be done with the recordings and who might have access to them (King & Horrocks, 2010). Consequently, the duration of interviews was structured carefully so that there was adequate time to complete the notes before moving on to interview the next interviewee.

A note of 'stories' told during the interviews was made and flagged for potential use in the final report. Data were subsequently entered into the database. Even though there is a specialist transcript software that can automatically turn speech into text, a manual procedure was applied to transcribe the interviews because they were carried out using two languages, English and/or Malay. As highlighted by Lucas (2016), typing up what was said in interviews is often a tiring process. This was why the transcription process took longer than expected, the three months from June to August 2017. In addition, the process was

completed twice in order to ensure that the interview transcripts are verbatim. Follow-up interviews took place by email and telephone for feedback and confirmation to avoid having any evidence that contradicts the data patterns.

Permission was requested from the building owners or the architects in charge to have copies of photographs and architectural drawings. The photographs and architectural drawings before and after conversion would provide a good overview of the existing physical attributes of the studied building and would be helpful in the study of older conversions when the interviewees had forgotten the details (Remøy & van der Voordt, 2014). Project and process descriptions were written based on the interviews, and the photographs and architectural drawings were used to describe the physical attributes. The researcher asked the local government officers for the Heritage Impact Assessment reports of the three case study buildings. However, these reports were not accessible for reasons of confidentiality. The dates of the data collection, the types of participant and the types of data collection for each case study building and tier of government are summarised below (see Table 4.15).

Table 4.15 Details of data collection from interviews.

Subject	Date of Data Collection	Type of Participant	Type of Data Collection
Case Study 1	22/03/2017	Hotelier (CS1-BO-01)	▪ Email
	31/05/2017		
	02/06/2017		
	14/06/2017		
	05/04/2017	Architect in Charge (CS1-PE-02)	▪ Note-taking ▪ Architectural drawing
	06/04/2017	Hotel Supervisor (CS1-SU-03)	▪ Note-taking
Case Study 2	09/05/2017	Hotelier (CS2-BO-04)	▪ Note-taking ▪ Architectural drawing
	11/04/2017	Architect in Charge (CS2-PE-05)	▪ Audio recording & note-taking
	08/06/2017		▪ Email
	12/04/2017	Hotel Manager (CS2-SU-06)	▪ Note-taking
Case Study 3	17/04/2017	Hotelier (CS3-BO-07)	▪ Audio recording & note-taking
	19/04/2017		▪ Whatsapp
	09/05/2017		
	17/04/2017	Architect in Charge (CS3-PE-08)	▪ Audio recording & note-taking ▪ Architectural drawing ▪ Photographs
	19/04/2017		▪ Whatsapp
	17/04/2017	Hotel Manager (CS3-SU-09)	▪ Note-taking
Federal Government	02/05/2017	Assistant Administrative Officer (FGO-AAO-10)	▪ Audio recording & note-taking
	03/05/2017		
	23/03/2018		▪ Public document

Subject	Date of Data Collection	Type of Participant	Type of Data Collection
State Government	03/05/2017	Research and Development Manager (SFO-RDM-11)	▪ Note-taking
Local Government	13/02/2017	Conservation Architect (LGO-CAR-12)	▪ Public document
	08/05/2017		▪ Audio recording & note-taking
	08/05/2017	Assistant Planning Officer (LGO-APO-13)	▪ Note-taking
	08/05/2017	Assistant Valuation Officer (LGO-AVO-14)	▪ Note-taking
Total Number of Participants	**14**		

The interactions between the study area, case study buildings and tiers of government, and the primary means of data collection in this research is summarised below (see Figure 4.4).

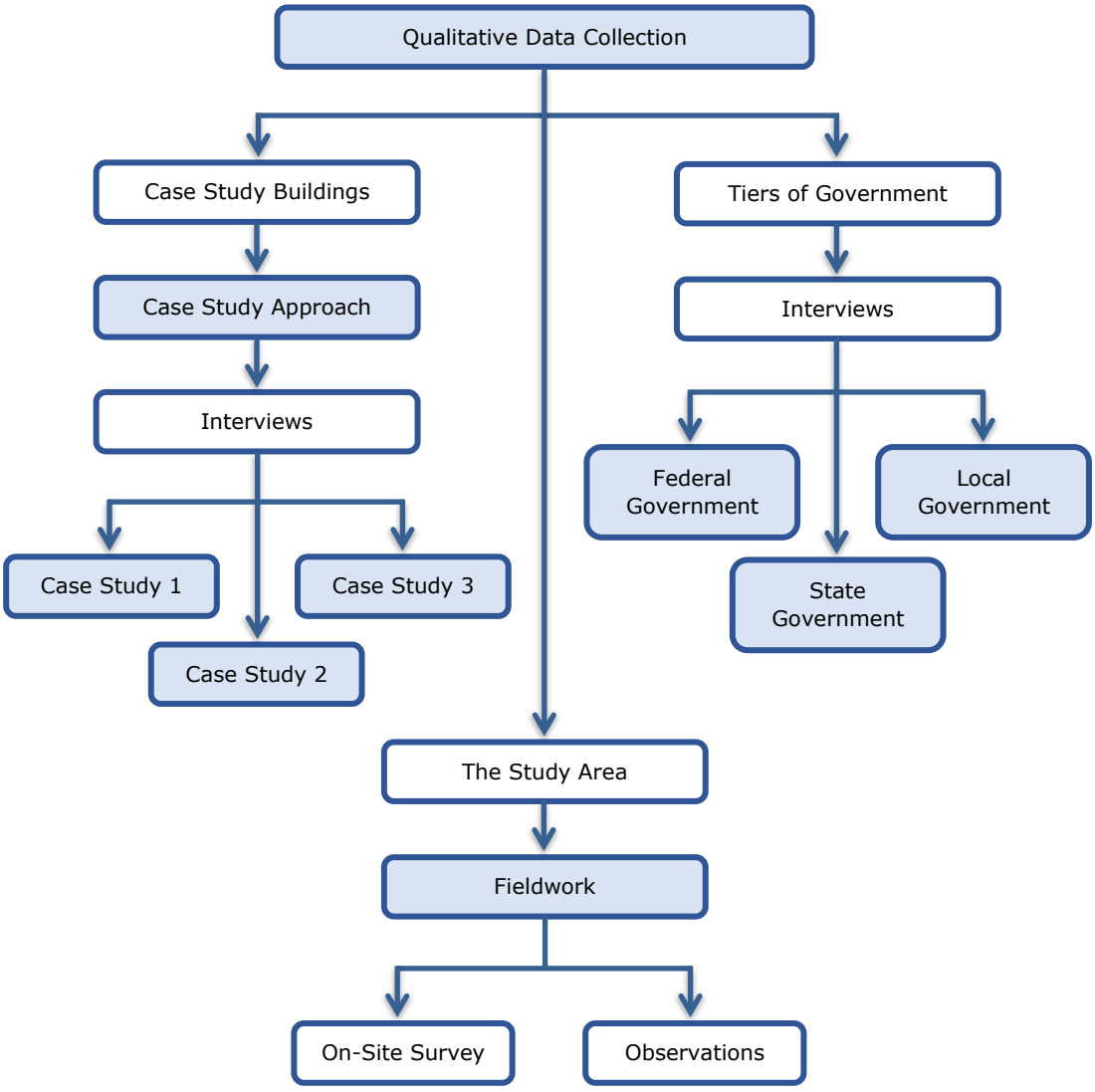


Figure 4.4 The flow chart of qualitative data collection for this research.

4.3.5 Data Analysis and Interpretation

The qualitative research data in this thesis have been analysed based on the six steps suggested by Creswell (2014, p. 197), moving from the specific to the general and involving multiple levels of analysis (see Figure 4.5).

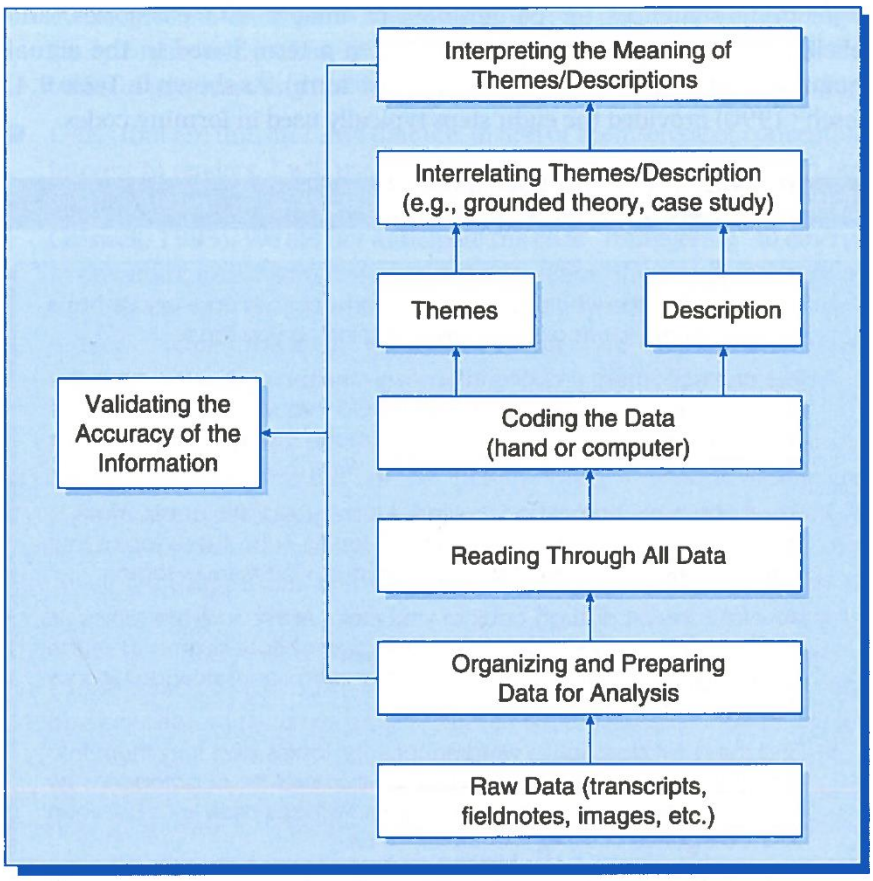


Figure 4.5 An overview of data analysis process in qualitative research (Creswell, 2014, p. 197).

The data analysis process of this research began with organising and preparing the data for analysis. This involved generating the statistics, typing up field notes, transcribing interviews, cataloguing all the photographs, redrawing all the architectural drawings, and sorting and arranging the data into different categories depending on the source of the information. After typing up field notes and transcribing interviews, a meticulous written representation of observations and conversations was produced using minimal editing, which involved removing or correcting any obvious mistakes. Some sections of the content of the interview transcripts were carefully rearranged to make them readable and to avoid confusion (University of Cornell, 2005). The file names consisted of the name of the street,

case study building or tier of government, the type of participant and the date of the observation or interview. This means that the data can be easily accessed in the future. Lucas (2016) encouraged the use of short dashes in dates and underscores instead of spaces because the use of certain punctuation marks can have a specific role in digital file retrieval, as is the case for this research study, for example CS2_PE_11042017.pdf. Observations and interviews can be used as passages, in much the same manner as citations from a book or journal, by citing subject and date of the observation or interview, for example, in this research: CS2-PE-05, personal communication, April 11, 2017.

The process was subsequently continued by reading through all the data carefully for the general ideas raised from the observations and by the participants, and making notes about them. Afterwards, the coding of the data began. Coding is defined by Rossman and Rallis (as cited in Creswell, 2014) as the process of arranging data systematically and writing in the margin a word or short phrase that symbolises the theme or category. The coding process was carried out from September 2017 to February 2018 by first picking the shortest and most interesting document (Tesch, as cited in Creswell, 2014), and using a qualitative codebook that was developed that contains a list of predetermined codes derived from the literature review. The qualitative codebook technique was suggested by Creswell (2014), and the codes can evolve and change based on the information learned during the data analysis. The themes were then generated from this process (Creswell, 2014), where the codes are subsumed under the themes and subthemes (Saldana, 2016), for example, in this research:

> [1] *So now what we had done was to* ***provide 15 guest rooms with windows for the purpose of natural ventilation****, so there is no stuffy room.*
>
> [1] IMPROVEMENT OF INDOOR AIR QUALITY
>
> (CS3-PE-08, personal communication, April 17, 2017)

Theme: Drivers of Adaptive Reuse

Subtheme: Environmental Aspects

Code: [1] IMPROVEMENT OF INDOOR AIR QUALITY

Code: MITIGATION OF CARBON EMISSIONS

Code: OPTIMISATION OF ENERGY EFFICIENCY

Code: PROPER WASTE MANAGEMENT

Then, the list of themes and codes was used for other documents to see if new themes and codes emerged. Constant comparison, that is comparing passages with similar codes was applied as a means to ensure that the coding was consistent (Taylor & Gibbs, 2010), and if necessary the data would be recoded (Tesch, as cited in Creswell, 2014). The number of themes and codes was reduced by grouping topics that relate to each other. The researcher made the final decision on the abbreviation for each theme. The researcher alphabetised the codes and subsequently arranged the data into a matrix using NVivo software in March 2018 to analyse the patterns. This software enables detailed analysis by helping to generate frequency analysis, in addition to producing a variety of visual representations, including word clouds, colour coding and tree visualisations, that can be used to present keywords in various contexts (Lucas, 2016). The themes, subthemes and codes for the study area, and for each case study building and tier of government are summarised below (see Table 4.16).

Table 4.16 Coding and categorising.

Subject	Theme	Subtheme	Code
The Study Area	Classification as Shophouses	▪ Shophouses ▪ Others	See Chapter 5
	Activities of Shophouses	▪ Partial Preservation-Reuse ▪ Partial Reuse-Vacant ▪ Partial Vacant-Preservation ▪ Full Preservation ▪ Full Reuse ▪ Full Vacant	
	Adaptive Reuse Practices for Shophouses	▪ Activity Zoning ▪ Building Category ▪ Architectural Style ▪ Tourism Dependency ▪ Preservation as Intangible Heritage ▪ Vacancy and Dilapidation ▪ Circulation and Access	
Case Study 1 Case Study 2 Case Study 3	Factors of Obsolescence	▪ Physical ▪ Functional ▪ Technological ▪ Economic ▪ Environmental ▪ Locational ▪ Social ▪ Legal	See Chapter 6
	Drivers of Adaptive Reuse	▪ Structural ▪ Constructional ▪ Spatial ▪ Servicing ▪ Financial ▪ Environmental ▪ Locational ▪ Social ▪ Legal	

Subject	Theme	Subtheme	Code
	Barriers to Adaptive Reuse	▪ Structural ▪ Constructional ▪ Spatial ▪ Servicing ▪ Financial ▪ Environmental ▪ Locational ▪ Social ▪ Legal	
Federal Government	Adaptive reuse of shophouses as boutique hotels	▪ Structural ▪ Constructional ▪ Spatial ▪ Servicing ▪ Financial ▪ Environmental ▪ Locational ▪ Social ▪ Legal	See Chapter 7
State Government	Preservation of shophouses	▪ Structural ▪ Constructional ▪ Spatial ▪ Servicing ▪ Financial ▪ Environmental ▪ Locational ▪ Social ▪ Legal	
	Adaptive reuse of shophouses as boutique hotels		
Local Government	Preservation of shophouses	▪ Structural ▪ Constructional ▪ Spatial ▪ Servicing ▪ Financial ▪ Environmental ▪ Locational ▪ Social ▪ Legal	
	Adaptive reuse of shophouses as boutique hotels		

As mentioned in the third paragraph of this section, the coding process was used to generate themes and description of the setting for analysis, which is very beneficial in case studies (Creswell, 2014). In this research, the themes were analysed across different cases (cross-case) along with content analysis that had been selected as the primary means of data analysis. In order to create a meaningful description during the coding process, some details were incorporated into the memos of what the code concerns and what the coded text reveals, consistent with Taylor and Gibbs (2010). The themes and description were then represented in the qualitative narrative and discussed in detail to convey the findings of the analysis, as advocated by Stake and Wolcott (as cited in Creswell, 2014). According to Creswell (2014), many qualitative researchers employ figures or tables to enrich their discussions. Finally, the meaning of themes and descriptions were interpreted by capturing what lessons can be learned from the findings (Lincoln & Guba, as cited in Creswell, 2014) and how they can confirm past information gathered during the literature

review, or how they differ from it (Creswell, 2014). In addition, new questions can arise that had not been anticipated earlier in the study.

The interactions between the study area, case study buildings and tiers of government, and the primary means of data analysis in this research is summarised below (see Figure 4.6).

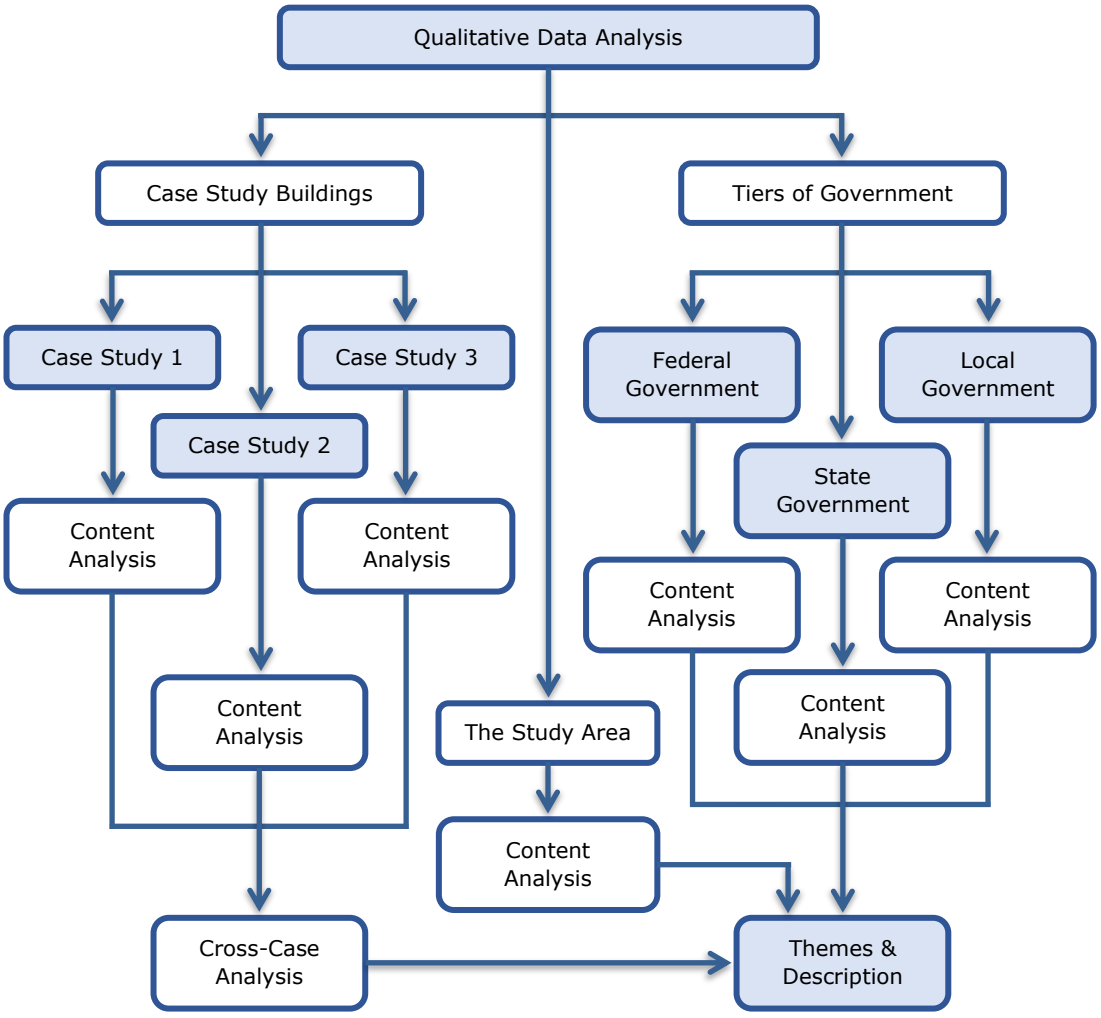


Figure 4.6 The flow chart of qualitative data analysis for this research.

The validity of the findings was verified using the primary strategies suggested by Creswell (2014), which involved: triangulating different sources of information to create a rational justification for themes, using a rich and detailed description to convey the findings, employing self-reflection to produce an honest open narrative, discussing contradictory information to add integrity to an account, and spending an extended time establishing an in-depth understanding of the study. Meanwhile, the reliability of the findings was examined based on the approaches such as: documenting the procedures for the case studies

systematically (Yin, as cited in Creswell, 2014), removing or correcting any obvious mistakes in field notes and interview transcripts, and applying constant comparison during the coding process (Gibbs, as cited in Creswell, 2014). The research findings have been generalised in a restricted way by organising multiple case studies. The researcher studied additional cases and generalised the findings to the new cases. This is because the aim of most qualitative research is not to generalise but to provide a detailed description of what has been studied (Polit & Beck, 2010; Creswell, 2014).

4.3.6 Preparation of Thesis

The thesis writing-up process happened from June 2018 to May 2019. According to Soy (1997), the structure and organisation of the thesis generally commences with an expression of gratitude to all the participants, setting out the research problem, writing down the research questions, describing the strengths and limitations of the methods used to carry out the research, explaining the data gathering and analysis techniques used, summing up the answers to the research questions, and making suggestions for further research. Key features of the research in this thesis involve a retelling of specific stories associated with the adaptive reuse of obsolete shophouses in the Core Zone of Melaka, with the purpose of finding the best formulas for revitalising and converting them for suitable uses. Each issue was established using citations of various sources of information. Subsequently, an appropriate research strategy was developed and structured to seek answers to the research questions.

Past information from the literature review was compared with the findings from the study to see if the previous findings can be confirmed or if they are in conflict with each other. In-depth discussions were presented in relation to each research objective. This is in parallel with the purpose of employing the case study approach in this research. The objective of this approach is to clarify a situation and then to produce a basis for implementing solutions (Soy, 1997). Some suggestions were made for future research activities. These mostly arise from the limitations that were identified in this research. Consistent with the Lund Research Ltd. (2012), these include the findings that were not foreseen at the start of the research study and the aspects of the research questions that were not answered.

4.4 Ethical Considerations

Ethical considerations involve the moral principles that govern a researcher's behaviour in planning and conducting all stages of the research project. After gaining ethical approval from the Faculty Research Ethics Committee on 6 January 2017 to carry out the research (see Appendix A), permissions were then obtained from the building owners, professional experts and specialist users of the shophouses to be studied, and from federal, state and local government officers. Every participant was given several documents prior to the interview sessions including an official letter from the primary supervisor for requesting information for PhD thesis research (see Appendix B), the Participant Information Sheet (see Appendix E) and the Participant Consent Form (see Appendix F).

In general, the six key principles for ethical research, designed by the Economic and Social Research Council (2016) for social science research, have been followed. These principles are used in a variety of research disciplines. They uphold the general standards, values and aspirations of the research community. The application and emphasis of each principle relies on the nature and context of the research being carried out. The six key principles are as follows: maximise benefit and minimise risk and harm, respect rights and dignity, inform participants, conduct with integrity and transparency, define lines of responsibility and accountability, and maintain independence of research and make explicit conflicts of interest.

4.4.1 Maximise Benefit and Minimise Risk and Harm

According to the Economic and Social Research Council (2016), the research should aim to maximise benefit and minimise risk and harm for individuals and society. Therefore, to ensure that the research in this thesis meets the ethical standards, the researcher first outlined the benefits that could possibly be delivered especially to society, the researcher herself and other researchers. The researcher went on to determine the likely risks and the way to manage them. Generally, there were no hazards, inconveniences and risks anticipated arising from participation in this research, as it strove to ensure the protection of the confidentiality of the participants. However, if any participant experienced distress as a result of participation, they were encouraged to inform the researcher or the primary

supervisor, or to contact the Faculty Research Ethics Committee. The contact details were provided at the end of the Participant Information Sheet and the Participant Consent Form that were supplied prior to the interview sessions.

4.4.2 Respect Rights and Dignity

The rights and dignity of individuals and groups should be respected, as advocated by the Economic and Social Research Council (2016). With this in mind, to ensure that the research in this thesis meets the ethical standards, the researcher planned and carried it out in a manner that respects the rights, interests, values, dignity and autonomy of the participants. Ethical issues regarding privacy, equality, diversity, health and safety could possibly have arisen during the research.

4.4.3 Inform Participants

Consistent with the Economic and Social Research Council (2016), wherever possible, participation should be voluntary and appropriately informed. Therefore, to ensure that the research in this thesis meets the ethical standards, the researcher informed the participants that their participation in this research was entirely voluntary. If they did not wish to take part, they would not have to give a reason or be contacted again. Similarly, if they agreed to participate, they were free to withdraw at any time during the research, if they changed their mind. If they were to withdraw from the research, the researcher would destroy their audio recorded interviews. However, the data collected up to the time of their withdrawal would be used.

If the participants were interested in taking part in this research, they were asked to complete the Participation Consent Form prior to the interview sessions. There was a face-to-face interview with the researcher at a time that was convenient for the participants in their premises and it could be either in English or Malay. A set of key questions was sent to them before the interview sessions so that they could prepare. Each interview session was scheduled to last no longer than an hour, and it was a one-off event. The interview was audio recorded, unless otherwise requested by the participants.

4.4.4 Conduct with Integrity and Transparency

Research should be conducted with integrity and transparency, as suggested by the Economic and Social Research Council (2016). Therefore, to ensure that the research in this thesis meets the ethical standards, the researcher conducted the research with integrity in an explicit way. Integrity emphasises the clarification between what the researchers says they will do and how they really carry out the research. Transparent research occurs when the researcher understands the essence of their research and can then present it clearly to those involved, when the researcher is easily contactable and responds to inquiries, and when the researcher is honest and responsible.

4.4.5 Define Lines of Responsibility and Accountability

In compliance with the rules of the Economic and Social Research Council (2016), lines of responsibility and accountability should be clearly defined. Therefore, to ensure that the research in this thesis meets the ethical standards, the researcher practiced self-critical responsibility in planning and conducting the research. The researcher had a responsibility to respect the rights and dignity of the participants and vice versa, and to ensure their confidentiality and anonymity. All the information given by the participants was considered confidential and was used solely for the purpose of the thesis. While information gained during this research may be submitted for publication in an academic or professional journal, the participants would not be identified and their personal results would remain confidential, unless they explicitly agreed that the name of their premises could be made public.

Apart from that, the images or photographs of the premises taken during this research would be used for data analysis, for illustration purposes, for display to sponsors/non-public academic audiences, and would be printed in public domain documents. In terms of storage and handling of data, the data collected during this research would be stored securely and only the researcher would have access to the data. At the end of this research, the researcher would pass the data to the primary supervisor who would then have responsibility for the storage of the data. Paper records would be stored in a locked filing cabinet, and digital data would only be stored on a password-protected

computer with a secure server for seven years following publication of results, in accordance with the Data Protection Act. After this time, electronic files would be deleted and any hard copies would be destroyed.

4.4.6 Maintain Independence of Research and Make Explicit Conflicts of Interest

Independence of research should be maintained and where conflicts of interest cannot be avoided they should be made explicit, as recommended by the Economic and Social Research Council (2016). Therefore, to ensure that the research in this thesis meets the ethical standards, the researcher maintained the independence of this research and determined whether there was any anticipated or real conflict between her private interests and the objectives of the research or the interests of the participants. If any such issues emerged, the conflicts of interest would be revealed and managed to make sure that this research was protected from personal, organisational and political bias, dishonesty, as well as considerations of gain.

4.5 Summary

This research is entirely qualitative. Over the course of Year Two, the data collection process was conducted in the Core Zone of Melaka for nearly four months from February to May 2017 while practicing the six key principles for ethical research designed for social science research. This has been realised through fieldwork in 1,075 heritage buildings and the case study approach to three of 432 shophouses that meet the literal definition of a shophouse. The on-site survey, observations and interviews were employed as the primary means of data collection. The interviewees were the building owners, professional experts and specialist users, as well as federal, state and local government officers associated with the adaptive process of obsolete shophouses in this area as boutique hotels. Mapping, photographs and architectural drawings were used to describe the physical attributes. In addition, public documents were sourced from government officers to support the analysis of this research.

Six steps were used to organise and conduct the research effectively as follows: (1) determining the research questions, (2) selecting the study area and case study buildings,

(3) preparing to collect the data, (4) collecting data in the field, (5) analysing and interpreting the data, and (6) preparing the thesis. The data collected were analysed using NVivo software to enable the development of key themes across different cases (cross-case) along with content analysis that had been selected as the primary means of data analysis.

Meanwhile, the next chapter (Chapter 5), consisting of five primary subchapters, will explain the background of the study area, and analyse and discuss the qualitative data collected to meet the first objective of this research.

Chapter 5



The Core Zone of Melaka: The Study Area

5.1 Introduction

The fifth chapter seeks to meet the first objective of this research: *to explore the current state of adaptive reuse practices for Malaysian shophouses*, as outlined in Subchapter 1.5. This has been done by explaining the background of the study area, as well as analysing the qualitative data collected from the on-site survey and observations of the shophouses in the study area. These data are compared to the information provided in the Conservation Management Plan (CMP) and the Special Area Plan (SAP) for the Melaka World Heritage Site. This chapter also discusses the findings that highlight how the research in this thesis reflects, differs from and extends current knowledge of the chosen research area. This chapter has an organisational pattern of five primary subchapters: background of the Core Zone of Melaka, classification as shophouses, activities of shophouses, adaptive reuse practices for shophouses and the synthesis of Research Objective 1.

5.2 Background of the Core Zone of Melaka

Situated on the west of Peninsular Malaysia, the historic city of Melaka is bordered by the Straits of Malacca to the west and located 125 kilometres south of Kuala Lumpur (the national capital of Malaysia). Its history began with the Malay Sultanate in the 15th century until it fell to the Portuguese, the Dutch and the British in the 16th, 17th and 18th centuries (Ertan & Eğercioğlu, 2016; UNESCO World Heritage Centre, 2016c). According to the UNESCO World Heritage Centre (2016c), Melaka displays a historic cultural fusion of the vernacular (Malay), Southern Chinese and European influences, to form an exclusive architecture, culture and townscape as seen in its government buildings, churches, squares and fortifications. It also exhibits a remarkable range of shophouses and townhouses of assorted distinct types and stages of development, some having been established during the Dutch and the British periods.

In the early years of British occupation, there was not much change in Melaka. However, over time, the city came to be divided into the European Town and the Native Town (the latter on the west bank of the Melaka River; occupied by the Dutch, Portuguese, Chinese, Malays and Indians). Following the colonial era, the city continued to grow by itself. The state's economy was largely focused on agriculture and tourism, and this gradual development continued until the 1970s. From 1980 to 1990, Melaka experienced rapid economic growth, and the city centre suffered a shortage of land for development. As a result, the Melaka State Government decided to reclaim land from the sea in the suburb of Bandar Hilir. Simultaneously, the state's development planning strategy shifted to the development of a new city centre (Ayer Keroh) outside the old city centre (the Core Zone of Melaka). In 1989, the Federal Government of Malaysia granted Historic City status to Melaka, which has helped to keep the old city centre from being destroyed due to the pressure of development (Idid, 1995).

In 2008, the unique architectural and cultural townscape of Melaka resulted in its inscription as a UNESCO World Heritage Site – Historic Cities of the Straits of Malacca, along with George Town, Penang. The CMP and SAP were developed for the sake of nomination, as discussed in detail in Chapter 3. As disclosed by Melaka JPBD (2011), the Melaka World Heritage Site is located in the oldest part of the historic centre of Melaka embracing the Melaka River that passes through this site. The Melaka World Heritage Site comprises two main zones: the Core Zone (the main heart of the World Heritage Site) with total area of 45.3 hectares or 15.7% of the total area, and the Buffer Zone (a protected area directly outside the Core Zone of the World Heritage Site) with total area of 242.8 hectares or 84.3% of the total area (see Figure 5.1). The total number of buildings in this site is 3,050.

In the Core Zone of Melaka, there are 1,075 heritage buildings along 20 streets, with Jalan Tun Tan Cheng Lock, Jalan Hang Jebat, Jalan Tokong/Tukang Emas/Tukang Besi and Jalan Kampung Pantai being considered as the main streets. The Core Zone of Melaka consists of two major areas: the St. Paul’s Hill Civic Zone (government buildings, museums, churches, urban square and original fortress town), and the Historic Residential and Commercial Zones (shophouses, commercial and residential buildings, religious buildings and tombs) (see Figures 5.2, 5.3 and 5.4). A survey carried out by Melaka JPBD (2011) reported that the major activities in this area were confirmed as commercial (34%), institutional (30.7%) and residential (16.34%).

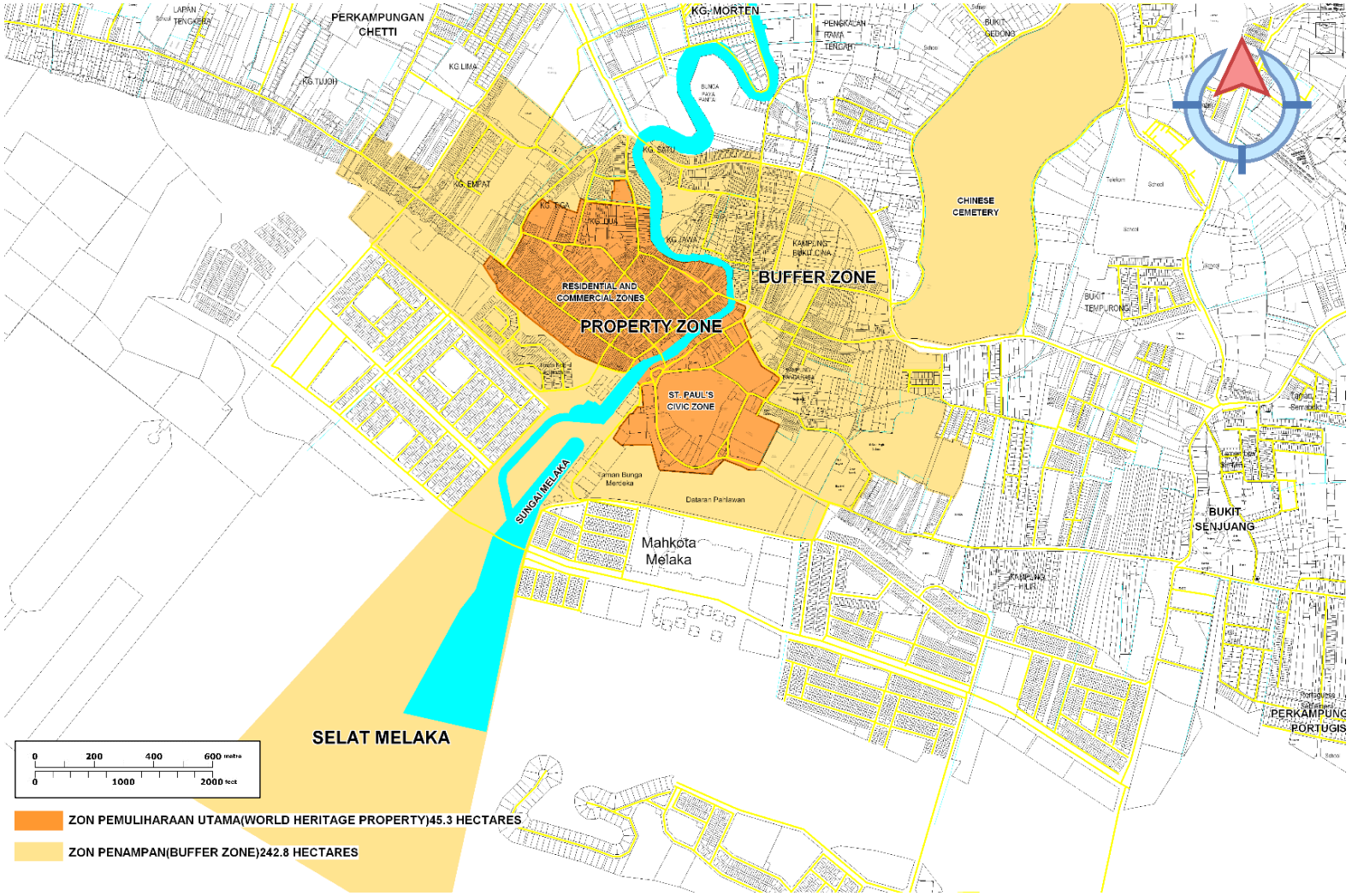


Figure 5.1 Melaka World Heritage Site comprises two main zones: the Core Zone (Property Zone) and the Buffer Zone (copyright [2017] by Melaka Historic City Council).

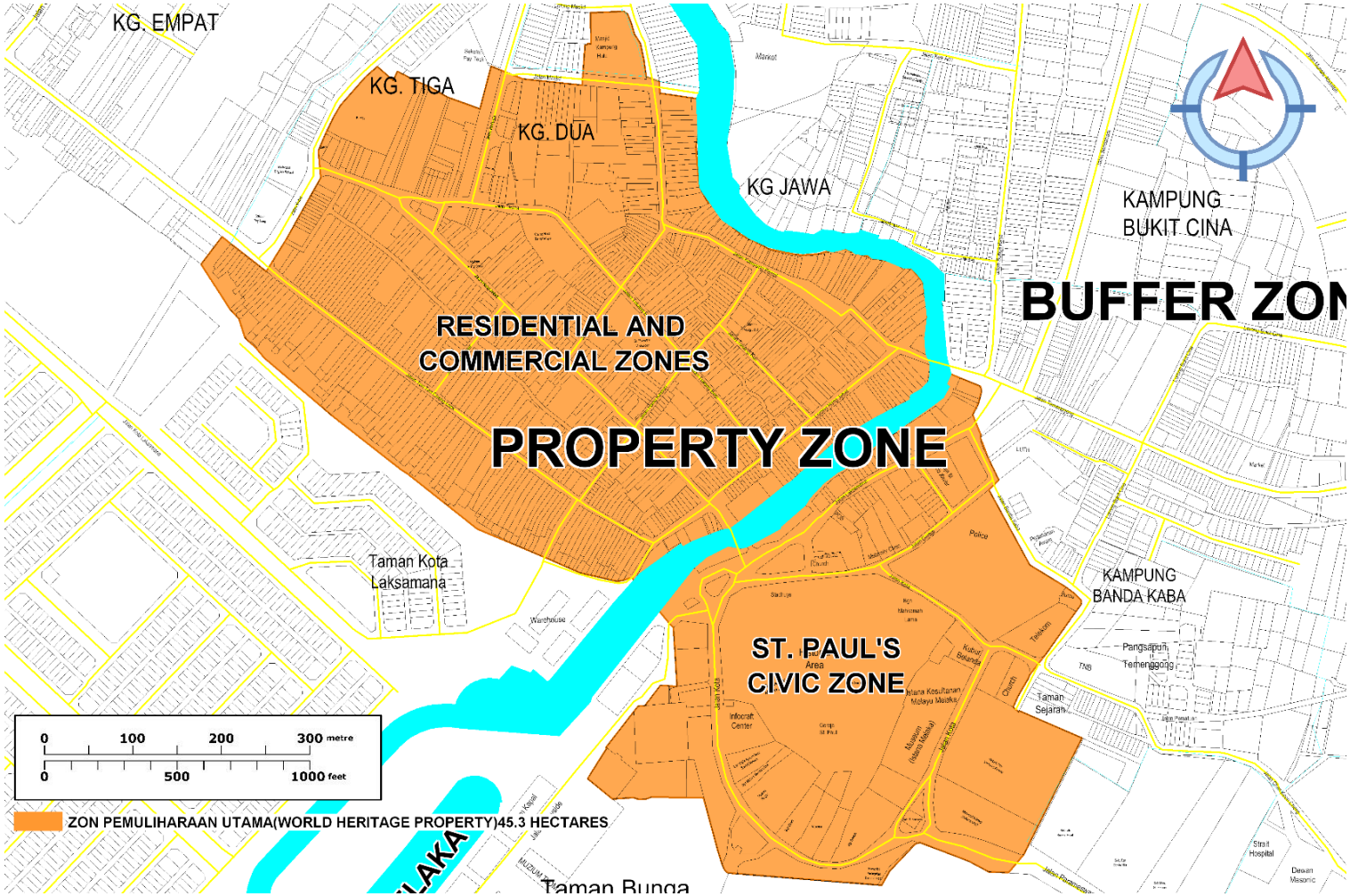


Figure 5.2 The Core Zone (Property Zone) of Melaka consists of two major areas: the St. Paul's Hill Civic Zone and the Historic Residential and Commercial Zones (copyright [2017] by Melaka Historic City Council).

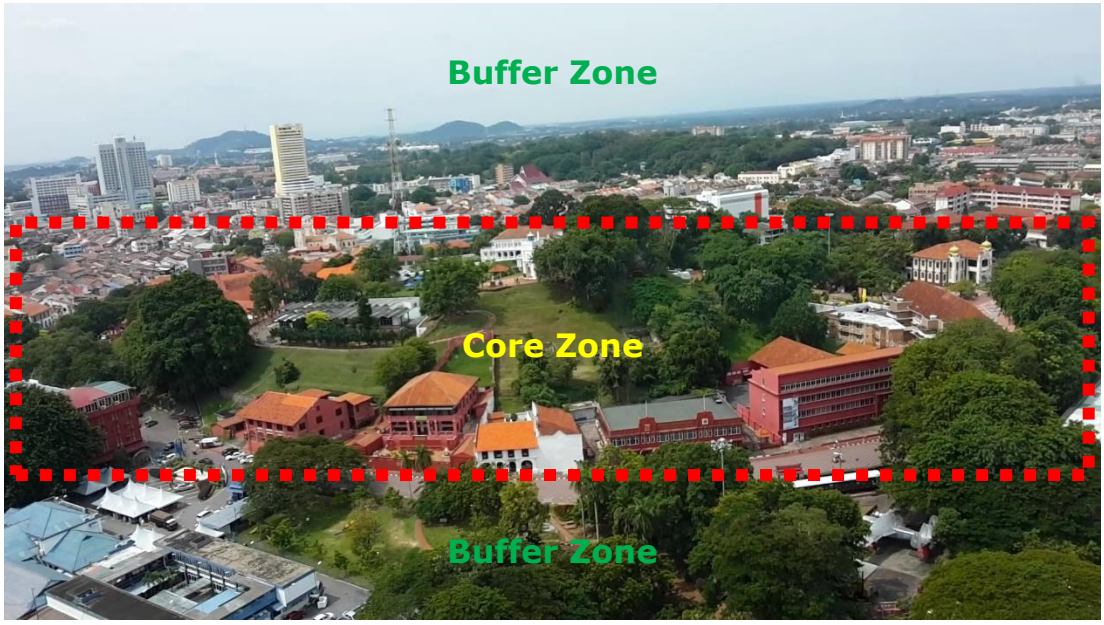


Figure 5.3 The St. Paul's Civic Zone (marked in red).



Figure 5.4 The Historic Residential and Commercial Zones (marked in red).

5.3 Classification as Shophouses

As mentioned in Subchapter 4.3.2, the researcher decided to develop her own database of shophouses in the Core Zone of Melaka using the on-site survey, whose previous and/or current functions have been confirmed as a retail area on the ground floor and living quarters on the upper floor(s). This ensured that the buildings in this research meet the literal definition of a shophouse as set out by Wakita and Shiraishi (2010),

Henderson (2011) and Han and Beisi (2015), and that the research achieves its aim and objectives. This is because adaptive reuse concerns the use of a building, and different uses have different implications for the process.

Based on the on-site survey undertaken for this research, the types of heritage buildings in this area can be classified into the following two major categories:

- ***Shophouses****: Heritage buildings that were and/or are functioning as a retail area on the ground floor and living quarters on the upper floor(s).*
- ***Others*** *(other building types/unknown): This involves heritage buildings that never function as shophouses as defined above including townhouses, civic buildings and religious buildings.*

There were 432 (40%) of the 1,075 heritage buildings that can be considered as shophouses based on the literal definition (see Figure 5.5), while 643 (60%) consist of other types of heritage buildings. The significant number of shophouses confirms their important role in ensuring the continuous inscription of Melaka as a UNESCO World Heritage Site.

Most of the shophouses are located in 16 of 20 streets as follows: Jalan Kampung Pantai (14.4%), Jalan Hang Jebat (13.2%), Jalan Hang Kasturi (12.7%), Jalan Tokong (12.0%), Lorong Hang Jebat (7.9%), Jalan Hang Lekiu (7.2%), Jalan Kampung Hulu (5.8%), Jalan Tukang Besi (5.6%), Jalan Tun Tan Cheng Lock (4.6%), Jalan Tukang Emas (4.2%), Lorong Jambatan (3.5%), Jalan Hang Lekir (2.8%), Jalan Kampung Kuli (2.5%), Jalan Laksamana (2.3%), Jalan Kubu (1.2%) and Jalan Masjid/Lorong Masjid (0.2%) (see Table 5.1).

Jalan Kampung Pantai contains the highest number of shophouses compared to other streets, while Jalan Masjid/Lorong Masjid has the lowest. Jalan Tun Tan Cheng Lock has the smallest number of shophouses compared to other types of heritage buildings, townhouses owned by the very rich descendants of the Baba tycoons being the dominant typology (Loh, 2015). Meanwhile, no buildings can be considered as shophouses at Jalan Portugis, Lorong Gereja, Jalan Gereja and Jalan Kota based on the literal definition.

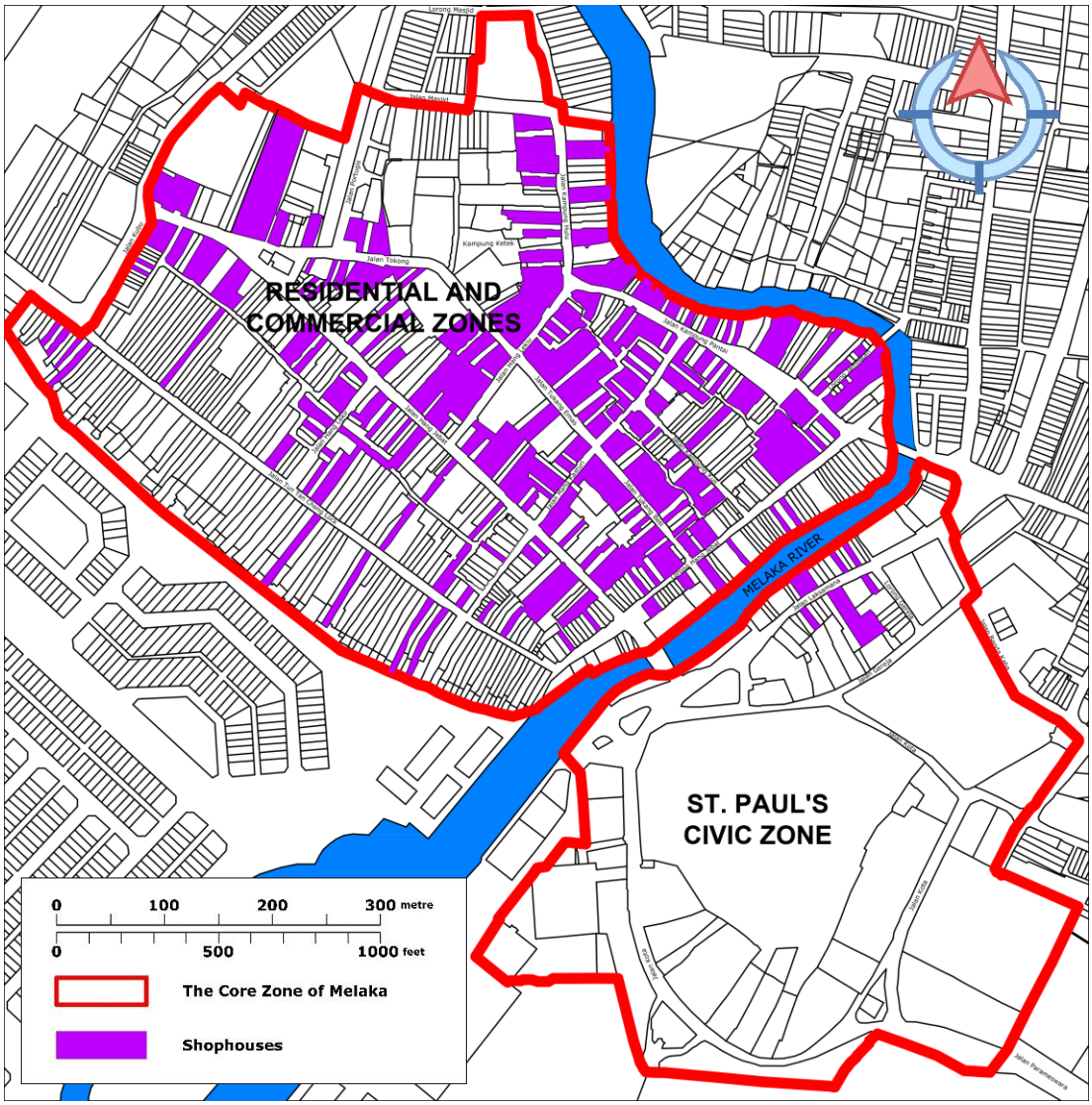


Figure 5.5 Shophouses that meet the literal definition dominate 40% of the entire heritage buildings in the Core Zone of Melaka.

Table 5.1 Breakdown of shophouses in the Core Zone of Melaka.

No	Street Name	Shophouse	%
1	Jalan Tun Tan Cheng Lock	20	4.6
2	Jalan Kubu	5	1.2
3	Jalan Masjid/Lorong Masjid	1	0.2
4	Jalan Hang Lekir	12	2.8
5	Jalan Hang Jebat	57	13.2
6	Jalan Tukang Besi	24	5.6
7	Jalan Tukang Emas	18	4.2
8	Jalan Tokong	52	12.0
9	Jalan Hang Lekiu	31	7.2
10	Jalan Hang Kasturi	55	12.7
11	Jalan Kampung Kuli	11	2.5
12	Lorong Jambatan	15	3.5
13	Jalan Kampung Pantai	62	14.4
14	Jalan Kampung Hulu	25	5.8
15	Lorong Hang Jebat	34	7.9
16	Jalan Laksamana	10	2.3
	Total Number of Shophouses	**432**	**100.0**

5.4 Activities of Shophouses

Based on the on-site survey undertaken for this research, the activities of shophouses in the Core Zone of Melaka were classified into six categories as follows:

- ***Partial Preservation-Reuse****: Where the original function of the ground or upper floor has been preserved, and there has been a change of use on the other floor.*
- ***Partial Reuse-Vacant****: Where there has been a change of use on the ground or upper floor, and the other floor is vacant.*
- ***Partial Vacant-Preservation****: Where the ground or upper floor is vacant, and the original function of the other floor has been preserved.*
- ***Full Preservation****: Where the original functions of both the ground and upper floors have been preserved.*
- ***Full Reuse:*** *Where there has been a change of use on both the ground and upper floors.*
- ***Full Vacant****: Where both the ground and upper floors are vacant.*

The current uses of shophouses can be categorised as: active uses (residences, hotels and motels, cafés and restaurants, art galleries and museums, retail trade, services, wholesale trade, workshops and fabrication, and religious), and passive uses (storage and vacant) based on a study by Chua and Deguchi (2011).

Their original function as shophouses was not only for the retail trade, but also for uses such as services (e.g. goldsmith), and workshops and fabrication (e.g. frame maker). All of these activities have been classified as traditional trades by Melaka JPBD (2011). In the context of shophouses, where the activities have been changed from traditional trades (e.g. watch shop, Chinese medical shop and scale shop) to tourist-dependent trades (e.g. souvenir shops, art and craft shops, and local food produce shop), these have not been considered as reuse activities in this research because they still operate in the retail trade category.

The on-site survey suggested there are 325 (75%) of the 432 shophouses in this area that are still in use (see Figure 5.6 and Table 5.2). Some 29% of these have been preserved with their original function as a retail area on the ground floor and living quarters

on the upper floor(s). A further 31% have been adapted for new purposes that have kept them in active use and has, therefore, minimised obsolescence, while 25% of the shophouses in this area are fully vacant. This means that many shophouses are not being used, and some of them appear to be abandoned with obsolescence as the likely cause.

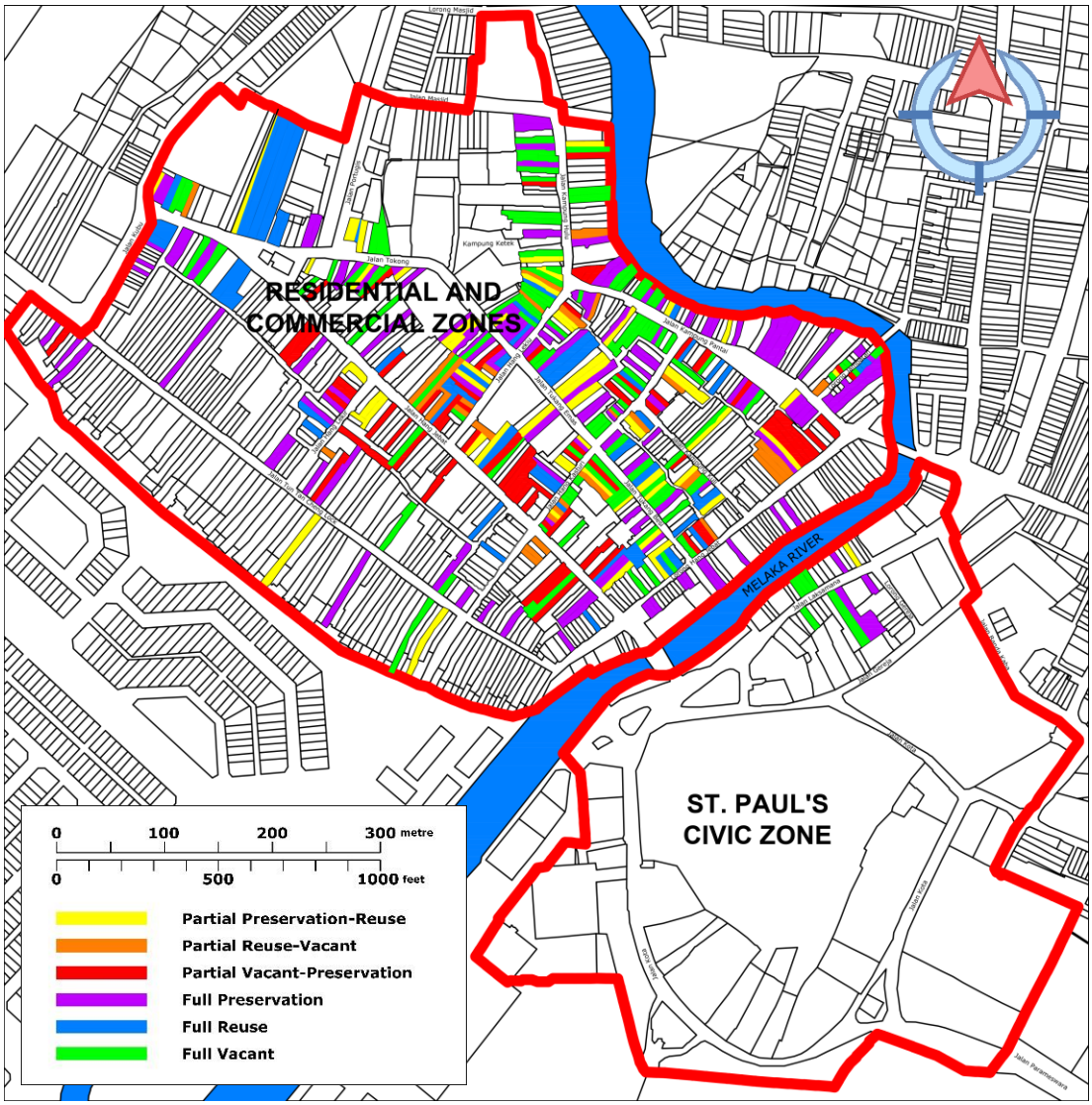


Figure 5.6 There are 75% of the shophouses in the Core Zone of Melaka that are still in use; 25% are fully vacant.

Table 5.2 Breakdown of the current uses of shophouses in the Core Zone of Melaka.

No	Category of Activity	Shophouse	%
1	Partial Preservation-Reuse	56	13
2	Partial Reuse-Vacant	30	7
3	Partial Vacant-Preservation	66	15
4	Full Preservation	127	29
5	Full Reuse	47	11
6	Full Vacant	106	25
	Total Number of Shophouses	**432**	**100**

5.5 Adaptive Reuse Practices for Shophouses

As mentioned in Subchapter 5.4, the on-site survey conducted clarified that 133 (31%) of the 432 shophouses in the Core Zone of Melaka have experienced adaptive reuse practices (see Figure 5.7).

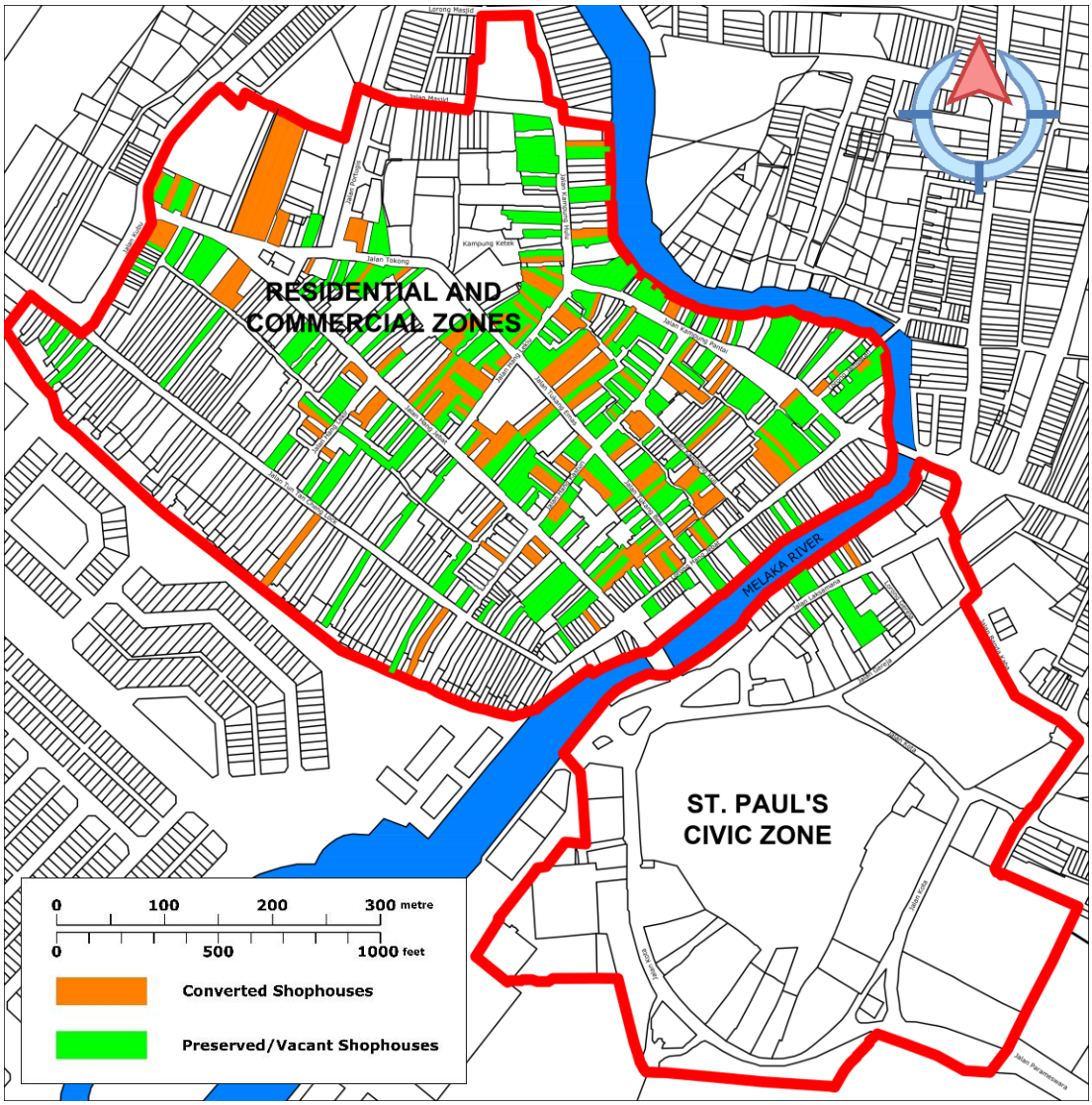


Figure 5.7 A modest proportion (31%) of the shophouses in the Core Zone of Melaka have undergone adaptive reuse practices.

Most of the converted shophouses are located in 15 of 20 streets as follows: Jalan Hang Kasturi (18.0%), Jalan Tokong (15.0%), Jalan Hang Lekiu (12.0%), Jalan Hang Jebat (11.3%), Jalan Kampung Pantai (8.3%), Lorong Hang Jebat (7.5%), Jalan Tukang Besi (6.0%), Jalan Tukang Emas (4.5%), Jalan Hang Lekir (3.8%), Jalan Kampung Kuli (3.8%),

Lorong Jambatan (3.0%), Jalan Kampung Hulu (3.0%), Jalan Tun Tan Cheng Lock (1.5%), Jalan Kubu (1.5%) and Jalan Laksamana (0.8%) (see Table 5.3).

Jalan Hang Kasturi, Jalan Tokong, Jalan Hang Lekiu and Jalan Hang Jebat contain the highest numbers of converted shophouses compared to other streets, while Jalan Laksamana has the lowest. The popularity of the Jonker Street Night Market, which is located at Jalan Hang Jebat, was found to contribute to the high number of converted shophouses in this area. This makes these streets the busiest and the most-tourist-oriented, as opposed to other streets with shophouses that retain their original function or are vacant. Meanwhile, no adaptive reuse practices were found for the only shophouse located in Jalan Masjid/Lorong Masjid, which is partially vacant and preserved.

Table 5.3 Breakdown of adaptive reuse practices for shophouses in the Core Zone of Melaka.

No	Street Name	Converted Shophouse	%
1	Jalan Tun Tan Cheng Lock	2	1.5
2	Jalan Kubu	2	1.5
3	Jalan Hang Lekir	5	3.8
4	Jalan Hang Jebat	15	11.3
5	Jalan Tukang Besi	8	6.0
6	Jalan Tukang Emas	6	4.5
7	Jalan Tokong	20	15.0
8	Jalan Hang Lekiu	16	12.0
9	Jalan Hang Kasturi	24	18.0
10	Jalan Kampung Kuli	5	3.8
11	Lorong Jambatan	4	3.0
12	Jalan Kampung Pantai	11	8.3
13	Jalan Kampung Hulu	4	3.0
14	Lorong Hang Jebat	10	7.5
15	Jalan Laksamana	1	0.8
	Total Number of Converted Shophouses	**133**	**100.0**

Adaptive reuse practices in this area can be arranged into two categories comprising partial reuse and full reuse. The survey showed that 86 (20%) shophouses were partially reused, where there has been a change of use on the ground or upper floor, and the other floor has been preserved or left vacant; 47 (11%) were fully reused, where there has been a change of use on both the ground and upper floors (see Figure 5.8). The trend is widespread in this area. None of the streets showing partial and full reuse activities appear more frequently than on other streets.

There are 82 (95.3%) of the 86 ground floor spaces of partially reused shophouses in active use, and 4.7% are in passive use (see Figure 5.9). The types of current uses for these spaces include cafés and restaurants (45.3%), residences (22.1%), retail trade (11.6%), art galleries and museums (7.0%), services (5.8%), storage (3.5%), hotels and motels (1.2%), workshops and fabrication (1.2%), religious (1.8%), and vacant (1.2%). In

addition, 47 (54.7%) of the 86 upper floor spaces of partially reused shophouses are in active use, and 45.3% are in passive use (see Figure 5.10). The types of current uses for these spaces include residences (51.2%), vacant (33.7%), storage (11.6%), cafés and restaurants (2.3%), and services (1.2%). Based on these findings, it can be concluded that cafés and restaurants have become the most popular conversion option for the ground floor spaces of partially reused shophouses in this area (see Figure 5.11). Storage has become the most popular conversion option for the upper floor spaces, with half of these spaces preserving their original function as residences.

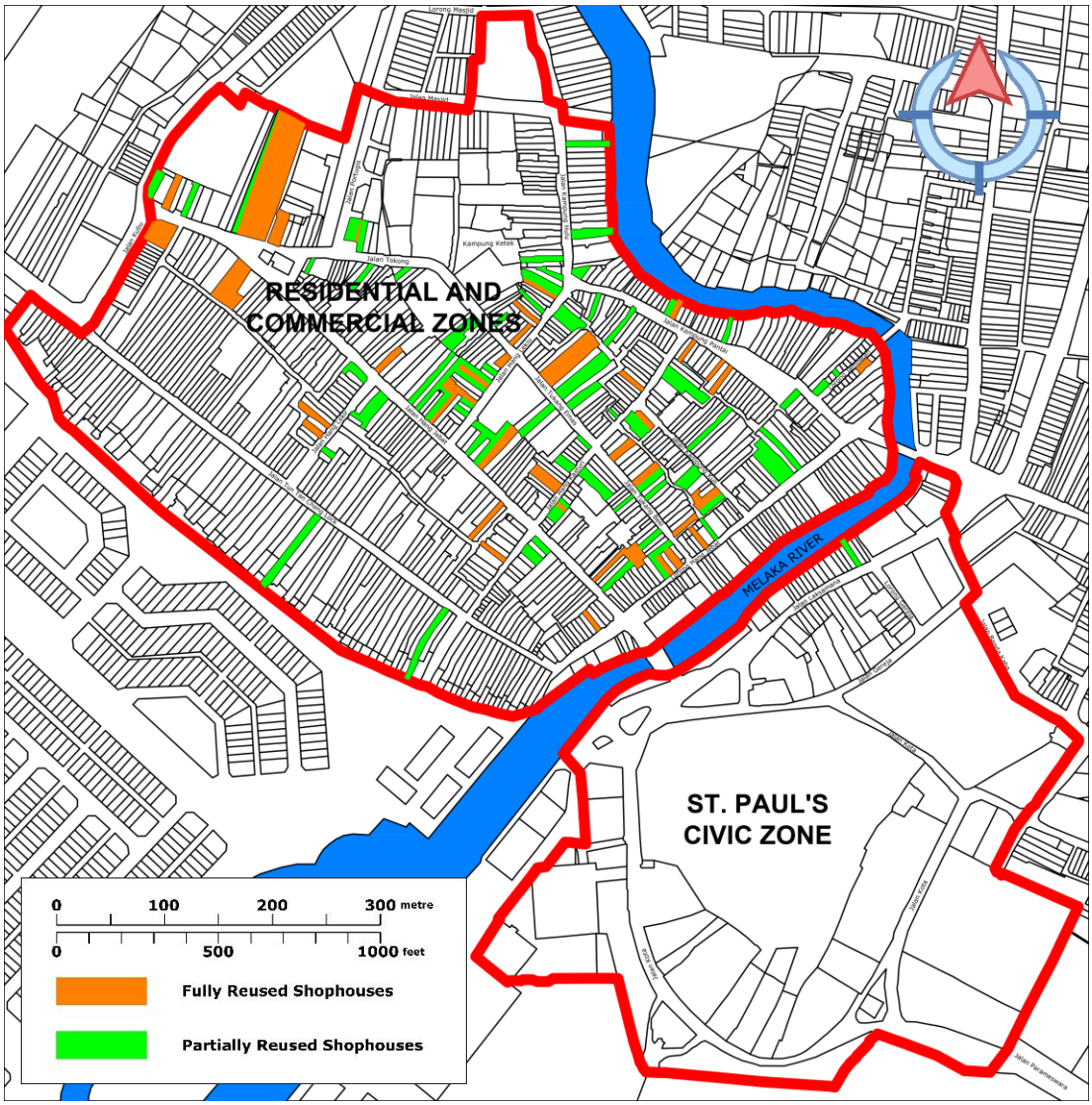


Figure 5.8 There are 20% of the shophouses in the Core Zone of Melaka were partially reused; 11% were fully reused.

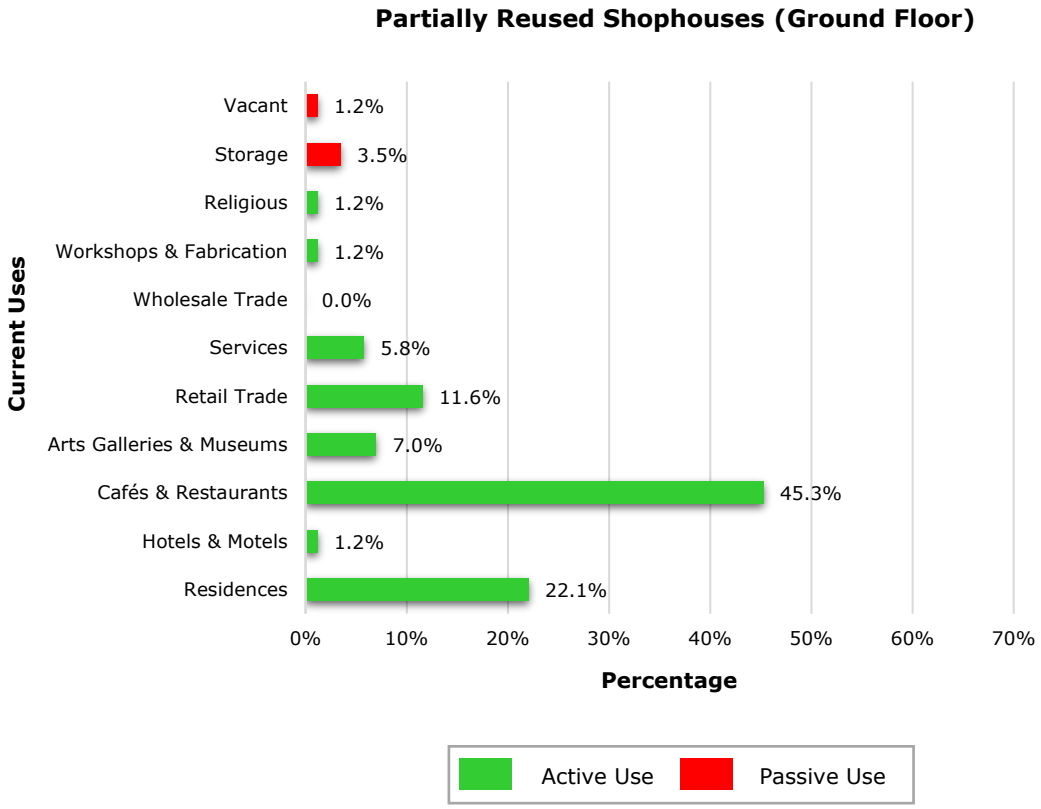


Figure 5.9 The percentage of current uses of the ground floor spaces of partially reused shophouses in the Core Zone of Melaka.

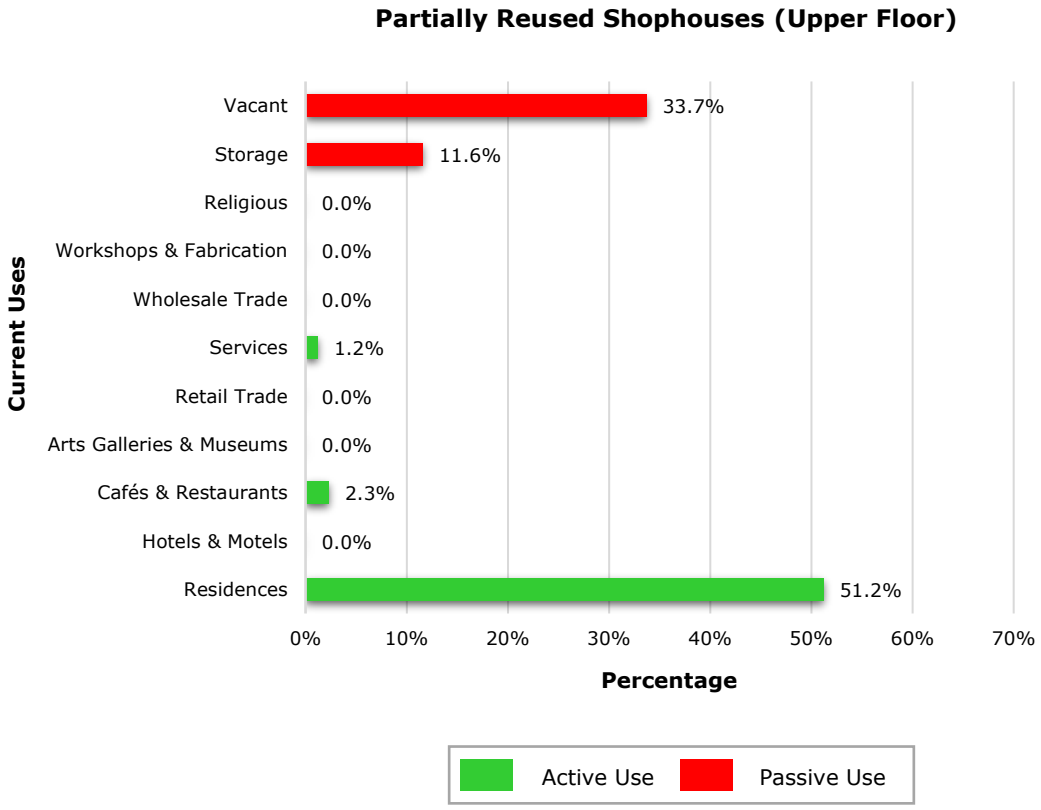


Figure 5.10 The percentage of current uses of the upper floor spaces of partially reused shophouses in the Core Zone of Melaka.



Figure 5.11 A partially reused shophouse at Jalan Kampung Pantai, which serves as a café on the ground floor and as a residence on the upper floor.

In terms of full reuse, 44 (93.6%) of the 47 fully reused shophouses are in active use, and 6.4% are in passive use (see Figure 5.12). The types of current uses for these buildings include hotels and motels (61.7%), cafés and restaurants (14.9%), art galleries and museums (12.8%), storage (6.4%), retail trade (2.1%), and services (2.1%). In order to meet the research aim and objectives in this thesis, special attention was given to fully reused shophouses because these buildings present greater challenges than partially reused shophouses (Chua & Deguchi, 2011), as indicated in Subchapter 4.3.2. Based on these findings, it can be concluded that hotels and motels would seem to be the most popular conversion option for fully reused shophouses in this area (see Figure 5.13).

Seven issues were investigated to establish why reuse activities occurred in the Core Zone of Melaka. These issues are as follows: activity zoning, building category, architectural style, tourism dependency, preservation as intangible heritage, vacancy and dilapidation, and circulation and access.

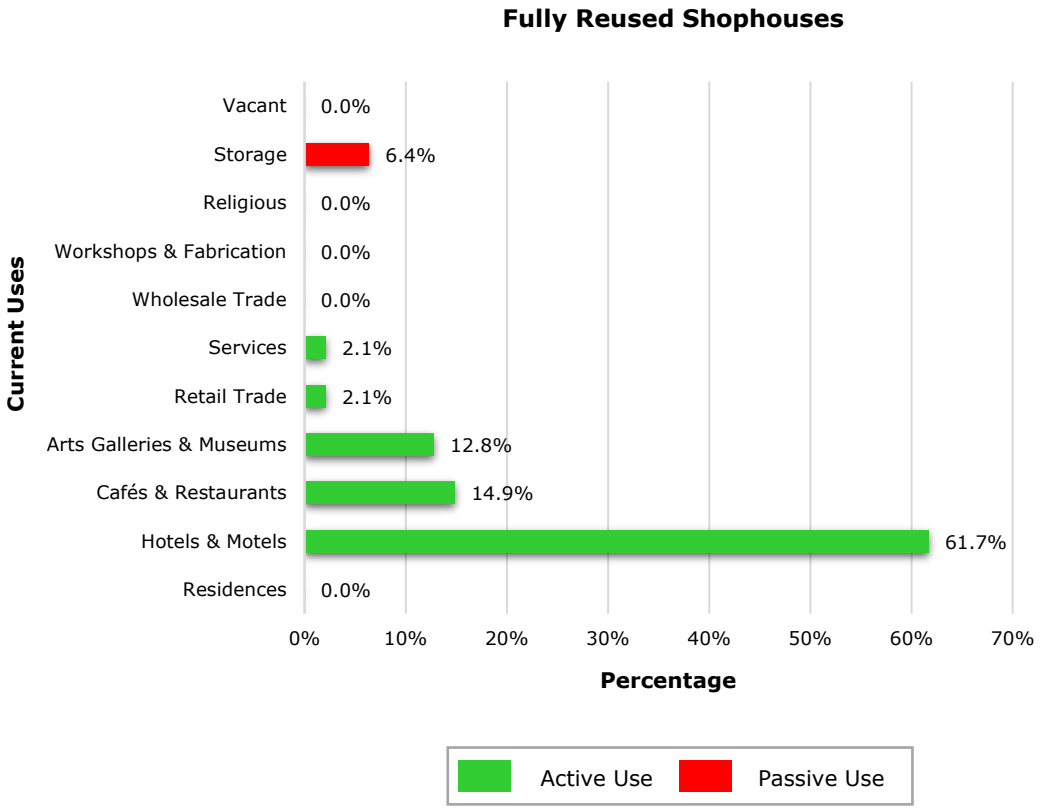


Figure 5.12 The percentage of current uses of fully reused shophouses in the Core Zone of Melaka.



Figure 5.13 Fully reused shophouses at Jalan Tukang Emas, which serve as hotels and motels.

5.5.1 Activity Zoning

For the purpose of controlling the use of land and buildings, the Melaka World Heritage Site is segmented into eight zones: institution zone, places of worship, open space/green zone, commercial zone, residential zone, traditional village zone, river zone and mixed-used zone. Most shophouses in the Core Zone of Melaka are categorised under the mixed-use zone, fulfilling the literal definition with a retail area on the ground floor and living quarters on the upper floor(s) (see Figure 5.14). Several buildings in this area are used as places of worship and ancestral houses, which were established to meet the social needs of local communities.

To protect and enhance its outstanding universal value, there are 24 non-permissible activities in the Melaka World Heritage Site (Melaka JPBD, 2011). However, exceptions are made for four activities in the mixed-use zone: contemporary mini-mart/convenience store, travel and tourism services, financial services and boutique hotels. These activities are not allowed in most other zones. These exceptions are expected, in line with the status of this area as a major tourist attraction in Melaka, with all these activities important to meet the tourism demand.

Based on observations, the number of shophouses with traditional trades that serve the needs of local communities is decreasing. They have been replaced with modern convenience stores from popular franchises and boutique hotels to meet the needs of tourists, especially at Jalan Hang Jebat. Even though the conversion of shophouses into hotel-type accommodation involves significant renovation that could disrupt the original character of the building to comply with modern building codes, it is believed to have a more positive financial impact than other new uses.

5.5.2 Building Category

The buildings and sites in the Melaka World Heritage Site can be grouped into four categories encompassing both conservation and compatible development: Categories I, IIA, IIB and Replacement (Melaka JPBD, 2011). Most shophouses in the Core Zone of Melaka are classified under Category II, with most in Category IIB (see Figure 5.15). Unlike

Category I buildings, which should retain their authentic and original form, there are two options for Category II buildings: either continue with existing uses or adapt for new uses.

For adaptation for new uses, or adaptive reuse, the new use should be compatible with the existing form and with permitted additions to the built fabric. In short, owners are permitted to convert Category II buildings if they feel the original function is obsolete and unprofitable, as long as every effort is made to preserve the original character of these buildings. This is because there is no funding available for maintaining privately-owned heritage buildings in Malaysia, such as shophouses. Owners need to ensure the survival of their premises as demolition of shophouses is no longer permitted in this area.

5.5.3 Architectural Style

From the numerous styles that exist, six main shophouse styles in the Melaka World Heritage Site are considered. In chronological order, these six styles consist of: Dutch, Southern China, Early Straits Eclectic, Late Straits Eclectic, Art Deco and Modern (Melaka JPBD, 2011). In this site, shophouse styles are richer for areas that were established earlier. The Core Zone of Melaka was the earliest settlement, where the Dutch style shophouses as the earliest type of shophouse are dominant, especially at Jalan Tun Tan Cheng Lock, with significant numbers of the Southern China and Late Straits Eclectic style shophouses as well (see Figure 5.16). The Art Deco style shophouses are noticeable at Jalan Hang Jebat and Lorong Hang Jebat. However, the luxurious classical ornamentation of the earlier shophouse styles became much more restrained in designs of this style, and, in many cases, ornamental facades were removed completely.

Based on observations, shophouse style is not the major contributor to adaptive reuse decision-making. Many shophouses without a rich style have the option for conversion, as long as the new use is appropriate and economically viable. However, the absence of continuous five-footways to connect the Dutch style shophouses to neighbouring buildings may influence the use decision. Continuous five-footways have advantages and disadvantages. They may be more suitable for uses that involve public activities such as shops, restaurants and galleries, and less suitable for uses that involve private activities such as residences and hotels.



Figure 5.14 Most shophouses in the Core Zone of Melaka are categorised under the mixed-use zone (marked in red) (Melaka JPBD, 2011, p. 2-1).



Figure 5.15 Most shophouses in the Core Zone of Melaka are classified under Category IIB (marked in red) (Melaka JPBD, 2011, p. 2-1).

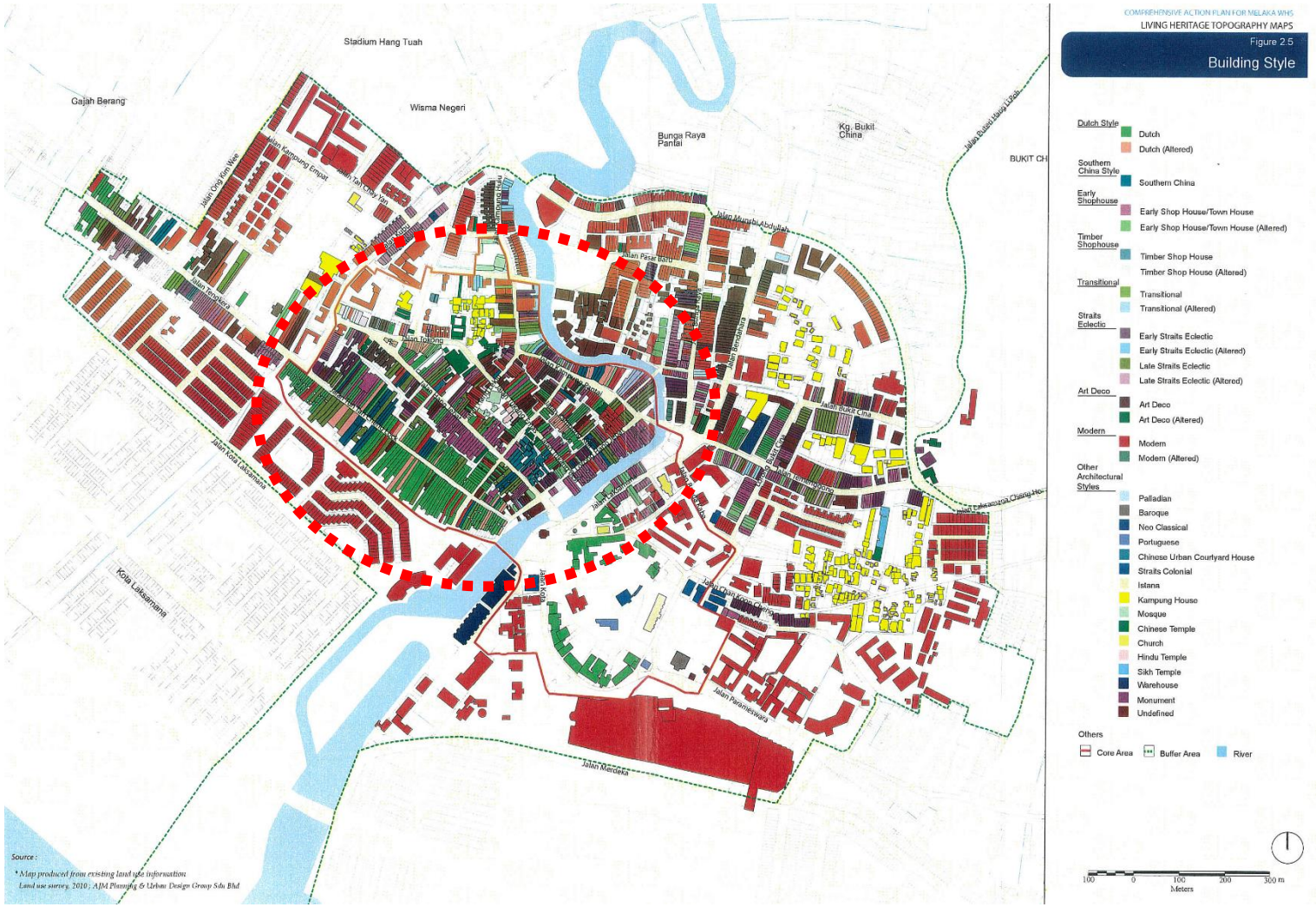


Figure 5.16 The Dutch style shophouses are dominant in the Core Zone of Melaka (marked in red) (Melaka JPBD, 2011, p. 2-1).

5.5.4 Tourism Dependency

Melaka is a tourism-dependent state. Heritage tourism is relatively new, but this city was engaged in tourism long before its nomination for inscription as a UNESCO World Heritage Site. Melaka is well-known as a local tourism destination, and the local food also attracts visitors. According to Zakaria (2019), the tourism industry is one of the largest contributors to Melaka's gross domestic product (GDP). In 2016, 16.28 million tourists were recorded as visiting Melaka, an increase of 545,222 people or 3.46% over the same period in 2015 (see Figure 5.17). Inscription is an important factor that attracts tourists to this city (Zakaria, 2019). In addition, the statistics show a huge increase in the number of tourists after the inscription in 2008.

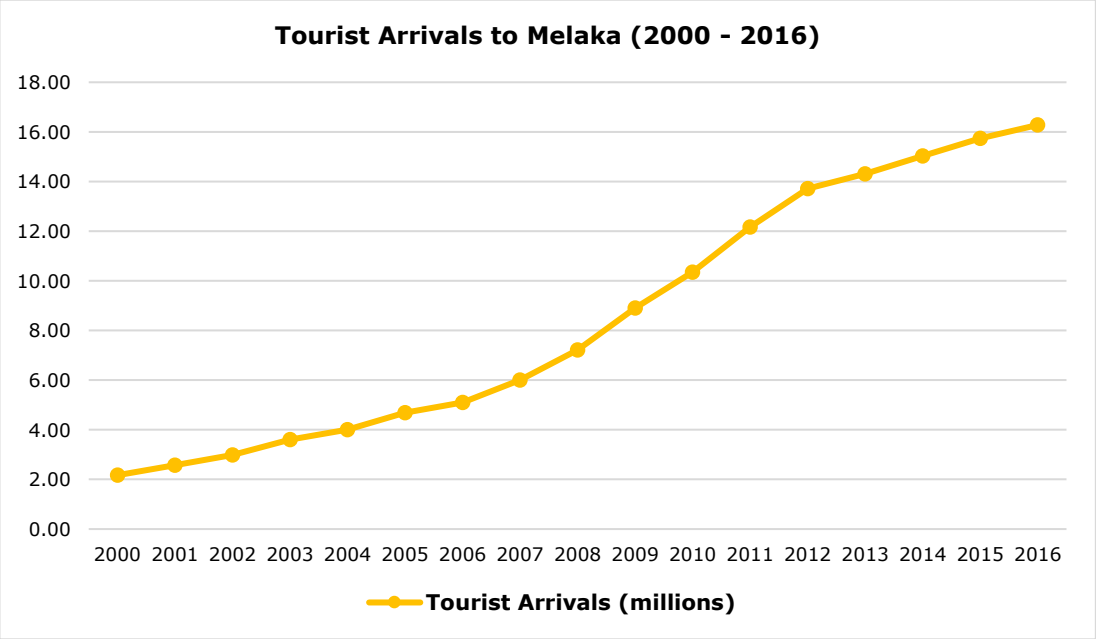


Figure 5.17 Tourist arrivals to Melaka from 2000 to 2016 (copyright [2017] by Tourism Promotion Division).

Among the missions of the Melaka State Government is to develop the tourism industry so it becomes a major contributor to Melaka's GDP and generates employment opportunities in the city. In 2016, the total value from tourism receipts in Melaka was RM18.3 million (£3,388,744.00), an increase of about RM1.5 million (£283,445.00) from the previous year (see Figure 5.18). These figures suggest that tourism has become a significant economic driver in Melaka, especially in the Core Zone, which is now a major

attraction. In addition, the statistics show a huge increase in tourism receipts after the inscription in 2008.

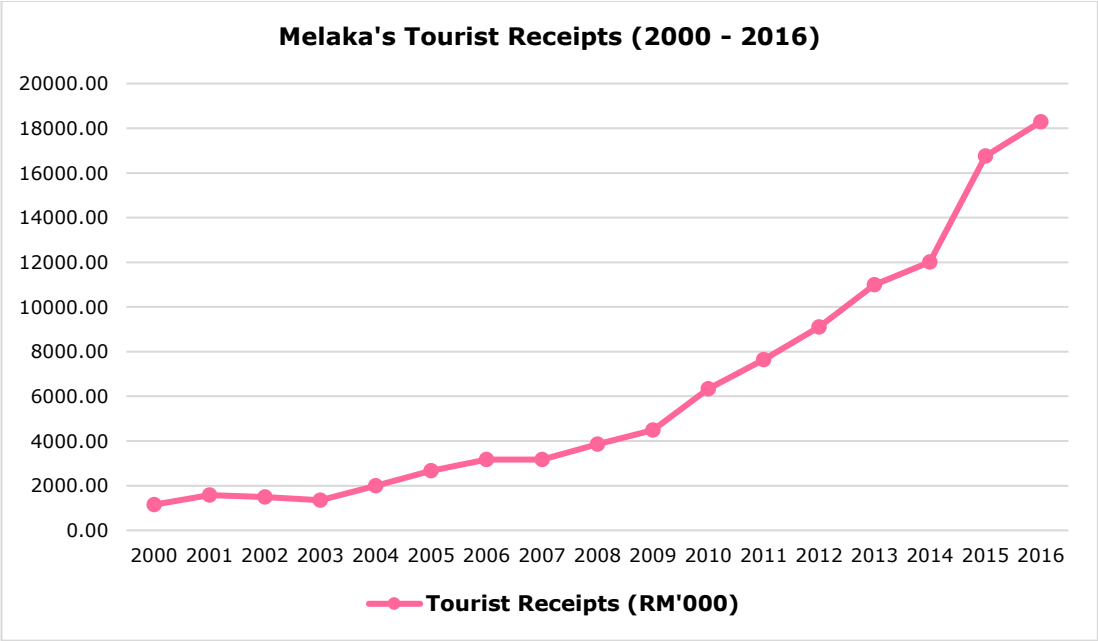


Figure 5.18 Melaka's tourist receipts from 2000 to 2016 (copyright [2017] by Tourism Promotion Division).

Tourist accommodation is an important agent that contributes to the tourist arrivals to Melaka (Hassan, 2018). This could be the front line for promoting tourism, in line with the mission of the state government. In 2016, the average length of stay was 2.16 nights (see Figure 5.19). Extending this to three nights by 2020 is a target of the state government. These figures indicate that growth of the tourism sector contributes to the growth of tourist accommodation in Melaka. This area has experienced new challenges that have been met through the reuse of shophouses as hotels and restaurants to meet the emerging demands of the tourism industry (Melaka JPBD, 2011), especially after the 2008 inscription.

For the most part, between 2015 and 2019, global hotel occupancy rates have remained between 50% and 80% ("How to Increase", 2019). In 2016, the occupancy rate for hotels in Melaka was 66.12%, an increase of about 0.53% from the previous year (see Figure 5.20). In addition, the statistics show that this rate of accommodation is slightly higher than the minimum occupancy of 50% although the total number of hotel rooms, at 11,215, has not changed since 2010. These figures suggest that significant effort is needed to minimise the oversupply of hotel rooms in Melaka. Based on observations, several hotels

have been advertised for sale in this area, especially those on less tourist-focused streets. This issue could be resolved by controlling the number of hotels or boosting tourism to increase the number of tourists. However, the emergence of mass tourism is believed to have negative impacts on the residential population in this area through the loss of privacy and traffic congestion (Melaka JPBD, 2011).

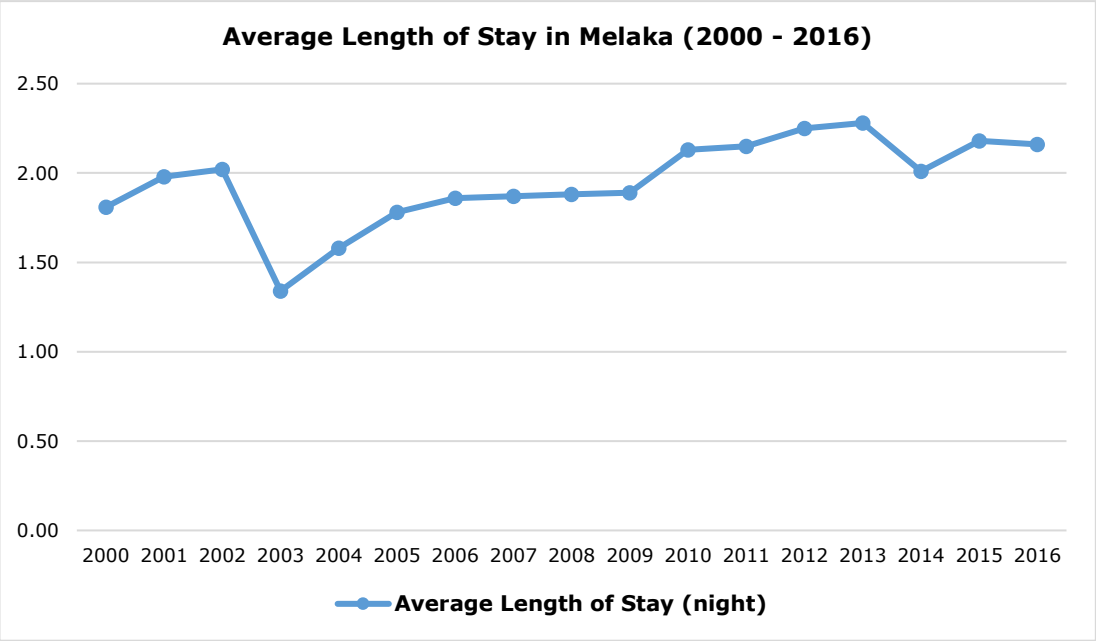


Figure 5.19 Average length of stay in hotels in Melaka from 2000 to 2016 (copyright [2017] by Tourism Promotion Division).

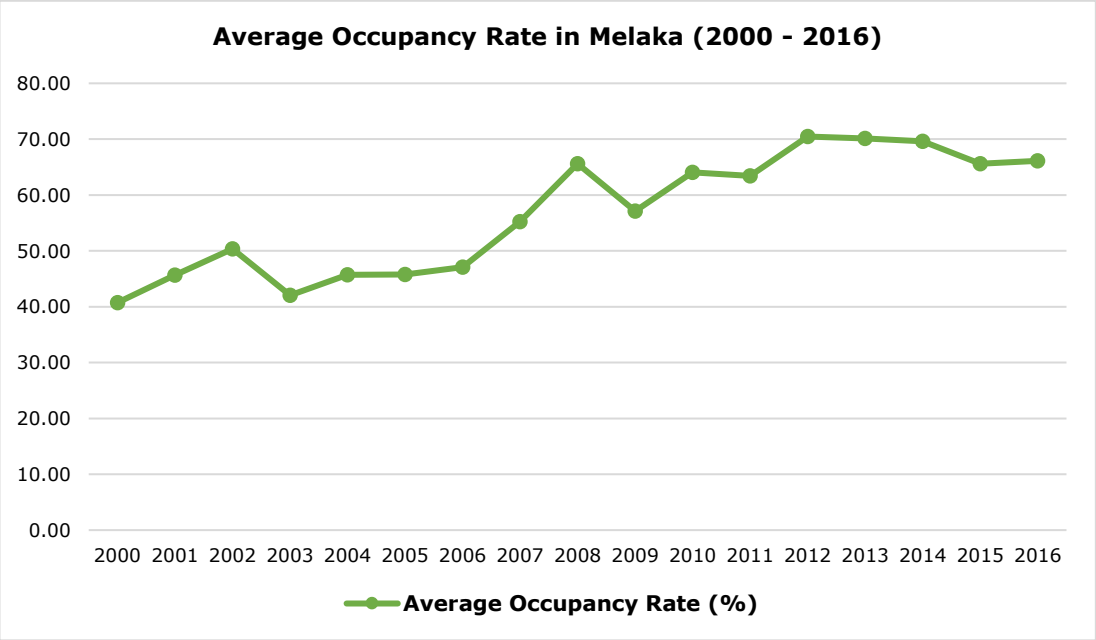


Figure 5.20 Average occupancy rate for hotels in Melaka from 2000 to 2016 (copyright [2017] by Tourism Promotion Division).

5.5.5 Preservation as Intangible Heritage

As mentioned in Subchapter 5.4, the on-site survey revealed that 127 (29%) of the 432 shophouses in the Core Zone of Melaka have been preserved with their original function, with a retail area on the ground floor and living quarters on the upper floor(s) (see Figure 5.21). Meanwhile, 133 (31%) have undergone adaptive reuse.

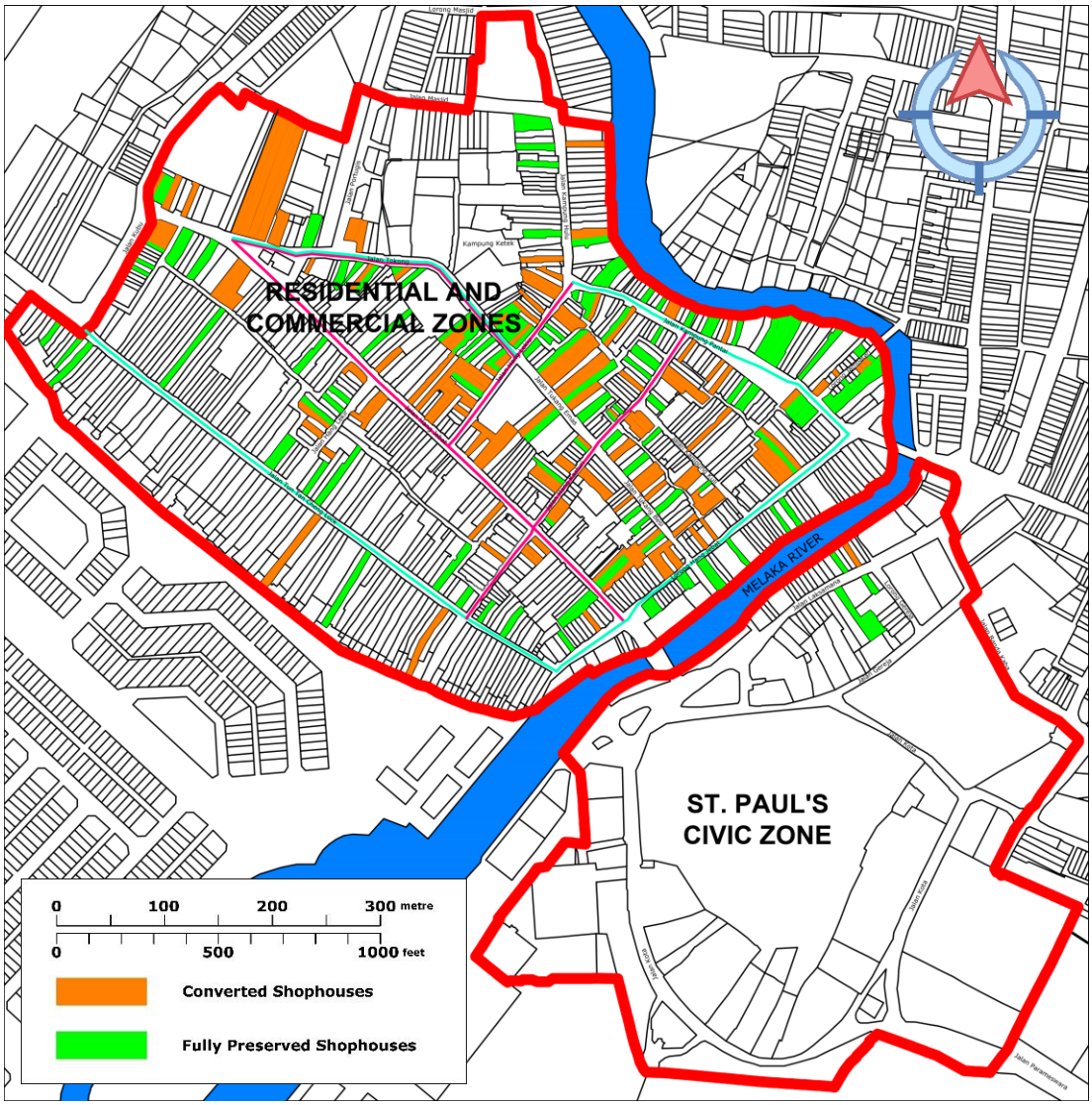


Figure 5.21 Twenty-nine percent of the shophouses in the Core Zone of Melaka have been fully preserved, while 31% have undergone adaptive reuse.

Most of the fully preserved shophouses are located in 15 of 20 streets as follows: Jalan Kampung Pantai (28), Jalan Tokong (20), Jalan Tun Tan Cheng Lock (13), Lorong Hang Jebat (12), Jalan Hang Kasturi (9), Jalan Hang Jebat (8), Jalan Kampung Hulu (7), Jalan Tukang Besi (6), Jalan Tukang Emas (6), Lorong Jambatan (4), Jalan Kubu (3), Jalan

Hang Lekir (3), Jalan Hang Lekiu (3), Jalan Laksamana (3) and Jalan Kampung Kuli (2) (see Table 5.4). The only shophouse at Jalan Masjid/Lorong Masjid is partially vacant and preserved.

Table 5.4 Breakdown of fully preserved and converted shophouses in the Core Zone of Melaka.

No	Street Name	Fully Preserved Shophouse	Converted Shophouse
1	Jalan Tun Tan Cheng Lock	13	2
2	Jalan Kubu	3	2
3	Jalan Hang Lekir	3	5
4	Jalan Hang Jebat	8	15
5	Jalan Tukang Besi	6	8
6	Jalan Tukang Emas	6	6
7	Jalan Tokong	20	20
8	Jalan Hang Lekiu	3	16
9	Jalan Hang Kasturi	9	24
10	Jalan Kampung Kuli	2	5
11	Lorong Jambatan	4	4
12	Jalan Kampung Pantai	28	11
13	Jalan Kampung Hulu	7	4
14	Lorong Hang Jebat	12	10
15	Jalan Laksamana	3	1
	Total Number of Shophouses	**127**	**133**

Jalan Kampung Pantai, Jalan Tokong, Jalan Tun Tan Cheng Lock and Lorong Hang Jebat contain the highest numbers of fully preserved shophouses compared to other streets (see Figure 5.21 and Table 5.4 – marked in turquoise), while Jalan Kampung Kuli has the lowest. This is in line with the status of Jalan Kampung Pantai, Jalan Tokong and Jalan Tun Tan Cheng Lock as being the location of the main cluster of traditional trades in this area (Melaka JPBD, 2011) (see Figure 5.22). These traditional trades range from food-related activities, jewellery activities and traditional crafts to health- and beauty-related activities, among several others. These activities are unique to the Melaka World Heritage Site and special attention must be given to ensure that planning and development protect these activities in this vibrant heritage town.

Traditional trades are a possible reason why adaptive reuse is less popular on these streets compared to Jalan Hang Kasturi, Jalan Hang Lekiu and Jalan Hang Jebat (see Figure 5.21 and Table 5.4 – marked in magenta). The traditional trades practiced in shophouses need to be protected as intangible heritage, which is one of the criteria listed by UNESCO. However, the on-site survey also indicates a similarity between the number of fully preserved shophouses and converted shophouses at Jalan Tokong. The new uses of these converted buildings are mostly hotels and galleries that cater to tourism needs. This is in accordance with the popularity of this street, which is known as the 'Street of Harmony' as

it is the location of three coexisting places of worship of the three major religions in Malaysia: Kampung Kling Mosque, Cheng Hoon Teng Chinese Temple and Sri Poyyatha Vinayagar Moorthi Hindu Temple (see Figure 5.23).



Figure 5.22 Traditional trades (Chinese medical shop) inside a fully preserved shophouse at Jalan Kampung Pantai.



Figure 5.23 Jalan Tokong is known as the 'Street of Harmony'.

5.5.6 Vacancy and Dilapidation

As mentioned in Subchapter 5.4, the on-site survey revealed that 106 (25%) of the 432 shophouses in the Core Zone of Melaka are fully vacant (see Figure 5.24). Meanwhile, 133 (31%) have undergone adaptive reuse.

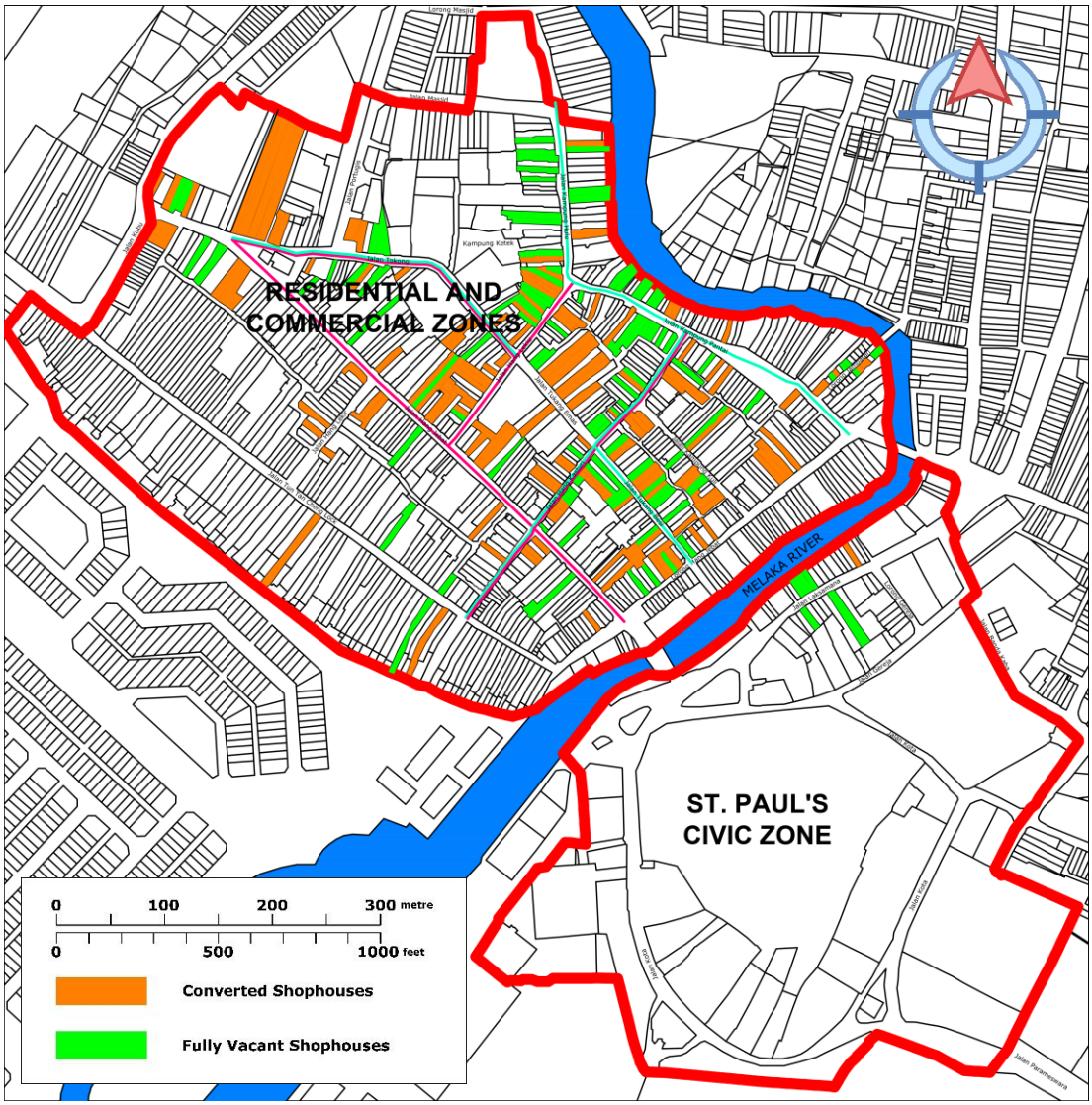


Figure 5.24 Twenty-five percent of the shophouses in the Core Zone of Melaka are fully vacant, while 31% have undergone adaptive reuse.

Most of the fully vacant shophouses are located in 13 of 20 streets in the Core Zone of Melaka as follows: Jalan Kampung Pantai (17), Jalan Hang Kasturi (13), Jalan Kampung Hulu (12), Jalan Tukang Besi (10), Jalan Tokong (10), Jalan Hang Jebat (9), Jalan Hang Lekiu (9), Jalan Laksamana (6), Jalan Tukang Emas (5), Lorong Jambatan (5), Lorong Hang Jebat (4), Jalan Tun Tan Cheng Lock (3) and Jalan Kampung Kuli (3) (see Table 5.5). No

fully vacant shophouses are found at Jalan Kubu, Jalan Hang Lekir and Jalan Masjid/Lorong Masjid.

Table 5.5 Breakdown of fully vacant and converted shophouses in the Core Zone of Melaka.

No	Street Name	Fully Vacant Shophouse	Converted Shophouse
1	Jalan Tun Tan Cheng Lock	3	2
2	Jalan Hang Jebat	9	15
3	Jalan Tukang Besi	10	8
4	Jalan Tukang Emas	5	6
5	Jalan Tokong	10	20
6	Jalan Hang Lekiu	9	16
7	Jalan Hang Kasturi	13	24
8	Jalan Kampung Kuli	3	5
9	Lorong Jambatan	5	4
10	Jalan Kampung Pantai	17	11
11	Jalan Kampung Hulu	12	4
12	Lorong Hang Jebat	4	10
13	Jalan Laksamana	6	1
	Total Number of Shophouses	**106**	**133**

Jalan Kampung Pantai, Jalan Hang Kasturi, Jalan Kampung Hulu, Jalan Tukang Besi and Jalan Tokong contain the highest numbers of fully vacant shophouses compared to other streets (see Figure 5.24 and Table 5.5 – marked in turquoise), while Jalan Tun Tan Cheng Lock and Jalan Kampung Kuli contain the lowest numbers. Jalan Kampung Pantai and Jalan Kampung Hulu are connected to each other. They have common commercial uses such as retail trade, wholesale trade and storage, and are less touristy than other streets in this area. These non-tourist-dependent uses could be a reason why many shophouses on these streets are vacant. However, these streets have the potential to become a tourist attraction due to their proximity to the Melaka River Water Promenade, which is the main route of the Melaka River Cruise.

Although there is a high number of vacant shophouses on Jalan Tokong and Jalan Hang Kasturi, adaptive reuse practices are widespread on these streets (see Figure 5.24 and Table 5.5 – marked in magenta). Such practices are an attempt by building owners to solve the problem of vacancy and dilapidation of this architectural typology. The presence of many vacant and dilapidated buildings in this area is worrying and should be monitored and controlled (Melaka JPBD, 2011). Vacant buildings are often vulnerable to theft and squatting by undesirable parties such as drug addicts and vagrants. Some have been victims of vandalism and illegal dumping (see Figure 5.25). In addition, they are fire hazards, not only to themselves but also to the surrounding neighbourhood. A more serious

concern, vacant buildings can deteriorate to the point they cannot be reused without major rehabilitation (Mallach, 2018).



Figure 5.25 A vacant shophouse on Jalan Tun Tan Cheng Lock, which has been the victim of illegal dumping.

Some shophouses have changed ownership but have not been restored or improved and remain vacant. A change in ownership could have negative impacts on tenancy, with rents increasing and becoming expensive for the existing residential population, who are often from the lower-income groups (Melaka JPBD, 2011). This scenario attracts investors to acquire shophouses, in line with the growing interest in buildings located in the Melaka World Heritage Site. In this way, the original non-profit function of a building may be converted to a more profitable function. While the traditional trades practiced inside shophouses cannot be protected, more importantly, this architectural typology can be restored for the benefit of the entire community and this vibrant heritage town.

5.5.7 Circulation and Access

There are four issues of circulation and access that have been observed in the Core Zone of Melaka. These issues consist of: pedestrian movement, traffic flow, parking facilities and public transit. They are described as follows:

(a) Pedestrian Movement

Observation of pedestrian movement revealed that most of the streets in the Core Zone of Melaka are equipped with pedestrian walkways (see Figure 5.26). Nearly all heritage buildings in this area have continuous five-footways, except for the Dutch style buildings. In addition, a small number of buildings have back lanes.

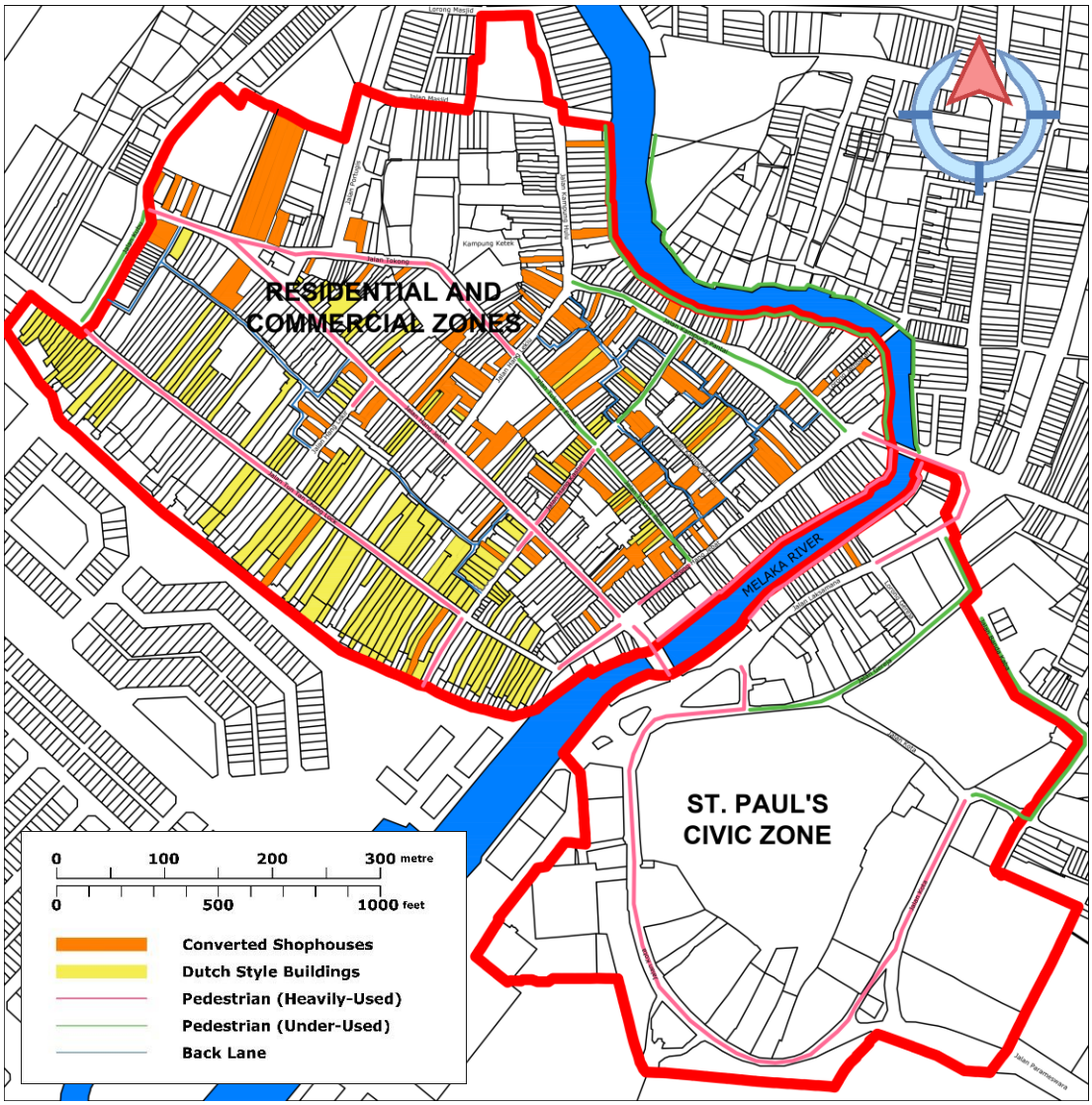


Figure 5.26 Pedestrian movement in the Core Zone of Melaka.

Jalan Tun Tan Cheng Lock, Jalan Hang Lekir, Jalan Hang Jebat, Jalan Tokong, Jalan Hang Kasturi and Lorong Hang Jebat have the heaviest pedestrian movement in the Historic Residential and Commercial Zones. This is in line with the findings in Subchapter 5.5, which suggest Jalan Hang Kasturi, Jalan Tokong and Jalan Hang Jebat as the busiest and the most tourist-oriented streets. As a result, compared to others, these streets contain more converted shophouses to meet demand from tourism. Although Jalan Tun Tan Cheng Lock, Jalan Hang Lekir and Lorong Hang Jebat have few converted shophouses, these are the main routes used by tourists to get to Jalan Hang Jebat, which is a major attraction in this area.

Some streets do not have pedestrian walkways, possibly due to narrow streets or the provision of parking facilities. Alternatively, pedestrians may use five-footways, although some may be restricted by merchandise displayed along the pavement. However, many buildings at Jalan Tun Tan Cheng Lock do not have continuous five-footways to ease pedestrian mobility (see Figure 5.27). As mentioned in Subchapter 5.5.3, the absence of continuous five-footways to connect the Dutch style shophouses to neighbouring buildings may influence adaptive reuse decision-making. These buildings typically have a private entrance porch, which makes them more suitable for uses that involve private activities, such as residences and hotels, and less suitable for uses that involve public activities, such as shops, restaurants and galleries.

The CMP and SAP include proposals to allocate back lanes in this area for pedestrians, and even commercial use where applicable (Melaka JPBD, 2011). These back lanes are planned to be upgraded and revitalised for comfort and safety. However, based on observations in 2017, back lanes are commonly used as private car parks and to facilitate loading activities, especially for shophouses that have been converted into restaurants and hotels (see Figure 5.28). This occurs because front streets are often one-way, narrow and crowded with traffic and tourists that can disrupt these activities. On the other hand, buildings without a back lane have to use the front street as a loading area since the rear part of these buildings is attached to another building. This situation could worsen existing traffic congestion by obstructing other road users.



Figure 5.27 Pedestrian walkways are provided on Jalan Tun Tan Cheng Lock due to the absence of continuous five-footways, but restriction along these walkways complicate pedestrian mobility.



Figure 5.28 This back lane that connects Jalan Hang Jebat with Jalan Kubu should be reserved for pedestrians rather than being used as private car parks.

(b) Traffic Flow

Observation of traffic flow indicated that most streets in the Core Zone of Melaka are accessible by vehicle (see Figure 5.29). Almost all streets are one-way except for Jalan Portugis, Lorong Masjid, Jalan Kampung Pantai and Jalan Kampung Hulu.

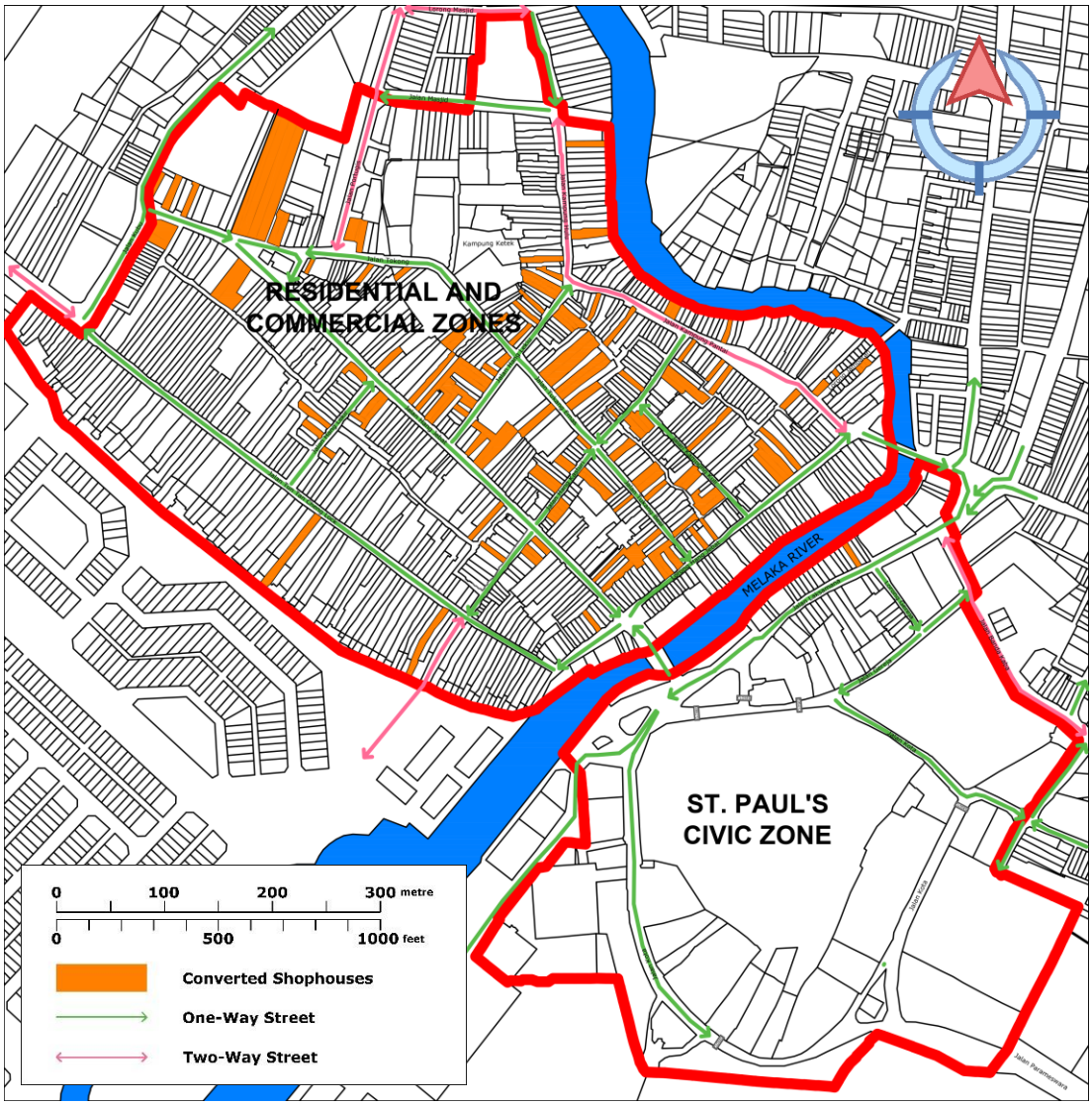


Figure 5.29 Traffic flow in the Core Zone of Melaka.

The decision to make a street one-way is based on its narrowness. In addition, making a street one-way can provide ample space for pedestrians and vehicle parking, especially on tourist-focused streets. Nearly all converted shophouses in this area are located on one-way streets. However, one-way streets can cause traffic congestion and make loading activities difficult, particularly when the area also has to cope with tourist buses, increased private vehicle traffic and haphazard parking (Melaka JPBD, 2011). Some

of the streets are too narrow to allocate pedestrian walkways and on-street parking. Parking facilities are important for hotel conversions, as they are a part of the requirements set by the Melaka Historic City Council (MBMB). In contrast, two-way streets are often less touristy and designed to facilitate loading activities. Examples of such streets are Jalan Kampung Pantai and Jalan Kampung Hulu, which are the locations of common commercial uses such as retail trade, wholesale trade and storage.

As the major tourist attraction in Melaka, the Historic Residential and Commercial Zones experience the worst traffic flow in the city, causing locals to avoid it on weekends, and public and school holidays (see Figure 5.30). Based on observations, Jalan Hang Jebat has the highest traffic flow in the Historic Residential and Commercial Zones (see Figure 5.31). This situation is further aggravated when this street is closed to vehicles for the Jonker Street Night Market during the weekend, resulting in severe traffic congestion on Jalan Tun Tan Cheng Lock, Jalan Kubu, Lorong Hang Jebat and Jalan Laksamana as these streets are used to pass through this area (see Figure 5.32). There are few traffic lights and pedestrian crossings available for the purpose of managing traffic.

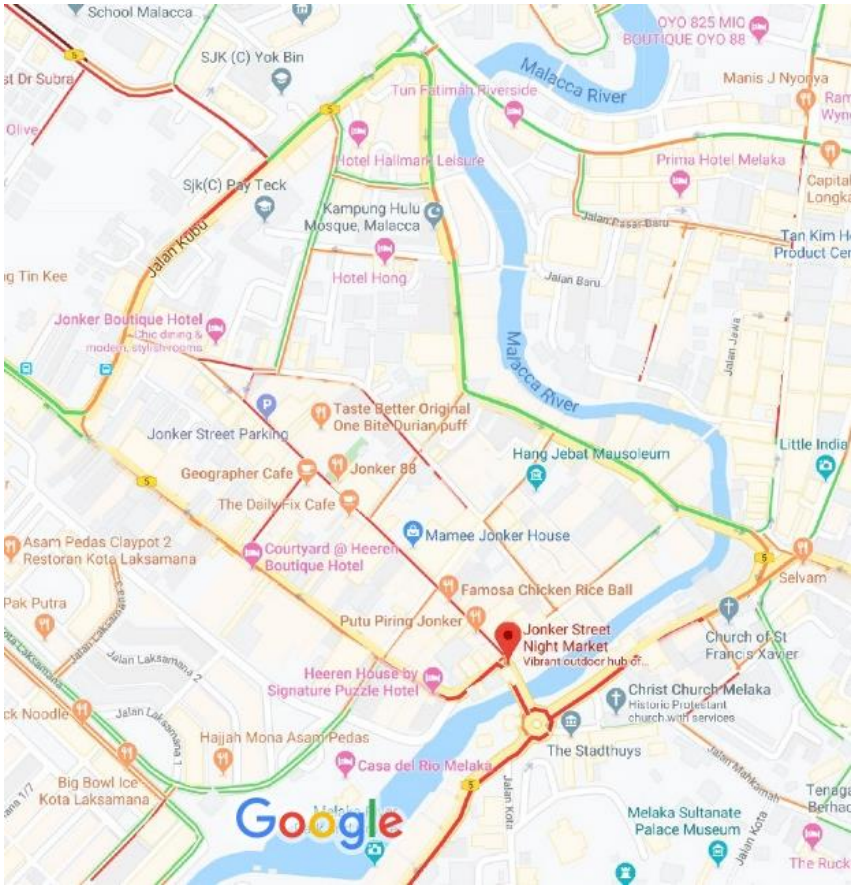


Figure 5.30 Heavy traffic flow in the Historic Residential and Commercial Zones during the weekend (Google Maps, 2019).



Figure 5.31 Jalan Hang Jebat has the highest traffic flow in the Historic Residential and Commercial Zones.



Figure 5.32 The closure of Jalan Hang Jebat to vehicles for the Jonker Street Night Market during the weekend cause severe traffic congestion on the surrounding streets.

(c) Parking Facilities

Observation of parking facilities showed that these facilities are widely available in the Core Zone of Melaka (see Figure 5.33). Parking facilities can be divided into on-street parking and off-street parking. On-street parking entails parking vehicles on the street, anywhere on or along the curb, while off-street parking entails parking vehicles in locations other than the street, such as garages and lots. Off-street parking is more commonly known as centralised parking in this area.

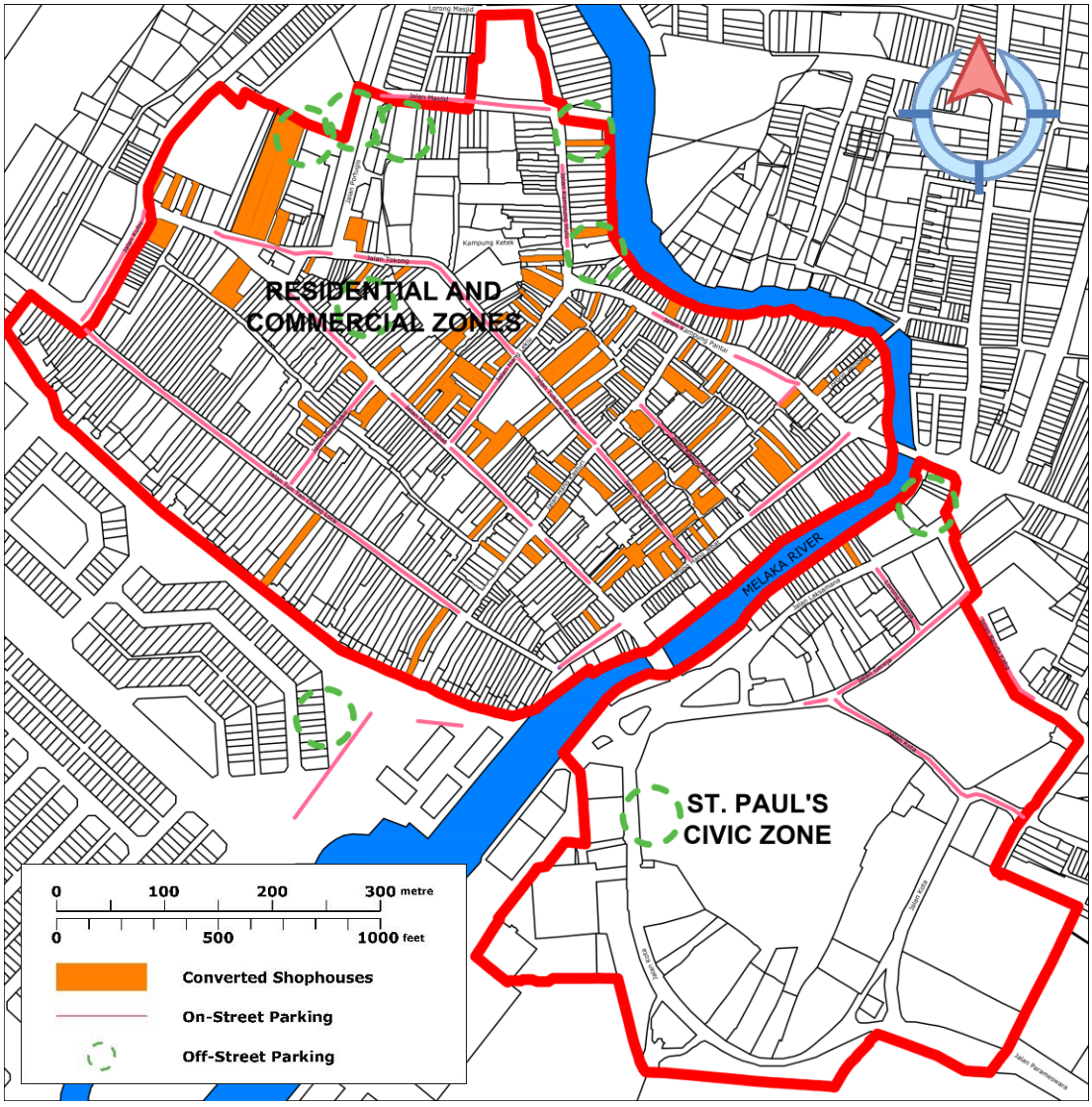


Figure 5.33 Parking facilities in the Core Zone of Melaka.

In the CMP and SAP, on-street parking facilities are planned to be reduced on congested streets in this area (Melaka JPBD, 2011). However, based on observations in 2017, this kind of parking facility exists mostly on congested streets such as Jalan Tun Tan

Cheng Lock, Jalan Hang Lekir, Jalan Hang Jebat, Jalan Tukang Besi, Jalan Tukang Emas and Jalan Tokong. On-street parking is useful for shophouses being converted into hotels, particularly those located on Jalan Tukang Besi and Jalan Tokong. In addition to meeting the requirements set by MBMB, this also prevents guests from relying on a nearby public car park. Nevertheless, on-street parking can make streets narrower. This problem may be further aggravated by illegal parking and heavy pedestrian movement since these activities share the same road space and can create discomfort for road users (see Figure 5.34).



Figure 5.34 On-street parking and illegal parking make Lorong Hang Jebat narrow and create discomfort for road users.

Another strategy proposed in the CMP and SAP is the provision of two centralised parking facilities on the border of this area, one of which is a multi-storey car park (Melaka JPBD, 2011) (see Figure 5.35). Based on observations in 2017, eight centralised parking facilities are allocated, with no multi-storey car park, mostly on less crowded streets such as Kota Laksamana, Jalan Portugis, Jalan Kampung Hulu and Jalan Kota. This kind of parking facility is beneficial for hotels, restaurants and shops that unable to provide parking nearby due to narrow streets. For example, Jalan Hang Kasturi contains the highest rate of hotel conversions in spite of not having on-street parking facilities at all. However, tourists may have to walk long distances, and hotel guests may need to pay expensive parking fees, especially when centralised parking is managed by private parties (see Figure 5.36). The

observations made also reveal that parking facilities in this area are insufficient to meet the increasing number of tourists.

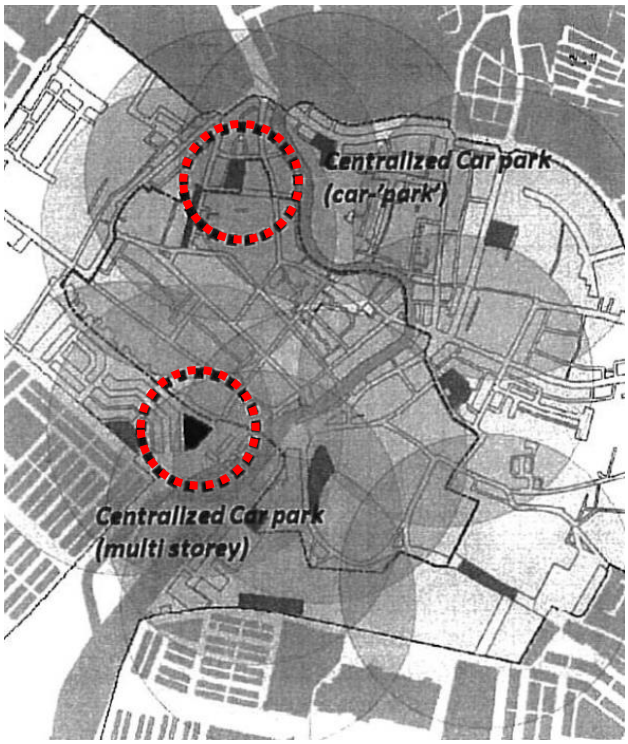


Figure 5.35 Proposed centralised parking facilities in the Core Zone of Melaka in 2011 (marked in red) (Melaka JPBD, 2011, p. 6-4).



Figure 5.36 Centralised parking at Kota Laksamana is privately managed, where users have to pay higher parking fees than public car park.

(d) Public Transit

Observation of public transit indicated that the public transport network is not operating at maximum efficiency in the Core Zone of Melaka because of the high usage of private cars (see Figure 5.37). This system includes public buses, tourist buses, conventional taxis, Grab (ride-hailing transport services), river cruises and trishaw rides.

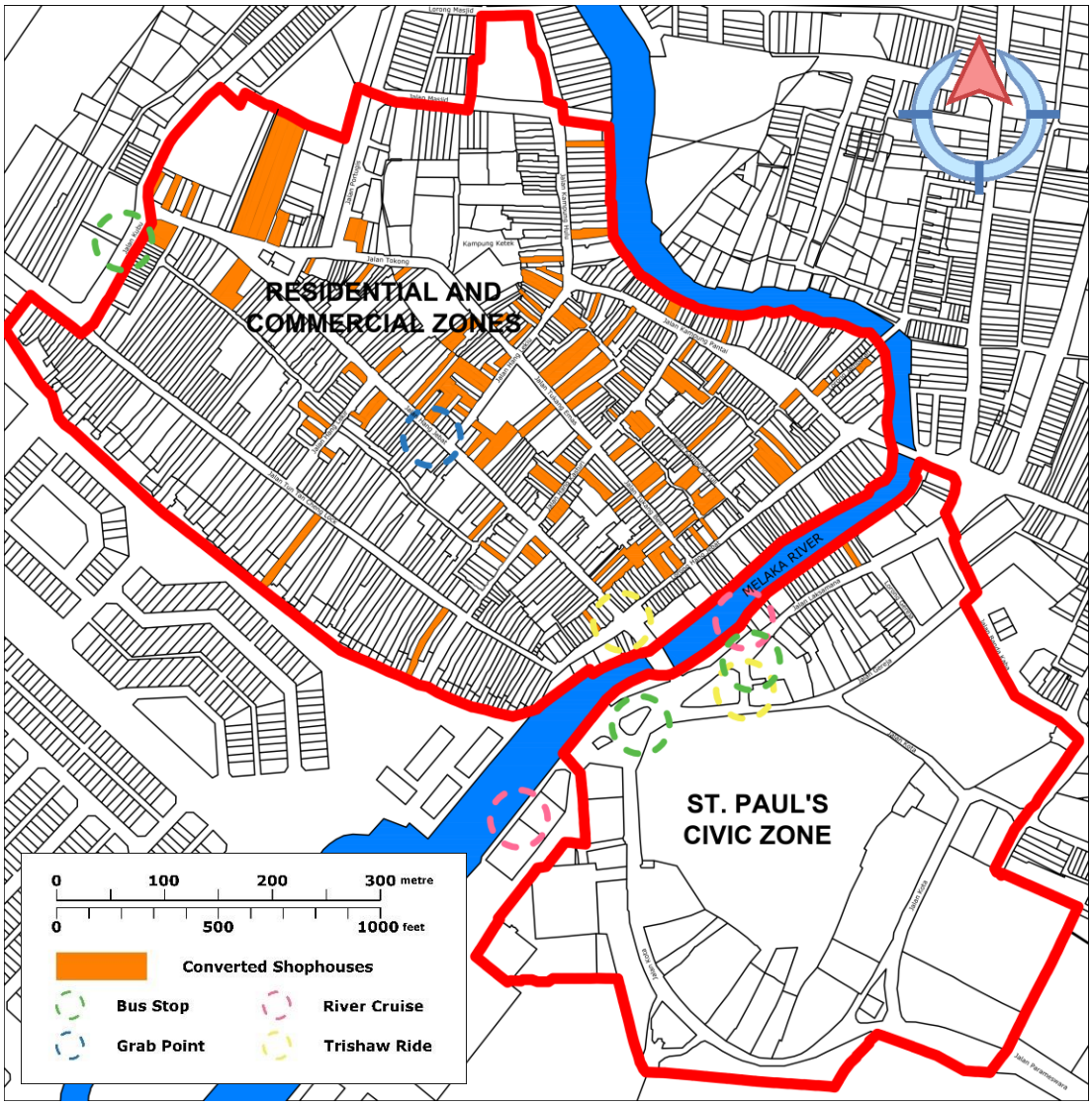


Figure 5.37 Public transit in the Core Zone of Melaka.

Public buses (Panorama Melaka) are available from the main bus terminal in Melaka (Melaka Sentral) to this area. However, the journey takes one to two hours and runs at a frequency of every 20 to 30 minutes, despite a traveling distance of fewer than five kilometres. Further delays may be caused by traffic congestion. Passengers must get off the bus at Jalan Laksamana and then board the bus at Jalan Kubu to return to the Melaka

Sentral (see Figure 5.38). The distance between these two bus stops is 850 metres or a 10-minute walk. According to Melaka JPBD (2011), there should be another Panorama bus stop in this area, located at Jalan Kampung Hulu (see Figure 5.39). This is a possible reason why public buses are rarely used by locals, who prefer to use their own vehicles even though bus fares are much cheaper than other types of public transit. Another bus stop located at Jalan Laksamana is commonly used by tourist buses that mostly carry foreign tourists.

The use of conventional taxis is not popular in this area. Grab is often a cheaper and more efficient alternative to conventional taxis. As the streets are so narrow and crowded in the proximity of buildings, a Grab point was placed in the middle of Jalan Hang Jebat to make it easier for drivers to pick up and drop off passengers. If necessary, conventional taxi or Grab bookings can be arranged by hotels. River cruises and trishaw rides are not a popular choice for public transit in this area although there is a proposal in the CMP and SAP for a river transport system from the Melaka Sentral to Kota Laksamana (Melaka JPBD, 2011) (see Figure 5.40). Because these services are more focused on tourism, the fares are relatively expensive at RM25 (£4.57) for a 45-minute river cruise and RM40 (£7.30) for a one-hour trishaw ride (see Figure 5.41). Assessing recent public transport usage, it can be concluded that the proximity of a converted shophouse to the public transport network is unlikely to be the reason for conversion.



Figure 5.38 The bus stop on Jalan Laksamana is used only to drop off passengers.

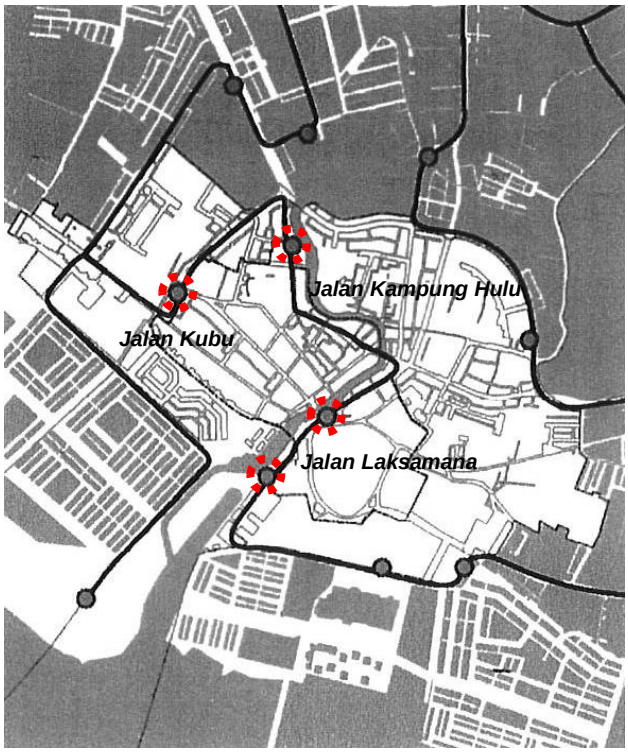


Figure 5.39 Proposed Panorama bus stops in the Core Zone of Melaka in 2011 (marked in red) (Melaka JPBD, 2011, p. 6-3)

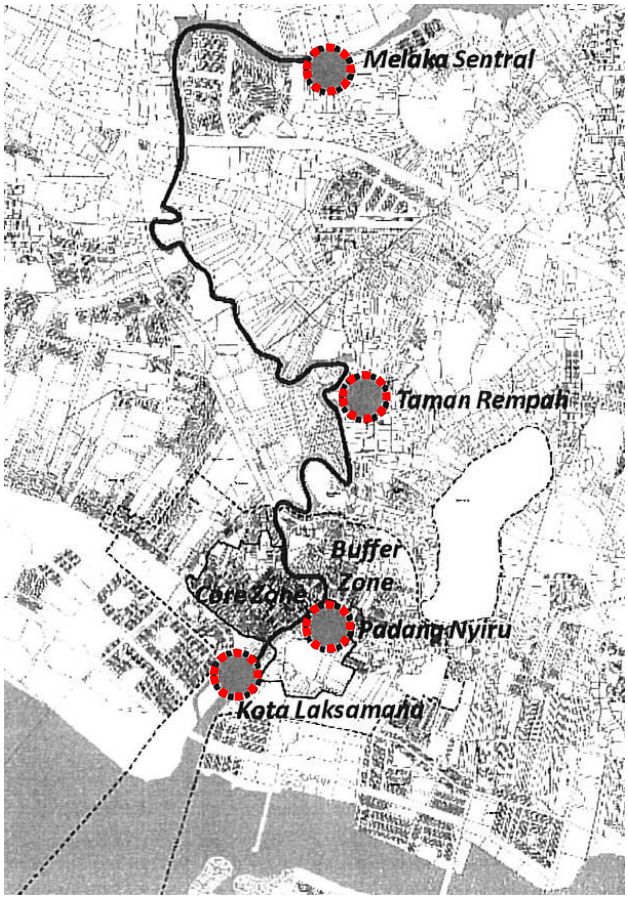


Figure 5.40 Proposed river transport from the Melaka Sentral to Kota Laksamana in 2011 (marked in red) (Melaka JPBD, 2011, p. 6-2).



Figure 5.41 The river cruise service that runs along the Melaka River Water Promenade is focused solely on tourism, making the fares relatively expensive as public transit.

5.6 The Synthesis of Research Objective 1

The overall research findings reveal *the current state of adaptive reuse practices for Malaysian shophouses* in order to meet the first objective. Based on the on-site survey, cafés and restaurants are clearly the most popular conversion option for the ground floor spaces of partially reused shophouses in the Core Zone of Melaka. The intention is to meet the tourism demand, rather than to retain the original function as a shop. This is likely to be due to dining being one of the highest rated activities in the tourism industry (Berno, 2011). Consistent with a study by Chua and Deguchi (2011), this type of conversion is the most common use in this area, making up about three-quarters of the total service-based tourist-dependent uses. However, this finding was not specific to shophouses. The lowest percentage of activity is for wholesale trade. This is likely to be due to the space requirements for this operation as well as the transformation of shophouses activities to tourist-dependent trades.

Significantly, half of the upper floor spaces of partially reused shophouses in this area preserved their original function as residences. This indicates that the original function of the upper floor of shophouses as living quarters is still relevant even though the shop

function of the ground floor has changed. Nevertheless, storage has become the most popular conversion option for the upper floor spaces. The lowest percentage of activities is hotels and motels, art galleries and museums, retail trade, wholesale trade, workshops and fabrication, and religious. This is believed to be the result of the space requirements for their operation as well as the tendency to only require the ground floor spaces for a particular activity. In the meantime, one third of the upper floor spaces are vacant. Securing the reuse of the upper floor spaces clearly remains a challenge despite the success in finding suitable functions for the ground floor spaces. This is in line with Chua and Deguchi (2011), who discovered that these spaces usually remain as residences, become storage, or are left vacant.

There is a marked dominance of hotels and motels where the shophouses have been fully reused through adaptive reuse in this area. Chua and Deguchi (2011) have expressed similar views stating that this type of conversion is the second most service-based tourist-dependent use. However, as in the case of partially reused shophouses, this was not specific to shophouses. The large number of tourists visiting the Melaka World Heritage Site, the attractiveness and character of the old shophouse buildings and their spatial characteristics are all factors in this process. The lowest percentage of activities is for residences, wholesale trade, workshops and fabrication, and religious. This is understandable because these type of uses tends to only require the ground or upper floor spaces to operate. There is also the fact that there are several nearby religious buildings such as mosques and temples.

Through the on-site survey, observations and viewing of public documents, seven factors contributing to reuse activities in the Core Zone of Melaka were identified. These factors are as follows: legal provisions, tourism demand, inscription demand, profitability, outdated original function, building vacancy and accessibility.

(a) Legal Provisions

Instead of preservation, there is an option to adapt Category II buildings like shophouses for new uses (Melaka JPBD, 2011). Most importantly, the new uses should be compatible with the existing form and with permitted additions to the built fabric. Therefore, owners are permitted to convert their premises if they feel the original function is obsolete and unprofitable. This is because there is no funding available in Malaysia for maintaining

privately-owned heritage buildings like shophouses, even though there are proposals in the CMP and SAP to provide grants for building owners for restoration and repair works. Most building owners are aware of the requirements set by MBMB to hire consultants such as architects or building draughtsmen to conduct conversion projects. Such consultants are involved in many of the ongoing conversion projects in the Core Zone of Melaka because of their extensive experience with such projects. However, there are also conversion projects that ignore the proper procedures, most of which involve illegal hotels. As a result, poorly executed renovation and restoration can be expected. A more serious concern is the absence of an effective monitoring system by MBMB, as illegal works can damage the integrity and authenticity of the World Heritage Site.

(b) Tourism Demand

Cultural tourism is evolving and has become the most recent tourist attraction for Melaka (Melaka JPBD, 2011). This trend has created various development pressures on the Core Zone of Melaka, with many shophouses being turned into hotels and restaurants. Growth of the tourism sector is contributing to growth of tourist accommodation, while food-related businesses remain an important mainstay of the local economy. The existence of hotels and restaurants catering to the tourists' needs for accommodation and dining is needed. Otherwise, they would have to walk at least one kilometre for these purposes. However, this situation could induce a major transformation in this area that may not always be positive in terms of the urban landscape and may not always be welcomed by local communities. The presence of too many hotels can lead to oversupply and change the character of a heritage site. Although local communities would have new opportunities to enhance their livelihoods, they may also find homes being converted to other uses that threaten their way of life, their families and their living spaces.

(c) Inscription Demand

World Heritage Site status is expected to create a platform for enhancing local communities' pride, offering the optimal level of conservation and appropriate service standards for tourists, and encouraging proper management of the site, thus fostering economic and tourism regeneration. If Melaka was not inscribed with this status, there would be a possibility that shophouses in the Core Zone would be demolished to allow for

new development, given its position in the downtown area of the city. In parallel with inscription, owners need to ensure the survival of their premises as demolition of shophouses is no longer permitted in this area. Some shophouses continue to function as they were originally planned, while some building owners have shown interest in finding alternative uses (Melaka JPBD, 2011). Current circumstances have made the conversion of shophouses into hotels and restaurants an economically viable option. However, this type of development poses a risk as it could make the area overly touristic and commercialised.

(d) Profitability

Although the nomination process is somewhat complex and some doubts exist as to the effectiveness of inscription, the concept of World Heritage Sites has undeniably proven successful in attracting tourists to the designated sites, thereby bringing economic benefits (Jimura, 2011; Poria et al., 2011; Hassan & Rahman, 2015; Rasoolimanesh & Jaafar, 2017). Profit generated from adaptive reuse can assure the economic feasibility of shophouses in the Core Zone of Melaka while ensuring their historic features are retained. The returns from new uses such as hotels and restaurants are higher compared to the returns from the original function as shophouses. In addition, tourism-related businesses such as hotels and restaurants are another source of employment for locals (Melaka JPBD, 2011). The goals of supporting the local economy by creating jobs and protecting the cultural heritage of the site should not be viewed as conflicting; instead, they can be considered in tandem with each other to ensure this area continues to exist for the benefit of future generations.

(e) Outdated Original Function

The on-site survey revealed that 29% of the shophouses in the Core Zone of Melaka have been fully preserved, while 31% have been converted. These findings suggest that the original function as shophouses may no longer be relevant. Adaptive reuse is widespread in this area particularly in Jalan Hang Kasturi, Jalan Tokong, Jalan Hang Lekiu and Jalan Hang Jebat. There is a possibility that this architectural typology could become obsolete due to its incompatibility with the current situation. Although preservation is encouraged because the traditional trades practiced inside shophouses need to be protected as part of intangible heritage, MBMB has no authority to control such activities as these

buildings are privately-owned. Motivated by the potential for profit, building owners are generally more interested in conversion for other commercial uses than preservation for the building's original function. However, the pursuit of potential uses must comply with guidelines and management plans, especially changes in the carrying capacity (Melaka JPBD, 2011).

(f) Building Vacancy

The presence of many vacant and dilapidated buildings in the Core Zone of Melaka is worrying and should be monitored and controlled (Melaka JPBD, 2011). While some shophouses have changed ownership, they have not been restored or improved but rather left vacant. Others have become vacant due to the displacement of original communities for various reasons. In addition, the previous function of shophouses as non-tourist-dependent uses such as retail trade, wholesale trade and storage may be a reason why many such buildings on certain streets are vacant. Conversion to tourist-dependent uses enables building owners to solve the problem of vacancy and dilapidation of this architectural typology. The on-site survey and observations indicate that vacancy problems are less prevalent on tourist-focused streets. While adaptive reuse could undermine cultural values and heritage integrity and reduce the privacy of those living in this area, it is seen as a sustainable solution to problems caused by vacancy such as trespassing, vandalism, illegal dumping, fire hazards and deterioration.

(g) Accessibility

The streets in the Core Zone of Melaka with the heaviest pedestrian movement contain the highest numbers of converted shophouses to supply the demands of tourism. Pedestrian walkways facilitate accessibility for tourists as this area has severe traffic problems. Although some hotels cannot provide on-street parking facilities due to their location on narrow streets, there are several nearby centralised parking facilities that can be used as an alternative. While the best measure for handling this situation is to encourage the use of the public transportation system, such facilities are unfortunately not operating at maximum efficiency in this area. Proposals in the CMP and SAP to manage circulation and access prepared in 2011 were less applicable in 2017, for example to prioritise back lanes for pedestrians, reduce on-street parking, build multi-storey parking and add

Panorama bus stops. While there have been some good suggestions such as building a tram network from Ayer Keroh to this area (Melaka JPBD, 2011), according to interviews with local government officers, this proposal was not approved by UNESCO. The establishment of a tram network is expected to boost adaptive reuse in this area, in parallel with the increasing number of tourists.

5.7 Summary

This chapter highlights the findings derived from the Core Zone of Melaka as the study area to meet the first objective of this research. Based on these findings, it can be verified that adaptive reuse practices are widespread in this area, where more shophouses have been partially reused than fully reused and more conversion activities took place on the ground floor than on the upper floor spaces. It is clear that the most popular conversion option for the ground floor spaces of partially reused shophouses is for cafés and restaurants, and for the upper floor spaces is for storage. The constant use of the upper floor spaces as living quarters demonstrates the relevance of these buildings to providing accommodation for residents, many of whom could be employees of, for example, the cafés and restaurants or the retail shops on the ground floor. Unfortunately, however, a significant number of the upper floor spaces are not in active use. Nevertheless, where fully obsolete shophouses have undergone adaptive reuse, the most dominant trend has been to convert them into hotels and motels to meet the demand for tourist accommodation.

The findings also show that legal provisions, tourism demand, inscription demand, profitability, outdated original function, building vacancy and accessibility are contributing factors for reuse activities in this area. Although preservation is encouraged to protect the traditional trades practiced inside shophouses since they are part of intangible heritage, MBMB has no authority to control such activities since the buildings are privately-owned. Therefore, owners can opt for conversion if they feel the original function is obsolete and unprofitable, as there is no funding available in Malaysia for maintaining privately-owned heritage buildings like shophouses. In addition, owners may seek to meet the demands of tourism and inscription. The presence of extensive pedestrian walkways and parking facilities also contribute to adaptive reuse, even though this area is struggling with traffic congestion. Likewise, adaptive reuse is considered a viable solution to building vacancy

and, where possible, shophouses could be acquired by investors to be restored for the benefit of the entire community and this vibrant heritage town.

Meanwhile, the next chapter (Chapter 6), consisting of four primary subchapters, will explain the background of the case study buildings, and analyse and discuss the qualitative data collected to meet the second, third and fourth objectives of this research.

Chapter 6



The Case Study Buildings

6.1 Introduction

The sixth chapter seeks to fulfil the second, third and fourth objectives of this research, as outlined in Subchapter 1.5. This has been done by explaining the background of the case study buildings regarding history and ownership, as well as analysing the qualitative data collected from the interviews with the building owners, professional experts and specialist users associated with the case study buildings. Content analysis and cross-case analysis were adopted to examine the themes, similarities and differences across cases. This chapter also discusses the findings that highlight how the research in this thesis reflects, differs from and extends current knowledge of the chosen research area. This chapter has an organisational pattern of four primary subchapters: background of the case study buildings, factors of obsolescence (and the synthesis of Research Objective 2), drivers of adaptive reuse (and the synthesis of Research Objective 3) and barriers to adaptive reuse (and the synthesis of Research Objective 4).

6.2 Background of the Case Study Buildings

As revealed in Subchapter 4.3.2, the following three fully reused shophouses have been chosen as case study buildings for this research, all of them being situated in the Historic Residential and Commercial Zones of the Core Zone of Melaka (see Figure 6.1):

- ***Case Study 1****: Fomecs Boutique Hotel (129 & 131, Jalan Hang Jebat, 75200 Melaka, Malaysia.)*
- ***Case Study 2****: Jonker Boutique Hotel (82, 84 & 86, Jalan Tokong, 75200 Melaka, Malaysia.)*
- ***Case Study 3****: Timez Modern Heritage Hotel (31 & 33, Jalan Hang Kasturi, 75200 Melaka, Malaysia.)*

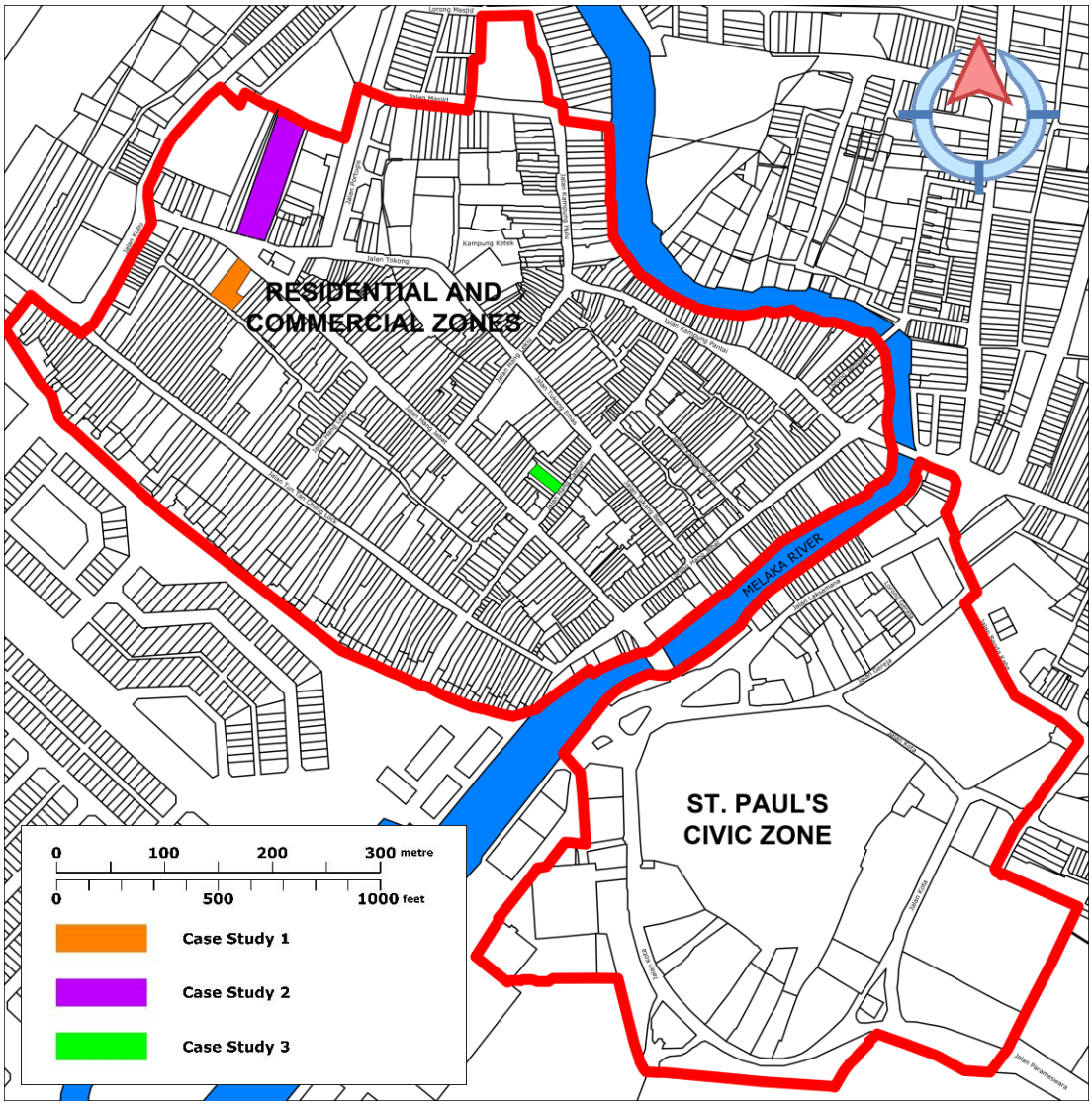


Figure 6.1 The position of each case study building in the Core Zone of Melaka.

6.2.1 Case Study 1: Fomecs Boutique Hotel

The Fomecs Boutique Hotel (Fomecs Hotel) is located at the end of Jalan Hang Jebat in the Core Zone of Melaka. This Straits Eclectic style building was constructed in 1911 by its first owner, the Oversea-Chinese Banking Corporation (OCBC). OCBC owned this building until 1919 when it was sold to Besfomec Ind. Sdn. Bhd. Over the years, the ground floor of this building was used as a warehouse for storing rice, a multi-purpose warehouse and a Chinese medicine shop (Xin Ho Tong). The first floor was used as a factory-cum-house up to 1991. From 1992 to 2011, the ground floor was rented to a souvenir shop (Bibik House) and a warehouse, the first floor being left vacant (see Figures 6.2, 6.4 and 6.6). In 2012, it was converted into a retail area on the ground floor and a boutique hotel on the first floor

by the current owner. The conversion process was led by an architectural firm based in Melaka. The cost of converting this building into a boutique hotel was RM1.6 million (£298,829.00) and the conversion took seven to eight months to complete. The two-storey structure at the front has been preserved and refurbished. The one-storey warehouse at the back was demolished and reconstructed as two-storeys to accommodate more guest rooms, it not being considered to be a heritage structure. Changes were also made to the internal layout of this building in line with its new function as a boutique hotel.

According to the Melaka Historic City Council (MBMB), the recent total floor area of this two-storey building was estimated as 11,706 square feet. This boutique hotel is at present owned by Fomecs Boutique Hotel Sdn. Bhd. There are seven people on the staff: a manager, a supervisor, three front desk staff and two housekeeping staff. This building is made up of two shophouse divided into two sections, containing a retail area on the ground floor, and a boutique hotel on the first floor (see Figures 6.3, 6.5 and 6.7). The retail area is fully occupied by eight retailers including beverage outlets, a snack bar, souvenir shops and a coffee shop. The theme of this boutique hotel is modern Chinese, and it is currently rated as 2-star by the Ministry of Tourism and Culture Malaysia (MOTAC). It consists of 17 guest rooms: seven Deluxe Twin rooms, four Deluxe Queen rooms and six Deluxe Triple rooms. There is a guest room with facilities for disabled people in the lobby area of this boutique hotel. Information regarding the characteristics of this building is explained in detail in Subchapters 6.3, 6.4 and 6.5.



Figure 6.2 The past appearance of Fomecs Hotel in 2005 before the conversion process took place (copyright [2005] by Melaka Historic City Council).



Figure 6.3 The recent appearance of Fomecs Hotel in 2017 after the conversion process was completed in 2012.

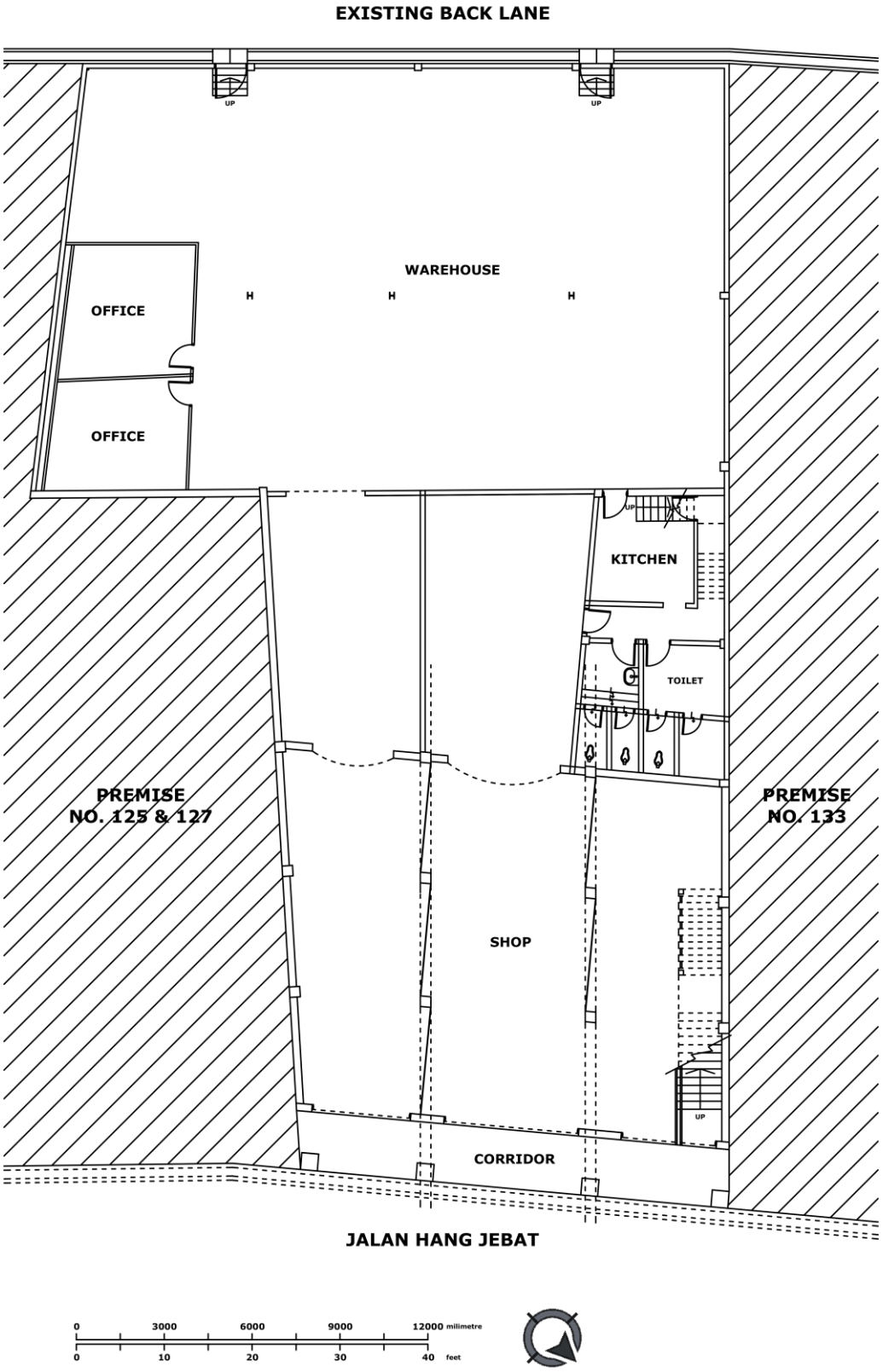


Figure 6.4 The ground floor plan of Fomecs Hotel before the conversion process took place (copyright [2012] by Akitek WYT).

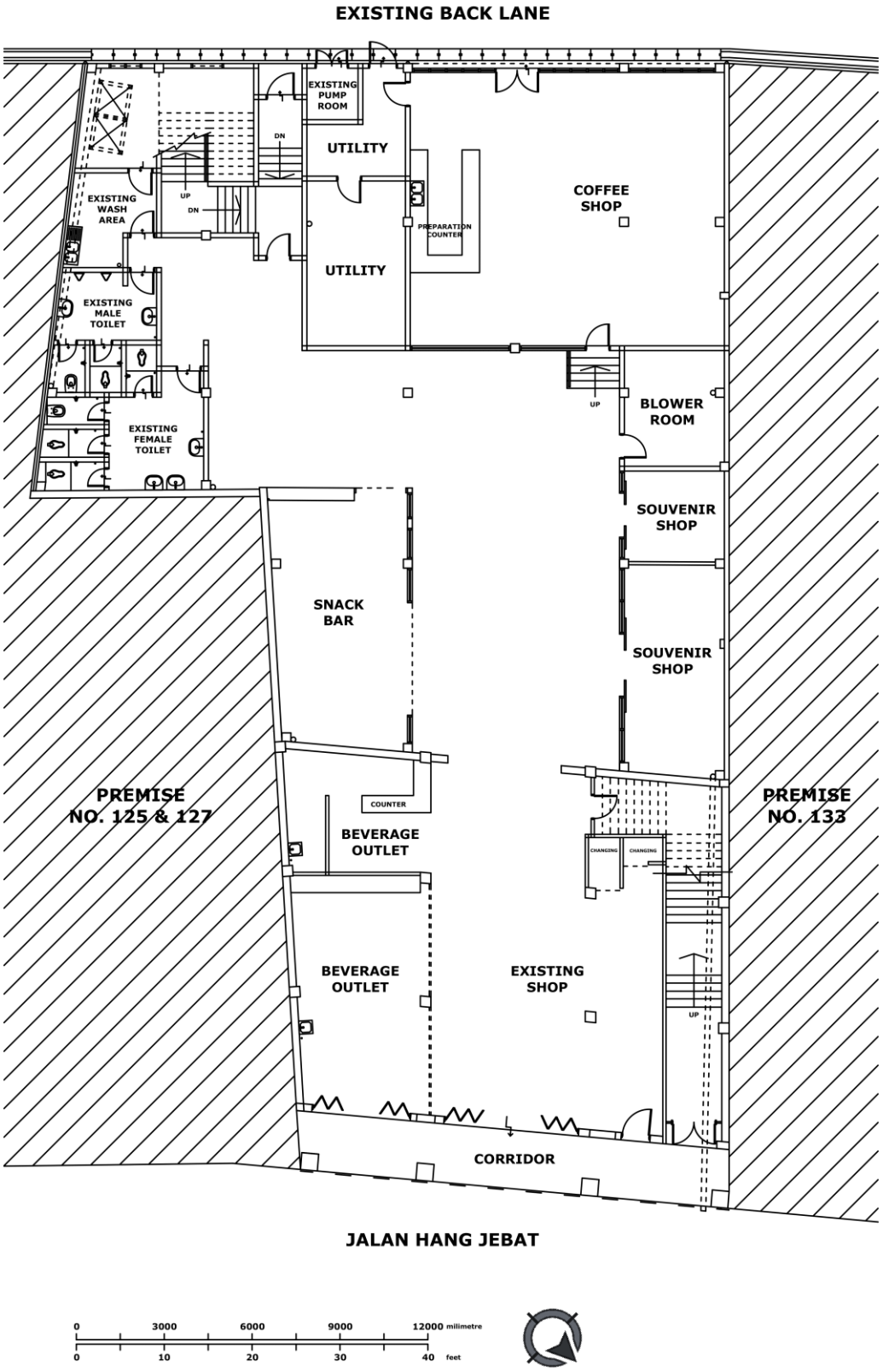


Figure 6.5 The ground floor plan of Fomecs Hotel after the conversion process was completed in 2012 (copyright [2012] by Akitek WYT).

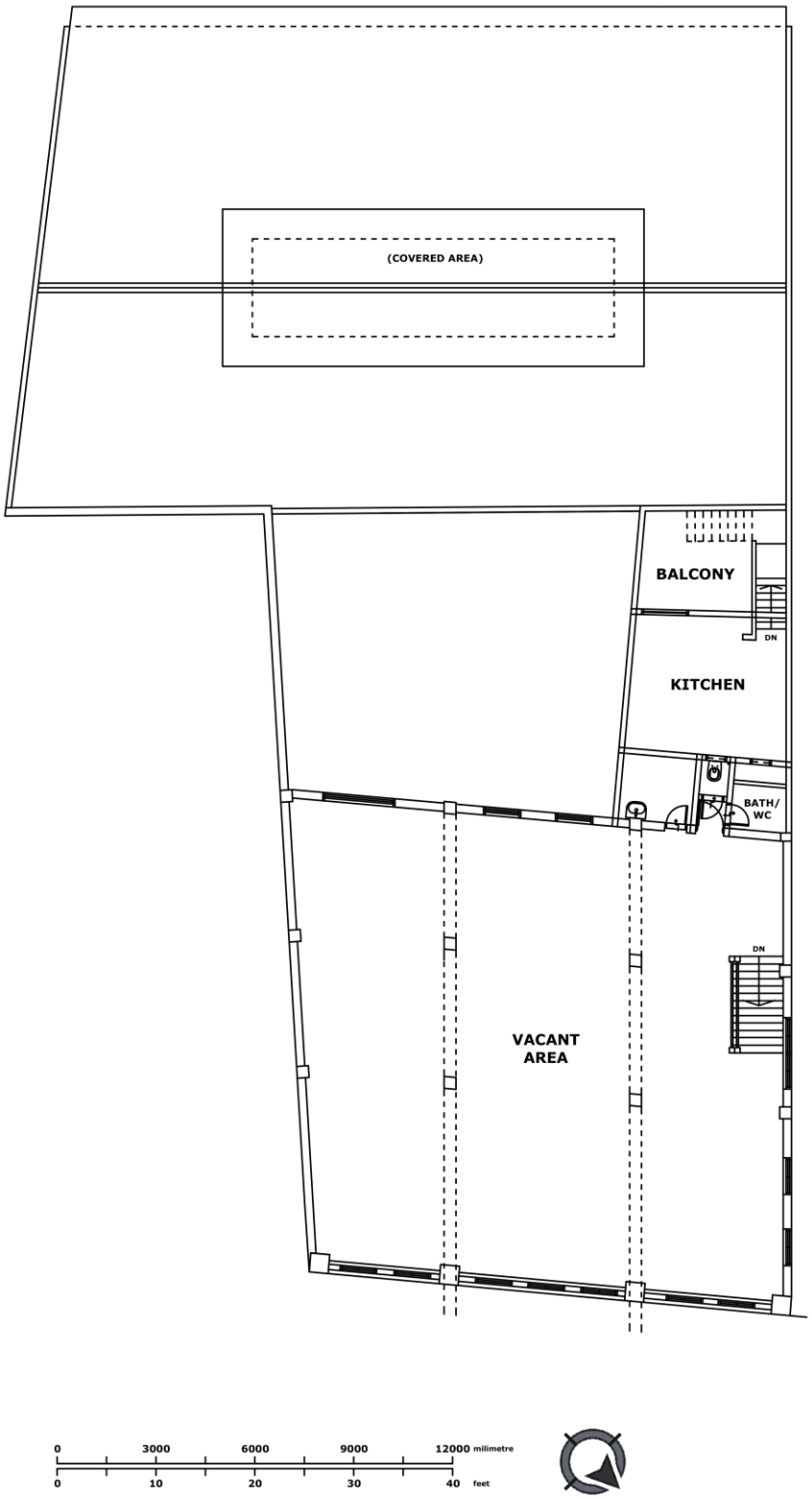


Figure 6.6 The first floor plan of Fomecs Hotel before the conversion process took place (copyright [2012] by Akitek WYT).

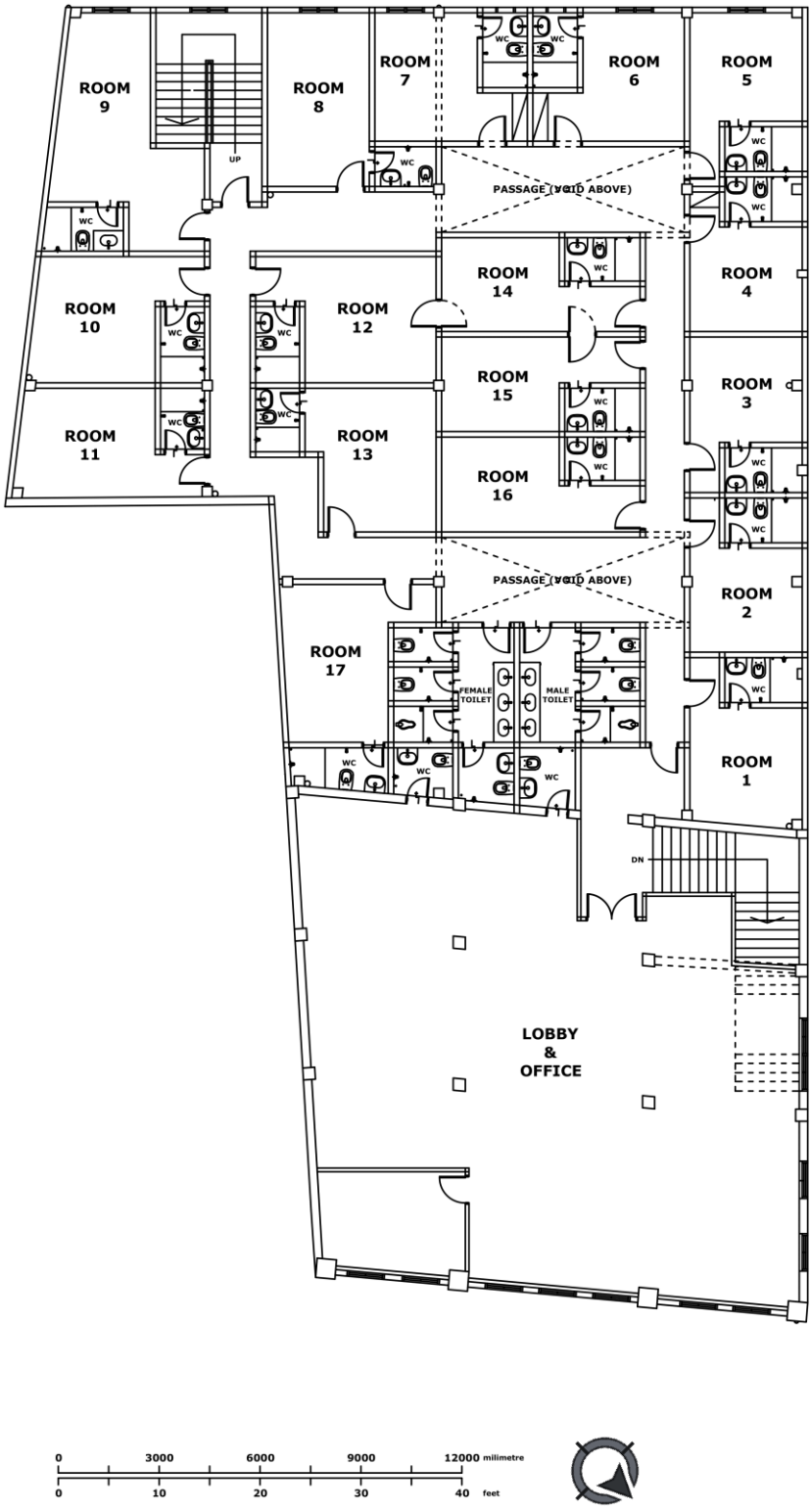


Figure 6.7 The first floor plan of Fomecs Hotel after the conversion process was completed in 2012 (copyright [2012] by Akitek WYT).

6.2.2 Case Study 2: Jonker Boutique Hotel

Situated at the end of Jalan Tokong in the Core Zone of Melaka, the Jonker Boutique Hotel (Jonker Hotel) was built in early 1930s during the British occupation. This building was probably a second reincarnation. There may have previously been a building on the same site. The architectural style is Art Deco. Therefore, it is likely that the builder was English. The previous owner was Tan Hoon Siang, the former chairman of OCBC. The ground floor was used as a coffee shop (corner lot), hardware merchant (middle lot) and a provision shop (third lot) (see Figures 6.8 and 6.10). There were offices on the first floor, except for the first floor of the corner lot that was the residence of the coffee shop owner (see Figures 6.8 and 6.12). The second floor was rented by a separate party for residential use (see Figures 6.8 and 6.14). In the past, the pathway next to this building was very popular as it was the location of the only poultry market in town. The present owner bought this building in 2010, and converted it into a boutique hotel. The conversion process was led by SLT Architects based in Melaka. The cost of converting this building into a boutique hotel was RM2 million (£373,478.00) and the conversion took 15 months to complete. The entire building has been preserved and refurbished. Changes were only made to the internal layout of this building in line with its new function as a boutique hotel.

According to MBMB, the recent total floor area of this three-storey building was estimated as 11,044 square feet. This boutique hotel is currently owned by Nanyang Charisma Sdn. Bhd. There are 13 people on the staff: two managers, six front desk staff, two back of house staff and three housekeeping staff. This building is made up of three shophouse divided into two sections, containing a café (corner lot), a lobby, a meeting room and a courtyard (middle lot), and a reflexology centre (third lot) on the ground floor, and guest rooms and housekeeping rooms on the first and second floors (see Figures 6.9, 6.11, 6.13 and 6.15). The present owner also owns the café. However, it is under different management with a chef and a cashier cum waiter. The reflexology centre is occupied by a tenant. The theme of this boutique hotel is colonial (Art Deco) with a touch of Baba and Nyonya, and it is presently rated as 2-star by MOTAC. It consists of 16 guest rooms: two Superior rooms, four Deluxe rooms, four Premier Deluxe rooms, two Grand Deluxe Double rooms and four Grand Deluxe Family rooms. Information concerning the characteristics of this building is explained in detail in Subchapters 6.3, 6.4 and 6.5.



Figure 6.8 The past appearance of Jonker Hotel in 2005 before the conversion process took place (copyright [2005] by Melaka Historic City Council).



Figure 6.9 The recent appearance of Jonker Hotel in 2017 after the conversion process was completed in 2010.

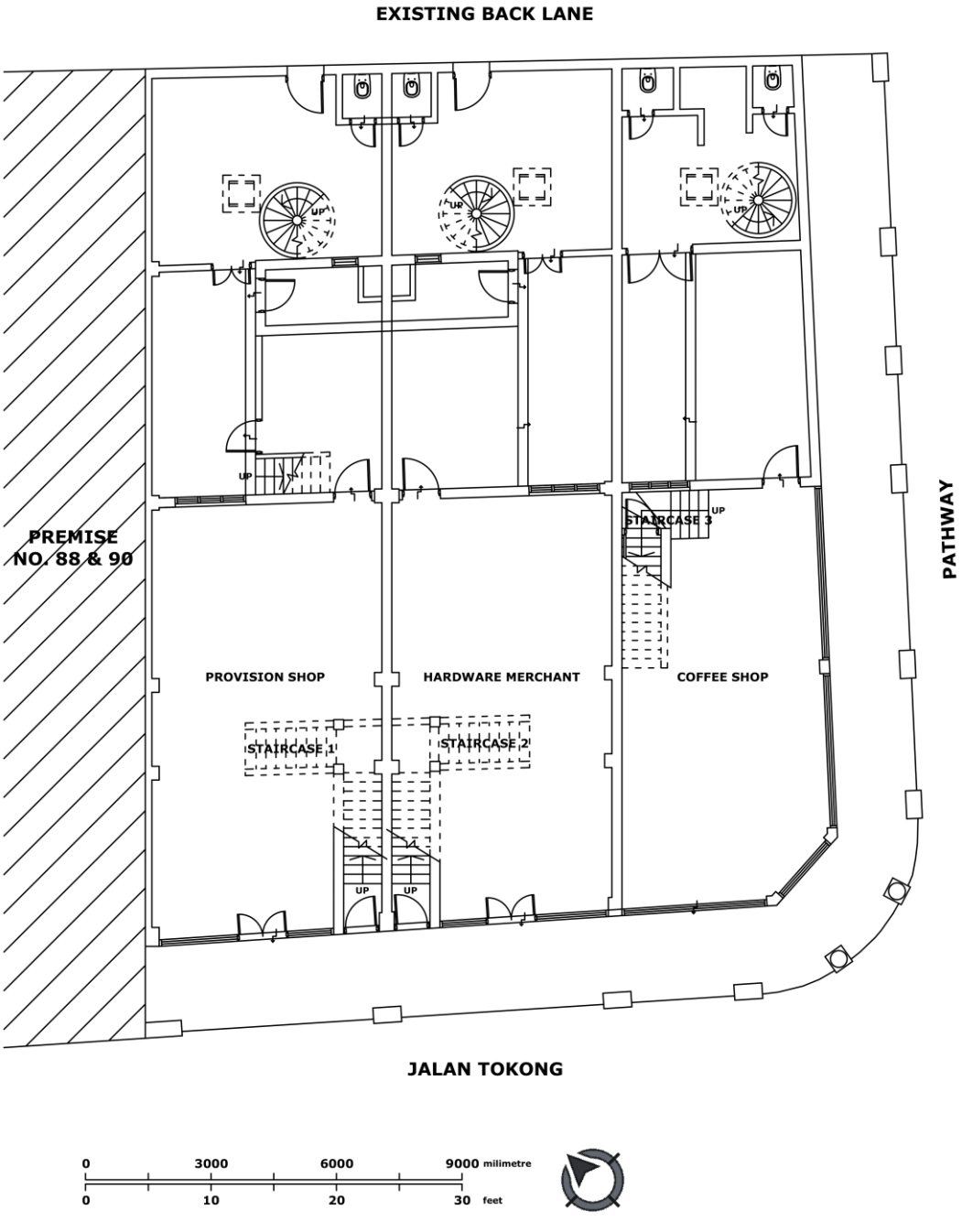


Figure 6.10 The ground floor plan of Jonker Hotel before the conversion process took place (copyright [2010] by Jonker Boutique Hotel).

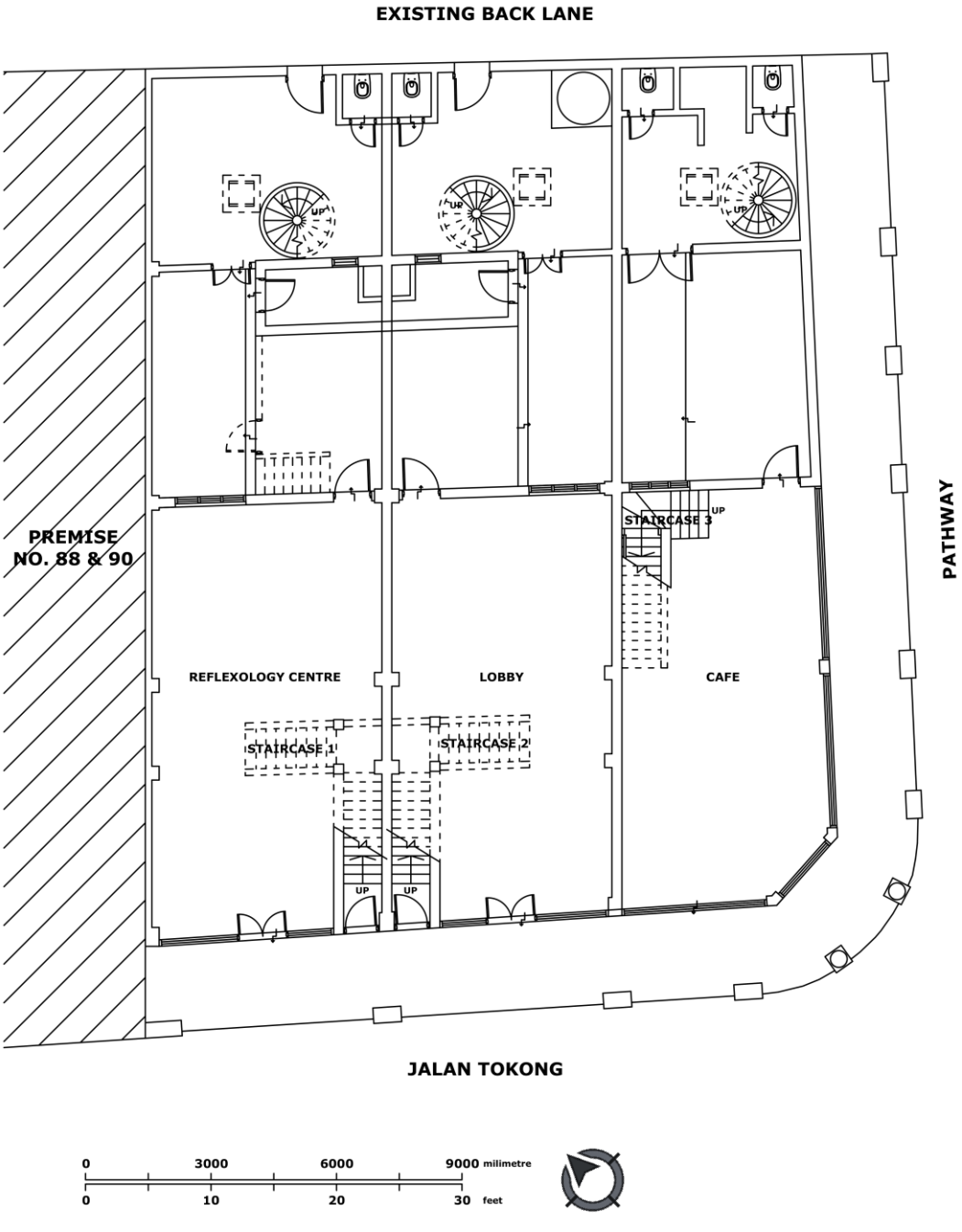


Figure 6.11 The ground floor plan of Jonker Hotel after the conversion process was completed in 2010 (copyright [2010] by Jonker Boutique Hotel).

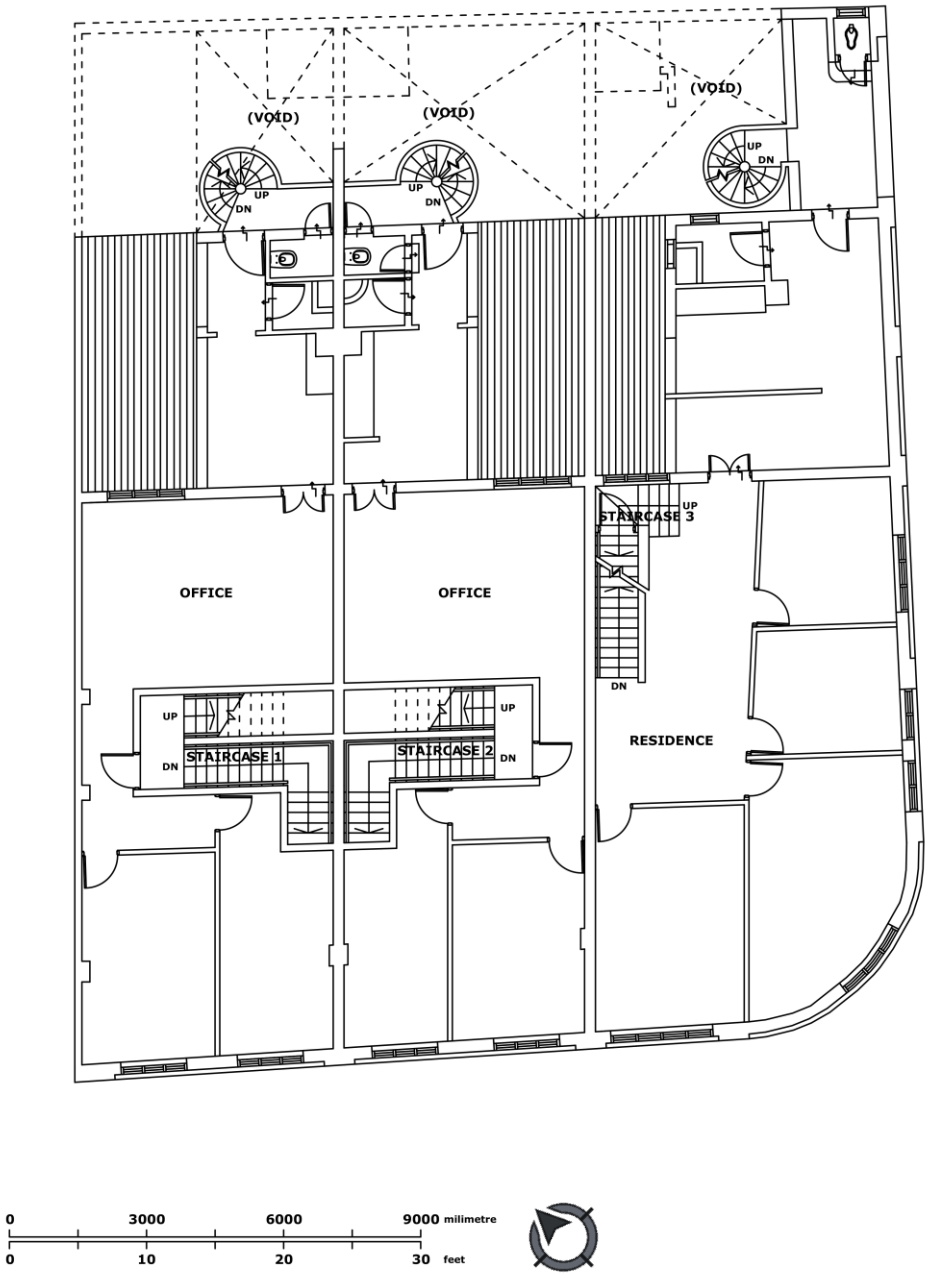


Figure 6.12 The first floor plan of Jonker Hotel before the conversion process took place (copyright [2010] by Jonker Boutique Hotel).

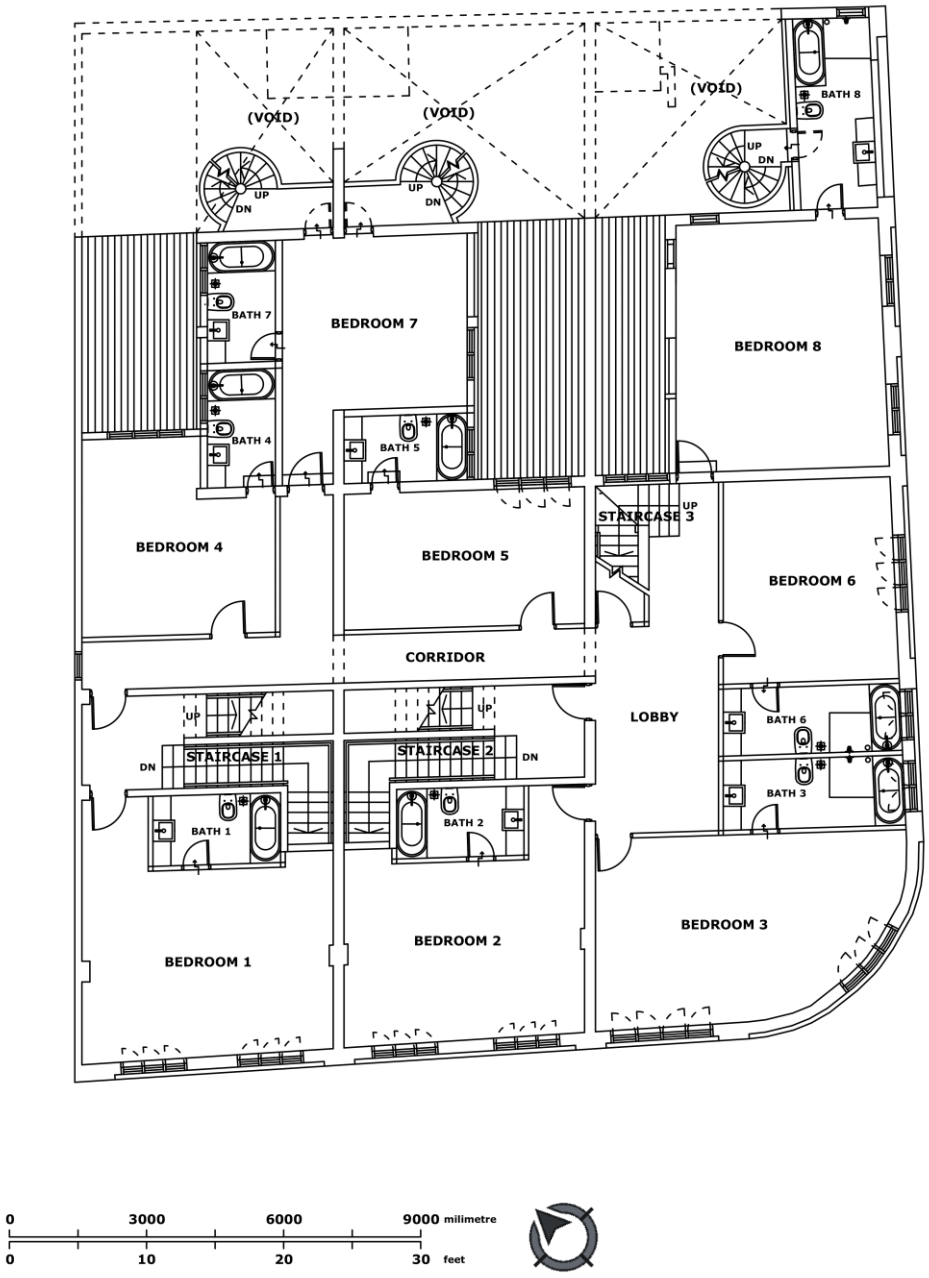


Figure 6.13 The first floor plan of Jonker Hotel after the conversion process was completed in 2010 (copyright [2010] by Jonker Boutique Hotel).

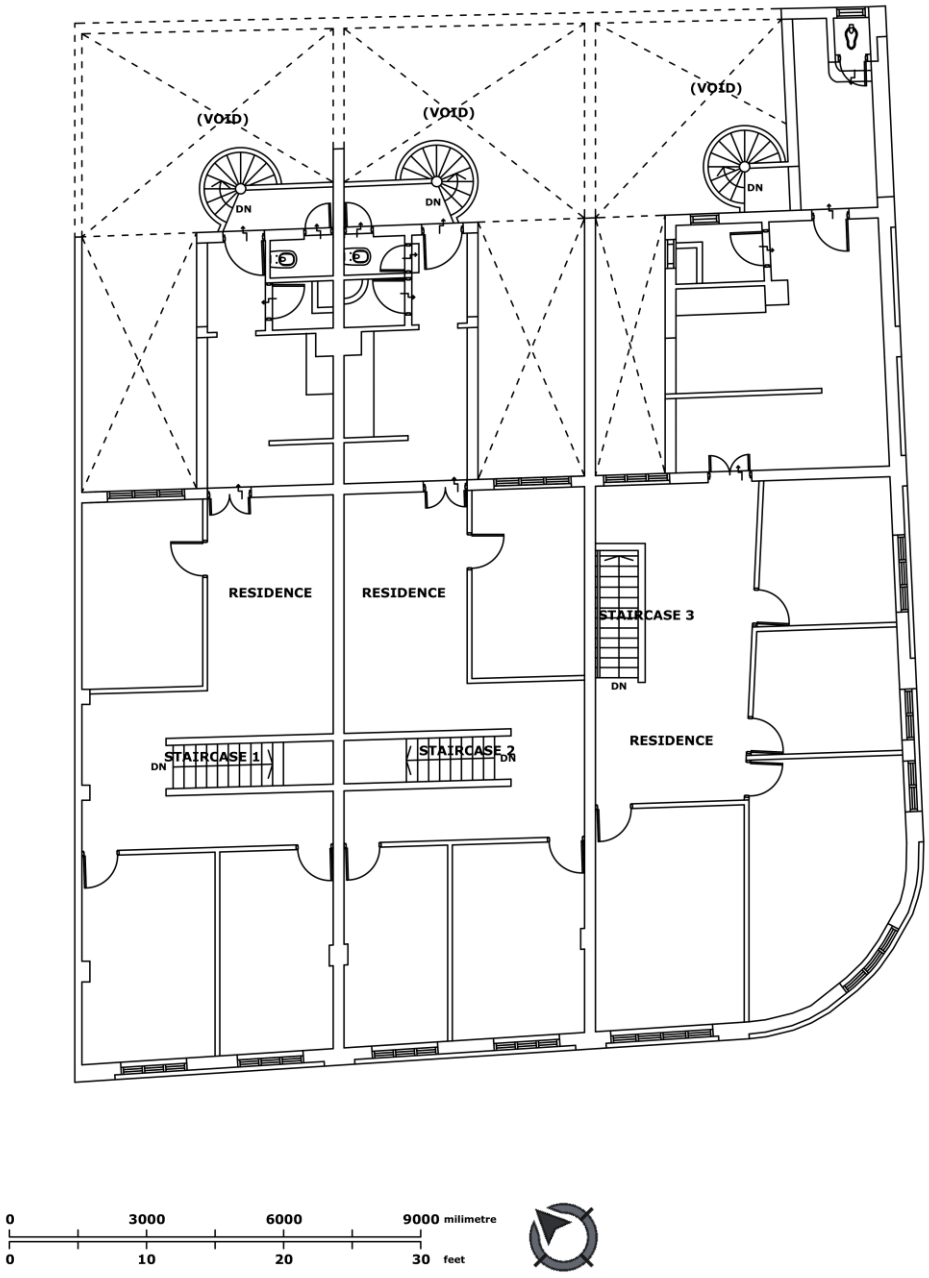


Figure 6.14 The second floor plan of Jonker Hotel before the conversion process took place (copyright [2010] by Jonker Boutique Hotel).

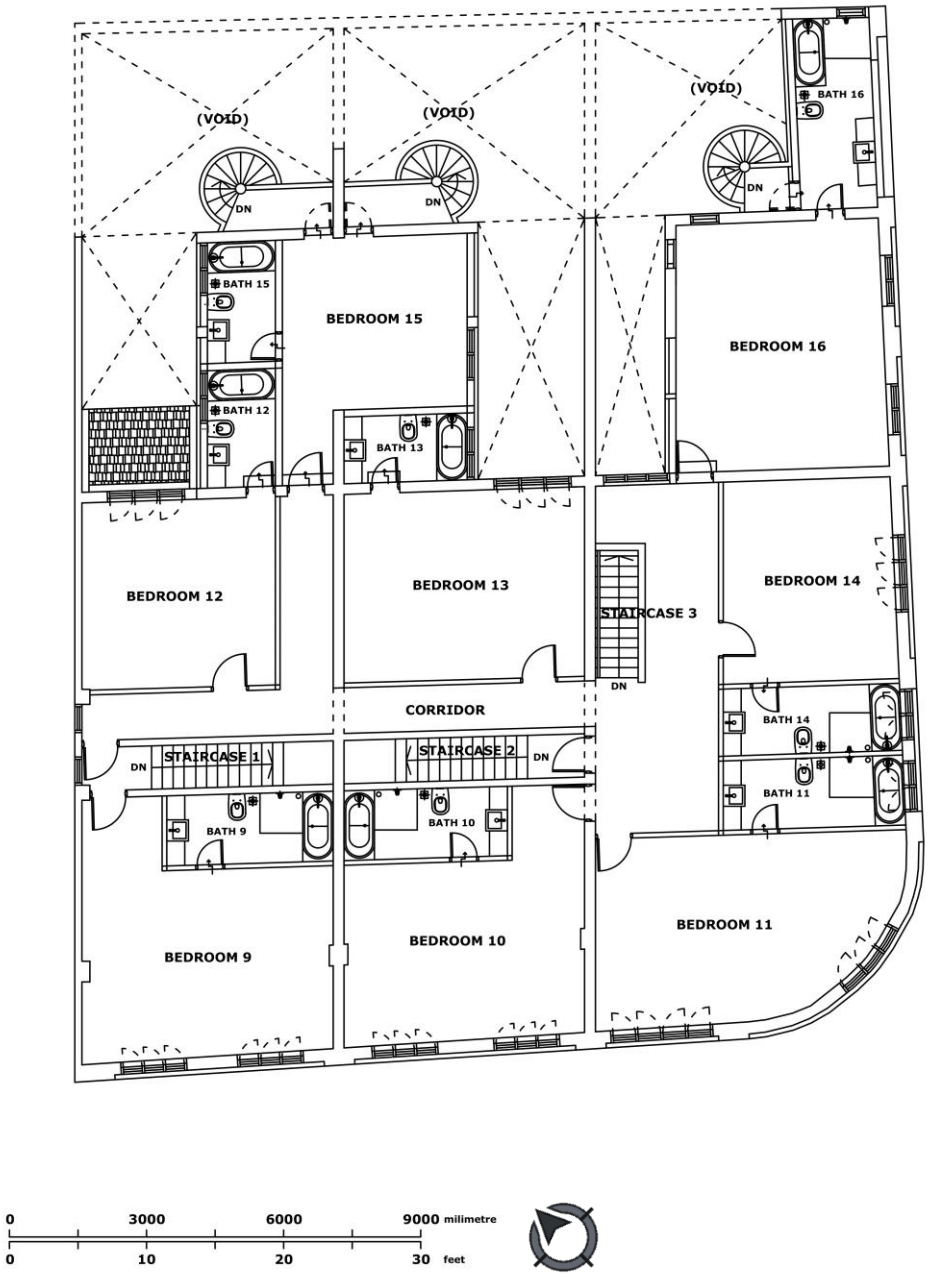


Figure 6.15 The second floor plan of Jonker Hotel after the conversion process was completed in 2010 (copyright [2010] by Jonker Boutique Hotel).

6.2.3 Case Study 3: Timez Modern Heritage Hotel

The Timez Modern Heritage Hotel (Timez Hotel) is located in the middle of Jalan Hang Kasturi in the Core Zone of Melaka. The current owner bought this Modern style building as an investment in 2012 from the previous owner, who also owns Famosa Chicken Rice Ball Restaurant at Jalan Hang Jebat. It was a vacant building at the time of purchase, and the previous residents and their relationships with the previous owner were unidentified. The year of its construction is unknown, but it is believed that the original height was two-storey, before the height was increased to four-storey in 1975, making this the tallest building on Jalan Hang Kasturi. Prior to becoming vacant and dilapidated, this building was used as a shop on the ground floor, and for old-fashioned apartments on the first, second and third floors (see Figures 6.16, 6.18, 6.20, 6.22 and 6.24).

The apartments had been rented out to different families. In 2015, the current owner decided to convert it into a boutique hotel. This boutique hotel was launched and commenced operations in March 2017. The conversion process was led by Basique Studio Sdn. Bhd. based in Melaka. The cost of converting this building into a boutique hotel was RM2.5 million (£466,847.00) and the conversion took 18 months to complete. The entire building has been preserved and refurbished. However, the height of the one-storey kitchen at the back was extended to five-storeys to accommodate more guest rooms and building services, such as domestic and fire water tanks. Changes were also made to the internal layout of this building in line with its new function as a boutique hotel.

According to MBMB, the recent total floor area of this five-storey building was estimated to be 4,239 square feet. This boutique hotel is at present owned by Privilege Modern Vantage Sdn. Bhd. There are nine people on the staff: a manager, a supervisor, three front desk staff, two housekeeping staff, a café cook and a café server. This building is made up of two shophouse divided into two sections, containing a lobby, a café, a meeting room and a courtyard on the ground floor, and guest rooms and housekeeping rooms on the first, second, third and fourth floors (see Figures 6.17, 6.19, 6.21, 6.23, 6.25 and 6.26). The theme of this boutique hotel is 'Where History Meets'. Since this boutique hotel has only been operating during the data collection for this research, it has not yet been considered by MOTAC for the star rating system. It consists of 15 guest rooms: five Standard Queen rooms, three Superior Queen rooms, two Deluxe Twin rooms, two Deluxe

Queen rooms and three Premier King rooms. The décor evokes five different concepts: Chinese, Peranakan, Portuguese, Dutch and British. Information regarding the characteristics of this building is explained in detail in Subchapters 6.3, 6.4 and 6.5.



Figure 6.16 The past appearance of Timez Hotel in 2015 before the conversion process took place (copyright [2015] by Basique Studio Sdn. Bhd.).



Figure 6.17 The recent appearance of Timez Hotel in 2017 after the conversion process was completed in the same year.

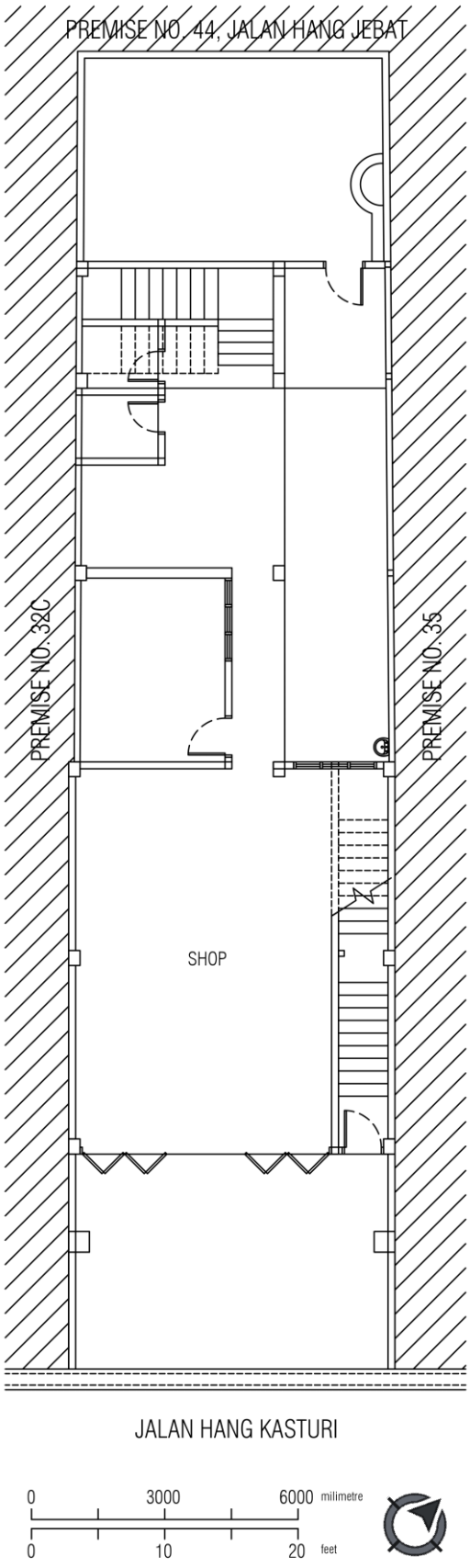


Figure 6.18 The ground floor plan of Timez Hotel before the conversion process took place (copyright [2017] by Basique Studio Sdn. Bhd.).

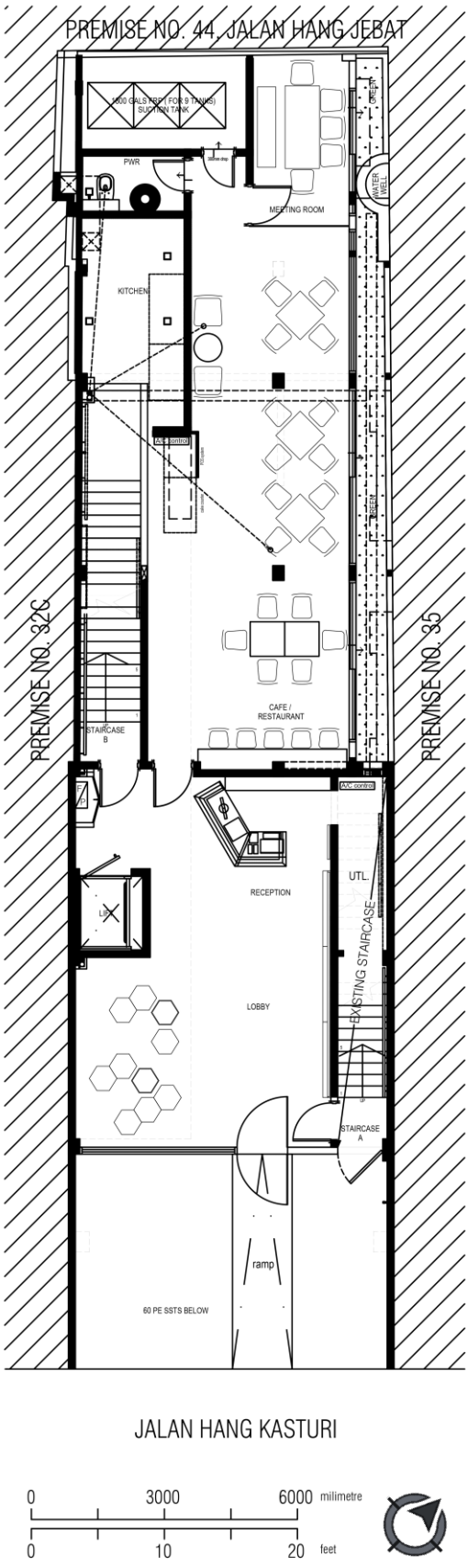


Figure 6.19 The ground floor plan of Timez Hotel after the conversion process was completed in 2017 (copyright [2017] by Basique Studio Sdn. Bhd.).

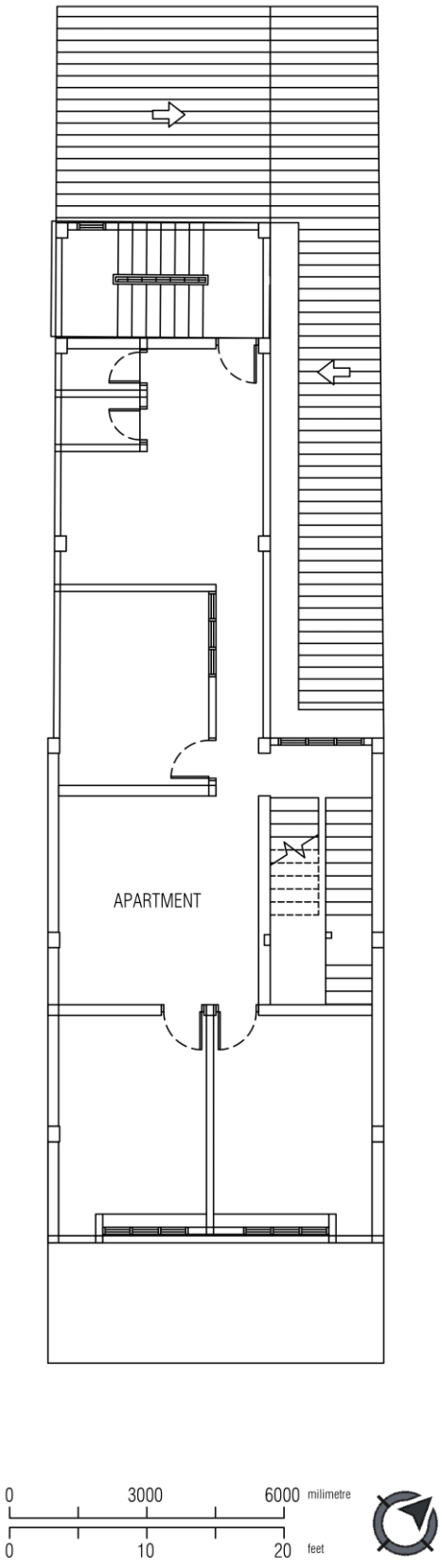


Figure 6.20 The first floor plan of Timez Hotel before the conversion process took place (copyright [2017] by Basique Studio Sdn. Bhd.).

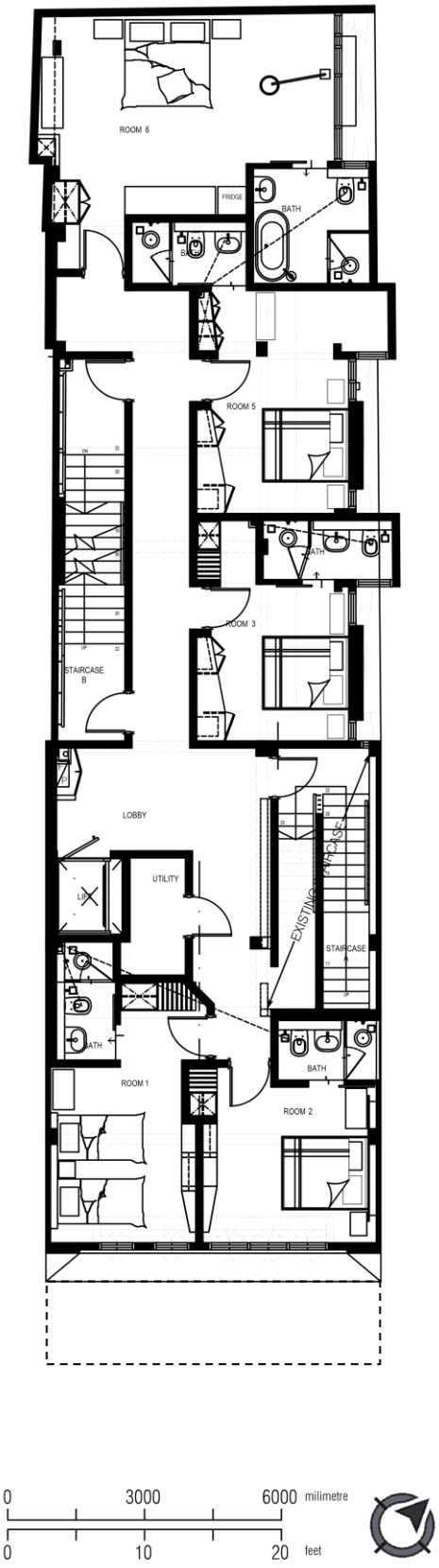


Figure 6.21 The first floor plan of Timez Hotel after the conversion process was completed in 2017 (copyright [2017] by Basique Studio Sdn. Bhd.).

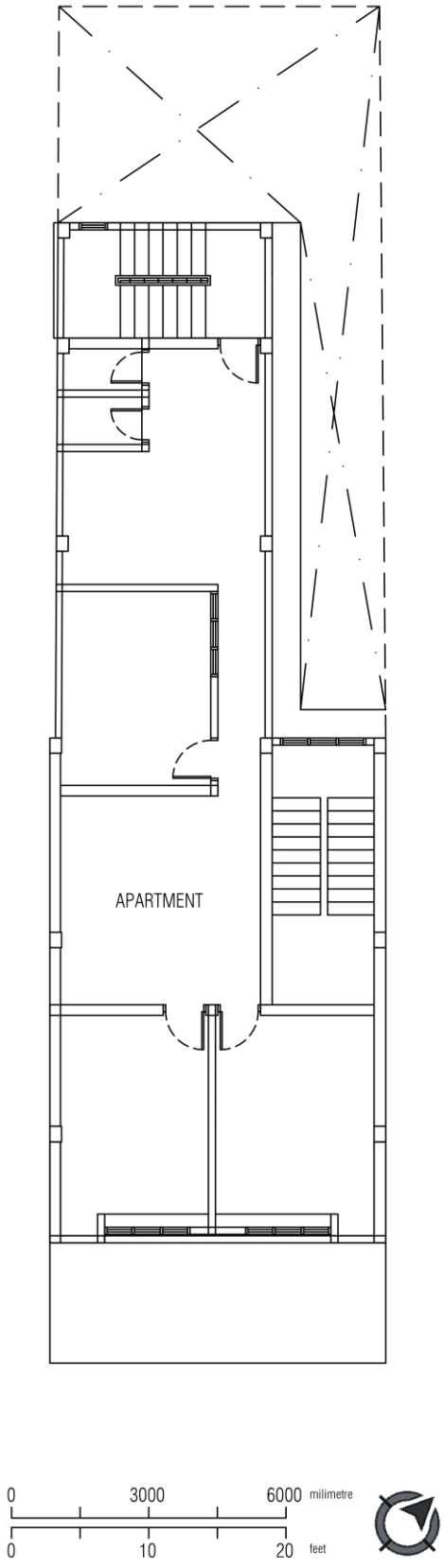


Figure 6.22 The second floor plan of Timez Hotel before the conversion process took place (copyright [2017] by Basique Studio Sdn. Bhd.).

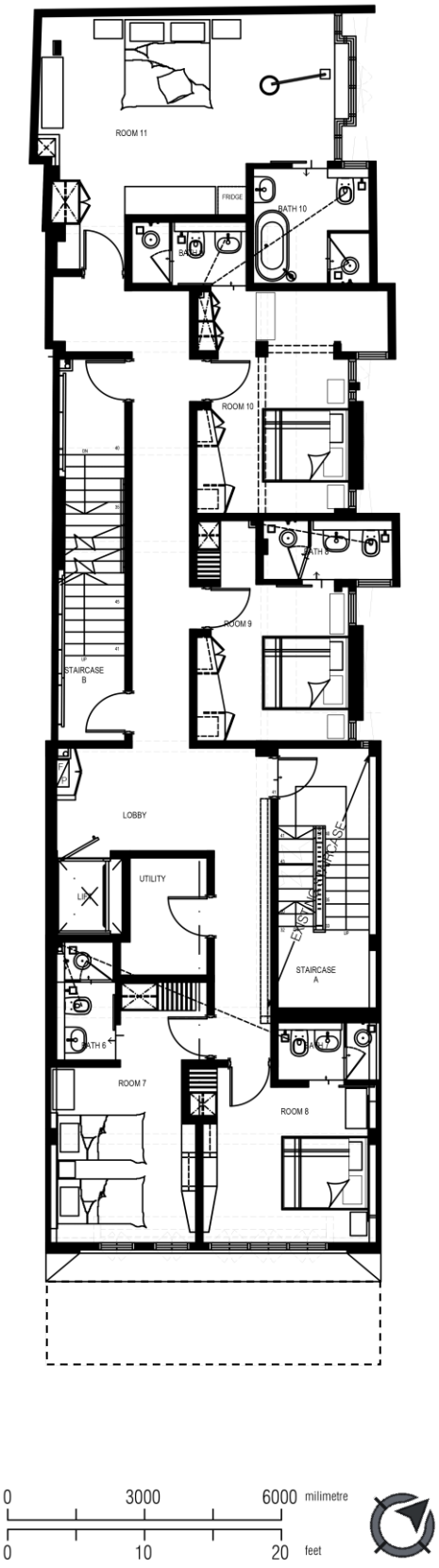


Figure 6.23 The second floor plan of Timez Hotel after the conversion process was completed in 2017 (copyright [2017] by Basique Studio Sdn. Bhd.).

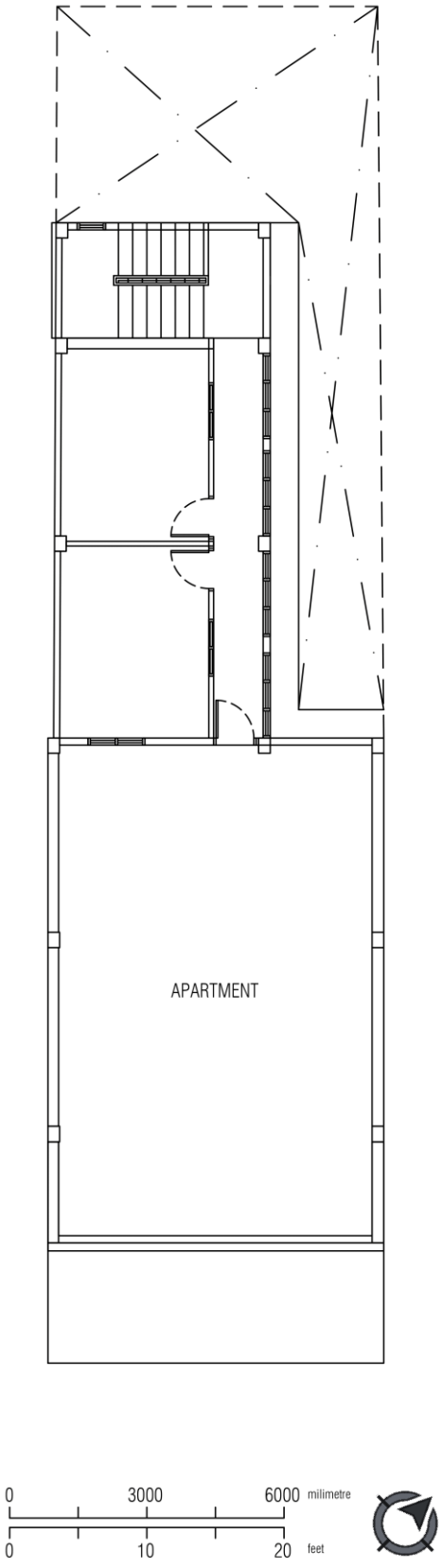


Figure 6.24 The third floor plan of Timez Hotel before the conversion process took place (copyright [2017] by Basique Studio Sdn. Bhd.).

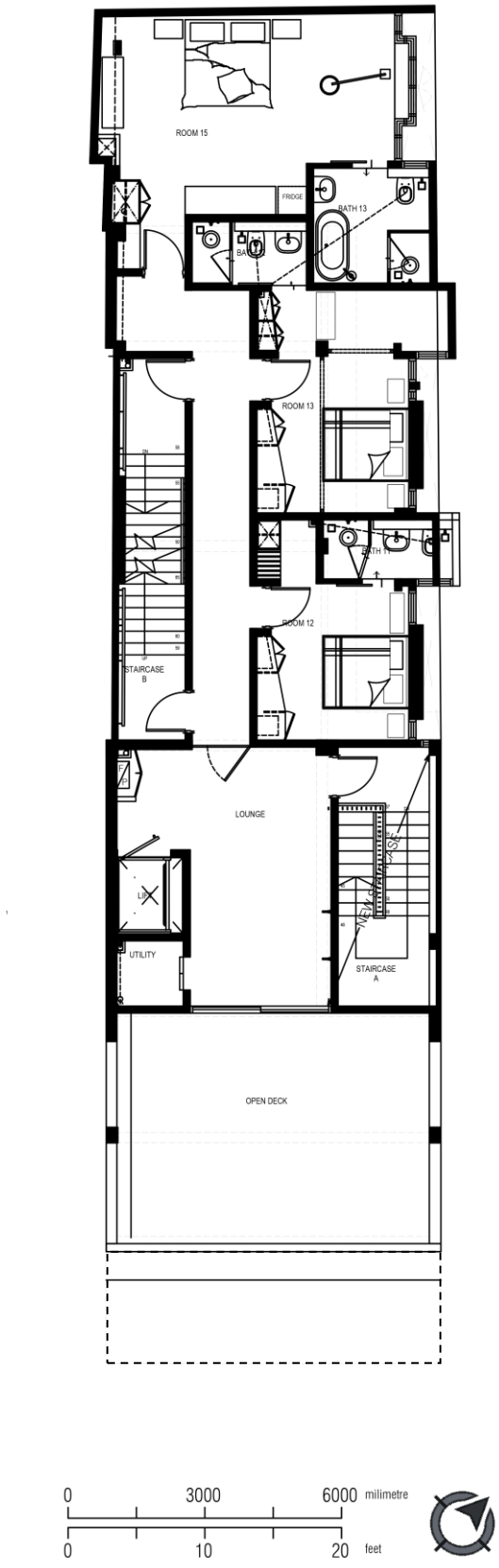


Figure 6.25 The third floor plan of Timez Hotel after the conversion process was completed in 2017 (copyright [2017] by Basique Studio Sdn. Bhd.).

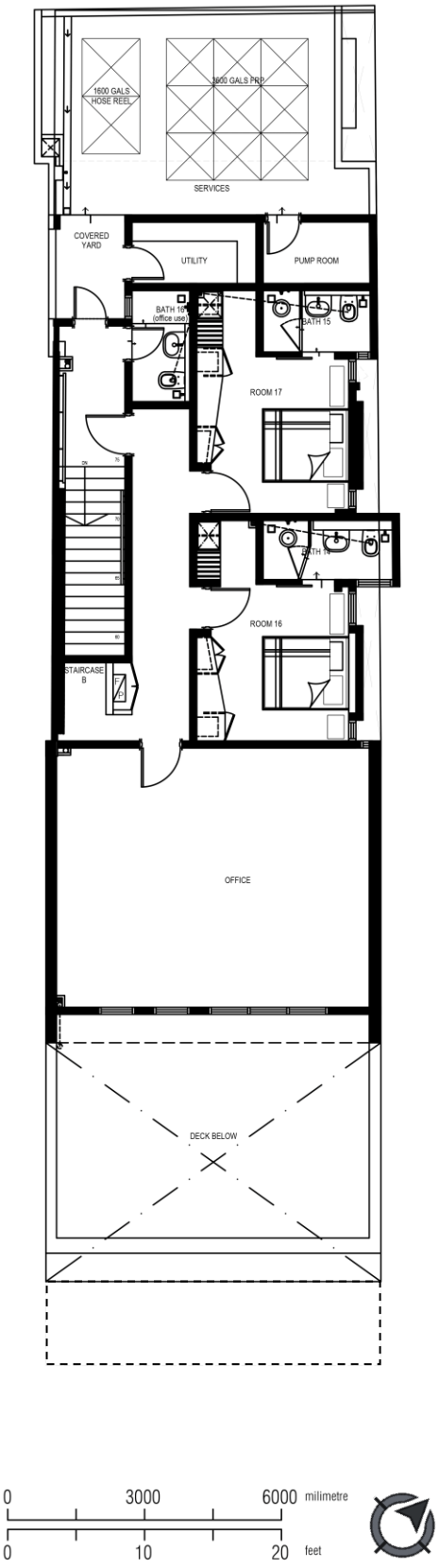


Figure 6.26 The fourth floor plan of Timez Hotel after the conversion process was completed in 2017 (copyright [2017] by Basique Studio Sdn. Bhd.).

6.3 Factors of Obsolescence

This subchapter aims to fulfil the second objective of this research: *to examine the dimensions of obsolescence in Malaysian shophouses*. Eight factors of obsolescence, namely: physical, functional, technological, economic, environmental, locational, social and legal, have been identified in Fomecs Hotel, Jonker Hotel and Timez Hotel for cross-case comparison. These forms of obsolescence were experienced by these case study buildings before their conversions into hotel-type accommodation. Project and process descriptions were composed based on interviews with the building owners, professional experts and specialist users, while photographs were used for the pictorial representation of the situation. The information was then linked to current knowledge. It should be noted here that the factor(s) with the highest frequency is defined as the factor(s) that affects all of the case study buildings.

6.3.1 Physical Obsolescence

There were three factors of physical obsolescence, which were only identified in Timez Hotel. This means that none of these factors has high frequency because they are limited to one case (see Table 6.1). In addition, Timez Hotel appears to be the most affected by physical obsolescence, in comparison to the other case study buildings.

Table 6.1 Cross-case comparisons in terms of physical obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Physical	Dilapidation			■
	Physical deterioration			■
	Poor quality materials			■
Total Number of Physical Obsolescence Factors			**3**	

The vacancy and abandonment of Timez Hotel for several years prior to its conversion into a boutique hotel had led to its physical deterioration (see Figure 6.27). According to Wilkinson et al. (2014), physical obsolescence can be defined as an increased deterioration as a consequence of inadequate maintenance and repair routines. This is in line with Feilden (as cited in Ismail & Shamsuddin, 2005), in which human action causes

the greatest damage. This may reduce the capability of the building to meet both user expectations and performance requirements.

The physical structure of Timez Hotel was in a dilapidated condition with a collapsed roof at the back and poor quality materials for some elements. As indicated by Bartlett and Howard (2000), heritage buildings that were poorly built in the past will not outlive their expected life. Good quality materials, especially for the walls and the roof are important to make the building solid and able to keep out the weather (Kalman, 1991).

Consistent with Douglas (2006), the factors of physical obsolescence encountered in Timez Hotel may be classified as correctable obsolescence. This form of obsolescence has been resolved by repairing and refurbishing this building through regular and ongoing maintenance, as suggested by Tiesdell et al. (1996) and Carmona et al. (2010), in order to reduce the possibility of it being demolished and abandoned. In the meantime, Fomecs Hotel and Jonker Hotel never reached physical obsolescence as they were always occupied and they had been regularly refurbished for various reasons.



Figure 6.27 The physical deterioration of Timez Hotel was due to vacancy and abandonment for nearly four to five years prior to the conversion (copyright [2014] by Basique Studio Sdn. Bhd.).

6.3.2 Functional Obsolescence

The case studies revealed three factors of functional obsolescence, of which 'inadequate spatial capacity' has the highest frequency (yellow row) (see Table 6.2). The other factors are limited to one or two cases. In addition, Timez Hotel appears to be the most affected by functional obsolescence, in comparison to the other case study buildings.

Table 6.2 Cross-case comparisons in terms of functional obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Functional	Inadequate building function	■		■
	Inadequate spatial capacity	■	■	■
	Inappropriate building layout			■
Total Number of Functional Obsolescence Factors			**3**	

The previous uses of Fomecs Hotel and Timez Hotel as a warehouse, factory, shop and residence were no longer relevant for current needs as a consequence of inadequate building function (see Figure 6.28).

The small and narrow structure of these buildings had prompted the need for larger spatial capacity to provide more warehouse space in Fomecs Hotel, and additional living space for the residents of Timez Hotel. This fact is supported by the architect in charge of Jonker Hotel who suggested that the conversion of the upper floor of shophouses in the Core Zone of Melaka from living quarters into storage is because of the growing sales volume and a wide range of goods as follows:

> *Upstairs are now used as a store. This is because in the old days, the variety of goods was less, and the sales volume was lower. Nowadays, the sales volume is higher and the goods to stock in there consist of a lot of variety. In the old days 40 to 45 years ago, the only choice of instant noodle was Maggi, now you have Indo Mie, Mamee, Korean Ramen and so forth.*
>
> (CS2-PE-05, personal communication, April 11, 2017)

There was also an insufficient number of kitchens, toilets and showers in Timez Hotel because of limited spatial capacity, and all of the residents had to share these facilities. Apart from that, the previous building layout of Timez Hotel was inappropriate for modern needs as it consisted of a deep inside corridor and windowless rooms for natural

ventilation and lighting. Cheong (2010) and Wilkinson et al. (2014) agreed that a building may be deemed to be functionally outdated because of its ineffective and inflexible layout.

Consistent with Douglas (2006), the factors of functional obsolescence experienced in all of the case study buildings may be viewed as correctable obsolescence. This form of obsolescence has been addressed by a suitable rearrangement of the internal layout to suit the requirements of their new function as boutique hotels.



Figure 6.28 The previous use of Timez Hotel as a residence (apartment) was no longer relevant for current needs (copyright [2015] by Basique Studio Sdn. Bhd.).

6.3.3 Technological Obsolescence

There were two factors of technological obsolescence, which were only identified in Jonker Hotel and Timez Hotel. This means that none of these factors has high frequency because they are limited to one or two cases (see Table 6.3). In addition, Timez Hotel appears to be the most affected by technological obsolescence, in comparison to the other case study buildings.

Table 6.3 Cross-case comparisons in terms of technological obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Technological	Changes in building services		■	■
	Limitation of facilities			■
Total Number of Technological Obsolescence Factors			**2**	

The dependence of the residents of Jonker Hotel and Timez Hotel upon wells for water supply for washing and drinking, and the bucket system for waste disposal, had become the main issues before the public services were installed, as commented by the architect in charge of Jonker Hotel in the following statements:

> *Public water supply is one thing, a lot of residents have their own house wells, and the spring water came over from the foot of Bukit Cina (Chinese Hill). I think water supply and waste disposal were the main issues in the old towns before the public services, tap water and all the modern conveniences came in. Up to recent times, there was still a need to source a water supply. Wells give you the water for washing. Some wells were also used for drinking, some of them were not.*
>
> (CS2-PE-05, personal communication, April 11, 2017)

Many residents had their own wells, which were commonly located in the kitchen at the back of these buildings. Up to recent times, there was still a need to source a water supply. During the vacancy and abandonment of Timez Hotel for several years prior to its conversion, there were no electrical and water supply even though the systems were there. However, these building services were already outdated.

Cheong (2010) pointed out that, when several electrical and mechanical services are no longer technologically appropriate concerning performance, there may be efforts to improve efficiency through technological innovation. This technological change can sometimes make older buildings unsuitable for modern production processes (Douglas, 2006). As recommended by Wilkinson et al. (2014), the need for this technology to be upgraded or changed will have an impact on the obsolescence of older buildings. There are occasions when expensive retrofitting will make an upgrade less attractive.

The number of facilities such as the kitchen, toilets and showers in Timez Hotel was limited (see Figure 6.29). The limited shared facilities had become inadequate for the needs of the residents.

Consistent Douglas (2006), the factors of technological obsolescence encountered in Jonker Hotel and Timez Hotel may be classified as correctable obsolescence. This form of obsolescence has been resolved by carefully upgrading the building services according to the requirements of the new function as boutique hotels. Energy is needed to provide human comfort, and buildings will require distinct amounts of energy depending on their location, the climate and the season (Wilkinson et al., 2014).



Figure 6.29 Each floor of Timez Hotel had a toilet and a shower to be shared by all of the residents of the floor (copyright [2015] by Basique Studio Sdn. Bhd.).

6.3.4 Economic Obsolescence

The case studies revealed three factors of economic obsolescence, which were only identified in Fomecs Hotel and Jonker Hotel. This means that none of these factors has high frequency because they are limited to one or two cases (see Table 6.4). In addition, Fomecs Hotel appears to be the most affected by economic obsolescence, in comparison to the other case study buildings.

Table 6.4 Cross-case comparisons in terms of economic obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Economic	Drop in demand	■	■	
	Low rental income levels	■		
	Uneconomical building function	■		
Total Number of Economic Obsolescence Factors			**3**	

Traditional trades in Fomecs Hotel and Jonker Hotel, for instance as a shop, factory and coffee shop, had seen a drop in demand, as these activities were considered to be old-fashioned and no longer relevant. Moreover, the migration of residents out of the Core Zone of Melaka also made these activities no longer profitable since the activities were based on the demands of the residents.

Rental rates for the previous uses of Fomecs Hotel as a shop and warehouse were low and unprofitable, as commented by the architect in charge of this building in the following statements:

> *The conversion will bring more profit than preserving its previous use as a warehouse because the rental income was low.*
>
> (CS1-PE-02, personal communication, April 5, 2017)

This situation contributed to an uneconomical building function in Fomecs Hotel because these uses did not make much profit for the building owner. As emphasised by Langston (2011a) and Wilkinson et al. (2014), failure to generate a consistent operating revenue can lead to the building being economically outdated. Since there is no funding available for maintaining privately-owned heritage buildings such as shophouses, the tendency towards conserving them will largely depend on the potential profits (Ismail & Shamsuddin, 2005). Otherwise, they will be left in a dilapidated state or they will be demolished in favour of new more profitable buildings.

Consistent with Douglas (2006) and Irlander (2009), the factors of economic obsolescence experienced in Fomecs Hotel and Jonker Hotel may be viewed as non-correctable obsolescence. This form of obsolescence has been addressed by converting these buildings into boutique hotels as a means to increase profitability.

6.3.5 Environmental Obsolescence

There were four factors of environmental obsolescence identified in the case studies, none of which has high frequency because they are limited to one or two cases (see Table 6.5). In addition, Jonker Hotel and Timez Hotel appear to be the most affected by environmental obsolescence, in comparison to the other case study building.

Table 6.5 Cross-case comparisons in terms of environmental obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Environmental	Improper waste management		■	■
	Improper water supply system		■	
	Poor indoor air quality			■
	Road congestion	■		
Total Number of Environmental Obsolescence Factors			**4**	

The reliance of the residents of Jonker Hotel and Timez Hotel upon improper waste management involving manual collection for the disposal of wastewater, and having a refuse chamber chute for the disposal of garbage and rubbish, could have negatively affected their health and the environment. Indeed, shophouses can be more seriously threatened by pollution from inadequate waste disposal than from tourism in itself (Ismail & Shamsuddin, 2005).

The dependence of the residents of Jonker Hotel upon an unsafe drinking water supply system from wells could have exposed them to diseases related to untreated water. In addition, the previous building layout of Timez Hotel included a deep inside corridor and windowless rooms resulting in the absence of natural ventilation. This led to poor indoor air quality (see Figure 6.30). As stated by Rani (2015), indoor air quality has a significant impact on human comfort, health and productivity.

The status of the Core Zone of Melaka as a tourist attraction, especially after the inscription of Melaka as a UNESCO World Heritage Site, resulted in road congestion, making many residents decided to move out of this area because of parking problems, as commented by the architect in charge of Fomecs Hotel in the following statements:

> *Many residents decided to move out because of parking problems. This made the traditional trades to be unprofitable because the needs were based on the residents.*
>
> (CS1-PE-02, personal communication, April 5, 2017)

The nuisance arising from crowded traffic and tourists could encourage the residents to leave. As a consequence, the original function of shophouses as living quarters on the upper floor(s) would start to decline. A more worrying development is that this architectural typology could undergo demolition as a result of these environmental factors (Ismail & Shamsuddin, 2005).

Consistent with Douglas (2006), the factors of environmental obsolescence encountered in all of the case study buildings may be classified as non-correctable obsolescence. However, in the case of the case study buildings, this form of obsolescence has been resolved by upgrading the waste management and water supply systems, and by improving the indoor air quality.



Figure 6.30 A deep inside corridor in Timez Hotel disallowed natural ventilation, led to poor indoor air quality (copyright [2014] by Basique Studio Sdn. Bhd.).

6.3.6 Locational Obsolescence

The case studies revealed one factor of locational obsolescence, which was only identified in Fomecs Hotel and Jonker Hotel. This means that this factor does not have high frequency because it is limited to two cases (see Table 6.6). In addition, Fomecs Hotel and Jonker Hotel appear to be the most affected by locational obsolescence, in comparison to the other case study building.

Table 6.6 Cross-case comparisons in terms of locational obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Locational	Changes in economic activities	■	■	
Total Number of Locational Obsolescence Factors			**1**	

Since the Core Zone of Melaka became a tourist attraction, the previous economic activities of shophouses in this area related to commercial, import/export, agriculture and industry changed to tourist related activities, as commented by the hotelier of Fomecs Hotel in the following statements:

> *People stayed nearby this area (the Core Zone of Melaka) since it was full of commercial and import/export activities. However, the environment had changed as time passed, where people were not going to buy their daily needs at the shop (shophouses) anymore.*
>
> (CS1-BO-01, personal communication, March 22, 2017)

This situation occurred because the traditional trades were considered to be uneconomical, old-fashioned and no longer relevant, as people no longer bought their daily needs at the shop, processed their food traditionally and had their coffee in the traditional coffee shop. Tourism became the main generator of profits, therefore, in this situation the shophouses might become locationally outdated if their original function was to continue. A study by Carmona et al. (2010) revealed that a location can suffer depreciation when it is considered by the users to be less fashionable and attractive.

Consistent with Ventolo, and Williams (2001), the factor of locational obsolescence experienced in Fomecs Hotel and Jonker Hotel may be viewed as non-correctable obsolescence. The usual way of dealing with this issue is to change the land use (Carmona et al., 2010). However, in the case of the case study buildings, this form of obsolescence has been addressed by converting these buildings into boutique hotels to continue their active use.

6.3.7 Social Obsolescence

There were three factors of social obsolescence identified in the case studies, of which 'changes in taste and style' and 'human migration' have the highest frequencies

(yellow row) (see Table 6.7). The other factor is limited to two cases. In addition, Jonker Hotel and Timez Hotel appear to be the most affected by social obsolescence, in comparison to the other case study building.

Table 6.7 Cross-case comparisons in terms of social obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Social	**Changes in taste and style**	■	■	■
	Human migration	■	■	■
	Lack of significant values		■	■
Total Number of Social Obsolescence Factors			**3**	

Lifestyle trends in this area in terms of living, shopping and dining have also changed, as commented by the architect in charge of Jonker Hotel in the following statements:

> *That (tourism) is the main generator, and nobody can compete with tourism for returns. The traditional economic retail activity such as the coffee shop is now becoming old-fashioned there (the Core Zone of Melaka). If I am not mistaken, there are only two left in this area, one is at Jalan Kampung Kuli on the corner, the other one is at Jalan Kubu.*
>
> (CS2-PE-05, personal communication, April 11, 2017)

People no longer wanted to live with their extended family in the place where they worked and ran their business. They no longer bought their daily needs in the shop or had their coffee in the traditional coffee shop. The traditional trades, which were part of the original function of shophouses, are now considered to be old-fashioned and no longer relevant. As highlighted by Langston (2011b), fashion and style changes in society can contribute to the demand for building renovation or replacement even though new materials and technologies have been already installed.

This situation was compounded by the displacement of the residents of all of the case study buildings for various reasons such as parking problems and property divestment. The migration of residents out of this area meant that traditional trades were no longer profitable because these activities were based on the needs of the residents.

In addition, the design of Jonker Hotel and Timez Hotel was simple and did not have much in the way of architectural and historical values that needed to be preserved (see

Figure 6.31). The styles of these shophouses were a mixture of a few styles, and the absence of significant values meant that some elements had to be changed or demolished. This is due to the fact that the image or style of a building can promote market interest and raise property values or rental income streams (Wilkinson et al., 2014). However, it is important to appreciate shophouses as many of them provide the setting for public buildings, especially in Melaka. Any apparent lack of appreciation of this architectural typology could result in negative social pressures (Heritage of Malaysia Trust, 2004).

The factors of social obsolescence encountered in all of the case study buildings may be classified as non-correctable obsolescence. This form of obsolescence has been resolved by converting these buildings into boutique hotels to meet tourism demand and to gain higher returns compared to their previous uses. In this case, the hoteliers own these buildings outright. Wilkinson et al. (2014) advocated that buildings that serve growing social purposes are more desirable than those that serve declining purposes or have an over-dependence on current trends and fashions.



Figure 6.31 The design of the facade windows of Timez Hotel had no historical value to be preserved (copyright [2014] by Basique Studio Sdn. Bhd.).

6.3.8 Legal Obsolescence

The case studies revealed two factors of legal obsolescence, which were only identified in Timez Hotel. This means that none of these factors has high frequency because they are limited to one case (see Table 6.8). In addition, Timez Hotel appears to be the most affected by legal obsolescence, in comparison to the other case study buildings.

Table 6.8 Cross-case comparisons in terms of legal obsolescence.

Factor	Obsolescence	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Legal	Changes in legislation			■
	Existence of flammable materials			■
Total Number of Legal Obsolescence Factors			**2**	

As is often the case with other heritage buildings, Timez Hotel was constructed according to an outdated building code where there was less consideration of fire risks or of the requirements for fire safety. This building code is believed to have been part of the 1822 Jackson Plan that was originally enacted in Singapore by Sir Stamford Raffles. It was soon adapted in Melaka (Lee, 2016), and it contained recommendations to build houses with masonry and to use roof tiles in order to reduce fire risk.

What is of greater concern is the fact that some parts of Timez Hotel were built using flammable materials such as dried timber that present specific concerns associated with fire safety, leading to a dangerous building (see Figure 6.32). As indicated by Tiesdell et al. (1996) and Langston et al. (2008), amended fire or occupational health and safety regulations, as well as modern building ordinances, may cause legal obsolescence. This form of obsolescence occurs when the building fails to achieve certain minimum standards of functionality determined by a public agency (Tiesdell et al., 1996; Carmona et al., 2010), in this case by MBMB (Melaka JPBD, 2011).

Consistent with Douglas (2006), the factors of legal obsolescence experienced in Timez Hotel may be viewed as correctable obsolescence. This form of obsolescence has been addressed by completing the conversion using legitimate processes and by complying with modern building codes. The trend for meeting higher levels of compliance in new buildings has resulted in a requirement for upgrading of older buildings to prevent them

from becoming obsolete faster as a result of their lower compliance (Wilkinson et al., 2014). As suggested by Carmona et al. (2010), this form of obsolescence may be remedied by having new technology embedded into the building.



Figure 6.32 The existence of dried timber in Timez Hotel present specific concerns related to fire safety (copyright [2014] by Basique Studio Sdn. Bhd.).

6.3.9 The Synthesis of Research Objective 2

The overall research findings reveal *the dimensions of obsolescence in Malaysian shophouses* in order to fulfil the second objective. Based on these findings, it can be concluded that obsolescence has greatly influenced Timez Hotel, and that Fomecs Hotel is the least likely building to be in this situation. This could be the result of vacancy and abandonment of Timez Hotel for several years prior to its conversion. Fomecs Hotel and Jonker Hotel were constantly refurbished over time, which could potentially minimise the impact of obsolescence. Meanwhile, the major factors affecting all of the case study buildings have been identified as functional and social obsolescence (see Table 6.9). In addition, all forms of obsolescence were experienced by at least two case study buildings except for physical and legal obsolescence.

It can be seen that the research findings confirm most of the factors of obsolescence explored in Subchapter 2.3. However, in the context of shophouses in Melaka, the findings

differ from the existing knowledge as discussed in detail in Subchapter 3.5.2, where functional obsolescence was less emphasised in previous studies as opposed to physical, economic, environmental, social and legal obsolescence. Therefore, the findings suggest that this form of obsolescence should be considered while converting shophouses in the Core Zone of Melaka for other functions, particularly for use as boutique hotels. Other factors such as technological and locational obsolescence are also important, but these factors have less significant implications for the conversion process of the case study buildings.

Table 6.9 Factors of obsolescence affecting all of the case study buildings and their contributions to the existing body of knowledge.

Factor	Obsolescence	Description	Contribution
Functional	Inadequate spatial capacity	The small and narrow structure of these buildings with limited facilities prompted the need for larger spatial capacity for increased production and extended family accommodation.	**Difference**: Functional obsolescence was less emphasised in previous studies
Social	Changes in taste and style	Lifestyle trends in terms of living, shopping and dining have changed, leading to the original function being seen as old-fashioned and no longer relevant.	**Extension**: Previous studies only underlined the lack of appreciation (Heritage of Malaysia Trust, 2004)
	Human migration	The residents decided to move out of the Core Zone of Melaka because of parking problems and property divestment, which made the traditional trades no longer profitable.	**Extension**: Previous studies only underlined the lack of appreciation (Heritage of Malaysia Trust, 2004)

6.4 Drivers of Adaptive Reuse

This subchapter aims to fulfil the third objective of this research*: to identify and analyse the drivers of the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels*. Nine drivers of adaptive reuse, namely: structural, constructional, spatial, servicing, financial, environmental, locational, social and legal, have been identified in Fomecs Hotel, Jonker Hotel and Timez Hotel for cross-case comparison. These drivers were experienced by these case study buildings during and after their conversions into hotel-type accommodation. Project and process descriptions were composed based on interviews with the building owners, professional experts and specialist users, while photographs were used for the pictorial representation of the situation. Additional information from the local government officers concerning the market value of Fomecs Hotel and Timez Hotel was also included in this analysis. The information was then linked to current knowledge. It should

be noted here that the driver(s) with the highest frequency is defined as the driver(s) that affects all of the case study buildings.

6.4.1 Structural Aspects

There were four structural drivers identified in the case studies, of which 'retention of historical integrity' has the highest frequency (yellow row) (see Table 6.10). The other drivers are limited to two cases. In addition, Fomecs Hotel and Timez Hotel appear to be the most affected by structural drivers, in comparison to the other case study building.

Table 6.10 Cross-case comparisons in terms of structural drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Structural	Enhancement of stability	■		■
	Involvement of professional experts	■		■
	Retention of historical integrity	■	■	■
	Stronger for difficult sites	■		■
Total Number of Structural Drivers			**4**	

The involvement of professional experts is important, to ensure that the conversion process of Fomecs Hotel and Timez Hotel was conducted with sufficient skills relating to the structural aspects. This phenomenon has become a growing trend in adaptive reuse projects (Latham, 2000). Previously, according to Plevoets and van Cleempoel (2012), buildings that were structurally secure would be adapted for new purposes without technical evaluations. However, after a period of time, these buildings should be investigated as a means of providing an objective assessment of deterioration and deficiencies (Kalman, 1991).

The conversion works for all of the case study buildings into boutique hotels preserved and refurbished their heritage structure and structural elements, as commented by the hotelier of Jonker Hotel in the following statements:

> *The percentage of changes is 100% for internal layout during the refurbishment process; the existing structure and materials were preserved, repaired or upgraded.*
>
> (CS2-BO-04, personal communication, May 9, 2017)

This process allowed the buildings to remain in use. This is in line with the findings of Worthing and Bond (2007), which confirmed that adaptive reuse permits the structure of

the buildings to retain its historical integrity while meeting the needs of modern occupants. The preservation of the existing structure of these buildings is essential in order to secure the continuous inscription of Melaka as a UNESCO World Heritage Site.

The concrete and steel raft foundations without piling was used in Fomecs Hotel to protect the stability of adjacent buildings and to deal with the sandy and muddy Melaka River. One of the reasons why conversion is preferable to demolition for Timez Hotel was that the demolition process might affect the adjacent buildings (see Figure 6.33).



Figure 6.33 The conversion of building where Timez Hotel is now situated is preferable to demolition, as the process has less impact on adjacent buildings.

The engineers made the structures of Fomecs Hotel and Timez Hotel stronger so that they could tolerate heavier loads (see Figure 6.34). This was achieved by strengthening the beams because the occupancy of these building has changed in line with the new function as a hotel. In a situation when there is a height extension, as in Timez Hotel, pile foundations were used to accommodate additional loads and forces. The ability of adaptive reuse to enhance the stability and longevity of shophouses in this area was also demonstrated by the UNESCO World Heritage Centre (2018).



Figure 6.34 Concrete beams were strengthened, and floor materials were replaced to ensure the structure of Fomecs Hotel is stronger for heavier loads.

6.4.2 Constructional Aspects

The case studies revealed five constructional drivers, of which 'preservation of heritage significance', 'proper maintenance' and 'restructuring to meet modern demands' have the highest frequencies (yellow row) (see Table 6.11). The other drivers are limited to one or two cases. In addition, all of the case study buildings appear to be affected by constructional drivers in the same capacity.

Table 6.11 Cross-case comparisons in terms of constructional drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Constructional	Involvement of professional experts	■		■
	Preservation of heritage significance	■	■	■
	Preservation of past workmanship skills		■	
	Proper maintenance	■	■	■
	Restructuring to meet modern demands	■	■	■
Total Number of Constructional Drivers			**5**	

The involvement of professional experts is important, to ensure that the conversion process of Fomecs Hotel and Timez Hotel was carried out with sufficient skills relating to

the constructional aspects. Indeed, an investigation by the professional experts could provide an objective assessment of deterioration and deficiencies (Kalman, 1991). This phenomenon has become a growing trend in adaptive reuse projects (Latham, 2000).

In the meantime, the heritage significance of Chinese, Baba and Nyonya, and colonial styles in all of the case study buildings was retained, and most of the existing building fabric and materials were preserved and refurbished (see Figure 6.35). The well-preserved heritage design has been one of the main reasons why tourists chose to stay in these boutique hotels. As indicated by the Department of the Environment and Heritage (2004) and Bullen and Love (2011b), adaptive reuse may be the only way to preserve and maintain the heritage significance of the fabric of a building.



Figure 6.35 The heritage significance of Art Deco style in Jonker Hotel with a touch of Baba and Nyonya was retained.

Not only are the heritage buildings retained, the efforts, skills, education and styles of past workmanship of the original builders are also preserved as a testament to local history for future generation (Harun & Ismail, 2011). This characteristic can be seen in Jonker Hotel, where the conversion has preserved the skills of past workmanship. Traditional workmanship is still available and if necessary, training can be given to produce qualified craftsmen.

The conversion secured the constructional integrity of all of the case study buildings so that it can be continuously restructured to meet modern demands by replacing outdated building materials with durable and permissible materials. This situation reflects the changes in technology and lifestyle (Mudarri & Fisk, 2007). For example, windows in Fomecs Hotel and Jonker Hotel were fitted with internal glass windows to facilitate the use of the air-conditioning system (see Figure 6.36). In addition, the height of the floors in Jonker Hotel was raised to accommodate various types of cables for building services, and the size of facade windows in Timez Hotel was increased according to the present concept.

After the conversion process was completed, all of the case study buildings have been properly maintained with the architects' expert advice, as commented by the hotel manager of Timez Hotel in the following statements:

> *In case of any defect, it will be rectified by the contractor with the architect's advice. Currently, there are no leaks or cracks as this building has been recently refurbished.*
>
> (CS3-SU-09, personal communication, April 17, 2017)

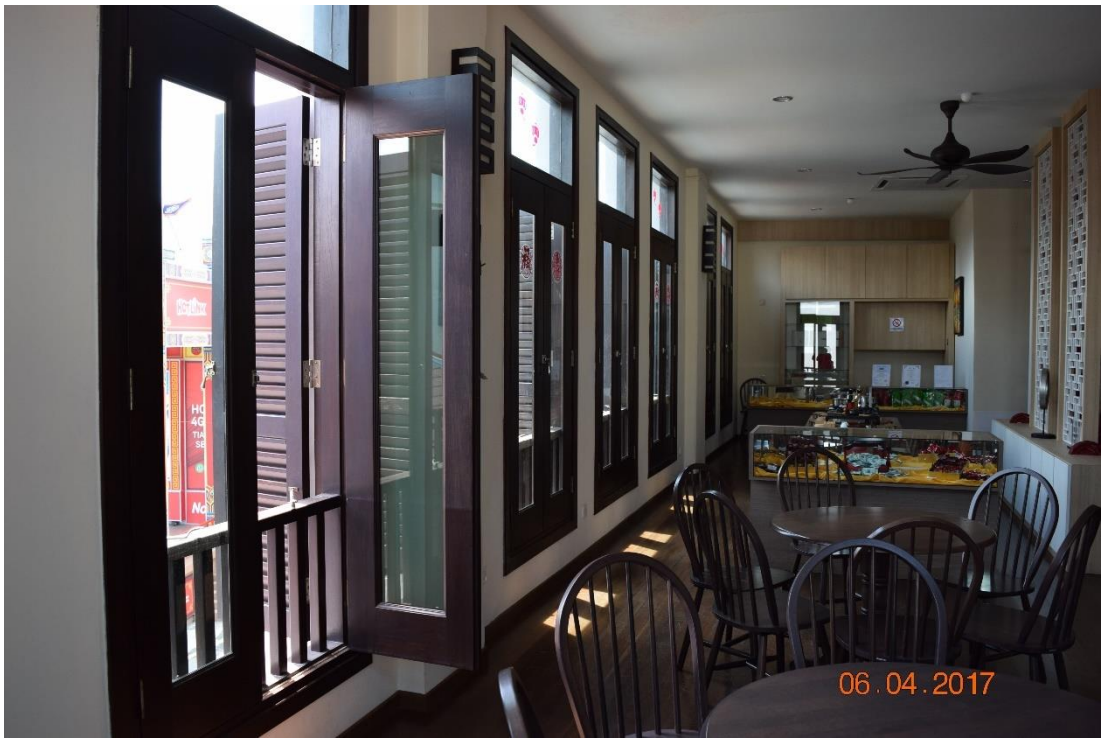


Figure 6.36 In order to meet modern demands, timber louvre windows in Fomecs Hotel were fitted with internal glass window to facilitate the use of the air-conditioning system.

6.4.3 Spatial Aspects

There were six spatial drivers identified in the case studies, of which 'efficient circulation', 'flexible building layout' and 'proper spatial arrangement' have the highest frequencies (yellow row) (see Table 6.12). The other drivers are limited to two cases. In addition, Timez Hotel appears to be the most affected by spatial drivers, in comparison to the other case study buildings.

Table 6.12 Cross-case comparisons in terms of spatial drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Spatial	**Efficient circulation**	■	■	■
	Flexible building layout	■	■	■
	Involvement of professional experts	■		■
	Maximisation of space utilisation	■		■
	Proper spatial arrangement	■	■	■
	Solution for multi-storey buildings		■	■
Total Number of Spatial Drivers			**6**	

As a means to guarantee that the conversion process of Fomecs Hotel and Timez Hotel would be conducted with sufficient skills in the context of the spatial aspects, the professional experts were involved. Their investigation is vital to provide an objective assessment of layout appropriateness (Kalman, 1991). This phenomenon has become a growing trend in adaptive reuse projects (Latham, 2000).

All of the case study buildings have a flexible layout which is adaptable to a range of activities that would include conversion into a boutique hotel. For example, the ground floor of Fomecs Hotel consists of an open space that was flexibly partitioned to provide a retail area for rental purposes. Meanwhile, the spaces on the upper floors of Timez Hotel were adjusted to provide guest rooms with windows for natural lighting and ventilation (see Figure 6.37). This experience is in keeping with the views of Mydin et al. (2014a) that shophouses can be easily modified due to their simple open structure, which can simplify the installation of utilities and facilitate changes.

Older buildings, unlike new buildings, do not have to have a setback. Therefore, the owners of the building can make full use of the existing site (Douglas, 2006). Consistent with this, the conversion process allowed the owners of Fomecs Hotel and Timez Hotel to

maximise the use of space to increase profitability, because no height increment was permitted by the heritage restrictions. In Timez Hotel, a combined compressor for the air-conditioning system was installed for space-saving purposes.

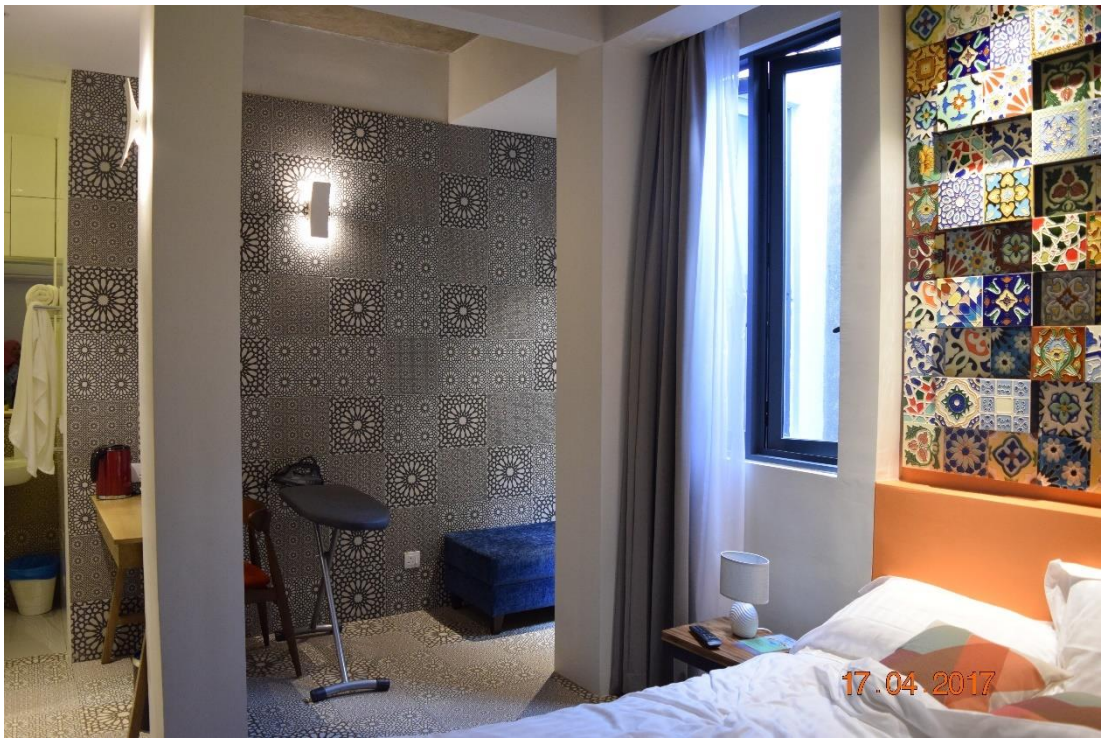


Figure 6.37 Flexible building layout in Timez Hotel allows spaces on the upper floors to be adjusted to provide guest rooms with windows for natural lighting and ventilation.

The conversion also permitted the internal layout of all of the case study buildings to be properly rearranged, as commented by the architect in charge of Fomecs Hotel in the following statements:

> *The conversion allowed the proper spatial arrangement and maximised the use of space in this building to gain more profit.*
>
> (CS1-PE-02, personal communication, April 5, 2017)

The internal layout was divided into two sections and planned according to the requirements for a hotel. These sections consist of space for public facilities on the ground floor and space for guest rooms on the upper floor(s).

As the occupancy of all of the case study buildings would change according to the new function as a hotel, it was essential to ensure efficient circulation. This was done by widening the steep staircase in Fomecs Hotel to improve circulation, creating new passageways in existing brick walls on the upper floors of Jonker Hotel to allow for circulation between the lots, and carefully planning of the internal layout of Timez Hotel

(see Figure 6.38). In addition, conversion into a boutique hotel seemed to be the easiest solution for multi-storey buildings such as Jonker Hotel and Timez Hotel. This is because such buildings have more space available than single-storey buildings.



Figure 6.38 New passageways were created on the upper floors of Jonker Hotel to allow efficient circulation between the lots.

6.4.4 Servicing Aspects

The case studies revealed five servicing drivers, of which 'upgraded building services' has the highest frequency (yellow row) (see Table 6.13). The other drivers are limited to one or two cases. In addition, Timez Hotel appears to be the most affected by servicing drivers, in comparison to the other case study buildings.

Table 6.13 Cross-case comparisons in terms of servicing drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Servicing	Accessible to disabled people			■
	Involvement of professional experts	■		■
	Low building services requirements		■	
	Proper maintenance			■
	Upgraded building services	■	■	■
Total Number of Servicing Drivers			**5**	

In order to guarantee that the conversion process of Fomecs Hotel and Timez Hotel would be carried out with sufficient skills in the context of the servicing aspects, the professional experts were involved. An investigation by the professional experts is essential to providing an objective assessment of deterioration and deficiencies (Kalman, 1991). This phenomenon has become a growing trend in adaptive reuse projects (Latham, 2000).

A boutique hotel can be defined as a high-end and low-density hotel. This is one of the main reasons why Jonker Hotel only provides a small number of guest rooms. As a consequence, fewer guest rooms will put less strain on building services requirements, as commented by the architect in charge of this building in the following statements:

> *I think you definitely should not be looking for high density of tourist accommodation, like budget, the things like that. This is because first of all, if you are putting a lot of higher density, there will be more requirements for services. This is a boutique hotel. It means a high-end and low-density. They (hotelier) are charging RM600 (£113.65) also. This means that there is less strain on the infrastructure requirements.*
>
> (CS2-PE-05, personal communication, April 11, 2017)

However, conversion into boutique hotels involves a requirement to install more modern appliances. According to Douglas (2006), heritage buildings have already been provided with existing support systems. Therefore, the building owners can use most of the existing fittings and services thereby saving the cost of purchasing and installing new components. Wherever possible, these support systems can be upgraded to meet the demands of the proposed adaptation works, as proposed by Martin and Gamzon (as cited in Luther, 1988) and Douglas (2006).

In all of the case study buildings, the conversion involved the upgrading of all building services. Cooling and telecommunication systems were installed to supply modern demands (see Figure 6.39). A combined compressor was used for the air-conditioning system in Timez Hotel because it is easier to maintain. If there is any problem with the air-conditioning system, the problem will be addressed by the suppliers.

As is the case of other heritage buildings, this architectural typology was commonly built without much thought given to fire protection and resistance. Most heritage buildings were constructed before there were building ordinances (Mydin et al., 2014a). As a result, fire safety systems had to be put in place in all of the case study buildings. Sanitary and plumbing systems were upgraded because of the additional number of bathrooms attached to the guest rooms. In the original building, each floor had only one toilet. Electrical wiring

was replaced for improved performance. A security system was added to improve security. Timez Hotel was the only hotel to have a lift installed. This is a useful facility in multi-storey buildings like shophouses to improve accessibility for disabled people (see Figure 6.40).



Figure 6.39 The cooling system were installed in Fomecs Hotel to supply modern demands.



Figure 6.40 The lift in Timez Hotel is useful to improve accessibility for disabled people.

6.4.5 Financial Aspects

There were nine financial drivers identified in the case studies, of which 'economic merit', 'generation of government revenue', 'high economic returns', 'involvement of management team' and 'mitigation of construction costs' have the highest frequencies (yellow row) (see Table 6.14). The other drivers are limited to one or two cases. In addition, Timez Hotel appears to be the most affected by financial drivers, in comparison to the other case study buildings.

Table 6.14 Cross-case comparisons in terms of financial drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Financial	**Economic merit**	■	■	■
	Generation of government revenue	■	■	■
	High economic returns	■	■	■
	Increase in market value	■		■
	Involvement of management team	■	■	■
	Mitigation of construction costs	■	■	■
	Mitigation of energy costs		■	■
	Mitigation of government fees		■	
	Time saving			■
Total Number of Financial Drivers			**9**	

The Core Zone of Melaka has gained momentum as a tourist attraction as a result of the inscription of Melaka as a UNESCO World Heritage Site. Consequently, tourism has increased and the demand for hotels grew. In line with this phenomenon, economic merit has become the main reason why the hoteliers invested in the conversion of all of the case study buildings into boutique hotels for the purpose of meeting market demands, as commented by the hotelier of Fomecs Hotel in the following statements:

> *In conjunction with the inscription of Melaka as a UNESCO World Heritage Site in 2008, and because Jonker Street (Jalan Hang Jebat) has become part of the historic area and a popular tourist attraction, the building owner decided to convert this old building into a small hotel to meet the market demand.*
>
> (CS1-BO-01, personal communication, March 22, 2017)

This matches the views of Wilkinson et al. (2014) that financial aspects have been shown to be a starting point for many building owners who are considering adaptation. The profits generated from this conversion ensure the economic feasibility of shophouses while

retaining their historic features. The Heritage Tax collected from the guests contributes to the enhancement of conservation efforts in the Melaka World Heritage Sites (UNESCO World Heritage Centre, 2018).

The conversion of all of the case study buildings into boutique hotels has become a profitable business, and returns were higher as opposed to the returns from their previous uses as a warehouse, shop and residence, or other types of businesses (see Figure 6.41). Wahab et al. (2016) have expressed similar views, suggesting that the conversion of shophouses for tourism purposes, such as hotels, is a good economic strategy. It meets tourism demand, while simultaneously providing better economic returns and supporting the Malaysian tourism sector. In addition, boutique hotels in shophouses have fewer but larger guest rooms which can be sold at a higher rate. There are also spaces available in Fomecs Hotel and Jonker Hotel for rental to retailers.



Figure 6.41 The conversion of Jonker Hotel into a boutique hotel generates higher profits as opposed to its original function as a shophouse.

Even though the market sets the value of a building, there is substantial value in the style and character of heritage buildings (Douglas, 2006). Ellison et al. (2007) have drawn attention to the fact that the remaining utility and value of the heritage buildings could be improved by adapting and refurbishing them using an adaptive reuse process. This effect was realised by converting Fomecs Hotel and Timez Hotel into boutique hotels to

increase the market value of the buildings, compared to their uneconomic previous uses. For instance, the market value of Timez Hotel has increased by 75% after the conversion process took place.[3]

Meanwhile, the conversion process for all of the case study buildings only required modest construction costs. The demolition of these buildings would have needed more structural work than the conversion because this architectural typology was normally built with load-bearing walls, and adjacent buildings could be affected. This condition could contribute to higher costs than the costs involved in conversion. Ball (1999), the Department of the Environment and Heritage (2004), Douglas (2006), Shipley et al. (2006) and Wilkinson and Reed (2008) have also demonstrated that the costs of reusing buildings are lower than the costs of demolition. The use of recycled materials in Timez Hotel for example, also helped the hotelier to reduce costs.

The conversion period could be shorter than the time needed for demolition and rebuilding, unless there are additional works such as increasing the building height. As advocated by Kalman (1991) and Douglas (2006), the adaptation process is commonly much faster than for a new development because the infrastructure is already in place, leading to a shorter contract period and lower borrowing costs.

Additionally, the use of the many modern appliances needed for a boutique hotel caused an increment of energy load in Jonker Hotel and Timez Hotel. However, the installation of higher standard windows, insulation and environment-friendly materials for heat reduction mitigated the increased energy costs (see Figure 6.42).

The conversion of Jonker Hotel into a boutique hotel resulted in lower license fees, tax rates and sewerage charges payable to MBMB and the Indah Water Konsortium (IWK) than for other types of hotels, because of the small number of guest rooms. As commercial buildings, all of the case study buildings are obliged to have an annually renewable permanent license issued by MBMB. This requirement generates revenue for MBMB. This is line with the findings of Thompson (1977) that adaptive reuse, involving preserving, renovating, rehabilitating or restoring a valuable old building, may result in increased government tax revenue.

[3] As updated by MBMB in October 2018, the market value of Timez Hotel has increased from RM943,500.00 (£176,208.00) to RM1,645,000.00 (£307,221.00) after the conversion process took place.

For all of the case study buildings, the conversion enabled the buildings to be professionally managed by registered hospitality companies and to have enough staff to ensure that they operate efficiently.

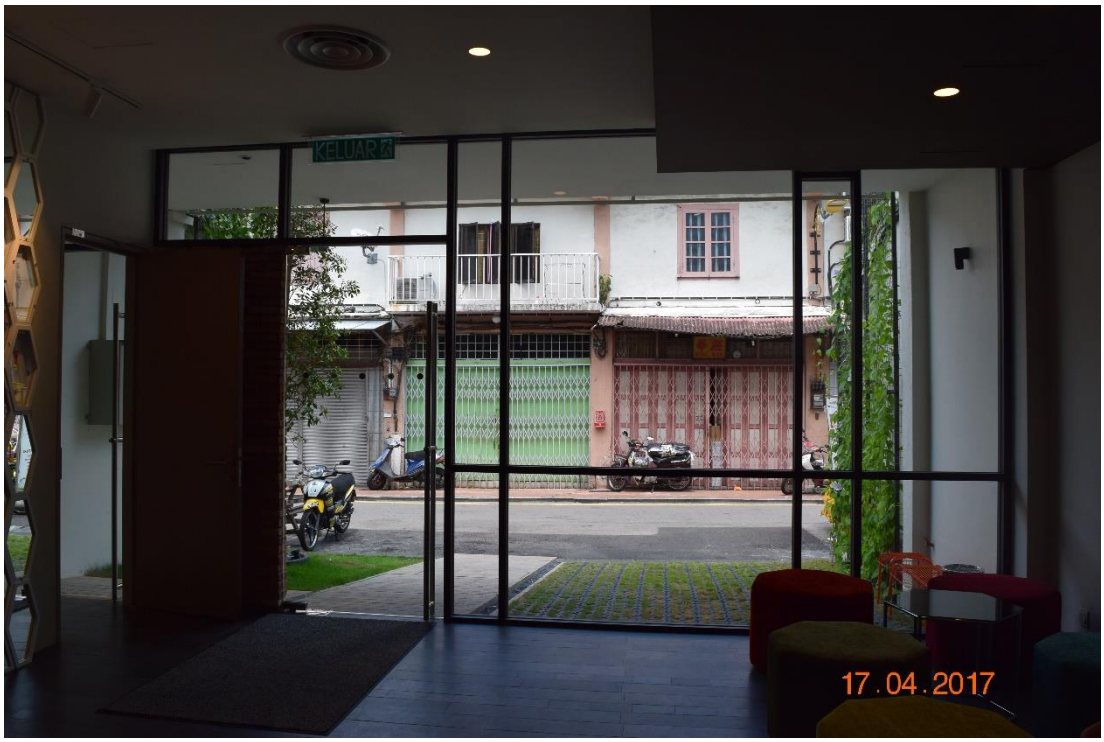


Figure 6.42 Energy costs in Timez Hotel were mitigated by the installation of Low-E glass for heat reduction.

6.4.6 Environmental Aspects

The case studies revealed four environmental drivers, of which 'mitigation of carbon emissions' and 'proper waste management' have the highest frequencies (yellow row) (see Table 6.15). The other drivers are limited to one or two cases. In addition, Timez Hotel appears to be the most affected by environmental drivers, in comparison to the other case study buildings.

Table 6.15 Cross-case comparisons in terms of environmental drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Environmental	Improvement of indoor air quality	■		■
	Mitigation of carbon emissions	■	■	■
	Optimisation of energy efficiency			■
	Proper waste management	■	■	■
Total Number of Environmental Drivers			**4**	

Preserving and refurbishing the existing building structure, and reusing building components and materials in Fomecs Hotel and Jonker Hotel during the conversion process mitigated carbon emissions. At the same time, Timez Hotel used recycled and rejected tiles for the same purpose (see Figure 6.43).

Cooper (2001) and Bromley et al. (2005) perceptively stated that a positive contribution to sustainability might be realised if more buildings could be reused and if demolition were kept to a minimum. Reusing the functionality of heritage building components and materials will mitigate carbon emissions, because it reduces energy expenditure (Douglas, 2006; Velthuis & Spennemann, 2007; Baum, 2012; Hadi et al., 2013; Remøy & van der Voordt, 2014). As revealed by Dewiyana et al. (2016), shophouses also have the potential to satisfy the requirements of the Green Building Index and this has been proven by the adaptive reuse of Hotel Penaga in George Town, Penang.



Figure 6.43 The use of recycled and rejected tiles on the floor of Timez Hotel has mitigated carbon emissions.

The original character of the ground floor of Fomecs Hotel as an open space without the use of air-conditioning. While, a small portion of the existing courtyard in Timez Hotel was retained and the spaces on the upper floors were adjusted to provide guest rooms with windows. These factors improve the indoor air quality because the air-conditioning could cause health problems if it is not correctly maintained, and windows are useful for natural

ventilation (see Figure 6.44). The ability of adaptive reuse to improve indoor air quality was also noted by Bullen and Love (2010).

In addition, in Timez Hotel, installing windows in guest rooms to admit natural lighting, while also using environment-friendly materials for heat reduction, has optimised energy efficiency. In the same vein, a study by Douglas (2006) found that many older buildings perform relatively well with respect to energy efficiency because of their high thermal capacity and slow thermal energy release, which reduces energy consumption.

In all of the case study buildings, the conversion process also ensured proper waste management; the size of the septic tank was increased because each guest room has a bathroom attached. Hygiene problems are avoided by the nightly garbage truck collection of solid waste, as commented by the hotel manager of Jonker Hotel in the following statements:

> *The garbage truck will collect the solid waste in front of this boutique hotel every other day at midnight so that there is no hygiene problem.*
>
> (CS2-SU-06, personal communication, April 12, 2017)



Figure 6.44 The retention of an open space on the ground floor of Fomecs Hotel without the use of air-conditioning can improve the indoor air quality of the building.

6.4.7 Locational Aspects

There were four locational drivers identified in the case studies, of which 'favourable location' and 'promotion of car-free movement' have the highest frequencies (yellow row) (see Table 6.16). The other drivers are limited to one or two cases. In addition, Jonker Hotel appears to be the most affected by locational drivers, in comparison to the other case study buildings.

Table 6.16 Cross-case comparisons in terms of locational drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Locational	Adequate loading area	■	■	
	Adequate parking		■	
	Favourable location	■	■	■
	Promotion of car-free movement	■	■	■
Total Number of Locational Drivers			**4**	

The inscription of Melaka as a UNESCO World Heritage Site has boosted the reputation of the Core Zone of Melaka as a tourist attraction. This being a favourable location, the conversion of all of the case study buildings into boutique hotels was economically strategic in supplying the demands of tourism. In addition, the popularity of the Jonker Street Night Market near these buildings became the main reason why the tourists chose to stay in these boutique hotels (see Figure 6.45).

Some shophouses in this area are located on spacious sites, for instance Jonker Hotel. As a result, the hotelier can provide adequate free parking for the guests. This means that they are not reliant on on-street parking, even when this boutique hotel is fully booked. It can also be said that, as a high-end and low-density hotel, this boutique hotel has fewer guest rooms with fewer visitors. Therefore, fewer vehicle access issues can be expected.

An adequate loading area was also provided after the conversion of Fomecs Hotel and Jonker Hotel; the loading area to the front is assigned to the retailers and the tenant, and the loading area at the back is allocated to the boutique hotels (see Figure 6.46).



Figure 6.45 The popularity of the Jonker Street Night Market has made Jonker Hotel a favourable location for tourists to stay.



Figure 6.46 A back lane behind Fomecs Hotel is to provide an adequate loading area for this boutique hotel and the coffee shop on the ground floor.

All of the case study buildings also have an advantage in terms of their city centre location. As Hadi et al. (2013) pointed out, many people focus on this kind of area. One reason is that guests can have easy access to a public transport network by having buses and taxis within walking distance thereby reducing car use, as commented by the hotel manager of Timez Hotel in the following statements:

> *In terms of public transport, the nearest bus stop is in front of Casa del Rio Hotel (located 250 metre from this building) and a taxi service can be arranged by this boutique hotel.*
>
> (CS3-SU-09, personal communication, April 17, 2017)

Consistent with the findings of Wilkinson et al. (2014), the proximity of a converted building to a public transport network can be considered as an environmentally sustainable feature in adaptive reuse because it promotes car-free movement and reduces carbon emissions.

6.4.8 Social Aspects

The case studies revealed seven social drivers, of which 'conservation of former lifestyles' has the highest frequency (yellow row) (see Table 6.17). The other drivers are limited to one or two cases. In addition, Timez Hotel appears to be the most affected by social drivers, in comparison to the other case study buildings.

Table 6.17 Cross-case comparisons in terms of social drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Social	Addition of vibrancy to communities	■		■
	Conservation of former lifestyles	■	■	■
	Improvement of living standards			■
	Pacemaker of tourist attractions	■		■
	Reduction of noise		■	■
	Reduction of vacant buildings			■
	Stimulation of creativity			■
Total Number of Social Drivers			**7**	

There is an impression that the conversion of Timez Hotel has improved a way of life. The original function of shophouses with their limited facilities had become outdated and was no longer relevant for current needs. Nowadays, people prefer to have their homes at a distance from their place of work or business.

The conversion also conserved the Baba and Nyonya style, the colonial style and the heritage feature of all of the case study buildings as a monument to former lifestyles (see Figure 6.47). Conserving the lifestyles of the past can be seen as conserving urban environments in a way that recognised the character, landscape and history of historic urban quarters (Bullen & Love, 2010). Preserving and reusing heritage buildings can be an essential part of transforming urban environments into sustainable cities. The rehabilitated buildings are also more attractive than the non-rehabilitated buildings (Chua & Deguchi, 2011).

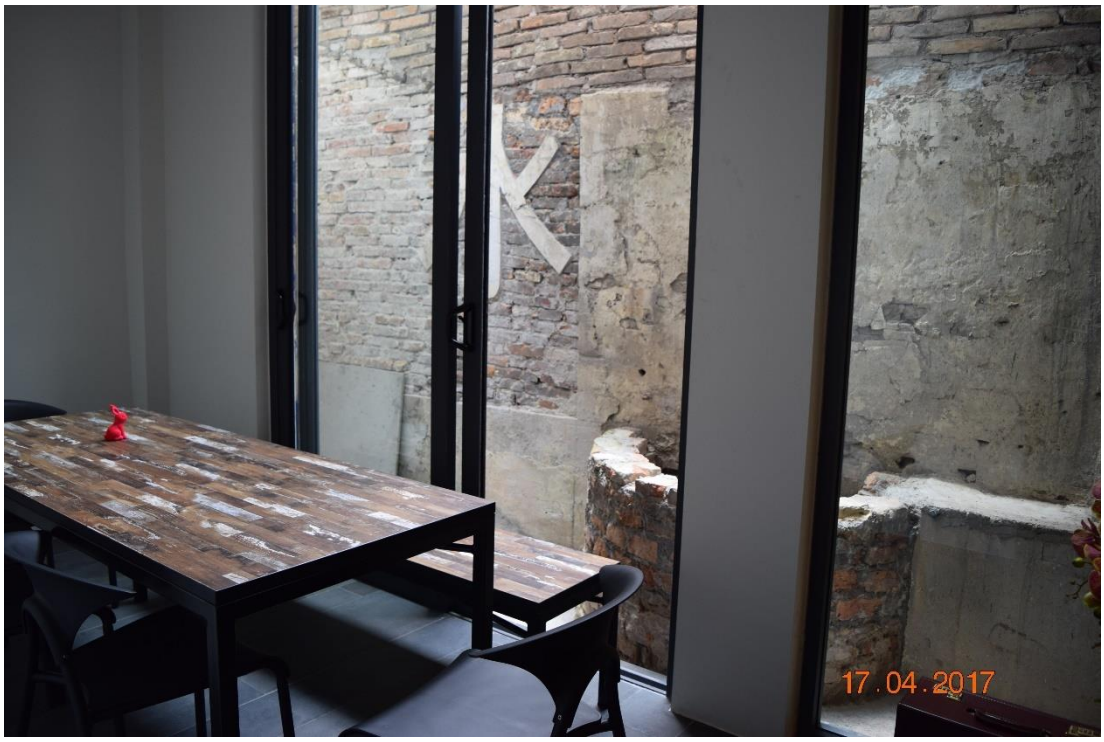


Figure 6.47 The well in Timez Hotel was conserved to symbolise a former lifestyle.

It is significant that the conversion of Fomecs Hotel and Timez Hotel into boutique hotels has been successful in adding vibrancy to the local communities, as commented by the architect in charge of Fomecs Hotel in the following statements:

> *The conversion enlightened the character of the street as part of the Core Zone of Melaka.*
>
> (CS1-PE-02, personal communication, April 5, 2017)

It has introduced new life to these buildings by making them livelier and brightening the character of the streets where they are located. The hotels provide more facilities for the public, and there are more tourists coming in to the area compared to the old days.

This positive impact is also verified by Chua and Deguchi (2011), who agreed that the adaptive reuse of shophouses makes the Core Zone of Melaka livelier, safer and a good place to live. They pointed out that businesses operating in reused buildings tend to give a higher quality service. Douglas (2006) and Langston et al. (2008) have expressed similar views that older buildings present social advantages such as essential heritage values. They can maintain the aesthetics of the streetscape, lend character and give prestige to the building owners.

The conversion of Fomecs Hotel and Timez Hotel into boutique hotels in this area can act as a pacemaker for this tourist attraction. Tourism statistics show that this area is getting more tourists every year. The pacemaker has a significant function in urban regeneration programmes, in which it can help to rejuvenate run-down urban quarters (Douglas, 2006; Schneider, 2012). Indeed, this has been an important factor for hoteliers considering this type of conversion. An increasing number of tourists require an increasing number of hotels.

Meanwhile, the ideal way to cut down on vacant shophouses is to keep them occupied and conversion into boutique hotels has become the most popular reuse activities in this area. As suggested by Douglas (2006) and Langston et al. (2008), a reduction in the number of vacant buildings possibly decreases crime and other unsocial behaviour. This type of conversion has been applied to Timez Hotel, which was left vacant and abandoned for several years prior to its refurbishment.

To ensure that Timez Hotel is different from other hotels, the hotelier has applied a creative theme in this building by incorporating unique patterns in each guest room. Growing creativity and innovation are required in today's architectural practice, which means that there was an intention to provide this boutique hotel with its own story, because it lacked a significant theme of its own.

In addition, the installation of soundproof materials in all the guest rooms in Jonker Hotel and Timez Hotel in compliance with the requirements for a soundproof hotel reduce unwanted noise from disturbing the guests (see Figure 6.48).



Figure 6.48 Airborne and impact noise between floors was reduced by installing soundproof timber flooring in all the guest rooms in Jonker Hotel.

6.4.9 Legal Aspects

There were five legal drivers identified in the case studies, of which 'building code compliance', 'heritage compliance', 'outright ownership' and 'tourism compliance' have the highest frequencies (yellow row) (see Table 6.18). The other driver is limited to two cases. In addition, Fomecs Hotel and Timez Hotel appear to be the most affected by legal drivers, in comparison to the other case study building.

Table 6.18 Cross-case comparisons in terms of legal drivers of adaptive reuse.

Aspect	Driver	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Legal	**Building code compliance**	■	■	■
	Heritage compliance	■	■	■
	Legitimate refurbishment process	■		■
	Outright ownership	■	■	■
	Tourism compliance	■	■	■
Total Number of Legal Drivers			**5**	

The hoteliers have outright ownership of all of the case study buildings. Kalman (1991) perceptively stated that this kind of ownership through purchase provides the

greatest degree of control and security of tenure. Accordingly, it enables the submission for refurbishment and change of use to MBMB to be carried out at once. This is as opposed to other types of conversions like cafés and restaurants, and art galleries and museums, which generally involve two submissions (by the building owners and the tenants). All parts of these buildings are now used entirely as boutique hotels except for some spaces in Fomecs Hotel and Jonker Hotel that have been rented to retailers and a tenant.

The conversion of Fomecs Hotel and Timez Hotel into boutique hotels was conducted through a legitimate process according to the Malaysian Institute of Architects (PAM) Contract 2006 (Without Quantities), as commented by the architect in charge of Timez Hotel in the following statements:

> *The type of contract that has been used for this project was PAM Contract 2006 (Without Quantities) or lump sum contract, which did not involve a quantity surveyor.*
>
> (CS3-PE-08, personal communication, April 17, 2017)

This is because some building codes related to fire safety may be difficult to meet by some older buildings, thus an experienced architect will be able to address these issues (Kalman, 1991).

All of the case study buildings are licensed by MBMB. Being licensed hotels means that the hoteliers have complied with the Uniform Building By-Laws 1984 (UBBL 1984), including the requirement to install fire safety systems, as required by the Fire and Rescue Department of Malaysia (BOMBA) (see Figure 6.49). This is due to this architectural typology was commonly built without much thought given to fire protection and resistance. Most heritage buildings were constructed before there were building ordinances (Mydin et al., 2014a).

In addition, there is a guest room with facilities for disabled people in Fomecs Hotel. This is in compliance with the requirements of the Ministry of Housing and Local Government Malaysia (KPKT) in line with the Persons with Disabilities Act 2008 (Act 685). As Bullen and Love (2010) highlighted, compliance with modern building codes is vital for older buildings to prevent them from becoming depressed, rundown and derelict.

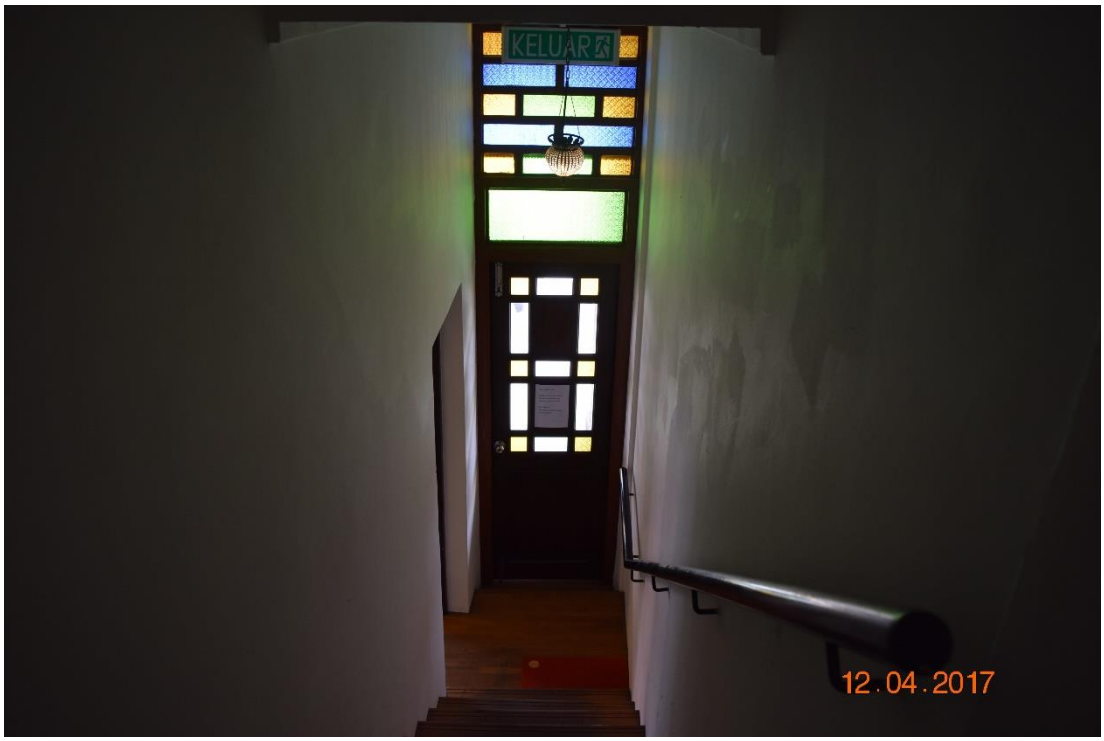


Figure 6.49 Staircase 1 in Jonker Hotel has been preserved and refurbished to serve as a fire escape to meet the requirements of UBBL 1984.

The conversion also ensured that all of the case study buildings are in compliance with the Guidelines for the Conservation Areas and Heritage Buildings for Melaka World Heritage Site (Conservation Guidelines for Melaka), for example by not installing the air-conditioning compressors on the front facade of these buildings. According to these guidelines, this equipment should be located where they are least visible from the exterior of the buildings.

In addition, it was compulsory for all of the case study buildings to be registered with MOTAC for the purpose of tourism incentives and license renewals (see Figure 6.50). Hotels also need to satisfy the requirements for soundproofing, as required by this federal authority, to reduce unwanted neighbour noise.



Figure 6.50 Registration with MOTAC permits Fomecs Hotel to comply with tourism requirements and gain tourism incentives, in which this boutique hotel is presently rated as 2-star.

6.4.10 The Synthesis of Research Objective 3

The overall research findings reveal *the drivers of the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels* in order to fulfil the third objective. Based on these findings, it can be concluded that adaptive reuse has presented a significant number of drivers to Timez Hotel as compared to Jonker Hotel, which is the least-influenced. This process is believed to have helped Timez Hotel to minimise its obsolescence, as indicated in Subchapter 6.3.9, to ensure that it remains in active use. Meanwhile, it has been shown that all forms of drivers have affected the adaptive reuse process of all of the case study buildings with financial aspects being the major driver (see Table 6.19).

It can be seen that the research findings confirm most of the drivers of adaptive reuse explored in Subchapter 2.8. However, in the context of Malaysian shophouses, the findings differ from the existing knowledge as discussed in detail in Subchapter 3.5.3, where constructional, servicing, locational and legal drivers were less emphasised in previous studies as opposed to structural, spatial, financial, environmental and social drivers. Therefore, the findings suggest that these four aspects should be considered while

converting shophouses in the Core Zone of Melaka for other functions, particularly for use as boutique hotels.

Table 6.19 Drivers of adaptive reuse affecting all of the case study buildings and their contributions to the existing body of knowledge.

Aspect	Driver	Description	Contribution
Structural	Retention of historical integrity	The heritage structure and structural elements were preserved and refurbished, allowing these buildings to remain in use.	**Extension**: Previous studies only underlined the enhancement of stability (UNESCO World Heritage Centre, 2018)
Constructional	Preservation of heritage significance	The heritage significance of existing styles was retained, while existing building fabric and materials were preserved and refurbished.	**Difference**: Constructional drivers were less emphasised in previous studies
	Proper maintenance	These buildings have been properly maintained with the architects' expert advice, since the conversion process was completed.	**Difference**: Constructional drivers were less emphasised in previous studies
	Restructuring to meet modern demands	Constructional integrity was continuously restructured to meet modern demands by replacing outdated building materials.	**Difference**: Constructional drivers were less emphasised in previous studies
Spatial	Efficient circulation	Circulation efficiency was improved as the occupancy of these buildings has changed according to the new function as a hotel.	**Extension**: Previous studies only underlined the flexibility of building layout (Mydin et al., 2014a)
	Flexible building layout	These buildings have a flexible layout which is adaptable to a range of activities that would include conversion into a boutique hotel.	**Reflection**: This matches the views of Mydin et al. (2014a)
	Proper spatial arrangement	The internal layout was properly rearranged, by planning these buildings according to the requirements for a hotel.	**Extension**: Previous studies only underlined the flexibility of building layout (Mydin et al., 2014a)
Servicing	Upgraded building services	Building services were upgraded to meet the demands of the proposed adaptation works.	**Difference**: Servicing drivers were less emphasised in previous studies
Financial	Economic merit	Economic merit has become the main reason for converting these buildings into boutique hotels for the purpose of meeting market demands.	**Reflection**: This matches the views of the UNESCO World Heritage Centre (2018)
	Generation of government revenue	These buildings are obliged to have an annually renewable permanent license issued by MBMB in order to operate as a hotel.	**Extension**: Previous studies only underlined economic merit (UNESCO World Heritage Centre, 2018) and high economic returns (Wahab et al., 2016)
	High economic returns	Boutique hotels made higher returns as opposed to the returns from the previous uses or other types of businesses.	**Reflection**: This matches the views of Wahab et al. (2016)
	Involvement of management team	These buildings are now professionally managed by the registered hospitality companies to ensure they operate efficiently.	**Extension**: Previous studies only underlined economic merit (UNESCO World Heritage Centre, 2018) and high economic returns (Wahab et al., 2016)

Aspect	Driver	Description	Contribution
	Mitigation of construction costs	Conversion requires lower construction costs than demolition, since demolition needs more structural work.	**Extension**: Previous studies only underlined economic merit (UNESCO World Heritage Centre, 2018) and high economic returns (Wahab et al., 2016)
Environmental	Mitigation of carbon emissions	Preserving and refurbishing the existing building structure, and reusing building components and materials mitigated carbon emissions.	**Reflection**: This matches the views of Dewiyana et al. (2016)
	Proper waste management	The size of the septic tank was increased because of the additional number of bathrooms, and the collection of solid waste is now more manageable.	**Extension**: Previous studies only underlined the mitigation of carbon emissions (Dewiyana et al., 2016)
Locational	Favourable location	These buildings benefit from the reputation of the Core Zone of Melaka as a tourist attraction.	**Difference**: Locational drivers were less emphasised in previous studies
	Promotion of car-free movement	These buildings benefit from the nearby public transport network thereby reducing car use.	**Difference**: Locational drivers were less emphasised in previous studies
Social	Conservation of former lifestyles	Existing styles and the heritage feature were conserved as a monument to former lifestyles.	**Extension**: Previous studies only underlined the addition of vibrancy to communities (Chua & Deguchi, 2011)
Legal	Building code compliance	These buildings are licensed by MBMB, which means that the hoteliers have complied with UBBL 1984.	**Difference**: Legal drivers were less emphasised in previous studies
	Heritage compliance	These buildings are in compliance with the Conservation Guidelines for Melaka.	**Difference**: Legal drivers were less emphasised in previous studies
	Outright ownership	The hoteliers have outright ownership of these buildings, and this means that they have the greatest degree of control and security of tenure.	**Difference**: Legal drivers were less emphasised in previous studies
	Tourism compliance	These buildings are registered with MOTAC for the purpose of tourism incentives and license renewals.	**Difference**: Legal drivers were less emphasised in previous studies

6.5 Barriers to Adaptive Reuse

This subchapter aims to fulfil the fourth objective of this research: *to identify and analyse the barriers to the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and to make recommendations that could be implemented to remove or reduce the impact of the barriers identified*. Nine barriers to adaptive reuse, namely: structural, constructional, spatial, servicing, financial, environmental, locational, social and legal, have been identified in Fomecs Hotel, Jonker Hotel and Timez Hotel for cross-case comparison. These barriers were experienced by these case study buildings during and after

their conversions into hotel-type accommodation. Project and process descriptions were composed based on interviews with the building owners, professional experts and specialist users, while photographs were used for the pictorial representation of the situation. Additional information from the local government officers concerning the property tax for Timez Hotel was also included in this analysis. The information was then linked to current knowledge. It should be noted here that the barrier(s) with the highest frequency is defined as the barrier(s) that affects all of the case study buildings.

6.5.1 Structural Aspects

There were three structural barriers identified in the case studies, none of which has high frequency because they are limited to one or two cases (see Table 6.20). In addition, Fomecs Hotel appears to be the most affected by structural barriers, in comparison to the other case study buildings.

Table 6.20 Cross-case comparisons in terms of structural barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Structural	Greater maintenance	■		
	Probability of damage to adjacent buildings	■		
	Requirements for structural repair		■	■
Total Number of Structural Barriers			**3**	

Conducting a project in the Core Zone of Melaka, for example the conversion of Fomecs Hotel into a boutique hotel, is more challenging than constructing a new building, even though the findings in Subchapter 6.4.1 showed that conversion is preferable to demolition. This is because more attention is needed for the conversion to avoid damage to adjacent buildings, since this architectural typology is mostly constructed in adjacent blocks with party walls (see Figure 6.51).

In terms of the building itself, the concrete floors and foundations were the structural elements that required to be treated, repaired and strengthened during the conversion process of Jonker Hotel and Timez Hotel, as commented by the architect in charge of Timez Hotel in the following statements:

The engineer had studied the structure. We did not add into look without support. The foundations had to be strengthened.

(CS3-PE-08, personal communication, April 17, 2017)

The concrete floors were one of the biggest problems because they had had been affected by water damage (see Figure 6.52). According to Kalman (1991), dynamic cracks in structural elements may become a serious problem and that they may need structural repair because a new use might impose additional loads and forces on the building. This was the case in Jonker Hotel and Timez Hotel, where the occupancy of these buildings has changed in line with their new function as a hotel.



Figure 6.51 Within a heritage area, the conversion will be more challenging than the construction of a new building as it can cause damage to adjacent buildings.

In addition, as the building gets older, the structure will show more threats and defects, and there will be natural deterioration with the passage of time. This calls for increased maintenance during the adaptive reuse process (Shipley et al., 2006; Mydin et al., 2014b). Therefore, the hotelier of Fomecs Hotel must regularly maintain the structure of this building to prevent wear and tear even after the conversion process has been completed. Regular and ongoing maintenance can help to reduce the possibility of the building being demolished or abandoned (Tiesdell et al., 1996; Carmona et al., 2010).



Figure 6.52 The courtyard floor in Jonker Hotel was constructed using concrete, which was one of the biggest problems because it had been affected by water damage that required structural repair.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.21).

Table 6.21 Recommendations for structural barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Structural	Greater maintenance	▪ Structural condition should be regularly maintained by the hoteliers with the architects' expert advice. ▪ The demands of the user and/or public access should be balanced with the maintenance requirements of the property (Latham, 2000). ▪ Expert advice from the structural engineers may be essential (Kalman, 1991).
	Probability of damage to adjacent buildings	▪ The conversion process should be carried out carefully by contractors under the supervision of the architects.
	Requirements for structural repair	▪ The reinforcement bars for concrete floors should be treated for rust, followed by repairs to the concrete. ▪ Foundations should be strengthened to carry more loads and forces.

6.5.2 Constructional Aspects

The case studies revealed seven constructional barriers, of which 'non-durable materials' has the highest frequency (yellow row) (see Table 6.22). The other barriers are

limited to one or two cases. In addition, Jonker Hotel appears to be the most affected by constructional barriers, in comparison to the other case study buildings.

Table 6.22 Cross-case comparisons in terms of constructional barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Constructional	Demand for competent professional experts		■	
	Demand for qualified craftsmen		■	
	Demand for reputable contractors		■	
	Demand for well-defined contract		■	
	Greater maintenance	■	■	
	Non-durable materials	■	■	■
	Unavailable materials	■		
Total Number of Constructional Barriers			**7**	

There is a necessity to have a good selection of professional experts as indicated in Subchapter 6.4.2. This was important for the conversion of Jonker Hotel into a boutique hotel, and the experts must be competent. For example, proficient architects should be hired for the purpose of preparing good detailing to be referred to by the craftsmen.

Disreputable contractors who did shoddy work in other construction projects should not be employed for the projects related to shophouses. However, framing a well-defined contract must be given priority over choosing good contractors. The importance of preparing good contract documents, in order to conduct a successful adaptive reuse project, was highlighted by Latham (2000).

The conversion process ought to be carried out by qualified and capable craftsmen in order to maintain the traditional features of heritage buildings. Nevertheless, even though training can be given to produce qualified craftsmen, as detailed in Subchapter 6.4.2, Bullen and Love (2011b) emphasised there will be no guarantee of finding suitably qualified craftsmen domestically. A cause of concern is the fact that Ismail and Shamsuddin (2005) found some works on conserving shophouses in Melaka cannot be qualified as conservation, because they did not go through the proper process due to a lack of craftsmanship and the shortage of authentic materials.

In conservation strategy, authentic materials and construction techniques should be employed whenever possible (Mydin et al., 2014a). In practice, all of the case study buildings have undergone similar issues related to non-durable materials. The concrete floors in Jonker Hotel had to be treated and repaired since they had been affected by water

damage as a result of improper use. In the case of Timez Hotel, new materials were used in most of the building, because the previous materials were unsuitable for retention (see Figure 6.53).



Figure 6.53 95% of the materials in Timez Hotel were new since the previous materials were non-durable and unsuitable for retention.

The design of the roof tiles in Fomecs Hotel had to be changed because the previous profile was impractical for heavy rain, apart from the fact that the profile was no longer available, as commented by the architect in charge of this building in the following statements:

> *The design of the roof tiles has been changed since the previous profile was no longer available and practical for heavy rain. This change was approved by MBMB.*
>
> (CS1-PE-02, personal communication, April 5, 2017)

There is often a possibility that the materials and components used in heritage buildings are no longer easily available and need to be manufactured to order (Bullen & Love, 2011b). Otherwise, Mydin et al. (2014a) recommended using equivalent materials with similar properties in cases where the desired materials are unavailable.

Despite the refurbishment and the fact that proper maintenance had taken place, as mentioned in Subchapter 6.4.2, Fomecs Hotel and Jonker Hotel still experienced several problems in the ceilings and walls related to rain leaks and minor cracks. As these buildings

get older, they require greater maintenance to reduce the impact of this issue (see Figure 6.54).

This is one of the reasons why building owners and practitioners are hesitant to embrace adaptive reuse (Bullen & Love, 2010). Kalman (1991) has drawn attention to the fact that the walls and roof serve not only to make the building solid and to keep out the weather, but also to establish its visual character. An insensitive effort to improve the appearance of heritage buildings can have disastrous effects on their appearance.



Figure 6.54 Roof leaks in the ceilings of Jonker Hotel due to heavy rain signifies the need for increased maintenance as it ages.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.23).

Table 6.23 Recommendations for constructional barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Constructional	Demand for competent professional experts	▪ Competent professional experts should be hired to prepare good detailing to be referred to by the craftsmen. ▪ Restoration should be thoroughly research before works proceed (Latham, 2000). ▪ Solutions that work 'with' the building and not 'against' it should be identified (Latham, 2000). ▪ Techniques of repair should be used rather than restoration (Latham, 2000).

Aspect	Barrier	Recommendation
	Demand for qualified craftsmen	▪ The conversion process should be carried out by qualified and capable craftsmen in order to maintain the traditional features. ▪ Proven techniques, natural materials and traditional craftsmanship should be maintained in preference to 'hi-tech' solutions (Latham, 2000). ▪ Modern technology may be adopted as a hidden means to preserve fabric in-situ, where traditional methods would be destructive (Latham, 2000).
	Demand for reputable contractors	▪ Disreputable contractors who did shoddy work in other construction projects should not be employed.
	Demand for well-defined contract	▪ The contract should be clearly defined and given priority over choosing good contractors. ▪ The quality of the final product should be determined by the preparation of good contract documents (Latham, 2000).
	Greater maintenance	▪ Hoteliers should provide greater maintenance on the external fabric and finishes with the architects' advice to prevent disastrous effects on the appearance. ▪ The demands of the user and/or public access should be balanced with the maintenance requirements of the property (Latham, 2000).
	Non-durable materials	▪ Roof repair should be a high priority and it should be practical for heavy rain. ▪ Concrete floors should be treated and repaired. ▪ The elements that need to be conserved should be treated as 'long-life' elements (Latham, 2000). ▪ New materials may be required if the previous materials are non-durable and unsuitable for retention.
	Unavailable materials	▪ Equivalent materials with similar properties may be used in cases where the desired materials are unavailable (Mydin et al., 2014a). ▪ Sympathetic materials should be used where new additions are to be made (Latham, 2000).

6.5.3 Spatial Aspects

There were five spatial barriers identified in the case studies, of which 'inflexible building layout' has the highest frequency (yellow row) (see Table 6.24). The other barriers are limited to one or two cases. In addition, Jonker Hotel appears to be the most affected by spatial barriers, in comparison to the other case study buildings.

Table 6.24 Cross-case comparisons in terms of spatial barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Spatial	Demand for adequate building function		■	
	Demand for respect towards building		■	
	Inadequate spatial capacity			■
	Inefficient circulation	■	■	
	Inflexible building layout	■	■	■
Total Number of Spatial Barriers			**5**	

The findings in Subchapter 6.4.3 revealed that all of the case study buildings have a flexible building layout which is adaptable to a range of activities that would include conversion into a boutique hotel. However, it cannot be denied that these buildings have limited spatial capacity due to the small and narrow structure that prevented hoteliers from having more guest rooms for the purpose of profitability, as commented by the architect in charge of Timez Hotel in the following statements:

> *Fifteen guest rooms are not very good because if you have a very few rooms you cannot generate the income. We wanted it (number of guest rooms) to be more from a business standpoint, but the space is limited.*
>
> (CS3-PE-08, personal communication, April 17, 2017)

Another obstacle to the site being used more efficiently is that the building is already there (Douglas, 2006).

As a consequence, the existing building layout of all of the case study buildings was inflexible to suit their new function as boutique hotels as a result of restricted sites and deep-plan features. Several solutions have been proposed to solve these problems, for example, demolishing the non-heritage structure of Fomecs Hotel and reconstructing it with additional storeys to accommodate more guest rooms, decreasing the number of guest rooms in Jonker Hotel so that each of them could be fitted with windows, and increasing the height of the back of Timez Hotel to accommodate more guest rooms and building services (see Figure 6.55).

A matter for concern is the fact that guests always experienced some confusion as to the circulation in Fomecs Hotel and Jonker Hotel, despite the efforts to carefully arrange the internal layout during the conversion process as stated in Subchapter 6.4.3 (see Figure 6.56). According to Shipley et al. (2006), Wilkinson et al. (2009) and Bullen and Love (2011a, c), the building layout may be inappropriate and inefficient for any change of use, especially when there are restrictions (Douglas, 2006). This is because of the need to respect the internal layout. In this case, the original position of the staircases in Jonker Hotel was retained. The disposition of space may inhibit efficient circulation of people or furniture, as advocated by Kalman (1991).



Figure 6.55 Due to inflexible building layout, the non-heritage one-storey warehouse at the back of Fomecs Hotels was demolished and reconstructed as two-storeys to accommodate more guest rooms.



Figure 6.56 There is some confusion as to the circulation in Jonker Hotel from the guest rooms on the second floor heading to the lobby on the ground floor, since Staircase 3 is only accessible to the first floor.

Meanwhile, the original function as shophouses is likely the recommended option. In the event that a conversion is required, as a means of preventing functional obsolescence, these buildings should be converted to serve a function that the building owners intend to continue. The conversion into boutique hotels may not be the most appropriate new function for shophouses, since not many tourists are willing to walk upstairs to the guest rooms, unless there is special access. It is more difficult to find an economic function for the upper floor(s) than for the ground floor. This is in line with Chua and Deguchi (2011) who indicated that there could be a possible conflict of functions if the current uses cannot be adapted for new uses or vice versa.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.25).

Table 6.25 Recommendations for spatial barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Spatial	Demand for adequate building function	▪ Buildings should be converted to serve a function that the building owners intend to continue.
	Demand for respect towards building	▪ The existing internal layout should be respected and not be changed.
	Inadequate spatial capacity	▪ Space expansion may be done with the approval from MBMB.
	Inefficient circulation	▪ Internal layout should be carefully rearranged.
	Inflexible building layout	▪ Space expansion may be done with the approval from MBMB. ▪ The number of guest rooms may be decreased according to the existing window position. ▪ The air-conditioning system and artificial lighting may help in buildings with more than one storey.

6.5.4 Servicing Aspects

The case studies revealed four servicing barriers, of which 'demand for upgraded building services' has the highest frequency (yellow row) (see Table 6.26). The other barriers are limited to one or two cases. In addition, Jonker Hotel appears to be the most affected by servicing barriers, in comparison to the other case study buildings.

Table 6.26 Cross-case comparisons in terms of servicing barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Servicing	Demand for respect towards building		■	
	Demand for upgraded building services	■	■	■
	Greater maintenance		■	■
	Inaccessible to disabled people	■	■	
Total Number of Servicing Barriers			**4**	

Nowadays, upgraded building services are not only recommended, as in Subchapter 6.4.4, but they are also required for all of the case study buildings during the conversion process to extend their lifespan and to meet the demands of the proposed adaptation works. As underlined by Henderson et al. (2013), this challenge should be faced by the hoteliers and the authorities. Consistent with the views of Douglas (2006) and Bullen and Love (2010), older buildings, as opposed to new buildings, may have facilities that fail to meet current needs. For example, the change from a bucket system to a water bond system signified the need for treatment plants as a result of high-density living.

Meanwhile, the power supply in the Core Zone of Melaka should be upgraded by the Tenaga Nasional Berhad (TNB), and outdated electrical wiring and plumbing systems should be replaced by the hoteliers. This applies even when they may still be functional, in order to ensure improved performance (see Figure 6.57).

However, Kalman (1991) found that the requirements for new wiring and increased electrical services can create some problems. The installation of new wiring in restoration work could be awkward and costly if it has to be concealed. It will also be much more expensive if it requires the installation of a new transformer. Adaptation does not necessarily overcome all the defects in performance; some of these defects may be difficult and expensive to resolve (Douglas, 2006). Moreover, the cost can be greater if a complete replacement is required (Rabun & Kelso, 2009).



Figure 6.57 The outdated plumbing system in Timez Hotel was demanded to be upgraded for improved performance.

In the meantime, under certain circumstances the building owners need to make sacrifices in terms of installing sufficient modern appliances in order to respect the existing building structure, as commented by the architect in charge of Jonker Hotel in the following statements:

> *The only thing is, you have to respect the building. Your staircase is where your staircase is. Do not change the position of your staircase too cleverly, just because you like to change it.*
>
> (CS2-PE-05, personal communication, April 11, 2017)

For instance, it may be necessary to reduce the number of toilets and showers that should be put in. This is because the authenticity of shophouses may be affected when their structures, support systems and fire safety systems are upgraded to comply with UBBL 1984 (Mei & Ahmad, 2017).

Despite the refurbishment and the fact that proper maintenance had taken place, as stated in Subchapter 6.4.4, Jonker Hotel and Timez Hotel encountered several problems with air-conditioning and plumbing systems related to leaks. These buildings require greater maintenance to reduce the impact of this issue. This is one of the reasons why building owners and practitioners are hesitant to embrace adaptive reuse (Bullen & Love, 2010). The significance of balancing the demands of the user, and/or public access, with the

maintenance requirements of the property was emphasised by Latham (2000) as a means of providing a successful adaptive reuse project.

In terms of accessibility, Fomecs Hotel and Jonker Hotel were not provided with step-free access to guest rooms on the upper floor(s), as provided by Timez Hotel in Subchapter 6.4.4 (see Figure 6.58). A lift should be provided to improve accessibility for disabled people, especially in multi-storey buildings like shophouses.

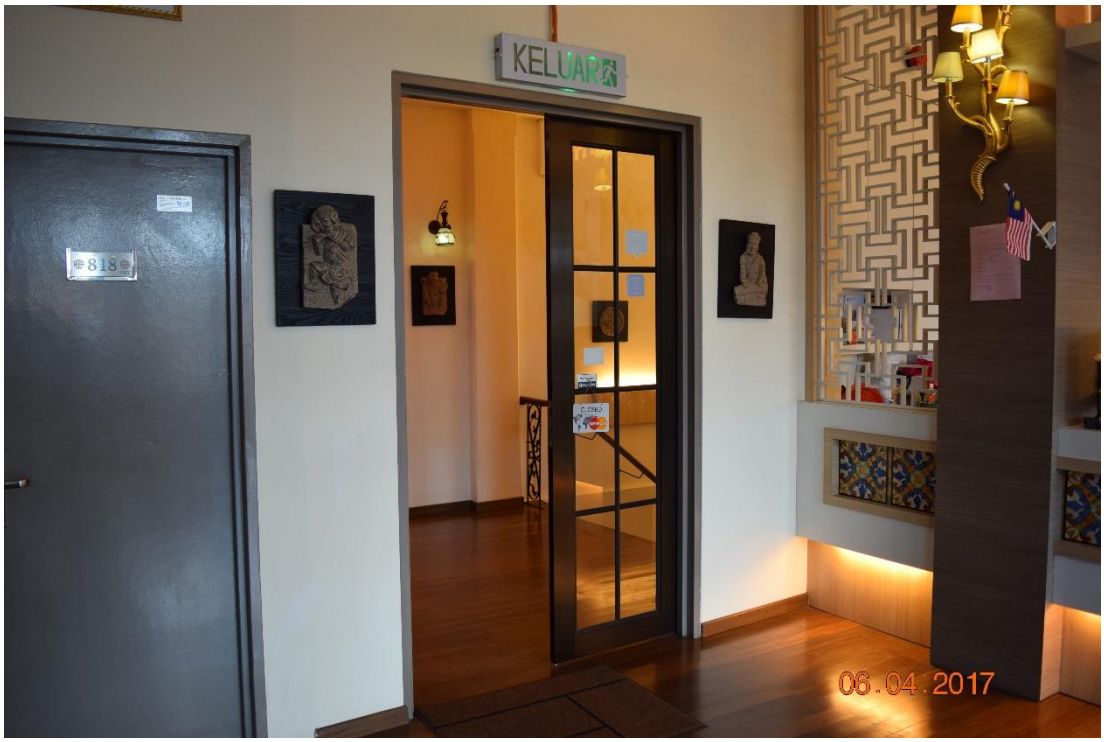


Figure 6.58 There is no lift to the first floor of Fomecs Hotel where the guest room with facilities for disabled people is located (Room 818).

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.27).

Table 6.27 Recommendations for servicing barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Servicing	Demand for upgraded building services	▪ Building services should be upgraded for improved performance. ▪ Replacement of outdated servicing elements may be more practical before covering them up with modern finishes (Rabun & Kelso, 2009).
	Demand for respect towards building	▪ Existing building structure should be respected over installing sufficient modern appliances.
	Greater maintenance	▪ Hoteliers should, with the engineers' advice, provide greater maintenance for the servicing elements to prolong their life.

Aspect	Barrier	Recommendation
		▪ The demands of the user and/or public access should be balanced with the maintenance requirements of the property (Latham, 2000).
	Inaccessible to disabled people	▪ Exemptions have been given by MOTAC exclusively for hotels in the Core Zone of Melaka. ▪ Hoteliers should be encouraged to provide a lift to improve accessibility for disabled people.

6.5.5 Financial Aspects

There were nine financial barriers identified in the case studies, of which 'low demand' has the highest frequency (yellow row) (see Table 6.28). The other barriers are limited to one or two cases. In addition, Timez Hotel appears to be the most affected by financial barriers, in comparison to the other case study buildings.

Table 6.28 Cross-case comparisons in terms of financial barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Financial	Demand for regular tenancy	■		
	Increase in energy costs		■	
	Increase in government fees			■
	Increase in modern technologies costs			■
	Low demand	■	■	■
	Low economic returns		■	■
	Probability of high construction costs	■		
	Probability of high maintenance costs	■		
	Unsatisfactory design			■
Total Number of Financial Barriers			**9**	

The number of hotels in the Core Zone of Melaka has doubled over the past five years and this has contributed to supply exceeding demand (see Figure 6.59). The occupancy rate in all of the case study buildings is high at weekends, and public and school holidays, but low at other times. Furthermore, Timez Hotel has just been launched. Therefore, the occupancy is not very good. As indicated by Douglas (2006), low demand for reusable buildings will make the investment possibility impractical for developers. Suggestions are needed to improve the occupancy rate to avoid further losses to the hoteliers in the future.

Meanwhile, it is vital for the hotelier of Fomecs Hotel to ensure that the retailers continue their tenancy. Nevertheless, rental income that can be earned from reusable

buildings is unlikely to be as high as for new buildings that are more suited to contemporary requirements (Douglas, 2006).

Fomecs Hotel needs an increased level of maintenance because it is getting older, the result being higher maintenance costs than for new buildings. The high costs of repairs and maintenance have been possible reasons why heritage buildings are not being well maintained (Kamal et al., 2005), even though they have been refurbished (Douglas, 2006; Bullen & Love, 2010).



Figure 6.59 The number of hotels in the Core Zone of Melaka has doubled over the past five years resulting in supply exceeding demand, for example Tang House is just a few steps from Jonker Hotel.

Although the selection of space-saving building services such as a combined compressor for the air-conditioning system did contribute to lower maintenance, this was a very expensive item for a small size building like Timez Hotel. The proposed design for Timez Hotel had to meet the hotelier's expectation and be within his budget to avoid dissatisfaction, such as happened before when this project taken over from the first architect by a different architect.

As opposed to the facts as set out in Subchapter 6.4.5, several economic drivers can turn into barriers in terms of economic returns, construction costs, energy costs and government fees. Economic returns have been the main incentive for adaptive reuse practices and it is questionable as to what extent the building owners will engage with

uneconomic functions that call for less intervention to the existing building. Current circumstances made the conversion of Jonker Hotel into a boutique hotel an economically viable option. However, the limited spatial capacity in Timez Hotel has led to the challenge to achieve economies of scale in order to accommodate more guest rooms to increase profitability (see Figure 6.60).



Figure 6.60 Achieving the economies of scale is challenging due to limited spatial capacity, while the hotelier of Timez Hotel intends to accommodate more guest rooms to generate more profits.

The construction cost for the conversion of Fomecs Hotel was lower than the cost of reconstruction, but it would have been higher if the building was in a damaged condition, as commented by the architect in charge of this building in the following statements:

> *However, it depends on what extent the old buildings should be renovated (for conversion). If the building is in a damaged condition, then the cost of reuse will be higher than reconstruction.*
>
> (CS1-PE-02, personal communication, April 5, 2017)

Kalman (1991) and Bullen and Love (2010) have expressed similar views, indicating that the process could be expensive or unfeasible if the heritage building is not in a good structural condition, especially when the structure requires extensive strengthening.

The energy load in Jonker Hotel has increased because of the use of air-conditioning and higher servicing requirements, resulting in higher energy costs. This is in line with

Douglas (2006) and Ellison et al. (2007) who pointed out that refurbishing a heritage building in order to comply with the required standards with the aim of contributing to sustainability is likely to be more expensive than a standard reuse project.

Meanwhile, commercial buildings like boutique hotels are subject to higher tax rates than residential buildings. For instance, the property tax for Timez Hotel has increased by 75% after the conversion process took place.[4]

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.29).

Table 6.29 Recommendations for financial barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Financial	Demand for regular tenancy	▪ Hoteliers should ensure that tenants are in place to secure continuous tenancy and rents. ▪ Ancillary activities like shops and restaurants may attract visitors (Kalman, 1991).
	Increase in energy costs	▪ Higher standard windows, insulation and environment-friendly materials should be installed to mitigate the increased energy costs.
	Increase in government fees	▪ Even the property tax is increased, it is still lower than for other types of hotels, and there are also lower license fees and sewerage charges.
	Increase in modern technologies costs	▪ Even if the combined compressor is expensive, it is space-saving and easier to maintain.
	Low demand	▪ The number of hotels in the Core Zone of Melaka should be controlled by MBMB, and ways to minimise illegal hotels should be found. ▪ The occupancy rate can be improved by looking closely at price, location, guest experience, cleanliness of the guest rooms, and quality and availability of amenities ("How to Increase", 2019).
	Low economic returns	▪ Hoteliers can charge higher rates for the guest rooms, and they can rent any available spaces to tenants.
	Probability of high construction costs	▪ Heritage buildings being considered for conversion for a new use should be investigated by qualified professionals to provide an objective assessment.
	Probability of high maintenance costs	▪ Structural, constructional and servicing elements should be regularly maintained by hoteliers with the architects' and engineers' expert advice to prevent expensive repairs in the future.
	Unsatisfactory design	▪ Hoteliers should be informed to what extent the building could be adapted to the requirements of the proposed use.

[4] As updated by MBMB in October 2018, the property tax of Timez Hotel has increased from RM5,661.00 (£1,057.00) to RM9,870.00 (£1,844.00) after the conversion process took place.

6.5.6 Environmental Aspects

The case studies revealed three environmental barriers, none of which has high frequency because they are limited to one or two cases (see Table 6.30). In addition, Fomecs Hotel appears to be the most affected by environmental barriers, in comparison to the other case study buildings.

Table 6.30 Cross-case comparisons in terms of environmental barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Environmental	Disturbance to surrounding area	■		■
	High energy consumption		■	
	Unsustainable materials	■		
Total Number of Environmental Barriers			**3**	

The conversion process contributed to construction and noise pollution, and traffic impact in the surrounding area, as commented by the architect in charge of Timez Hotel in the following statements:

> *This project also contributes to construction and noise pollution, and traffic impact in the surrounding area.*
>
> (CS3-PE-08, personal communication, April 17, 2017)

This condition occurred during the demolition and reconstruction of the non-heritage structure of Fomecs Hotel, and the addition of the height of the back of Timez Hotel (see Figure 6.61). The construction logistics were carried out frequently and quickly, and specific construction equipment was used, when the usual methods could not be used, in order to reduce the impact of this issue. Because of the circumstances, the construction methods for any project in the Core Zone of Melaka should be different from non-heritage areas because of traffic congestion and narrow streets.

Meanwhile, the energy load in Jonker Hotel increased because of the use of air-conditioning and higher servicing requirements to suit the new function as a boutique hotel (see Figure 6.62). As a consequence, the findings in Subchapter 6.4.6 proposed special materials for heat reduction to optimise energy efficiency.



Figure 6.61 The demolition and reconstruction of the non-heritage structure at the back of Fomecs Hotel has contributed to noise pollution in the surrounding area.



Figure 6.62 The energy load in Jonker Hotel has increased due to the use of air-conditioning and higher servicing requirements.

No environment-friendly materials were used in Fomecs Hotel to make it sustainable. However, there is no guarantee that the internal or external environment of

any heritage building will be improved (Douglas, 2006) and will become more environmentally sustainable after the adaptive reuse process. There is a possibility that the heritage buildings may not meet the required standards for new buildings with respect to environmental flexibility (Bullen & Love, 2011b) and energy efficiency (Douglas, 2006). Adaptive reuse is only suitable if the aims of environmental sustainability and reduced energy consumption are fully achieved (Thomsen & van der Flier, 2006). Nevertheless, Douglas (2006) and Ellison et al. (2007) believed this can make a particular reuse project more expensive than a standard reuse project.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.31).

Table 6.31 Recommendations for environmental barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Environmental	Disturbance to surrounding area	▪ Construction logistics should be carried out frequently and quickly. ▪ Specific construction equipment should be used.
	High energy consumption	▪ Higher standard windows, insulation and environment-friendly materials should be installed to mitigate the increased energy costs.
	Unsustainable materials	▪ The use of environment-friendly materials should be encouraged to optimise energy efficiency.

6.5.7 Locational Aspects

There were three locational barriers, which were only identified in Fomecs Hotel and Timez Hotel. This means that none of these barriers has high frequency because they are limited to one or two cases (see Table 6.32). In addition, Timez Hotel appears to be the most affected by locational barriers, in comparison to the other case study buildings.

Table 6.32 Cross-case comparisons in terms of locational barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Locational	Inadequate loading area			■
	Inadequate parking	■		■
	Site constraints	■		■
Total Number of Locational Barriers		**3**		

Even though the location of Fomecs Hotel and Timez Hotel in the Core Zone of Melaka is strategic because of the status of this area as a tourist attraction, this condition has led to site constraints. The busy and narrow streets caused traffic congestion because of the large number of tourists. This condition complicated the transport of construction equipment to the site during the conversion process (see Figure 6.63).



Figure 6.63 The busy and narrow street in front of Fomecs Hotel has complicated the transport of construction equipment to the site during the conversion process.

This condition also made it difficult for the hoteliers of Fomecs Hotel and Timez Hotel to provide adequate parking for the guests, as provided by Jonker Hotel in Subchapter 6.4.7 (see Figure 6.64). Therefore, they have to rely on a nearby public car park, where the parking fees will either be incurred by the boutique hotel or will need to be paid by the guests.

In contrast with Fomecs Hotel and Jonker Hotel in Subchapter 6.4.7, Timez Hotel only has one loading area due to the absence of a back lane. This is because the rear part of the building is attached to another building. Having a single loading area in front of this building may not be ideal as it can cause obstruction to other road users because it is on a one-way street. The difficulty of heritage buildings in providing adequate loading areas and parking spaces as a result of a constricted site was raised by Kalman (1991), although

many of them are strategically located in busy urban quarters along established transport routes.



Figure 6.64 The narrow street in front of Timez Hotel has made it difficult for the hotelier to provide adequate parking for the guests.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.33).

Table 6.33 Recommendations for locational barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Locational	Inadequate loading area	▪ Shophouses with back lanes as loading areas are preferable in helping to avoid obstruction to other road users.
	Inadequate parking	▪ Shophouses on spacious sites are preferable because they can provide adequate parking for the guests.
	Site constraints	▪ Construction equipment should be transported quickly to the site.

6.5.8 Social Aspects

The case studies revealed five social barriers, none of which has high frequency because they are limited to one or two cases (see Table 6.34). In addition, Jonker Hotel

appears to be the most affected by social barriers, in comparison to the other case study buildings.

Table 6.34 Cross-case comparisons in terms of social barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Social	Demand for creativity		■	
	Loss of community		■	
	Noise nuisance	■	■	
	Reduction in privacy			■
	Stigma of current issues		■	
Total Number of Social Barriers			**5**	

It is believed that the conversion of shophouses in the Core Zone of Melaka has led to a loss of community; many residents had to move because of the building conversions, as commented by the architect in charge of Jonker Hotel in the following statements:

> *The impact (social) is negative, it led to the loss of community due to change of use.*
>
> (CS2-PE-05, personal communication, April 11, 2017)

However, the conversion option was chosen to overcome the obsolescence issues of shophouses. Therefore, the most appropriate new function for these building should depend, not only on the needs of tourists but also the needs of the local communities.

The building owners should be more innovative and appropriate when converting these buildings for different uses. Current circumstances have made the conversion of shophouses into boutique hotels an economically viable option. However, this development could make the area overly touristic and commercialised. Furthermore, there is no guarantee that modern activities will be more interesting than traditional activities (Chua & Deguchi, 2011), even though in this case, as specified in Subchapter 6.4.8, hoteliers can apply creative themes in order to be different from other hotels.

In the meantime, hotels in this area, including Jonker Hotel, are now struggling with the low demand for accommodation because of the Malaysia Airlines flight MH370 incident. The stigma surrounding this incident has led to a decrease in the number of tourists. Kucik (2004) verified this situation where stigma can make buildings inappropriate for adaptive reuse.

Another factor for consideration is the location of Fomecs Hotel and Jonker Hotel near a big karaoke stage and the Jonker Street Night Market. This has resulted in noise

nuisance for the guests even though the soundproofing requirements for hotels were met, as disclosed in Subchapter 6.4.8 (see Figure 6.65). Hostile factors such as noise pollution, can give rise to social and economic obstacles that can make adaptation uneconomical (Wilkinson et al., 2014).



Figure 6.65 The big karaoke stage in front of Fomecs Hotel has contributed to noise nuisance for the guests of this boutique hotel.

The height of load-bearing walls between Timez Hotel and the neighbouring buildings had to be increased at the request of the neighbours for privacy purposes (see Figure 6.66). This proves the findings of the study by Chua and Deguchi (2011) that the adaptive reuse may reduce the privacy of those living within the heritage area and may cause this area to lose its heritage attractions.



Figure 6.66 The conversion has reduced the privacy of the neighbours, forcing the height of load-bearing walls between Timez Hotel and the neighbouring buildings to be increased.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.35).

Table 6.35 Recommendations for social barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Social	Demand for creativity	▪ Building owners should be more innovative and appropriate when converting shophouses for different uses. ▪ The uses to which the building is to be put should be thought laterally (Latham, 2000). ▪ Economically viable options should not be the focus if the new functions intrude on the cultural significance. ▪ The scope for interpretation of the building by the public and the user should be considered using the most innovative and appealing means (Latham, 2000).
	Loss of community	▪ Changes in the way of life are difficult to prevent. Therefore, heritage features should be conserved as a monument to former lifestyles. ▪ The needs of local communities and tourists should be balanced.
	Noise nuisance	▪ Good quality soundproofing materials should be installed to reduce unwanted noise from disturbing the guests.
	Reduction in privacy	▪ Neighbourhood privacy should not be threatened. A lively and safe environment should be provided (Chua & Deguchi, 2011).
	Stigma of current issues	▪ Stigma is difficult to eliminate. Therefore, the occupancy rate should be improved by offering

Aspect	Barrier	Recommendation
		attractive packages and promotions ("How to Increase", 2019).

6.5.9 Legal Aspects

There were three legal barriers identified in the case studies, none of which has high frequency because they are limited to one or two cases (see Table 6.36). In addition, Timez Hotel appears to be the most affected by legal barriers, in comparison to the other case study buildings.

Table 6.36 Cross-case comparisons in terms of legal barriers to adaptive reuse.

Aspect	Barrier	Case Study Building		
		Fomecs Hotel	Jonker Hotel	Timez Hotel
Legal	Demand for building code compliance		■	■
	Heritage restrictions	■		■
	Tourism noncompliance			■
Total Number of Legal Barriers			**3**	

Shophouses in the Core Zone of Melaka that go through a conversion process are required to comply with modern building codes. The internal layout needed to be carefully planned in order to fulfil the requirements of UBBL 1984. Mydin et al. (2014a, b) pointed out that most of the shophouses were provided with poor fire safety systems, especially in George Town. This is because heritage buildings were commonly built without much thought given to fire protection and resistance (Mydin et al., 2014a). Therefore, it is difficult for some of them to comply with building codes, especially when the codes involve the requirements for escape routes and the level of fire resistance (Douglas, 2006). Failure to meet these requirements may result in the conversion process being disapproved by MBMB.

In terms of accessibility, Jonker Hotel and Timez Hotel were not provided with facilities for disabled people, for example step-free access and accessible guest rooms, which is in contrast with Fomecs Hotel in Subchapter 6.4.9 (see Figure 6.67). These facilities should be provided to comply with the requirements of KPKT in line with Act 685. As identified by Wilkinson et al. (2014), there has been the growing trend towards compliance.

Meanwhile, Douglas (2006) showed that there is a possibility that the degree to which a building can be adapted could be restricted by planning regulations. These

conditions could have an impact on the feasibility of a proposal. In the case of the case study buildings, the conversion process of Fomecs Hotel and Timez Hotel was restricted by the Conservation Guidelines for Melaka, as commented by the architect in charge of Fomecs Hotel in the following statements:

> *There were conservation procedures that need to be fulfilled before the conversion process was approved by MBMB. A consultation with them (MBMB officers) regarding the guidelines took place in order to seek advice before submitting conservation documents.*
>
> (CS1-PE-02, personal communication, April 5, 2017)



Figure 6.67 Jonker Hotel was not provided with step-free access, however the hotelier has made a proposal to install a lift behind these windows which used to locate Staircase 3.

On the other hand, the findings in Subchapter 6.4.9 underlined the importance of these guidelines to protect shophouses in this area. Demolition of shophouses is forbidden unless there has been a fire. They may be converted into any function within the permissible activities. However, the facade and structural elements must be preserved and refurbished. The space could be redesigned as much as desired, but the height could not be increased, unless permitted by MBMB for some circumstances. An improvement to utilities is important to meet modern demands but could potentially disturb the integrity of the shophouses. Therefore, it must be done with care and consideration. For example, the contractors cannot

simply hack the walls to install new electrical wiring, and the installation of air-conditioning compressor units on the front facade is strictly prohibited (see Figure 6.68).

Regretfully, according to Wahab et al. (2016), most of the hoteliers were also neglecting the guidelines as set out by MBMB while completing the adaptive reuse process in their shophouses, particularly in relation to the structural and constructional aspects. A study by Chua and Deguchi (2011) found that there were several examples showing carelessness during the conversion of shophouses in the Jonker Walk Programme. In the meantime, even though the findings in Subchapter 6.4.9 showed that Timez Hotel satisfied the requirements for hotel soundproofing, this boutique hotel is still not registered with MOTAC and this condition could cause difficulties with license renewal in the years to come.[5]



Figure 6.68 A combined compressor for the air-conditioning system was hidden on the roof of Timez Hotel to fulfil the requirements of the Conservation Guidelines for Melaka.

Recommendations. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified. These are mostly sourced from the architects in charge, local government officers and the literature review (see Table 6.37).

[5] As updated by MOTAC in October 2018, Timez Hotel has been registered and is rated as 3-star hotel.

Table 6.37 Recommendations for legal barriers to adaptive reuse.

Aspect	Barrier	Recommendation
Legal	Demand for building code compliance	▪ UBBL 1984 should be met in order to be licensed. ▪ Consultation with MBMB officers is useful for preventing project disapproval. ▪ Exemptions from providing facilities for disabled people have been given by MOTAC exclusively for hotels in the Core Zone of Melaka. ▪ Hoteliers should be encouraged to improve accessibility for disabled people in line with Act 685.
	Heritage restrictions	▪ The Conservation Guidelines for Melaka should be complied with to ensure the survival of shophouses for the continuous inscription of Melaka as a UNESCO World Heritage Site.
	Tourism noncompliance	▪ Hotels should be registered with MOTAC for the purpose of tourism incentives and license renewals.

6.5.10 The Synthesis of Research Objective 4

The overall research findings reveal *the barriers to the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels* and outline *recommendations that could be implemented to remove or reduce the impact of the barriers identified* in order to fulfil the fourth objective. Based on these findings, it can be concluded that adaptive reuse has presented a significant number of barriers to Jonker Hotel as compared to Fomecs Hotel, which is the least-influenced. As indicated in Subchapter 6.3.9, Fomecs Hotel is least likely to encounter obsolescence. This indicates that there is a potential for Jonker Hotel to preserve its original function as a shophouse or to be adapted for a new, possibly more appropriate use, other than as a boutique hotel. Meanwhile, all of the case study buildings have raised major concerns regarding constructional, spatial, servicing and financial aspects (see Table 6.38). In addition, all forms of barriers were experienced except for locational barriers.

It can be seen that the research findings confirm most of the barriers to adaptive reuse explored in Subchapter 2.8. Several recommendations for strategies have been made to remove or reduce the impact of the barriers identified (see Tables 6.21, 6.23, 6.25, 6.27, 6.29, 6.31, 6.33, 6.35 and 6.37). However, in the context of Malaysian shophouses, the findings differ from the existing knowledge as discussed in detail in Subchapter 3.5.3, where spatial and financial barriers were less emphasised in previous studies as opposed to constructional, servicing, social and legal barriers. Therefore, the findings suggest that these two aspects should be considered while converting shophouses in the Core Zone of

Melaka for other functions, particularly for use as boutique hotels. Other aspects such as structural, environmental and locational barriers are also important, but these aspects have less significant implications for the conversion process of the case study buildings.

Table 6.38 Barriers to adaptive reuse affecting all of the case study buildings and their contributions to the existing body of knowledge.

Aspect	Barrier	Description	Contribution
Constructional	Non-durable materials	Previous materials were non-durable and could not be retained because they were not fit for purpose and had suffered from water damage.	**Reflection**: This matches the views of Ismail and Shamsuddin (2005)
Spatial	Inflexible building layout	The existing building layout of these buildings was inflexible to suit their new function as boutique hotels as a result of restricted sites and deep-plan features.	**Difference**: Spatial barriers were less emphasised in previous studies
Servicing	Demand for upgraded building services	Building services need to be upgraded in order to extend the lifespan of these buildings and to meet the demands of the proposed adaptation works.	**Extension**: Previous studies only underlined heritage restrictions (Henderson et al., 2013) and the demand for respect towards building (Mei & Ahmad, 2017)
Financial	Low demand	The number of hotels in the Core Zone of Melaka has doubled over the past five years and this contributed to supply exceeding demand. The occupancy rate is only high at certain times.	**Difference**: Legal barriers were less emphasised in previous studies

In the meantime, there were several contradictions between drivers and barriers discovered in this research. For example, returns from the new use as boutique hotels were higher than returns from previous uses as a warehouse, shop and residence. Nevertheless, there is a challenge to achieve economies of scale in order to accommodate more guest rooms to increase profitability.

6.6 Summary

This chapter highlights the findings derived from the case study buildings to meet the second, third and fourth objectives of this research. Based on these findings, Timez Hotel is the case study building that experienced the most significant obsolescence issues as compared to the other buildings. However, these issues have been minimised successfully by adaptive reuse. In the meantime, Fomecs Hotel encountered the lowest number of obsolescence issues, and this explains why adaptive reuse had fewer barriers in this building. On the other hand, adaptive reuse has presented the most significant barriers

to Jonker Hotel, where the retention of the original function as a shophouse or conversion for another use, other than as a boutique hotel, might address this problem.

It can be verified that functional and social obsolescence are the most dominant factors influencing all of the case study buildings. The small and narrow structure of these buildings with limited facilities had driven the need for larger spatial capacity for increased production and extended family accommodation. At about the same time, lifestyle trends in terms of living, shopping and dining have changed, leading to the original function being seen as old-fashioned and no longer relevant. The migration of residents decided from the Core Zone of Melaka because of parking problems and property divestment, also made the traditional trades of the shophouses no longer profitable.

The findings also show that all forms of drivers have affected the adaptive reuse process of all of the case study buildings with financial aspects being the major driver. These drivers include retention of historical integrity, preservation of heritage significance, proper maintenance, restructuring to meet modern demands, efficient circulation, flexible building layout, proper spatial arrangement, upgraded building services, economic merit, generation of government revenue, high economic returns, involvement of management team, mitigation of construction costs, mitigation of carbon emissions, proper waste management, favourable location, promotion of car-free movement, conservation of former lifestyles, building code compliance, heritage compliance, outright ownership and tourism compliance.

All of the case study buildings have raised major concerns regarding constructional, spatial, servicing and financial aspects. Some of the existing materials were non-durable and therefore unsuitable for retention, and they need to be treated and repaired. The existing building layout of these buildings were also inflexible to suit their new function as boutique hotels because of restricted sites and deep-plan features. In addition, the upgraded building services are clearly necessary to extend the lifespan of these buildings and to meet the demands of the proposed adaptation works. However, the trend for buildings owners to convert their shophouses into boutique hotels in this area has contributed to supply exceeding demand. The occupancy rate of these buildings is only high at certain times.

In short, the drivers outnumbered the barriers, and several contradictions between drivers and barriers were discovered in this research. This implies that adaptive reuse has

a significant positive impact on Malaysian shophouses in the opinion of the building owners, professional experts and specialist users. In the meantime, it is suggested that functional obsolescence; constructional, servicing, locational and legal drivers; and spatial and financial barriers that were less emphasised in previous studies should be considered while converting Malaysian shophouses for other functions, particularly for use as boutique hotels.

Meanwhile, the next chapter (Chapter 7), consisting of two primary subchapters, will analyse and discuss the qualitative data collected to meet the fifth objective of this research.

Chapter 7



Government Policies

7.1 Introduction

The seventh chapter seeks to satisfy the fifth objective of this research, which is *to review government policies associated with the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels*, as outlined in Subchapter 1.5. This has been done by analysing the qualitative data collected from the interviews with the government officers who are involved with the conversion of shophouses in the study area into hotel-type accommodation. These data are compared to the findings provided by the case study buildings in Chapter 6. This chapter also discusses the findings that highlight how the research in this thesis reflects, differs from and extends current knowledge of the chosen research area. This chapter has an organisational pattern of two primary subchapters: government policies and the synthesis of Research Objective 5.

7.2 Government Policies

Policies of the following three tiers of government have been chosen to be reviewed for this research in the context of the preservation and adaptive reuse of shophouses in the Core Zone of Melaka as boutique hotels:

- ***Federal Government****: Ministry of Tourism and Culture Malaysia (MOTAC)*
- ***State Government****: Tourism Promotion Division (BPP)*
- ***Local Government****: Melaka Historic City Council (MBMB)*

MOTAC is responsible for the registration and rating of all tourist accommodation premises in Malaysia, including shophouses that have been converted into boutique hotels. Meanwhile, BPP is a government agency under the Melaka State Government, which is responsible for promoting Melaka all over the world as a unique tourism destination. In the

meantime, MBMB is responsible for guiding and controlling development in the Melaka World Heritage Site, including preserving and converting shophouses.

Two key topics related to government policies have been investigated: preservation of shophouses, and/or adaptive reuse of shophouses as boutique hotels, based on interviews with MOTAC, BPP and MBMB officers. Public documents such as the Conservation Management Plan (CMP) and the Special Area Plan (SAP) for the Melaka World Heritage Site (by MBMB) as well as the Guidelines for Classification of Tourist Accommodation Premises for Boutique Hotels Category (Guidelines for Boutique Hotels)[6] (by MOTAC) have been used to support this analysis. The new information was then linked to the existing knowledge. It should also be noted that the government perspective indicated in this research is general to all shophouses in the study area and is not specific to the case study buildings. This is because the government officers interviewed did not have detailed information for each of these buildings in reference to the questions posed.

7.2.1 Preservation of Shophouses

According to government policies, the preservation of shophouses in the Core Zone of Melaka has sufficient merit to be allowed to continue (see Table 7.1). On the topic of drivers of preservation, the Research and Development Manager of BPP commented on the appreciation of the original function by the Melaka State Government as follows:

> *The Melaka State Government promotes Melaka tourism based on 12 subsectors: History, Culture, Recreation, Sports, Shopping, Convention, Health, Education, Agro, Food Tourism, Melaka My 2nd Home and Youth. In this case, shophouses can be classified under the Culture subsector based on their rich culture and tradition...*
>
> (SFO-RDM-11, personal communication, May 3, 2017)

Simultaneously, the preservation is also encouraged by the Mayor of MBMB because the traditional trades inside this architectural typology need to be protected as intangible heritage, which is one of the criteria listed by UNESCO (see Figure 7.1).

However, this may not be possible because of some obstacles (see Table 7.1). For example, there is a request from the Governor of Melaka for MBMB to supply the tourism

[6] As updated by MOTAC in October 2018, the Guidelines for Boutique Hotels were removed from the MOTAC website in the middle of this year and are now being revised for improvement, such as requiring the hotel to be rated as 5-star before being classified as a boutique hotel. These guidelines were never implemented even though they were launched in May 2017.

demand consistent with the inscription of Melaka as a UNESCO World Heritage Site in 2008. Apart from that, there are no incentives provided for the building owners to encourage the preservation of shophouses in this area, even though this suggestion has been included in the CMP and SAP. Since most of shophouses are privately-owned buildings, MBMB has no authority to control the activities inside this architectural typology but it can act as an adviser on this matter in reference to permissible activities. The building owners are generally more interested in conversion for other commercial uses for profit motives, rather than for the preservation of the original function. Conversions into hotels and motels as well as cafés and restaurants are the most popular options in this area and they are permitted by MBMB. However, these activities cannot be considered as traditional trades.



Figure 7.1 Traditional trades (rattan handcraft) in shophouses should be protected as intangible heritage.

Table 7.1 Impact of preservation of shophouses from a government perspective.

PRESERVATION	
Driver	**Barrier**
▪ Appreciation of the original function by the Melaka State Government ▪ Encouragement by the Mayor of MBMB	▪ Discouragement by the Governor of Melaka ▪ No incentives for the building owners ▪ No authority to control activities ▪ Conversion is a more attractive prospect

7.2.2 Adaptive Reuse of Shophouses as Boutique Hotels

In the CMP and SAP, Category IIB buildings, such as shophouses, have the option to become adapted for new uses. The new uses should be compatible with the existing form and with permitted additions to the built fabric (Melaka JPBD, 2011). Present circumstances make conversion into boutique hotels an economically viable option for fully reused shophouses in the Core Zone of Melaka. Several shophouses in this area may have been converted into other types of tourist accommodation premises such as guest houses, homestays and budget hotels. However, these activities are certainly not allowed by MBMB. The small and narrow structure of this architectural typology is unlikely to fulfil the criteria of a homestay as required by MOTAC. For example, the homestay may demand a wider space for the building owners to organise various activities for the guests like cooking and working together. Instead, only boutique hotels are permitted in this area (Melaka JPBD, 2011). Apart from benefits gained from this type of conversion, there are several drawbacks identified that have been discussed later in this subchapter (see Tables 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8 and 7.9).

(a) Constructional Impact

The conversion of shophouses into boutique hotels ensures that this architectural typology will be relevant to current trends, and it enables the preservation of heritage value and the maintenance of existing materials, which can be used as an attraction to the guests. This is in line with the findings in Subchapter 6.4.2, where the heritage significance of Chinese, Baba and Nyonya, and colonial styles in the case study buildings was retained, and most of the existing building fabric and materials were preserved and refurbished. As indicated by the Department of the Environment and Heritage (2004) and Bullen and Love (2011b), adaptive reuse may be the only way to preserve and maintain the heritage significance of the fabric of a building.

On the subject of constructional barriers, the Conservation Architect of MBMB commented on disruption to the original character of buildings as follows:

> *The hotels involve a lot of renovations…If we think in terms of preservation, when a shophouse is converted into a boutique hotel, it will actually cause disruption to the original character of the building. It will be difficult for us to preserve the original*

character of the building, since the hotel requirements are already massive…It has been completely changed, in terms of materials, resulting in the loss of authenticity in the old buildings. That is why I told you that there will be constraints, I mean it will cause disruption to the original character of the building.

(LGO-CAR-12, personal communication, May 8, 2017)

Although this constructional barrier is not highlighted in Subchapter 6.5.2, Kalman (1991) clearly stated that an insensitive effort to improve the appearance of heritage buildings can have disastrous effects on their appearance. Kalman recommended that the existing fabric should be retained in the most sympathetic and least destructive way possible.

Table 7.2 Impact of adaptive reuse of shophouses on constructional aspects from a government perspective.

ADAPTIVE REUSE (CONSTRUCTIONAL IMPACT)	
Driver	**Barrier**
▪ Preservation of heritage significance	▪ Disruption to original character

(b) Spatial Impact

Shophouses do not have a lot of space. Therefore, hoteliers are allowed to maximise the space utilisation according to the Guidelines for Boutique Hotels (see Figure 7.2). These guidelines require the hoteliers to provide two frontline staff for each guest room. This should not be a problem as boutique hotels in shophouses can only provide a small number of guest rooms because of their small size. As a result, fewer guest rooms will mean fewer frontline staffs, and this will lower costs as opposed to costs in bigger buildings. This is in line with the findings in Subchapter 6.4.3, where the conversion process allowed the owners of the case study buildings to maximise the use of space to increase profitability, because no height increment was permitted by the heritage restrictions. In addition, older buildings, unlike new buildings, do not have to have a setback. Therefore, the owners of the building can make full use of the existing site (Douglas, 2006).

Nevertheless, the small and narrow structure may also mean limited spatial capacity, making the building unsuitable for conversion into a boutique hotel. This is in parallel with the findings in Subchapter 6.5.3, where limited spatial capacity prevented hoteliers from having more guest rooms for the purpose of profitability. The site could not be used more efficiently because the building is already there (Douglas, 2006). The conversion could also change the spaces inside the building by the addition of partitions to accommodate more guest rooms. This is consistent with the findings in Subchapter 6.5.3,

where there is a demand to respect the internal layout. The disposition of space may inhibit efficient circulation of people or furniture, as advocated by Kalman (1991). As a consequence, there could be inefficient circulation. This is compatible with the findings in Subchapter 6.5.3, where guests always experienced some confusion as to the circulation in the case study buildings, despite the efforts to carefully arrange the internal layout during the conversion process. According to Shipley et al. (2006), Wilkinson et al. (2009) and Bullen and Love (2011a, c), the building layout may be inappropriate and inefficient for any change of use, especially when there are restrictions (Douglas, 2006).



Figure 7.2 Limited spatial capacity enables the hoteliers to maximise space utilisation.

Table 7.3 Impact of adaptive reuse of shophouses on spatial aspects from a government perspective.

ADAPTIVE REUSE (SPATIAL IMPACT)	
Driver	**Barrier**
▪ Maximisation of space utilisation	▪ Inadequate spatial capacity ▪ Probability of disrespect towards building ▪ Probability of inefficient circulation

(c) Servicing Impact

On the subject of servicing barriers, the Conservation Architect of MBMB and the Assistant Administrative Officer of MOTAC each commented on the demand for upgraded building services as follows:

For example, they (hoteliers) have to provide everything, such as the guest rooms, and fulfil the Indah Water Konsortium (IWK) and the Fire and Rescue Department of Malaysia (BOMBA) requirements. For example, in terms of BOMBA requirements, there are specific requirements where they have to install water sprinklers and hose reels, there will be no problem since they do not harm the building…In terms of servicing, there are not as many issues with IWK, they have to install. In the old days, it (the waste) will be hauled and then thrown into the river.

(LGO-CAR-12, personal communication, May 8, 2017)

They (hoteliers) have cafés and so forth, the sewage system is problematic, whereas we cannot even dig up any parts of the roads anymore…In terms of services, the wiring should be redone, they cannot use the old wiring.

(FGO-AAO-10, personal communication, May 2, 2017)

This is in line with the findings in Subchapter 6.5.4, where upgraded building services are not only recommended, but they are also required for the case study buildings during the conversion process to extend their lifespan and to meet the demands of the proposed adaptation works. As underlined by Henderson et al. (2013), this challenge should be faced by the hoteliers and the authorities. Consistent with the views of Douglas (2006) and Bullen and Love (2010), older buildings, as opposed to new buildings, may have facilities that fail to meet current needs.

Table 7.4 Impact of adaptive reuse of shophouses on servicing aspects from a government perspective.

ADAPTIVE REUSE (SERVICING IMPACT)	
Drivers	**Barrier**
-	▪ Demand for upgraded building services

(d) Financial Impact

The building owners can make more profits from this type of conversion compared to the original function as shophouses. This is in line with the findings in Subchapter 6.4.5, where the conversion of the case study buildings into boutique hotels has become a profitable business, and returns were higher as opposed to the returns from their previous uses as a warehouse, shop and residence, or other types of businesses. Wahab et al. (2016) have expressed similar views, suggesting that the conversion of shophouses for tourism purposes, such as hotels, is a good economic strategy. It meets tourism demand, while simultaneously providing better economic returns and supporting the Malaysian tourism sector.

Nonetheless, there are too many hotels in the Core Zone of Melaka leading to oversupply (see Figure 7.3). This is in parallel with the findings in Subchapter 6.5.5, where the number of hotels in this area has doubled over the past five years and this has contributed to supply exceeding demand. As indicated by Douglas (2006), low demand for reusable buildings will make the investment possibility impractical for developers. Therefore, this issue must be monitored by MBMB by calculating how many guest rooms should be required in this area. Suggestions are needed to improve the occupancy rate to avoid further losses to the hoteliers in the future.



Figure 7.3 Hotel oversupply can cause some of them do not last long.

Shophouses in Melaka are very expensive and hoteliers also need to spend millions of ringgits to convert this architectural typology into boutique hotels. This may involve higher costs than in other types of buildings. This is consistent with the findings in Subchapter 6.5.5, where the construction cost for the conversion of the case study buildings was lower than the cost of reconstruction, but it would have been higher if the building was in a damaged condition. Kalman (1991) and Bullen and Love (2010) have expressed similar views, indicating that the process could be expensive or unfeasible if the heritage building is not in a good structural condition, especially when the structure requires extensive strengthening.

In addition, the property tax on a commercial building like a boutique hotel is higher than for a residential building. The rate depends on the number of guest rooms, the room rate per night, the land area and the market value. This is compatible with the findings in Subchapter 6.5.5, where the property tax for the case study buildings has increased by 75% after the conversion process took place.

Table 7.5 Impact of adaptive reuse of shophouses on financial aspects from a government perspective.

ADAPTIVE REUSE (FINANCIAL IMPACT)	
Driver	**Barrier**
▪ High economic returns	▪ Low demand ▪ Probability of high construction costs ▪ High government fees

(e) Environmental Impact

On the subject of environmental drivers, the Conservation Architect of MBMB commented on the mitigation of hazardous materials as follows:

> *In terms of environmental issues, asbestos was always used in shophouses, but this had changed. Asbestos was used over a certain period of time. Nowadays, however, normally if they (building owners) want to carry out renovation, we will require them to replace asbestos with clay. It is likely that it no longer exists in the site. But it used to be there…If it was asbestos, then we will ask them to replace it with clay, regardless of the profile.*
>
> (LGO-CAR-12, personal communication, May 8, 2017)

Although this environmental barrier is not highlighted in Subchapter 6.4.6, Bullen and Love (2010) clearly stated that adaptive reuse is considered to be safer as it minimises the disturbance of hazardous materials and contaminated ground, and the risk of falling materials and dust, as no demolition work and new construction are required. The prohibition on the use of asbestos roofing materials in conservation works of shophouses in Melaka is also outlined in the CMP and SAP (Melaka JPBD, 2011).

However, some hoteliers are not as respectful of environmental issues, and this may cause damage to the surrounding area. This is in line with the findings in Subchapter 6.5.6, where the conversion process of the case study buildings contributed to construction and noise pollution, and traffic impact in the surrounding area. As a result, the construction logistics should be carried out frequently and quickly, and specific construction equipment should be used, in order to reduce the impact of this issue.

Table 7.6 Impact of adaptive reuse of shophouses on environmental aspects from a government perspective.

ADAPTIVE REUSE (ENVIRONMENTAL IMPACT)	
Driver	**Barrier**
▪ Mitigation of hazardous materials	▪ Probability of disturbance to surrounding area

(f) Locational Impact

The conversion of shophouses into boutique hotels is a strategy to meet tourism demand because hotels have become a necessity in a tourist city like Melaka. This is in line with the findings in Subchapter 6.4.7, where the Core Zone of Melaka has been a favourable location, as the inscription of Melaka as a UNESCO World Heritage Site has boosted the reputation of this area as a tourist attraction. The position of this architectural typology in the city centre gives the guests easily access to the public transport network. This cuts down on car use and supports the effort to pedestrianise this area (see Figure 7.4). This is in parallel with the findings in Subchapter 6.4.7, where the case study buildings have an advantage in terms of their city centre location. Consistent with the findings of Wilkinson et al. (2014), the proximity of a converted building to a public transport network can be considered as an environmentally sustainable feature in adaptive reuse because it promotes car-free movement and reduces carbon emissions.



Figure 7.4 The Core Zone of Melaka is now ideal for car-free movement.

Nevertheless, the urgent need for parking in this area has been highlighted by all the government officers who were interviewed. Therefore, the hoteliers should consider providing adequate parking for their guests, even though this is unlikely to happen because the many recent developments have made this area very crowded. There are still no traffic management plans prepared by the Economic Planning Unit (EPU) to resolve the parking problems in this area. This is consistent with the findings in Subchapter 6.5.7, where the busy and narrow streets caused traffic congestion due to the large number of tourists and made it difficult for the hoteliers of the case study buildings to provide adequate parking for the guests. Therefore, they have to rely on a nearby public car park, where the parking fees will either be incurred by the boutique hotel or will need to be paid by the guests.

It is a cause of concern that the existing pedestrian walkways and the public transport network are insufficient and inefficient, and UNESCO will not permit a tram network in this area. Although these locational barriers are not highlighted in Subchapter 6.5.7, Kalman (1991) clearly stated that location on a prominent public transport network will provide a better prospect for visitors. The establishment of a tram network is expected to boost adaptive reuse in this area, in parallel with the increasing number of tourists. In addition, most of the streets in this area are equipped with pedestrian walkways, however some streets are not, possibly due to narrow streets or the provision of parking facilities. This situation caused pedestrians to rely on five-footways or roads to facilitate mobility.

Table 7.7 Impact of adaptive reuse of shophouses on locational aspects from a government perspective.

ADAPTIVE REUSE (LOCATIONAL IMPACT)	
Driver	**Barrier**
▪ Favourable location ▪ Promotion of car-free movement	▪ Demand for adequate parking ▪ Site constraints ▪ Poor pedestrian circulation ▪ Inefficient public transportation

(g) Social Impact

Since there are more tourists than local communities in the Core Zone of Melaka who regularly need tourist accommodation, the converted shophouses can act as a pacemaker for this tourist attraction. This is in line with the findings in Subchapter 6.4.8, where tourism statistics show that this area is getting more tourists every year, and this has been an important factor for hoteliers considering this type of conversion. The pacemaker has a significant function in urban regeneration programmes, in which it can

help to rejuvenate run-down urban quarters (Douglas, 2006; Schneider, 2012). The conservation of traditional concepts of Baba and Nyonya, and Chinese, as well as heritage features has contributed to an appreciation of the lifestyles of the past. This is in parallel with the findings in Subchapter 6.4.8, where the conversion conserved the traditional styles and the heritage feature of the case study buildings as a monument to former lifestyles. Conserving the lifestyles of the past can be seen as conserving urban environments in a way that recognised the character, landscape and history of historic urban quarters (Bullen & Love, 2010).

On the subject of social drivers, the Conservation Architect of MBMB commented on the reduction in the number of vacant buildings as follows:

> *In social terms, the conversion can prevent the buildings from being abandoned since the building owners do not want to fix them. So we allow them to do other activities, as long as they comply with the requirements.*
>
> (LGO-CAR-12, personal communication, May 8, 2017)

This is consistent with the findings in Subchapter 6.4.8, where the ideal way to cut down on vacant shophouses is to keep them occupied and conversion into boutique hotels has become the most popular reuse activities in this area. As suggested by Douglas (2006) and Langston et al. (2008), a reduction in the number of vacant buildings possibly decreases crime and other unsocial behaviour.

Nonetheless, every development in this area needs to consider public opinion, which consists of the views, attitudes and beliefs of the majority of the people, especially the local communities. Therefore, it is vital for the conversion project to add vibrancy to local communities and not just to meet tourism demand. Although this social barrier is not highlighted in Subchapter 6.5.8, Young (2012) clearly stated that social trends at the beginning of the 21st century demonstrate an increasing interest in living in urban quarters that offer a good quality of life, a short commute to work, walkability, local culture and entertainment prospects, and a sense of place. Douglas (2006) and Langston et al. (2008) have expressed similar views that older buildings present social advantages such as essential heritage values. They can maintain the aesthetics of the streetscape, lend character and give prestige to the building owners. They also contribute to a sense of community and are often cherished by occupants for their pleasant working atmosphere.

Table 7.8 Impact of adaptive reuse of shophouses on social aspects from a government perspective.

ADAPTIVE REUSE (SOCIAL IMPACT)	
Driver	**Barrier**
▪ Pacemaker of tourist attractions ▪ Conservation of former lifestyles ▪ Reduction of vacant buildings	▪ Demand for vibrancy to communities

(h) Legal Impact

On the subject of legal drivers, the Conservation Architect of MBMB commented on building code compliance as follows:

> *When the building owners apply for a license, the MBMB Department of Licensing and Health will refer them to us whether they have submitted the plans or not. Then we will investigate, if they did not submit then they will be required to submit. They do not have to submit the plans, if they want to apply or renew the license without any renovation. However, we will be questioning them and referring to the history.*
>
> (LGO-CAR-12, personal communication, May 8, 2017)

Moreover, the Assistant Administrative Officer of MOTAC commented on tourism compliance as follows:

> *They (hoteliers) will be issued two types of certificates: Certificate of Star Rating as a 3-star hotel and above, and Certificate of Boutique Hotel. So the renewal process will be carried out twice, the same goes for innovation hotels.*
>
> (FGO-AAO-10, personal communication, May 2, 2017)

The two legal drivers identified in this subchapter are in line with the findings in Subchapter 6.4.9. Licensed hotels are hotels that have complied with the Uniform Building By-Laws 1984 (UBBL 1984) as required by MBMB, while boutique hotels are hotels that have satisfied the MOTAC Guidelines for Boutique Hotels. Submission of conservation documents to MBMB as mentioned in Subchapter 3.4.4 is necessary for all heritage buildings in the Melaka World Heritage Site to gain approval, including for change of use. The building owners need to hire consultants such as architects or building draughtsmen to prepare these documents. No license will be issued if they do not comply with the conservation requirements. Meanwhile, it is true to say that registration and rating appear to be very important in allowing the hoteliers to participate in the Malaysian Association of Tour and Travel Agents (MATTA) Fair and to complete the free compulsory courses organised by MOTAC. In addition, it also helps the local authorities to determine the actual number of guest rooms that may generate increased government revenue, because of the disclosure of previously undeclared guest rooms.

There are restrictions whereby many items are not allowed during this process. In the case of hotel conversions, the hoteliers typically own the building and they are subject to many requirements. This is because hotel conversions involve more renovations than other types of conversions such as cafés and restaurants, and art galleries and museums. Cafés and art galleries usually have fewer requirements, as they can retain most of the existing building structures and open spaces, and also have fewer partitions. This contributes to the need for fewer interventions to existing buildings. At the present time, it is compulsory for any hotel in Malaysia to provide facilities for disabled people, as required by the Ministry of Housing and Local Government Malaysia (KPKT), in line with the Persons with Disabilities Act 2008 (Act 685). However, exemptions have been given exclusively for hotels in the Core Zone of Melaka that cannot provide guest rooms on the ground floor. In this case, the hoteliers are not obliged to provide at least one guest room and one public toilet for disabled people in the public area, unless they are willing to do so.

The three legal barriers identified in this subchapter are in parallel with the findings in Subchapter 6.5.9. As the occupancy of the building has changed because of the conversion, hoteliers are obliged to satisfy the requirements of UBBL 1984 for the purpose of fire safety. Hotels in shophouses may be required to possess a Fire Certificate because of the absence of open balconies. They also have to provide two staircases (unless all guest rooms are located on the ground floor) and fire walls as a condition of their license. Apart from that, they may also be required to replace flammable materials, like timber staircases and floors, using reinforced concrete materials to mitigate the impact of fire. This situation can result in controversy because these authentic elements should be preserved for their heritage value (see Figure 7.5). The hoteliers are also restricted by the Guidelines for the Conservation Areas and Heritage Buildings for Melaka World Heritage Site (Conservation Guidelines for Melaka), which aim to prevent the demolition of existing buildings and the construction of new buildings in this area. The hoteliers feel that these guidelines are a burden hindering innovation, failure to comply with these guidelines may result in the withdrawal of World Heritage Site status by UNESCO.

In the meantime, there are no specific guidelines on converting heritage buildings into boutique hotels as demanded by MBMB. There is an argument concerning this matter, between MBMB, which awards the approval and issues a license to the project, and MOTAC, which manages the registration and rating of tourist accommodation premises in Malaysia.

At the moment, the building owners are requested by MBMB to refer to the Guidelines for Boutique Hotels for the purpose of conversion. However, after considering a number of issues, MBMB decided to set up their own unofficial guidelines related to this type of conversion, based on building condition, building area and what the building owners can provide. The most significant considerations are that the particular project must satisfy the requirements of UBBL 1984 and the Conservation Guidelines for Melaka; provide a lobby and guest rooms with each of them has a bathroom attached; indicate the size of the guest rooms; and be different from budget hotels.



Figure 7.5 The conversion of shophouses into boutique hotels can create conflicts between protecting heritage values and satisfying modern demands.

However, shophouses are normally classified by MOTAC as budget hotels since the hoteliers only need to renovate existing buildings. The reason behind this issue is that the Guidelines for Boutique Hotels are not compatible with buildings within the heritage area. These guidelines may be more appropriate for new buildings instead of heritage buildings. In practice, hotels in shophouses cannot reach the minimum standards set out for a boutique hotel. These include providing two frontline staff for each guest room, being rated at least 3-star, setting the minimum room rate at RM500 per night, and offering friendly, personal and luxurious services with unique concepts and designs. Registered hotels in this area are generally rated as 2 to 3-star with the cheapest room rates being set at RM165

(£31.25) to RM250 (£47.35) per night. A cause for concern is the fact that these guidelines, which are now being revised for improvement, will require the hotel to be rated as 5-star before being classified as a boutique hotel. As a result, there are no hotels in the Melaka area that can officially be described as a boutique hotel. The existing 'boutique hotels' are all self-proclaimed, since none of them meet the present criteria.

Table 7.9 Impact of adaptive reuse of shophouses on legal aspects from a government perspective.

ADAPTIVE REUSE (LEGAL IMPACT)	
Driver	**Barrier**
▪ Building code compliance ▪ Tourism compliance	▪ Demand for building code compliance ▪ Heritage restrictions ▪ Tourism noncompliance

7.3 The Synthesis of Research Objective 5

The overall research findings reveal *government policies associated with the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels* in order to satisfy the fifth objective. The preservation of shophouses in the Core Zone of Melaka is encouraged by the Melaka State Government for the purpose of protecting intangible heritage. However, this effort seems to be ignored nowadays because there is a need to meet tourism demand in line with the inscription of Melaka as a UNESCO World Heritage Site. This is consistent with the findings of Wahab et al. (2016), where conversion could provide high economic returns and support the Malaysian tourism sector. Furthermore, there are no incentives provided for the building owners for preserving shophouses, and MBMB has no authority to control the activities inside this architectural typology. The significance of incentives when commencing heritage conservation works was emphasised by Zubir et al. (2018). In contrast, there are various economic incentives for reusing buildings in other countries. For example, in the United States, there are tax deductions, tax credits and grants (Young, 2012).

Adaptive reuse may affect the shophouses positively and negatively. The research findings, in the context of the government perspective, indicate that that the findings in this subchapter have many similarities to the findings provided by the case study buildings in Subchapter 6.4 (see Table 7.10) and 6.5 (see Table 7.11). However, there are exceptions to environmental driver (mitigation of hazardous materials), constructional barrier

(disruption to original character), locational barriers (poor pedestrian circulation and inefficient public transportation) and social barrier (demand for vibrancy to communities).

Table 7.10 Drivers of adaptive reuse of shophouses from a government perspective and their contributions to the existing body of knowledge.

Aspect	Driver	Description	Contribution
Constructional	Preservation of heritage significance	Conversion enables the preservation of heritage value and the maintenance of existing materials.	**Reflection** of Subchapter 6.4.2
Spatial	Maximisation of space utilisation	The lack of space in shophouses allows hoteliers to maximise the space utilisation according to the Guidelines for Boutique Hotels.	**Reflection** of Subchapter 6.4.3
Financial	High economic returns	Building owners can make more profits from hotel conversions compared to the original function as shophouses.	**Reflection** of Subchapter 6.4.5
Environmental	Mitigation of hazardous materials	Adaptive reuse is safer as it minimises the disturbance of hazardous materials like asbestos.	**Extension** to Subchapter 6.4.6
Locational	Favourable location	Conversion is a strategy to meet tourism demand because hotels have become a necessity in a tourist city like Melaka.	**Reflection** of Subchapter 6.4.7
	Promotion of car-free movement	The position of shophouses in the city centre provides easy access to the public transport network, which cuts down on car use and supports the effort to pedestrianise the Core Zone of Melaka.	**Reflection** of Subchapter 6.4.7
Social	Pacemaker of tourist attractions	Converted shophouses can act as a pacemaker for the Core Zone of Melaka, as increasing number of tourists in this area require an increasing number of hotels.	**Reflection** of Subchapter 6.4.8
	Conservation of former lifestyles	The conservation of traditional concepts and heritage features has contributed to an appreciation of former lifestyles.	**Reflection** of Subchapter 6.4.8
	Reduction of vacant buildings	Conversion is the ideal way to cut down on vacant shophouses by keeping them occupied.	**Reflection** of Subchapter 6.4.8
Legal	Building code compliance	Licensed hotels are hotels that have complied with UBBL 1984 as required by MBMB.	**Reflection** of Subchapter 6.4.9
	Tourism compliance	Boutique hotels are hotels that have satisfied the MOTAC Guidelines for Boutique Hotels.	**Reflection** of Subchapter 6.4.9

Table 7.11 Barriers to adaptive reuse of shophouses from a government perspective and their contributions to the existing body of knowledge.

Aspect	Barrier	Description	Contribution
Constructional	Disruption to original character	Hotel conversions are subject to significant renovation, resulting in the loss of authenticity in shophouses.	**Extension** to Subchapter 6.5.2
Spatial	Inadequate spatial capacity	The small and narrow structure may mean limited spatial capacity, making shophouses unsuitable for conversion into a boutique hotel.	**Reflection** of Subchapter 6.5.3
	Probability of disrespect towards building	Conversion could change the spaces inside shophouses by the	**Reflection** of Subchapter 6.5.3

Aspect	Barrier	Description	Contribution
		addition of partitions to accommodate more guest rooms.	
	Probability of inefficient circulation	Changing the spaces inside shophouses can cause inefficient circulation.	**Reflection** of Subchapter 6.5.3
Servicing	Demand for upgraded building services	Upgraded building services are required during the conversion process to meet the demands of the proposed adaptation works.	**Reflection** of Subchapter 6.5.4
Financial	Low demand	There are too many hotels in the Core Zone of Melaka leading to oversupply.	**Reflection** of Subchapter 6.5.5
	Probability of high construction costs	Shophouses in Melaka are very expensive and hoteliers also need to spend a lot of money to convert them into boutique hotels.	**Reflection** of Subchapter 6.5.5
	High government fees	The property tax on a commercial building like a boutique hotel is higher than for a residential building.	**Reflection** of Subchapter 6.5.5
Environmental	Probability of disturbance to surrounding area	Some hoteliers are not as respectful of environmental issues, and this may cause damage to the surrounding area.	**Reflection** of Subchapter 6.5.6
Locational	Demand for adequate parking	Hoteliers should consider providing adequate parking for their guests.	**Reflection** of Subchapter 6.5.7
	Site constraints	Many recent developments have made the Core Zone of Melaka very crowded.	**Reflection** of Subchapter 6.5.7
	Poor pedestrian circulation	Existing pedestrian walkways are insufficient and inefficient, with some streets are not equipped with pedestrian walkways.	**Extension** to Subchapter 6.5.7
	Inefficient public transportation	The public transport network is insufficient and inefficient, with a tram network is not permitted in the Core Zone of Melaka.	**Extension** to Subchapter 6.5.7
Social	Demand for vibrancy to communities	It is vital for the conversion project to add vibrancy to local communities and not just to meet tourism demand.	**Extension** to Subchapter 6.5.8
Legal	Demand for building code compliance	As the occupancy of the building has changed because of the conversion, hoteliers are obliged to satisfy the requirements of UBBL 1984 for the purpose of fire safety.	**Reflection** of Subchapter 6.5.9
	Heritage restrictions	Restrictions by the Conservation Guidelines for Melaka may create conflicts in meeting the requirements of UBBL 1984.	**Reflection** of Subchapter 6.5.9
	Tourism noncompliance	There are no specific guidelines on converting heritage buildings into boutique hotels as demanded by MBMB.	**Reflection** of Subchapter 6.5.9

The findings also suggest that the barriers have outnumbered the drivers, particularly when the shophouses are converted into boutique hotels, which are subject to many requirements. These barriers include spatial, servicing, financial, locational and legal aspects, legal being the most common one. This is because the government officers interviewed were more concerned with legal aspects than others, consistent with their expertise related to policies and enforcement. In addition, they mainly emphasised on two

issues: firstly, the conflict between protecting heritage values and satisfying modern demands, and secondly, the argument as to how a shophouse can be classified as a boutique hotel.

In line with Salleh and Ahmad (2009) and Henderson et al. (2013), the blend of heritage values and modern demands has presented several challenges to be faced by the building owners and the authorities. This is due to the difficulty of making older buildings comply with building codes related to fire safety (Douglas, 2006), which is UBBL 1984, because most of these buildings were constructed before the development of building ordinances (Mydin et al., 2014a). Concurrently, these shophouses also need to fulfil the Conservation Guidelines for Melaka and the Guidelines for Boutique Hotels, even though it is not possible to reach the minimum standards set out for a boutique hotel. The significance of having an experienced professional expert such as an architect or a building draughtsman to address this issue was underlined by Kalman (1991). In addition, the impact of constructional and environmental aspects on this process is balanced, while it seems to have a positive impact on social aspects.

7.4 Summary

This chapter highlights the findings derived from government policies to meet the fifth objective of this research. Based on these findings, it can be verified that MOTAC, BPP and MBMB are the authorities responsible for the development of tourism in Melaka. However, this research shows that the role of BPP is less significant because its function is mainly promotion.

In the context of shophouses in the Core Zone of Melaka, the Melaka State Government encourages the preservation of traditional trades to protect intangible heritage. This is because the government feels that adaptive reuse has a significant negative impact on this architectural typology. However, preservation is difficult to realise because conversion for other commercial uses is more profitable even though there are several barriers to consider, mostly involving legal aspects.

It is clear that the majority of conservation projects in this area involve reuse, with boutique hotels being the most popular choice for fully reused shophouses. This is an economically viable option at the present time. Nevertheless, it is a huge challenge for

hoteliers to complete a successful project that complies with all the legal provisions related to the conversion such as the requirements for fire safety, conservation and boutique hotels.

Meanwhile, the next chapter (Chapter 8), consisting of four primary subchapters, will draw conclusions from the findings of Chapters 5, 6 and 7 and make recommendations.

Chapter 8



Conclusions and Recommendations

8.1 Introduction

The eighth chapter draws conclusions from the findings of Chapters 5, 6 and 7 and makes recommendations. This chapter features the most widespread conversion options for partially and fully reused shophouses, and factors contributing to reuse activities in the study area. In addition, it highlights the most significant factors of obsolescence, and the most significant drivers of and barriers to adaptive reuse affecting all of the case study buildings. This chapter also provides recommendations for the removal or reduction of the impact of the barriers identified, and the impact of government policies in this area. This chapter has an organisational pattern of four primary subchapters: conclusions, implications, recommendations, and limitation and considerations.

8.2 Conclusions

The historic shophouses are a dominant building typology in the Core Zone of Melaka compared to other physical heritage legacies such as townhouses, civic and religious buildings. Undoubtedly the large number of shophouses and their uniqueness play a significant role in ensuring the continuous inscription of Melaka as a UNESCO World Heritage Site. These shophouses can be seen as living proof of Western colonialism in Malaysia that, in turn, provided an opportunity for Chinese immigrants to establish their settlements in this country, which later became unique as a result of the hybrid of vernacular (Malay), Southern Chinese and European styles.

Consequently, maintaining the original function of this architectural typology would be the preferred option in order to protect traditional trades as intangible heritage assets. However, this seems to be less relevant nowadays because there is a need to satisfy the demands of tourism and of UNESCO World Heritage Site inscription. There are no incentives available for the building owners, and legal provisions are inadequate to control activities

inside the shophouses. Furthermore, the nature of uses can change over time. As a result, adaptive reuse is suggested to extend the service of such buildings and to avoid obsolescence being used as a justification for demolition.

In conjunction with the above, and in parallel with the research questions, the aim of this research, which was to find the best formulas for revitalising and converting obsolete Malaysian shophouses in this area for suitable uses, has been achieved through the following five refined research objectives.

- ***Question 1****: What is the current state of adaptive reuse practices for Malaysian shophouses?*
- ***Objective 1****: To explore the current state of adaptive reuse practices for Malaysian shophouses*

The research findings indicate that adaptive reuse practices are widespread in the Core Zone of Melaka, with the on-site survey in Subchapter 5.4 showed that a modest proportion (31%) of the 432 shophouses have undergone these practices. Conversions for commercial uses like cafés and restaurants are seen as the most popular option for partially reused shophouses, and hotels and motels are for fully reused shophouses. These conversions aimed to meet the tourism demand. These findings are consistent with a previous study by Chua and Deguchi (2011) that concluded that these types of conversions are the largest serviced-based tourist-dependent uses in this area. However, this study considered all types of heritage buildings and it was not specific to shophouses.

The current scenario is due to the fact that the original function of living above a retail unit no longer appears desirable or viable in this area, and this leads to the onset of obsolescence. Therefore, it has become necessary to identify contemporary functions for the shophouses through adaptive reuse in order to ensure their conservation and keep them in active use. In the meantime, there is upper-floor vacancy in some partially reused shophouses, even though many other partially reused shophouses still use this space for residential purposes. The constant use of the upper floor spaces as living quarters demonstrates the relevance of these buildings to providing accommodation for residents, after the change of the original function of the ground floor.

The research findings also reveal seven factors contributing to reuse activities in the Core Zone of Melaka. These factors are as follows: legal provisions, tourism demand,

inscription demand, profitability, outdated original function, building vacancy and accessibility.

(a) Legal Provisions

Owners are permitted to convert their premises if they feel the original function is obsolete and unprofitable, as no funding is available in Malaysia for maintaining privately-owned heritage buildings like shophouses.

(b) Tourism Demand

Cultural tourism has created various development pressures on the Core Zone of Melaka, with shophouses being turned into hotels and restaurants. The existence of hotels and restaurants caters to the accommodation and dining needs of tourists.

(c) Inscription Demand

Owners need to ensure the survival of their premises in parallel with the inscription of Melaka as a UNESCO World Heritage Site, as demolition of shophouses is no longer permitted in the Core Zone of Melaka. Current circumstances have made the conversion of shophouses into hotels and restaurants an economically viable option.

(d) Profitability

The returns from new uses such as hotels and restaurants are higher compared to those from the original function as shophouses. In addition, tourism-related businesses such as hotels and restaurants are another source of employment for locals.

(e) Outdated Original Function

There is a possibility that shophouses will become obsolete due to their incompatibility with the current situation. Motivated by profit, building owners are generally more interested in conversion for other commercial uses than preservation of the original function.

(f) Building Vacancy

The conversion into tourist-dependent uses enables building owners to solve the problem of vacancy and dilapidation of shophouses. The on-site survey and observations indicate that vacancy problems are less prevalent on tourist-focused streets.

(g) Accessibility

The streets in the Core Zone of Melaka with the heaviest pedestrian movement have the highest numbers of converted shophouses to meet the demands of tourism. Extensive pedestrian walkways and parking facilities facilitate the accessibility of tourists as this area has severe traffic problems.

For further clarification, the synthesis of Research Objective 1 can be found by referring to Subchapter 5.6, and the recommendations to solve the issues related to urban planning for the Historic Core and upper-floor vacancy can be seen in Subchapter 8.4.

- ***Question 2****: How is the life cycle of Malaysian shophouses affected by obsolescence?*
- ***Objective 2****: To examine the dimensions of obsolescence in Malaysian shophouses*

The research findings confirm most of the factors of obsolescence explored in Subchapter 2.3. The most significant factors of obsolescence affecting the case study buildings are examined. The findings of previous studies on the social obsolescence of shophouses in Melaka are expanded, outlining that 'changes in taste and style' and 'human migration' are the key reasons why these buildings become obsolete (see Table 8.2).

In the meantime, functional obsolescence was less emphasised in previous studies, as opposed to physical, economic, environmental, social and legal obsolescence, which is discussed in detail in Subchapter 3.5.2 (see Table 8.1). Therefore, it is suggested that consideration be given to this form of obsolescence while converting shophouses in the Core Zone of Melaka for other functions, particularly for use as boutique hotels. Other factors like technological and locational obsolescence are also important, but these factors have less significant implications for the conversion process of the case study buildings.

For further clarification, the synthesis of Research Objective 2 can be found by referring to Subchapter 6.3.9.

Table 8.1 The way in which the research in this thesis differs from the existing body of knowledge in the context of factors of obsolescence.

Factor	Obsolescence	Contribution
Functional	Inadequate spatial capacity	**Difference**: Functional obsolescence was less emphasised in previous studies

Table 8.2 The way in which the research in this thesis extends the existing body of knowledge in the context of factors of obsolescence.

Factor	Obsolescence	Contribution
Social	Changes in taste and style	**Extension**: Previous studies only underlined the lack of appreciation (Heritage of Malaysia Trust, 2004)
	Human migration	**Extension**: Previous studies only underlined the lack of appreciation (Heritage of Malaysia Trust, 2004)

- ***Question 3****: What are the drivers surrounding the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and how could they minimise the impact of obsolescence?*
- ***Objective 3****: To identify and analyse the drivers of the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels*

The research findings confirm most of the drivers of adaptive reuse explored in Subchapter 2.8, with financial aspects being the major driver. Important reasons why the case study buildings were converted into boutique hotels are identified and analysed. In the context of Malaysian shophouses, some of the findings from this research are consistent with the findings of previous studies (see Table 8.3) while several other findings expand the findings of previous studies (see Table 8.5).

In the meantime, some of the findings were less emphasised in previous studies, which are discussed in detail in Subchapter 3.5.3 (see Table 8.4). Therefore, it is suggested that consideration be given to constructional, servicing, locational and legal drivers while converting shophouses in the Core Zone of Melaka for other functions, particularly for use as boutique hotels.

For further clarification, the synthesis of Research Objective 3 can be found by referring to Subchapter 6.4.10. The extended recommendations for spatial (alternative economically viable use) and financial (excess hotel supply) barriers are outlined in detail in Subchapter 8.4.

Table 8.3 The way in which the research in this thesis reflects the existing body of knowledge in the context of drivers of adaptive reuse.

Aspect	Driver	Contribution
Spatial	Flexible building layout	**Reflection**: This matches the views of Mydin et al. (2014a)
Financial	Economic merit	**Reflection**: This matches the views of the UNESCO World Heritage Centre (2018)
	High economic returns	**Reflection**: This matches the views of Wahab et al. (2016)
Environmental	Mitigation of carbon emissions	**Reflection**: This matches the views of Dewiyana et al. (2016)

Table 8.4 The way in which the research in this thesis differs from the existing body of knowledge in the context of drivers of adaptive reuse.

Aspect	Driver	Contribution
Constructional	Preservation of heritage significance	**Difference**: Constructional drivers were less emphasised in previous studies
	Proper maintenance	**Difference**: Constructional drivers were less emphasised in previous studies
	Restructuring to meet modern demands	**Difference**: Constructional drivers were less emphasised in previous studies
Servicing	Upgraded building services	**Difference**: Servicing drivers were less emphasised in previous studies
Locational	Favourable location	**Difference**: Locational drivers were less emphasised in previous studies
	Promotion of car-free movement	**Difference**: Locational drivers were less emphasised in previous studies
Legal	Building code compliance	**Difference**: Legal drivers were less emphasised in previous studies
	Heritage compliance	**Difference**: Legal drivers were less emphasised in previous studies
	Outright ownership	**Difference**: Legal drivers were less emphasised in previous studies
	Tourism compliance	**Difference**: Legal drivers were less emphasised in previous studies

Table 8.5 The way in which the research in this thesis extends the existing body of knowledge in the context of drivers of adaptive reuse.

Aspect	Driver	Contribution
Structural	Retention of historical integrity	**Extension**: Previous studies only underlined the enhancement of stability (UNESCO World Heritage Centre, 2018)
Spatial	Efficient circulation	**Extension**: Previous studies only underlined the flexibility of building layout (Mydin et al., 2014a)
	Proper spatial arrangement	**Extension**: Previous studies only underlined the flexibility of building layout (Mydin et al., 2014a)
Financial	Generation of government revenue	**Extension**: Previous studies only underlined economic merit (UNESCO World Heritage Centre, 2018) and high economic returns (Wahab et al., 2016)
	Involvement of management team	**Extension**: Previous studies only underlined economic merit (UNESCO World Heritage Centre, 2018) and high economic returns (Wahab et al., 2016)
	Mitigation of construction costs	**Extension**: Previous studies only underlined economic merit (UNESCO World Heritage Centre, 2018) and high economic returns (Wahab et al., 2016)

Aspect	Driver	Contribution
Environmental	Proper waste management	**Extension**: Previous studies only underlined the mitigation of carbon emissions (Dewiyana et al., 2016)
Social	Conservation of former lifestyles	**Extension**: Previous studies only underlined the addition of vibrancy to communities (Chua & Deguchi, 2011)

- ***Question 4****: What are the barriers surrounding the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and how can the impact of the barriers identified be removed or reduced?*
- ***Objective 4****: To identify and analyse the barriers to the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels and to make recommendations that could be implemented to remove or reduce the impact of the barriers identified*

The research findings confirm most of the barriers to adaptive reuse explored in Subchapter 2.8. The most significant aspects that could frustrate the conversion process of the case study buildings are identified and analysed. In the context of Malaysian shophouses, 'non-durable materials' are found to be consistent with the findings of previous studies (see Table 8.6). In addition, the findings of previous studies are expanded by outlining 'demand for upgraded building services' as an important servicing barrier to consider (see Table 8.8).

In the meantime, spatial and financial barriers were less emphasised in previous studies, as opposed to constructional, servicing, social and legal barriers, which are discussed in detail in Subchapter 3.5.3 (see Table 8.7). Therefore, it is suggested that consideration be given to these two aspects while converting shophouses in the Core Zone of Melaka for other functions, particularly for use as boutique hotels. Other aspects like structural, environmental and locational barriers are also important, but these aspects have less significant implications for the conversion process of the case study buildings.

The research findings also show that the drivers have outnumbered the barriers, particularly when the shophouses are converted into boutique hotels. This implies that adaptive reuse has a significant positive impact on Malaysian shophouses in the opinion of the building owners, professional experts, specialist users.

For further clarification, the synthesis of Research Objective 4 can be found by referring to Subchapter 6.5.10, and the recommendations to remove or reduce the impact of the barriers identified can be seen in Subchapter 6.5. These strategies are mostly sourced from the architects in charge, local government officers and the literature review. The

extended recommendations for spatial (alternative economically viable use) and financial (excess hotel supply) barriers are outlined in detail in Subchapter 8.4.

Table 8.6 The way in which the research in this thesis reflects the existing body of knowledge in the context of barriers to adaptive reuse.

Aspect	Barrier	Contribution
Constructional	Non-durable materials	**Reflection**: This matches the views of Ismail and Shamsuddin (2005)

Table 8.7 The way in which the research in this thesis differs from the existing body of knowledge in the context of barriers to adaptive reuse.

Aspect	Barrier	Contribution
Spatial	Inflexible building layout	**Difference**: Spatial barriers were less emphasised in previous studies
Financial	Low demand	**Difference**: Legal barriers were less emphasised in previous studies

Table 8.8 The way in which the research in this thesis extends the existing body of knowledge in the context of barriers to adaptive reuse.

Aspect	Barrier	Contribution
Servicing	Demand for upgraded building services	**Extension**: Previous studies only underlined heritage restrictions (Henderson et al., 2013) and the demand for respect towards building (Mei & Ahmad, 2017)

- ***Question 5****: How can the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels be influenced by government policies?*
- ***Objective 5****: To review government policies associated with the adaptive reuse process of obsolete Malaysian shophouses as boutique hotels*

There are many similarities in the way of thinking between the building owners, professional experts, specialist users and government officers in relation to the impact of adaptive reuse of obsolete shophouses in the Core Zone of Melaka. However, there are exceptions to environmental driver (mitigation of hazardous materials), constructional barrier (disruption to original character), locational barriers (poor pedestrian circulation and inefficient public transportation) and social barrier (demand for vibrancy to communities).

The research findings also show that the barriers have outnumbered the drivers, particularly when the shophouses are converted into boutique hotels (see Table 8.9). This implies that adaptive reuse has a significant negative impact on Malaysian shophouses in the opinion of government officers. While conversion can bring great benefit to shophouses from a social point of view, legal barriers are believed to be the main problem rather than

constructional, spatial, servicing, financial, environmental and locational aspects. There are major concerns relating to two issues. These issues are the conflict between protecting heritage values and satisfying modern demands, and the argument as to how a shophouse can be classified as a boutique hotel.

There is a possibility that compliance with the building codes during the conversion process could disrupt the original character of the building resulting in loss of authenticity. The reason might the extensive requirements for boutique hotels as opposed to other types of conversions like cafés and restaurants, and art galleries and museums. Meanwhile, there are contradictory views in the Ministry of Tourism and Culture Malaysia (MOTAC) and the Melaka Historic City Council (MBMB) about the ideal approach to classifying shophouses in this area as boutique hotels. This is because none of them can achieve the luxury standard for a boutique hotel outlined by MOTAC, even though other requirements related to fire safety and facilities for disabled people can be satisfied.

For further clarification, the synthesis of Research Objective 5 can be found by referring to Subchapter 7.3, and the recommendations to solve the issues related to the Guidelines for Classification of Tourist Accommodation Premises for Boutique Hotels Category (Guidelines for Boutique Hotels) can be seen in Subchapter 8.4.

Table 8.9 Comparisons between drivers of and barriers to adaptive reuse of shophouses from a government perspective.

Aspect	Driver	Barrier
Constructional	Preservation of heritage significance	Disruption to original character
Spatial	Maximisation of space utilisation	Inadequate spatial capacity
		Probability of disrespect towards building
		Probability of inefficient circulation
Servicing		Demand for upgraded building services
Financial	High economic returns	Low demand
		Probability of high construction costs
		High government fees
Environmental	Mitigation of hazardous materials	Probability of disturbance to surrounding area
Locational	Favourable location	Demand for adequate parking
	Promotion of car-free movement	Site constraints
		Poor pedestrian circulation
		Inefficient public transportation
Social	Pacemaker of tourist attractions	Demand for vibrancy to communities
	Conservation of former lifestyles	
	Reduction of vacant buildings	

Aspect	Driver	Barrier
Legal	Building code compliance	Demand for building code compliance
	Tourism compliance	Heritage restrictions
		Tourism noncompliance

8.3 Implications

The implications of this research are presented below in the form of theory development, practice and application, and future research that may involve various parties such as the building owners, professional experts and policy makers.

- ***Implication 1****: Contribution to Theory Development*

The dimensions of obsolescence as well as the drivers of and barriers to the adaptive reuse of shophouses as boutique hotels, which are unique to the context of the Core Zone of Melaka, have been examined comprehensively in this research. Even though most of the factors of obsolescence and aspects of the adaptive reuse process of shophouses have been discussed in previous studies, it should be emphasised that the history, urban and street context, styles, characteristics and legal provisions for the heritage conservation of shophouses in other countries and cities may differ from those in Malaysia, and specifically in Melaka. There are even slight differences between shophouses in Melaka and George Town, Penang, even though both are simultaneously inscribed as UNESCO World Heritage Sites.

This research also succeeded in filling the gap in previous studies that have only explored the adaptive reuse process of shophouses in this area from the views and experiences of the hoteliers and their employees, rather than the professional experts who are more competent with this process. The importance of professional experts in the adaptive reuse process of heritage buildings has been perceptively stated by Sigsworth and Wilkinson (1967), Thompson (1977), Kalman (1991), Latham (2000) and Australia ICOMOS Incorporated (2013), with the aim of ensuring the conclusiveness and robustness of the findings. In the meantime, this research does not include the diversity of adaptive reuse activities in shophouses in this area because of several limitations. However, the researcher will have a very detailed understanding of the adaptive reuse process to hotel-type accommodation and this is an important reuse function for these shophouses.

- ***Implication 2**: Contribution to Practice and Application*

The intention of this research is to impact upon policy and the future successful adaptive reuse of obsolete shophouses in the Core Zone of Melaka as boutique hotels. The building owners and professional experts who apply the recommended strategies derived from the research findings will be able to improve their procedures in the matter of removing or reducing the impact of the barriers identified. In terms of policy making, the engagement between MBMB through the Conservation Management Plan (CMP) and the Special Area Plan (SAP) for the Melaka World Heritage Site, and MOTAC through the Guidelines for Boutique Hotels, is a critical aspect in ensuring that policy making is informed by relevant evidence. This is necessary to ensure the survival of these shophouses for the continuous inscription of Melaka as a UNESCO World Heritage Site.

- ***Implication 3**: Suggestions for Future Research*

Based on the limitations that have been identified in this research, some suggestions are provided for future research activities. According to Lund Research Ltd. (2012), these suggestions can be divided into two categories: the findings that were not foreseen at the beginning of the research project and the aspects of the research questions that were not answered. While there is an effort by the Melaka State Government and MBMB to ensure that all tourist accommodation premises in the Core Zone of Melaka are licensed, numerous illegal hotels are taking advantage of the influx of tourists. This phenomenon can be explored in the future by comparing illegal hotels with shophouses that have been converted into licensed hotels.

Apart from that, the research findings are expected to be a starting point for further research to find the best formulas for revitalising and converting shophouses for other significant uses, based on the views and experiences of professional experts. These uses such as cafés and restaurants, and art galleries and museums. This is to ensure comprehensive research on fully reused shophouses activities in this area, rather than solely focusing on boutique hotels. Meanwhile, even though full reuse of buildings poses greater challenges than partial reuse (Chua & Deguchi, 2011), it would be interesting to investigate the adaptive reuse process of partially reused shophouses that retain the original function of the upper floor spaces as living quarters. The continuation of use signifies the relevance of these buildings to providing accommodation for residents,

although the original function of the ground floor has changed. Furthermore, it can be more difficult to find an economic function for the upper floor spaces than for the ground floor spaces, resulting in a significant amount of upper-floor vacancy.

Future research on the comparison of adaptive reuse practices for obsolete shophouses between Melaka and George Town, as was the original intention of this research, is also recommended. This could be a stepping stone to further research in the same field in other Southeast Asian countries. Finally, future research should concentrate on shophouses that were functioning entirely as residences (townhouses) before any conversion takes place. These shophouses could have different drivers of and barriers to the adaptive reuse process as opposed to shophouses formerly used as shops and residences.

8.4 Recommendations

In addition to the recommendations to remove or reduce the impact of the barriers identified that can be seen in Subchapter 6.5, several recommendations have been made to improve the adaptive reuse process of obsolete shophouses in the Core Zone of Melaka as boutique hotels. These strategies are mostly sourced from the architects in charge, local government officers and the literature review.

- ***Recommendation 1****: Urban Planning for the Historic Core*

Urban regeneration is welcomed, but uncontrolled adaptive reuse practices without proper research or sufficient information and knowledge could undermine the architectural integrity and cultural values of the Core Zone of Melaka. The CMP and SAP manage changes and modifications, but the guidelines and regulations need to be tightened by MBMB. Monitoring and enforcement are still weak, even after six years of preparing these plans. This is evidenced by the existence of illegal works in this area, for example illegal hotels. Poorly executed renovations and restoration, as well as illegal works, could threaten the living heritage within the World Heritage Site (Melaka JPBD, 2011). Cooperation and partnership between MBMB and building owners are vital to retaining the values of this area for future generations. Efforts must also be made to provide owners with available information.

Adaptive reuse can be considered a sustainable solution for building vacancy and dilapidation, but it is not always welcomed by local communities, even though it could support the local economy by creating jobs. The development of hotels and restaurants due to the emergence of mass tourism has contributed to a displacement of original communities through the loss of privacy and traffic congestion. As a result, this area now has an aging population. Appropriate measures should be taken to attract younger residents to live in this area to retain the population. Most importantly, the urban landscape should be carefully harnessed and organised by considering the sensitive heritage values while simultaneously sustaining the vibrancy of this area.

Various steps need to be taken to address the traffic congestion caused by narrow streets and lack of parking. This problem can have negative impacts on adaptive reuse practices and threaten the liveability of the area. This area should be gazetted as a car-free zone to avoid it being crowded with vehicles and tourists. Further, the traffic management strategy outlined in the CMP and SAP has not yet been fully implemented, and pedestrian connectivity needs to be upgraded to encourage walking and cycling. Restriction along pedestrian walkways and five-footways such as vehicles and merchandise need to be removed. The use of public vehicles should be further enhanced to achieve greater coverage. The proposal to build a tram network should also be reconsidered, as trams are faster, more comfortable and less prone to disruption by traffic than buses. Further, the use of buses in this area has resulted in damages to heritage buildings (Melaka JPBD, 2011).

- ***Recommendation 2****: Upper-Floor Vacancy*

In Malaysia, property tax is still imposed on vacant buildings. However, maintaining them in passive use can be a potential blight on the locality. There are several measures that can be proposed to the Melaka State Government and MBMB in order to overcome the problem of upper-floor vacancy as well as non-economically viable activities such as storage. For example, as suggested by Douglas (2006), the government could formulate a coherent policy for recognising endangered properties to encourage the building owners to make use of the vacant floors effectively. The government could offer grant aid for proposed conversions to reduce the costs of fulfilling the requirements of modern building codes. In addition, Douglas also recommended that the state government should encourage mixed use of vacant floors to encourage reuse activity. In addition, a survey should be carried out

to examine the state of repair and reuse potential of the properties before any conversion takes place. This is to make sure that the adaptive reuse process of partially reused shophouses is consistent with the philosophy of conservation, which is to prolong the normal life of buildings by keeping them in active use and thereby preventing obsolescence (Tiesdell et al., 1996; Carmona et al., 2010).

- ***Recommendation 3****: Guidelines for Boutique Hotels*

Since the boutique hotel is the only type of hotel allowed in the Core Zone of Melaka (Melaka JPBD, 2011), hoteliers need to clearly understand the Guidelines for Boutique Hotels that were prepared by MOTAC. It is worthy of note that there are currently no hotels in Melaka that meet these guidelines and several hoteliers have self-proclaimed their premises as 'boutique hotels' based on their own criteria. As such, MBMB and MOTAC are recommended to work together to further refine these guidelines to be satisfied by the hoteliers as to the adaptive reuse of shophouses. This is because the existing hotels cannot reach the minimum standards set out for a boutique hotel.

MOTAC is urged to include a special clause in the existing guidelines relating to building category (e.g. heritage buildings), building size (e.g. less than 3000 square feet) or number of guest rooms (e.g. less than 21 rooms). Alternatively, MOTAC could propose new detailed guidelines considering issues related to heritage buildings. This special clause, or new detailed guidelines, could be referred by MBMB in future when listing them in the CMP and SAP. If MOTAC is unable to amend the existing guidelines, or develop new guidelines, MBMB is requested to change the type of hotel allowed in this area to city hotels. This change would mean that the requirements were less demanding than for boutique hotels, and it would be in keeping with the position of this architectural typology in the city centre.

- ***Recommendation 4****: Excess Hotel Supply*

The scenario, which considers the adaptive reuse of shophouses as boutique hotels as an economically viable option, has created other problems such as excess hotel supply and existence of illegal hotels. The number of hotels in the Core Zone of Melaka has doubled over the past five years and the situation seems out of control, and it has led to supply exceeding demand. The presence of too many hotels can change the character of a heritage

site (Rabo, 2010). Hotels have become the most 'disturbing' type of conversion in this area, because they are subject to significant renovation. For this reason, MBMB is suggested to control the number of hotels in this area. A suitable monitoring mechanism is needed in order to identify the number of tourists visiting this area to determine how many guest rooms are required.

In the meantime, MBMB needs to find ways to minimise the number of illegal hotels in this area, as the number of recent guest rooms cannot be tracked if hotels do not apply for a license from MBMB. Significantly, in relation to the heritage conservation of shophouses, it is unlikely that illegal hotel developments will seek advice from professional experts when performing conversion projects. These hotels may look stylish and attractive, but, the hoteliers are not willing to spend money to comply with the requirements for fire safety and heritage conservation ("Hotel Haram", 2019). This lack of compliance will have future negative impacts. Furthermore, there is also a growing concern that the existence of illegal hotels may contribute to unfair competition with licensed hotels because they can offer cheaper guest rooms.

- ***Recommendation 5****: Alternative Economically Viable Uses*

Instead of converting shophouses into boutique hotels it would be important to identify several alternative economically viable uses that fulfil the standard criteria for adaptive reuse and that respect the list of non-permissible activities provided in the CMP and SAP. This is due to the challenges encountered by this type of conversion, for example many requirements and excess hotel supply. The building owners should be more innovative and appropriate in converting shophouses for different uses. It is suggested that the building owners should find new uses that require a small space but have good economic prospects. Based on the research findings, this architectural typology experienced inadequate spatial capacity in its original function, and continues to do so in its new function as a boutique hotel. When the building owners are convinced that a potential use has an economic merit, more detailed analyses of the structure itself should be undertaken to identify the potential risks of design and construction, and to fine tune the cost and timing estimates (Gause et al., 1996).

According to Young (2012), potential projects must reduce costs to achieve economic goals, and the economic indicators on preservation and reuse clearly show better

consequences than for other economic activities. Cost reduction could be achieved by having various economic incentives like tax deductions, tax credits and grants, as happens in the United States. In New York City, for instance, New York City's J-51 Program offers a tax deduction and tax exemption to developers who convert old buildings, not necessarily historic buildings, such as industrial lofts, into housing as a solution for affordable housing (Schmertz, 1982). In addition, as stated by Young (2012), the federal Historic Tax Credit program was founded as a significant financial incentive in the form of government pay-outs for reusing buildings to counterbalance some of the unwillingness to work with older buildings. Apart from that, there are several grant programs designed for projects involving the reuse of existing buildings in the form of full cash award, matching funding or donation of in-kind services, for example the Community Development Block Grant, the Energy Efficiency and Conservation Block Grant, and the Certified Local Government Grant (Young, 2012).

8.5 Limitations and Considerations

Several limitations were encountered during data collection process and some measures were taken to overcome these problems in order to ensure that the aim and objectives of this research could be achieved.

- ***Limitation 1****: Inaccessible Government Information*

While asking for permission to access the Inventory of Heritage Buildings in the Heritage Zone of George Town, it is regrettable there was no response from the Penang Island City Council (MBPP) Director of Heritage Conservation and Conservation Architect. Several calls were made but MBPP staff stated that, according to their lawyers, such information is confidential. Instead, they suggested that the researcher should contact the George Town World Heritage Incorporated (GTWHI). However, the GTWHI General Manager was not able to provide a copy of the inventory, because it is deemed a confidential document.

Arising from this limitation, the research in this thesis eventually focused on an in-depth study of the Core Zone of Melaka as the study area, instead of comparing it with George Town which was the original intention. This was because MBMB agreed to provide

a copy of the Inventory of Heritage Buildings in the Heritage Zone of Melaka. Nevertheless, this inventory could only be collected when the researcher arrived in Melaka in February 2017. Meanwhile, due to confidentiality issues, MBMB has a new policy not to disclose consultants' documents to the public. Such documents include the building plan and the Heritage Impact Assessment report. In a legal case, MBMB was challenged by consultants regarding this matter. To solve this problem, the building plans were acquired from the hoteliers or the architects in charge. However, the researcher was not able to acquire the Heritage Impact Assessment reports.

- ***Limitation 2****: Unidentified Authentic Shophouses*

Unlike other heritage sites, Melaka has a combination of shophouses and townhouses in the Core Zone of Melaka. However, there were no official documents to differentiate them individually. The MBMB current practice is to list all of these buildings as 'shophouses' (Melaka JPBD, 2011), even though shophouses and townhouses are different from each other. Therefore, to ensure that the buildings in this research meet the literal definition of shophouses, and that the research achieves its aim and objectives, the researcher decided to concentrate on shophouses, whose previous and/or current functions have been confirmed as a retail area on the ground floor and living quarters on the upper floor(s). This is because adaptive reuse concerns the use of a building, and different uses have different implications for the process. The information regarding this matter was based on the available data from the Inventory of Heritage Buildings in the Heritage Zone of Melaka (to identify previous function) and updated by the on-site survey (to identify current function).

- ***Limitation 3****: Inaccurate Data*

The accuracy of the data on the previous uses of shophouses, in the new database of shophouses developed by the researcher, was based on the accuracy of the data in the Inventory of Heritage Buildings in Heritage Zone of Melaka prepared by MBMB. There was insufficient building information because the inventory covers 2000 and beyond, and it is rarely updated. In addition, there is some important information missing. Inaccuracies could also occur when requesting information from residents about the current activities of

individual shophouses. Some building owners were not in their premises. As a result, the required information was obtained from the neighbours.

- ***Limitation 4****: Undiversified Reuse Activities*

There were difficulties in sourcing information on the involvement of professional experts in other types of conversions like cafés and restaurants, and art galleries and museums. Unlike the hoteliers, the owners of cafés and art galleries are not always in their premises and they often rent the shophouses from the building owners. For this reason, the researcher decided to concentrate fully on shophouses that have been converted into boutique hotels. Apart from that, several fully reused shophouses do not have building plans. This could signify that their conversions are illegal because the building owners are unlikely to hire professional experts. In this case, they were not suitable for selection as case study buildings because much of the data in this research needed to be based on the views and experiences of professional experts. Furthermore, it is not easy to gather information regarding illegal premises unless the researcher is authorised to enter these buildings. Submission of conservation documents to MBMB is necessary for all heritage buildings in the Melaka World Heritage Site including requests for change of use for the purpose of being issued with a permanent license. Professional experts are hired to prepare the conservation documents.

- ***Limitation 5****: Lack of Cooperation*

A lack of cooperation was experienced during the on-site survey and the requests for permission for the case studies. Based on the Participant Information Sheet, the participation of the participants in this study was entirely voluntary. If they did not wish to take part, they would not have to give a reason or be contacted again. In this research study, the number of case study buildings should have been five. However, the building draughtsman for Tang House refused to be interviewed. The hotelier at TheBlanc Boutique Hotel did not permit any activities that are not profitable and are not of benefit to the hotel, including research activities for academic purposes. As a result, the number of case study buildings was reduced to three. In addition, if the participants agreed to be interviewed, they have the option to refuse to be audio recorded by not signing the relevant section in the Participant Information Sheet. Nine out of 14 interviewees for the case study buildings

declined to be audio recorded. As a result, the interview sessions with them had to rely completely on interview notes, which may not be considered as a full record because of the time constraints involved.

Problems associated with an unfriendly research environment may also be due to racial issues as indicated by MBMB. This means that there will be a lack or an absence of cooperation if the researcher is Malay and Muslim because most shophouses owners are Chinese. On one occasion, even though the university letter had been presented, the researcher was accused of pretending to be an MBMB officer to acquire information. This is strange and unacceptable because MBMB officers generally have their own authorisation cards to enter these premises. As a result, there is no way a researcher could pretend to be an MBMB officer. However, this situation may be due to the shophouses owners intending to conceal the fact that their premises have undergone illegal works. In reference to the Street, Drainage and Building Act 1974 (Act 133), any alteration to any building without the prior written permission of the local authority shall be liable on conviction to a fine. The local authority could apply for a mandatory order to alter the building in any way or to demolish it (Laws of Malaysia, 2016a).

In addition, the relationship between the residents in the Core Zone of Melaka with MBMB is somewhat inadequate. The population of this area is mainly Chinese and loyal to the opposition political party. Most MBMB officers are Malay and they are generally under the exclusive purview of the Melaka State Government, the ruling political party. Cooperation from these officials is very important because premises can only be retained with government permission. Otherwise, the buildings may be demolished for the sake of development. It is hoped that the victory of the opposition political party in Melaka in the recent Malaysian General Election in May 2018 will further strengthen the cooperation between the residents and MBMB to ensure the survival of this architectural typology for the continuous inscription of Melaka as a UNESCO World Heritage Site.

8.6 Summary

Adaptive reuse of shophouses in the Core Zone of Melaka seems more attractive than preservation, with cafés and restaurants being the most popular choice for partially reused shophouses, and hotel and motels for fully reused shophouses. Legal provisions,

tourism demand, inscription demand, profitability, outdated original function, building vacancy and accessibility are considered contributing factors for these reuse activities. The most significant factors of obsolescence are identified as functional and social obsolescence. In addition, the drivers of adaptive reuse outnumbered the barriers with the most significant barriers being the constructional, spatial, servicing and financial aspects. As an extension to the current knowledge, this research suggests that functional obsolescence; constructional, servicing, locational and legal drivers; and spatial and financial barriers that were less emphasised in previous studies should be considered while converting obsolete Malaysian shophouses for other functions, particularly for use as boutique hotels.

On the other hand, on the government side, this process presents more concerns, particularly the conflict between protecting heritage values and satisfying modern demands, and the argument as to how a shophouse can be classified as a boutique hotel. In short, all of these findings have drawn implications in the form of theory development, practice and application, and future research. Several recommendations have been made to solve the issues related to urban planning for the Historic Core, upper-floor vacancy, guidelines for boutique hotels, excess hotel supply and alternative economically viable uses. Limitations encountered during the data collection process such as inaccessible government information, unidentified authentic shophouses, inaccurate data, undiversified reuse activities and lack of cooperation are also discussed, with some measures have been made to overcome these problems.

Bibliography

Abdullah, S. (2013). Effect of Malay-China trade relations during the Malacca Sultanate on the emergence of Chinese Peranakan community. *World Journal of Islamic History and Civilization*, *3*(4), 143-149. doi: 10.5829/idosi.wjihc.2013.3.4.3401

Adler, E. S., & Clark, R. (2015). *An invitation to social research: How it's done* (5th ed.). Stamford, CT: Cengage Learning.

Ahmad, A. G. (1994, Dec). *The architectural style of the Peranakan Cina*. Paper presented at the Minggu Warisan Baba dan Nyonya of the Universiti Sains Malaysia, Penang, Malaysia.

Airey, D., & Shackley, M. (1998). Bukhara (Uzbekistan): A former oasis town on the Silk Road. In M. Shackley (Ed.), *Visitor management: Case studies from World Heritage Sites* (pp. 10-25). Oxford, England: Butterworth-Heinemann.

Alizadeh, P. (2006, May). *Case study as a methodology in architectural research*. Paper presented at the International Conference on Research Methodologies in Science and Engineering Technology, Tehran, Iran.

Allehaux, D., & Tessier, P. (2002). Evaluation of the functional obsolescence of building services in European office buildings. *Energy and Buildings*, *34*(2), 127-133. doi: 10.1016/S0378-7788(01)00104-9

Andersons, A. (2000, Nov). *Pressures on the designer*. Paper presented at the Adaptive Reuse: Continuity and Creativity Conference, Sydney, Australia.

Anggraini, L. D. (2012). Spatial connectivity of Indonesian shop houses. *Asian Journal of Environment-Behaviour Studies*, *3*(10), 45-55. doi: 10.21834/aje-bs.v3i7.268

Architecture of Brunei. (2012, July). Retrieved from http://www.safaritheglobe.com/brunei/culture/architecture/

Architecture of Timor-Leste. (2012, July). Retrieved from http://www.safaritheglobe.com/timor-leste/culture/architecture/

Asakura, S. (2008). Impacts of registration for world heritage in Japan. In Japan Institute of Tourism Research (JITR) (Ed.), *Proceedings of the 23rd JITR Annual Conference* (pp. 329-332). Ueda, Japan: JITR.

Ashworth, A., & Perera, S. (2015). *Cost studies of buildings* (6th ed.). Oxon, England: Routledge.

Attoe, W., & Logan, D. (1989). *American urban architecture: Catalysts in the design of cities*. Berkeley, CA: University of California Press.

Australia ICOMOS Incorporated. (2013). *The Burra charter: The Australia ICOMOS charter for places of cultural significance*. Burra, Australia: Australia ICOMOS Incorporated.

Ayres, L., Kavanaugh, K., & Knafl, K. A. (2003). Within-case and across-case approaches to qualitative data analysis. *Qualitative Health Research*, *13*(6), 871-883. doi: 10.1177/1049732303255359

Ball, R. (1999). Developers, regeneration and sustainability issues in the reuse of vacant buildings. *Building Research & Information*, *27*(3), 140-148. doi: 10.1080/096132199369480

Ball, R. M. (2002). Re-use potential and vacant industrial premises: Revisiting the regeneration issue in Stoke-on-Trent. *Journal of Property Research*, *19*(2), 93-110. doi: 10.1080/09599910210125223

Baroldin, N. M., & Din, S. A. M. (2012). Documentation and conservation guidelines of Melaka heritage shophouses. *Procedia – Social and Behavioral Sciences*, *50*, 192-203. doi: 10.1016/j.sbspro.2012.08.027

Bartlett, E., & Howard, N. (2000). Informing the decision makers on the cost and value of green building. *Building Research & Information*, *28*(5-6), 315-324. doi: 10.1080/096132100418474

Baum, M. (2012). City as loft. In M. Baum & K. Christiaanse (Eds.), *City as loft: Adaptive reuse as resource for sustainable urban development* (pp. 8-13). Zurich, Switzerland: gta Verlag.

Berno, T. (2011). Sustainability on a plate: Linking agriculture and food in the Fiji Islands tourism industry. In R. M. Torress & J. H. Momsen (Eds.), *Tourism and agriculture: New geographies of consumption, production and rural restructuring* (pp. 87-103). Oxon, England: Routledge.

Bhat, A. (2019a). Qualitative observation – Definition with examples. In *Market Research*. Retrieved from https://www.questionpro.com/blog/qualitative-observation/

Bhat, A. (2019b). What is field research: Definition, methods, examples and advantages. In *Market Research*. Retrieved from https://www.questionpro.com/blog/field-research/amp/

Bianchi, R. V. (2002). The contested landscapes of World Heritage on a tourist island: The case of Garajonay National Park, La Gomera. *International Journal of Heritage Studies*, *8*(2), 81-97. doi: 10.1080/13527250220143896

Bianchi, R., & Boniface, P. (2002). Editorial: The politics of World Heritage. *International Journal of Heritage Studies*, *8*(2), 79-80. doi: 10.1080/13527250220143887

Birnbaum, A. (2000). Early modern architecture. In J. Falconer (Ed.), *Burmese design & architecture* (pp. 75-92). North Clarendon, VT: Periplus Editions (HK) Ltd.

Blaxter, L., Hughes, C., & Tight, M. (2010). *How to research* (4th ed.). Berkshire, England: Open University Press.

Bone-Winkel, S., & Matheis, H. (2012). The economic aspects on real-estate development. In M. Baum & K. Christiaanse (Eds.), *City as loft: Adaptive reuse as resource for sustainable urban development* (pp. 82-88). Zurich, Switzerland: gta Verlag.

Boxill, I., Chambers, C., & Wint, E. (1997). *Introduction to social research: With applications to the Caribbean*. Kingston 7, Jamaica: Canoe Press University of the West Indies.

Breitz, E. (2015, June 25). *National Maritime Museum, Greenwich, London - exterior and North Facade of historic building* [Digital image]. Retrieved from https://www.alamy.com/stock-photo-national-maritime-museum-greenwich-london-exterior-and-north-facade-85682240.html

Bromley, R. D. F., Tallon, A. R., & Thomas, C. J. (2005). City centre regeneration through residential development: Contributing to sustainability. *Urban Studies*, *42*(13), 2407-2429. doi: 10.1080/00420980500379537

Buffay, P. (2018, March 11). *Sunset at the Thu Bon River in Hoi An* [Digital image]. Retrieved from https://thetravellingsquid.com/2018/03/11/sunset-at-the-thu-bon-river-in-hoi-an/

Buildings Department. (2012). *Practice guidebook for adaptive re-use of and alteration and addition works for heritage buildings*. Hong Kong, China: Buildings Department.

Bullen, P. A. (2007). Adaptive reuse and sustainability of commercial buildings. *Facilities, 25*(1/2), 20-31. doi: 10.1108/02632770710716911

Bullen, P. A., & Love, P. E. D. (2010). The rhetoric of adaptive reuse or reality of demolition: Views from the field. *Cities*, *27*, 215-224. doi: 10.1016/j.cities.2009.12.005

Bullen, P. A., & Love, P. E. D. (2011a). A future for the past: A model for adaptive reuse decision-making. *Built Environment Project and Asset Management*, *1*(1), 32-44. doi: 10.1108/20441241111143768

Bullen, P. A., & Love, P. E. D. (2011b). Adaptive reuse of heritage buildings. *Structural Survey*, *29*(5), 411-421. doi: 10.1108/02630801111182439

Bullen, P. A., & Love, P. E. D. (2011c). Factors influencing the adaptive reuse of buildings. *Journal of Engineering, Design and Technology*, *9*(1), 32-46. doi: 10.1108/17260531111121459

Bunting, S. (2005). *The interviewer's handbook: Successful interviewing techniques for the workplace*. London, England: Kogan Page Limited.

Burton, J. E. (1933). Building obsolescence and the assessor. *The Journal of Land & Public Utility Economics*, *39*(2), 109-120. doi: 10.2307/3139079

Butt, T. E., Umeadi, B. B. N., & Jones, K. G. (2010, May & June). *Sustainable development and climate change induced obsolescence in the built environment*. Paper presented at the 16th Annual International Sustainable Development Research Conference, Hong Kong, China.

Cantacuzino, S. (1975). *New uses for old buildings*. London, England: The Architectural Press Ltd.

Carmona, M., Heath, T., Oc, T., & Tiesdell, S. (2010). *Public places – urban spaces: The dimensions of urban design*. Oxford, England: Elsevier Ltd.

Central Public Works Department. (2013). *Handbook of conservation of heritage buildings*. New Delhi, India: Directorate General, Central Public Works Department.

Chan, Y. L. (2005, Oct). *Conservation and change: A Singapore case of urban conservation and redevelopment*. Paper presented at the 15th ICOMOS General Assembly and International Symposium, Xi'an, China.

Charoen Krung Road [Digital image]. (2018). Retrieved from https://en.wikipedia.org/wiki/Charoen_Krung_Road

Chen, V. F. (Ed.). (1998). *The encyclopaedia of Malaysia volume 5: Architecture*. Singapore: Editions Didier Millet.

Cheong, E. S. (2010). *A study of building obsolescence in standard design terrace houses in Perak*. (Unpublished advanced diploma dissertation). Kolej Tunku Abdul Rahman, Perak, Malaysia.

Chow, M. D. (2018, March 1). *UNESCO picks George Town for disaster risk reduction project* [Digital image]. Retrieved from https://www.freemalaysiatoday.com/category/nation/2018/03/01/unesco-picks-george-town-for-disaster-risk-reduction-project/

Christiaanse, K. (2012). Traces of the city as loft. In M. Baum & K. Christiaanse (Eds.), *City as loft: Adaptive reuse as resource for sustainable urban development* (pp. 14-24). Zurich, Switzerland: gta Verlag.

Chua, R. S., & Deguchi, A. (2011). Tourist-dependent adaptive reuse in the old residential quarter of Melaka City, Malaysia. *Journal of Architecture and Planning (Transactions of AIJ)*, *76*(662), 779-787. doi: 10.3130/aija.76.779

Chun, H. K., Hasan, A. S., & Noordin, N. M. (2005, Sep). *An influence of colonial architecture to building styles and motifs in colonial cities in Malaysia*. Paper presented at the 8th International Conference of the Asian Planning Schools Association, Penang, Malaysia.

City of Los Angeles Mayor's Office of Housing and Economic Development. (2006). *City of Los Angeles adaptive reuse program* (2nd ed.). Los Angeles, CA: City of Los Angeles Mayor's Office of Housing and Economic Development.

Conejos, S., Langston, C., & Smith, J. (2013). AdaptSTAR model: A climate-friendly strategy to promote built environment sustainability. *Habitat International*, *37*, 95-103. doi:10.1016/j.habitatint.2011.12.003

Connolly, C. (2016). 'A place for everything': Moral landscapes of 'swiftlet farming' in George Town, Malaysia. *Geoforum*, *77*, 181-191. doi: 10.1016/j.geoforum.2016.11.005

Connolly, C. (2017). Landscape political ecologies of urban 'swiftlet farming' in George Town, Malaysia. *Cultural Geographies*, *24*(3), 421-439. doi: 10.1080/09613210010016820

Cooper, I. (2001). Post-occupancy evaluation – where are you?. *Building Research & Information*, *29*(2), 158-163. doi: 10.1177/1474474016684128

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Davies, P., Crook, P., & Murray, T. (2013). *An archaeology of institutional confinement: The Hyde Park Barracks, 1848-1886*. New South Wales, Australia: Sydney University Press.

Dearbon, L. M., & Stallmeyer, J. C. (2010). *Inconvenient heritage: Erasure and global tourism in Luang Prabang*. Oxon, England: Left Coast Press, Inc.

DeeLish. (2011, November 10). *Tanjong Pagar Road shophouses* [Digital image]. Retrieved from http://tanjongpagarguide.blogspot.com/2011/11/tanjong-pagar-road-shophouses.html

DeFranzo, S. E. (2012). Advantages and disadvantages of surveys. In *Blog*. Retrieved from https://www.snapsurveys.com/blog/advantages-disadvantages-surveys/

Department of Communities and Local Government. (2015). 2010 to 2015 government policy: Energy efficiency in buildings. In *Policy Paper*. Retrieved from https://www.gov.uk/government/publications/2010-to-2015-government-policy-energy-efficiency-in-buildings/2010-to-2015-government-policy-energy-efficiency-in-buildings

Department of the Environment and Heritage. (2004). *Adaptive reuse: Preserving our past, building our future*. Canberra, Australia: Commonwealth of Australia.

Dewiyana, E., Ibrahim, N., & Hajar, N. H. (2016). The green aspects of adaptive reuse of Hotel Penaga. *Procedia – Social and Behavioral Sciences*, *222*, 631-643. doi: 10.1016/j.sbspro.2016.05.220

Douglas, J. (2006). *Building adaptation* (2nd ed.). Oxford, England: Elsevier Ltd.

Economic and Social Research Council. (2016). Our core principles: Researchers and research teams. In *Research Ethics*. Retrieved from http://www.esrc.ac.uk/funding/guidance-for-applicants/research-ethics/our-principles-research-organisations/

Ellison, L., Sayce, S., & Smith, J. (2007). Social responsible property investment: Quantifying the relationship between sustainability and investment property worth. *Journal of Property Research*, *24*(3), 191-219. doi: 10.1080/09599910701599266

Engels, B. (2015). Natural heritage and sustainable development – a realistic option or wishful thinking?. In M. Albert (Ed.), *Perceptions of sustainability in heritage studies* (pp. 49-58). Berlin, Germany: De Gruyter.

English Heritage. (2006). *The conversion of traditional farm building: A guide to good practice*. London, England: English Heritage.

English Heritage. (2008). *Conservation principles, policies and guidance: For the sustainable management of the historic environment*. London, England: English Heritage.

Ertan, T., & Eğercioğlu, Y. (2016). The impact of UNESCO World Heritage List on historic urban city centers and its place in urban regeneration: The case of Melaka, Malaysia and Tire, Turkey. *Procedia – Social and Behavioral Sciences*, *216*, 591-602. doi: 10.1016/j.sbspro.2015.12.031

Evans, G. (2002). Living in a World Heritage City: Stakeholders in the dialectic of the universal and particular. *International Journal of Heritage Studies*, *8*(2), 117-135. doi: 10.1080/13527250220143913

Fadul, J. A., & Estoque, R. S. (2010). *A textbook for an introductory course in sociology*. Morrisville, NC: Lulu Press, Inc.

Fesenko, E. (2015, April 28). *The rug merchant* [Digital image]. Retrieved from https://www.dreamstime.com/editorial-image-rug-merchant-bukhara-uzbekistan-april-lay-out-carpets-next-to-his-stall-april-bukhara-image55723110

Fesenko, E. (2018, February 17). *Busy street of Chinatown, Yangon, Myanmar* [Digital image]. Retrieved from https://www.dreamstime.com/yangon-myanmar-february-explore-market-streets-chinatown-full-small-shops-stalls-cafes-warehouses-tourist-hotels-image160843684

Gale, M. (Ed.). (2012). *Tate Modern: The handbook*. London, England: Tate Gallery Publishing.

Gause, J. A., Hoch, B. M., Macomber, J. D., & Rose, J. F. P. (1996). *New uses for obsolete buildings*. Washington, DC: ULI-the Urban Land Institute.

Gillham, B. (2000a). *Case study research methods*. London, England: Continuum.

Gillham, B. (2000b). *The research interview*. London, England: Continuum.

Google Maps. (2019). *Jonker Street Night Market* [Digital image]. Retrieved from https://www.google.co.uk/maps/place/Jonker+Street+Night+Market/@2.1993374,102.2487323,15.77z/data=!4m5!3m4!1s0x31d1f1db7fdc12a1:0xca21d5dee8e1fbd4!8m2!3d2.1948473!4d102.2483871!5m1!1e1

Gunderson, S. (2015). *Momentum and the Timor-Leste independence movement: The origins of America's debate on Timor-Leste*. Lanham, MD: Lexington Books.

Gurstein, P. (1987, May). *Urban space in the context of a Third World city: A case study of the historic district of Kuala Lumpur, Malaysia*. Paper presented at the 18th Environmental Design Research Association Conference, Ottawa, Canada.

Hadi, M. A., Mydin, M. A. O., & Abas, N. F. (2013). Investigation on adaptive re-use of heritage building in George Town, Penang. *Analele Universităţii "Eftimie Murgu" Resiţa*, *XX*(3), 133-154.

Hamel, J., Dufour, S., & Fortin, D. (1993). *Case study methods: Qualitative research methods series 32*. Newbury Park, CA: SAGE Publications, Inc.

Han, W., & Beisi, J. (2015). A morphological study of traditional shophouse in China and Southeast Asia. *Procedia – Social and Behavioral Sciences*, *179*, 237-249. doi: 10.1016/j.sbspro.2015.02.427

Harun, S. N., & Ismail, I. (2011, Oct). *The conservation plan for World Heritage Site: George Town, Penang and Malacca, Malaysia*. Paper presented at the 1st International Conference on Rebuilding Place: From Culture to Art and Architecture, Banda Acheh, Indonesia.

Hassan, A. S., & Yahaya, S. R. C. (2012). *Architecture and heritage buildings in George Town, Penang*. Penang, Malaysia: Penerbit Universiti Sains Malaysia.

Hassan, A., & Rahman, M. (2015). World Heritage site as a label in branding a place. *Journal of Cultural Heritage Management and Sustainable Development*, *5*(3), 210-223. doi: 10.1108/JCHMSD-01-2014-0002

Hassan, F. (2018, December 20). RM19,651 bilion KDNK pelancongan Melaka. *MelakaKini*. Retrieved from https://melakakini.my/rm19-651-bilion-kdnk-pelancongan-melaka/

Heath, T. (2001). Adaptive re-use of offices for residential use: The experiences of London and Toronto. *Cities*, *18*(3), 173-184. doi: 10.1016/S0264-2751(01)00009-9

Heath, T. P. (2002). *Re-populating city centres: The role of post-War office to residential conversions* (Doctoral dissertation, University of Nottingham, United Kingdom). Retrieved from http://eprints.nottingham.ac.uk/id/eprint/13301

Henderson, J. (2011). Understanding and using built heritage: Singapore's national monuments and conservation areas. *International Journal of Heritage Studies*, *17*(1), 46-61. doi: 10.1080/13527258.2011.524006

Henderson, J. C. (2012). Conserving heritage in South East Asia: Cases from Malaysia, Singapore and the Philippines. *Tourism Recreation Research*, *37*(1), 47-55. doi: 10.1080/02508281.2012.11081687

Henderson, J. C., Liew, G., Ong, J., & Quek, B. (2013). The use of urban heritage for boutique hotels: Examples from Malaysia and Singapore. *Tourism Review International*, *17*(2), 63-74(12). doi: 10.3727/154427213X13728688260758

Henehan, D. A., & Woodson, R. D. (2004). *Building change-of-use: Renovating, adapting, and altering commercial, institutional, and industrial properties*. New York, NY: McGraw-Hill.

Hepler, D. J., Wallach, P. R., & Hepler, D. E. (2013). *Drafting & design for architecture & construction* (9th ed.). Clifton Park, NY: Delmar, Cengage Learning.

Heritage of Malaysia Trust (2004). *Buletin warisan*. Kuala Lumpur, Malaysia: Heritage of Malaysia Trust.

Historic Environment Scotland. (2018). What is a World Heritage?. In *Advice and Support*. Retrieved from https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/world-heritage-sites/what-is-a-world-heritage-site/

Holmes, A. (2013). Direct observation. In F. R. Volkmar (Ed.), *Encyclopaedia of autism spectrum disorders*. New York, NY: Springer.

Hotel haram kembali berleluasa. (2019, January 6). *mStar*. Retrieved from https://www.mstar.com.my/lokal/semasa/2019/01/06/hotel-haram/

How to increase your hotel's occupancy rate. (2019). Retrieved from https://www.siteminder.com/r/hotel-distribution/hotel-revenue-management/increase-hotels-occupancy-rate/

ICOMOS International Cultural Tourism Committee. (1999). *Tourism at World Heritage Sites: The site manager's handbook* (2nd ed.). Madrid, Spain: World Tourism Organisation.

Idid, S. Z. A. (1995). *Pemeliharaan warisan rupa bandar*. Kuala Lumpur, Malaysia: Badan Warisan Malaysia.

Irlander, S. (2009). *Florida real estate: Principles, practices, and license laws*. Mason, OH: South-Western Cengage Learning.

Ismail, W. H. W. (2012). Users and the survival of the shop houses in the historic city of Malacca. *Procedia – Social and Behavioral Sciences*, *42*, 443-450. doi: 10.1016/j.sbspro.2012.04.209

Ismail, W. H. W. (2013). Preserving and recycling of heritage buildings in Malacca. *Procedia – Social and Behavioral Sciences*, *85*, 574-581. doi: 10.1016/j.sbspro.2013.08.386

Ismail, W. H. W., & Shamsuddin, S. (2005, Sep). *The old shophouses as part of Malaysian urban heritage: The current dilemma*. Paper presented at the 8th International Conference of the Asian Planning Schools Association, Penang, Malaysia.

Itard, L., & Klunder, G. (2007). Comparing environmental impacts of renovated housing stock with new construction. *Building Research & Information*, *35*(3), 252-267. doi: 10.1080/09613210601068161

Jäger-Klein, C. (2012). Conversions in urban history. In M. Baum & K. Christiaanse (Eds.), *City as loft: Adaptive reuse as resource for sustainable urban development* (pp. 59-66). Zurich, Switzerland: gta Verlag.

Jalan Malioboro [Digital image]. (2019). Retrieved from https://en.wikipedia.org/wiki/Jalan_Malioboro

Jasme, N., Mydin, M. A. O., & Sani, N. M. (2014). Investigation of adaptive reuse of heritage buildings in Penang. *SHS Web of Conferences*, *11*, 01007. doi: 10.1051/shsconf/20141101007

Jimura, T. (2011). The impact of world heritage site designation on local communities – A case study of Ogimachi, Shirakawa–mura, Japan. *Tourism Management*, *32*, 288-296. doi: 10.1016/j.tourman.2010.02.005

Jokilehto, J. (1999). *A history of architectural conservation*. Oxford, England: Butterworth-Heinemann.

Ju, S. R., & Omar, S. B. (2017). Urban housing typology of modern Malaysia. In S. R. Ju (Ed.), *Southeast Asian houses: Embracing urban context* (pp. 11-42). Irvine, CA: Seoul Selection U. S. A., Inc.

Kalman, H. (1991). Adapting existing buildings as museums. In G. D. Lord & B. Lord (Eds.), *The manual of museum planning* (pp. 305-314). London, England: HMSO.

Kalman, H. (2014). *Heritage planning: Principles and process*. New York, NY: Routledge.

Kamal, K. S., Wahab, L. A., Zaidi, M. A., & Mustapa, S. H. (2005). Defects, repair and maintenance approach of historic buildings in Malaysia. In R. K. Dhir, M. R. Jones & L. Zheng (Eds.), *Repair and renovation of concrete structures* (pp. 451-458). London: Thomas Telford Ltd.

Kayan, B. (2006). Building maintenance in old buildings conservation approach. *Journal of Design and Built Environment*, *2*(1), 41-56.

Kaye, B. (1961). *Upper Nankin Street Singapore: A social study of Chinese households living in a densely populated area*. Singapore: University of Malaya Press.

Kee, T. (2014). Adaptive reuse of industrial buildings for affordable housing in Hong Kong. *Journal of Design and Built Environment*, *14*(1), 1-14.

Khan, S., & VanWynsberghe, R. (2008). Cultivating the under-mined: Cross-case analysis as knowledge mobilization. In *Forum: Qualitative Social Research (Volume 9, No. 1, Art. 34, January 2008)*. Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/334/729#footnoteanchor_1

Kincaid, D. (2002). *Adapting buildings for changing uses: Guidelines for change of use refurbishment*. London, England: Spon Press.

King, N., & Horrocks, C. (2010). *Interviews in qualitative research*. London, England: SAGE Publications Ltd.

Klenke, K. (2016). *Qualitative research in the study of leadership* (2nd ed.). Bingley, England: Emerald Group Publishing Limited.

Koh, J., & Ho, S. (2009). *Culture and customs of Asia: Culture and customs of Singapore and Malaysia*. Santa Barbara, CA: ABC-CLIO, LLC.

Kohler, N. (2006). A European perspective on the Pearce report: Policy and research. *Building Research & Information*, *34*(3), 287-294. doi: 10.1080/09613210600645803

Kucik, L. (2004). *Restoring life: The adaptive reuse of a sanatorium* (Master's thesis, University of Cincinnati, Ohio, United States). Retrieved from http://rave.ohiolink.edu/etdc/view?acc_num=ucin1083341760

Kurul, E. (2007). A qualitative approach to exploring adaptive re-use processes. *Facilities*, *25*(13/14), 554-570. doi: 10.1108/02632770710822634

Langston, C. (2011a, Apr). *Estimating the useful life of buildings*. Paper presented at the 36th Australasian University Building Educators Association Conference, Queensland, Australia.

Langston, C. A. (2011b). *Life-cost approach to building evaluation*. Oxon, England: Routledge.

Langston, C., Wong, F. K. W., Hui, E. C. M., & Shen, L. Y. (2008). Strategic assessment of building adaptive reuse opportunities in Hong Kong. *Building and Environment*, *43*, 1709-1718. doi: 10.1016/j.buildenv.2007.10.017

Large detailed administrative divisions map of Malaysia with major cities map high resolution world map showing Malaysia [Digital image]. (2015). Retrieved from http://www.kolovrat.org/world-map-showing-malaysia/large-detailed-administrative-divisions-map-of-malaysia-with-major-cities-map-high-resolution-world-map-showing-malaysia/

Latham, D. (2000). *Creative re-use of buildings: Principles and practice* (Vol. 1). Dorset, England: Donhead Publishing Ltd.

Laws of Malaysia. (2006). *National Heritage Act (Act 165) (All amendments up to September, 2006)*. Kuala Lumpur, Malaysia: MDC Publishers Sdn. Bhd.

Laws of Malaysia. (2012). *Local Government Act 1976 (Act 171) (As at 1 December 2012)* [PDF file]. Retrieved from http://www.agc.gov.my/agcportal/uploads/files/Publications/LOM/EN/Act%20171%20-%20Local%20Government%20Act%201976.pdf

Laws of Malaysia. (2016a). *Street, Drainage and Building Act 1974 (Act 133) (As at 1st September 2016)*. Kuala Lumpur, Malaysia: International Law Book Services.

Laws of Malaysia. (2016b). *Town and Country Planning Act 1976 (Act 172) (As at 20th July 2016)*. Kuala Lumpur, Malaysia: International Law Book Services.

Lee, W. H. (2016). The history of Melaka's urban morphology. doi: 10.13140/RG.2.1.1719.3367

Li, T. L. (2007). A study of influence on the facades of colonial shophouses in Singapore: A case study of Telok Ayer in Chinatown. *Journal of Asian Architecture and Building Engineering*, *6*(1), 41-48. doi: 10.3130/jaabe.6.41

Lim, J. S. H. (1993). The 'shophouses rafflesia': An outline of its Malaysian pedigree and its subsequent diffusion in Asia. *Journal of the Malaysian Branch of the Royal Asiatic Society*, *66*(1)(264), 47-66.

Lodico, M. G., Spaulding, D. T., & Voegtle, K. H. (2010). *Methods in educational research: From theory to practice* (2nd ed.). San Francisco, CA: Jossey-Bass.

Loh, A. (2015). *Malacca reminiscences*. Singapore: Partridge Publishing.

Lucas, R. (2016). *Research methods for architecture*. London, England: Laurence King Publishing Ltd.

Lund Research Ltd. (2012). Future research – Types of future research suggestions. In *Lærd Dissertation*. Retrieved from http://dissertation.laerd.com/types-of-future-research-suggestion.php

Luther, J. P. (1988). Site and situation: The context of adaptive reuse. In R. L. Austin, D. G. Woodcock, W. C. Steward & R. A. Forrester (Eds.), *Adaptive reuse: Issues and case studies in building preservation* (pp. 48-60). New York, NY: Van Nostrand Reinhold Company Inc.

Mallach, A. (2018). *The empty house next door*. Cambridge, MA: Lincoln Institute of Land Policy.

Mansor, R., Mydin, M. A. O., Sani, N. M. @ Abd Rahim, Roosli, R., & Hassan, H. (2012). Classification of inheritance shop houses in George Town, Penang – UNESCO World Heritage Sites. *Analele Universităţii "Eftimie Murgu" Resiţa*, *XIX*(1), 137-145.

Mark. (2016, May 11). *Phnom Penh's distinctive architecture* [Digital image]. Retrieved from http://www.kathmanduandbeyond.com/phnom-penh-architecture-cambodia/

Martin, S. (2004, March 30). Burma maintains bygone buildings. *BBC News*. Retrieved from http://news.bbc.co.uk/1/hi/world/asia-pacific/3578993.stm

Mathison, S. (Ed.). (2005). *Encyclopaedia of evaluation*. Thousand Oaks, CA: SAGE Publications, Inc.

Mazurkevich, A. (2016, March 2). *Kailas temple in Ellora caves complex, Maharashtra state in India* [Digital image]. Retrieved from https://www.alamy.com/stock-photo-kailas-temple-in-ellora-caves-complex-maharashtra-state-in-india-128904136.html

Mei, Y. Q., & Ahmad, Y. (2017). Challenges between authenticity and building regulations in adaptive reuse of shophouses in Malaysia. In H. A. Hashim, L. S. Hassan & I. Fitri (Eds.), *Proceedings of the 2nd International Nusantara Cultural Heritage Symposium 2017* (pp. 134-141). West Sumatra, Indonesia: Universitas Bung Hatta.

Melaka BPP (Tourism Promotion Division). (2016). *Melaka the guide*. Selangor, Malaysia: Bluedale Publishing (M) Sdn. Bhd.

Melaka JPBD (State Town and Country Planning Department). (2011). *Conservation Management Plan and Special Area Plan for Melaka*. Melaka, Malaysia: Melaka JPBD.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Mine, T. Z. (2013). Adaptive re-use of monuments "restoring religious buildings with different uses". *Journal of Cultural Heritage*, *14*(3), S14-S19. doi: 10.1016/j.culher.2012.11.017

Ministry of Tourism and Culture Malaysia. (2018). *Guidelines for Classification of Tourist Accommodation Premises for Boutique Hotels Category* [PDF file]. Retrieved from http://www.motac.gov.my/en/download/category/84-hotel-butik

Mitchell, M. L., & Jolley, J. M. (2010). *Research design explained* (7th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Mudarri, D., & Fisk, W. J. (2007). Public health and economic impact of the dampness and mold. *Indoor Air*, *17*(3), 226-235. doi: 10.1111/j.1600-0668.2007.00474.x

Mydin, M. A. O., Arminda, W., & Sani, N. M. (2014a). Fire risk assessment of adaptive re-use of historic shop houses for sleeping accommodations in Malaysia. *MATEC Web of Conferences*, *17*, 01011. doi: 10.1051/matecconf/20141701011

Mydin, M. A. O., Keling, N. A., Sani, N. M., & Abas, N. F. (2014b). Assessment of adaptive reuse of heritage shop houses for sleep lodging in Malaysia: Fulfilment of conservation guidelines. *SHS Web of Conferences*, *11*, 01014. doi: 10.1051/shsconf/20141101014

Myint, Z. N., Khin, S. S., & Aung, N. (2006). Excursion: Downtown and urban fringe of megacity Yangon. In F. Kraas, H. Gaese & M. M. Kyi (Eds.), *Megacity Yangon: Transformation processes and modern developments* (pp. 169-184). Berlin, Germany: LIT Verlag.

Newman, I., & Benz, C. R. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale, IL: Southern Illinois University Press.

Nigatu, T. (2009). *Qualitative data analysis* [PowerPoint slides]. Retrieved from http://www.slideshare.net/tilahunigatu/qualitative-data-analysis-11895136

O'Callaghan, C. (2016). *Introduction to qualitative research methods* [Class handout]. The Graduate School, University of Nottingham, Nottingham, United Kingdom.

O'Kelly, E., & Dean, C. (2007). *Conversions*. London, England: Laurence King Publishing Ltd.

Office of Environment and Heritage. (2012). *Adaptive reuse of heritage places policy*. New South Wales, Australia: Office of Environment and Heritage.

Orbasli, A. (2000). *Tourists in historic towns: Urban conservation and heritage management*. London, England: E & FN Spon.

Penang Global Tourism. (2018). *Heritage zones* [Digital image]. Retrieved from https://mypenang.gov.my/culture-heritage/heritage-zones/

Penang JPBD (State Town and Country Planning Department). (2013). *Special Area Plan: George Town, Historic Cities of the Straits of Malacca*. Penang, Malaysia: Penang JPBD.

Penang Shophouse. (2016). Shophouses styles. In *Traditional Shophouse*. Retrieved from http://penangshophouse.com.my/?page_id=191

Penang Shophouse. (2018a). *Art Deco style* [Digital image]. Retrieved from http://penangshophouse.com.my/?page_id=184

Penang Shophouse. (2018b). *Characteristics & features* [Digital image]. Retrieved from http://penangshophouse.com.my/?page_id=57

Penang Shophouse. (2018c). *Early Modern style* [Digital image]. Retrieved from http://penangshophouse.com.my/?page_id=186

Penang Shophouse. (2018d). *Early Straits Eclectic style* [Digital image]. Retrieved from http://penangshophouse.com.my/?page_id=191

Penang Shophouse. (2018e). *Late Straits Eclectic style* [Digital image]. Retrieved from http://penangshophouse.com.my/?page_id=182

Penang Shophouse. (2018f). *Southern Chinese Eclectic style* [Digital image]. Retrieved from http://penangshophouse.com.my/?page_id=178

Petersdorff, C., Boermans, T., & Harnisch, J. (2006). Mitigation of CO_2 emissions from the EU-15 building stock: Beyond the EU directive on the energy performance of buildings. *Environmental Science and Pollution Research*, *13*(5), 350-358. doi: 10.1065/espr2005.12.289

Petruzelli, A. G. (2008). *Re-cycling Buffalo's heritage: The regenerative re-use of 133 Tonawanda Street* (Master's thesis). Available from ProQuest Dissertations & Theses database. (UMI No. 1453472)

Pinder, J., & Wilkinson, S. J. (2000). The obsolescence of office property: A new research agenda. In A. Akintoye (Ed.), *Proceedings of the 16th Annual ARCOM Conference* (pp. 375-384). Glasgow, Scotland: Glasgow Caledonian University.

Pinder, J., Austin, S., Schmidt III, R., & Gibb, A. (2012). Form, function and the economics of change. In E. Finch (Ed.), *Facilities change management* (pp. 26-41). West Sussex, England: Blackwell Publishing Ltd.

Plevoets, B., & van Cleempoel, K. (2012, Mar). *Adaptive reuse as a strategy towards conservation of cultural heritage: A survey of 19th and 20th century theories*. Paper presented at the IE International Conference 2012, London, United Kingdom.

Plevoets, B., & van Cleempoel, K. (2013). Adaptive re-use as an emerging discipline: An historic survey. In G. Cairns (Ed.), *Reinventing architecture and interiors: A social-political view on building adaptation* (pp. 13-32). Oxfordshire, England: Libri Publishing.

Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies*, *47*(11), 1451-1458. doi: 10.1016/j.ijnurstu.2010.06.004

Poria, Y., Reichel, A., & Cohen, R. (2011). World Heritage Site – Is it an effective brand name? A case study of a religious heritage site. *Journal of Travel Research*, *50*(5), 482-495. doi: 10.1177/0047287510379158

Rabo, A. (2010). Enchanted sites, prosaic interests: Traders of the bazaar in Aleppo. In J. Scott & T. Selwyn (Eds.), *Thinking through tourism* (pp. 117-138). Oxford, England: Berg.

Rabun, J. S., & Kelso, R. M. (2009). *Building evaluation: For adaptive reuse and preservation*. Hoboken, NJ: John Wiley & Sons, Inc.

Rani, P. (2015). The impact of adaptive reusing heritage building as assessed by the indoor air quality case study: UNESCO World Heritage Site Penang. *Procedia – Social and Behavioral Sciences*, *179*, 297-307. doi: 10.1016/j.sbspro.2015.02.433

Rashid, N. S. A. (2011). *Kesesuaian amalan penyesuaigunaan bangunan kediaman bersejarah kepada memorial kebangsaan* (Master's thesis, University of Malaya, Kuala Lumpur, Malaysia). Retrieved from http://pendeta.um.edu.my/client/en_AU/default/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:839170/one?qu=%22839170%22&te=ILS

Rasoolimanesh, S. M., & Jaafar, M. (2017). Sustainable tourism development and residents' perceptions in World Heritage Site destinations. *Asia Pacific Journal of Tourism Research*, *22*(1), 34-48. doi: 10.1080/10941665.2016.1175491

Reed, R., & Warren-Myers, G. (2010, Jan). *Is sustainability the 4th form of obsolescence?*. Paper presented at the 16th Pacific Rim Real Society Conference, Wellington, New Zealand.

Remøy, H., & van der Voordt, T. (2014). Adaptive reuse of office buildings into housing: Opportunities and risks. *Building Research & Information*, *42*(3), 381-390. doi: 10.1080/09613218.2014.865922

Rubin, A., & Babbie, E. (2010). *Essential research methods for social work* (2nd ed.). Belmont, CA: Brooks/Cole, Cengage Learning.

Rubin, A., & Babbie, E. (2017). *Research methods for social work* (9th ed.). Boston, MA: Cengage Learning.

Saldana, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). London, England: SAGE Publications Ltd.

Salleh, N. H., & Ahmad, A. G. (2009, Oct). *Fire safety management in heritage buildings: The current scenario in Malaysia*. Paper presented at the 22nd CIPA Symposium, Kyoto, Japan.

Šarić, S. (2012). *Competitive advantages through clusters: An empirical study with evidence from China*. Wiesbaden, Germany: Gabler Verlag | Springer Fachmedien Wiesbaden.

Sarja, A. (2002). *Integrated life cycle design of structures*. London, England: Spon Press.

Schmertz, M. F. (Ed.). (1982). *New life for old buildings: An architectural record books*. New York, NY: McGraw-Hill, Inc.

Schneider, J. (2012). Introduction Europe. In M. Baum & K. Christiaanse (Eds.), *City as loft: Adaptive reuse as resource for sustainable urban development* (pp. 98-100). Zurich, Switzerland: gta Verlag.

Schreier, M. (2012). *Qualitative content analysis in practice*. London, England: SAGE Publications Ltd.

Sen, T. (2016). The impact of Zheng He's expeditions on Indian Ocean interactions. *Bulletin of SOAS*, *79*(3), 609-636. doi: 10.1017/S0041977X16001038

Shackley, M. (1998). Conclusions: Visitor management at World Cultural Heritage Sites. In M. Shackley (Ed.), *Visitor management: Case studies from World Heritage Sites* (pp. 194-205). Oxford, England: Butterworth-Heinemann.

Shipley, R., Utz, S., & Parsons, M. (2006). Does adaptive reuse pay? A study of the business of building renovation in Ontario, Canada. *International Journal of Heritage Studies*, *12*(6), 505-520. doi: 10.1080/13527250600940181

Sigsworth, E. M., & Wilkinson, R. K. (1967). Rebuilding or renovation?. *Urban Studies*, *4*(2), 399-404.

Singh, R. (1984). *Brunei 1839-1983: The problems of political survival*. Kuala Lumpur, Malaysia: Oxford University Press.

Sirisrisak, T. (2009). Conservation of Bangkok old town. *Habitat International*, *33*, 405-411. doi: 10.1016/j.habitatint.2008.12.002

Slaughter, E. S. (2001). Design strategies to increase building flexibility. *Building Research & Information*, *29*(3), 208-217. doi: 10.1080/09613210010027693

Smith, M. (2002). A critical evaluation of the global accolade: The significance of World Heritage Site status for Maritime Greenwich. *International Journal of Heritage Studies*, *8*(2), 137-151. doi: 10.1080/13527250220143922

Southeast Asia political map [Digital image]. (2003). Retrieved from https://www.gifex.com/fullsize-en/2009-11-18-11174/Southeastern-Asia-Political-Map-2003.html

Soy, S. K. (1997). *The case study as a research method*. (Unpublished paper). University of Texas at Austin, Austin, United States.

Strange, I., & Whitney, D. (2003). The changing roles and purposes of heritage conservation in the UK. *Planning, Practice and Research*, *18*(2-3), 219-229. doi: 10.1080/0269745032000168278

Su, K. (2014). *Gassho-zukuri houses and farmland in the mountain, Shirakawa-go, Gifu Prefecture, Japan* [Digital image]. Retrieved from https://www.alamy.com/stock-photo-gassho-zukuri-houses-and-farmland-in-the-mountain-shirakawa-go-gifu-80551088.html

SurveyMonkey Inc. (2019). Observational research. In *Conducting Qualitative Research*. Retrieved from https://www.surveymonkey.com/mp/conducting-qualitative-research/

Swallow, P. (1997). Managing unoccupied buildings and sites. *Structural Survey*, *15*(2), 74-79. doi: 10.1108/02630809710175137

Tan, Y., Shen, L., & Langston, C. (2014). A fuzzy approach for adaptive reuse selection of industrial buildings in Hong Kong. *International Journal of Strategic Property Management*, *18*(1), 66-76. doi: 10.3846/1648715X.2013.864718

Tan, Y., Shen, L., & Langston, C. (2015). A quantitative approach for identifying adaptive reuse option for buildings. In L. Shen, K. Ye & C. Mo (Eds.), *Proceedings of the 19th International Symposium on Advancement of Construction Management and Real Estate* (pp. 495-505). Berlin, Germany: Springer-Verlag Berlin Heidelberg.

Taylor, C., & Gibbs, G. R. (2010). How and what to code. In *Online QDA – Learning Qualitative Data Analysis on the Web*. Retrieved from http://onlineqda.hud.ac.uk/Intro_QDA/how_what_to_code.php

Taylor, S. J., & Bogdan, R. (1998). *Introduction to qualitative research methods: A guidebook and resource* (3rd ed.). New York, NY: John Wiley & Sons, Inc.

Thompson, E. K. (Ed.). (1977). *Recycling buildings: Renovations, remodelings, restorations, and reuses*. New York, NY: McGraw-Hill, Inc.

Thomsen, A., & van der Flier, K. (2006, Sep). *Life cycle of dwellings: A conceptual model based on Dutch practice*. Paper presented at the XXXIV IAHS World Congress on Sustainable Housing Design, Naples, Italy.

Thomsen, A., & van der Flier, K. (2011a, Jun). *Obsolescence and the end of life phase of buildings*. Paper presented at the Management and Innovation for a Sustainable Built Environment 2011, Amsterdam, The Netherlands.

Thomsen, A., & van der Flier, K. (2011b). Understanding obsolescence: A conceptual model for buildings. *Building Research & Information*, *39*(4), 352-362. doi: 10.1080/09613218.2011.576328

Thomsen, A., & van der Flier, K. (2013, Jun). *Housing obsolescence in practice: Model implementation*. Paper presented at the 25th European Network for Housing Research, Tarragona, Spain.

Tiesdell, S., Oc, T., & Heath, T. (1996). *Revitalizing historic urban quarters*. Oxford, England: Architectural Press.

UNESCO World Heritage Centre. (2016a). Historic city of Vigan. In *World Heritage List*. Retrieved from http://whc.unesco.org/en/list/502

UNESCO World Heritage Centre. (2016b). Hoi An ancient town. In *World Heritage List*. Retrieved from http://whc.unesco.org/en/list/948

UNESCO World Heritage Centre. (2016c). Melaka and George Town, historic cities of the Straits of Malacca. In *World Heritage List*. Retrieved from http://whc.unesco.org/en/list/1223

UNESCO World Heritage Centre. (2016d). Town of Luang Prabang. In *World Heritage List*. Retrieved from http://whc.unesco.org/en/list/479

UNESCO World Heritage Centre. (2017). *Operational guidelines for the implementation of the World Heritage Convention*. Paris, France: UNESCO World Heritage Centre.

UNESCO World Heritage Centre. (2018). Guide 3 – Case study: Melaka and George Town, historic cities of the Straits of Malacca (Malaysia). In *UNESCO World Heritage Sustainable Tourism Toolkit*. Retrieved from http://whc.unesco.org/sustainabletourismtoolkit/guide-3-–-case-study-melaka-and-george-town-historic-cities-straits-malacca-malaysia

UNESCO World Heritage Centre. (2019a). *Historic city of Vigan* [Digital image]. Retrieved from http://whc.unesco.org/en/list/502

UNESCO World Heritage Centre. (2019b). World Heritage. In *World Heritage Centre*. Retrieved from https://whc.unesco.org/en/about/

Unit Perancang Ekonomi Negeri (Melaka State Economic Planning Unit). (2016). *Buku asas negeri Melaka 2015*. Melaka, Malaysia: Unit Perancang Ekonomi Negeri.

University of Cornell. (2005). More complex editing issues. In *Profiles of Practitioners: Practice Stories from the Field*. Retrieved from https://courses2.cit.cornell.edu/fit117/CP_E_MoreComplexIssues.htm

Urban Redevelopment Authority. (2011). *Conservation guidelines*. Singapore: Urban Redevelopment Authority.

Urban Redevelopment Authority. (2016). The shophouse. In *Conservation – Vision and Principles*. Retrieved from http://www.ura.gov.sg/oul/conservation/vision-and-principles/The-Shophouse.aspx#

Velthuis, K., & Spennemann, D. H. R. (2007). The future of defunct religious buildings: Dutch approaches to their adaptive re-use. *Cultural Trends*, *16*(1), 43-66. doi: 10.1080/09548960601106979

Ventolo, Jr., W. L., & Williams, M. R. (2001). *Fundamental of real estate appraisal* (8th ed.). Chicago, IL: Dearbon Real Estate Education.

Vollenhoven, A. C. V. (2018). The nature and scope of cultural heritage resources management in South Africa. In P. Ngulube (Ed.), *Handbook of research on heritage management and preservation* (pp. 340-371). Hershey, PA: IGI Global.

Wahab, L. A., Hamdan, N. A. M., Lop, N. S., & Kamar, I. F. M. (2016). Adaptive re-use principles in historic hotel buildings in Melaka and George Town. *MATEC Web of Conferences*, *66*, 00030. doi: 10.1051/matecconf/20166600030

Wakita, Y., & Shiraishi, H. (2010). Spatial recomposition of shophouses in Phnom Penh, Cambodia. *Journal of Asian Architecture and Building Engineering*, *9*(1), 207-214. doi: 10.3130/jaabe.9.207

Wang, H. J., & Zeng, Z. T. (2010). A multi-objective decision-making process for reuse selection of historic buildings. *Expert Systems with Applications*, *37*(2), 1241-1249. doi: 10.1016/j.eswa.2009.06.034

Wasserman, B., Sullivan, P., & Palermo, G. (2000). *Ethics and the practice of architecture*. New York, NY: John Wiley & Sons, Inc.

Wee, W. L. H., Yoon, D. K. T., & Guan, G. G. G. (2014). Revitalisation of the old township of Ipoh, Malaysia. *Journal of Place Management and Development*, *7*(1), 57-73. doi: 10.1108/JPMD-05-2013-0015

Wilkinson, S. J., & Reed, R. G. (2008, Jan). *The business case for incorporating sustainability in office buildings: The adaptive reuse of existing buildings*. Paper presented at the 14th Annual Pacific Rim Real Estate Conference 2008, Kuala Lumpur, Malaysia.

Wilkinson, S. J., James, K., & Reed, R. (2009). Using building adaptation to deliver sustainability in Australia. *Structural Survey*, *27*(1), 46-61. doi: 10.1108/02630800910941683

Wilkinson, S. J., Remøy, H., & Langston, C. (2014). *Sustainable building adaptation: Innovations in decision-making*. West Sussex, England: John Wiley & Sons, Ltd.

Windsor, M. (2016). Advantages and disadvantages of non participant observation. In *Sociology*. Retrieved from https://getrevising.co.uk/grids/advantages-and-disadvantages-of-non-participant-2

Worthing, D., & Bond, S. (2007). *Managing built heritage: The role of cultural significance*. Oxford, England: Blackwell Publishing Ltd.

Yıldırım, M., & Turan, G. (2012). Sustainable development in historic areas: Adaptive re-use challenges in traditional houses in Sanliurfa, Turkey. *Habitat International*, *36*(4), 493-503. doi: 10.1016/j.habitatint.2012.05.005

Yin, R. K. (2016). *Qualitative research from start to finish* (2nd ed.). New York, NY: The Guildford Press.

Young, R. A. (2012). *Stewardship of the built environment: Sustainability, preservation, and reuse*. Washington, DC: Island Press.

Yung, E. H. K., Langston, C., & Chan, E. H. W. (2014). Adaptive reuse of traditional Chinese shophouses in government-led urban renewal projects in Hong Kong. *Cities*, *39*, 87-98. doi: 10.1016/j.cities.2014.02.012

Zakaria, M. H. A. M. (2019, February 26). KDNK Melaka: Industri pelancongan antara penyumbang terbesar. *MelakaKini*. Retrieved from https://melakakini.my/kdnk-melaka-industri-pelancongan-antara-penyumbang-terbesar/

Zawawi, N. A. W. A., & Abdullah, A. (2011). Evaluating stakeholders preferences: Reconciling heritage and sustainability. *WIT Transactions on Ecology and the Environment*, *150*, 675-686. doi: 10.2495/SDP110561

Zubir, Z., Hao, K. J., Hussain, N. H., & Isip, P. F. (2018). Rejuvenating the shophouses: Conservation of historical buildings in Penang's UNESCO World Heritage Site. *International Journal of Heritage Architecture*, *2*(2), 335-346. doi: 10.2495/HA-V2-N2-335-346

ZUMA Press. (2016). *Luang Prabang, Luang Prabang, Laos* [Digital image]. Retrieved from https://www.alamy.com/stock-photo-luang-prabang-luang-prabang-laos-11th-mar-2016-a-colonial-style-shophouse-98885439.html

Appendix A: Ethics Approval

Ethics Committee Reviewer Decision

This form must be completed by each reviewer. Each application will be reviewed by two members of the ethics committee. Reviews may be completed electronically and sent to the Faculty ethics administrator (Jo Deeley) from a University of Nottingham email address, or may be completed in paper form and delivered to the Faculty of Engineering Research Office.

Applicant full name Nor Syahila Binti Ab Rashid

Reviewed by:

Name David Morris
Signature (paper based only) .....

Date ...6 January 2017.....

- ☐ Approval awarded - no changes required
- ■ Approval awarded - subject to required changes (see comments below)
- ☐ Approval pending - further information & resubmission required (see comments)
- ☐ Approval declined – reasons given below

Comments:

This study looks almost good to go.

However, looking at your consent form:

- It is usually a good idea to have box next to each statement which the participant can initial – that way you are in no doubt that they have paid attention to what they are signing.
- "I will not be identified and my personal results will remain confidential, unless I explicitly agree that the name of my premise/company/agency may be made public." In the information sheet you state that you will publish photos of the premises – would this be enough to identify the premises? You need to have somewhere on the form where they can agree - so that their choice is recorded.
- "I understand that I will be audio recorded during the interview, unless otherwise requested by me.". this would be better as a special box to initial stating "I agree to having my audio to recorded during the interview". This way you have a clear record of it, and the participant has opted in, rather than opting out – you currently have nowhere to record whether the participant has opted out, this solves this issue.

If you make the suggested changes to the consent form, then I am happy for this work to proceed.

Please note:

1. The approval only covers the participants and trials specified on the form and further approval must be requested for any repetition or extension to the investigation.
2. The approval covers the ethical requirements for the techniques and procedures described in the protocol but does not replace a safety or risk assessment.
3. Approval is not intended to convey any judgement on the quality of the research, experimental design or techniques.
4. Normally, all queries raised by reviewers should be addressed. In the case of conflicting or incomplete views, the ethics committee chair will review the comments and relay these to the applicant via email. All email correspondence related to the application must be copied to the Faculty research ethics administrator.

Appendix A: Ethics Approval (cont'd)

Ethics Committee Reviewer Decision

This form must be completed by each reviewer. Each application will be reviewed by two members of the ethics committee. Reviews may be completed electronically and sent to the Faculty ethics administrator (Jo Deeley) from a University of Nottingham email address, or may be completed in paper form and delivered to the Faculty of Engineering Research Office.

Applicant full name: Nor Syahila Binti Abrashid

Reviewed by:

Name Dr Glyn Lawson

Signature (paper based only) .....

Date 05.01.16

- ☐ Approval awarded - no changes required
- ■ Approval awarded - subject to required changes (see comments below)
- ☐ Approval pending - further information & resubmission required (see comments)
- ☐ Approval declined – reasons given below

Comments:

Mostly fine, but:

I would not approve the researcher visiting the participants in the participants' homes if she is on her own. Please either conduct the interviews in an office, a public place, or with somebody else if travelling to participants' homes. This is an issue of safety of the researcher.

.....
.....
.....
.....
.....
.....
.....
.....
.....

Please note:

1. The approval only covers the participants and trials specified on the form and further approval must be requested for any repetition or extension to the investigation.
2. The approval covers the ethical requirements for the techniques and procedures described in the protocol but does not replace a safety or risk assessment.
3. Approval is not intended to convey any judgement on the quality of the research, experimental design or techniques.
4. Normally, all queries raised by reviewers should be addressed. In the case of conflicting or incomplete views, the ethics committee chair will review the comments and relay these to the applicant via email. All email correspondence related to the application must be copied to the Faculty research ethics administrator.

Appendix B: Fieldwork Cover Letter

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Faculty of Engineering
Department of Architecture & Built Environment
University of Nottingham
University Park
Nottingham NG7 2RD
United Kingdom

Tel: (0115) 951 4887
Email: tim.heath@nottingham.ac.uk

To Whom It May Concern,

3rd January 2017

Dear Sirs,

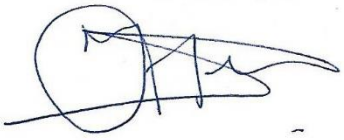
REQUESTING INFORMATION FOR PhD THESIS RESEARCH

Please be informed that **NOR SYAHILA BINTI AB RASHID (Student ID Number: 4260993)** is a student in a programme leading to the **Doctor of Philosophy in Architecture (Social Sciences)** in the Department of Architecture & Built Environment at Faculty of Engineering, University of Nottingham.

She is currently collecting research data related to her study on **"The Drivers and Barriers to Adaptive Reuse as a Strategy to Minimise Obsolescence of Malaysian Shophouses"**. All information obtained will be regarded as confidential and be used for academic purposes only. If you have any queries, you may contact the student at **019-3994635** or email: laxnsab@nottingham.ac.uk.

Your cooperation in this research is highly appreciated and if you have any further questions please do not hesitate to contact me.

With kind regards



Professor Tim Heath

Department of Architecture & Built Environment
Faculty of Engineering
University of Nottingham, UK

Appendix C: On-Site Survey

DATABASE OF SHOPHOUSES WITHIN THE CORE ZONE OF MELAKA, MALAYSIA (2017)

No.	Building No.	Street Name	Building Style	Date Built	Previous Use (Before 2005)		Previous Use (2005)		Current Use (2017)		Nature of Use	Building Name	Heritage Listing	Date Converted	Professional Expert	Participation
					Lower	Upper(s)	Lower	Upper(s)	Lower	Upper(s)						
1	14	Jalan Tun Tan Cheng Lock	Early Period	1851-1870					Art Gallery**	Residence**	Full Preservation					
2	26	Jalan Tun Tan Cheng Lock	Early Period	1851-1870					Engraving Shop**	Residence & Storage**	Full Preservation					
3	32	Jalan Tun Tan Cheng Lock	Early Period	1851-1870					Café**	Residence**	Full Preservation					
4	39	Jalan Tun Tan Cheng Lock	Early Period	1801-1850			Coffee Shop*	Residence*	Residence	Residence	Partial Preservation-Reuse					
5	40	Jalan Tun Tan Cheng Lock	Early Period	1801-1850			Shop*	Residence*	Vacant	Vacant	Full Vacant					
6	42	Jalan Tun Tan Cheng Lock	Early Period	1801-1850					Art Gallery**	Residence**	Full Preservation					
7	45	Jalan Tun Tan Cheng Lock	Early Period	1891-1910			Art Gallery*	Residence*	Vacant	Vacant	Full Vacant					
8	62	Jalan Tun Tan Cheng Lock	Early Period	1801-1850			Handicraft/Art Gallery*	Residence*	Vacant	Vacant	Full Vacant					
9	69	Jalan Tun Tan Cheng Lock	Early Period	1801-1850					Art Gallery**	Residence**	Full Preservation					
10	84	Jalan Tun Tan Cheng Lock	Early Period	Unknown					Shoe Shop**	Residence**	Full Preservation					
11	86	Jalan Tun Tan Cheng Lock	Early Period	Unknown			Shop*	Residence*	Funeral Shop	Vacant	Partial Vacant-Preservation					
12	89	Jalan Tun Tan Cheng Lock	Early Period	1801-1850			Art Gallery*	Residence*	Café	Residence	Partial Preservation-Reuse					
13	90	Jalan Tun Tan Cheng Lock	Transitional Period	1801-1850					Clothing Shop**	Residence**	Full Preservation					
14	100	Jalan Tun Tan Cheng Lock	Transitional Period	1851-1870					Restaurant**	Residence**	Full Preservation					
15	102	Jalan Tun Tan Cheng Lock	Transitional Period	1801-1850	Furniture Shop	Residence			Souvenir Shop	Residence	Full Preservation					
16	146	Jalan Tun Tan Cheng Lock	Early Period	1801-1850					Hair Salon**	Residence**	Full Preservation					
17	167	Jalan Tun Tan Cheng Lock	Early Period	1801-1850			Shop*	Residence*	Souvenir Shop	Residence	Full Preservation					
18	171	Jalan Tun Tan Cheng Lock	Early Period	1801-1850					Pawn Shop**	Residence**	Full Preservation					
19	177	Jalan Tun Tan Cheng Lock	Early Period	1751-1800			Local Food Produce Shop*	Residence*	Local Food Produce Shop	Vacant	Partial Vacant-Preservation					
20	181	Jalan Tun Tan Cheng Lock	Early Period	Unknown					Art Gallery**	Residence**	Full Preservation					
21	10	Jalan Kubu	Straits Eclectic	1911-1930			Shop*	Residence*	Signage Shop	Residence	Full Preservation					
22	14	Jalan Kubu	Straits Eclectic	1911-1930			Restaurant*	Residence*	Restaurant	Residence	Full Preservation					
23	24	Jalan Kubu	Straits Eclectic	1931-1950					Coffee Shop**	Residence & Storage**	Full Preservation					
24	26	Jalan Kubu	Modern	1931-1950			Antique Furniture Shop*	Residence*	Boutique Hotel	Boutique Hotel	Full Reuse	The Blanc Boutique Hotel	Low	2017	Yes (Yong Meng)	No
25	28	Jalan Kubu	Modern	1931-1950			Antique Furniture Shop*	Residence*	Boutique Hotel	Boutique Hotel	Full Reuse	The Blanc Boutique Hotel	Low	2017	Yes (Yong Meng)	No
26	8	Lorong Masjid	Modern	1971-1980			Wholesale*	Residence*	Wholesale	Vacant	Partial Vacant-Preservation					
27	4	Jalan Hang Lekir	Straits Eclectic	1911-1930			Art/Antique Shop*	Residence*	Pub	Vacant	Partial Reuse-Vacant					
28	7	Jalan Hang Lekir	Straits Eclectic	1891-1910			Shop*	Residence*	Restaurant	Restaurant	Full Reuse	Siew Tin's Nyonya Kitchen	High	2016	No	N/A
29	11	Jalan Hang Lekir	Straits Eclectic	1911-1930			Shop*	Residence*	Bistro & Restaurant	Bistro & Restaurant	Full Reuse	Eleven Bistro & Restaurant	High	2007	No	N/A
30	12	Jalan Hang Lekir	Transitional Period	1891-1910			Shop*	Residence*	Workshop	Vacant	Partial Vacant-Preservation					
31	13	Jalan Hang Lekir	Straits Eclectic	1911-1930					Café**	Residence**	Full Preservation					
32	19	Jalan Hang Lekir	Modern	1911-1930					Café**	Residence**	Full Preservation					
33	20	Jalan Hang Lekir	Straits Eclectic	1891-1910	Restaurant	Residence			Café	Café	Partial Preservation-Reuse					
34	21	Jalan Hang Lekir	Traditional Period	1871-1890			Shop*	Residence*	Watch Shop	Vacant	Partial Vacant-Preservation					
35	23	Jalan Hang Lekir	Straits Eclectic	1871-1890			Shop*	Residence*	Clothing & Shoe Shop	Residence	Full Preservation					
36	25	Jalan Hang Lekir	Straits Eclectic	1891-1910			Shop*	Residence*	Clothing Shop	Vacant	Partial Vacant-Preservation					
37	27	Jalan Hang Lekir	Traditional Period	1871-1890	Souvenir Shop	Residence			Clothing Shop	Vacant	Partial Vacant-Preservation					
38	33	Jalan Hang Lekir	Traditional Period	1931-1950	Restaurant	Residence			Clothing Shop	Residence	Partial Preservation-Reuse					
39	1	Jalan Hang Jebat	Early Period	Unknown	Shop	Residence			Coffee Shop	Residence	Full Preservation					
40	3	Jalan Hang Jebat	Early Period	1751-1800	Art Shop	Residence			Souvenir Shop	Residence	Full Preservation					
41	4	Jalan Hang Jebat	Early Period	Unknown	Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
42	6	Jalan Hang Jebat	Early Period	Unknown					Restaurant**	Residence**	Full Preservation					
43	8	Jalan Hang Jebat	Early Period	Unknown					Restaurant**	Residence**	Full Preservation					
44	10	Jalan Hang Jebat	Early Period	Unknown	Shop	Residence			Art Gallery	Souvenir Shop	Full Reuse	rangutan House & Acacia Living Stud	High	2017	Unknown	N/A
45	11	Jalan Hang Jebat	Straits Eclectic	1751-1800			Antique Shop*	Residence*	Clothing Shop	Vacant	Partial Vacant-Preservation					
46	12	Jalan Hang Jebat	Early Period	Unknown	Bicycle Shop	Residence			Art & Craft Shop	Vacant	Partial Vacant-Preservation					
47	13	Jalan Hang Jebat	Straits Eclectic	Unknown			Handicraft/Restaurant*	Residence*	Vacant	Vacant	Full Vacant					
48	15	Jalan Hang Jebat	Straits Eclectic	Unknown			Handicraft/Restaurant*	Residence*	Souvenir Shop	Vacant	Partial Vacant-Preservation					
49	16	Jalan Hang Jebat	Early Period	1801-1850			Shop*	Residence*	Souvenir Shop	Vacant	Partial Vacant-Preservation					
50	17	Jalan Hang Jebat	Straits Eclectic	Unknown			Handicraft/Restaurant*	Residence*	Souvenir Shop	Vacant	Partial Vacant-Preservation					
51	26	Jalan Hang Jebat	Early/Dutch Period	Pre-1700	Antique/Photo Shop	Residence			Vacant	Vacant	Full Vacant					
52	27	Jalan Hang Jebat	Transitional Period	Unknown			Restaurant*	Residence*	Souvenir Shop	Gallery	Full Reuse	Oneyou Souvenir	High	2007	Unknown	N/A
53	32A	Jalan Hang Jebat	Traditional/Dutch Period	Unknown			Shop*	Residence*	Convenience Shop	Vacant	Partial Vacant-Preservation					
54	32B	Jalan Hang Jebat	Traditional/Dutch Period	Unknown			Shop*	Residence*	Money Changer	Vacant	Partial Vacant-Preservation					
55	36	Jalan Hang Jebat	Straits Eclectic	1931-1950			Antique Shop*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
56	38	Jalan Hang Jebat	Straits Eclectic	1931-1950			Antique Shop*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
57	40	Jalan Hang Jebat	Transitional Period	1851-1870			Antique Shop*	Residence*	Souvenir Shop	Vacant	Partial Vacant-Preservation					
58	42	Jalan Hang Jebat	Transitional Period	Unknown			Antique Shop*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
59	44	Jalan Hang Jebat	Art Deco	Unknown			Antique Shop*	Residence*	Local Food Produce Shop	Vacant	Partial Vacant-Preservation					
60	47	Jalan Hang Jebat	Early Period	Unknown			Antique Shop*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
61	50	Jalan Hang Jebat	Early Period	1891-1910			Clothing Shop*	Residence*	Vacant	Vacant	Full Vacant					
62	52	Jalan Hang Jebat	Traditional Period	1871-1890			Jewellery Antique Shop*	Residence*	Jewellery Antique Shop	Vacant	Partial Vacant-Preservation					
63	54	Jalan Hang Jebat	Straits Eclectic	1891-1910	Hair Salon	Residence			Gallery	Gallery	Full Reuse	Time Machine Gallery	High	2016	No	N/A
64	56	Jalan Hang Jebat	Straits Eclectic	1871-1890			Antique Shop*	Residence*	Antique Shop	Storage	Partial Preservation-Reuse					
65	60	Jalan Hang Jebat	Art Deco	1951-1970			Shop*	Residence*	Café & Clothing Shop	Storage	Partial Preservation-Reuse					
66	62	Jalan Hang Jebat	Art Deco	1911-1930	Hair Salon	Residence			Antique Shop	Vacant	Partial Vacant-Preservation					
67	63	Jalan Hang Jebat	Early/Dutch Period	Unknown			Art Shop*	Residence*	Convenience Shop	Vacant	Partial Vacant-Preservation					
68	65	Jalan Hang Jebat	Early Period	Unknown			Art Shop*	Residence*	Vacant	Vacant	Full Vacant					
69	70	Jalan Hang Jebat	Transitional Period	1851-1870			Antique Shop*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
70	71	Jalan Hang Jebat	Transitional Period	1911-1930	Shop	Residence			Ring Boxes Shop	Vacant	Partial Vacant-Preservation					
71	72	Jalan Hang Jebat	Transitional Period	Unknown			Frame Maker*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
72	74	Jalan Hang Jebat	Straits Eclectic	1891-1910	Antique Shop	Residence			Café	Café	Full Reuse	Big Bowl Ice	High	2017	Unknown	N/A
73	76	Jalan Hang Jebat	Straits Eclectic	1891-1910			Art Gallery/Shop*	Residence*	Foot Reflexology Centre	Vacant	Partial Reuse-Vacant					
74	79	Jalan Hang Jebat	Transitional Period	Unknown			Antique Shop*	Residence*	Antique Shop	Vacant	Partial Vacant-Preservation					
75	80	Jalan Hang Jebat	Early Period	1871-1890	Tailor Shop	Residence			Tailor Shop	Vacant	Partial Vacant-Preservation					
76	82	Jalan Hang Jebat	Transitional Period	1911-1950			Antique Shop*	Residence*	Museum	Vacant	Partial Reuse-Vacant					
77	83	Jalan Hang Jebat	Transitional Period	1891-1910	Restaurant	Residence			Café	Café	Partial Preservation-Reuse					
78	84	Jalan Hang Jebat	Transitional Period	1911-1930			Frame Shop*	Residence*	Vacant	Vacant	Full Vacant					
79	85	Jalan Hang Jebat	Transitional Period	Unknown			Café*	Residence*	Restaurant	Storage	Partial Preservation-Reuse					
80	86	Jalan Hang Jebat	Art Deco	1911-1930			Shop*	Residence*	Café	Vacant	Partial Reuse-Vacant					
81	96	Jalan Hang Jebat	Early Period	1801-1850			Shop*	Residence*	Local Food Produce Shop	Vacant	Partial Vacant-Preservation					
82	97	Jalan Hang Jebat	Straits Eclectic	Unknown					Local Food Produce Shop**	Residence**	Full Preservation					
83	98	Jalan Hang Jebat	Art Deco	1958-1970			Liquor Shop*	Residence*	Storage	Storage	Full Reuse					
84	101	Jalan Hang Jebat	Straits Eclectic	1891-1910			Art Shop*	Residence*	Clothing Shop	Vacant	Partial Vacant-Preservation					
85	103	Jalan Hang Jebat	Straits Eclectic	1891-1910			Art Shop*	Residence*	Souvenir Shop	Vacant	Partial Vacant-Preservation					
86	106	Jalan Hang Jebat	Early/Dutch Period	1851-1870					Local Food Produce Shop**	Residence**	Full Preservation					
87	112	Jalan Hang Jebat	Transitional Period	1891-1910			Souvenir Shop*	Residence*	Vacant	Vacant	Full Vacant					
88	129	Jalan Hang Jebat	Straits Eclectic	1931-1950	Shop	Residence			Retail Area & Cafe	Boutique Hotel	Full Reuse	**Fomecs Boutique Hotel**	**Medium**	**2012**	**Yes (Akitek WYT)**	**Yes**
89	131	Jalan Hang Jebat	Straits Eclectic	1931-1950	Shop	Residence			Retail Area & Cafe	Boutique Hotel	Full Reuse	**Fomecs Boutique Hotel**	**Medium**	**2012**	**Yes (Akitek WYT)**	**Yes**
90	136	Jalan Hang Jebat	Traditional Period	1851-1870	Shop	Residence			Local Food Produce Shop	Vacant	Partial Vacant-Preservation					
91	137	Jalan Hang Jebat	Art Deco	Unknown	Photo Shop	Residence			Vacant	Vacant	Full Vacant					
92	139	Jalan Hang Jebat	Straits Eclectic	Unknown			Handicraft Shop*	Residence*	Antique Shop	Residence	Full Preservation					
93	141	Jalan Hang Jebat	Straits Eclectic	Unknown			Tailor Shop*	Residence*	Vacant	Vacant	Full Vacant					
94	142	Jalan Hang Jebat	Traditional/Dutch Period	1851-1870			Religious Goods Shop*	Residence*	Vacant	Vacant	Full Vacant					
95	147	Jalan Hang Jebat	Unknown	Unknown					Telecommunications Shop**	Residence**	Full Preservation					
96	1	Jalan Tukang Besi	Early Period	1911-1930	Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
97	4	Jalan Tukang Besi	Art Deco	Unknown	Shop	Residence			Guest House	Guest House	Full Reuse	Voyage Home	Medium	2012	No	N/A

Appendix C: On-Site Survey (cont'd)

DATABASE OF SHOPHOUSES WITHIN THE CORE ZONE OF MELAKA, MALAYSIA (2017)

No.	Building No.	Street Name	Building Style	Date Built	Previous Use (Before 2005)		Previous Use (2005)		Current Use (2017)		Nature of Use	Building Name	Heritage Listing	Date Converted	Professional Expert	Participation
					Lower	Upper(s)	Lower	Upper(s)	Lower	Upper(s)						
98	5	Jalan Tukang Besi	Early Period	1931-1950	Shop	Residence			Workshop	Residence	Full Preservation					
99	7	Jalan Tukang Besi	Unknown	Unknown			Shop*	Residence*	Café	Residence	Partial Preservation-Reuse					
100	9	Jalan Tukang Besi	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
101	10	Jalan Tukang Besi	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
102	14	Jalan Tukang Besi	Early Period	1891-1910	Shop	Residence			Art & Craft Shop	Residence	Full Preservation					
103	15	Jalan Tukang Besi	Modern	Unknown	Shop	Residence			Workshop	Residence	Full Preservation					
104	16	Jalan Tukang Besi	Modern	Unknown			Shop*	Residence*	Vacant	Vacant	Full Vacant					
105	18	Jalan Tukang Besi	Modern	Unknown			Shop*	Residence*	Vacant	Vacant	Full Vacant					
106	20	Jalan Tukang Besi	Modern	Unknown	Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
107	21	Jalan Tukang Besi	Modern	Unknown					Antique Shop**	Residence**	Full Preservation					
108	22	Jalan Tukang Besi	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
109	24	Jalan Tukang Besi	Early Period	Unknown	Shop	Residence			Art Gallery	Residence	Partial Preservation-Reuse					
110	26	Jalan Tukang Besi	Early Period	Unknown	Shop	Residence			Guest House	Guest House	Full Reuse	Layang-Layang Guest House	High	2014	No	N/A
111	27	Jalan Tukang Besi	Modern	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
112	28	Jalan Tukang Besi	Unknown	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
113	29	Jalan Tukang Besi	Modern	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
114	30	Jalan Tukang Besi	Early Period	Unknown			Funeral Services*	Residence*	Funeral Services	Residence	Full Preservation					
115	31	Jalan Tukang Besi	Modern	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
116	33	Jalan Tukang Besi	Modern	1911-1930	Shop	Residence			Vacant	Vacant	Full Vacant					
117	36	Jalan Tukang Besi	Unknown	Unknown	Shop	Residence			Guest House	Guest House	Full Reuse	Kawan-Kawan Guest House	Low	2012	Unknown	N/A
118	38	Jalan Tukang Besi	Unknown	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
119	40	Jalan Tukang Besi	Art Deco	1700-1750	Shop	Residence			Convenience Shop	Residence	Full Preservation					
120	2	Jalan Tukang Emas	Early Period	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
121	4	Jalan Tukang Emas	Early Period	1931-1950			Shop*	Residence*	Vacant	Vacant	Full Vacant					
122	6	Jalan Tukang Emas	Transitional Period	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
123	10	Jalan Tukang Emas	Transitional Period	Unknown	Shop	Residence			Art & Craft Shop	Residence	Full Preservation					
124	12	Jalan Tukang Emas	Transitional Period	1951-1957	Shop	Residence			Souvenir Shop	Residence	Full Preservation					
125	13	Jalan Tukang Emas	Modern	1931-1950	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
126	15	Jalan Tukang Emas	Early Period	Unknown			Antique Shop*	Residence*	Antique Shop	Storage	Partial Preservation-Reuse					
127	16	Jalan Tukang Emas	Modern	Unknown	Medicine Shop	Residence			Art Gallery	Residence	Partial Preservation-Reuse					
128	18	Jalan Tukang Emas	Straits Eclectic	1931-1950					Pottery Shop**	Residence**	Full Preservation					
129	20	Jalan Tukang Emas	Straits Eclectic	Unknown	Shop	Residence			Café	Residence	Partial Preservation-Reuse					
130	22	Jalan Tukang Emas	Traditional Period	1931-1950	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
131	26	Jalan Tukang Emas	Modern	1958-1970	Shop	Residence			Hotel	Hotel	Full Reuse	Chong Hoe Hotel	Medium	Unknown	Unknown	N/A
132	28	Jalan Tukang Emas	Unknown	Unknown	Shop	Residence			Hotel	Hotel	Full Reuse	Da Som Inn Hotel	Unknown	2009	Unknown	N/A
133	30	Jalan Tukang Emas	Unknown	Unknown	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
134	32	Jalan Tukang Emas	Art Deco	1941			Restaurant*	Residence*	Vacant	Vacant	Full Vacant					
135	34	Jalan Tukang Emas	Art Deco	1941			Restaurant*	Residence*	Vacant	Vacant	Full Vacant					
136	36	Jalan Tukang Emas	Unknown	Unknown	Shop	Residence			Antique & Art & Craft Shop	Vacant	Partial Vacant-Preservation					
137	38	Jalan Tukang Emas	Modern	1931-1950	Shop	Residence			Souvenir Shop	Residence	Full Preservation					
138	1	Jalan Tokong	Early Period	Unknown	Shop	Residence			Art Gallery	Art Gallery	Full Reuse	Mo Xiang Lou Art Gallery	Medium	1990s	Unknown	N/A
139	2	Jalan Tokong	Modern	1991					Medicine Shop**	Residence**	Full Preservation					
140	3	Jalan Tokong	Modern	1931-1950					Religious Goods Shop**	Residence**	Full Preservation					
141	4	Jalan Tokong	Modern	1951-1957	Batik Shop	Residence			Museum	Temple	Full Reuse	Buddha Relics Museum	Low	2015	Unknown	N/A
142	5	Jalan Tokong	Straits Eclectic	1931-1950			Medicine Shop*	Residence*	Medicine Shop	Vacant	Partial Vacant-Preservation					
143	6	Jalan Tokong	Modern	1931-1950	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
144	8	Jalan Tokong	Modern	1931-1950	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
145	9	Jalan Tokong	Transitional Period	1911-1930					Souvenir Shop**	Residence**	Full Preservation					
146	10	Jalan Tokong	Modern	1951-1957	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
147	11	Jalan Tokong	Straits Eclectic	1911-1930			Shop*	Residence*	Vacant	Vacant	Full Vacant					
148	12	Jalan Tokong	Modern	1931-1950	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
149	13	Jalan Tokong	Transitional Period	1931-1950			Art Gallery*	Residence*	Art Gallery	Residence	Full Preservation					
150	14	Jalan Tokong	Straits Eclectic	1951-1957	Medicine Shop	Residence			Café	Residence	Partial Preservation-Reuse					
151	16	Jalan Tokong	Art Deco	1931-1950	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
152	17	Jalan Tokong	Art Deco	1851-1870	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
153	18	Jalan Tokong	Modern	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
154	19	Jalan Tokong	Modern	1931-1950	Religious Goods Shop	Residence			Religious Goods Shop	Storage	Partial Preservation-Reuse					
155	21	Jalan Tokong	Modern	1850-1870	Religious Goods Shop	Residence			Religious Goods Shop	Storage	Partial Preservation-Reuse					
156	23	Jalan Tokong	Early Period	1891-1930			Religious Goods Shop*	Residence*	Religious Goods Shop	Residence	Full Preservation					
157	49	Jalan Tokong	Transitional Period	1891-1910			Tombstone Shop*	Residence*	Tombstone Shop	Residence	Full Preservation					
158	53	Jalan Tokong	Modern	1911-1930			Art Shop*	Residence*	Café	Residence	Partial Preservation-Reuse					
159	54	Jalan Tokong	Art Deco	1931-1950			Shop*	Residence*	Vacant	Vacant	Full Vacant					
160	55	Jalan Tokong	Modern	1931-1950	Shop	Residence			Art & Craft Shop	Residence	Full Preservation					
161	56	Jalan Tokong	Art Deco	1931-1950			Shop*	Residence*	Vacant	Vacant	Full Vacant					
162	57	Jalan Tokong	Straits Eclectic	1911-1930			Art & Antique Shop*	Residence*	Art & Antique Shop	Vacant	Partial Vacant-Preservation					
163	59	Jalan Tokong	Modern	1801-1850	Shop	Residence			Vacant	Vacant	Full Vacant					
164	60	Jalan Tokong	Traditional Period	1931-1950	Shoe Shop	Residence			Café	Residence	Partial Preservation-Reuse					
165	61	Jalan Tokong	Modern	1801-1850	Shop	Residence			Vacant	Vacant	Full Vacant					
166	62	Jalan Tokong	Traditional Period	1891-1910	Shop	Residence			Guest House	Guest House	Full Reuse	Nancy Guest House	High	2017	No	N/A
167	63	Jalan Tokong	Modern	1871-1890	Electrical Shop	Residence			Shoe Shop	Residence	Full Preservation					
168	64	Jalan Tokong	Modern	1981-1990	Shop	Residence			Clothing Shop	Office & Storage	Partial Preservation-Reuse					
169	65	Jalan Tokong	Early Period	1801-1850			Art & Craft Shop*	Residence*	Art & Craft Shop	Storage	Partial Preservation-Reuse					
170	67	Jalan Tokong	Early Period	1871-1890	Fruit Shop	Residence			Vacant	Vacant	Full Vacant					
171	68	Jalan Tokong	Transitional Period	1971-1980	Shop	Residence			Convenience Shop	Residence	Full Preservation					
172	69	Jalan Tokong	Early Period	1871-1890	Fruit Shop	Residence			Convenience Shop	Residence	Full Preservation					
173	70	Jalan Tokong	Transitional Period	1971-1980	Shop	Residence			Local Food Produce Shop	Residence	Full Preservation					
174	73	Jalan Tokong	Early Period	1871-1890	Shop	Residence			Fruit Shop	Residence	Full Preservation					
175	75	Jalan Tokong	Early Period	1871-1890	Plastic Bag Shop	Residence			Plastic Bag Shop	Residence	Full Preservation					
176	78	Jalan Tokong	Traditional Period	1971-1980	Sundry Shop	Residence			Guest House	Guest House	Full Reuse	Tang House	Medium	2012	Yes (Wee Eng Guan)	No
177	79	Jalan Tokong	Early Period	Pre-1700	Gold Shop	Residence			Vacant	Vacant	Full Vacant					
178	80	Jalan Tokong	Transitional Period	1971-1980	Sundry Shop	Residence			Biscuit Shop	Guest House	Full Reuse	Tang House	High	2012	Yes (Wee Eng Guan)	No
179	82	Jalan Tokong	Art Deco	1911-1930	Restaurant	Residence			Café	Boutique Hotel	Full Reuse	**Jonker Boutique Hotel**	**High**	**2010**	**Yes (SLT Architects)**	**Yes**
180	84	Jalan Tokong	Art Deco	1931-1950	Restaurant	Residence			Boutique Hotel	Boutique Hotel	Full Reuse	**Jonker Boutique Hotel**	**High**	**2010**	**Yes (SLT Architects)**	**Yes**
181	86	Jalan Tokong	Art Deco	1931-1950	Restaurant	Residence			Foot Reflexology Centre	Boutique Hotel	Full Reuse	**Jonker Boutique Hotel**	**High**	**2010**	**Yes (SLT Architects)**	**Yes**
182	88	Jalan Tokong	Art Deco	1931-1950	Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
183	91	Jalan Tokong	Early Period	1911-1930			Café*	Residence*	Restaurant	Storage	Partial Preservation-Reuse					
184	102	Jalan Tokong	Early Period	1931-1950			Electrical Shop*	Residence*	Café	Vacant	Partial Reuse-Vacant					
185	104	Jalan Tokong	Transitional Period	1871-1890	Shop	Residence			Vacant	Vacant	Full Vacant					
186	106	Jalan Tokong	Modern	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
187	108	Jalan Tokong	Straits Eclectic	1931-1950	Shop	Residence			Restaurant	Guest House	Full Reuse	ong Delicacies Restaurant & Grandm	Medium	2015 & 2016	Unknown	N/A
188	110	Jalan Tokong	Early Period	1931-1950					Local Food Produce Shop**	Residence**	Full Preservation					
189	112	Jalan Tokong	Early Period	1931-1950			Restaurant*	Residence*	Local Food Produce Shop	Residence	Partial Preservation-Reuse					
190	2	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Art Gallery	Vacant	Partial Reuse-Vacant					
191	3	Jalan Hang Lekiu	Modern	1958-1970	Shop	Residence			Vacant	Vacant	Full Vacant					
192	4	Jalan Hang Lekiu	Traditional Period	1951-1957			Shop*	Residence*	Watch Shop	Residence	Full Preservation					
193	5	Jalan Hang Lekiu	Modern	1958-1970	Shop	Residence			Café	Vacant	Partial Reuse-Vacant					
194	7	Jalan Hang Lekiu	Modern	1931-1950	Shop	Residence			Frame Maker	Vacant	Partial Vacant-Preservation					

Appendix C: On-Site Survey (cont'd)

DATABASE OF SHOPHOUSES WITHIN THE CORE ZONE OF MELAKA, MALAYSIA (2017)

No.	Building No.	Street Name	Building Style	Date Built	Previous Use (Before 2005)		Previous Use (2005)		Current Use (2017)		Nature of Use	Building Name	Heritage Listing	Date Converted	Professional Expert	Participation
					Lower	Upper(s)	Lower	Upper(s)	Lower	Upper(s)						
195	8	Jalan Hang Lekiu	Traditional Period	1951-1957			Shop*	Residence*	Local Food Produce Shop	Residence	Full Preservation					
196	9	Jalan Hang Lekiu	Modern	1958-1970	Shop	Residence			Café	Vacant	Partial Reuse-Vacant					
197	10	Jalan Hang Lekiu	Traditional Period	1951-1957	Shop	Residence			Vacant	Vacant	Full Vacant					
198	11	Jalan Hang Lekiu	Modern	1958-1970	Shop	Residence			Guest House	Guest House	Full Reuse	Lekiu House	Low	2011	Unknown	N/A
199	13	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Local Food Produce Shop	Vacant	Partial Vacant-Preservation					
200	14	Jalan Hang Lekiu	Art Deco	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
201	15	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Religious Goods Shop	Residence	Full Preservation					
202	16	Jalan Hang Lekiu	Art Deco	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
203	17	Jalan Hang Lekiu	Modern	Unknown	Restaurant	Residence			Workshop	Residence	Partial Preservation-Reuse					
204	18	Jalan Hang Lekiu	Unknown	Unknown	Shop	Residence			Café	Vacant	Partial Reuse-Vacant					
205	19	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Guest House	Guest House	Full Reuse	Love Guest House	Low	2016	Unknown	N/A
206	20	Jalan Hang Lekiu	Unknown	1931-1950	Shop	Residence			Frame Maker	Vacant	Partial Vacant-Preservation					
207	21	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
208	25	Jalan Hang Lekiu	Modern	1931-1950	Shop	Residence			Café	Vacant	Partial Reuse-Vacant					
209	27	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
210	29	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Homestay	Homestay	Full Reuse	MYnest Homestay	Low	2016	Unknown	N/A
211	31	Jalan Hang Lekiu	Modern	1958-1970	Shop	Residence			Vacant	Vacant	Full Vacant					
212	33	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
213	35	Jalan Hang Lekiu	Modern	1981-1990	Shop	Residence			Art Gallery	Vacant	Partial Reuse-Vacant					
214	37	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
215	39	Jalan Hang Lekiu	Modern	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
216	41	Jalan Hang Lekiu	Art Deco	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
217	43	Jalan Hang Lekiu	Straits Eclectic	1931-1950	Shop	Residence			Restaurant	Storage	Full Reuse					
218	45	Jalan Hang Lekiu	Straits Eclectic	1931-1950	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
219	49	Jalan Hang Lekiu	Straits Eclectic	1931-1950	Shop	Residence			Café	Vacant	Partial Reuse-Vacant					
220	51	Jalan Hang Lekiu	Art Deco	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
221	11	Jalan Hang Kasturi	Early Period	1871-1890			Hair Salon*	Residence*	Café	Office	Full Reuse	Calanthe Art Café	High	2005	No	N/A
222	24	Jalan Hang Kasturi	Early Period	1871-1890			Coffin Shop*	Residence*	Restaurant	Vacant	Partial Reuse-Vacant					
223	26	Jalan Hang Kasturi	Early Period	1751-1800			Coffin Shop*	Residence*	Restaurant	Vacant	Partial Reuse-Vacant					
224	27	Jalan Hang Kasturi	Early Period	1751-1800			Shop*	Residence*	Clothing Shop	Vacant	Partial Vacant-Preservation					
225	30	Jalan Hang Kasturi	Transitional Period	1851-1870			Restaurant*	Residence*	Biscuit Shop	Vacant	Partial Reuse-Vacant					
226	31	Jalan Hang Kasturi	Modern	Unknown	Shop	Residence			Boutique Hotel	Boutique Hotel	Full Reuse	**Timez Modern Heritage Hotel**	**Low**	**2017**	**Yes (Basique Studio)**	**Yes**
227	32	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
228	32A	Jalan Hang Kasturi	Unknown	1891-1910	Shop	Residence			Money Changer	Vacant	Partial Vacant-Preservation					
229	32B	Jalan Hang Kasturi	Early Period	Unknown					Barber Shop**	Residence**	Full Preservation					
230	33	Jalan Hang Kasturi	Modern	Unknown	Shop	Residence			Boutique Hotel	Boutique Hotel	Full Reuse	**Timez Modern Heritage Hotel**	**Low**	**2017**	**Yes (Basique Studio)**	**Yes**
231	34	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Vacant	Storage	Partial Reuse-Vacant					
232	35	Jalan Hang Kasturi	Unknown	Unknown	Shop	Residence			Wok Maker	Residence	Full Preservation					
233	36	Jalan Hang Kasturi	Transitional Period	Unknown			Shop*	Residence*	Restaurant	Residence	Partial Preservation-Reuse					
234	38	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Restaurant	Vacant	Partial Reuse-Vacant					
235	40	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Foot Reflexology Centre	Foot Reflexology Centre	Full Reuse	Yang Yan Foot Reflexology Tradition	Medium	2013	Unknown	N/A
236	41	Jalan Hang Kasturi	Unknown	Unknown	Shop	Residence			Guest House	Residence	Partial Preservation-Reuse					
237	42	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Storage	Vacant	Partial Reuse-Vacant					
238	43	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
239	44	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
240	46	Jalan Hang Kasturi	Transitional Period	Unknown			Hair Salon*	Residence*	Vacant	Vacant	Full Vacant					
241	47	Jalan Hang Kasturi	Early Period	1871-1890	Shop	Residence			Convenience Shop	Vacant	Partial Vacant-Preservation					
242	48	Jalan Hang Kasturi	Transitional Period	1801-1850	Shop	Residence			Vacant	Vacant	Full Vacant					
243	49	Jalan Hang Kasturi	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
244	51	Jalan Hang Kasturi	Early Period	1911-1930	Shop	Residence			Workshop	Vacant	Partial Vacant-Preservation					
245	52	Jalan Hang Kasturi	Transitional Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
246	53	Jalan Hang Kasturi	Unknown	Unknown					Convenience Shop**	Residence**	Full Preservation					
247	54	Jalan Hang Kasturi	Early Period	1911-1930	Shop	Residence			Café	Vacant	Partial Reuse-Vacant					
248	55	Jalan Hang Kasturi	Early Period	Unknown			Restaurant*	Residence*	Bicycle Rental Services	Residence	Partial Preservation-Reuse					
249	56	Jalan Hang Kasturi	Early Period	Unknown	Shop	Residence			Café	Residence	Partial Preservation-Reuse					
250	57	Jalan Hang Kasturi	Early Period	1871-1890	Shop	Residence			Convenience Shop	Residence	Full Preservation					
251	58	Jalan Hang Kasturi	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
252	59	Jalan Hang Kasturi	Art Deco	1871-1890	Shop	Residence			Residence	Vacant	Partial Reuse-Vacant					
253	60	Jalan Hang Kasturi	Early Period	Unknown	Shop	Residence			Butcher Shop	Vacant	Partial Vacant-Preservation					
254	61	Jalan Hang Kasturi	Art Deco	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
255	62	Jalan Hang Kasturi	Early Period	Unknown			Shop*	Residence*	Vacant	Vacant	Full Vacant					
256	63	Jalan Hang Kasturi	Art Deco	Unknown	Shop	Residence			Wok Maker	Residence	Full Preservation					
257	66	Jalan Hang Kasturi	Early Period	Unknown			Shop*	Residence*	Café	Residence	Partial Preservation-Reuse					
258	66A	Jalan Hang Kasturi	Early Period	Unknown			Shop*	Residence*	Café	Vacant	Partial Reuse-Vacant					
259	67	Jalan Hang Kasturi	Art Deco	Unknown			Shop*	Residence*	Vacant	Vacant	Vacant					
260	68	Jalan Hang Kasturi	Early Period	1751-1800			Goldsmith*	Residence*	Guest House	Guest House	Full Reuse	Monkey Motel & Café	High	2012	Unknown	N/A
261	69	Jalan Hang Kasturi	Art Deco	1931-1950			Shop*	Residence*	Wholesale	Vacant	Partial Vacant-Preservation					
262	70	Jalan Hang Kasturi	Early Period	1751-1800			Goldsmith*	Residence	Goldsmith	Vacant	Partial Vacant-Preservation					
263	72	Jalan Hang Kasturi	Early Period	1700-1750			Rattan Produce Shop*	Residence*	Rattan Produce Shop	Residence*	Full Preservation					
264	73	Jalan Hang Kasturi	Transitional Period	1751-1800			Shop*	Residence*	Vacant	Vacant	Full Vacant					
265	74	Jalan Hang Kasturi	Transitional Period	1931-1950			Rattan Produce Shop*	Residence*	Rattan Produce Shop	Vacant	Partial Vacant-Preservation					
266	75	Jalan Hang Kasturi	Early Period	Pre-1700			Wok Maker*	Residence*	Wok Maker	Vacant	Partial Vacant-Preservation					
267	77	Jalan Hang Kasturi	Early Period	1751-1800			Shop*	Residence*	Youth Hostel	Youth Hostel	Full Reuse	Bala's Place	High	2011	No	N/A
268	79	Jalan Hang Kasturi	Early Period	1911-1930			Shop*	Residence*	Vacant	Vacant	Vacant					
269	80	Jalan Hang Kasturi	Art Deco	1911-1930	Shop	Residence			Restaurant	Vacant	Partial Reuse-Vacant					
270	82	Jalan Hang Kasturi	Transitional Period	1700-1750			Shop*	Residence*	Residence	Residence	Partial Preservation-Reuse					
271	83	Jalan Hang Kasturi	Art Deco	1911-1930			Wok Maker*	Residence*	Wok Maker	Residence	Full Preservation					
272	84	Jalan Hang Kasturi	Transitional Period	1700-1750			Shop*	Residence*	Residence	Residence	Partial Preservation-Reuse					
273	87	Jalan Hang Kasturi	Art Deco	1931-1950			Shop*	Residence*	Signage Shop	Residence	Full Preservation					
274	89	Jalan Hang Kasturi	Art Deco	1931-1950			Café*	Residence*	Café	Residence	Full Preservation					
275	90	Jalan Hang Kasturi	Transitional Period	1931-1950			Wok Maker*	Residence*	Vacant	Vacant	Vacant					
276	1	Jalan Kampung Kuli	Unknown	Unknown	Shop	Residence			Religious Ceremony	Residence	Partial Preservation-Reuse					
277	3	Jalan Kampung Kuli	Unknown	Unknown	Shop	Residence			Café	Guest House	Full Reuse	Jori Vegetarian Tea House & Residen	Low	2016	Unknown	N/A
278	7	Jalan Kampung Kuli	Dutch Period	Unknown					Art Gallery**	Residence**	Full Preservation					
279	9	Jalan Kampung Kuli	Modern	1951-1957	Shop	Residence			Vacant	Vacant	Full Vacant					
280	11	Jalan Kampung Kuli	Modern	1958-1970	Shop	Residence			Consultant Office	Vacant	Partial Reuse-Vacant					
281	13	Jalan Kampung Kuli	Dutch Period	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
282	14	Jalan Kampung Kuli	Dutch Period	Unknown	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
283	16	Jalan Kampung Kuli	Modern	1958-1970	Shop	Residence			Vacant	Vacant	Full Vacant					
284	19	Jalan Kampung Kuli	Dutch Period	Unknown			Shop*	Residence*	Accessories Shop	Vacant	Partial Vacant-Preservation					
285	21	Jalan Kampung Kuli	Dutch Period	Unknown			Shop*	Residence*	Vacant	Vacant	Full Vacant					
286	33	Jalan Kampung Kuli	Dutch Period	Unknown			Shop*	Residence*	Accessories Shop	Residence	Full Preservation					
287	3	Lorong Jambatan	Early Period	Pre-1700	Shop	Residence			Vacant	Vacant	Full Vacant					
288	5	Lorong Jambatan	Early Period	Pre-1700			Shop*	Residence*	Café*	Residence	Partial Preservation-Reuse					
289	7	Lorong Jambatan	Early Period	Pre-1700	Shop	Residence			Goldsmith	Vacant	Partial Vacant-Preservation					
290	8	Lorong Jambatan	Early Period	1751-1800			Shop*	Residence*	Rubber Stamp Maker	Residence	Full Preservation					
291	9	Lorong Jambatan	Early Period	Pre-1700			Shop*	Residence*	Vacant	Vacant	Full Vacant					

Appendix C: On-Site Survey (cont'd)

DATABASE OF SHOPHOUSES WITHIN THE CORE ZONE OF MELAKA, MALAYSIA (2017)

No.	Building No.	Street Name	Building Style	Date Built	Previous Use (Before 2005)		Previous Use (2005)		Current Use (2017)		Nature of Use	Building Name	Heritage Listing	Date Converted	Professional Expert	Participation
					Lower	Upper(s)	Lower	Upper(s)	Lower	Upper(s)						
292	11	Lorong Jambatan	Early Period	Pre-1700			Shop*	Residence*	Vacant	Vacant	Full Vacant					
293	12	Lorong Jambatan	Early Period	1801-1850			Shop*	Residence*	Knife Maker	Vacant	Partial Vacant-Preservation					
294	14	Lorong Jambatan	Early Period	1801-1850			Shop*	Residence*	Vacant	Vacant	Full Vacant					
295	16	Lorong Jambatan	Early Period	1700-1750			Shop*	Residence*	Homestay	Homestay	Full Reuse	Unknown	Medium	Unknown	Unknown	N/A
296	17	Lorong Jambatan	Early Period	Pre-1700			Shop*	Residence*	Knife & Wok Maker	Residence	Full Preservation					
297	18	Lorong Jambatan	Early Period	1700-1750			Shop*	Residence*	Homestay	Homestay	Full Reuse	Unknown	Medium	Unknown	Unknown	N/A
298	19	Lorong Jambatan	Early Period	Pre-1700					Locksmith**	Residence**	Full Preservation					
299	20	Lorong Jambatan	Early Period	Unknown			Shop*	Residence*	Homestay	Homestay	Full Reuse	Unknown	Medium	Unknown	Unknown	N/A
300	22	Lorong Jambatan	Early Period	Unknown			Shop*	Residence*	Goldsmith	Residence	Full Preservation					
301	24	Lorong Jambatan	Early Period	Unknown			Shop*	Residence*	Vacant	Vacant	Full Vacant					
302	3	Jalan Kampung Pantai	Straits Eclectic	1919	Shop	Residence			Medicine Shop	Residence	Full Preservation					
303	5	Jalan Kampung Pantai	Straits Eclectic	1919	Shop	Residence			Medicine Shop	Residence	Full Preservation					
304	7	Jalan Kampung Pantai	Straits Eclectic	1911-1930	Shop	Residence			Goldsmith	Residence	Full Preservation					
305	9	Jalan Kampung Pantai	Straits Eclectic	1911-1930	Shop	Residence			Goldsmith	Residence	Full Preservation					
306	10	Jalan Kampung Pantai	Unknown	Unknown			Medicine Shop*	Residence*	Medicine Shop	Residence	Full Preservation					
307	11	Jalan Kampung Pantai	Straits Eclectic	1911-1930	Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
308	12	Jalan Kampung Pantai	Unknown	Unknown			Medicine Shop*	Residence*	Medicine Shop	Residence	Full Preservation					
309	14	Jalan Kampung Pantai	Transitional Period	Unknown	Candy Shop	Residence			Fruit Shop	Residence	Full Preservation					
310	15	Jalan Kampung Pantai	Modern	Unknown	Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
311	16	Jalan Kampung Pantai	Straits Eclectic	1927			Shop*	Residence*	Storage	Vacant	Partial Reuse-Vacant					
312	17	Jalan Kampung Pantai	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
313	19	Jalan Kampung Pantai	Transitional Period	1939	Shop	Residence			Vacant	Vacant	Full Vacant					
314	21	Jalan Kampung Pantai	Modern	1939	Shop	Residence			Hardware Shop	Residence	Full Preservation					
315	23	Jalan Kampung Pantai	Modern	1939	Shop	Residence			Hardware Shop	Residence	Full Preservation					
316	24	Jalan Kampung Pantai	Modern	Unknown			Medicine Shop*	Residence*	Medicine Shop	Residence	Full Preservation					
317	25	Jalan Kampung Pantai	Transitional Period	1939	Shop	Residence			Plastic Bag Shop	Vacant	Partial Vacant-Preservation					
318	27	Jalan Kampung Pantai	Transitional Period	1939	Shop	Residence			Tea Shop	Residence	Full Preservation					
319	35	Jalan Kampung Pantai	Early Period	1911-1930	Shop	Residence			Storage	Storage	Full Reuse					
320	38	Jalan Kampung Pantai	Straits Eclectic	Unknown					Liqour Shop**	Residence**	Full Preservation					
321	39	Jalan Kampung Pantai	Straits Eclectic	1931-1950	Shop	Residence			Guest House	Guest House	Full Reuse	Roof Top Guest House	Medium	2016	Unknown	N/A
322	40	Jalan Kampung Pantai	Transitional Period	1751-1800					Cafe**	Residence**	Full Preservation					
323	42	Jalan Kampung Pantai	Early Period	1871-1890					Pawn Shop**	Residence**	Full Preservation					
324	43	Jalan Kampung Pantai	Early Period	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
325	44	Jalan Kampung Pantai	Early Period	1871-1890					Pawn Shop**	Residence**	Full Preservation					
326	45	Jalan Kampung Pantai	Early Period	1891-1910	Shop	Residence			Bookshop	Vacant	Partial Vacant-Preservation					
327	51	Jalan Kampung Pantai	Art Deco	1951-1957	Shop	Residence			Storage	Storage	Full Reuse					
328	53	Jalan Kampung Pantai	Art Deco	1931-1950	Shop	Residence			Medicine Shop	Vacant	Partial Vacant-Preservation					
329	54	Jalan Kampung Pantai	Early Period	1931-1950	Shop	Residence			Wholesale	Residence	Full Preservation					
330	55	Jalan Kampung Pantai	Straits Eclectic	1940	Shop	Residence			Vacant	Vacant	Full Vacant					
331	58	Jalan Kampung Pantai	Straits Eclectic	1932			Shop*	Residence*	Residence	Residence	Partial Preservation-Reuse					
332	59	Jalan Kampung Pantai	Art Deco	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
333	61	Jalan Kampung Pantai	Art Deco	1931-1950			Weighing Machine Shop*	Residence*	Weighing Machine Shop	Residence	Full Preservation					
334	63	Jalan Kampung Pantai	Art Deco	1931-1950			Shop*	Residence*	Vacant	Vacant	Full Vacant					
335	64	Jalan Kampung Pantai	Transitional Period	1931-1950			Wholesale*	Residence*	Wholesale	Residence	Full Preservation					
336	65	Jalan Kampung Pantai	Art Deco	1939			Shop*	Residence*	Vacant	Vacant	Full Vacant					
337	66	Jalan Kampung Pantai	Transitional Period	1931-1950			Wholesale*	Residence*	Wholesale	Residence	Full Preservation					
338	67	Jalan Kampung Pantai	Art Deco	1939			Shop*	Residence*	Vacant	Vacant	Full Vacant					
339	69	Jalan Kampung Pantai	Art Deco	1939	Shop	Residence			Vacant	Vacant	Full Vacant					
340	71	Jalan Kampung Pantai	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
341	72	Jalan Kampung Pantai	Straits Eclectic	Unknown			Shop*	Residence*	Lantern Shop	Residence	Full Preservation					
342	75	Jalan Kampung Pantai	Art Deco	1931-1950	Shop	Residence			Residence	Residence	Partial Preservation-Reuse					
343	77	Jalan Kampung Pantai	Straits Eclectic	Unknown					Plastic Bag Shop**	Residence**	Full Preservation					
344	78	Jalan Kampung Pantai	Straits Eclectic	1933			Shop*	Residence*	Guest House	Guest House	ental Riverside Residence Guest Hou	Full Reuse	High	Unknown	Unknown	N/A
345	80	Jalan Kampung Pantai	Straits Eclectic	Unknown			Shop*	Residence*	Café	Residence	Partial Preservation-Reuse					
346	84	Jalan Kampung Pantai	Straits Eclectic	1931-1950			Liqour Shop*	Residence*	Liqour Shop	Residence	Full Preservation					
347	86	Jalan Kampung Pantai	Straits Eclectic	1911-1930			Shop*	Residence*	Vacant	Vacant	Full Vacant					
348	88	Jalan Kampung Pantai	Straits Eclectic	1939			Supplier*	Residence*	Vacant	Vacant	Full Vacant					
349	90	Jalan Kampung Pantai	Unknown	Unknown					Wholesale**	Residence**	Full Preservation					
350	91	Jalan Kampung Pantai	Straits Eclectic	1951-1957	Shop	Residence			Residence	Vacant	Partial Reuse-Vacant					
351	92	Jalan Kampung Pantai	Unknown	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
352	93	Jalan Kampung Pantai	Early Period	1951-1957	Shop	Residence			Frame Maker	Residence	Full Preservation					
353	94	Jalan Kampung Pantai	Early Period	1951-1957	Shop	Residence			Vacant	Vacant	Full Vacant					
354	95	Jalan Kampung Pantai	Early Period	1951-1957					Tailor Shop**	Residence**	Full Preservation					
355	97	Jalan Kampung Pantai	Early Period	1951-1957	Shop	Residence			Vacant	Vacant	Full Vacant					
356	99	Jalan Kampung Pantai	Early Period	1931-1950					Agriculture Shop**	Residence**	Full Preservation					
357	100	Jalan Kampung Pantai	Unknown	1911-1930	Shop	Residence			Vacant	Vacant	Full Vacant					
358	102	Jalan Kampung Pantai	Straits Eclectic	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
359	104	Jalan Kampung Pantai	Straits Eclectic	Unknown					Grocery Supplier**	Residence**	Full Preservation					
360	106	Jalan Kampung Pantai	Art Deco	1939			Medicine Shop*	Residence*	Medicine Shop	Residence	Full Preservation					
361	108	Jalan Kampung Pantai	Straits Eclectic	1911-1930	Shop	Residence			Liquor Shop	Vacant	Partial Vacant-Preservation					
362	110	Jalan Kampung Pantai	Straits Eclectic	1911-1930	Shop	Residence			Liquor Shop	Vacant	Partial Vacant-Preservation					
363	112	Jalan Kampung Pantai	Straits Eclectic	1911-1930	Shop	Residence			Liquor Shop	Vacant	Partial Vacant-Preservation					
364	1	Jalan Kampung Hulu	Transitional Period	1931-1950	Sundry Shop	Residence			Restaurant	Residence	Partial Preservation-Reuse					
365	3	Jalan Kampung Hulu	Modern	Unknown			Shop*	Residence*	Vacant	Vacant	Full Vacant					
366	6	Jalan Kampung Hulu	Modern	1981-1990	Shop	Residence			Catering Services	Residence	Full Preservation					
367	7	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Office	Residence	Partial Preservation-Reuse					
368	8	Jalan Kampung Hulu	Straits Eclectic	Unknown	Shop	Residence			Storage	Vacant	Partial Reuse-Vacant					
369	9	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
370	11	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Convenience Shop	Residence	Full Preservation					
371	15	Jalan Kampung Hulu	Modern	1931-1950	Shop	Residence			Workshop	Residence	Full Preservation					
372	18	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
373	19	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
374	20	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
375	21	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
376	30	Jalan Kampung Hulu	Straits Eclectic	1931-1950			Shop*	Residence*	Clothing Shop	Vacant	Partial Vacant-Preservation					
377	32	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
378	33	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Wholesale	Vacant	Partial Vacant-Preservation					
379	34	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Realty Office	Residence	Partial Preservation-Reuse					
380	35	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
381	39	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
382	41	Jalan Kampung Hulu	Straits Eclectic	1931-1950	Shop	Residence			Weighing Machine Shop	Residence	Full Preservation					
383	43	Jalan Kampung Hulu	Unknown	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
384	45	Jalan Kampung Hulu	Unknown	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
385	47	Jalan Kampung Hulu	Early Period	Unknown	Shop	Residence			Wedding Accessories Shop	Residence	Full Preservation					
386	49	Jalan Kampung Hulu	Early Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
387	53	Jalan Kampung Hulu	Straits Period	Unknown	Shop	Residence			Lorry Rental Services	Residence	Full Preservation					
388	55	Jalan Kampung Hulu	Modern	1981-1990					Oil & Gas Supplier**	Residence**	Full Preservation					

Appendix C: On-Site Survey (cont'd)

DATABASE OF SHOPHOUSES WITHIN THE CORE ZONE OF MELAKA, MALAYSIA (2017)

No.	Building No.	Street Name	Building Style	Date Built	Previous Use (Before 2005)		Previous Use (2005)		Current Use (2017)		Nature of Use	Building Name	Heritage Listing	Date Converted	Professional Expert	Participation
					Lower	Upper(s)	Lower	Upper(s)	Lower	Upper(s)						
389	13	Lorong Hang Jebat	Early Period	1931-1950			Cafe*	Residence*	Restaurant	Residence	Full Preservation					
390	18	Lorong Hang Jebat	Unknown	Unknown					Coffee Shop**	Residence**	Full Preservation					
391	20	Lorong Hang Jebat	Unknown	Unknown					Coffee Shop**	Residence**	Full Preservation					
392	22	Lorong Hang Jebat	Unknown	Unknown					Souvenir Shop**	Residence**	Full Preservation					
393	27	Lorong Hang Jebat	Unknown	Unknown			Shop*	Residence*	Café	Storage	Full Reuse					
394	38	Lorong Hang Jebat	Unknown	Unknown					Café**	Residence**	Full Preservation					
395	40	Lorong Hang Jebat	Unknown	Unknown					Local Food Produce Shop**	Residence**	Full Preservation					
396	44	Lorong Hang Jebat	Unknown	Unknown					Watch Shop**	Residence**	Full Preservation					
397	46	Lorong Hang Jebat	Unknown	Unknown					Café**	Residence**	Full Preservation					
398	47	Lorong Hang Jebat	Early Period	Unknown	Watch Shop	Residence			Vacant	Vacant	Full Vacant					
399	53	Lorong Hang Jebat	Transitional Period	Unknown	Shop	Residence			Vacant	Vacant	Full Vacant					
400	57	Lorong Hang Jebat	Art Deco	1931-1950			Shop*	Residence*	Café	Residence	Partial Preservation-Reuse					
401	59	Lorong Hang Jebat	Transitional Period	1951-1957	Coffee Shop	Residence			Art Gallery	Studio & Storage	Full Reuse	Orangutan House	Medium	1993	Unknown	N/A
402	60	Lorong Hang Jebat	Unknown	Unknown					Local Food Produce Shop**	Residence**	Full Preservation					
403	61	Lorong Hang Jebat	Early Period	1891-1910	Shop	Residence			Vacant	Vacant	Full Vacant					
404	63	Lorong Hang Jebat	Early Period	1801-1850	Shop	Residence			Guest House	Guest House	Full Reuse	Raymond's Boutige Travellers Home	Medium	2002	Unknown	N/A
405	67	Lorong Hang Jebat	Early Period	1931-1950	Shop	Residence			Vacant	Vacant	Full Vacant					
406	69	Lorong Hang Jebat	Early Period	1891-1910	Shop	Residence			Laundry Services	Vacant	Partial Vacant-Preservation					
407	73	Lorong Hang Jebat	Early Period	1951-1957	Furniture Shop	Residence			Art Gallery	Studio & Storage	Full Reuse	Jehan Chan Art Gallery	Medium	2005	No	N/A
408	75	Lorong Hang Jebat	Early Period	1951-1957	Shop	Residence			Art Gallery	Vacant	Partial Reuse-Vacant					
409	77	Lorong Hang Jebat	Early Period	1891-1910	Shop	Residence			Beauty Produce Shop	Vacant	Partial Vacant-Preservation					
410	84	Lorong Hang Jebat	Unknown	Unknown					Café**	Residence**	Full Preservation					
411	88	Lorong Hang Jebat	Unknown	Unknown					Restaurant**	Residence**	Full Preservation					
412	109	Lorong Hang Jebat	Straits Eclectic	1931-1950	Shop	Residence			Residence	Vacant	Partial Reuse-Vacant					
413	111	Lorong Hang Jebat	Straits Eclectic	1931-1950	Shop	Residence			Residence	Vacant	Partial Reuse-Vacant					
414	113	Lorong Hang Jebat	Straits Eclectic	1931-1950	Shop	Residence			Residence	Vacant	Partial Reuse-Vacant					
415	115	Lorong Hang Jebat	Straits Eclectic	Unknown					Restaurant & Catering Services**	Residence**	Full Preservation					
416	117	Lorong Hang Jebat	Straits Eclectic	1851-1870	Furniture Shop	Residence			Restaurant & Catering Services	Residence	Partial Preservation-Reuse					
417	119	Lorong Hang Jebat	Art Deco	1931-1950	Furniture Shop	Residence			Furniture Shop	Vacant	Partial Vacant-Preservation					
418	121	Lorong Hang Jebat	Straits Eclectic	1911-1930	Furniture Shop	Residence			Furniture Shop	Vacant	Partial Vacant-Preservation					
419	123	Lorong Hang Jebat	Straits Eclectic	1911-1930	Furniture Shop	Residence			Furniture Shop	Vacant	Partial Vacant-Preservation					
420	125	Lorong Hang Jebat	Straits Eclectic	1931-1950	Furniture Shop	Residence			Convenience Shop	Vacant	Partial Vacant-Preservation					
421	129	Lorong Hang Jebat	Modern	1911-1930	Shop	Residence			Furniture Shop	Vacant	Partial Vacant-Preservation					
422	135	Lorong Hang Jebat	Straits Eclectic	1801-1850	Coffee Shop	Residence			Restaurant	Vacant	Partial Vacant-Preservation					
423	19	Jalan Laksamana	Transitional Period	1891-1910			Restaurant*	Residence*	Vacant	Vacant	Full Vacant					
424	21	Jalan Laksamana	Transitional Period	1891-1910			Watch Shop*	Residence*	Vacant	Vacant	Full Vacant					
425	22	Jalan Laksamana	Transitional Period	1891-1910			Antique Shop*	Residence*	Vacant	Vacant	Full Vacant					
426	23	Jalan Laksamana	Art Deco	1891-1910			Optical Shop*	Residence*	Vacant	Vacant	Full Vacant					
427	25	Jalan Laksamana	Transitional Period	1891-1910			Gems & Jewellery Shop*	Residence*	Vacant	Vacant	Full Vacant					
428	32	Jalan Laksamana	Transitional Period	1891-1910			Fabric Shop*	Residence*	Vacant	Vacant	Full Vacant					
429	34	Jalan Laksamana	Transitional Period	1891-1910					Car Rental Services**	Residence**	Full Preservation					
430	37	Jalan Laksamana	Transitional Period	1891-1910					Watch Shop**	Residence**	Full Preservation					
431	43	Jalan Laksamana	Transitional Period	1891-1910			Handicraft Shop*	Residence*	Decoration Shop	Storage	Partial Preservation-Reuse					
432	44	Jalan Laksamana	Transitional Period	1891-1910					Decoration Shop**	Residence**	Full Preservation					

Appendix D: Direct Observations

OBSERVATIONAL FIELD NOTES

Logistics

Event Venue	:
Event Name	:
Event Date/Time	:

Notes on Agenda/Outcomes

Agenda 1	Intended outcomes	
Activity Zoning	Observed outcomes	
	Notes on process and interactions	
Agenda 2	Intended outcomes	
Building Category	Observed outcomes	
	Notes on process and interactions	
Agenda 3	Intended outcomes	
Architectural Style	Observed outcomes	
	Notes on process and interactions	
Agenda 4	Intended outcomes	
Tourism Dependency	Observed outcomes	
	Notes on process and interactions	
Agenda 5	Intended outcomes	
Presentation as Intangible Heritage	Observed outcomes	
	Notes on process and interactions	
Agenda 6	Intended outcomes	
Vacancy and Dilapidation	Observed outcomes	
	Notes on process and interactions	
Agenda 7	Intended outcomes	
Circulation and Access	Observed outcomes	
	Notes on process and interactions	

Other Notes

Other Note 1 :	
Other Note 2 :	
Other Note 3 :	

Appendix E: Participant Information Sheet

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

PARTICIPANT INFORMATION SHEET

I would like to invite you to take part in a research study. Before you decide you need to understand why the study is being done and what it would involve for you. Please take time to read the following information carefully. Ask questions if anything you read is not clear or would like more information. Take time to decide whether or not to take part.

1. **Project Title**
   The Drivers and Barriers to Adaptive Reuse as a Strategy to Minimise Obsolescence of Malaysian Shophouses

2. **Who will be conducting the study?**
   My name is **NOR SYAHILA BINTI AB RASHID (Student ID Number: 4260993)** and I will be conducting the study as a student in a programme leading to the **Doctor of Philosophy in Architecture (Social Sciences)** in the Department of Architecture & Built Environment at Faculty of Engineering, University of Nottingham, United Kingdom.

3. **Who is sponsoring the study and what the terms of the sponsorship are?**
   The study is sponsored by the University of Nottingham, United Kingdom under the supervision of Professor Tim Heath as primary supervisor and Dr. Wang Qi as additional supervisor from the Faculty of Engineering, by which they will 'own' the data. The study is for the purpose of the thesis only, and may be submitted for publication.

4. **What are the nature, purpose and duration of the study?**
   The study seeks to find the best formula in revitalising obsolete shophouses and converting them into suitable uses (adaptive reuse) based on your views and experiences associated with the process. The term 'obsolescence' is described as: *"the process of becoming obsolete or outdated and no longer used"*. The term 'adaptive reuse' generally means: *"repair or refurbish a building, and use it for a new purpose which is different from its original use for which it was designed"*. The study will be conducted in form of a face-to-face interview, which will be lasting no more than an hour.

5. **Does the participant have to take part in the study?**
   No, your participation in this study is entirely voluntary. If you do not wish to take part, you do not have to give reason and you will not be contacted again. Similarly, if you agree to participate, you are free to withdraw at any time during the study if you change your mind. If you withdraw from the study, I will destroy all your audio recorded interviews, however, I will need to use the data collected up to your withdrawal.

6. **What kind of procedures will be used and what participant will be asked to do?**
   If you are interested in taking part in the study, you are asked to complete the attached Participation Consent Form and return it to me in the envelope provided. Once I have received the form, I will contact you so we can arrange to meet at a time that is convenient for you in your premises or public places, if that are appropriate. There will be a single interview with me and it can be either in English or Malay, by which I will ask you several questions. The list of questions will be sent to you through e-mail so that you can be prepared before the interview session. The interview session is expected to last no longer than an hour and it is a one-off event. It will be audio recorded, unless otherwise requested by you. When I have completed the study, I will send you the transcript of the interview before the analysis, to allow you the opportunity to edit or clarify information provided.

Appendix E: Participant Information Sheet (cont'd)

7. **Are there any hazards, inconveniences and risks associated with the study?**
   There are no hazards, inconveniences and risks anticipated with participating in the study, as I strive to protect your confidentiality. However, if you experience any distress following participation, you are encouraged to inform me and contact the resources provided at the end of this Participant Information Sheet.

8. **What benefits are attached to the study?**
   You will not be paid for your participation. However, a 'participant incentive' will be given to you at the end of the interview as a token of my appreciation for your willingness to participate in the study.

9. **What procedures will be employed to maintain confidentiality and anonymity?**
   While information gained during the study may be published, you will not be identified and your personal results will remain confidential, unless you explicitly agree that the name of your premises may be made public. The data collected will be stored securely in a locked filing cabinet, and on a password-protected computer with a secure server.

10. **What will happen to the data?**
    All the information you give me will be confidential and used for the purpose of the thesis only, and may be submitted for publication in an academic or professional journal. During the study, the data collected will be stored securely and only I will have access to the data. At the end of the study, I will pass the data to my supervisor who will then have the responsibility for the storage of the data. Paper records will be stored in a locked filing cabinet, and digital data will be stored only on a password-protected computer with a secure server for seven years following publication of results, in accordance with the Data Protection Act. After this time, electronic files will be deleted and any hard copies will be destroyed.

11. **How the photographs will be used?**
    The photographs or images of your premises (if applicable) taken during the study will be used for data analysis, illustration purposes, displayed to sponsors/non-public academic audiences and printed in public domain documents.

12. **Who to contact if questions or problem arise?**
    If you have a concern about any aspect of the study, you should ask to speak to me who will do my best to answer your questions:
    [Phone: 019-3994635, Email: nor.bintiabrashid@nottingham.ac.uk]; or

    my supervisor, Professor Tim Heath:
    [Phone: +44 (0) 115 9514887, Email: tim.heath@nottingham.ac.uk].

    If you remain unhappy and wish to complain formally you can do this through sending an e-mail to the Faculty Research Ethics Committee of the Faculty of Engineering, University of Nottingham, United Kingdom:
    [Email: ez-eng-ethics@nottingham.ac.uk].

Thank you for taking the time to read this Participant Information Sheet.

Appendix F: Participant Consent Form

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

PARTICIPANT CONSENT FORM

Project Title	:	**The Drivers and Barriers to Adaptive Reuse as a Strategy to Minimise Obsolescence of Malaysian Shophouses**
Researcher's Name	:	**Nor Syahila Binti Ab Rashid (4260993)**
Supervisor's Name	:	**Professor Tim Heath**

NO.	ITEMS	INITIALS
1	I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.	
2	I understand the purpose of the project and my involvement in it.	
3	I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.	
4	I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.	
5	I agree that the name of my premises may be made public.	
6	I agree to having my audio be recorded during the interview.	
7	I understand that the data collected will be stored securely and only the researcher conducting the study (during the study) and her supervisor (at the end of the study) will have access to the data. Paper records will be stored in a locked filing cabinet, and digital data will be stored only on a password-protected computer with a secure server for seven years following publication of results, in accordance with the Data Protection Act. After this time, electronic files will be deleted and any hard copies will be destroyed.	
8	I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Faculty Research Ethics Committee of the Faculty of Engineering, University of Nottingham, United Kingdom if I wish to make a complaint relating to my involvement in the research.	

Signed ..... (research participant)

Print Name ..... **Date** .....

Contact Details

Researcher: [Phone: 019-3994635, Email: nor.bintiabrashid@nottingham.ac.uk]

Supervisor: [Phone: +44 (0) 115 9514887, Email: tim.heath@nottingham.ac.uk]

Faculty Research Ethics Committee of the Faculty of Engineering, University of Nottingham, United Kingdom: [Email: ez-eng-ethics@nottingham.ac.uk]

Appendix G: Semi-Structured Interviews

INTERVIEW TRANSCRIPT (CASE STUDY BUILDINGS)

Participant Type	:	Building Owner
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.	Key Questions
1	**Interviewer:** Can you tell me about the history of this building?
2	**Interviewer:** Why did the previous owner sell this building to current owner?
3	**Interviewer:** Why was this building converted into a hotel, not other uses, e.g. restaurant, gallery, etc.?
4	**Interviewer:** Why was the 'boutique hotel' concept chosen for this building, not other types of hotel?
5	**Interviewer:** How much did it cost to convert this building into a boutique hotel?
6	**Interviewer:** How long did it take to convert this building into a boutique hotel?
7	**Interviewer:** Is the business profitable since its conversion?

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (CASE STUDY BUILDINGS)

Participant Type : Professional Expert
Participant's Name : .....
Company Name : .....
Building Name : .....
Building Address : .....
Date of Interview : .....
Venue of Interview : .....

No.	Key Questions	
1	Key Topic: Factors of obsolescence that affect the life cycle of this building.	
	(a)	**Interviewer:** In your opinion, what were the factors of physical obsolescence that affect the life cycle of this building? **Parameter:** *structure failure, physical deterioration, dilapidation and urban blight*
	(b)	**Interviewer:** In your opinion, what were the factors of functional obsolescence that affect the life cycle of this building? **Parameter:** *decreased utility, inadequacy, incapacity, errors and omissions in the building's layout or form, and technical advances*
	(c)	**Interviewer:** In your opinion, what were the factors of technological obsolescence that affect the life cycle of this building? **Parameter:** *changes in building services systems equipment*
	(d)	**Interviewer:** In your opinion, what were the factors of economic obsolescence that affect the life cycle of this building? **Parameter:** *rental income levels, capital value versus redevelopment value, and oversupply or drop in demand*
	(e)	**Interviewer:** In your opinion, what were the factors of environmental obsolescence that affect the life cycle of this building?

Appendix G: Semi-Structured Interviews (cont'd)

No.	Key Questions	
		Parameter: *high pollution, road congestion and urban decay*
	(f)	**Interviewer:** In your opinion, what were the factors of locational obsolescence that affect the life cycle of this building? **Parameter:** *changes in economic activities in the area due to a change in city planning*
	(g)	**Interviewer:** In your opinion, what were the factors of social obsolescence that affect the life cycle of this building? **Parameter:** *demographic trends and shifts, changes in taste and style, and changes in expectations*
	(h)	**Interviewer:** In your opinion, what were the factors of legal obsolescence that affect the life cycle of this building? **Parameter:** *changes in legislation or regulations, changes in planning policies, existing adverse legislation, and nuisance and hazards that lead to a building becoming dangerous*
2	**Interviewer:** From your point of view, why do you believe adaptive reuse process would be the most appropriate solution to minimise obsolescence of this building?	

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (CASE STUDY BUILDINGS)

Participant Type	:	Professional Expert
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.		Key Questions
1	Key Topic: Drivers and barriers to adaptive reuse process of this building.	
	(a)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of structural aspect? **Parameter:** *type and condition of the structure; floor load capacity; and structural grid and section dimensions*
	(b)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of constructional aspect? **Parameter:** *type of construction and materials; cladding system and fenestration; partitioning and finish; and fabric age, condition and maintenance*
	(c)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of spatial aspect? **Parameter:** *spatial configuration; floor plate size and floor depth; core and riser size and floor depth; core and riser size and locations; entrance and floor access arrangements; fire escape provisions; and planning grid dimensions*
	(d)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of servicing aspect? **Parameter:** *heating, ventilation and air-conditioning (HVAC) systems and distribution; duct space capacity; plant capacity and controls; power load capacity; information technology arrangements and capacity; plumbing system arrangements; and services age and condition*

Appendix G: Semi-Structured Interviews (cont'd)

No.	Key Questions	
	(e)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of financial aspect? **Parameter:** *current value; investment value; potential yield; increase in value post-adaptation; construction and development costs; and convertibility*
	(f)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of environmental aspect? **Parameter:** *type of internal air quality; internal environmental quality; existence of hazardous materials such as asbestos; and sustainability issues*
	(g)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of locational aspect? **Parameter:** *transport; access; land uses; existing planning zones; rezoning potential; and density of occupation*
	(h)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of social aspect? **Parameter:** *community benefits in terms of historic listing; transport noise; retention of cultural past; urban regeneration; aesthetics; provision of additional facilities or amenities; proximity to hostile factors; and stigma*
	(i)	**Interviewer:** In your opinion, what were the drivers and barriers to adaptive reuse process of this building in terms of legal aspect? **Parameter:** *ownership, meaning tenure; occupancy, either multiple or single tenants; building codes; fire codes; access acts; health and safety issues; and convertibility*

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (CASE STUDY BUILDINGS)

Participant Type : Specialist User
Participant's Name : .....
Company Name : .....
Building Name : .....
Building Address : .....
Date of Interview : .....
Venue of Interview : .....

No.	Key Questions	
1	**Interviewer:** Can you tell me about yourself and the background of this building?	
2	Key Topic: Impact of adaptive reuse to the daily functioning of the spaces designed for this building.	
	(a)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of structural aspect?
	(b)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of constructional aspect?
	(c)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of spatial aspect?
	(d)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of servicing aspect?
	(e)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of financial aspect?
	(f)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of environmental aspect?
	(g)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of locational aspect?

Appendix G: Semi-Structured Interviews (cont'd)

No.	Key Questions	
	(h)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of social aspect?
	(i)	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse to the daily functioning of the spaces designed for this building in terms of legal aspect?

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (TIERS OF GOVERNMENT)

Participant Type	:	Federal Government Officer
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.	Key Questions
1	**Interviewer:** Can you explain the chronology of boutique hotels in Melaka?
2	**Interviewer:** Is there any problem for all these hotels to be registered with MOTAC?
3	**Interviewer:** Can you explain the criteria of a boutique hotel?
4	**Interviewer:** Does MOTAC prepare the guidelines for designing hotels?
5	**Interviewer:** Can you explain the different types of hotels?
6	**Interviewer:** Why the term 'homestay' cannot be used?
7	**Interviewer:** Can you explain the differences between a license issued by a local authority and Certificate of Registration issued by MOTAC?
8	**Interviewer:** Can you explain the differences between the shophouses in Melaka and Penang which had been converted into boutique hotels?
9	**Interviewer:** What will happen if the hotels are not registered with MOTAC?
10	**Interviewer:** Can you explain the requirements for the hotels to be registered with MOTAC?
11	**Interviewer:** Based on your experience so far, what would you explain about the impact of conversion of shophouses into boutique hotels in terms of these aspects?
12	**Interviewer:** From your point of view, do you believe that conversion of the shophouses into boutique hotels needs specific guidelines? Why?
13	**Interviewer:** In your opinion, why the term 'boutique hotel' is frequently used within the Core Zone?
14	**Interviewer:** Where can I obtain the tourism statistics?

8

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (TIERS OF GOVERNMENT)

Participant Type	:	State Government Officer
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.	Key Questions
1	**Interviewer:** Can you explain the current status of shophouses in the Core Zone of Melaka according to Melaka State Government?
2	**Interviewer:** Based on your experience so far, what would you explain about the impact of adaptive reuse of shophouses into hotels?

9

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (TIERS OF GOVERNMENT)

Participant Type	:	Local Government Officer (Building Control)
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.	Key Questions
1	**Interviewer:** I have difficulty getting cooperation from the shophouses owners within the Core Zone of Melaka to provide information regarding their buildings. How could this happen?
2	**Interviewer:** Referring to the Conservation Management Plan (CMP), why the townhouses were entitled as 'shophouses'?
3	**Interviewer:** Does it mean all those buildings were townhouses before British occupation, except those located at Jonker Street?
4	**Interviewer:** Referring to the Inventory of Heritage Buildings within the Core Zone of Melaka, how did MBMB classify the heritage buildings into low, medium and high heritage listings?
5	**Interviewer:** From your point of view, which one is the best option for them to survive, either preservation of the original use as shophouses for traditional trades or adaptive reuse? Why?
6	**Interviewer:** Who are the people involved in the project's approval?
7	**Interviewer:** From your point of view, do you believe the conversion of shophouses into boutique hotels is the best option, or should it be other options such as cafés or souvenir shops? Why?
8	**Interviewer:** What is the definition of 'boutique hotel' from your understanding?
9	**Interviewer:** Referring to the Inventory of Heritage Buildings within the Core Zone of Melaka, how did Melaka Historic City Council (MBMB) classify the architectural styles of heritage buildings into Early Period, Transitional Period and Traditional Period, since they are too general?
10	**Interviewer:** Can you explain the chronology of CMP and SAP?

10

Appendix G: Semi-Structured Interviews (cont'd)

No.	Key Questions
11	**Interviewer:** Can you explain the differences between shophouses with residential status and shophouses with commercial status within this area?
12	**Interviewer:** Is that true that UNESCO will revoke the designation of 'World Heritage Site' if there is a building which not complying with the Guidelines for the Conservation Areas and Heritage Buildings?
13	**Interviewer:** What did MBMB do to preserve the living heritage of the Core Zone of Melaka?
14	**Interviewer:** Can you explain the differences between CMP and SAP?
15	**Interviewer:** Has UNESCO ever visited Melaka so far?
16	**Interviewer:** From your point of view, do you believe that conversion of the shophouses into boutique hotels needs specific guidelines? Why?
17	**Interviewer:** From your experience, what would you explain about the impact of adaptive reuse of shophouses into boutique hotels in terms of these aspects?
18	**Interviewer:** Can you explain the current status of these hotels according to MBMB – Fomecs Boutique Hotel, Jonker Boutique Hotel and Timez Modern Heritage Hotel?
19	**Interviewer:** Is it possible for me to obtain a building plan for Jonker Boutique Hotel, because the architect cannot find it since this project had been carried out long time ago (2010)?
20	**Interviewer:** Is it possible for me to obtain the copy of Heritage Impact Assessment (HIA) reports for these three buildings - Fomecs Boutique Hotel, Jonker Boutique Hotel and Timez Modern Heritage Hotel?

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (TIERS OF GOVERNMENT)

Participant Type	:	Local Government Officer (Planning)
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.	Key Questions
1	**Interviewer:** Can you explain the procedures for conservation submission of shophouses within the Core Zone of Melaka according to Melaka Historic City Council (MBMB)?
2	**Interviewer:** Can you explain the change of use process of shophouses within the Core Zone of Melaka?

Appendix G: Semi-Structured Interviews (cont'd)

INTERVIEW TRANSCRIPT (TIERS OF GOVERNMENT)

Participant Type	:	Local Government Officer (Properties Valuation)
Participant's Name	:	.....
Company Name	:	.....
Building Name	:	.....
Building Address	:	.....
Date of Interview	:	.....
Venue of Interview	:	.....

No.	Key Questions
1	**Interviewer:** Can you explain the relationship between the market value and property tax of a building?
2	**Interviewer:** Can you explain the property taxes on these buildings?