ACCESSIBILITY FOR PHYSICALLY CHALLENGED PERSONS IN HERITAGE BUILDINGS

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ABSTRACT

Inscription of UNESCO World Heritage Sites to George Town, Penang and Historical Straits of Malacca in 2008 has elevated heritage tourism of Malaysia to be one of the main proponents continually to boost our economy. Researches have learnt preserving local resources especially heritage capital to heritage tourism and improving social interest like accessibility needs for persons with disabilities could constitute to quality tourism. At the same time, it is parallel with regional proclamation to achieve 'inclusive, barrier free and right based society' approach in Asia Pacific region. It leads the research to explore whether thinking about accessibility needs for persons with physical disabilities within heritage properties happen in Malaysia. The pilot case studies in Malacca and Penang ascertained inception of the approach coexists in Malaysia yet it is still a new phenomenon and attempt in national planning since enforcement of the Persons with Disabilities Act 2008 and amendment to UBBL 34A to make public building accessible for all. Besides, the tested case study protocol derived an inventory to assist the existing checklist in access auditing on heritage buildings. The direct observation was then conducted by the checklist and inventory on replicated case study in selection from George Town based on variation of the researched phenomenon and heritage attributes. Due to study encountered each conservation work has unique heritage significance in case study especially Leong San Tong Khoo Kongsi, St. George Church and Suffolk House in George Town. The access auditing on multiple-case study indicated access problems on restored key elements of heritage buildings as perceived under current practicing local guidelines and code of practices.

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Eventually conflicts were revealed in convergence of barrier free environment and conservation approach. Conversely research justified appropriate access could be addressed under reasonable accommodation to enclave gaps between both principles. The design adjustment could be guided within degree of intervention and intensity of use to meet the minimum level of easy access without adversely effecting heritage significance and authenticity of heritage property. The minimum level of accessibility are attainable by the identified fundamental nine core elements along sequence of journey through the heritage site from pre-information until leaving the site at the end of visiting. Certainly there is never a fixed standard in proposing accessible heritage due to heritage significance and conservation planning varies in cases basis. In turn, what are the scale to measure equilibrium between both contradict approaches could be researched in future.

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ABSTRAK

Inskripsi ‘UNESCO World Heritage Sites to George Town, Penang and Historical Straits of Malacca’ pada tahun 2008 telah mengalak pelancongan warisan terus sebagai salah satu penyokong utaman ekonomi Malaysia. Kajian mendapati permuliharaan sumber tempatan terutamanya harta warisan kepada pelancongan warisan dan mempertingkatkan kepentingan sosial seperti kebolehaksesan kepada orang kurang upaya dapat mencapai pelancongan yang berkualiti. Di samping selaras dengan pengiktirafan serantau untuk mencapai “masyarakat inklusif, bebas halangan, dan kesetaraan”. Ini mencadang penyelidikan tersebut menerokai adakah kebolehaksesan bagi orang kurang upaya termasuk dalam pemuliharan harta warisan di Malaysia. Kajian kes di Melaka dan Penang memastikan pendekatan tersebut telah dilaksana di Malaysia tetapi masih merupakan fenomea yang baru dan termasuk dalam pelan nasional sejak penguatkuasa Akta Orang Kurang Upaya 2008 dan pindaan kepada UBBL 34A bagi memastikan kebolehaksesan dalam bangunan awam. Selain itu, protokol kajian kes yang dikaji memperuntuk satu inventori bagi membantu senarai semakan sediada untuk menilai kebolehaksesan dalam bangunan warisan. Pemerhatian langsung ini didorong oleh senarai semakan dan inventori kepada kajian kes terpilih daripada George Town berdasarkan variasi fenomena penyelidikan dan ciri-ciri warisan. Ini disebabkan kajian mendapati kerja permuliharan tergantung kepada unsur-unsur warisan yang unik dalam setiap kes kajian termasuk Leong San Tong Khoo Kongsi, St. George Church and Suffolk House di George Town. Akses audit dalam kepelbagaian kes kajian ini menunjuk masalah kebolehaksesan dalam unsur-unsur warisan utama yang diserta

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dalam garis panduan tempatan dan kod amalan pada semasa. Dengan ini percanggahan juga diserlah untuk menggabungkan prinsip persekitaran bebas halangan dan pendekatan permuliharaan warisan. Sebaliknya penyelidikan mendapati akses sewajarnya boleh ditangani dengan penyesuaian munasabah untuk melengkap kekurangan antara kedua-dua prinsip. Pelarasan reka bentuk boleh dipandu oleh tahap pengubahsuaian dan keamatan penggunaan untuk memenuhi tahap minimum kebolehaksesan tanpa menjejas unsur warisan dan kesahihan harta warisan. Tahap minimum kebolehaksesan boleh tercapai dengan sembilan unsur teras asas yang dikenal pasti dalam sepanjang lawatan tapak warisan daripara pra-maklumat sehingga meninggal tempat di akhir lawatan. Sudah pasti piawaian yang ditetap dalam candangan kebolehaksesan warisan adalah tidak sesuai kerana perbezaan signifikasi warisan dan perancangan permuliharaan berasas kepada kes-kes tertentu. Sebaliknya, skala untuk mengukur keseimbangan antara kedua-dua pendekatan yang bercanggah boleh dikaji pada masa akan datang.

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LIST OF ABBREVIATIONS

PwDs – Persons with disabilities

IYDP - United Nations International Years of Disabled Persons

CRPD – Convention on the Rights of Persons with Disabilities

BMF – Biwako Millennium Framework

WTO – World Tourism Organization

UNDP – United Nation Decades of Persons with Disabilities

ESCAP - Economic and Social Commission for Asia and the Pacific

BMF - Biwako Millennium Framework

BMF Plus 5 – Biwako Plus Five

ASI - Archeological Survey of India

UNESCO - United Nations Educational, Scientific, and Cultural Organization

ICOMOS - International Council on Monuments and Sites

NGO – Non-profit Government Organization

UBBL - Uniform Building By-laws

SIRIM – The Standards and Industrial Research Institute of Malaysia

WTO - World Tourism Organization

DDA - Disability Discrimination Act

URA - Urban Redevelopment Authority

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CHAPTER 1: INTRODUCTION

1.0 Background of Research Study

Human rights of PwDs has been upheld in United Nation Declaration of Human Rights since 1948 and further extended to adoption of CRPD on 13th December 2006 by the United Nation General Assembly. The CRPD covers several key areas to ensure full and equal participation of PwDs including accessibility as mandated in Article 9. In such, barrier free environment initiative has driven momentum toward inclusive, barrier free and right based society. To further extent, Article 30 specifically makes reference to tourism which recognizes and ensures PwDs are fully included in cultural life, recreational, leisure and sport. Buntan (2011) expressed at the International Conference on Accessible Tourism; tourism is a living example of how much a person can fully and effectively enjoy human rights and fundamental freedoms as stated in human right instruments. More importantly, accessible tourism benchmarks high quality of the industry and make access strategically to other fundamental rights such as education, health, rehabilitation, employments and more. Buntan (2011) further elaborated tourism has brought enormous amount of revenue and becomes the main economic component in many countries namely Malaysia. Yet, accessibility needs in this sector especially heritage tourism is still lacking, not to mentioned in Asia Pacific region. Accessible heritage sites or a building seemingly is new to the region although the practice has been reiterated in developed countries especially England.

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Knowing Malaysia has been ranked as the 9th most visited place in the world by United Nation WTO in 2012, however accessibility needs for PwDs yet accord with the needs further improvement. Accessibility needs have been further extended to heritage tourism since the industry is growing rapidly in Malaysia recent years. It has been further strengthened since Malaysia signed the CRPD which clearly states in Article 30 to recognize and ensure PwDs to take part on an equal basis in cultural life. States parties whether government and non-government organizations should take appropriate measures to enable their access to cultural material, tourism venues and services.

Previous studies and assessments on public buildings either new built or heritage tourism properties have yet achieved adequate accessibility needs of PwDs. Indeed it has been a crucial key factor to boost Malaysia's economic growth and it is also beneficial to the social development. In a way accessibility is the fundamental basis to break through earning capacity of tourism industry and at the same time offers tremendous potential employment opportunities to the community. It is plausibly increasing numbers of visitors if the underserved group is taken care. World Report to Disability 2011 by the WHO and the World Bank estimates that about 5% of total population of a country comprises PwDs. However, voluntary registration of PwDs in Malaysia as of April 2014 stands at only 506,228 persons or 1.7% of current population (Department of Social Welfare, 2014).

As shown in Table 1.1, persons with physical disabilities are considered high at 108,952 persons (2010) and increasing to 166,206 persons (2014). In order to

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anticipate responding in time to the far-reaching socio-economic and humanitarian implications of the under- served group consisting PwDs, it is imperative where magnitude and momentum of its occurrence need to be recognized in tourism industry.

Table 1.1: Categories of PWD registered in April 2014

Categories of disability	2014 (As of April)	2010 (As of August)
Learning Disability	182,055	120,414
Physical Disability	166,206	108,952
Hearing Disability	59,868	39,814
Sensory	-	27,821
Mental	21,237	3,295
Speech Disability	3,792	249
Visual	47,712	-
Multiple Disability	25,349	
Others	-	13,140
TOTAL	**506,228**	**313,685**

(Source: Department of PWD, DSWM)

Tourism is a community based industry including concepts of converging and balancing guidance between responsibility, ethical industry and consumer practices. Social interaction between service providers and end users is the most fundamental principle to define a quality tourism product. Apparently, professionals and heritage properties owners should play their respective roles to ensure accessibility in their practices. Conservationist, architects, and designers should be able to comprehend ergonomic design principles for PwDs within heritage conservation principles. Besides, managing committee or owners ought to initiate ideas to make their heritage properties accessible for all tourists. In a way ethically human rights of PwDs could be included to achieve inclusive society. As such, legislative framework is proactive at the first place in monitoring professionals and service

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providers in manipulating and interpreting on current legitimate guidance to accomplishment.

Looking into current practice, Malaysia's nation building model has been mostly top-down approach as claimed by Hussien & Yaacob (2012). The Government establishes policies and regulations while private and business sectors follow the suit. To the extent, barrier free environment principle has been stimulated to achieve barrier free environment since Malaysia became signatory of the CRPD in United Nations in 2008. Indeed it evidences the human rights of persons with disabilities has been notably incepted into the social development. In conjuncture Person with Disabilities Act 2008 has came into enforcement on 7 July 2008 indicating paradigm shift of welfare charity to human right society in Malaysia. At the same time, the Section 32 of the Act reflects inclusion of persons with disabilities within heritage properties; as it reads;

> *'Access to cultural life*
> *31(2) Persons with disabilities shall have the right to enjoy access –*
> *(a) to place for cultural performances or services such as theaters, museum, cinemas, libraries and tourism services, and as far as possible, to monuments and sites of national cultural importance.'*
>
> *(Persons with Disabilities Act, 2008)*

Conception of accessible heritage seemingly has been accentuated as one of the basis in creating inclusive society in Malaysia. This has pointed out another tendency of the nation to improve accessibility for PwDs within heritage properties. Further to national development plan and policies, high priority has been given to tourism industry especially in heritage tourism encapsulated in the Ninth Malaysia

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Plan; and the Tenth Malaysia Plan emphasized to develop and promote on existing iconic tourism initiatives. The governments has adopted and implemented various laws and regulations to endure sustainable tourism development.

National Heritage Act 2005 has been gazetted to regulate on heritage properties in Malaysia and the Department of National Heritage was formed in responsible to maintaining and preserving national heritage properties before enforcement of disability act. At the same time, National Heritage Council has been allocated to monitor all matters pertaining to heritage preservation and conservation in Malaysia. Enforcement of heritage act fostered development of built heritage and arrive to inclusion of UNESCO World Heritage Sites of George Town in Penang and Historical Straits of Malacca in 2007. Subsequently, the listing has elevated heritage tourism to become one of the major boosters in Malaysia's economy growth.

In fact, high quality tourism comprises of not only the enrichment of local resources but also the physical environment; especially when accessibility for all might broaden the level of tourist groups. Heritage tourism alone may not be able to meet the basic needs of visitors from all level of community especially PwDs. In turn, accessible tourism can serve as a benchmark of high quality of tourism for human society which is inclusive for all. Despite having a legal policy on PwDs needs and enacted heritage acts, legislation on provision of access to PwDs within heritage properties is yet to be established.

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Stakeholders particularly professionals, private sectors and the government are responsible in provision of easy access within heritage properties. They are supposed the main role to initiate idea of barrier free environment within conservation practice to ensure full participation from all level of community without discrimination. Professionals in the construction field such as architects, conservationists, designers and builders should able to comprehend the fundamental design principles of barrier free environment into conservation practices. They must be intuitive and capable of interpreting both design guidelines and comply with current legislations. Their practices should be weighed balance between practicality and intact heritage value of the original fabric. Apart from here, owner and management teams are responsible to sustain the provision that is beneficial to all and include it into their action plan.

However, recent studies shown that PwDs are facing problems in fully participating in heritage tourism. Lodging with inaccessible bathrooms, entrances and infrastructure hinders them from traveling independently. Barrier free facilities are still lacking, despite local government encourages the notion to be included them into mainstream development plan even in the national development policies. Although incentives are given to elderly persons and persons with disabilities by paying lower rate or free admission to most of the payable tourist spots, but the amenities and accessible facilities are still improper to certain extend. Gaps of concurrent practices of barrier free environment approach and conservation principles in public heritage sites in Malaysia is seemingly not yet enclave.

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The research probed into rational and know-how to accommodate accessibility needs for PWDs within heritage buildings in Malaysia by stakeholders. The study explored appropriateness of current accessibility provisions design principle on how barrier free environment approach reconcile with conservation practice. Ultimately modification and adjustment on core elements were revealed to gauge weigh balance between accessibility and conservation principle to accomplishment.

1.2 Gaps in the Current Knowledge

The research subject - 'Accessible Heritage' is studying two areas consist of heritage conservation and accessibility for PwDs concurrently. The topic focuses on whether accessibility needs for PwDs are accommodated within heritage properties in Malaysia. To begin with, tourism sector has been the gateway to overview accessibility of heritage properties especially conserved heritage tourism sites. The study accentuated on public buildings which reflect feasibility and awareness of nation towards right based, barrier free and inclusive society approach in the nation.

'Accessible Tourism' and 'Heritage Tourism' have been under-researched phenomenon and increasingly received attention nationally and regionally. Most of papers discuss on eligibility to address the underserved user group within tourism development by carrying out impact assessment of accessible and heritage tourism upon economic and socio economic growth. Bowitz and Ibenholt (2008), and Kala (2008) researched on impact of cultural tourism or heritage tourism to economic

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growth and influences to social attribute; while Van Horn & Isola (2006) discussed on paradigm shift to disability right through inclusive tourism in United State and European countries. Adhere to literature and journals obviously ascertain interest of accessibility is recognized in heritage tourism. Darcy (2006, 2011) had done comprehensive research on the setting of research agenda for accessible tourism and identified series of themes, gaps and omission to fertile the ground study of accessible tourism. Darcy (2010) also examined the demand and supply research to understand experiences of consumers and supply approaches of the industry, regulation and coordination of the sectors in Australian context. In fact, accessible tourism and heritage tourism is progressively being improved in developing countries.

There are series of conferences advocate issues in regards to accessible tourism for people with disabilities and retired, ageing people towards key policy and strategies elements in the implementation for promoting barrier free tourism. For instance, Bangkok Recommendation has been utilized as policy guideline and the benchmark for Asia Pacific region. Most of the conferences contributed bridging collaboration within multi-stakeholders and sectors in accessible tourism sector.

To move on, ‘accessible heritage’ has been well established and being practiced in developed countries especially United Kingdom and United State. Literatures discovered most of the research papers and journals discussing on planning development in accommodating accessibility needs and possibility in alteration to

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comply with statutory provisions in British (Kent, 1998; Prudon & Dalton, 1981; Foster, 1997). Apart from here, Kent (1998), Foster (1995, 1997 & 2004) and Martin (1999) ascertained the importance of access auditing and access consultant to assess accessibility of heritage properties. There are general steps initiated from their research in techniques to execute access auditing assessment to heritage properties and access strategy to make heritage site accessible for PwDs.

Yaacob & Hashim (2009) also carried out access auditing to case studies in Malaysia including historical buildings in Malacca and Penang which have been listed into UNESCO World Heritage Listing in 2008. The research proposed recommendations to improve management of heritage properties alternatively in accommodating accessibility needs for PWDs with physical access provisions. They also identified gaps in the policies and regulations to attain truly barrier free environment in Malaysia practices. Hussein & Yaacob (2012), Maidin (2012), Marsin, Arifin & Shahminan (2014), Ch'ng (2010) and Arikisamy (2007) claimed the implementation, enforcement and compliance with local regulation is lax in Malaysia; although Persons with Disabilities Act and Amendment to Uniform Building By-Law 34A provides such rights for the built environment. They pointed out current legislation's deficiency to monitor and check whether the construction and built environment industry comply with minimum standard for accessibility for PwDs in Malaysia. Maidin (2012) affirmed lack of monitoring enforcement of the legislation and codes of practices has been the major reason.

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Although National Council for PwDs has been established under the Persons with Disabilities Act on 14 August 2008, but the council has not been empowered to penalize or prosecute any party against the Act (Maidin, 2012). Beside, Arikisamy (2007) further explained due to no strict implementation and enforcement of Uniform Building By-Law 34A and use of Malaysia Standard MS1184 and MS1183 in current practices. In fact, Persons with Disabilities Act serves more of administrative and enabling policy without legal penalization being stated, yet it is an important step forwards organizing standards, policies and regulation of accessible design in Malaysia practice. In many instances, lack of understanding about the need to fulfill certain requirements is one of the problems of implementation apart from misinterpretation of current standards and codes of practices.

To look more closely, gaps of differences in implementation barrier free in historic buildings are rather large between developed and developing countries. Marsin, Arifin & Shahminan (2014) clearly indicated authority in Malaysia does not provide any guideline to improve access in heritage properties in comparison to United Kingdom, Australia and Singapore. They further explained United Kingdom was taken in their study due to close historically relationship in governance and similar legislative framework. On the other hand, Australia and Singapore are close proximity in heritage built environment. Research understood accessible heritage is a new concept inserted into tourism industry in Malaysia and there are rooms of improvements since enforcement of the National Heritage Act.

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The provision has been recognized when Malaysia has signed the CRPD which clearly stated in Article 30 to include access provisions to monuments and sites of national cultural importance. Nevertheless, research encountered limited precedents and literatures study on phenomenon of accessibility needs for PwDs in Malaysia. At this point, this research explores the phenomenon and integration of both conservation principle and barrier free environment approach among stakeholders.

1.3 Definitions and Perspectives of Disability

In Persons with Disability Act 2008, disability has been recognized as an evolving concept. Interaction between PwDs with attitudinal and environmental barriers hinders their full participation in society on an equal basis with PwDs. The Preliminary, Interpretation 2 of the Act defined the ‘persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments, which in interaction with various barriers may impede their full and effective participation in society’. It is similar with the meaning of disability provided in Article 1 of the United Nations Convention on the Rights of Persons with Disabilities (2007).

Looking into closely, ‘attitudinal barriers’ and ‘environmental barriers’ are asserted in disability concept model in parallel to ‘barrier-free’ as defined in CRPD and BMF. The barriers refer to physical obstruction as defined in ‘environmental barriers’ whereas ‘attitudinal barriers’ is prejudice and stereotype on disability

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compounding marginalization and oppression of disabled people. Hence 'barrier-free environment' approach disseminates removing of the barriers to achieve inclusive society. Adhere the statement shows 'barrier free environment' concept is integrated into the Persons with Disabilities Act 2008.

Secondly, official terminology currently uses people first language, ‘persons with disabilities’, in preferences to ‘disabled person’; it is in conjunction with the Social Model of Disability which has been being developed in current disability movement. In the model, ‘disability’ is defined as the social oppression but not the form of impairments; or it is social creation on the other words. It is further explained quoted by Shakespeare (2002) on the core definition of the British social model in referring to UPIAS document, Fundamental Principles of Disability

> *“… In our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society. To understand this it is necessary to grasp the distinction between the physical impairment and the social situation, called ‘disability’, of people with such impairment. Thus we define impairment as lacking all or part of a limb, or having a defective limb, organism or mechanism of the body and disability as the disadvantage or restriction of activity caused by a contemporary social organization which takes little or no account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities.”*
>
> *(Oliver, 1996)*

In fact, the ‘impairment’ is closely similar to definition of WHO in PwDs as ‘any person unable to ensure by himself wholly or partly, the necessities of a normal individual and or social life, as a result of deficiency either congenital or not, in his

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physical or mental capabilities, which may have happened before or after childbirth.' However the study was not about providing precise definition but seeks to include or exclude from category of PwDs but not discriminate. The priority is to dismantle these disabling barriers, in order to promote the inclusion of people with impairments and social change. The core definition of Social Model was grounded as the model to guide this research theory and containment idea of disability analogue in the context.

Analytically, there are different disabling barriers impinge on different ways and generate vary responses from broader cultural and social milieu. Nevertheless this research recognizes different major aggregating of barriers in heritage building context because their functional and presentational impacts differ to individual and social implications. In addition, all these differences have salient impacts at current practices. Referring to Table 1.1 statistic on categories of disabilities registered in Malaysia, physical disabilities has been the highest number of increasing PwDs from year of 2010 to 2014; so 'physical disabilities' was undertaken to research on accessibility.

1.4 Significance of Study

The study aims to conserve heritage buildings in Malaysia while accessibility needs for PwDs are appropriately addressed at the same time.

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1.5 Research Objectives

To understand current practice of building conservation incorporating accessibility needs for persons with disabilities especially physical disability in Malaysia.

1. To identify conflicting issues and similar practice when both conservation principles and barrier free environment approach append to heritage sites.
2. To understand statutory framework and standards in Malaysia to address accessibility needs of persons with disabilities and elderly persons in heritage buildings.
3. To explore approaches of conservationists, buildings owners and architects to determine appropriate intervention to meet accessibility needs for persons with disabilities at heritage buildings in Malaysia.

1.6 Research Problem and Research Questions

The research is studying on two different subjects; heritage conservation and barrier free environment to meet the accessibility needs for persons with disabilities and elderly people. Background study and preliminary study derived the main research problems;

Does thinking about accessibility needs for persons with physical disabilities happen within conservation practice in Malaysia?

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Research Question 1 (RQ1):

Does current practice in heritage building conservation incorporate with accessibility needs for persons with physical disabilities in Malaysia?

Supportive research questions;

(a) What are the conflicting issues to accommodate accessibility needs for persons with physical disabilities in conservation practice?

(b) To what extent local legislative framework in addressing accessibility needs for persons with physical disabilities within heritage buildings in Malaysia?

Research Questions 2 (RQ2):

How does barrier free environment approach reconcile with conservation principles in accommodating accessibility needs of persons with physical disabilities to achieve accessible heritage?

1.7 Research Design

Research design tested on external validity to establish the domain from research finding for analytical generalizing. In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory (Yin, 2003). Nevertheless, the research phenomenon has yet clearly evident and the contexts are not distinguishable in real-life situations. In such, case study was undertaken on filed work as research strategy to explore provision of accessibility needs PwDs within heritage buildings in Malaysia. Pilot study and previous studies encountered

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existing knowledge base is poor and available literature provides no conceptual framework. Notion of accessible heritage has been a new inception in Asia Pacific region moreover in Malaysia in comparison to developed countries.

To cover different type of conditions with distinct cases, multiple-case design was used to address the research questions. The cases were complemented by replication logic to portray exemplary outcomes in assessment at the same time. First of all, the cases were nominated based on a boundary as set in research protocol. The sampling unit was derived from literature review and preliminary study which ascertained the research problems substantially. Due to time constraint, three main case studies from George Town has been conducted in-depth which consist of:

1. Leong San Tong Khoo Kongsi, religious building

Khoo Kongsi is one of the most distinctive associations in George Town. The Leong San Tong Khoo Kongis is the main building to enshrine their deities and ancestral worship. The present appearance of the temple was completed in 1906. It is located within core zone of conservation area in George Town and listed as Grade One heritage property under local conservation guideline. The second major restoration was taken place in 1999 to 2001 after several upgrading works. It has been adapted into a museum and becomes a tourist sports in George Town.

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Figure 1.1: Leong San Tong Khoo Kongsi

2. St. George Church, religious building

St. George Church is the oldest Anglican Church in Southeast Asia and has been listed as National Heritage Treasure in Malaysia on 2007. It was built in 1819 and located within core zone of conservation areas in George Town. The church was restored in 2010 funded by Department of National Heritage in Malaysia. Up till now the church still practices church services and open for public visiting.

Figure 1.2: St. George Church

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3. Suffolk House, museum

Suffolk House has been recognized as one of the Penang's most important colonial heritage landmark. It reminds British colonel era in Malaysia. The Anglo-India Bungalow was completed in early 1790 by Sir Francis Light, governor. It was built on a pepper estate at off Ayer Item Road, outside of conservation areas in George Town. Penang State Government, Penang Heritage Trust and HSBC Bank funded the restoration project and completed in 2007. The mansion has been adopted into a gallery with restaurant and private function avenue; private tour is also provided by committee. The project has awarded national and international recognitions.

Figure 1.3: Suffolk House

Literary, the cases replicated to exemplify access provision which comply with conservation guidelines. Each case was reported and concluded to determine replication for another case. Then, cross case report indicated the extent of the replication logic and justified the conclusion.

Research protocol is important in this multiple case study to drive direction of the research study. It was derived from previous researches and ascertained by

literature review especially preliminary study as conducted. The protocol outlined the research strategy and tested on instruments and procedures before executed to formal case study. In this case, access audit checklist was the main instrument in the research. On the other hand, preliminary study is important in this research study due to the current research base for the subject that is poor and undefined. It ascertained this research boundary and research problems, at the same time tested on existing instruments.

Direct observation was the main source of evidence to construct database for the case study. Access auditing was conducted to all case studies to assess accessibility and to identify the provision within selected heritage buildings. Auditing was conducted based on the tested protocol consisting access auditing checklists to the filed work. In the research, preliminary study encountered deficiency of existing access auditing checklist due to contravene to the context. Another inventory was developed to support the checklist in auditing heritage buildings and will be further discussed in the next chapter. Eventually, access audit was interpreted into case study report in linear-analytic structure approach. The report summarized the provision and exemplified appropriateness of accessibility needs in place without diminishing its heritage significance.

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CHAPTER 2: LITERATURE REVIEW

2.1 Evolution of Disability

According to Price & Takamine (2003) human right of PwDs had been upheld in United Nations Declaration of Human Rights and was declared since 1948; but it was not yet translated into action during the decade. The achievement had been an elusive goal until declaration of the IYDP in 1981. Establishment of IYDP was a turning point for globalization of disability issues and marked beginning of serious attention on the issues. It had contributed proper platform to exchange resources and information pertaining to disability issues among international and regional level.

Disability concept has been defined since declaration of the UNDP 1983-1992 and it marked starting point inclusion of PwDs in mainstream development. A disability sub-programme was created as a part of the Social Development Division of ESCAP to promote full participation and equality of PwDs in social economic development in 1986. The programme brought in awareness of disability issues and facilitated progression of improvement towards living of PwDs in developed and least developed countries in coherence by adopting Resolution 48/3 which recognizing:

> *'while the United Nations Decade of Disabled Persons has increased awareness of disability issues and has facilitated considerable progress in the prevention of disability and the rehabilitation of disabled persons in the ESCAP region, progress towards improving the situation of disabled persons has been uneven, particularly in the developing and the least developed counties,'*
>
> *(United Nation, 2006)*

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The movement was continued into momentum since declaration of the United Nations Decade of Disabled Persons (UNDP) 1983 -1992. Declaration of the Asian and Pacific Decade of the Disabled Persons (1993-2002) and the second decade of the Asian and Pacific Decade of the Disabled Persons (2003-2012) subsequently have set a benchmark of disability issues in region and strengthen awareness in the society. Eventually evolution of disability movement drives into impetus and paradigm has been shifted from charity-based to right-based society in full participation and equality rights of PwDs within mainstream development. Advocacy human rights of PwDs has greatly been up lifted to ensure their full participation in social activities. Adherence, inclusive society is centre upon accessibility for all to improve well living and independents of PwDs.

Lesson learnt from the UNDP where specific guidelines were needed in order to include PwDs fully participates in every aspects of national development. Thus, a framework was provided to consolidate effort initiated from UNDP in the regions through new emphasis on regional cooperation. Implementation of the World Programme of Action concerning disability issues had given fresh momentum since proclaiming Pacific Decade of Disabled Persons 1993 – 2002. It strengthened regional cooperation to resolve issues affecting achievement to goals of World Programme of Action, especially full participation and equality of PwDs.

When the first decade was declared, ESCAP endorsed the Proclamation on the Full Participation and Equality of People with Disabilities in the Asian and Pacific Region and the Agenda for Action in April 1993. The Agenda for Action was a

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framework consisting 12 major areas key policies to draw out clear direction in monitoring Government in the ESCAP regions to meet the Full Participation and Equality of People with Disabilities in Asia and Pacific Regions during the decade in 1992; including accessibility needs for PwDs. It provided technical cooperation among developing countries as well as developed countries in support of progress in national level. The agenda was used as an international instruments, mandates and recommendations in realizing the disability issues.

The Asian and Pacific Decade of Disabled Persons 1993-2002, was ended by adoption of resolution 58/4 on promoting an inclusive, barrier-free and right based society for people with disabilities by ESCAP in 22nd May 2002, along with the proclamation of the extended Asian and Pacific Decade of Disabled Persons from 2003 to 2012. However, progression of the development was encountered at a low base. Further action was translated into resolution to extend the Decade for another 10 years from 2003-2012. The resolution was adopted at 58/4 session of the UNESCAP Commission in 22nd May 2002; and the BMF for Action on adoption of resolution 59/3 was introduced since 23rd September 2003.

BMF for Action promoted an Inclusive, Barrier-free and Right-based Society for PwDs in region and shifted paradigm from charity-based to right-based society. The resolution specifically scrutinized 'inclusive society' and determined 'barrier-free' in referring to physical and attitudinal barriers as well as social, economic and cultural barriers. In fact PwDs have their rights to be included in

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social-political and mainstream development without discrimination. It was to recall the General Assembly resolution 56/168 of 19 December 2001 on a comprehensive and integral international convention to promote and protect human rights and dignity of PwDs.

A regional framework for action was set out to provide regional policy recommendations for action in local Government and stakeholders to achieve the goals. It was a comprehensive framework guided by specific principles and policy directions in monitoring inclusion of PwDs in policy decision-making, enforcement of legislations and establishes supportive committee. The regional framework identified seven priority areas and each priority areas contained critical issues, targets and action required. Out of the seven priority area, there were two priority areas to be targeted in the resolution; including accessibility in built environment and access to information and communications;

1. Priority Area 5: Access to built environment and public transport
2. Priority Area 6: Access to information and communications

Due to Resolution 61/8 of 18 May 2005 on a mid-point review on implementation of the BMF for Action, the Commission requested ESCAP members should convene biennial meetings to review achievement and identify implementation of BMF for Action at national and sub-national levels from time to time until end of the Decade. There are three thematic areas to be reviewed periodically consisting easy access to environment which was one of the focuses to be adopted in the Regional meetings. The report reads;

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'Regional meetings should focus one at a time on the targets adopted in the following thematic areas:

a) Self-help organizations of persons with disabilities, women with disabilities, education, training and employment

b) Access to built environments and access to information and communications

c) Poverty alleviation through social security and sustainable livehoods.'

(United Nations, 2006)

The statement clearly shows that access to built environment has been the priority targeted area to be reviewed. It has been recognized as major barrier preventing PwDs from actively participating in social and economic activities independently in the regions. Failure to provide barrier-free environment especially public transport system and public toilets, would consequence to difficulty access to other basic services such as education, health, training opportunities, employment, social and leisure activities, information and communication. Inaccessible environment unable PwDs expose to public welfare especially educations and living skills; and it cause to poverty problem among PWDs (Maidin, 2012).

In conjunctions with the midpoint review of the Asian and Pacific Decade of Disabled Persons at Bangkok from 19th to 21st September 2007; had resultant to emerging of Biwako Plus Five need to be considered to overcome obstacles and challenges. Biwako Plus Five acted as a supplement to enhance implementation of the BMF for Action in next five years to promote barrier-free, inclusive and right-based society for all. In fact, Biwako Plus Five should be implemented in same basis of principles and policy direction delineated in BMF for Action.

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To the extent, BMF for Action has been strengthened by adoption of the CRPD and its Optional Protocol since 13 December 2006 by United Nations General Assembly. It came into enforcement in 3rd May 2008 and was periodically assessed in Conference of State Parties each year. The convention marked a new era in global efforts in promoting rights of PwDs, disability-inclusive development and international cooperation. From this point of view, it is believed that both BMF and Convention pursue to same goal of achieving barrier-free, inclusive and right-based society. In other words, PwDs should claim their rights access to all and be included in main stream development with full participation.

2.1.1 Inclusion of Accessibility in Tourism Industry

Buntan (2011) claimed CRPD is the first disability-specific international human rights law which covers all aspects of human rights covering all mandates and requirements at the 2011 International Conference on Accessible Tourism on 12 April 2011 in Taipei, Taiwan. It benchmarked transformation of charity-based society into right-based society towards inclusion of PWD into the mainstreams. According to the CRPD, there are two articles relates to accessibility and tourism;

1. Article 9: Access to information, services, transportation and facilities
2. Article 30: Participation in cultural life, recreation, leisure and sports

CRPD was considered the comprehensive protocol proclaiming human rights of PwDs in right-based society. It recognized *'the importance of accessibility to the physical, social, economic and cultural environment, to health and education and to information and communication, in enabling persons with disabilities to fully*

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enjoy human rights and fundamental freedoms'. 'Cultural environment' as mentioned referred to heritage tourism should be fully enjoyment by all level of community and has right to participate in all heritage programme. The statement clearly explains accessibility should be included in tourism industry especially within heritage sector; as mentioned in the Article 30;

> *Article 30: Participation in culture life, recreation, leisure and sport*
> *1(c) Enjoy access to places for cultural performances or services, such as theaters, museums, cinemas, libraries and tourism services, and, as far as possible, enjoy access to monuments and sites of national cultural importance.*
>
> *(Persons with Disables Act, 2008)*

Accessibility within tourism industry for PwDs is getting attention among stakeholders and becomes priority targets in achieving inclusive society. Buntan (2011) drew out important point of view where accessible tourism is manifestation of well living of PwDs but also strategically makes access to their other fundamental rights; such as education, health, rehabilitation and employment. It is parallel to significance of all international and regional documents on disability, in particular the BMF for Action towards an Inclusive, Barrier-free and Right-based Society for Persons with Disabilities in Asian and the Pacific (UNESCAP, 2002) and the Biwako Plus Five which includes appropriate measures to promote accessible tourism within Priority Area 5. On top of that, accessible tourism had been reaffirmed under commitment of WTO in 1999; within its Article 2 and 7 of 'Global Code of Ethnics for Tourism' (Van Horn, 2006: WTO, 2001).

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2.2 Emergence of Accessible Heritage Tourism

2.2.1 Heritage Tourism

> *'From 1950-2006, the growth of tourism increases from 25.3 – 848 million. In Asian and Pacific, tourist arrival increased by 7.8% in 2006, amounting to 164.7 million.'*
>
> *(Yamakawa,, 2007)*

The statistic clearly justifies rapid growth of tourism industry in Asian and Pacific Regions and ascertains tourism is a valuable alternative way in diversifying the economy rather then depending on typical sectors. Especially country enriches with attractive environments and fascinating historical social structure background. The industry has been identified as catalyst for economy growth in developing country since it attracts more foreign earning capacity compared to other sectors. Moreover, tourism industry presents major economic activity and also offers tremendous potential in employment opportunities. This is the reason why tourism industry has been centered at the social economy growth structure plan in developing counties.

There are types of tourism based on tourists' special interest for instant cultural heritage tourism, beach and coastal tourism, cruise tourism, village tourism, adventure tourism, eco-tourism, health tourism, business tourism, and tourism based on traditional cuisine, crafts and local festivals. Tourism is a resource industry, one that is dependent on nature endowment and society's heritage (Kala: Murphy, 2008). It is not only limited to new developed tourist attractions, but mostly are cultural tourism which usually attracts more travelers and tourists all

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around the world. Native cultural resources, historical sites and buildings contribute quality to heritage tourism industry.

> *'Cultural Tourism can be defined as: a form of tourism that relies on a destination's cultural heritage assets and transforms them into products that can be consumed by tourists.' (McKercher and du Cros, 2002:6) Christou (2005) notes that the term 'cultural tourism' is used interchangeable with that of 'heritage tourism …. '*
>
> *(Du Cros, 2008)*

Du Cros (2008) explained heritage tourism or cultural tourism is based on local historical precedents in archeological sites of ancient worlds, monuments, buildings and tradition of bygone era. Those are valuable heritage assets to be transformed into irreplaceable local attractive tourist assets; for example, private mansion Cheong Fatt Tze Mansion in Penang and Jonnker Street, the historical street in Malacca those are the valuable heritage tourism destinations in Malaysia. Cheong Fatt Tze Mansion was transformed from a private mansion into boutique hotel and gallery opened for public guided-tour. This private funded project successfully brought in new paradigm of cultural tourism in Malaysia. Apparently inclusion of UNESCO World Heritage Sites listing of Malacca and Georgetown has driven impetus to development of cultural tourism sector in Malaysia.

Heritage tourism is slowly gaining popularity and become important industry to generate income. In Ninth Malaysia Plan 2006-2010; tourism sector has been recognized as the main component to boost Malaysia's economy. Moving forward, the Government has invested a considerable amount to upgrade related facilities

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and to provide adequate infra-structure to support needs of the sector. There are more than 60 monuments and 25 historical sites have been identified and to be upgraded as tourism destinations during the Ninth Plan of Malaysia and spent 63 percent of RM 442.4 million to upgrade related facilities and provide adequate infrastructure (Economic Planning Unit, 2010).

Cultural tourism promotes multi-cultural society and valuable tangible and intangible heritage of the country. Heritage tourism is important to different communities, groups and individuals depending on their value and attitudes and the nature of heritage resources (Kala, 2008). Referring to impact assessment had been done in the research study by Kala (2008); heritage tourism contributes negative and positive impact to economy, social and finally cultural. The study pointed out tourism provides employment opportunities, increase income of locals which indirectly improve their living standards of local community and overall nation and regional development. At the same time, revitalization project is another way to revived forgotten historical areas which are usually left out from local authority and stakeholders.

Research of Kala (2008) on heritage tourism impact to city of Jaipur, India as case study concluded tourism serves as a major stimulus for conservation of important elements in cultural heritage of an area that might otherwise deteriorate or disappear. The industry serves as a major stimulus for safeguarding of cultural heritage in India that might otherwise is deteriorating. Conscious attempt will be

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done to restore monuments and more heritage areas of cultural significance are identified in order to promote to tourists. Revitalization of traditional arts and crafts, cultural elements and historical sites and buildings are considered as a positive impact of tourism responding from the interviewees in the research study. It was supported by majority of respondents believed tourism helps in preserving traditional elements of the community and foster sense of pride based on their native heritage of India. On addition, 76.7% of one hundred and fifty (150) respondents of the research study noted tourism has strengthened concern of government towards safeguarding historical and religious sites and buildings due to deep interest shown by tourist in the cultural heritage. Conscious attempt has been done by authorities to restore monuments and identified new areas of cultural significance to be conserved and preserved as tourist attractions.

Furthermore community pride is also enhanced and changes quality of life among residents in tourism areas. Social and cultural exchange happens and disseminating metropolitan values is encouraged through the expansion of tourism industry. Significantly, heritage tourism plays a main role in future of further tourism development in the region and sustain local cultural heritage; although tourism contributes to increment of social crimes.

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2.2.2 Accessible Tourism

Tourism industry which is social-based industry tends to be more diversify in order to gain wider audience. Whereas accessible tourism in accommodating needs of PwDs are increasingly important recently. Statistic from United Nations encountered approximately 10% of the world's populations are PWD, which are estimated approximately 650 million PwDs in the world (Maidin, 2012). Imagine if it is converted into buying power, it would contribute extensively to tourism industry. This possibility is even strengthened by increasing proportion of PwDs who are gaining ability to travel due to their economy status. It has been estimated in United State and in Australia; that accessible tourism market is worth $13 million and $4.8 million respectively (Darcy, 2011: Dwyer & Darcy, 2008; Harissinteractive Market Research, 2005; Van horn, 2007). These figures clearly show sheer size of the group and its impact to social economy growth. On the contrary, excluding beneficiaries of universal design approaches in addressing the needs for PwDs to sustainable tourism environments, it has been estimated that they are excluding 31% of the population or consumers in tourism industry (Darcy, 2010: Darcy & Dickson, 2009). Ultimately, it points out how accessible tourism can beneficial to economy development if it is seriously taken into place.

Buntan (2011) made a statement at the 2011 International conference on Accessible Tourism held in Taipei, Taiwan on 21st April 2011; tourism is a living example of how much a person can fully and effectively enjoy human rights and fundamental freedoms as stated in all human rights instrument. Buntan (2011)

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claimed accessible tourism can reflect whether PwDs can fully access to cultural materials, performances, activities and sites in society generally. He voiced out on behalf of his personal experience and collectively under represented group of people whom he believes they are certainly the most significance among underserved group in tourism industry. They are getting tendency to call for social inclusion, participation and accessibility in all aspects of well living not only within tourism industry. Unfortunately there are people still clung to charity-based society denying their buying power and capability participate in management and supply perspective in tourism industry.

In fact, inclusive tourism is another magnetic agent to capture more tourists from all layers of community. It will open up wider market in tourism industry besides heritage or cultural tourism. Market researches constitution policies promulgations on conventions revealed tremendous market demand from traders especially PwDs. Inclusive tourism or tourism for all has been a new target for all service providers and owners in competing to address the market. Basic needs, especially accessibility, usability and safety should be accommodated in order to fulfill the market's need. Therefore inclusive tourism is the fundamental basis to grow the industry and serve the market well. At the same time, the provision contributes to meet equal human rights among PwDs in mainstream development. According to Van Horn (2006); tourism industry is a suitable medium in promoting social equality and propagates awareness of accessibility among community.

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> *'In the view of consumer changing demand, tourism for all is an increasingly important sales argument in a competitive market. At the same time, it can serve as an effective tool in furthering human rights on people with disabilities in the destination communities.'*
>
> *(Van Horn, 2006)*

In other words, accessible tourism not only can benefit to economy growth but ensure PwDs able to claim their human rights to full participation in the inclusion society. To the extend, as stated in Article 2 and 7 of its "Global Code of Ethics for Tourism" in 1992, tourism should promote the rights and encourage participation of PwDs in the activities (WTO, 2001). Accessibility should be centered upon tourism industry and has substantially been reiterated in internally, regionally and nationally conventions, recommendations and policies adopted by international organizations especially UNESCAP.

Provision of easy access within tourism industry has been promulgated in three major regional instruments including; the CRPD, BMF for Action Towards an Inclusive, Barrier-Free and Right-based Society and BMF. Importance of inclusive travel had been recognized officially since 1985 by WTO. Provision of accessibility needs becomes necessity in tourism sector since the ratification of Declaration on the Rights of Persons with Disabilities in 2007 by United Nation. Again, the Bali Declaration on Barrier Free Tourism for People with Disabilities in 2000, the Sanya Declaration on Accessible Tourism in Asia and Pacific in 2006, the Bangkok Recommendation on Accessible Tourism in Asia and Pacific in 2007 and recently the Takayama Declaration on Development of Communities-for-all in

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Asia Pacific Region in 2009 delineate the importance in promoting accessible tourism to sustainable economic and social development.

There are different terminologies in addressing the concept of accommodating accessibility needs for all range of people including PwDs. Rain (2006) claimed without common language between travelers and industry is the reason resultant failure to the industry. 'Inclusive tourism' or 'accessible tourism' and what is 'universal design' are the frequent questions aroused. When 'accessible' attached to tourism, people think that they know what it means but concise definition has yet been fully defined. Most of people invented their own personal definition and cause to misunderstanding ultimately. Especially service providers, owners and professionals misinterpret the fundamental concept and come to negative impact in outcome.

'Inclusive Tourism'

> *'Inclusive tourism involves a circle of communication between travelers, industry professionals, policy makers, designers and builders to become stakeholders in the best possible outcome for all. That outcome is a product and quality of customer service that is predictable and understandable.'*
>
> *(Rain, 2006)*

Rain (2006) explained 'inclusive' refers to the concept of 'social inclusion' where one or group by another should be active acceptance and inclusion communicates at level of values and traditions. All participants should be treated at appropriate value and rights without discrimination. It means inclusive tourism is an approach which models the best personal experience and as social impacts to the industry; it

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is to serve all including PWD without stigmatism and isolated manner. That is the reason why inclusive tourism is not separated from Universal Design where its seven principles are coherent with the Inclusive Tourism approach. Universal Design is a framework for the design of places, things, information, communication and policy to be usable by the widest range of people operating in the widest range of situations without special or separate design. Most simply, Universal Design is human-centered design of everything with everyone in mind (Rains, 2006). Indeed 'inclusive tourism' and the related concept Inclusive Destination Development have been defined in academically and broadly used in journals and research papers.

'Accessible Tourism'

In turn, 'accessible tourism' is a form of tourism that involves collaborative strategically planned process between stakeholders that enable people with access requirements, including mobility, vision, hearing and cognitive dimension of access to function independently and with equality and dignity through the delivery of universal designed tourism products, services and environments. This definition adopts a whole of life approach where people through their lifespan benefit from accessible tourism provision. These include people with permanent and temporary disabilities, seniors, obese, families with young children and those working in safer and more social sustainably designed environment (Darcy, 2010: adopted from Darcy & Dickson, 2009). In fact, Darcy (2010) presented this definition in more fully developed understanding of the field after series of

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research papers from Darcy's academic Doctor of Philosophy's thesis (Darcy, 2004) where the definition was inspired from the theoretical areas of disability studies (Gleeson, 1999;Oliver, 1996), leisure constraints (Daniel, Drogin Rodgers, & Wiggins, 2005; Jackson & Scoot, 1999), tourism systems (Leiper, 2003; Leiper, Stear, Hing & Firth, 2008) and human right approaches (Darcy & Taylor, 2009; United Nations, 2006).

Both 'Inclusive tourism' and 'Accessible Tourism' generally define the same approach where needs for PwDs should be accommodated in this hospitality industry. Collaboration and communication between stakeholders including users, service providers and policy makers are important to ensure the best possible tourism product outcomes. Yet 'Inclusive Tourism' emphasizes on the Seven Principles of Universal Design as design guidance and construction decision making. The quality of the end products and customer services are predictable and understandable for all. According to Rain (2006), Universal Design is a human-centered design framework caters for wide range of users without special or separate design. On the other hand, Accessible Tourism centers the strategically planned development process and specific targeting of tourist requiring access provisions. Service providers cannot truly regard their products and services having interest in accessible tourism; unless strategic approach on the provision of access for targeted tourists is orderly in placed.

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Conclusively, tourism sector gives impact to economy, social and culture whether in positive or negative. Researches and statistics clearly outline the rationale of addressing the needs of accessibility for PwDs in heritage properties. It may give impulsive impact to social economic development. Besides it is beneficial to economy growth and also reflects well living of underserved groups of community especially PwDs. It is evident by the statistics showing buying power of the underserved niche market in tourism industry, and advocacy from conventions, adopted resolutions and series of conferences rationalize inclusion of PwDs within tourism industry.

2.2.3 Accessible Heritage Tourism

At juxtaposition of cultural tourism and accessible tourism, accessible heritage is a niche market where always been neglected should be taken into consciousness (Figure 2.1). From the perspective of human rights, social inclusion concept, sustainability tourism, economic impacts and socio economic development, it is rational to accommodating accessibility needs for PwDs in heritage buildings.

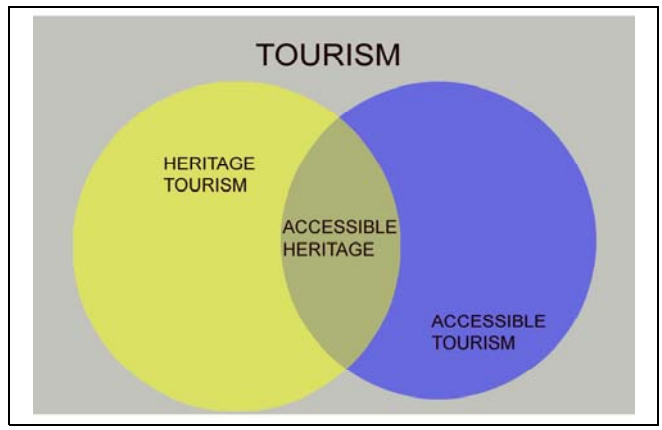

Figure 2.1: Integration of heritage tourism and accessible tourism

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Heritage tourism alone may not able to meet basic needs of visitors from all level of community especially accessibility for PwDs. On the contrary, accessible heritage tourism can serve as benchmark of high quality tourism for human society which is inclusive for all. By improving competitiveness business, meeting social needs and present local cultural, heritage resources can contribute a quality tourism product. Quality tourism not only depends on attractive environment but accessibility for all. The provision immediately can broaden level of visitors, sustain the industry into long term and enhance experiences of visitors eventually. As such, coalition of heritage tourism and accessible tourism is believed to be another segment in generating new market to the development of tourism industry. 'Accessible heritage tourism' could serve all level of community in revitalization of local historical sites and resources in beneficial to social and economy aspects in developing countries especially Malaysia. Moreover UNESCO Heritage listing in Malaysia has lifted up heritage tourism to international market and attracts foreigners from different level of community at the same time.

Making accessible tourism is a comprehensive package in protecting full participation and accessibility for all in all aspects, for example education, health, rehabilitation, employment and etc. At the same time it constitutes to Article 30 of CRPD which is the first international human right law will meet. Certainly the Article 30 of the Convention states PWDs have right to fully participate in cultural life, recreation, leisure and sport. Furthermore rights of PwDs participate in heritage tourism is clearly indicated in local legislative framework. Inception of

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accessibility into heritage tourism has been strengthened in Persons with Disabilities Act 2008; Section 31 reads:

> *'Access to cultural life*
> *31(2) Persons with disabilities shall have the right to enjoy access –*
> *(c) to place for cultural performances or services such as theaters, museum, cinemas, libraries and tourism services, and as far as possible, to monuments and sites of national cultural importance.'*
>
> *(Persons with Disabilities Act, 2008)*

In such integrated quality management focusing on tourist's satisfaction and based on sustainable development may need to achieve accessible heritage tourism.

2.2.3.1 Accessible Heritage in India

The Indian Express 3rd December 2008 reported the Archeological Survey of India[1] (DNIS, 2005) has responded to the needs of physical challenged tourists by constructing nine ramps at various point of the Taj Mahal. Besides, a dozen wheelchairs are made available to enable visitors with physically challenged to move easily and conveniently around Taj Mahal grounds.

> *'As many as 25 physically challenged tourists visit Taj daily. Now that people know that Taj has become disabled-friendly, more such tourists are likely to visit the monuments,' says Munazzar Ali, an ASI official at Taj.*
>
> *(The Indian Times, 2008)*

[1] Archaeological Survey of India (ASI), under the Minister of Culture, is the premier organization for archaeological researches and protections of the cultural heritage in India. It is attorney to regulate all archaeological activities as per provisions of the Ancient Monuments and Archaeological Sites and Remain Acts, 1958 and Antiquities and Arts Treasure Act, 1972.

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Figure 2.2 A, B, C: Entrance with timber ramp at Taj Mahal, India

Figure 2.3: Services for PwDs at Taj Mahal

Figure 2.4: Timber ramp to public toilet at Taj Mahal,

The statement clearly shows initiative to make accessible in heritage sites spur on cultural tourism development in India, and promote local tourism resources to international recognitions. Neelu Singh (2014) claimed tourism industry scenario in India focuses on new segment market to provide better service to specific groups of tourists who are differentiated by demographic and psychographic characteristic. She was acknowledged that outbound market from India is opening up to these segment markets who are the groups of traveler with physically challenged and senior citizens. This situation has driven Delhi Government in

India got into impetus to promote the barrier-free environments within heritage tourism industry.

According to Director General of ASI, C. Babu Rajeev in an interview session with Parvinder Singh of Disability News and Information service (DNIS, 2005); local government have worked closely with ASI and a decision has been taken to make all World Heritage Sites (20 declared and 14 listed) friendly to PwDs on a priority basis. Besides Taj Mahal, other prominent heritage tourism spots in Delhi, Safdarjung Tomb, Jantar Mantar and Qutub Minar and recently Konark Temple in Odisha which are also the World Heritage Site, were access audited and had been made accessible for PwDs and persons with reduced mobility (senior citizens, pregnant women, families with young children and persons with temporary ailments) (Source: Samarthyam). Needs of specific groups in the properties are well attended to unique of cultural and heritage significance of the heritage monuments in India which is a very large numbers of them in approximately 5,000 sites.

C Babu Rajeev (DINS, 2005) further explained there are no any guidelines provided; as he believed there is no need to prescribe any specific parameter since it is not involved with complicated high technology knows how to make ramps and toilet accessible, but the willingness and spirit to carry out is indeed. Adversely, great paradox of tourism, as it often is alleged, where ‘authenticity’ to be sought would be destroyed. It is the result where part of cultural lost consequence from

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tourism impact. All activities and development tends to be tourist-oriented to cater to varied needs of different groups of tourists and travelers from all around the world.

Inappropriate or hasty techniques may jeopardize heritage property in region. If heritage tourism is not managed properly, tourism can be immensely destructive force and cause adverse impact on authenticity of heritage resources. These issues were mentioned in the UNESCO Regional Workshop 'Conserving the Past-An Asian Perspective of Authenticity in the Consolidation, Restoration and Reconstruction of Historic Monuments and Sites', which was held in Hoi An, Vietnam from 15 February to 3 March 2001. The workshop collectively noted that heritage in Asia is increasingly threatened by development and modernization.

> *It was recognized that both tourism and the very process of restoration and presentation for tourism purposes introduced new and more subtle threats to authenticity that are only beginning to be understood in the Asian context.*
> *(Engelhardt & Rogers. 2009)*

The statement from Hoi An Protocol informs tourism industry has the most adverse impact to historical physical fabric and its intangible authenticity. As mentioned in earlier sections, authenticity and integrity is the central focal principle in heritage conservation. Historical significance or heritage value is mainly concerned in the whole process of built heritage. In spite of modification and adjustment to heritage site or building is needed to compliance current relevant statutory requirements not to mentioned tourism venues. To be reused,

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historical buildings often have to change its role to adapt different users and requirements. Often adequacy, serviceability, emergency and safety as well as financial return are necessary to be considered. Nevertheless, conflicts happen when both conservation approach and barrier-free environment design guidelines are taken place simultaneously in conserving heritage site or buildings.

Adhere arises issue of ‘authenticity’ in cultural heritage conservation to meet international degree standard and guidelines on conservation that have been promulgated by the international bodies mainly UNESCO and ICOMOS. Conjunctively, it will directly endanger inscription of World Heritage Site listing if the significant heritage values are challenged. The problem was clearly indicated in the example from Kala (2008) research study on the ethnic restaurant like Choki Dhani, Apno Gaon, Kesariya showcasing ‘native village’ to display rural life with all its traditional features and vibrancy to meet tourists’ expectation. Kala (2008) adopted terms by MacCannel (1973) ‘stage authenticity’ refers to tourism host attempt to modify their behaviour, artifacts, dress and so on, so as to appear ‘real’ to tourist.

At this point, it is essential to weighing balance between barrier-free environment approach and conservation practice to meet high quality of accessible heritage especially heritage tourism industry. In fact, European countries, the United of States, Canada, Australia, Japan and even some Middle East nations are at the forefront of promoting barrier-free to heritage tourism. Though still at a nascent

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stage, this untagged segmentation is slowly emerging in respond to demanding among people with ageing and limited mobility to explore the world. To what extend legislation system constitutes accessibility within heritage site or building? What are standards and planning guidelines to monitor practitioners to resolve conflicts between both approaches? It is important to weighing balance between both conservation guidelines and practical accessibility needs in conserving heritage properties.

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2.3 Constitution on Accessible Heritage

Literature reviewed statutory system on influence of accessibility practice within conservation approach to meet needs of PwDs in current practicing of Malaysia. Events of chronology on both conservation and accessibility (Table 2.1) were undertaken to learn accessibility and conservation development; how both legitimate regimes interfere with each others and where both approaches are coalition. Legislative framework including Malaysia Standards and codes of practice were researched and explored in the study.

Tracing back to events of chronology, conservation has been started earlier than accessibility practice in Malaysia. Antiquity Acts gazetted at 1976 marked the first legal act in conservation approach to protect and safeguarding heritage properties in Malaysia. Departure from here, legislative framework has evolved to a comprehensive system and collaborates among stakeholders from all level of authorities. Government and non-government associations are gaining momentum in cooperation to develop further conservation approach in Malaysia. Throughout the years, conservation practices have extended local potentials to international platforms and receives recognitions from different levels of organizations especially UNESCO World Heritage List in Straits of Malacca and George Town in 1997. Eventually, the achievement elevates local heritage tourism to an open market more than ever foreigner tourists.

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To accommodating different levels of visitors, heritage tourism should not bounded by its tangible and intangible heritage value, community interest has been included within conservation especially accessibility needs for PwDs. Easy access features draw in visitors market especially the discrete group of community. Demographic and previous researches illustrated another potential prospect who are strong in buying power and spending market in tourism industry. As such, accessibility has been strengthened in heritage tourism to create a barrier free tourism sector. At the same time, it would abide by human rights in Persons with Disabilities Act. Researches and reviews revealed by having accessibility within heritage tourism will beneficial to social development and boost national economy. That is the reason why accessibility and heritage conservation have been targeted in resolution and action plans in conjunction with international proclamations and conventions.

Literature review and pilot study encountered deficiency of legislative framework and guidance in addressing accessibility needs of PwDs. There are gaps has yet accommodated within coalition both disability and conservation legitimate guidance. Both acts are not well informed where the practicing standards for both approach is still undertaken to draft out an accessible heritage standard guidance. What is the legitimate framework to reconcile both acts? How practices work in collaborate all stakeholders to maximize level of accessibility within historical properties without demising its heritage significance?

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Table 2.1: Events of chronology on both conservation and accessibility

Year	Agenda	Description	Title
1976	Antiquities Acts	Antiquity Acts had been gazzeted in Malaysia for the first time. It provided some protections and such conservation approach.	Conservation
1983	Badan Warisan Malaysia (Heritage of Malaysia Trust)	The Trust began officially as a charity Trust. It was set up by a group of volunteers to preserve Malaysia's built heritage and area of architectural interest of all parts of the country.	Conservation
1987	Penang Heritage Trust	It was founded by architect Dato' Lim Cheong Keat, the Trust is a voluntary society. It cooperates with Penang Conservation Unit through good planning and activities to achieve the goal of conservation.	Conservation
1988	Conservation and Urban Design Unit of Kuala Lumpur City Hall	Known as Unit Pengekalan Dan Seni Bandar. The unit was founded on early 1988 for the purpose of carrying out research, providing guidelines and implementing regulations for its urban environment and conservation areas. It was consider the pioneer among all official conservation committee set up by the local authorities in Malaysia.	Conservation
1990	National Social Welfare Policy	implementation of the National Social Welfare Policy, which gives recognition on persons with disabilities' rights to full participation on mainstream of both economic and social development.	Accessibility
1990	Provision of By-laws 34A of the Uniform Building By Law (UBBL)	An amendment was made to UBBL at the 35th National Council of Local Government. The amendment introduced section 34A making compulsory for building to provide access to enable disabled people access into, out of and within buildings. The provision is binding on all state governments.	Accessibility

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Table 2.1, continued: Events of chronology on both conservation and accessibility

Year	Agenda	Description	Title
1991	Penang Conservation Unit	It was formed by Penang City Council in early 199. The unit works on identify buildings and sites for conservation zones, control and consider any new development planned in the conservation areas, formulate guidelines and develop policies for the conservation areas.	Conservation
1992	Acheh Mosque Heritage Group	It was also known as Badan Warisan Masjid Melayu Lebuh Acheh and was formed in December 1992 by the local community and residents of the Acheh Street Mosque areas in George Town Penang. The main objective of the group includes the historical and cultural heritage mosque and Acheh Street Mosque's surrounding properties.	Conservation
1994	Proclamation	Malaysia became signatory of Proclamation on Full Participation and Equal Opportunities of People with Disabilities in Asia and Pacific Region on 16th May 1994.	Accessibility
1994	Nara Document on Authenticity	It was drafted on Nara Conference on Authenticity in Relation to the World Heritage Convention, held at Nara, Japan from 1-6 November 1994.	Conservation
1999	Burra Charter	It was introduced in Australia ICOMOS: The Australia ICOMOS Charter for Places of Cultural Significance. The previous 1988 version was superseded. This 1999 revision joins the version of 1979 and 1981 as archival documents recording conservation philosophy of conservation in Australia.	Cnservation

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Table 2.1, continued: Events of chronology on both conservation and accessibility

Year	Agenda	Description	Title
1998	National Advisory And Consultative Council for People with Disabilities was established	National Advisory and Consultative Council was chaired by the Minister of Women, Family and Community Development with the Secretary General from relevant ministries as members. The council acts as a coordinating body and monitors the implementation and achievements of programme and commitments regarding persons with disabilities, including BMF. The council constitutes a platform for the collaboration among the various ministries, departments, non government organizations (NGOs) and the persons with disabilities themselves.	Accessibility
2002	Biwako Millennium Framework for Action	Malaysia government endorsed the Biwako Millennium Framework for Action (BMF) and fully committed to promote an inclusive, barrier-free and right-based society for person with disability in the country.	Accessibility
2003	National Social Policy	implemented National Social Policy which outlined as part of the strategy to create a multi-sectoral synergy or collaboration - joint responsibility of all, public and private sectors, together with the non government organizations (NGOs)	Accessibility
2006	National Heritage Act 2005	The National Heritage Act 2005 was gazetted on 31 December 2005 and came into effect on 1st March 2006. The National Heritage Act 2005 (Act 645) has superseded the Antiquities Act 1976. The Act addresses the various dimensions of heritage conservation in greater depth.	conservation

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Table 2.1, continued: Events of chronology on both conservation and accessibility

Year	Agenda	Description	Title
2008	Subsection 27(2) of National Heritage Act 2005	The Commissioner of Heritage had announced its intention to designate 32 sites located in Peninsula Malaysia as heritage sites.	conservation
2008	Persons with Disabilities Acts	The Persons with Disabilities Act 2008 has been gazetted and came into force in 7 July 2008. This is the first right based legislation for people with disabilities.	Accessibility

2.3.1 Disability Legislative Framework

Accessibility for PwDs has been mandated since amendment to the Uniform Building (Amendment) By-laws on 1990. The amendment introduced Section 34A making compulsory for building' to provide access to enable disabled people access into, out of and within the buildings' (Appendix A). This provision is binding on all state governments despite the gazette year depended on each states.

Table 2.2: Gazatted dates of UBBL 34A in respective states in Malaysia

LIST OF STATE GAZETTE NOTIFICATION ON AMENDMENT TO UBBL 1984 ON BUILDING REQUIREMENTS FOR DISABLED PERSONS			
NO	STATE	GAZETTE DATE	GAZETTE DOCUMENT
1	Perlis	3 March 1994	PS.P.U.2
2	Kedah	30 November 1992	-
3	Pulau Pinang	11 November 1993	Pg..P.U.26
4	Perak	13 May 1994	Pk.P.U.26
5	Selangor	20 January 1994	Sel.C.U.95
6	Negeri Sembilan	31 January 1991	N.S.P.U.1
7	Melaka	22 May 1996	-
8	Johor	7 May 1992	J.P.U.14
9	Pahang	28 March 1996	-
10	Terengganu	15 December 1993	-
11	Kelantan	3 July 1992	Kn.P.5/92
12	Wilayah Persekutuan	13 August 1993	P.U.A.305/92

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The UBBL Section 34A specifies all new public buildings and existing buildings which were built before enforcement date of the law on 13 August 1993 to provide access to get into, out of and within the buildings and facilities for used by PwDs. The amendment was made at the 35th National Council of Local Government on 20th September 1990. It make mandatory for all public buildings new built, or have been erected, approved plan shall be modified or altered to comply with this by-law within 3 years from the commencement date. The requirement of the law shall be deemed to comply with Malaysian Standard MS 1184 and MS 1183. However, Malaysian Standard MS 1331 is not required in the law currently. The legitimate standards refer to the Malaysia Standard Code of Practices on accessibility and mobility for Public Works Department which were introduced between 1990 and 1993 including;

1. *SIRIM Code of Practice MS 1184:2014 – Coder of Practice on Access for Disabled Persons to Public Buildings (First Revision)*

   It was revised from the first issued by SIRIM in 1991 namely MS1184:1991 Code of Practice for Access for Disabled People to Public Buildings. The standard was enforced in pursuant to spirit of the Proclamation on the Full Participation and Equality of People with Disabilities in the Asia and Pacific Region and become signatory on 16th May 1994. It contributed to fulfillment goals being set in the Asian and Pacific Decade of Disabled Persons 1993-2002. The standard mainly covers provisions to the accessibility needs for PWDs in public buildings.

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2. *SIRIM Code of Practice MS 1331: 2003 – Code of Practice for Access of Disabled Persons Outside Buildings (First Revision)*

It was revised from the first issued by SIRIM in 1993 namely MS1331:1993 Code of Practice for Access for Disabled People Outside Buildings. The standard was enforced in pursuant to spirit of the Proclamation on the Full Participation and Equality of People with Disabilities in the Asia and Pacific Region and become signatory on 16th May 1994. It reflects commitment of the Government to the declaration of BMF for Action from 2003 – 2012, to create an inclusive, barrier-free and a right-based society for PwDs. The standard mainly covers provisions to the accessibility needs for PwDs outside buildings.

3. *SIRIM Code of Practice MS 1183: Part 8:1990 (P) – Specification for Fire Precautions in the Design and Construction of Buildings Part 8: Code of Practice for Means of Escape for Disabled People*

It was issued by SIRIM in 1990 providing guidance in means of fire escape in new and existing buildings and enable safe evacuation of any PwDs. Specifically, entertainment and cultural use buildings are restricted in Section 3.2 of the code due to users are likely unfamiliar with their surroundings and population densities in term of numbers of persons per unit area are very high. The design of escape routes and organization of management procedures are particularly important to all not least PwDs.

The codes of practices underlined interpretation of the ‘access for disabled people’ and ‘disabled persons’ in the standards. Access for disabled persons means a

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continuous unobstructed path of travel to or within a building capable of being negotiated by a person using a wheelchair or otherwise with limited mobility. Disabled persons refers to people with a physical, hearing or sight impairment or any combination thereof, which affects their mobility or their use of buildings and related amenities.

The codes of practices specify only basic requirements on standard dimensions and easy access needs for PwDs. The standards specify requirement according to separate parts of buildings. The access should begin from street to main entrance with continuous and unimpeded path of travel to parking area if applicable, approach to main entrance and vertical access. Vertical access leads their way to every floor level and to all rooms and facilities in place. Accessible toilets, reception counters and lifts for instant should made into accessible to enable them to carry out their activities independently. The scope of standards includes only public building other than private dwelling housing. Specifically the authorities are empowered to exempt buildings having less than 280 square meters of floor area per level from providing vertical access for PwDs, but ground floor is made accessible.

Mainly, the standards are the only source of references for designers and builders for new and existing buildings to accommodate accessibility needs. Designer refers to architects, engineers and planners while the builder includes developers and construction project team. At the same time, the standards facilitate local

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authority like state government agencies in building approval assessment. It is responsibility of respective states authority to ensure all building plans include access feature in accordance with Malaysian Standards before approval granted and issuance of Certificate of Fitness[1] (CFO) on post-occupancy. Although Town and Planning Country Act 1976 did not specifically require creating accessibility for PwDs, planning authorities are acquired to ensure the provision in the process of approving applications for planning permission (Maidin, 2012). On the contrary, The Street, Drainage and Building Act 1974 was amended in 1991 to include the amendment of UBBL 34A. Penalty will be imposed under provision of the act to owner who do not comply with the requirements. The enforcement has been a turning point to elevate human rights of PwDs in mainstream society. Likely, it is consequence from implementation of the National Social Welfare Policy on 1990; which take cognizance of the disability issue into mainstream. Following by the Government committed to signatory of Proclamation on the 'Full Participation and Equality of People with Disabilities in the Asia Pacific Region' in advocating rights of PwDs to form an equal basis society for all on May 16th 1994 in Malaysia; thus far 46 Governments become signatories to commit on inclusive society approach. Subsequently, Malaysia also endorses and fully committees to BMF at the end of the First Asian and Pacific Decade of the Disabled Persons in 2002.

Moving forward, a National Advisory and Consultative Council was formed on 1998 to replace the National Implementation Committee for Well-being of

[1] Certificate of Fitness (CFO) has been replaced to system Certificate of Completion and Compliance (CCC) since enforcement date on 12 April 2007.

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Disabled, which was established in 1990. It was chaired by the Minister of Women, Family and Community Development with the Secretary General from relevant ministries which became member in year of 1998. The council acts as a coordinating body and monitoring implementation of the Agenda of Action for the Asian and Pacific Decade of Disabled People. At the same time, Governments are provided with technical advice by the ESCAP secretariat to promote and provide monitoring tools for the implementation of the regional framework. It constitutes platform for collaboration among stakeholders consisting various ministries and departments of the Government together with Non-Government Organization. It has been further mandated in implementation of National Social Policy to outline strategy in creating multi-sectoral synergy or collaboration, in 2003.

Overview to movement of disability right, the development has been further expanded since Malaysia signed the Proclamation of Full Participation and Equal Opportunities of People with Disabilities in Asia and Pacific Region on 16th May 1994 and endorsement of BMF for Action in 2002. Eventually, Persons with Disabilities Act 2008 has been empowered on 7th July 2008. It marked the first right-based legislation for PwDs in Malaysia. This has strengthened disability approach and lifted up disability issues to mainstream; especially encourage PwDs to claim their rights in any discrimination.

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2.3.2 Conservation Legislative Framework

In 1976 the Antiquity Acts for the first time was gazatted in Malaysia to protect national heritage properties and embarked on conservation approach in Malaysia. It was the only Act for old building conservation purpose but had been outdated to be used and adopted to current practices (Kayan, 2005, Khairuddin , 2002 and Paiman, 2002b). Until, the National Heritage Act was gazetted on 31 December 2005 and came into enforcement on March 2006. The Act has superseded the Antiquity Act 1976 and addresses various dimensions of heritage conversation in greater depth. It initiated a systematic framework in safeguarding local heritage properties in order to meet international expectations.

National Heritage Act informs mainly the structural of legislative framework especially administration until post occupancy stage of heritage conservation project. Besides, the Act scrutinizes conservation area and conservation management plan should be formulated to relevant local planning authority in facilitating heritage conservation. In other words, the act gazettes on conservation aspects but application and formulation are governed by respective states authority. On top of that, there are other several acts in guiding conservation practices in states. The legal instrument provisions in protecting national heritage can be divided into national level and local level, including;

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Table 2.3: Legal instrument provision in Malaysia

National Level	
Town and Country Planning Act (1976), Act 172	
Local Government Act (1976), Act 171	
National Heritage Act (2005), Act 645	
The Street, Drainage and Building Act 133	
Local Level	**States**
Enactment on Conservation and Restoration of Cultural Heritage of Malacca (1998)	Malacca
Design Guideline for the Conservation Zones in the Inner City of Georgetown, Penang	Penang

There is lack of legislation directly deal with conservation practices in national acts. But some states introduce their own enactments that regulate the conservation policies and practices in their own status. In Penang, there is a specific policy for designated conservation area even through the State Government does not gazette these areas. The policy, namely '*Design Guideline for the Conservation Zones in the Inner City of Georgetown, Penang*[2]' regulates on demarcation of conservation zones by Penang Island Municipal Council with State Government's approval.

On the other hand, several government and non-government bodies have been set up as official committees, private societies or charitable trust. They mainly function in promoting conservation in Malaysia like Penang Heritage and Historical City of Malacca. Malaysia of Heritage Trust (Badan Warisan Negara) was formally established in August 1983 but it was formed under non-government charity trust. Similarly, another Penang Heritage Trust was founded by architect

[2] The title was translated from the original guideline in Malay – Garispanduan Rekabentuk unutk kawasan-kawasan Pemeliharaan Di Dalam Kawasan Dalaman Bandaraya George Town, Penang (No. 3B/87,URS, MPPP)

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Dato' Lim Cheong Keat in 1987 as volunteer trust based in Penang. The organizations create awareness and educate community in regards to built heritage. They are trying to influence the policy, play a role as technical resource organization and also one of the invited members in conservation committee.

An official conservation committee was formed only since March 2004 when the Ministry of Culture, Arts and Heritage was established. It marked the turning point to save Malaysia's heritage. Department of National Heritage from the Ministry is the key person at national level in monitoring mechanism of legislative system nationally. Whereas enforcement units are administered by respective heritage units in each states for instance Heritage Units is placed under the Urban Planning and Development in State of Malacca while Penang State established the Penang Conservation Unit under Building Department in Penang City Council in 1999. The units function as an advisory body pertaining to policy and management on heritage and conservation within the State.

2.3.3 Interference of Persons with Disabilities Act and National Heritage Act

Article 32 of Persons with Disabilities Act promulgates PwDs should have equal access to recreation, leisure and sports. The general idea is to recognize disability results from the interaction of PwDs and environmental barriers that hinders their full and effective participation in society on an equal basis with persons without disabilities (PWD Act Malaysia, 2008:7). Adhere equal basis is not only limited on

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educational and working opportunity; but tourism is another mainstream to be emphasized.

PwDs should involve in sector either taking part as one of the service providers or spending their rights on recreational area and sports. Accessibility would be another segment stimulates development of local hospitality industry by looking back to the demography and statistic as shown previously. The inception of accessibility into heritage tourism is even ascertained where it is specifically advocated under Article 31, Access to cultural life, as read;

> *'31(2) Persons with disabilities shall have the right to enjoy access –*
> *(c) to places for cultural performances or services such as theaters, museums, cinemas, libraries and tourism services, and, as far as possible, to monuments and sites of national cultural performance. '*
> *(Persons with Disabilities Act, 2008)*

Historical monuments and sites, cultural performances shall accommodate accessibility needs of PwDs. This has informed the local Government and service providers shall give appropriate consideration and necessary measures to improve their facilities and amenities. Overall, Government recognizes importance of accessibility to cultural and heritage tourism likely due to the sector is another mainstream to boost social economy development and achieve developed nation status by 2020.

In contrast, there is no specific article disclose accessibility within heritage properties in National Heritage Act 2005. The Act mainly focuses on conservation

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aspects but lack of supportive standards or codes of practices on conservation. There is no national guideline on conservation and it is impossible to standardize to all heritage properties with codes of practices. Each historical fabric faces their own problems in safeguarding their unique heritage values.

Furthermore, the National Heritage Act is not gazetted to all historical properties in Malaysia; but to those listed properties which meet the criteria stated. Adherence, gaps between both Persons with Disability Act and National Heritage Act to uphold accessibility needs within heritage buildings is revealed as shown in Figure 2.5. Even though UBBL 34A is considered the only clause regulate that all new and were built before the law enacted on 13 August 1993 public buildings are required to make accessible for all. However, the provision Malaysian Standards MS 1184:2014 and MS1331:2003 specify only the basic requirements of buildings and related facilities so as to permit access by PwDs. There is insufficiency guidance for cultural buildings which are fostered under conservation guidelines.

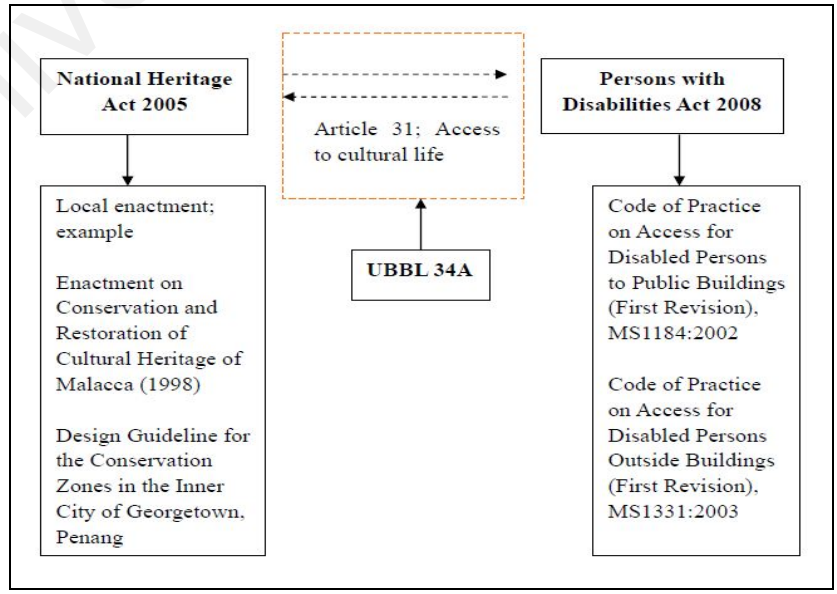

Figure 2.5: Correlation of National Heritage Act and Persons with Disabilities Act in Malaysia

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2.3.4 In Comparison to Developed Countries

Accessible heritage has been developed with an established system in conservation heritage buildings and dedicated in providing accessibility needs of PwDs in developed countries for example United Kingdom, United States, and Australia. As seen in Table 2.3, United Kingdom, United States and Australia as developed countries have established their policies for heritage conservation and rights of persons with disabilities. On top of that, guidelines to improve accessibility rights in heritage environment are proper in placed. Both disability act and heritage act well inform each other to synchronize guidance in monitoring conservation practices in their countries.

Table 2.4: Comparison of legislation and guideline

Country / Criteria	United Kingdom	Australia	Malaysia
Policy on PWD	DDA 1995 DDA 2005 Equality Act 2010	DDA 1992 Human Rights Commission Act 1986	Persons with Disability Act 2008
Policy on Heritage Environment	National Heritage Act 2002	Australian Heritage Council Act 2003	National Heritage Act 2005
Guideline in improving accessibility in Heritage Environment	English Heritage, Easy Access to Historic Buildings Code of Practice on Accessibility on Accessible Heritage Sites	Eric Martin, 1999 Improving Access to Heritage Buildings	-

Taking example of United Kingdom, Section 29 of the Disability Act 2005 regulates that the head of public body shall provide public access to whole or part

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of the heritage properties for PwDs without adverse effect conservation status or integrity of heritage sites. The policy initiates proactive inception of the approach into mainstream development. To the extent, Section 29(3)(b) clearly alight on the idea by correlating with the National Heritage Act 1995,2002 and National Monument Act 1930.

Section 29: Access to heritage sites

(1) The head of public body shall, as far as practicable, ensure that the whole or part of heritage sites in its ownership, management or control to which the public has access is accessible to persons with disabilities and can be visited by them with ease and dignity.

(3) In this section 'heritage sites' includes –

(a) a monument within the meaning of the National Monument Acts 1930 to 2004

(b) a heritage building or a heritage garden or park within the meaning of the Heritage Act 1995 …..."

(Disability Act 2005, 2005)

Code of Practices on Accessibility on Accessible Heritage Sites was drafted under request of the Minister of State for Disability and Mental Health of Ireland abides by Section 30 of the Act. The code has been the consultant document on March 2008 and means of correlation between Disability Act 2005 and Heritage Act 2002. It provides a platform to collaborate government and non-government organizations in accommodating accessibility needs for PwDs and statutory obligation to public providers. In compliance with this code, it is considered comply with the relevant provision of the Disability Act 2005. It benchmarks balance between accessibility and conservation approaches to meet accessibility needs of PwDs.

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The Code of Practice on Accessible Heritage Sites becomes imperative means of consensus between disability and heritage acts. Figure 2.6 illustrates both Heritage Act 1995 and Disability Act 1995, 2005 is well informed under the supportive document- codes of practice on accessible heritage sites. DDA is about people and not buildings. The Act does not include standards for accessibility building design, though the relevant Code of Practice refers to Part M of the Building Regulations as a reasonable standard (English Heritage, 2004).

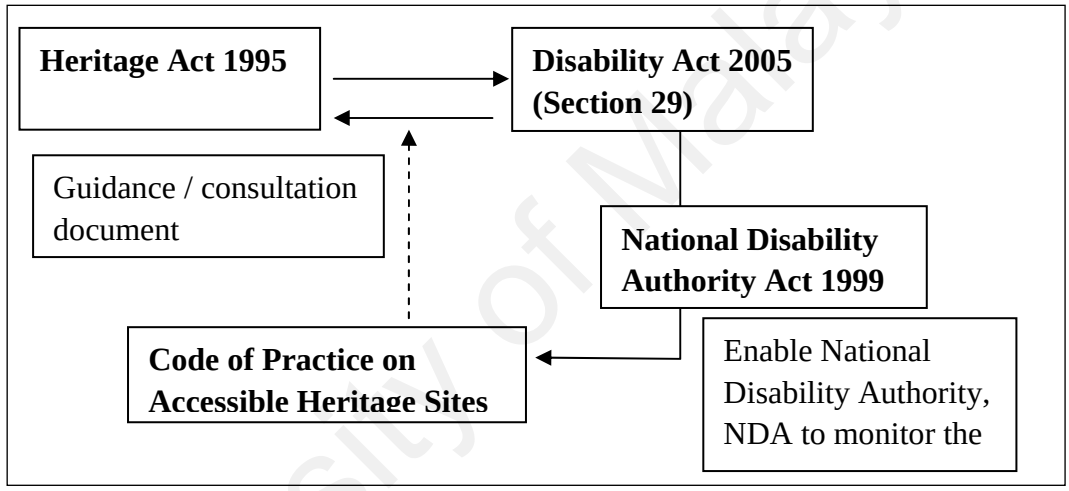

Figure 2.6: Correlations of Heritage Act and Disability Act in Ireland

The code of practice postulates comprehensively aspects need to be considered in the journey sequence through heritage site to enable PwDs access without assistant. It generally gives guidance to implementers on critical areas where should be made accessible rather the entire heritage site. The document divides nine core elements to be considered in mapping out accessible route for them. The consideration is taking on the elements along the journey sequence through the heritage sites; instead of standardized measurement or dimension to monitor the building elements ergonomically. Each core element includes rationale to make it into accessible, goals and some good example solutions in practice.

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Most important, not only it gives practical advise while appreciating range and diversify of heritage sites involved and also balance accessibility with site conservation and preservation. Due to inaccessibility problems occur differing widely to the original setting of each historical fabric. It would likely rational in giving a guidance to monitor potential adjustment than imposing specific standards to all heritage buildings.

The other effective guidance in British is the Easy Access to Historic Buildings drafted by English Heritage. It gives a comprehensive content from introductory of the heritage acts in making accessible heritage, legislative framework especially planning permission to potential adjustment on heritage sites with examples. In comparison to the code of practices, English Heritage elaborated clearly on functions of access consultant or access officer on the planning permission and importance of access auditing in identifying accessibility problems on historical properties. Easy Access to Historic Buildings is considered as a complete handout to overview the general principle in making heritage properties accessible for PwDs.

Access planning process is well explained by English Heritage to inform flow of the practice to comply with regulations; and determine needs for changes to historical buildings. A proper conservation process is needed in place either to adaptive or even continuing use or uses subjected to the greater scrutiny of contexts. It is important to safeguard authenticity of cultural heritage while physical access needs for PwDs are met. Thus thorough investigation and research based should be set up

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before any physical construction works is executed on site. Careful process of research, brief-taking, consultation and creative exploration of alternatives, good quality solutions are usually possible. The key lies in process of gathering information about the significance and vulnerability of building and understanding needs of different types of disabilities.

In such, access auditing and conservation assessment establish an access strategy before completing with an appropriate access plan to make adjustments (Figure 2.7). The access auditing is scrutinized to identify all access needs which definitely differ from each heritage sites. Inevitably, it will not always be possible to provide access to entire sites and also depends on nature of service provided and resources available on heritage sites respectively. Eventually the assessment informs the reasonableness on changes without adversely demising its heritage values.

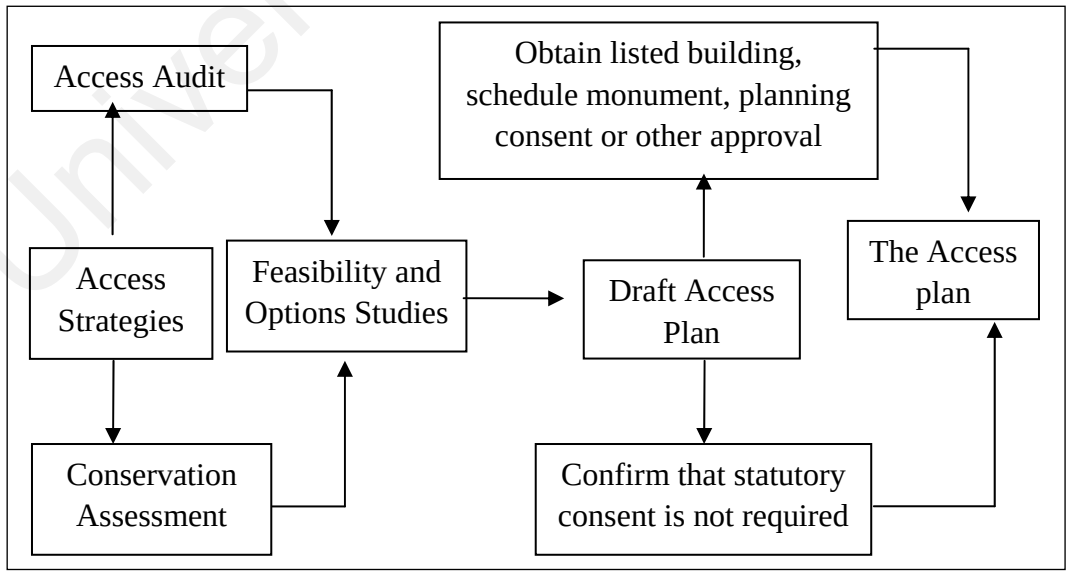

Figure 2.7: Summary of Access Planning Process
(Source: English Heritage, 2004)

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Besides, the English Heritage Policy gives practical advice on making adjustment to physical features together with exemplary practices. The complete reference or design framework justifies degree of accessibility within heritage sites and buildings; and monitors professionals, designers, managing officers, owners and users to determine feasibility to the compliance. Thus, a comprehensive working programme would facilitate the handful problem to providing easy access for existing sites particularly those historical buildings.

Moving to the Asia Pacific regions for instant Australia which is the closet developed country to Malaysia; 'Improving Access to Heritage Building' by Eric Martin(1999) has been the guideline to address accessibility needs within heritage buildings. This guideline provides practical solutions to service providers in accommodating access and interpretation to cultural significant places. It discusses the underpinned legislative framework, sets out strategies to identify and resolve access requirements and gives hands-on solutions from around Australia.

Martin (1999) claimed access strategy is an effective way to facilitate the approach instead of standard design guidelines for all as similar to code of practices in British context. The approach has been being practiced in the principle guided under a process flow (Figure2.6). The main objective is to monitor in accommodating access needs to heritage buildings without adversely affect its heritage value. It is to ensure all users access the buildings and services in the same way and independently. However, some heritage buildings may only permit to certain degree of

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independence (Eric Martin, 1999). Due to each heritage buildings by its very nature poses unique limitations and opportunities. At this point, access strategy should be taken place to identify potential adjustments. Similarly, the policy includes access auditing and secondly conservation assessment to be carried out to prepare an action plan. It is totally comparable to English Heritage's practices to attain an appropriate access improvement to heritage sites.

Adversely, gaps of correlation between National Heritage Act 2005 and Persons with Disabilities Act 2008 are yet to be enclave in Malaysia. Kayan and Zuraini (2004) admitted state or district laws are not concurrent with national policy in building conservation in Malaysia. As discussed in previous section, local governments are authorized to enact state's standards on conservation practice; while the National Heritage Act is only imposed to selected listed national heritage properties. Taking example as listed in Table 2.2, guidelines in Malacca and Penang has never been the same. Notwithstanding relative enactments were drafted base on general principles, interpretations and implications still depends on respective traits.

Ahmad (1996) said to the New Straits Times, that Malaysian planning system is closely patterned with British model. Person with Disability Act is still newly enforced in Malaysia and implication has yet evident. There is no supportive standard to guide accessibility within heritage conservation other than the Code of Practices MS1331 and MS1184. In fact, access for cultural and heritage sites is

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included Persons with Disabilities Act; but no specific clause was found in National Heritage Act 2005 on how to make heritage site accessible.

The legal framework of conservation planning process in Malaysia lacks of technical input from access officers or representatives equipped with accessibility know-how. Cooperation among stakeholders is necessary to disseminate the technical standards especially anthropometry principle of PwDs not only on new buildings and also existing heritage properties. Instantly, it is supported by the statement whereby Hussein (2005) admitted regulation alone is not enough unless all parties are integrated. Stakeholders consists service providers like architects, designers, conservationists, owners, managing officers; persons with disabilities or non-government organizations and government should work together on respective roles. In such access planning as practiced in developed countries should be adapted into local planning approval system.

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2.4 Heritage Conservation

Conservation of heritage buildings has evolved impetus mainstream development and has been accentuated in social-economic growth in Malaysia. Enactment of National Heritage Act 2005 and establishment of National Heritage Council has apparent intensive progression in building heritage and succeed to inclusion of UNESCO World Heritage listing. Obviously, the status has brought in enormous impact to economy growth and discerns appreciation heritage value among nation. According to Widodo & Engelhardt (2007) built heritage had multiple effects on all facets of community. The final products could contribute to surrounding environment and local community's cultural and historical continuum. They further explained sustaining tangible and intangible heritage could reinforce identity and continuity in this various communities and lead to better multicultural understanding.

Indeed, heritage conservation acquires rigorous techniques and skills of conservation process; but comprehensive policy and guidance is essential at the first place. However, there is still lack of conservation guidelines uphold the practices not even in developed countries. It is impossible to standardize conservation practice to all historical buildings; because each historical building has its unique heritage significance. Nevertheless award winning projects for example UNESCO Asia-Pacific Heritage Award projects manifest appropriate practice in structuring process of conservation to heritage properties and strengthen establishment into more comprehensive. All award winning projects demonstrate exemplary fulfillment of criteria in influencing reinforcement of technical know-how to safeguarding heritage properties, social momentum and political supports.

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Creditably, Asia-Pacific Heritage Award has demonstrated a diversity of approaches to appropriate use and adaptive use of historic properties throughout the Asia. The projects can be grouped into categories consisting; continuing original use, minimal change of use and completely new use. The projects give example how to find a viable solution to adapt the change while sustaining cultural heritage significance. As such, guidance determining reasonableness in providing accessibility needs for PwDs is important to measure to what extent alteration and adaptation of heritage buildings to suite their use.

Other than technically proficient and socially engaged, potential for social-economic viability and relevance in long run is equally important. Lim (2007) explained viability refers to continued survival of the project after it has been completed through sustainable use and maintenance management. The viability and sustainability of conservation projects depend on economic, social, legal factors and political circumstances (Engelhardt, & Unakul, 2007). It is also included in the UNESCO Asia-Pacific Heritage Awards assessment Criteria J, it reads as;

> *'the ongoing socio-economic viability and relevance of the project, and provision for its future use and maintenance.'*
>
> *(Engelhardt, & Unakul, 2007)*

It is parallel to global practices calling upon attention on conservation projects integrate into board concept of sustainability. Successful conservation seeks to saving its physical fabric of the property but also finding appropriate new function, where it is social-economical feasible, culturally retained and self-sustaining. Interest of visitors should be well addressed in order to ensure its sustainability and

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economy viable, for instant accessibility within heritage sites. Inevitably, inclusion of barrier free environment to conservation heritage is a new approach in conservation practice. Before moving forward, conservation practice need to be meticulously laid out to adopt barrier free environment without contradict with conservation guidelines which has evolved since decades.

2.4.1 International, Regional and National Conservation Guidelines

Emergence of Venice Charter in 1964 had been promulgated as charters, regulations, standards, resolutions and recommendations in international communities. It had been adopted as conservation guidelines for cultural properties by international organizations mainly UNESCO and ICOMOS. It became an important instrument for stakeholders to work on conservation, restoration, preservation, and adaptation round the globe. Ahmad quoted Jokilehto (1998:230) 'the principle of the Venice Charter has also been recognized as the basic policy guidelines for the assessment of the cultural heritage sites on UNESCO's World Heritage List' and should be used as guidelines in managing their heritage resources. Venice Charter has succeeded in numerous conservation practices since decades and has been set up as fundamental benchmark in assessing conservation practice.

Pursuant to the Second International Congress of Architects and Technicians of Historic Monuments, in Venice 1964, the ICOMOS adopted the Venice Charter as international standards of conservation practices. For the first time, Venice Charter was defined as the basic principles guiding the preservation and restoration of ancient monuments; it contributed towards development of an extensive international movement in establishing national documents. It influenced to codify

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accepted international standards and benchmarked framework for each country being implemented to their respective culture and traditions. Over the time, Venice Charter have brought in awareness and critical study bear on the issues pertaining to conservation practices which has been being more complex and varied; therefore thorough study of the principles involved and to enlarge its scopes of heritage property.

After the Venice Charter, the most comprehensive recommendation in relation to protection of cultural properties and national heritage perhaps the Recommendation Concerning the Protection at National Level, of the Cultural and Natural Heritage, which was issued by UNESCO in 1972 (UNESCO, 1972 a). The Recommendation recognized every country should have appropriate management structure at national and local level (Article 12-17), legal instrument (Article 40-48), and compilation of an inventory (Article 29). Furthermore legislative framework and administrative structure both should be tailored to individual context are mainly emphasized under the Recommendation. The 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (popularly known as the World Heritage Convention) emphasized on legislative framework and administrative structure both tailored to individual context. The World Heritage Convention formed the framework for international action in conserving cultural heritage sties. Its implementation was facilitated by the Operational Guidelines which is the evaluation system to inscription of properties on the World Heritage List and the List of World Heritage in Danger.

Subsequently, other charters, several guidelines were further developed based on the Venice Charter 1964 and the World Heritage Convention 1972, tailored to

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individual regional and country contextual since the mid of 1970s. The first was the Amsterdam Declaration adopted by the Council of Europe in 1975. The Australia Burra Charter in 1979,1981,1988 and 1999, Canada's Quebec Heritage in 1982, the Brazilian Charter in 1987, the New Zealand Charter in 1992, and recently the Chinese Charter in 2000 (Ahmad). On the other hand, Asian and Pacific region, only Australia, New Zealand and China have formulated their own conservation charters; and Japan has comprehensive Laws for the Protection of Cultural Properties cover both tangible and intangible heritage in the country. Unlikely European countries have developed appropriate legislative framework in monitoring the conservation practices. Although, there are lack of regional or regional charters on conservation that have been drafted and adopted by international organizations, mainly UNESCO and ICOMOS in Southeast Asia region; four significance declarations remit the essential roles;

i. Jakarta Declaration on Architectural Heritage, 1991
ii. Yokohama Statement, 1996
iii. Yogyakarta Declaration, 1996
iv. ASEAN Declaration on Cultural Heritage, 2000 [1]

The first three declarations are simply agreements made by members of NGOs without political or professional backups from governments or UNESCO and ICOMOS and lack of technical recommendations. The ASEAN Declaration on Cultural Heritage should be the most comprehensive declaration in the region to date that shows commitment from each country within the Association to protect their heritage and to establish regional cooperation. Apart form here, countries in Southeast Asia are barely depending on international charters or Burra Charter of Australia.

[1] The ASEAN Declaration on Cultural Heritage was adopted at the 33rd ASEAN Foreign Ministers in Bangkok.

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Since the last decade of Twentieth Century, the focus shifted slowly from development of regional and national charters towards refinement of specific fields of conservation. In sum, there are now seventeen international documents that provide guidance on a range of conservation issues consisting; ICOMOS (1998) on landscape, ICOMOS (1990) on archaeology, ICOMOS (1993) on education, ICOMOS (1996a) on underwater heritage, Tokyo National University (1997) and ICOMOS (1998) on risk-preparedness, ICOMOS (1999c) on historic timber structure, ICOMOS (1999b) on cultural tourism, ICOMOS (2000) on built vernacular, UNESCO (2001d) on underwater heritage, ICOMOS (2003) on structural restoration, ICOMOS (2003a) on wall painting, UNESCO (2003) draft on intangible heritage, UNESCO (2003a) draft on international destruction and UNESCO (2003b) draft on digital heritage (Ahmad).

The discussion outlines evolvement of international guidelines adopted mainly by ICOMOS and UNESCO in building heritage. Ahmad concluded the progression scope of heritage can be analyzed into three phrases:

i. Guidelines adopted in 1960s & 1970s focused on main conservation principles;
ii. From mid 1970s the development of conservation guidelines refine towards the establishment of regional and/or national charters and declarations;
iii. Lastly, from the last decade of twentieth centuries, the focus of conservation guidelines was towards the refinement of specific fields of conservation.

Charters, recommendations, declarations, essentially stipulate the standards of conservation, preservation and restoration of heritage properties to sustainability and reveal to next generations. Comprehensive legislative framework and administrative structure should be carried out systematically, particularly during

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pre-construction stage when high professional implies are required (Ahmad, 1996). To the addition, formulation of charters in Southeast Asia region must be taken an urgent action to address the deficiency.

2.4.2 UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation

The UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation was launched in the year 2000. It aimed to identify and establish showcasing the most successful best practices in culture heritage conservation; encourage practices and development of conservation policies in the region. The establishment has brought to public attention in safeguarding built heritage; importantly flagship achievement of private-sector and public-private successfully restoring structure of heritage value. In the fist five cycles from 2000-2004, there were 181 entries from 23 countries, of which 64 projects were recognized with the UNESCO Asia-Pacific Heritage Awards. The entries highlighted various spectrums of challenges ranging from traditional materials, skills and techniques, to the economic and political forces driving urban redevelopment.

To qualify for entries, the nominated buildings have to be more than fifty years old (50 years), it must be completed within the past ten years (10 years) and viable use for at least one year (1 year). All entries are examined based on their demonstration excellent in criteria listing. Awarded projects mostly produce high quality of conservation approach accomplishment to practicality, sustainability and uncover its heritage value. They exemplify comprehensive technical system from understanding of conservation value to adapt contemporary construction into existing heritage buildings. The best practices should be grounded in a

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comprehensive technical system from understanding of conservation values, to wisdom of reviving indigenous knowledge in building trades and combining with contemporary construction and conservation techniques. It fosters involvement of community and catalytic global scope of understanding role of built heritage in social redevelopment process. In fact, the awards not only set standards of technical excellent but also make significance impact by contributing to the local cultural and historical continuum. In short, heritage awards produce the best module in conservation practice and demonstrate interpretation of conservation approach.

UNESCO Asia-Pacific Heritage Awards reflects distinctive consensus around conservation principles in Asia-Pacific region. Throughout past two decades of validation from wide range of award winning projects, they consolidate a set of professional norms of 'First Principle' guiding the conservation of the historic built heritage and which are universality application in the region. They are;

> *Principle 1:* ***Collective mapping of cultural space****, its hierarchies, symbolic language and associations is a perquisite for appropriate and successful conservation*
> *Principle 2:* ***Tangible culture expressions derive their origi****n, value and continuing significance from intangible and cultural practices*
> *Principle 3:* ***Authenticity****, the defining characteristic of heritage, is a culturally-relative attribute to be found in continuity, but no necessarily in the continuity of material only*
> *Principle 4: The conservation process succeeds when histories are revealed, traditions revived and meanings recovered in a* ***palimpsest of knowledge***
> *Principle 5:* ***Appropriate use of heritage is arrived at through a negotiation process****, resulting in a life-enhancing space*
>
> *(Engelhardt, & Unakul, 2007)*

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'First Principle' acknowledges cognizance of heritage significance acquired through series of mapping of cultural space, its hierarchies, symbolic language and associations need to be grounded to achieve best practice at the first place. It underpins identification of character-defining elements to inform the decision making and process of conservation. This value-based approach enriches tangible and intangible heritage values are authentically conserved, and layers of historic meanings are revealed. In turn, by factoring in significance values such as historic, cultural and social value alongside with architectural and artistic value of property, the holistic significance of a site is long term safeguarding.

2.4.3 Concept of Conservation

As dictated by subsequent international guidelines discussed in earlier section, the progression in scope of cultural heritage was further developed since adoption of Venice Charter. The 'historic monument' introduced by Venice Charter refers not only single architectural work but urban or rural setting are acquired to heritage significance values. The historical value could amplify the cultural significance of the monuments. It is defined in Article 1:

> *'the concept of a historic monument embraces not only the single architectural work but also the urban or rural setting in which is found the evidence of a particular civilization, a significant development or a historic event. This applies not only to great works or art but also to more modest works of the past which have acquired cultural significance with the passing of time'.*
>
> *(Venice Charter, 1964)*

Scope of heritage continued to expand from physical heritage to focusing on inclusion of inherited heritage value which forms part of its historical resources. This was further disseminated into 'cultural heritage' and 'natural heritage' in the World Heritage Convention in 1972 by UNESCO; where 'historic monument' was

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rephrased and categorized with different terminologies. This likely shows a clear move to wider scope of heritage resources to be safeguarded.

> *Article 1*
> *For the purpose of this Convention, the following shall be considered as 'cultural heritage';*
> *-monuments: architectural works, work of monumental sculpture and painting, elements or structure of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;*
> *-group of building: group of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;*
> *-sites: works of man or the combined works of nature and of man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view.*
>
> *(The Heritage Convention, 1972)*

The differing terminology as defined shows; heritage conservation embrace merely physical heritage but includes environment and intangible values impart of the resources. Similarly to the Burra Charter and the *Place (Article 1.1)* is interpreted including surrounding environment such as landscape, urban areas, towns and religious places. It further signifies *cultural significance* which synonyms with heritage significance and cultural heritage value, and its fabrics are embodied in the concept of *Place*. Towards the Twentieth Century, the scope of heritage was agreed internationally to include tangible and intangible heritage as well as environment (Ahmad, 1996).

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> *Article 1.1*
> *Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components contents, spaces and views.*
>
> *Article 1.2*
> *Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.*
>
> *Article 1.3*
> *Fabric means all the physical material of the place including components, fixtures, contents, and objects.*
>
> *(Burra Charter, 2013)*

This pointed out; charters and convention recognize that heritage significance refers to tangible and intangible value. Broad concept of heritage value was concerted to notion of cultural significance as stated in Australian's Burra Charter, first promulgated in 1979 and with significant revision in 1981, 1988 and 1999. The charter elaborates cultural significance into 'aesthetics', 'historic', 'scientific' and 'social' which contribute values to the place. It further classifies conservation process in Article 14 explains:

> *conservation may, according to circumstances, include the process of: retention or reintroduction of use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaptation and interpretation; and will commonly include a combination of more than one of these.*
>
> *(Burra Charter, 2013)*

Significantly, The Burra Charter advocates cautious approach to change: do as much as necessary to care for the place and to make it usable, but otherwise change it as little as possible so that its cultural significance is retained (Burra Charter, 2013).

The 1964 Venice Charter, the first comprehensive post-War II international statement has clearly admitted priority principle of conservation considering issue

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of appropriate use. According to Article 5 stated conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted. Alongside by conserving the heritage property, modification must respect to originality, except they do not detract from its traditional setting and balance to its composition and surroundings. The Charter further states restoration which forms part of conservation techniques to reveal its heritage value should be done under a constructive archaeological and historical study. Additional and intervention have to be distinguishable to avoid falsify its historic evidence. These have been advocated in conservation (Article 4 to 8) and restoration (Article 9 to 13).

Similarly, the World Heritage Convention states the same priority: 'these components of the cultural and natural heritage should, in addition, be restored, whenever appropriate, to their former use or given a new and more suitable function, provided that the cultural value is not thereby diminished' (Engelhardt, & Unakul, 2007). As such, maintaining the original property and replacing only what is damaged is often central of the conservation philosophy.

'Authenticity' and 'integrity' have turn into primary objective and requisite of conservation practice in globe. It is duly noted that international standards of conservation practice already existed as codified in the 1972 World Heritage Convention and other UNESCO conventions and recommendations, as well as the Venice Charter, and guidelines issued by UNESCO, ICOMOS and ICCROM for its implementation. In addition, authenticity and integrity are affirmed as

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inscription assessment criteria for the World Heritage Convention and other cultural inventories. Accompanied by the Nara Document on Authenticity 1994, judgment value of authenticity attributed to cultural diversity rooted of cultural context to which they belong, including; form and design; material and substances; use and function; tradition, techniques and management systems; location and setting; language and other forms of intangible heritage; spirit and feeling; and other internal and external factors (Operational Guidelines, 2012).

On the contrary, it is not possible to base evaluation of values and authenticity within fixed criteria. For further understanding, Nara Documentation on Authenticity resultant from a conference in Nara, Japan in November 1994 has advanced the discussion, broadened issue and understanding of authenticity. This provision is particularly relevant to establishment of standards to preservation heritage of Asia, and integration of preservation on intangible cultural heritage together with safeguarding of sites and monuments. However, practices have shown that application concept of authenticity in restoration projects and planning is still largely misinterpreted or wrongly applied.

In this regards, formulation of Hoi An Protocol for Best Practice in Asia by experts was done, undertaken by UNESCO Regional Workshop 'Conserving the Past – An Asian Perspective of Authenticity in the Consolidation, Restoration and Reconstruction of Historic Monuments and Sites' in Hoi An, Vietnam from 15 February to 3 March 2001. It is the specific-region protocol to give practical operational guidelines for conservation practitioners in Asia; thereby establishing high standards of best conservation on authenticity practice for the region.

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2.5 Accessible Heritage Design Principle

Previous section discussed on statutory framework in developed countries by taking example of United Kingdom and Australia; constitution and planning system in conserving heritage properties are well developed in reconciling both conservation act and disability act. Both disability act and heritage act are well informed and abide with substance approach. Legislative framework is comprehensively structured in facilitating service providers to meet the requirements. Notwithstanding, service providers like architects, conservationists, designers and owners are upholding principles of accessible heritage.

Pilot study and previous researches encountered conflicts occur when both conservation guidelines and barrier free environment principles are concurrently embraced. Both approaches forward their objectives to respective aspects. Inevitably they are constituted to relative principles in monitoring stakeholders yet the provisions are not given specific standards to implementation. Means of gauge would be more rational to measure potential accessibility level from case to case basis. At this point, interpretation of stakeholders should be explicitly determined on a provision.

Understanding from the CRPD, there are three different approaches have been cited in addressing accessibility needs within heritage properties; consisting ‘Universal Design’, ‘Assistive Technology’ and ‘Reasonable Recommendation’ in addressing accessibility needs for PwDs. Each of them is demarcated from

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different latitudes and elements to achieve inclusive society. They are fundamental principle to undertake or promote universal designed products to environment and development of standards and guidelines. The convention requires minimum of possible adaptation and the least cost in addressing accessibility needs. The concepts are generally adopted in international conventions, conferences and documents in addressing accessibility needs of PwDs. It is parallel with BMF for Action which was set out to be guided under universal and inclusive design for all citizens

2.5.1 Universal Design

Rain (2006) explained that Universal Design is a human centered base design of everything with everyone in mind. It is not a design style but a framework in designing products, providing services and developing policies to be usable by wider range of people regardless of ability, body size or age in any situation without special or separate if design. Besides, Null & Cherry (1996) delineated the approach of Universal Design is ‘people first’; PwDs should have their rights and obligations, they are deserved to have equal opportunity in every facet of society. Null & Cherry (1996) and Rain (2006) defined Universal Design as Design-for-All and Lifespan Design in boarder terms. In fact, Rain’s (2006) definition is parallel to Mace (1991) who is the founder of universal design and advocates working on developing the principle at The Center for Universal Design, NC State University Raleigh, North Carolina, USA. They are the pioneer in researching on the standards and defined the standards as ‘Universal Design’.

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> *'Universal Design is the design of products and environment to be usable by all people, to the greater extent possible, without the need of adaptation or specialized design.'*
>
> *(The Center for Universal Design, 1997)*

Groups of researchers and academicians developed and expanded the ideas to study on anthropometry and all aspects of PwDs to outline standards to guide designers. In assessing a universal design, it should be governed by seven principles as following:

1. *Equitable use: useful and marketable to people with diversities*
2. *Flexibility in use: accommodates a wide range of individual preferences and abilities*
3. *Simple and intuitive: easy to understand, regardless of the user's experience, knowledge, language skill, or current concentration level*
4. *Perceptible information: communicates necessary information effectively to users, regardless of ambient conditions or the user's sensory abilities*
5. *Tolerance for error: minimizes hazards and adverse consequences of accidental or intended actions*
6. *Low physical effort: can be used effectively and comfortably with a minimum of fatigue*
7. *Size and space for approach and use: appropriate size and space is provided for approach, reach, manipulation and use, regardless of the user's body size, posture or mobility*

(Mace, Hardie & Place, 1991)

Terminology of 'Universal Design' is defined as design for all without specialized designed or adaptation for any particular group of people. The designed product or easy access facilities should not be designed in peculiar way or delineated specifically towards targeted users. The features should be incorporated into design without additive or special treatment. It eliminates discrimination and stereotyping needs of any particular group of users for instant PwDs. Accessible features and services should be integrated into initial design and planning at the

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early stage without any additive substance or ad hoc. For example, main entrance is designed with maximum 10mm height step level or gradual ramp from the road level to the entrance level; instead of a ramp is provided but away from main entrance for wheelchair users due to appearance of aesthetic value at the main elevation, or portable metal step ramp is placed at threshold for wheelchair users.

Universal Design is only effective if it is incorporated into initial stage of any new development. Architects, designers and specialists ought to concern the principle as one of the operational guidance in laying out planning at schematic stage. Building elements, strategy of space planning, architectural and structural fractions are proportionately accommodating needs of all users. In turn, effective application of universal design relies on sensitivity and understandings of human abilities vary from ages, ability and environment. It is identifiable that there are board range of human diversity can be found in any population. They can be grouped into; cognition, vision, hearing and speech, body function, arm function, hand function and mobility. Each disability varies from their needs and assistance. So, those should be registered in primitive design brief to avoid any special and attractive treatment to the accessible features; but most importantly architects, designers and service providers should bear against customary of adaptability for all range of disabilities.

On the contrary, CRPD adopted the same terminology and definition in practice but assistive devices are allowable in the contextual.

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> *'Universal Design means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the needs of adaptation or specialized design. 'Universal Design' shall not exclude assistive devices for particular groups of persons with disabilities where it is needed.'*
>
> *(The United Nation, 2006)*

CRPD perceives Universal Design in another determination to achieve inclusive society. It adapts assistive technology for specific group of users. Additive substance or identifiable easy access features are allowable without undue burden to the fabric. CRPD identifies Universal Design as the approach to layout standards and guidelines before legitimate as code of practice. Besides, it has been set out as the best practice and awards for excellent in development of inclusive communities, which will act as a stimulus regularly conferring for all Asia-Pacific nations to achieve inclusion. Null & Cherry (1996) proposed the underlying principles to achieve Universal Design in this conjuncture including;

1. *Supportive design: It should provide a necessary aid to functions, and it must not, in providing such aids, create any undue burden on any user.*
2. *Adaptable design: a product or environment should serve a majority of individuals who have a variety of changing needs.*
3. *Accessible design: removing barriers which are attitudinal and physical.*
4. *Safety-oriented design: design promotes health and well-being.*

(Null & Cherry, 1996)

The approaches broadly conclude the seven principles into four principal manifestos to meet universal design. They are the guidance on a way to achieve Seven Principles based on the projects' brief and design initiative. Out of the four design principles, 'accessible design' which refers to removing attitudinal and physical barriers; is allied to barrier-free environment principles.

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2.5.2 Barrier Free Environment

Barrier-free Environment is another primary concept of creating an accessible environment which is free of obstacle or barriers for a particular group of people for example PwDs. According to definition in the Takayama Declaration;

> *"Barrier-free refers to a situation where physical, information, institutional and attitudinal barriers for a particular group of people (i.e., persons with disabilities, older persons) are removed so that they may fully participate in society on an equal basis with others;"*
>
> *(ENAT, 2009)*

It is parallel to explanation from Yaacob (2010) in an open interview session, the BMF and CRRD recognize attitudinal barrier and physical barriers hinder PwDs fully and effectively participate in society on an equal basis. It was also stated by UNESCAP which barriers are recognized as the major factor.

> *The built environment throughout much of Asia and the Pacific has been designed without consideration for the special needs of persons with disabilities. Physical obstacles and social barriers prevent citizens with disabilities from participating in community and national life. The various impediments to participation and equality are especially formidable for girls and women with disabilities. With improved attitudes, increased awareness and much care, we can build social and physical environments that are accessible for all, i.e., we must work towards a society for all. In this regard, we urge the free exchange of information.*
>
> *(UNESCAP, 2002)*

In addition the conscious of 'physical barriers' and 'attitudes barriers' are elevated in the Agenda for Action. It determined restrictive barriers faced by PwDs; and becomes an effective tool for the Government in ESCAP region. Yaacob (2010) believed due to inception of stereotyping whom PwDs are classified under poverty

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group in social-economy. It is conjuncture with model of disability concept recognized by the Persons with Disability Act 2008. ‘Attitudinal barriers’ and ‘environmental barriers’ are asserted as barriers hinder their participation.

‘Physical obstacles’ is the object or entities which unable PwDs to access a place or utilized the public facilities and amenities. Taking example from case study, wooden threshold at the door step of the ancient temples and Chinese clan houses for example Khoo Kongsi (Figure 2.8) and Hanjiang Ancestral Temple (Figure 2.9), blocks access way of wheelchair users and ambulant users. It traps wheelchair users to across the entrances and door way independently. Easily some elements of building and built environment are encountered as physical barriers for example; steps, staircases, uneven or slippery floor finishing, thresholds etc.

Figure 2.8: Khoo Kongsi Musuem entrance with concrete threshold

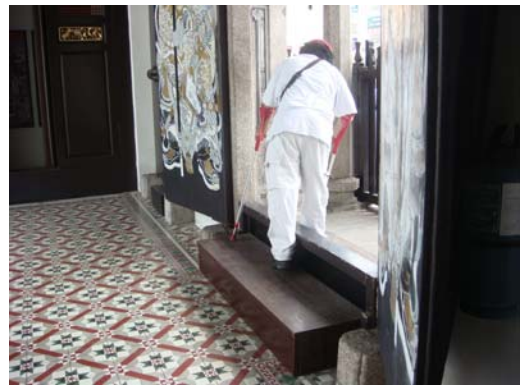

Figure 2.9: Hanjiang Ancestral Temple Main Entrance with timber threshold

On the other hand, ‘social barriers’ occurs when there is a negative and pessimistic attitudinal and stereotype upon persons with disabilities and elderly people. Community always limits capability of person with disability and they ought to be the lean party in any circumstances.

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Yaacob (2009) believes the term of 'barrier-free' is commonly used by developing and third world countries. Apart from here, it is understood 'barrier-free' would be the idea resultant to inclusion of disability issues into social development and evolves concept of interaction between persons with disabilities with the environment and attitudinal barriers. In accordance to Barrier-free Environment principles generally, barriers or obstacles which unable persons with disabilities access independently and/or attitudinal discrimination, should be removed. Unlikely, universal design approaches mainly focusing on product design to be accessible for all without specifically designated to certain group of users. Barrier-free Environment allows for assistive devices providing it will not cause to undue burden and cost effective to the proposed sites or buildings. Adaptation or additive approach should be the suitable methodology in accommodating accessible features to existing site and buildings.

On the contrary, Barrier-free Environment weight against efficiency and comfort ability of users rather than appearance of assistive devices or physical access. Identifiable barriers and obstacles are removed in order to ensure targeted users can practice independently. Based on the facts and examples, the research believed barrier-free environment principle would be appropriate approach in developing accessibility needs for persons with disabilities and elderly persons within heritage properties.

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2.5.3 Assistive Technology

As mentioned in CRPD, assistive devices not only refer to provide accessibility to information and communication, but it is another effective tool as mobility aid, support services and facilities for PwDs. The availability and use of new technology as assistive devices has been included in the articles to meet their needs. As quoted from CRPD:

> *Article 9: Accessibility*
> *'(d) to provide forms of live assistance and intermediaries, including guides, readers and professional sign language interpreters, to facilitate accessibility to buildings and other facilities open to public; '*
>
> *Article 20: Personal Mobility*
> *'(b) Facilitating access by persons with disabilities to quality mobility aids, devices, assistive technologies and forms of live assistance and intermediaries, including by making them available at affordable cost;'*
> *(United Nations, 2006)*

It is another way to address barriers which are unable to be removed and assistive devices could be segregated structure or additive physical access features to overcome the obstacles. In fact, assistive technology could be incorporate in universal design and is adopted to meet reasonable adjustment on provision.

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2.5.4 Reasonable Accommodation

> *'Reasonable accommodation' means necessary and appropriate modification and adjustment not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedom.*
>
> *(CRDP, 2006)*

CRPD (2006) clearly stated accessibility needs for PwDs could be accommodated in certain degree of site adjustment or alteration to the property as far as the targeted user groups practice equally and independently without discrimination. The approach is likely close to barrier-free environment concept where; mainly focuses on usability and practicability of access features for targeted user group, regardless appearance of the final product and implication. Reasonable adjustment; whether removing barriers or additive devices will be addressed according to needs of persons with disabilities. The modification is only considered where it will not create undue burden to the existing property, and should incorporates into its initial structural in particular cases.

'Reasonable Adjustment' or 'Reasonable Accommodation' has been recently introduced as mediation programme into regulations to resolve conflict in relation to access requirement within older buildings. Like most of other countries, this clause invoke to limited access requirement where the cost would be unreasonable high or restricted in certain circumstances especially heritage value of historical properties. Reasonable adjustment is defined respectively in accordance to forms of regulation and legislative framework among regions as tabulated in Table 2.5.

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Table 2.5: Comparison of terminologies, definitions and regulations of disability

Country	Regulations / Standards	Terminology	Definition
Australia	Australian Standards AS 1428 (part 1,2 &3): Design for access and mobility Australia Disability Discrimination Act (ADA) 1992	Deemed-to-satisfy	The provisions are prescriptive technical requirements within the Access Code that describe one way to technical details found in Australia Standards, such as AS 1428.1 (which is currently the primary Australia Standard covering building access related issues for persons with disabilities)
United State of America	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guides, published July 2004	Reasonable Accommodation Reasonable Modification	Adjustment or modifications, which range from making the physical work environment accessible, providing a flexible work schedule or providing assistive equipment. These accommodations are generally done in undue burden.
England & Wales	Disability Discrimination Act 1995 (DDA) The Building Regulations 2000: Approved Document Part M: Access to and use of Buildings (2004)	Reasonable Provision Reasonable Adjustment	Part 3 DDA – Code of Practice: states service providers are required to make reasonable adjustment in relation to physical features of their premises to overcome barriers to access by 1st October 2004

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Table 2.5, continued: Comparison of terminologies, definitions and regulations of disability

Country	Regulations / Standards	Terminology	Definition
Malaysia	Persons with Disability Act 2008	Reasonable Accommodation	Necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise of the quality of life and wellbeing on an equal basis with persons without disabilities.

As practicing in England and Wales, compliance with Part M of the Building Regulations 2000, can be used to establish reasonable provision under DDA (English Heritage, 2004). In fact, United States Department of Justice claimed reasonable accommodation is usually far less expensive than many people think. In most cases an appropriate reasonable accommodation can be made without difficulty and at little or no cost. A recent study commissioned by Sears indicates that of the 436 reasonable accommodation provided by the company between 1978 and 1992, 69% cost nothing, 28% cost less than $1,000, and only 3% cost more than $1,000. Adhere, England and Wales and United States of America have given a good example to reconcile the interest of access into built heritage in the light of the reasonable provision or reasonable adjustment to ensure accessibility needs for persons with disabilities including elderly people and carers with young children.

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Access to and use of Buildings Part M of the Building Regulations has been revised to incorporate the new standard established by BS 8300 (2001). Compliance with Part M of the Building Regulation can be used to establish reasonable provision under the Disability Discrimination Ac 1995 (English Heritage, 2004). The Part M requires reasonable provision is allowable to ensure the building accessible to all users including persons with disabilities, elderly people and careers with young children. The guidelines however contain the significance detail to deal primarily with resolution to physical access issues pose to historic site and building. The provision seeks to avoid alteration and challenges affecting the heritage significance. Alteration or adaptation has to attend both conservation guidelines and barrier-free principle whereby physical access is provided within heritage site or building without diminishing its heritage value. The main idea is essentially to comply with the 'reasonable adjustment' that is clearly stated in Code of Practice on Accessible Heritage Sites while Part M of the Building Regulation in England requires 'reasonable provision' to be made to ensure that buildings are accessible to, and usable by, all those who could be expected to use them, including elderly and carers with young children (English Heritage, 2004).

In fact, referring to local Persons with Disability Act 2008 in Malaysia, 'reasonable accommodation' is quoted to inform the appropriate modifications and adjustments not imposing a disproportionate or undue burden where needed in a particular case. As tabulated in Table 2.5, it shows terminologies stated in

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legislation to inform boundary line where alteration or modification is allowable as long as cultural significances are remained. From my point of view, whether ‘reasonable provision’, ‘reasonable accommodation’ or ‘reasonable adjustment’ plays an important role as agglutinate agent to reconcile both approaches. It works as gauge to weigh balance between barrier-free principles and conservation approach.

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2.6 Accessible Heritage Design Principle

2.6.1 Appropriateness Use and Degree of Intervention

In sequel of interference between accessibility and conservation approaches to accessible cultural tourism; issue concerning redevelopment of historical places has fallen into two primary areas; increasing emphasize in ‘appropriate use’ and secondly introducing new physical components. These distinct approaches are mainly evolved in the area of modification and adjustment to conform to current relevant statutory requirements. The first approach of ‘appropriateness’ in reuse means consideration of cultural and historical value as part of what constitutes an acceptable project. The other is growing sophisticated in adding new elements such as mechanical system for example air-conditioning ducting and vents, electrical appliances, elevators and built additions (Chapman, 2007). The challenge is further complicated to preserve its cultural significances, offer an authentic experience and correspond to current statutory requirements; for example accessibility needs for PwDs.

Award winning projects evident the fact successful heritage conservation relies on reusing and adapting older buildings to serve different users with its particular needs and requirements. Based on the ‘First Principles’ and the criteria assessment of the UNESCO Asia-Pacific Heritage Award for Culture Heritage Conservation; ‘appropriate use’ is a key factor in evaluating quality of heritage conservation projects. How such a place was used and continues to be used contribute to its

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heritage value and characteristic. Since ever 'appropriate use' has been introduced in the Venice Charter 1964 in Article 5:

> *'The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. It is within the limits only that modifications demanded by change of function should be envisaged and may be permitted.'*
>
> *(Venice Charte, 1964)*

and, the World Heritage Convention also states the same priority in Article 22:

> '*these components of the cultural and natural heritage should, in addition, be restored, whenever appropriate, to their former use or given a new and more suitable function, provided that he cultural value is not thereby diminished.'*
>
> *(World Heritage Convention, 1972)*

To look more closely, Burra Charter further defines the 'Use' whereby Article 7 acquiesces cultural significance is retained should use or combination of uses or constrains on uses of the place. New use should involve minimal change, to significant fabric and use should respect to associations, meanings and appropriate to continuous practices to retain its heritage significance. It concerns design, materials, layout and decoration, but also involves many intangible factors including movement within the sites or buildings; frequency of occupancy and especially variations and specializations in use within or around the site (Chapman, 2007). Even from architecture point of view the concept of use essentially includes cultural memory and historical association which constitute 'spirit of place' to heritage property. In conservation project, evaluation often is determined through

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direct access to place whether appropriate use has been found, or new use fail to convey heritage value implicit in heritage property. Most importantly appropriate use concerns whether retention of significant architecture value or, whether consideration of use in relative more towards cultural, social and symbolic values. In fact, appropriate use correlates to balancing act between social interest and heritage values. Chapman (2007) claimed aspects of appropriate use are 'intensity use' and 'degree of intervention' in conservation.

The 'intensity of use' is an important factor in evaluating effectiveness of conservation projects as claimed by Chapman (2007). 'Intensity' refers to how many new elements are introduced relatively to new requirements have been imposed on sites or buildings. For example, may be a large private house turned into boutique hotel, showroom; or factory converted into performing art gallery. But if the project requires overly changes to meet client's needs or requirements, this may further bring questions to appropriateness of proposed use. He gave example like Hotel de I'Oriental in Pondicherry, India (2000 Outstanding Project of Asian Pacific Heritage Award) where transforming existing walls, rooms and hallway of a large private house into a small hotel; commercial reuse project such as DBS House, Tea Factory Hotel. Those are successfully carried out award winning projects of Asia-Pacific Heritage Award under restrain in deciding the number of services, offices and other uses for new purposes.

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Taking case studies, Cheong Fatt Tze Mansion and Suffolk House in George Town, Malaysia have shown good examples. Cheong Fatt Tze Mansion was used to be a mansion for Mr. Cheong Fatt Tze. The majestic mansion which was built with thirty-eight (38) rooms, five (5) granite-paved courtyards, was then adopted as a boutique hotel cum tour-guided museum gallery and theme functions Avenue such as wedding, dinners and seminars. Since its restoration, the central ensemble of rooms and courtyards has served as public space for exhibitions, tours, concerts, weddings and other public activities, and the annexs have been converted into 16 themed apartments, decorated in nineteenth–century style (Asia Conserved, 2007). Adaptation of mansion into a boutique hotel has done in respect to original characteristic of the building and within the intensity of use. All the bedrooms of the mansion are retained its use. Whereas Suffolk House has been converted into gallery housing a restaurant, provides personal guided tours and rentable function and event venue for social and corporate. The rooms are converted into offices and display galleries. The needs for new uses in both examples have abided by general preference for minimal change of both use and intensity. The results are satisfactory accommodation to both heritage significance and new requirements; even interest for needs of accessibility for PWD and elderly persons are well addressed. However, whether continue use or minimal change of use and intensity, degree of intervention is often necessary.

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‘Degree of intervention’ is another essential aspect to be taken into consideration indeed in conserving heritage properties. To what extend the alteration or modification to existing structure in order to adapt new use or uses? Do new additional or demolition changes will affect the significance of the site or building? Again, these questions would directly appraise appropriateness of new use. Issues reuse of historic properties has fallen into two primary areas; emphasis on appropriate use in acceptance of both heritage significance and constitution requirements and secondly accommodation of new components for example, stairs, lifts, mechanical systems and built additions. New insertion will directly reflects ‘degree of intervention’ to the existing conditions. Agree with Chapman (2007), ‘degree of intervention’ is determined by the condition as much as desire to introduce changes of use or intensity of use. Inevitably, insertion of new mechanical systems to conform statutory requirements and social interest is another primary factor. In short both ‘intensity of use’ and ‘degree of intervention’ are fundamental aspects underpinning conservation approach in safeguarding the tangible and intangible heritage significances to social interest and current regulations.

2.6.2 Method of Alteration and Modification

“How well any added elements or creative technical solutions respect the character and inherent spatial quality of the structure(s)” is one of the criteria for the UNESCO Asia-Pacific Heritage Awards for Cultural Heritage Conservation. It is probably the most complicated when major changes involved; especially physical

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access for PWD and elderly persons. Preliminary case studies indicate making heritage site accessible needs comprehensive planning and meticulous work execution. However both approaches are governed under respective design principles; moreover conflicts often happen to balance parenthesis between both approaches. Still reasonable adjustment or alteration is still allowable within its parameter as stated in the govern law as quoted in previous chapters.

There is lack of complete design guidance to govern alteration or adjustment to heritage site or building in accommodating physical access for PwDs. Moreover accessible heritage has been just advocated in Asia-Pacific Regions, especially in Malaysia context. Unlikely, developed countries such as European country, United States have upheld accessible heritage to a substantive motion in forefront. From constitution control to collaboration between stakeholders are well positioned in access strategy to assure both heritage act and interest of PwDs are met. English Heritage especially the key organization in monitoring the access planning process for heritage sites and buildings in United Kingdom. It should be the most comprehensive top-down system where the whole process is regulated under standard practice and statutory requirements.

English Heritage has set out an easy access policy stipulating how access plan that are consistent with special architectural, historic or archeological interest of the property concerned, reasonably be done. To start with, English Heritage clearly

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defines physical features which should be incorporated within built heritage; includes

1. *External physical elements and setting of the building, including landscape features, kerbs, exterior surface, paving, parking areas, building entrances and exits as well as emergency escape routes*

2. *Any feature arising from the design or construction of a building; architectural details (such as plinths, column bases, staircase, ironwork and door openings), fixture, fittings , furnishings, furniture, equipment and other materials*

(English Heritage, 2004)

These would be the major factor taken account and properly understood to avoid disturbing and obscure these features as little as possible; and appropriate use will then determine level of access and required degree of intervention. Departure from this point, English Heritage clarifies what particular physical features should be aware because some of physical building components may contribute heritage values and significance to the historical site or building. It probably demarcates to what extend should physical access within heritage site need to be considered and included in easy access auditing elements. Before access strategy is proposed an access auditing is imperative in assessing accessibility of the existing historical sites. Conservation assessment will take place at the same time and incorporate with the access strategy to ascertain access plan to the historical site. Other than physical access provisions, access improvement generally falls to horizontal movement through out the building and accommodates change of level. Stakeholder especially managing committee and professional practitioners may consider range of options of adjustment or alteration. DDA as practiced in England

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outlines options in making adjustment to physical features, as quoted in English Heritage, (2004); involves;

1. Removal of the physical feature

Feature which forms barrier to accessibility need to be removed; but unlikely to the feature makes up the special interest to historical significance of the heritage buildings. It wills resultant controversial to conservation guidelines and barrier free principle and destructive changes. In this case, removal not constitutes a reasonable adjustment but adaptive change would be appropriate. The changes should also consider balance between long-term futures of building with a short term needs of occupants or reversible semi-permanent solution. On top of that, relative contribution to building's significance and frequency usage by occupants should be assessed to determine reasonableness of the changes to the property as a whole.

2. Alteration to the feature

It may be possible to make alteration to physical feature without affecting historical significance of the fabric. Alternatively, it can reduce causal to barrier instead of permanently removal of the physical features.

3. Providing a Reasonable means of avoiding it

Alternative way or secondary access should be reasonable possibility to avoid the feature becomes barrier to targeted user groups. Taking example of main entrance

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with steps, perhaps secondary entrance or side route next to principle entrance would be a reasonable means avoiding adversely affecting the historic fabric or quality of heritage property.

4. Providing the service by a reasonable alternative method

This option becomes eligible when physical changes have not been considered and rejected. There are several investigation may need to be carried out by service providers and advisably consulted by targeted user group;

- *Relocating public services from upper to the ground floor, in order to overcome barriers to access*
- *Using print and computer technology to provide access to service, where physical barrier cannot be overcome*
- *Adjusting circulation routes to avoid barriers such as stepped thresholds and narrow doorways.*

(English Heritage, 2004)

The four options as quoted should be conclusive methodology evident from wide range of practices in their region. Unlikely Asia-Pacific region has yet constructed design guidance with one accord; but individually practice in preference depending on site constraints. First Principles and award criteria of the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation have been reference scrutinized by stakeholders in the region. Awarded projects demonstrate good practices in how principle and award criteria are interpreted and manipulated to cope with constraints when accommodating physical access for persons with disabilities and elderly people. It is agreeable with Balderstone (2007), the general view of the success or failure of a building's conservation is coloured by how well that spatial quality is maintained. She further explained characteristics and inherent

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spatial quality form part of cultural significance contributing aesthetic and architectural value to the historical site ultimately.

Asia-Pacific award winning projects demonstrate approach high quality architectural interior and insertion new services could be concealed in heritage sites. Awarded projects show their creative resolution to problems of insertion services or structural modifications in respect for characteristics and integrity to the spatial quality. It approaches to philosophy of Article 22, Burra Charter as reads;

> *'New work such as additions to the place may be acceptable where it does not distort or obscure the cultural significance of the place, or detract from its interpretation and appreciation. New work may be sympathetic if its siting, bulk, form scale, character, colour texture and material are similar to the existing fabric, but imitation should be avoided.'*
>
> *(Burra Charter, 2013)*

Next, solution can be developed once the significance and access requirement have been defined. The access strategy must correspond to feasible study which has been carried out in access auditing; respond to purpose of access whether it could be interpretation, work or other reasons (Martin, 1999). On the other hand, English Heritage practice the process Access Planning reconciles access and conservation to seek the best practice in accommodating easy access to historical sites and buildings. However, adaptation, modification and changes should be minimized to reduce the cost and impact to the place's significance; but greatest level of easy access are needed in place at the same time. It is justified by Martin (1999) as quoted that the modification should be fulfilled objectives:

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1. *Make the main or principal public entrance and primary public spaces accessible, including path to the entrance*
2. *provide access toilets*
3. *provide access to goods, services and programs, including to all interpretation an means of communicating with patrons*
4. *create access to other amenities and secondary spaces*

(Martin, 1999)

Generally, the ideal easy access to heritage site or building should start from pre-visiting information, approach and entry to the place until end of visiting. All alteration or modification work should meticulously balance the importance of two conservation and accessibility approaches at the same time; without diminishing significance of the place. In accommodating accessibility for PwDs, conservation guidelines set down in the Australia ICOMOS Charter for the Conservation of the Places of Cultural Significance (the Burra Charter) should be taken into consideration as claimed by Martin (1999). He justified the Burra Charter as the principle to guide conservation and preservation approach to heritage sites and buildings.

On the other hand, there is always another way in presenting newly intervened elements to heritage fabrics. Additional or alteration to heritage properties are evidently marked another new layer of building's history. Martin (1999) pointed out additional new access features to heritage buildings reflect changing of attitude towards accommodating easy access to needs of PWD; it evidences today's social attitudes to future generations. The alteration should be reversible and enable easily return to its origin. The newly additional should not cause to undue burden

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to the original fabric and not diminish its heritage significance. It is parallel with statement:

> *two district approaches appear to have evolved in the area of introducing new elements, one is to 'embed' modern facilities so that they are not visible. The second trend is to all attention to changes by ways of contrast.*
>
> *(Chapman, 2007)*

The latter approach deems to workable in heritage property; where the elements could be readily dismantled in the future, without damage to existing building.

On the other hand, additional new buildings or annex is often required in reuse and recycling projects. It is mostly common in cases where a monuments or museum use is proposed, an annex may be required to accommodate visitor's centre, shop or toilets. Apart from this, physical access for PwDs for instant lift, ramp and accessible toilet could be provided within the new buildings. But there will be different opinions whether the additional new building should directly imitate the previous style or use new form and material to distinguish them from existing building. It is arguably where new insertion or structural should be treated distinguishable from its fabric; or imitates past style to blend into its original context.

Martin (1999) believed principally the solution should be sympathetic and reversible. He claimed items such as general form, material, finish and compatibility with the general architectural details and philosophy of the original

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design are guiding principle. The final result should be visually compatible with existing fabric which has been interpreted by Martin (1999) in the means of sympathetic alteration. The newly intervened features whether form, material in terms of texture, profile, colour should match or synchronize to the original fabric; but not embed into the existing structure. The idea is agreeable with Bladerstone (2007) who claimed two approaches in additional to historical where additional or annex should not dominate the heritage structure; and separate new building or annex from existing structure. New building designed in respect to their context and special regards should be counted such as scale, height, form, massing, the traditional pattern of frontages, vertical and horizontal emphasis, and detailed design (Balderstone, 2007).

The new item can be articulated in contemporary design with time of its own construction but it is not totally embedded into the original fabric. Principally new insertion should be not adverse effect its heritage significance and reversible in anytime when it is not required. Not to mention, decision making to alteration or additional to heritage property relies on grounded investigation and research in identifying heritage significance to justify reasonableness intervention in individual case basis. In this research study, Suffolk House in Penang is a good example where new building was added to accommodate service lift and accessible toilet for PwDs. The annex building is connected to the existing building by steel bridge which gives access for PwDs to first level.

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CHAPTER 3: PILOT STUDY

Case study was conducted in pilot study to understand current phenomenon in Malaysia contextual. Consequent to lack of information from existing literature pertaining to accessibility within heritage properties in Malaysia, pilot study plays essential reference to acknowledge the deficiency of accessibility for persons with physical disabilities within heritage properties. Two public heritage sites were selected from Malacca and Penang respectively as case studies.

The cases illustrated real-phenomenon and attained dilemma faced by person with physical disabilities in Malaysia. Besides, pilot study tested the research protocol before it was adopted into main data collection. Procedures and assessment tool of access auditing were employed in preliminary cases essentially to check eligibility and effectiveness of the existing checklist to heritage properties. Finally, pilot study ascertained the research problems in this study.

3.1 Case Study Protocol

Access audit was planned in case study protocol to collect data for the study. It was a detached observation under supervision of access audit checklist and interview with relevance authority. According to Yaacob & Hashim, (2008), access audits were designed as checklist derived from the Malaysia Standard 1184:2002, Code of Practice on Access for Disabled Persons to Public Buildings and the UNESCAP recommendations. The Access Audit Form for Existing Building checklist (Appendix C) was based on principle of Barrier-Free Design-

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accessibility, usability and safety for all. The principle was taken into the study because it is the main principles drive Inclusive Heritage Tourism (Yaacob, 2007) which has been defined as:

> *means having at the very minimum, a safe, usable and accessible environment that would support the equal participation of disabled and elderly visitors to heritage tourist sites based on an inclusive policy set out by the service providers, tourism infrastructure and other facilities.*
>
> *(Yaacob, 2007)*

The checklist was employed in case study to highlight deficiency of accessibility and suggestions on how to improve the needs of persons with physical disabilities. The Access Audit Form for Existing Building is important to check on the standard and anthropometric of the existing physical access features. It encompasses basic requirements for all building elements, related facilities and external areas approaching to the existing building. Generally, the elements for auditing can be grouped into three principles of Barrier Free Design Principles accordingly as shown in Table 3.1.

The whole exercise of data collection was guided by the listed elements or areas in the checklist solely. Then it technically identified problems on standards of provision or anthropometric measurement on each building elements of case study.

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Table 3.1: Category of building elements in checklist into barrier free design principle

Accessibility	Usability	Safety
Accessible Footpath	Accessible Toilets	Fire Staircase
Passenger Loading zone	Accessible Shower/ bath	Emergency Egress
Entrances and doors	Lifts	
Staircase	Public amenities	
Step ramp	Rooms and Spaces	
Ramps		
Way finding System		
Taxi stands/ Bus stop		
Car Parking		

The Access Audit Form for Existing Building checklist has been employed in previous research studies including British Council, Kuala Lumpur Sentral Market, Pusat Latihan Preindustrian Dan Pemulihan Bangi Selnagor (PLPP) and UNESCO Johor Workshop; significantly on heritage buildings as case study in the research undertaken by Yaacob,N.M & Hashim,N.R (2008) Using Access Audit to Achieve Sustainable Viability of Heritage Properties. Four heritage buildings at George Town, Penang and Malacca were chosen as the case study; due to their strong public appeal as heritage properties. While heritage sites chosen for this preliminary case study based on unit of sampling under similar conditions;

1. Those were conserved heritage building in Malacca and George Town which both cities have been included in the listing of UNESCO World Heritage Sites
2. The chosen case studies are conserved heritage buildings and opened for public used
3. The selected buildings are located within designated conservation zone in local plan respectively

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4. The buildings were upgraded within 10 years and gazetted under By-Law UBBL 34A; and should comply with requirement provision for persons with disabilities and elderly persons

Based on the criteria as stipulated, there were two heritage buildings from Penang and Malacca respectively chosen;

1. George Town, Penang;
    a) Cheong Fatt Tze Mansion, Boutique Hotel-cum-museum
    b) Han Jiang Ancestral Temple, Community Temple of the Penang Teochew Association
2. Malacca,
    a) Stadhuys Building, Museum
    b) Atlas Ice Building, Retails

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3.2.1 Cheong Fatt Tze Mansion

The mansion was adapted into a boutique hotel and museum from private residence. The central ensemble of rooms and courtyards at the main building was restored for public space for in-house tour, public activities and private functions. The annexes have been converted into 16 uniquely themed en-suite rooms for home stay. An accessible room was provided which exemplifies inclusive design in conservation. It marked a new paradigm in accessibility and conservation design approach in Malaysia.

Accessible Room

The original kitchen area at ground floor has been converted into an accessible room to accommodate needs of persons with limited access for example elderly persons and persons with disabilities. The room has ample rooms space and equipped with open concept bathroom. Generally, the accessible bathroom has sufficiently equipped and usable by wheelchair users. However, loose furniture still need to be rearranged to ensure enough turning space and avoid hazardous to persons with visual limitation.

Figure 3.1 A, B, C: Accessible bathroom in Cheong Fatt Tze Mansion

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3.2.2 Han Jiang Ancestral Temple

Restoration of Han Jiang Ancestral Temple was undertaken from 2000 to completion date on 11 March 2005. The temple was fully preserved its physical and social rejuvenation of the temple. It has been revitalized as the centre of Teochew culture and community in Penang. The temple continues to house rituals, the festivals and feasts days of Teochew community. Han Jiang Ancestral Temple is opened for public visit without entrance fee and adjacent office block can be used as private functions and activities. The temple has two pavilions and open courtyards connected by corridors. The central pavilion houses a shrine while altar for ancestral praying hall is located at the most inner pavilion. Most of the time, Han Jiang Ancestral is visited for Teochew ancestral worshipping and uncover Teochew architecture and culture. There are galleries adapted to introduce Teochew Association in Penang and conservation process of Han Jiang Ancestral Temple.

Figure 3.2 A, B, C: Door panels of Han Jiang Ancestral Temple

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3.2.3 Stadhuys Building

Stadhuys building was built by Dutch in 1650s. It displays unique Dutch masonry and architecture skills and the most imposing relic of Dutch period in the East. The oldest Dutch building in East region was constructed in thick masonry walls, heavy solid timber doors and windows with wrought iron hinges. The other significance of Stadhuys building is the drainage system surrounding the complex. Although renovated by British many times, they maintained as much of its origin and this added another layer of historic value to Stadhuys Building. It used as official residence of Dutch Governors and important government officers; then continued as administrative building since British era until State's governing center in 1979. Since 17 December 1982, It has been converted into the Museum of Ethnography and second major upgrading work was undertaken by Malaysian Public Works Department from 1985 to 1989 to present appeal. Rooms and spaces within the Stadhuys buildings were used to exhibit artifacts and monuments from colonial legacy and also introduce culture of Melaka. However, doors and windows in the rooms are well retained and left opened during operation time to avoid access-through-door problems.

Figure 3.3 A, B, C: Door way, corridors and display at Stadhuy Museum

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3.2.4 Atlas Ice Building

Atlas Ice building is also known as '1673 building' because the year that the building was built has been fixed on its façade. The building just recently rediscovered Dutch building and is located at Jongker Street within vicinity of Melaka. The building was used as tax-office for VOC (Verenigde Oostindische Compagnie – Dutch East-Indies Company) where the 'havengelden' or harbour taxes were collected during Dutch era. In the beginning of the 20th Century, the Atlas Ice Company purchased the building from Dutch Eurasian families Baumgarten and de Wind. Until, the Malacca State Government acquired it to be restored into commercial complex for retails, gallery and others public activities.

Previous study revealed the significance value of the building was contributed from its solid full length shutter windows, solid timber doors with airvent and coach doors, front porch, pilasters, side gables, fanlight and terracotta roof tiles. Significantly, façade of Atlas Ice building display Dutch architecture in Melaka.

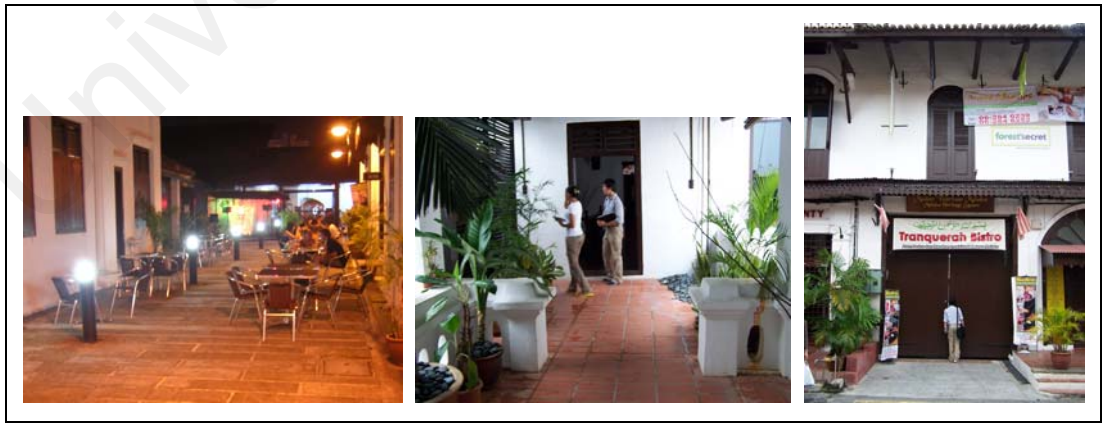

Figure 3.4 A, B, C: Outdoor café, first floor massage reception hall and main entrance of Atlas Ice Building

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3.3 Finding and Discussion

Technically, access audit checklist effectively identified barriers within heritage properties. The listed buildings elements mostly responded in negative result and it reflected awareness of disability among the society is still weak. Accessibility features mostly are substandard designed in relative to Malaysian Standards and code of practices. Table 3.2 summarized correspondence of each building elements in the case studies.

Table 3.2: Respondents of case study to building elements in checklist

	Cheong Fatt Tze Mansion	Hanjiang Ancestral Temple	Stadhuys Building	Atlas Ice building
Accessible Footpath	X	/	/	/
Car Parking	Not Available	Not Available	Not Available	Not Available
Loading Zone	X	Not Available	/	/
Entrance	X	X	X	/
Rooms & Spaces	X	X	X	X
Accessible Toilet	/	Not Available	Not Available	Not Available
Emergency Egress	Not Available	Not Available	Not Available	Not Available
Vertical Access	X	Not Available	X	X
Signage	X	Not Available	X	Not Available

According to the collected data, attended elements in case study include accessible footpath, loading zone, entrances, room and spaces, vertical access, accessible toilet and signage. On the other hand access provision absents in car parking bay and emergency egress in all cases. Nevertheless access auditing reported the access provisions being in place are mostly inaccessible for persons with physical

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disabilities. Degree or accessibility varies from case to case basis. Obviously, car parking spaces for drivers with physical disabilities are not provided within heritage sites and emergency egress planning has never been developed initially in historical buildings.

Accessibility problems from each case study are different due to respective heritage significance and current use of each historical property. Certain building elements reflect its heritage value to some extent yet the same element might not significant to other heritage buildings. For example, the original Stroke-on-Trent geometric decorative encaustic floor tiles at the main building of Cheong Fatt Tze Mansion and floor tiles along corridors of Han Jiang Ancestral Temple are well preserved to retain magnificent of hand-painted art on porcelain tiles back to old days. On the other hand, floor tile is less significant in Stadhuys Building and Atlas Ice Building. Dutch colonial architecture with common features including substantial solid doors and louvered windows contribute main heritage significance to the buildings. At his point, standard alteration or adjustment to making good condition is not suitable to generalize for all type of heritage buildings.

In such, each buildings elements functions specifically to nature of the buildings and contribute heritage value at the same time. Nevertheless, pilot case studies identified the major barriers and common obstacles to accessibility for persons

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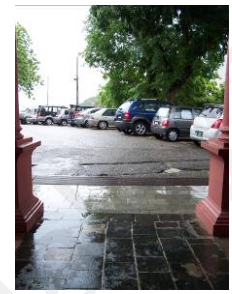
with physical disabilities within heritage buildings. Accessibility problems of each building elements as listed in the checklist were generalized as followings;

Accessible Footpath

Cheong Fatt Tze Mansion	Han Jiang Ancestral Temple	Stadhuy Building	Atlas Ice Building
			
1. Natural carved stone pavement is uneven and not flush. 2. Gratings of pavement units are not flush with footpath surface. 3. no tactile guilding blocks or detectable floor finishing along pathrway leading to main entrance.	1. Steps on the external surface drain create barrier 2. Aisle of five foot way is too small for wheel chair users to pass through. 3. Lack of seating within the long walking distance from entrance to center praying hall passing through the courtyard. 4. no tactile guilding blocks or detectable floor finishing along pathrway leading to main entrance.	1. uneven, bad maintenance and slippery in wet condition of floor tiles 2. open grating along the perimeter drain traps wheelchairs 3. no tactile guilding blocks or detectable floor finishing along pathrway leading to main entrance.	1. uneven floor finishing and water ponding during wet condition 2. no tactile guilding blocks or detectable floor finishing along pathrway leading to main entrance.
Common barriers; 1. floors are uneven, not flush and slippery 2. no tactile guilding blocks or detectable floor finishing along pathrway leading to main entrance.			

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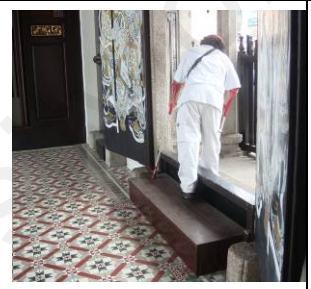
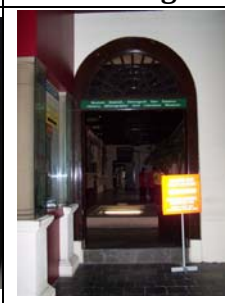
External floor finishes especially external stone pavement, granite slabs and tiles are not flush evenly; and improper finished joint gaps traps wheelchair users. In most cases, granite slabs and natural stone pavements are usually used to the external pathway in historical buildings. There are cases conserved from the existing building for instant Atlas Ice Buildings, but also newly finished during conservation undertaken. Besides, tactile guiding blocks or detachable floor finishing along the pathway approaching into the main entrance are not found in all cases studies.

Entrance:

Cheong Fatt Tze Mansion	**Hanjiang Ancestral Temple**	**Stadhuy Building**	**Atlas Ice Building**
			
1. Steps at the entrance patio from ground level 2. Granite threshold at entrance door way 3. There is lack of alternative accessible entrance	1. Removable wooden threshold at the main entrance door way 2. Conserved floor tiles is slippery in wet condition 3. steps from foyer to front yard	1. Step at main entrance is too high for pwds and elderly people to access	1. Steps over the open drain and entrance door way
Common barriers: 1. The front entrances are elevated with steps from ground level 2. Granite and timber thresholds at entrance door way trap wheelchair users			

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Curbs, steps and threshold are the common barriers can be identified in heritage buildings including the four case studies. Cheong Fattt Tze Mansion, Han Jiang Ancestral Temple, Atlas Ice buildings are elevated three steps from ground level and one step over entering into Stadhuys Building. The granite steps obstruct wheelchair users enter into the buildings independently unless assistance is provided. However, wheelchair user still can access into Atlas Ice Building through the side passageway connecting front entrance into the main courtyard area. Threshold at entrance and door ways is the most problematic in accessibility for wheelchair users and trip hazards. Despite, the wooden threshold at Han Jiang Ancestral Temple will be removed in occasion for easy access. According to Miss Kim, managing officer of Cheong Fatt Tze Mansion claimed there is a temporary removable ramp provided upon requested by visitors.

Car Parking:

There is no car parking bay not even accessible parking bay in all four case studies.

Emergency Egress:

There is no evacuation planned developed within all case studies.

Accessible Toilet:

There are public toilets provided within all four case studies but not accessible toilet. Except Cheong Fatt Tze Mansion, all three cases have converted the

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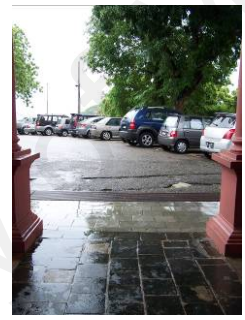
existing toilet inside the building for public use. Additional building block was constructed detached from the main building structure for public toilet. The provision is purposely planned for day tour visitors' convenient.

Figure 3.5: Public toilet of Cheong Fatt Tze Mansion

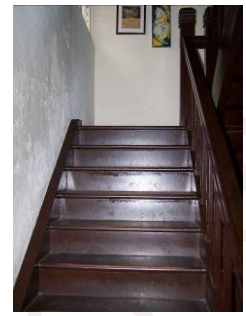
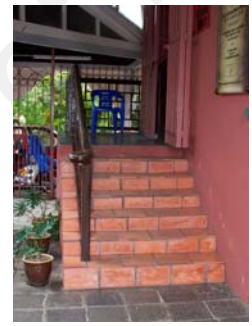
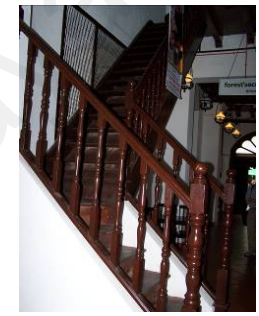
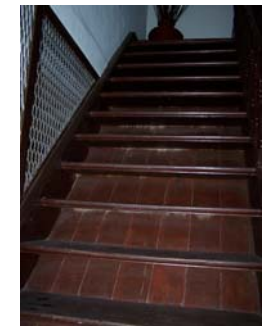
Passenger Loading Area:

Cheong Fatt Tze Mansion	Stadhuys Building	Atlas Ice Building
		
persons with disabilities visitors can be dropped at the main entrance upon permission from on duty security officer	improper passenger loading area	improper passenger loading area
Common barriers: 1. Passenger loading zone is improper indicated on floor.		

Cheong Fatt Tze Masion allows visitors to drive into the front yard upon request to the on duty security officer or earlier arrangement with the management. Visitors could be dropped right in front the entrance patio. Stadhuys building improperly indicates or designates an accessible loading zone in front the entrance although the space is allowable. Out of four case studies, Cheong Fatt Tze Mansion and

Stadhuys Buildings have sufficient compound to allocate an accessible loading zone while Atlas Ice Building and Han Jiang Ancestral Temple is impossible. They are located along the main traffic road and limited space. The allocation depends on existing property boundary and building set back from main road.

Staircase:

Cheong Fatt Tze Mansion	Stadhuy Building	Atlas Ice Building
 	 	 
1. spiral staircase hazardous to persons with disabilities and elderly persons 2. clear width of spiral staircase is lees then 900mm 3. timber staircase is too steep	1. riser of timber staircase is 190mm , more than standard height range 2. tread of timber staircase is 250mm, lesser than standard width 3. timber staircase is too steep	1. timber staircase is too steep 2. handrail only on one side
Common Barriers: 1. Existing timber staircases are too steep, not comply with current standard. 2. Timber handrail grip size is too big 3. No tactile warning tiles at the landing areas 4. No indicative edge contrast on steps nosing and landing steps		

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Vertical access to all case studies is improper accommodating needs for all persons with disabilities. Existing timber staircases significantly are conserved in all preliminary cases due to its original setting of the properties. It contributes the major heritage and aesthetic value to historical buildings; especially the cast iron staircase in Cheong Fatt Tze Mansion. The conserved wooden staircases are not comply with current standards and too steep for all. The author encountered persons with disabilities especially wheelchair users totally unable access to upper floors and they could not explore the entire building except ground level. However, no initiative to provide alternative vertical access for wheelchair users has been shown in case study. Stadhuys Building is the only case study indicates the change of level with contrast colour strip around edge of the step way but still cannot be detected by visual impaired visitors with their cane.

Figure 3.6: Contrast edging at step way, Stadhuy Building

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Wayfinding System:

Cheong Fatt Tze Mansion	Stadhuys Building
	 
1. The direction and information sings are located not at decision-making point where visitors easy to find them. 2. Signages are distracted by surrounding obstacles. 3. Lack of Braille or tactile words	1. The size of lettering at the signage is too small and colour not clearly contrast. 2. The label is installed at door top rail and difficult to read from standing or sitting positions. 3. The direction and information sings is located not at decision-making point where visitors easy to find them. 4. Lack of Braille or tactile words to accommodate visual impaired visitors to find their directions.
Common barrier: 1. The direction and information sings is located not at decision-making point where visitors easy to find them. 2. Size of lettering is not proportion in relative to viewing level 3. colour contrast is not obvious 4. Lack of Braille or tactile words in directory and signage	

Only Cheong Faztt Tze Mansion and Stadhuys Buildings provide wayfinding system out of four cases in preliminary study. Improper design of signage and directory has been the common problem for all visitors was encountered in both cases. Size of lettering is not proportion to viewing height level, and colour is not clearly contrasted to its background. Secondly, lack of Braille or tactile words was integrated into the design. Not even, wayfiding system is properly strategized in the buildings. Most of the signage and labels are ad hoc and temporary located not

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at the decision-making point. There are cases, the signage confuses visitors' direction and distracted by surrounding obstacles. Visitors find difficulty to identify the signage and directory.

However, wayfinding system has not been any issue to Han Jiang Ancestral Temple although it was never initiated during the conservation. Han Jiang Ancestral Temple is a single story building and simple open planning. It has three pavilions connected by three open courtyards with corridors. As such, visiting pathway would be more direct and easy to explore without any direction given. Whereas Atlas Ice Building has not developed directory and signage entirely, it was deficiency in conservation planning during upgrading work.

Rooms and Spaces:

Checklist identified different problems in each cases due to their respective functions and programme. The inaccessibility was evaluated base on current use and event programmed by the management. It is impossible to generalize all in one standard because certain building elements might not affect degree of accessibility in general. Usability of building elements always depends on inserted programme and events.

The historical building in the case study were restored and adapted into different use. Study revealed accessibility problems vary from each case due to its function

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and operating system. Nevertheless, there are still common problems encountered among case study as listed in Table 3.3.

Table 3.3: Accessible problems of building elements

Building Elements	Accessibility Problems
Door	1. solid timber doors are too heavy 2. original ironmongery and lock set is difficult to operate 3. single swing door opening clearance space is too small for wheelchair to passing through
Threshold	1. Granite threshold at door way will trap and create hazardous 2. Removable timber threshold at door way is too high for maneuver
Step stairs	1. no alternative entrance or step ramp for easy access 2. sudden changing floor level without indication create hazardous to all
Public Toilet	1. no accessible cubic toilet is provided 2. no grab rail or foldable rail is installed 3. curb at door way trap wheelchair
Flooring	1. part of flooring area is slippery and uneven 2. no tactile and warning tiles to direct persons with visual disability

In fact, case study encountered another variation besides building elements listed in the checklist. Connectivity of building elements from one point to another is not audited on the checklist. Flow of accessible pathway especially from entrance to main assembly point or reception should be taken into consideration. It is likely the most fundamental basis in accessibility assessment. This requirement extends from the time visitors decide to visit a heritage building, to transportation methods, parking, access to principal public entry, circulation within the main floor, access to other levels, circulation externally around the site, adequacy of toilet provision and other facilities, and how information is provided (Martin, 1999). The journey

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includes the pre-visit information from the beginning until to the end of the visitation and leaving the site.

> *There is impossible to provide access to every part of the heritage buildings or sites due to preservation of historical significance. Architectural modification and innovative management approaches is the one solution to preserve the visual and historical integrity in accommodating accessibility for persons with disabilities.*
>
> (Prudon & Dalton, 1981)

Statement clarified it is difficult to make the entire existing or heritage properties accessible for persons with disabilities and elderly people; due to some heritage sites may only permit to certain degree of independence. Amendment or alteration to historical properties is restrained from its heritage significance. Standard design guidelines are not always applicable to all, but a policy of providing dignified and easy access is desired (English Heritage, 2004). Adhere, programmes and services on site for example tourist information brochure, tourist's map and sensory trial should be provided. However, the Access Audit Form for Existing Building checklist excluded provision of alternative services. It was unable to be examined in the preliminary study eventually.

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3.4 Conclusion

Accessibility of tested building element based on the checklist was not conceived in heritage buildings. As discussed in previous section, the checklist was derived for new or existing building in compliance with code of practices for PwDs. Eventually, conservation approach, heritage significance and guidelines were not bound in the checklist. In addition, literature review explained each historical building has their unique heritage significance. As in all, deficiency was encountered when adopting the Access Audit Form for Existing Building checklist in heritage properties. Therefore subsequent detached protocol should be read together with the existing checklist. The detach protocol was then drafted based on previous literature review and conclusion from preliminary case study.

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CHAPTER 4

RESEARCH METHODOLOGY

4.1 Research Design Outline

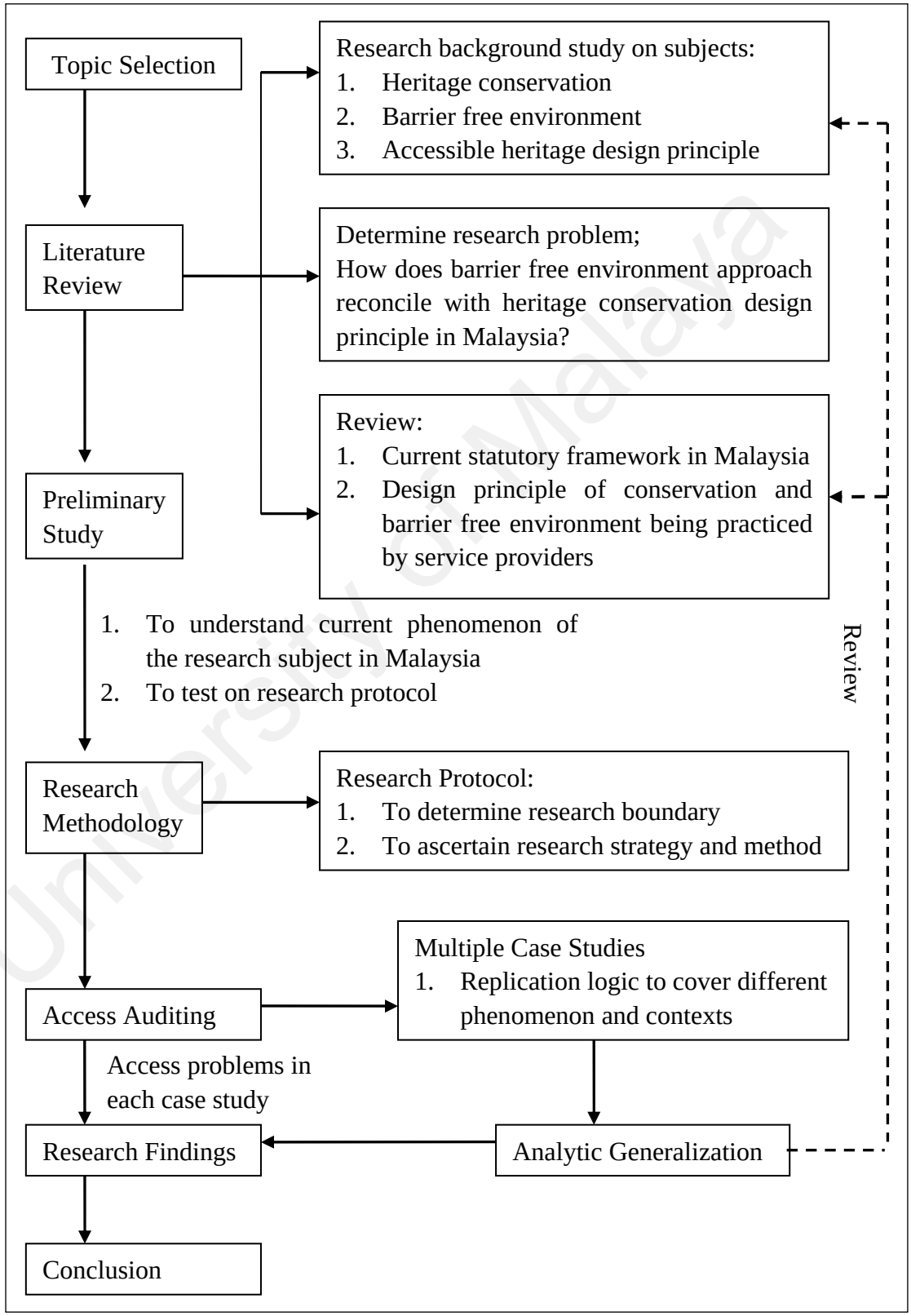

Figure 4.1: Plan of study

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Figure 4.1 shows the flow of research methodology in this study. To start with, literature review contributed the nature of research topic by defining boundary of the topic. The literature was carried out on two topics consisting heritage conservation and accessibility for persons with disability and elderly persons in Malaysia. Then, it was focused down to accessible heritage in Malaysia practices, and research topic was defined as;

'Accessibility for Physical challenges persons in heritage buildings in Malaysia'

Secondary data obtained from journals, previous research reports, attending conferences and workshops to understand evolution and development of both research areas. However, there was limited literature to explore the research topic especially in Asia and Pacific region. The research area which encompasses conservation and inclusive design concurrently is still fairly new in Malaysia. On the conjuncture, preliminary study was necessary to explore current practice on accessible heritage in Malaysia.

Pilot study played an important role in piloting the research process. It was carried out in case study research with open interview and access auditing. To begin the research process, interview session is important to understand research background and construct research boundary to be undertaken. Next, field work was employed to study the real phenomenon more in-depth. At the same time, preliminary

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determine the research spectrum and oriented research direction, Frankland & Bloor (1999).

> *Frankland and Bloor (1999:154) argued that piloting provides the qualitative researcher with a "clear definition of the focus of the study" which in turn helps the researcher to concentrate data collection on narrow down spectrum of projected analytical topics.*
>
> *(Van Teijlingen, & Hundley,2001)*

Secondly, case study in preliminary essential to pre-tested the case study protocol and assessment instrument. According to Van Teijlingen & Hundley (2001), pilot study is a preliminary study carried out for various purposes; especially it may provide advance warning on the designed protocol before main data collection executed. Van Teijlingen & Hundley (2001) also quoted words from De Vaus (1993:54) that 'Do not take the risk. Pilot tests first.'

> *The term 'Pilot study' is used in two different ways in social science research. It can refer to so-called feasibility studies which are "Small scale version (s), or trial run (s), done in preparation for major study" (Pilot et. al, 2001:467). However, a pilot study can also be the pre-testing or "trying-out" of a particular research instrument (Baker 1994:182-3)*
>
> *(Van Teijlingen, & Hundley,2001)*

Obviously, pilot study essential to be undertaken at initial research stage and conducted for a range of different reasons. Moving forward, the tested case study protocol was employed to formal case study to investigate main subject in the research study.

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4.2 Research Strategy – Case Study

'Accessible heritage' has been newly insertion to Malaysia since enforcement of Persons with Disabilities Act and National Heritage Act. The phenomenon of study and context are not clearly distinguishable in real-life situation and limited literature had been found in current research base. As such case study was centered in research strategy to explore access provisions within heritage buildings in Malaysia. The research was oriented in exploratory case study as supported by the statement;

> *the existing knowledge base is considerably poor, and the available literature will provide no conceptual framework or hypotheses of note. Such a knowledge base does not lend itself to the development of good theoretical statements, and any new empirical study is likely to assume the characteristic of an "exploratory" study.*
>
> *(Yin, 2003)*

Potential variables and different type of conditions sought be taken into consideration in the research. Multiple-case study was conducted to cover potential variations and phenomenon understudied in distinct case. In fact, evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust (Yin: Herriortt & Firestone, 2003: 1983). Furthermore it constructs external validity in analytical generalization taking the domain on accessible heritage buildings in the research study. The result was generalized to the theory by replicating the findings in the cases. The cases were complemented by replication logic to underlie principle of multiple-case design in

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the research. The replication approach to multiple-case studies is illustrated in Figure 4.2. It clearly indicates the research method was conducted in the study.

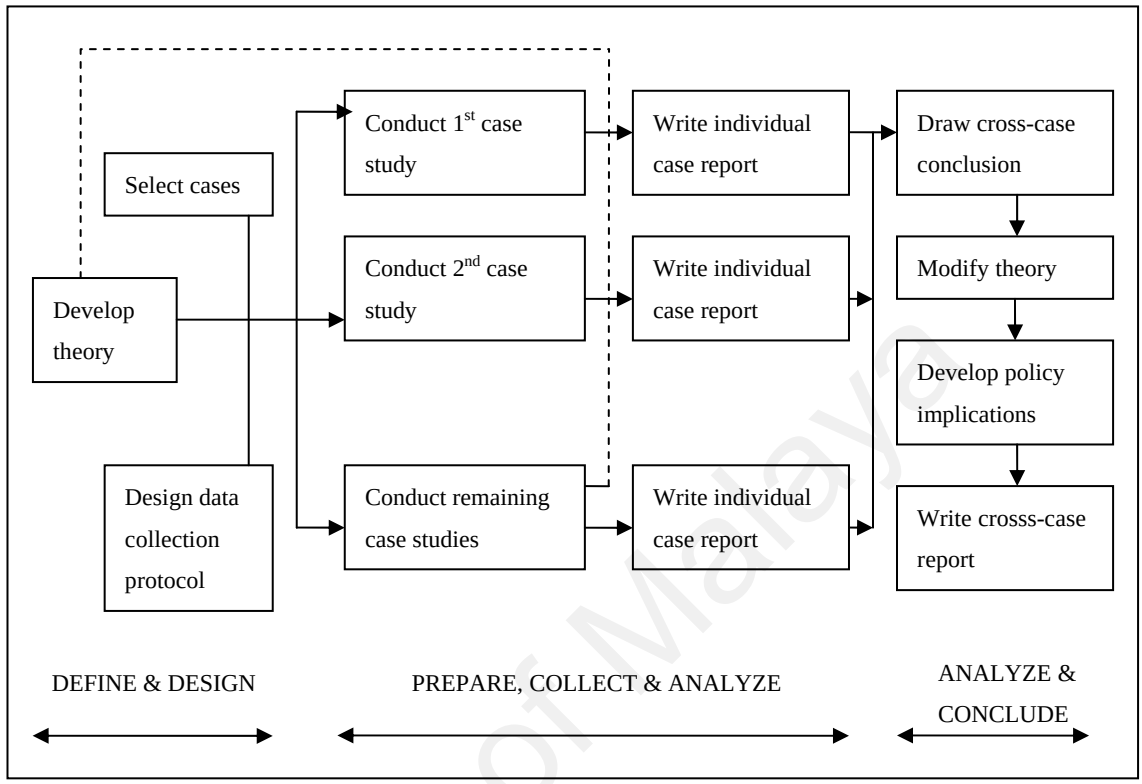

Figure 4.2: Case Study Method,
Source: Yin, (2003): COSMOS Corporation

In order to increase reliability of case study especially in multiple case study design, protocol of case study plays the major way. Protocol contains the instruments and procedures to conduct case study. It keeps the research's target on the subject of case study and helps to anticipate potential problems during data collection process and outcome of the completed report. Most important, protocol facilitated the collection of relevant data in the appropriate format and reduced possibility return visiting to the case study (Yin, 2003). The outline of protocol (Appendix B) was drafted at the initial research design stage; where literature on secondary data was being interpreted to construct boundary and unit of study in

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case study. Secondly, data collection method was designed in protocol and tested on preliminary study before being imposed to formal case study.

Direct observation was the main source of evidence in this research study. Field work was carried out to the 'site' which was referring to the selected heritage building as the case study. To assess the case study, access auditing has been developed as the observational protocol to be undertaken to each site. Access auditing was employed in data collection including two different formal and casual observation approaches. Access auditing checklist which was previously employed by Yaacob & Hashim, (2000), has been the basis observational tool. At the same time, less formally direct observation was carried out through open interview with relevant authority, and archival and photography recording during field work.

Moving forwards, each case study was reported in accordance to case study report format as drafted in the case study protocol. Each case was documented based on the multiple evidences consisting access auditing checklist and open interview with the key factor. In order to produce external validity, data from the multiple evidences from checklist and archival records were triangulated before pattern matching among all cases. Last and not least, cross-case study was undertaken to cover difference contexts in the research area.

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4.3 Access Auditing

Literature review has shown there are gaps between National Heritage Act and Persons with Disabilities Act yet to be addressed. There is no code of practice or supportive standards as medium in correlating both acts. In order to assess appropriateness of access features within heritage buildings, access auditing is the only efficient way to examine them. The Center for Accessible Environments defies an access audit as means of:

1. *Examining the accessibility of services and facilities*
2. *Identifying where physical barriers may compromise access to services by assessing the feature against predetermined criteria*
3. *Measuring the 'usability' of facilities within a building and services being delivered in it*

(Grant,2005)

Prevalence of access auditing is due to introduction of the Disability Discrimination Act 1995 in England. It has been included as one of the access planning process as shown in Figure 2.6. Gradually, it has been adopted in Asia and Pacific region. In conjunction to paradigm swift of disability rights, heritage properties especially historical public tourism properties must include access needs for PwDs. Access auditing becomes a necessary tool to dissolved access barriers. The auditing provides useful information to establish access planning and access strategy to comply with provision of access policy. Since access solution will be unique to each historical property, standard designs make little sense and access needs are regarded by their own different functions and conservation guidelines.

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English Heritage has established a complete access strategy positioning access audit as one of the initial assessment before access planning for heritage properties as discussed in Figure 2.6. It has been practiced locally and improved accessibility to heritage properties in their contextual. Kent (2004) also claimed access auditing is the preliminary assessment to examine heritage property as the first step to establish access planning.

First of all, objectives for the access auditing should be understood at the first place. It helps to focus on subject of the auditing and understand the sequential of the session to next steps. Prudon & Dalton (1981) initiated 5 steps to examine to what extent the property is presently accessible, involving;

1. *Understanding the various disability types and their physical limitations.*
2. *Defining what will be standard for measuring accessibility.*
3. *Determining what parts of the property will be made accessible.*
4. *Tracing the 'accessible path' and identifying the architectural barriers.*
5. *Developing a strategy for removing the architectural barriers and providing access to programs for the physically handicapped.*

(Prudon & Dalton, 1981)

Understanding the various disability types and their physical limitations.

Generally, this framework is started with understanding types of disabilities to be attended in the access auditing. Each type of disability will have its own physical limitation and different potential barriers in the built environment. They are categorized into various physical disabilities. As characterized by Martin (1999), disabilities can grouped into wheelchair users, mobility impaired, hand or armed impaired, visually impaired and hearing impaired.

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1. *Wheelchair users: those individuals who are unable to move about except with the use of wheelchair.*

2. *Mobility impaired: those individuals who cannot move about without the aids of walkers, crutches, or a cane. They include those who lack the stamina to wlak long distance, climb stairs, or demonstrate a prevalence of fainting or poor balance.*

3. *Hand or armed impaired: those individuals who have are limited in their ability to use their hand or arm, such as at those missing a limb or with lack or coordination or strength.*

4. *Visually impaired: those individuals who have a great deal of difficulty or are unable to read ordinary newpaper print with aid of eyeglasses and those individuals who has total lost of vision (blind).*

5. *Hearing impaired: those individuals who have great deal of difficulty or are unable to interpret speech with or without amplification.*

(Martin,1999)

Most of cases, wheelchair user is emphasized in access planning, because it is the most obvious and costly disability type to accommodate (Prudon & Dalton, 1981). Thus, the 'persons with physical disabilities' in the research title accentuated wheelchair users as main users in access audtiting. The case studies in this research show that often accommodating accessibility needs for wheelchair users will benefit another, for example; installing grab bars in accessible toilets will aid both users with wheelchair and vision disability. However, it is also possible creating potential barriers when attending the needs for wheelchair users to other disabilities. Taking pilot case study of Leong San Tong Koo Kongsi, the metal portable ramp is purposely placed to assist wheelchair users to crossing over the threshold but it will trap users with vision disability. In short, each site will have own unique problems requiring different solutions and consideration of economically to financial aspect in addressing all disabilities. However, Prudon &

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Dalto (1981) believed that it is ideally include all disabilities from the start and be considered along the process of access planning.

It is important to explain clearly that the word ‘access’ should be interpreted– include access to and within any building or site, access to all facilities and services and to any information (Martin, 1999). To better understanding of the subject in access auditing, ‘persons with disabilities’ refers to those who have long term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society, as quoted in Persons with Disability Act 2008.

Defining what will be standard for measuring accessibility

Although standardized design of easy access are not effective to all heritage properties, a design principle should be a guidance to define criteria of what is or is not a barrier to the targeted user groups. The design principle should compromise the basic requirement of access into conservation guidelines and more flexible to be adopted by all heritage properties. In other words, guidance to identify the reasonableness of access within heritage properties and flexibility in manipulating standard; but importantly access should be included to and within any building or site, access to all facilities and services and to any information. After all, the objective to providing barrier free environment for targeted user groups is achieved. As mentioned in preliminary study, Malaysia standard for easy access for example Code of Practice 1103 & 1184 are the only standards to

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comply with the requirement of Persons with Disability Acts 2008. However, the standards are still weak to reconcile into conservation guidelines. Comparing to the Code of Practice on Accessible Heritage Sties by National Disability Authority and Easy Access to Historic Properties handbook published by English Heritage comprehensively provide guidance in manipulating the access policy and conservation guidelines. Access planning framework has been structured accordingly and practiced nation wide.

Determining what parts of the property will be made accessible

The most critical part in access strategy is identifying accessibility areas in heritage properties yet it is the most essential steps throughout the exercise. According to National Disability Authority (2011) and Prudon & Dalto (1981), access should be provided to total pathway – from initial approach then to all parts of the building, to services and to information. Access audit checklist will be the essential assessment tool to indentify access problems within the historical properties. The checklist ought to be developed according to standard practice and regulation requirements. According to English Heritage, access auditing should be carried out following sequence of journey from approaching by public or private transport, entry into the site, access to each of the services until finally exit route and leaving the sites at the end of visit. It was referred to the nine core elements as stated in the Code of Practice on Accessible heritage Sites by National Disability Authority and the Supplementary Planning Document[1]. The document monitors

[1] SPD builds on Government Guidance, such as that contained in PPG15, and is concerned with reconciling the interests of conservation and access in the light of the reasonable adjustment provision of Part I, III and IV of the Disability Discrimination Act 1995, the inclusion of existing buildings within Approved Document Pat M (2004) of the Building

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public bodies how to meet the obligation of accommodating accessibility for persons with disabilities within heritage properties. The elements consists journey of sequence through the heritage sites from pre-visit information until leaving the sites at the end of the visit as follows:

1. Pre-visit information
2. Approach and entry
3. Wayfinding
4. External landscape
5. Circulation within heritage buildings
6. Interpretive information on site
7. Programmes and events
8. Facilities
9. Emergency egress

However, literature and pilot case study found; it is often difficult to make the entire site and every building accessible especially heritage properties as mentioned in Code of Practice on Accessible Heritage Property;

> *Accessibility can be facilitated by adopting a proactive and consultative approach to design and deliver service that does not compromise either the archeological, historical or environmental characteristics of heritage properties.*
>
> *(National Disability Authority, 2011)*

In this case, alternative way or pragrammes should be arranged in accessible areas of the property.

Regulations (2000), and the provisions of the new British Standard on Access BS 8300 (2001),Design of Building and Their Approached to Meet the Needs of Disabled People: Code of Practice, the policies of Wychavon District Local Plan and guidelines published by national bodies such as English Heritage.
(Artherton, Accessible Historic Environment: Supplementary Planning Document, 2004)

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Tracing the 'accessible path' and identifying the architectural barriers

> *'Tracing the 'accessible path' is the first step to any survey of a property for handicapped accessibility. The concept pf the 'accessible path' was developed as a straightforward way to determine if a severely disabled person in a wheelchair could travel from one point to another.'*
>
> *(Prudon & Dalto, 1981)*

The statement emphasizes accessible route should be identified at the first place in assessing accessibility of a heritage building. The accessible route clearly determine the areas and services need to be furnished with easy access features to standard and alternative way to meet the needs PwDs within heritage properties. It involves walking through the site from one point to another and measure critical points where potential barriers to the targeted user groups. Factors such as surface texture, widths, gradient, steps, weights of doors, restriction of access, signage, clarity of interpretive material and audiovisual presentation must be considered (Martin, 1999). Prudon & Dalton (1981), suggested two approaches to laying out the accessible path; linear approach and network approach. Linear approach is single route connects the beginning point to the end point. The other network approach is laid out with numbers of accessible route connecting from one to another point. They further explained that the nature of the site and building will determine the best approach generally.

Generally, the 5 steps procedure provides a comprehensive framework to carry out access audit to heritage property. It clearly positions the direction what should be taken into consideration while implementing auditing and adopting checklist effectively. It was referred to develop the formal case study protocol base on the

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tested preliminary case study protocol. It provided complete research method in to carry out case study in this study.

4.4 Formal Case Study Protocol

Despite the checklist effectively identified barriers access to PwDs after several sessions of access auditing. Nevertheless, those previous audited buildings are not heritage properties but newly developed. Understanding from the pilot case study, National Heritage Act and conservation guidelines are not addressed in the checklist. The checklist was believed not completely consider conservation and preservation principle which guide adaptation and restoration of heritage properties. Pilot study encountered the checklist is more suitable for new development or existing buildings but not historical buildings with their own heritage significance. Conflicts were revealed when the checklist was employed in the preliminary study. Thus, case study protocol for formal data collecting was amended accordingly. The research case study protocol adopted general approach initiated by Martin (1999) in assessing accessibility of heritage properties;

1. *Review the significance of the place and identifying the elements of greatest significance.*
2. *Undertaken Access Audit to determine existing and required level of accessibility.*
3. *Evaluate access options within a conservation context. This process includes consultation with authorities and approval of the proposed action.*
4. *Prepare the access policy or action plan.*
5. *Implementation the necessary action.*

(Martin, 1999)

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Reviewing significance of the place and access auditing were included into the protocol. Both effectively examined accessibility barriers within each case study based on Malaysian Standards and regulations. Preliminary case study has formulated framework of field work for the formal case study research protocol and applied to all selected cases as illustrated in Figure 4.3. Ultimately, all case studies were triangulated to ascertain to what extent accessibility needs for persons with disabilities and elderly persons is accommodated within heritage properties in Malaysia. At the same time, fundamental design basis in reconcile both conservation and barrier free environment approaches would be revealed. Best practices and potential adjustment might be encountered.

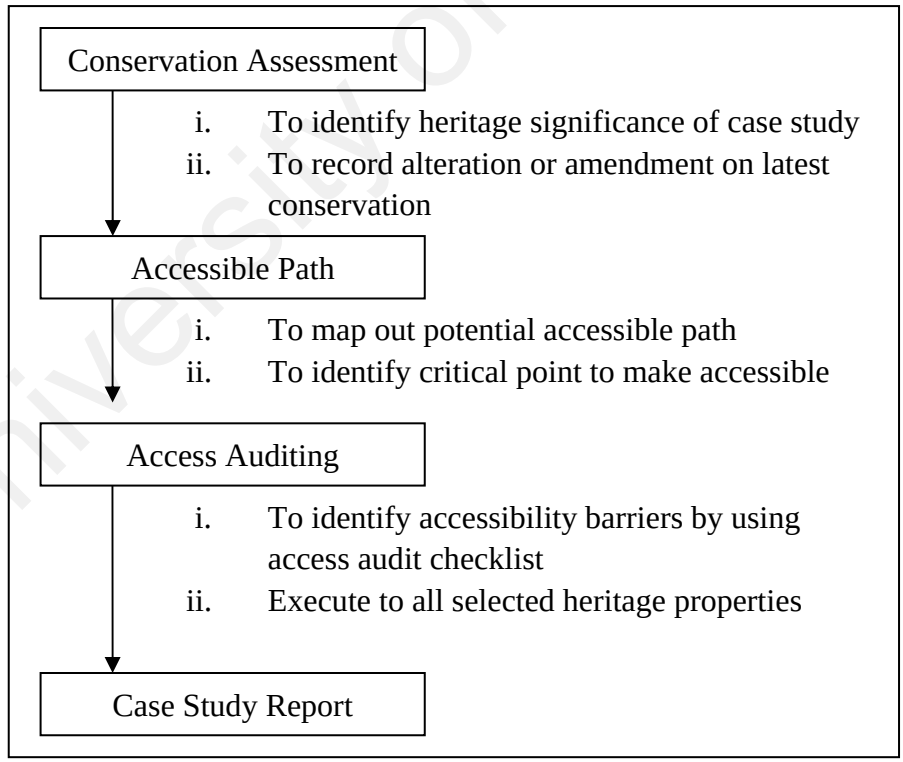

Figure 4.3: Process of Access Auditing in case studies

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4.4.1 Conservation Assessment

Conservation assessment was carried out to identify heritage significance within historical properties. The heritage significance of properties were justified and recorded in the background of each case study based on secondary data. It was reviewed to ensure level of historical significance and what must be protected from changes. Secondary spaces and less significant elements were identified also for potential alteration recommendation without adversely affecting primary significance of the place.

Secondly, building functions and operating system were included in the research base study. Access needs are regarded by their own different functions and conservation guidelines. Thus, conservation plan reviewing historical significance should be incorporated into access planning in identifying barriers and determine reasonable access provision into heritage properties (English Heritage, 2004). Hence, local conservation guidelines and approaches were taken into assessment to justify feasibility and appropriateness of access planning without diminishing to its unique heritage significance from case to case basis.

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4.4.2 Access Auditing Checklist

Pilot case study tested on the existing access audit check list - Access Audit Form for Existing Building (Appendix C) which was employed in previous researches. It examined standard dimensions and anthropometric measurement of the existing physical access features. The finding reflected appropriateness of provided physical access and compliance to local codes of practices. Nevertheless, it is impossible to make entire properties accessible and impose standard practice for all type of heritage properties. In this conjuncture, another detached access audit checklist was derived for the formal case study protocol.

Access Audit Checklist for Heritage Sites (Appendix D) in this research study was drafted in reference to the nine core elements as listed in National Disability Authority (2011) and the Supplementary Planning Document (2006). It measures accessibility and identifies critical barrier points along the accessible path or travel journey for targeted users within heritage sites. The critical access points within heritage sites were justified in pilot case study and were interpreted into an inventory. It was divided into two sections consisting service provisions and access features. The access features consists 11 critical access points and each elements is addressed with basic standards and requirements for evaluation in reference to the comprehensive Access Audit Form for Existing Building as shown in Table 4.1.

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Eventually, there were two checklists; Access Audit Form for Existing Building and Access Audit Inventory for Heritage Sites to be employed simultaneously during access auditing on formal case study. The access auditing was driven by the inventory to identify the sequence of journey from the pre-information before visiting to the selected sites, transport method, parking, access to public entry, horizontal access to main floor, vertical access to other levels, circulation external around the site, toilet and other facilities, signage and means of information delivery to end of visit to the site. At the same time, access route would be mapped out and commented on discussion.

Table 4.1: Combination of Access Audit Form for Existing Building and Access Audit Inventory for Heritage Sites

ACCESS FEATURES	
Parking	Item 2: Car Parking
	Item 3: Passenger Loading Zone
Approach & Entry	Item 1: Accessible Footpath
	Item 20: Taxi Stand / Bus Stop
Entrance	Item 4: Entrances and Doors
Accessible Toilet	Item 6: Public Toilet
	Item 7: Accessible Toilet
	Item 8: Accessible Shower
	Item 9: Accessible Bath
	Item 10: Urinals
Emergency Exits	Item 11: Emergency Egress
Ramps	Item 12: Step Ramp
	Item 13: Ramps
Stairs	Item 14: Stairs
	Item 16: Escalators
Lifts	Item 15: Lifts
Doors	Item 4: Entrances and Doors
Wayfinding / signages	Iten 17: Wayfinding and Signs
Accessible floors	Item 5: Rooms & Areas
	Item 18: Public Telephones
	Item 19: Accessible Hotel Bedroom

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4.4.3 Unit of Formal Case Study Sampling

The research topic tends to explore accessibility of heritage buildings in Malaysia. It focused on tourism properties which are opened to public access. The pilot case study protocol explained clearly the selection criteria of case study selection. In addition, literature and pilot study has further pinned down the essential inclusion;

1. The chosen case study targeted on awarded conserved buildings and enriched with heritage significance. As it was believed the awarded buildings have performed high quality in conservation principle and amazed by visitors.

2. Secondly, restoration sought to be undergone within 10 years upon enforcement of the UBBL Section 34A (Appendix A) in compliance with requirement provision for PwDs.

Besides, George Town was sectioned into core zone and buffer zone within the conservation areas. This would directly impinge on legislation and guidelines of conservations in George Town as discussed in literature and pilot study. In such, replication case study would appropriate to reflect variations of phenomenon in the context. Inevitably, unique heritage significance in each cases would be taken decisively in analyzing together with local guidelines and standards.

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CHAPTER 5: CASE STUDY

5.1 Case Study 1: Leong San Tong Khoo Kongsi

5.1.1 History Background

Leong San Tong Khoo Kongsi or Khoo Kongsi for short is one of the most distinctive Chinese clan associations in Malaysia. Khoo Kongsi is located along Cannon Square close to the end of Pitt Street. It is well known with its magnificence architecture value and extensive lineage that can be traced back to 650 years. In 1850, the present site in the name of Tua Sai Yah was purchased by the Khoos clansmen. The land measured at 97, 035sqft where originally stood British owned local bungalow was converted into a temple to enshrine the deity of Tua Sai Yah and ancestral worship and functioned as community events like wedding receptions. Then it was named as Leong San Tong. Subsequently, clan-house were built surround the temple with objective to provide shelters for their clansmen. A few years later, the Board of Trustees built another office building on the vacant land for administration and conference hall purposes. After they bought the land, they developed the area with configuration of shophouses, open square and Leong San Tong Temple in referring to Chinese spatial concepts as what has been planned until today.

However, the current Leong San Tong Temple is not exactly the same from the original structure. Tracing back to its history, the original Indo-Malay structure of the building had been included into the survey plan of George Town from 1891 – 1893 but the building was only remained for 43 years long. In 1894, the building

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was rebuilt based on the Southern Fujian architecture. Unfortunately, the completed new building was burnt down in less than 1 month completion date and on the Chinese New Year Eve; as the Chinese believed this is due to the over grandeur of the ancestral temple was resembling the Emperor's Palace which had provoked God's anger. Thus, another scaled-down appearance compared to the previous version was built in 1902 until the completion of present appearance in 1906. Apparently, the clanhouse structure is the only blended-Chinese- culture clanhouse which cannot be found in China.

Since establishment of the Leong San Tong Khoo Kongsi in 1906, the clanhouse had gone through several restorations. A minor restoration was first taken placed in 1956 and another minor restoration in 1985. A proper restoration to opera stage with appointed heritage conservationists to supervision was funded by the National Museum in 1996. It was considered at the importance of Leong San Tong Khoo Kongsi as a cultural heritage to Penang. The opera stage restoration project won the National Heritage Award in 2000 and had prompted to Khoo Kongsi further undertake restoration to Leong San Tong. Thus, the second major restoration was carried out from 1999 to 2001. Today, Leong San Tong Khoo Kongsi is one of the famous historic attractions for culture affair tourists in the UNESCO World Heritage sites of George Town. The building has been adapted into a museum at basement level and open for public with admission fees.

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5.1.2 Architecture Significance

Khoo Kongsi complex consists of the Leong San Tong an administrative building with a meeting hall and offices, an opera stage and 62 units of terrace houses and shophouses. The clanhouses and temple sit on an open courtyard (Cannon Square) facing to west-northwest and enclosed by clusters 19th century terrace houses and shophouses. The shophouses and terrace houses demarcate their territories by four sided perimeter enclosing the central courtyard where their clanhouse majestically sits on the granite square. There are three entrances approaching to the complex; the main entrance is at Cannon Street which is barely noticed from cluster of shophouses. A decorative archway of rear entrance from the Beach Streets and another side entrance faces to the Armenian's Street. The main entrance will pass by the alley between Sixteen Houses while the side entrance will get through the alley between Eight Houses with a small gateway. The terrace houses with the front yard facing to the Cannon Street were reconstructed in thirties of 20th century to a broader street.

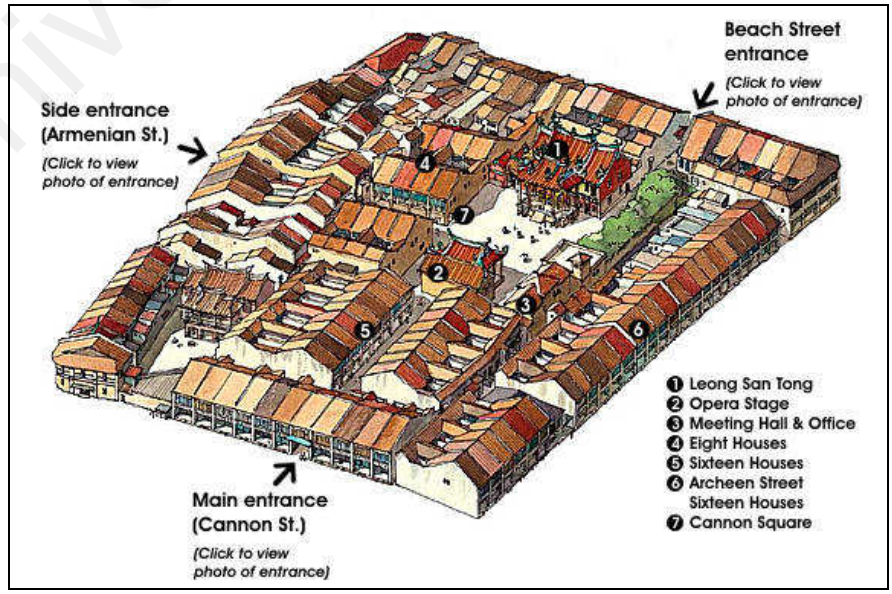

Figure 5.1: Panoramic view of Khoo Kongsi clans settlement
Source: Leong San Tong Khoo Kongsi: The History and Architecture Publication

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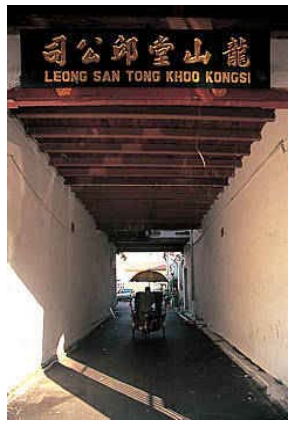

Figure 5.2A: Main entrance

Figure 5.2B: Side entrance

Figure 5.2C: Beach street entrance

Leong San Tong is the main building of Khoo Kongsi which located at the center of the complex and facing to an open courtyard. It is the temple for Khoo family and houses their ancestral hall. It mainly serves as a temple for their deity and ancestral worship rituals. The temple is believed as the centre heart of Khoo Kongsi and the dominant building in the complex.

Architecturally, Leong San Tong is a colonial hybrid building. It is the integration of an early Anglo-Malay bungalow with front porch based on the Malay stilt houses during the colonial era with the style of temple in Southern Fujian with a prayer pavilion. It was revealed by the analysis upon the restoration process of Leong San Tong. Figure 5.3 shows amalgamation of the British colonial and local Malay architecture styles integrate with Southern Chinese architecture to present Leong San Tong temple. Uplifted ground floor which housing the main halls has been the most noticeable feature of the temple until today.

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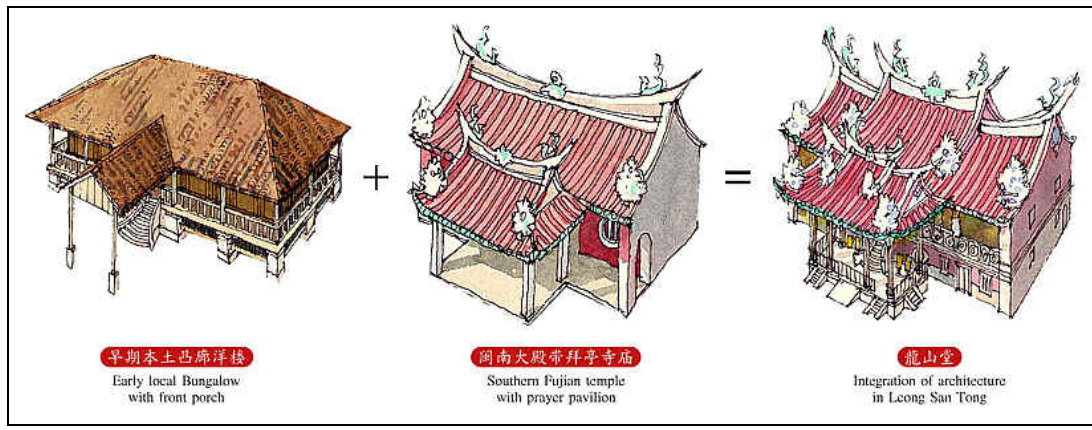

Figure 5.3: Integration of architecture in Leong San Tong
Source: Leong San Tong Khoo Kongsi: The History and Architecture Publication

The temple has a symmetrical structure with a protruding front porch and a semi-open staircase leading to verandah. It can be divided into three parts: prayer pavilion at the half storey height from the ground floor level, main building at double-storey height from ground floor level and a single-storey height of kitchen at left wing of the building.

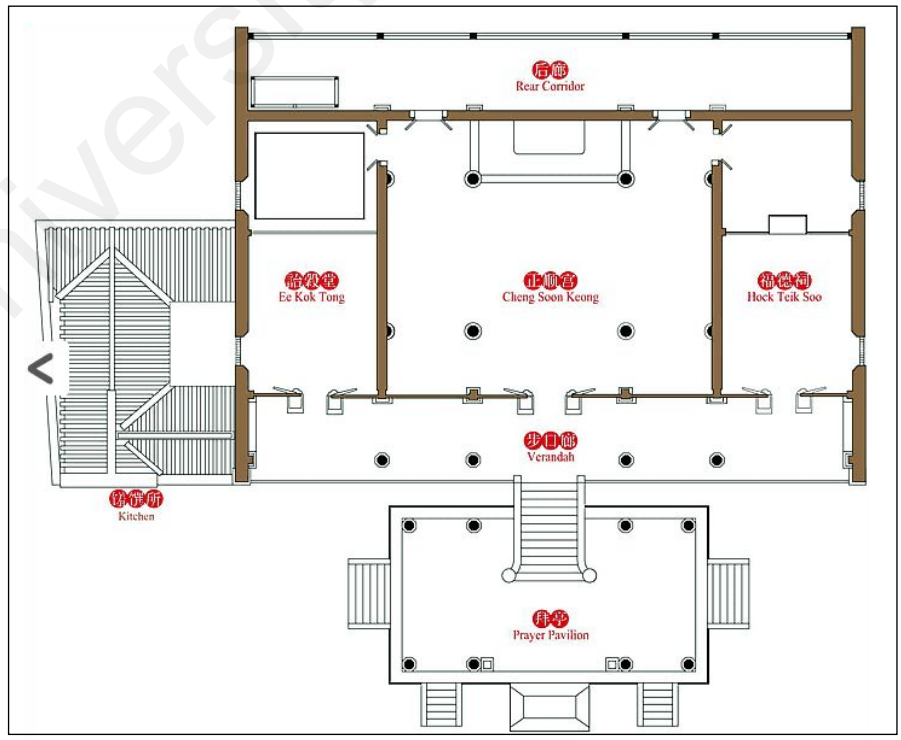

Figure 5.4: First floor plan of Leong San Tong
Source: Leong San Tong Khoo Kongsi: The History and Architecture Publication

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1. Main Building

The main building is a two storey building attached with a single storey block to left side. It consists of gable roof on both ends and tri-sectional roof ridge with elaborate jian nian decoration and swallow-tailed ridge end. The tri-sectional roof ridge marks the three sections of the main hall on upper floors where Cheng Soon Keong at the central hall, Hock Teik Soo to its left and Ee Kok Tong to its right. Currently, the left and right halls have been adapted into ancestral hall and hall to the god of prosperity carry plague commemorating the achievements of noted members of Khoo clan in Penang. Three halls share a common verandah at front and rear section. The front verandah is connected to the prayer pavilion with a grand staircase which apparently adapted from the semi-open stairway of a local stilt house. It gives grandeur and respectful to the main building from elevation. In the rear verandah, there is a staircase connecting to the basement level from the main hall.

2. Prayer Pavilion

The prayer pavilion is elevated terrace 1.2m above ground floor occupying front porch of Leong San Tong building. There are four sided staircases leading to the pavilion and the ‘Stone of the Royal Way’ protruding at the front of the terrace accentuating sense of grandeur to the entrance of the clanhouse. The prayer pavilion and main hall are connected by a stone staircase which apparently adapting the semi-open stairway of local stilt house. There are six octagonal granite pillars support the beam and roof of the pavilion. The roof is structured in

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the form of *xie shan* (half-pitched, half gable roof) where the main ridge is divided into three sections and tips of each sections are decorated with turn-up swallow-tailed motifs.

3. The Kitchen

The kitchen is connected by a corridor to the main hall at lower floor. It is a typical Southern Fujian styled side wing with an air well and round gable. Currently, it is well maintained and adapted into a showcase how the kitchen been used in old days. The kitchen was used to serve wedding receptions and festival celebration.

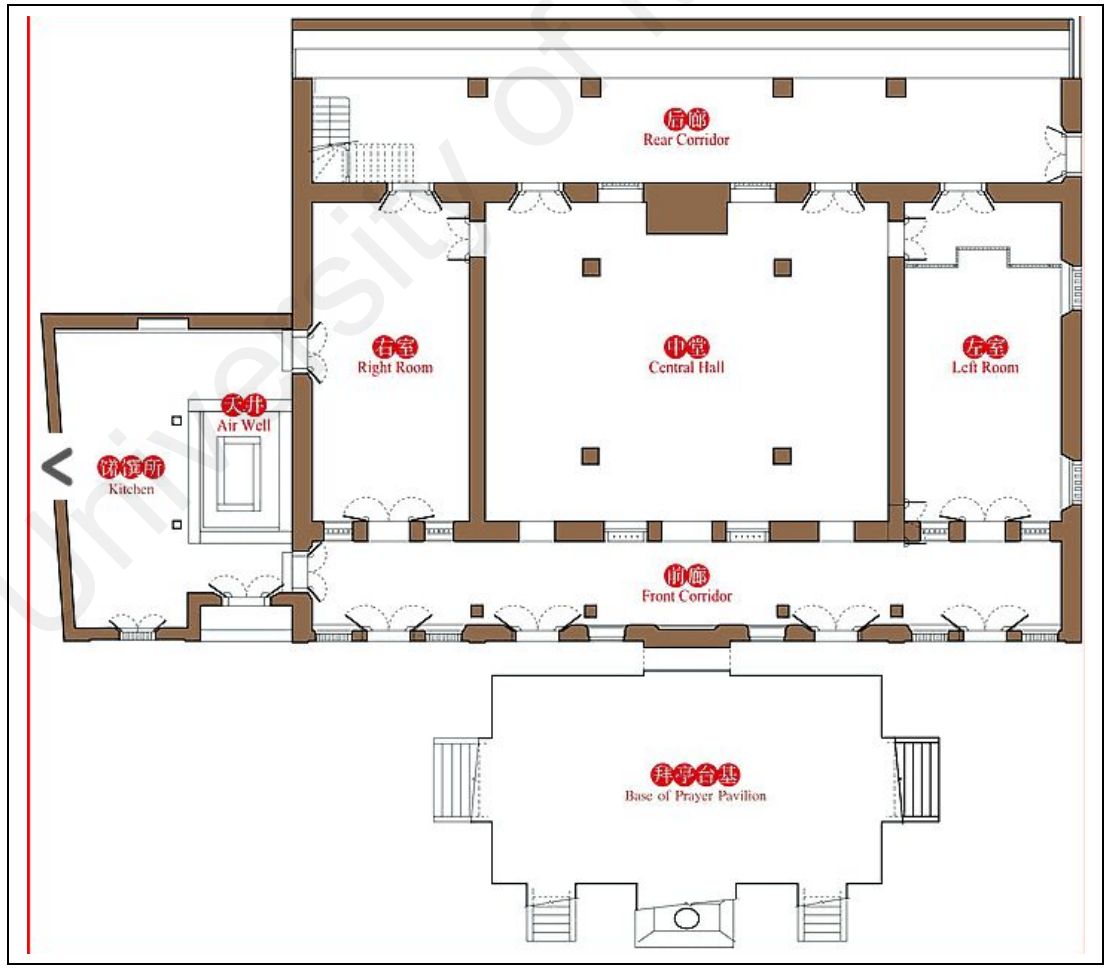

Figure 5.5: Basement floor plan of Leong San Tong
Source: Leong San Tong Khoo Kongsi: The History and Architecture Publication

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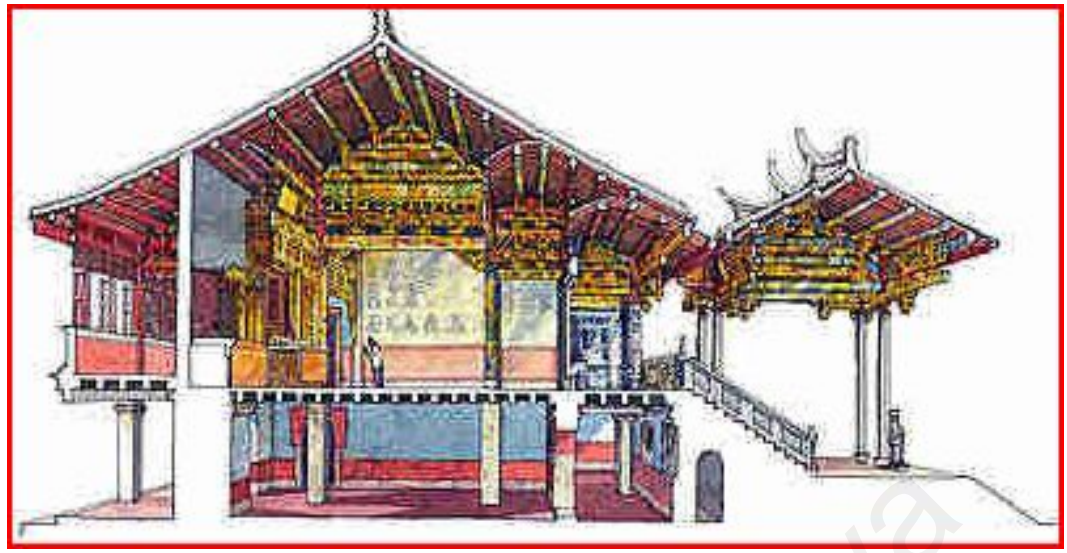

Figure 5.6: The cross sectional perspective view of Leong San Tong: The floor levels are gradually elevated to the back according to feng shui principles.
Source: Leong San Tong Khoo Kongsi: The History and Architecture Publication

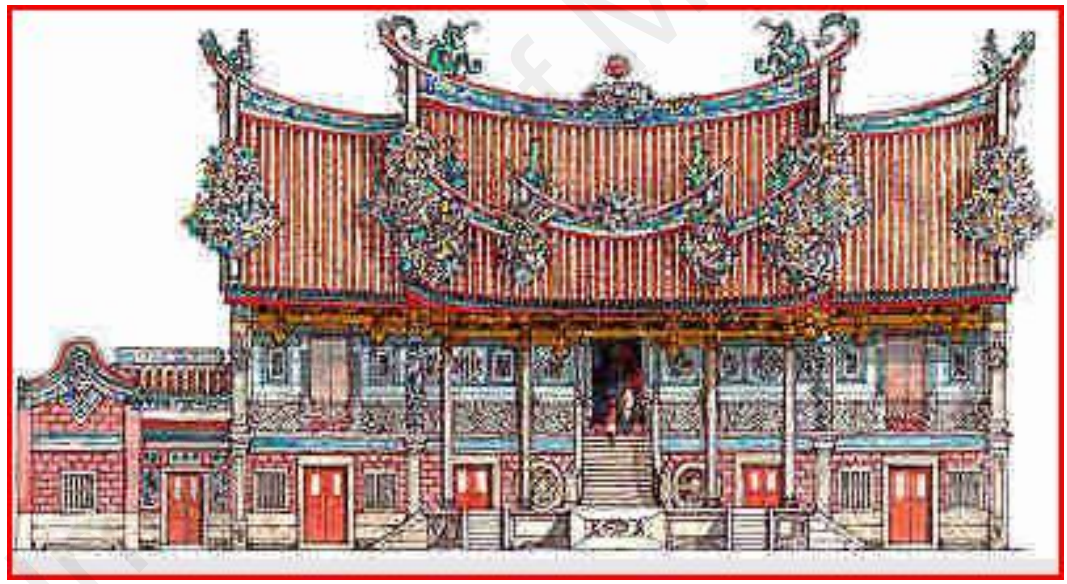

Figure 5.7: Façade of Leong San Tong
Source: Leong San Tong Khoo Kongsi: The History and Architecture Publication

The Prayer Pavilion, main hall and rear verandah are laid out in terraced perspective in different levels. It reflects the Chinese Feng Shui principles as well as Chinese propriety of '*bu bu ao sheng*' (step by step one prospers). On the hands, it marks hierarchy of spaces where the main hall is standing stately and magnificent.

4. Decorations, motifs and mural paintings

Architecture elements like timberwork roof truss system, stucco sculptures, wood and stone carving, cut-and-paste porcelain shardwork and mural colour paintings feature in the temple. Those are the precious detail handcraft and art which enriches grandeur of Leong San Tong Temple. Despite Southern Fujian architecture, there are some evidences of Western influences in the temple. Wrought iron fencing of flora motif at the main hall verandah which is custom made from England, is the most significance evidence as in according to publication of Leong San Tong Khoo Kongsi. Apart from that, two statues of the turbaned watchmen at the Prayer Pavilion demonstrates eclecticism of the society and an epoch when Leong San Tong Khoo Kongsi was established.

5.1.3 Restoration

Leong San Tong temple had gone through few times of restoration and was documented in stone and brass inscriptions. The tradition of inscriptions is meant to commemorate achievement which will serve as an encouragement to next generations. In turn, the inscriptions found in the temple documented the founding of Khoo Kongsi and restorations of the temple since its establishment.

i. Stone inscription of the Ee Kok Tong, dated the 29th year of the Guang Xu Regin (1903)

The stone lists down name and contribution of 102 clansmen in contribution of 528 Dollar during establishment of the Leong San Tong Khoo Kongsi.

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ii. Stone inscriptions of Leong San Tong, dated the 1st year of the Xian Feng reign (1851)

It elaborates pioneer of Khoo Kongsi has gone through many years of preparation before the land was purchased. The existing premise was then converted into a clanhouse and named it Leong San Tong in similar to the original at their native village.

iii. Inscription of the restoration of Leong San Tong, dated the 32nd year of the Guang Xu reign (1906)

Inscription describes the naming, development, festive, features and customs of Leong San Tong. It also mentions the mysterious fire and its rebuilding. It states the restoration of before and after the fire spanned thirteen (13) years to completion and cost was more than 100,000 Dollars.

iv. Brass inscriptions on the restoration of Leong San Tong Khoo Kongsi was dated 1959

The temple was partially damaged during the Second Word War; restoration project was undertaken after the war. The project spanned four (4) years to completion in 1955 and spent more than 60,000 Straits Dollars.

v. Stone inscription on the restoration of Leong San Tong Khoo Kongsi was dated 2001

The stone was newly additional at the basement to commemorate the second major restoration of Leong San Tong Khoo Kongsi. The text describes the historical development including some details of the restorations which had

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been gone through since establishment. The last restoration which was carried out in 1999 was included in the text as remembrance for next generations.

As mentioned earlier, the restoration spanned from 1999 to 2001. It was considered as the second major restoration after the project in 1906. The three years project had cost RM4.2 million. A full restoration was carried out in the restoration with systematic documentation and professional teams in corporation with experienced craftsmen. Heritage conservation specialists were appointed to document measure drawings, dilapidated survey and preliminary study reports. The team set out restoration principles and technical team in monitoring restoration methodology especially assessment on materials and techniques to be applied. An ancient building restoration team was recruited from Jin Jiang, Fujian China to work on massive restoration due to lack of experience local craftsman. The restoration included:

(a) Replaced new terra-cotta roof tiles in original pattern; restored decorative on roof ridge and removed inappropriate figurines
(b) Newly installed hidden gutters to solve leakage; reinstalled dragon fish water spouts
(c) Dilapidated roof batten and beams were restored; and parts of wooden structure were repainted in using traditional materials
(d) Window and doors were sandpapered and repainted
(e) Lime plaster and repainting to the walls, and great precaution to protect murals and wall frescos

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(f) The modern flooring at Prayer Pavilion and front verandah which were installed in 1985 restoration; was replaced with traditional terrace cotta tiles from China. Acrylic paint finished on underside of the timber flooring at uplifted ground floor was sandpapered to repainted in traditional material.

(g) Zinc and cement roof which was installed during restoration in 1985 was replaced with traditional wood and terra cotta roof tiles

(h) Granite flooring at open courtyard was leveled

(i) Restore drawings and protective methods was carried out by tendered professional consulting company from India.

Like other clan associations, Leong San Tong Khoo Kongsi is no longer the centre of important social activities and functions like special dinners, wedding banquets, concerts & shows, authentic Chinese Opera that were held in heydays. Nevertheless, the clanhouse has been adapted to a state-art-museum in the basement showcases artifacts donated by clansmen and their collections. It is unique amongst the clanhouses in Malaysia, first ever turning into a museum. The basement used to be reception area for wedding ceremony was conserved in original structure to portray the traditional appearance. At the same time, artifacts and multimedia presentation display architectural, cultural and historical development of Khoo clansmen spanning eight generations. It was restored and opened for public visit since May 2009. Currently, the rows houses are undergoing renovation-cum-restoration to bring back the glory of the Khoo Kongsi.

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5.1.4 Access Auditing

Loeng San Tong Khoo Kongsi is nested in an open courtyard and surrounded by clanhouses. Khoo Kongsi functioned as the centre for Teochew community in Penang and the most significant building in the clan society. Access auditing was undertaken guided by the formal research protocol to the main building in 2010. The auditing was started from the main entrance at Cannon Street. Finding from the checklist was interpreted to Table 5.1 as following;

Table 5.1: Summary of access auditing report of Khoo Kongsi

SERVICES PROVISION	
Customer service assistance / counter services	Service counter is set up within one of a house after the gateway of main entrance from Cannon Street. It is near to administration office and corner house before entering to the open square.
Braille & large print guides / tape guides	No printed Braille or tape guides are provided to aid visitors' needs.
Sensory information / sensory trail	3D virtual tour on the courtyard is developed in CD for sale at the service counter.
Induction loops	Not provided
Manual wheelchair availability / portable ramp	1. No wheelchair service provided
Assistance dog welcome	Not allowed
Access guide	1. No access guide provided
ACCESS FEATURES	
Accessible Parking	1. No public car parking area is provided 2. No accessible parking is provided 3. Visitors with access needs could be driven through alley into the open square upon permission of security guard at the gateway.
Approach & Entry	1. Natural carved stone pavement along the way from entry gate to Khoo Kongsi is approximately 1000 millimeters. 2. No designated accessible footpath and tactile guiding block pathway from entry gate to Khoo Kongsi. 3. Natural carved stone pavement surface is non-slippery but not even.

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Table 5.1, continued: Summary of access auditing report of Khoo Kongsi

Entrance	1. Entrance to museum at the basement level is significance. 2. Entrance to the museum is indicated with timber ramp to ease threshold at entrance door way. 3. Visitors' path at the museum has been mapped out and clearly indicated.
Accessible Toilet	1. An accessible toilet is provided within the adjacent building without affect the main building. 2. A structured ramp with 1:10 gradient was constructed at the entrance to the building 3. Accessible toilet was designed with a spacious turning radius for wheelchair. 4. Foldable bar should replace another fix pedestal rail at the water closet. 5. No grab rail was installed to the basin area.
Emergency Exits	1. No emergency routes or refuge space is provided
Step Ramps / Ramps	1. Reversible wooden ramp is constructed at the entrance to museum at basement. 2. Portable metal step ramps are placed to all thresholds of door ways. 3. The metal ramps with gradient 1:2 to 1:5 are inaccessible for wheelchair
Stairs	1. Original granite staircase to the Prayer pavilion was conserved from original 2. No alternative access to the prayer pavilion
Lifts	Not applicable
Doors	1. Doors at the public access are kept opened during operation hours for easy access
Wayfinding / signages	1. Signages are improper printed and located not at decision making point. 2. Signages are prepared in temporary add-hoc format 3. No symbol and Braille type signage is prepared
Accessible floors	1. The original concrete imprint slab at museum is firm and non-slippery 2. Portable metal ramps at thresholds are too steep for wheelchair users 3. No alternative access to first floor level other than existing conserved staircases. 4. No tactile blocks or tactile warning are provided

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(a) Pre-visit Information

An official website was setup by the management of Khoo Kongsi at http://www.khookongsi.com.my/ . The website well introduces the history background including profile of Leong San Tong Khoo Kongsi building's background and complete details of architectural, cultural and historical development of Khoo Kongsi. It gives basic ideas and pre-visiting information for patrons about the place. The website is creditably publishing photo gallery and layout drawings of Leong San Tong to better understanding and preparation before visiting of travelers. The website is also well-equipped with contact for any further enquiries and arrangement. On top of that, the Khoo Kongsi Vistual Tour DVD will be available for purchasing as claimed by Mr.Khoo Boo Hong during the open interview.

(b) Approach and Entry

Leong San Tong is nested in an open courtyard (Figure 5.9) and surrounded by terrace houses and shophouses. It is hidden away from main road and approachable by three gateways. Distance to the main building of Leong San Tong is approximately 100meters from the main gateway at Canon Street. It is considered long distance for persons with physical disabilities to reach the temple individually. However, the alley is wide enough to let trishaw or private car to drive through approaching to the clan house. As such, visitor is allowed to be dropped off at the open courtyard upon permission from the officers at the

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ticketing counter. The open courtyard is spacious enough to allow an accessible car parking but there is lack of any demarcated parking bay indicated on site.

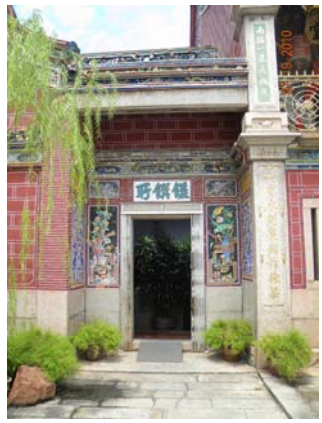

Figure 5.8: Exist of museum from initial kitchen area

Figure 5.9: Open courtyard of Khoo Kongsi

The basement has been adapted as museum after the latest restoration. Access auditing encountered there are several door ways with granite threshold. Existing granite threshold is within 100-150mm height which is difficult for wheelchair users to negotiate and may trap persons with visual disability. It is believed that granite threshold is one of the significance of door way design in Chinese clan house elements. Literature and interview explains threshold is constructed as door sill forming the lowest member of supporting structure to timber door framework. Architecturally, it is used as region marking to indicate boundary of new space and entrance through whichever leave or enter to another space or building. In addition, Chinese people use to believe that threshold may aware visitors to bow as giving respect before entering to the hall, as explained by Dr.Gwynn, conservation architect in an open interview.

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Figure 5.10: Timber ramp at entrance of museum level

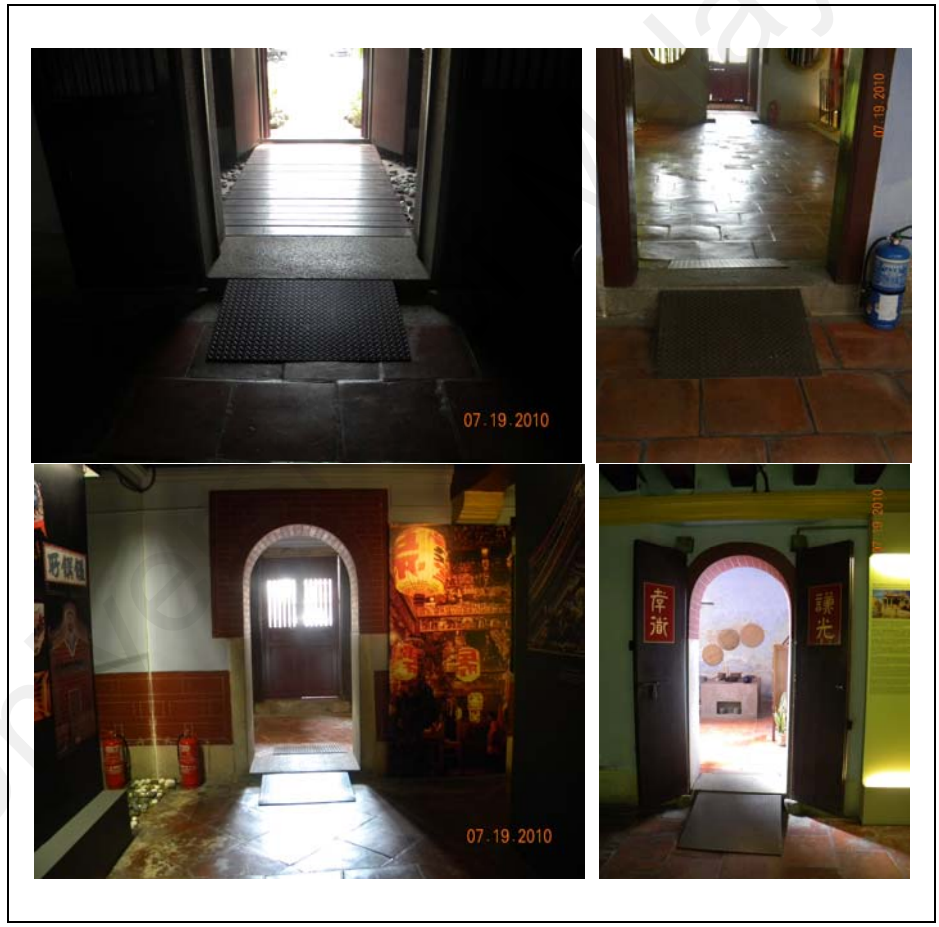

Figure 5.11 A, B, C, D: Portable metal ramp at thresholds

Access auditing reported granite threshold at the main entrance to the museum at lower floor has been covered with temporary timber ramp to assist persons with disabilities. The timber pathway clearly distinguishes main entry point to museum from front elevation. It leads entrance path from road level gradually into museum main hall, passing by a decorative foyer. Additionally, granite thresholds are provided with series of temporary metal ramps on both sides. However, auditing encountered the ramps gradient is ranging from 1:2 to 1:5; which is not comply with the standards of 1:12 gradient for step ramps. The ramps are too steep and difficult for wheelchair users to negotiate by themselves.

In my opinion, creditable should be given to initiative in designing temporary ramps within the museum since;

1. It clearly indicates the entrance point to the museum: New intervention of physical access to the heritage site is easily identified from front elevation.
2. Selection of timber material usage for the temporary ramp never contradicts to significance of heritage value to Khoo Kongsi.
3. Temporary ramps could be removed to return its originality and still well keeps the authenticity of Khoo Kongsi and its heritage value.

(c) Accessible Toilet

An accessible toilet is situated at the adjacent building. According to interview with Mr. Khoo Boo Hong, Honor Secretary of Khoo Kongsi, accessible toilet is provided by their initiative to serve wider range of visitors to Khoo Kongsi. Since entrance fee is imposed to all visitors, they provide better facilities and amenities

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to ensure all visitors are well served. The most importantly, basic facility for visitors with disabilities is addressed especially accessible toilet is hardly provided within heritage spots. Khoo Kongsi manages to accommodate an accessible toilet at adjacent building which never effect to the main building of Leong San Tong Khoo Kongsi.

Travel distance from main building of Khoo Kongsi is considerably close and accessible to persons with disabilities. Entrance to the building block which houses accessible bathroom is elevated from ground level; however permanent reinforced concrete ramp is constructed to assist persons with disabilities. The entrance way is significantly labeled with public toilet and accessible toilet signage although access auditing reported the size could be better in bigger size and more significance for all.

The reinforced concrete ramp is constructed at gradient 1:10 which is considerably negotiable for persons with disabilities especially wheelchair users with assistance. According to the Code of Practice, the perfect gradient should be 1:12 which is the most suitable for wheelchair users to climb the ramp without assistance. It is likely due to space constrains to construct a ramp with adequate travel distance in relation to gradient 1:12 as stated in Code of Practice. Landing space is adequately provided for turning radius; moreover the door panel at the entrance door way has been removed to wider entrance door way. Passage way leading to the accessible toilet adequately accommodates wheelchair size although corridor should be at least 1500mm wide in referring to the Code of Practice.

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Access auditing reported size of the accessible toilet is designed in spacious layout at 2140mm x 2220mm with adequate turning radius and transfer space for wheelchair. Floor level difference at doorway threshold is addressed with a gradual step ramp from corridor to accessible toilet. It was magnificently done with step ramp eases the common issue of floor level changes into accessible toilet. Auditing encountered sanitary facilities would greatly improve its usability by minor revising layout. For example, there should be a foldable grab rail instead of fixed pedestal rail which will block side-transfer space for wheelchair users. In addition, basin level should be lower to maximum 800mm height from floor finished level.

Figure 5.12: New ramp entrance at adjacent block leading to accessible toilet

Figure 5.13: Step ramp at accessible toilet

Figure 5.14: Accessible toilet

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(d) Virtual Tour / Audio Visual Presentation

There are multimedia presentations showcase the historical, cultural and architectural of Leong San Tong Khoo Kongsi. Pictures and printed materials are mounted to at wall along the galleries. However, there is lack of audible assistance devices provided for visual impaired visitors. In addition, resting area or sitting area is limited within the museum. The provided benches could be provided with proper seats with safety concerned. As benches sometimes will be trap visitors.

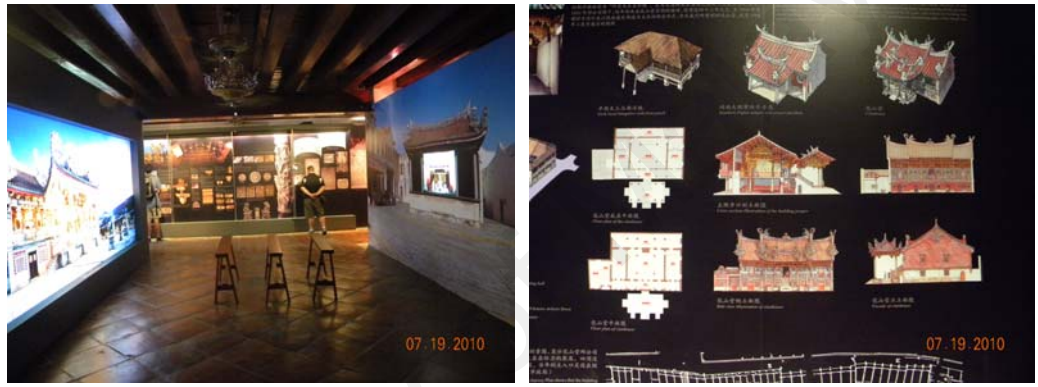

Figure 5.15 A, B: Visual presentation panels at museum

(e) Accessible Path

Basement level has been converted as museum and it is approachable from ground level. The museum galleries have taken the entire basement level to present their artifacts and collections and the original structural and layout has been maintained. Visitor pathway was mapped out entering from side entrance and exit through kitchen area. The entrance is significantly indicated with timber ramp. All the rooms at the basement level are converted into exhibition halls. Doors are kept opened to avoid door to door access in the museum. Nevertheless, granite thresholds at door steps are covered with temporary metal ramps. They are inaccessible for wheelchair users because the ramps are too steep ranging from 1:2

to 1:5. In addition the Prayer Pavilion and main hall are elevated from the ground level. There is no alternative vertical access provided for visitors other than preserved granite steps.

Figure 5.16: Front façade of Leong San Tong Khoo Kongsi

Figure 5.17: Staircase connecting prayer pavilion to altar level

5.2.5 Conclusion

Leong San Tong Khoo Kongsi was conserved to its original structure but no longer the community center for Khoo clan family. The basement has been converted into state-art-museum to showcase artifacts donated by clansmen and their collections. The prayer halls are still remained to remembrance of their ancestors and deities. It was the first clanhouse being converted into a museum and visiting by public with fee admission. Provision of easy access was initiated by the management team to include all visitors including persons with disabilities needs. Despite the access provisions are not fully comply with the standards and principle. However, the study encountered Leong San Tong Khoo Kongsi demonstrated a good example of core elements especially pre-visit information, accessible toilet and ramp as discussed earlier.

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5.2 Case Study 2: St. George Church

5.2.1 History background

St. George Church is the oldest Anglican Church in the Southeast Asia and located along the Farquhar Street. It is one of the British colonial heritage buildings within the Core Zone of George Town's UNESCO World Heritage Site in Malaysia. The church was initiated from the Penang Colonial Chaplain, Reverend Robert Sparke Hutching (who also founded Penang Free School) in 1816. The church was built according to the plans obtained by Governor William Petrie from Madras with modification by a Bengal engineer Captain Robert N. Smith, who painted early views of Penang. The church was built using convict laborers under funding from East India Company and was completed in 1816 when Colonel John Alexander Bannerman's term as British Governor of Penang.

Upon completion on December 1819, first church service was held on Christmas day under Reverend J.R Henderson. The first significant event taken place in the church after completion was the marriage of Janet Bannerman, daughter of Governor Bannerman, to William Edward Philips in 1818. Then, St. George Church was consecrated by the Bishop of Calcutta, India; Thomas Fanshawe Middleton on 11 May 1819. In 1885, Mahogany trees were planted around the church compound and followed by erection of the Francis Light Memorial in 1886 to commemorate founding of Penang by Sir Francis Light.

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During the World War II, the building was boomed by the Japanese destroying its roof and parts of the walls on 12 December 1941, the day of invasion of Malaya. The Japanese booming although caused to minor damage to the structure, the interior was badly looted. Some of Mahogany trees on the compound were burnt down due to the booming. Since then, the church service was interrupted and transferred temporarily to the Mission House and then to Wesley Church in Burmah Road. It was until the fall of Japanese Empire, services at St. George Church were only resumed. The church was unused for 7 years until it was restored and reopened in 1948.

Two significant emancipation event happened to St. George Town; 1971, St. George Church became the property of the Diocese of West Malaysia, which was an independent national Anglican Church, incorporated by the Act of the Malaysian Parliament; and the formation of the Province of South East Asia, formed in 1996, with the Dioceses of Singapore, Sabah and Sarawak by the Archbishop of Canterbury. A bishop from the four Dioceses was elected as Archbishop in every four years. The Province maintains historical ties with the Church of England and the worldwide Anglican Church. Sine then, St. George Church has been under guardian of local clergymen.

On 4 April 1996, the church was gazetted as a Museum and its 2-acre grounds as Historical Site, under the Antiquities Act, 1976. In parallel to enforcement of the

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National Heritage Act 2005, St. George Church was registered as one of the Malaysia's 50 National Heritage Treasures on 31 August 2007.

Figure 5.18 A, B: Recognition wall plates of St. George Church

In order to restore to its former glory, a full restoration was taken place under the Ninth Malaysia Plan allocation by the Department of National Heritage in 2010. Now, St. George Church has a whitewashed building that is believed to have returned the church and the Francis Light Monument to their original state. The church has been the symbol of religious harmony in Penang coexisting with other religious buildings along the intersecting Masjid Kapitan Keling Street.

5.2.2 Architectural Significant

St. George Church sits on the center of open compound with Mahogany trees, a memorial of Sir Francis Light in front of the entrance and a later additional office building block at rear corner. Due to its immense historical, social and architecture significance, the church building and Francis Light Memorial were listed as National Heritage of Malaysia and the compound with Mahogany trees was designated as historical site. This historical property was extensively documented in old paintings and archival photographs of Penang history.

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The church was designed in the Georgian Palladian Style which is combination of the Georgian style, named after the reigns of King George I and IV, 1714-1830; and the Palladian style, named after the Grecian architecture of a Roman called Palladius. The church is a two storey floor level over the entrance foyer and double volume height nave of the church. St. George Church has high ceiling with big opening and is claimed to adapt the humid and warm climate of George Town, Penang.

Praying hall (nave), aisles, altar, vestry, instrument room, switch room and children's rest room are sited on ground level; while utility room, filing room and balcony are located at upper level. The building is elevated by four steps from ground level at the main entrance approaching to the praying hall. There are another four entrances access to the rooms situated at the four corners of church where are not public access allowed. The first floor level is connecting by a staircase inside the switch room. Activities and church services mainly been held in the praying hall where public are permitted.

Figure 5.19: Right elevation of St. George Church

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The church was built in clay brick, stone base, lime plastering, timber, marble and terrazzo. There are decorative elements on interior wall like lime plaster swag, rose and garland motifs above the wall and portico. The most significant feature is the huge Roman Doric columns lined below the pediment at the portico and also inside of the church. Other then the entrance porch, side entrances are flanked with the Roman Doric columns and framed with entablature and pediment. Two rows of Roman Doric columns are lined up along the nave of the church and bowing at column shafts. They are fine and unique erected with chunam (quicklime) finished. They are polished with soapstone and calico. The classic columns reminds one of the Greek architecture such as The Partehnon, The Propylaia, the Temple of Athene and the Erectheion.

It was originally constructed in with flat terraced roofs including its portico. In 1864, a pitched roof was replaced to the nave due to leakage. Indian V shaped tiles were used for the pitched roof before they were then replaced with Marseilles tiles in 1907. After World War II, all flat roof particularly above apse, aisle and portico were replaced to pitched roof finished with the Marseilles tiles and remains until today.

Figure 5.20: Praying hall of St. George Church

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Research survey reported there was a clock located at the spire above the bell tower as shown in the watercolour paintings done by LT. Walford Thomas Bellairs in 1846 (The English Church at Pulo Penang – St. George's) and Turnbull Thomson in 1848 (English Church, Pinang). The clocks each faced to north, south, east and west. In late 1880's the clocks and their hoods were removed except the clock facing to north was remained at the spire. Unfortunately, it was destroyed during the World War II and removed leaving the clock face blank and empty.

Other then the church building, a monument was erected facing to the front porch of St. George Church in 1886. Underneath the dome is found a marble plaque famed by two columns dedicated to Light and it was believed to commemorate Sir Francis Light. It was listed as one of the significance monuments in Penang and well conserved until today. As mentioned earlier, the lawn has been listed as heritage site where the mahogany trees came from India as seedlings, were planted by A.B.Mackean 1885; still remaining today.

Figure 5.21: Front view of St. George Church

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Figure 5.22 A, B: Car parking compound of St. George Church

5.2.3 Restoration

St. George Church had gone through few times of restoration and repair work since it was built in 1818. It was severely damaged during the World War II, when six bombs were dropped by the Japanese in its compound on the 12th December 1941. The pitched roof and interior of church was severely damaged. After the fall of the Japanese Empire, restoration was carried out to replace pulpit, pipe and pews and resumed the church services in 1948. In 1995, after almost 50 years, the church had undergone another extensive repair work; but, a new material Portland cement plaster was inappropriately rendered to exterior walls instead of lime plaster.

In 2010, St. George Church received an amount of RM 1,841,027 (USD 526, 007) from the federal government of through the Department of National Heritage for restoration. It marked another significant milestone to the St. George Church and has given another new life to the building. The restoration took place over a period of eight (8) months from the 1st of April until the 11th of November 2010 to completion. The restoration had been carried out under supervision group of

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professionals in a systematic way. Prior to the restoration, a dilapidation survey was conducted by conservation consultants to determine nature problems and defects of the church. Numerous of building problems were diagnosed and conservation techniques were elaborately analyzed before execution. The whole progress from initial research and survey, during and after conservation were documented for future reference. As such, experienced labour and contractor were engaged to work together with the consultant team involving conservationist, architects and engineers.

The restoration works mainly concentrated on roof structure, Marseilles tiles, wall plastering, termite treatment, salt desalination, restoring door and window panels, mechanical and electrical installation and installed new replica clock at spire.

5.2.4 Access Auditing

St. George's Church sits on the open ground with Mahogany trees and additional building block behind the church to house amenities and utilities. There is another significant monument in front of the church dedicated to Sir Francis Light. Access audit was conducted to the main building – St. George's Church in 2010. The checklists encountered its accessibility problems and identified core elements of accessibility provision within the heritage property as elaborated in Table 5.2.

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Table 5.2: Summary of access auditing report of St. George Church

SERVICES PROVISION	
Customer service assistance / counter services	No service counter is provided.
Braille & large print guides / tape guides	No printed Braille or tape guides are provided to aid visitors' needs.
Sensory information / sensory trail	No sensory trail and information are provided.
Induction loops	Not provided
Manual wheelchair availability / portable ramp	1. No wheelchair service provided
Assistance dog welcome	Not allowed
Access guide	1. No access guide provided
ACCESS FEATURES	
Accessible Parking	1. Public car parking bays are provided within compound. 2. 2 units of accessible parking are provided 3. Accessible parking bays are clearly demarcated on floor with standard size and accessible symbol. 4. No transfer zone is indicated at the accessible parking bays. 5. The accessible parking bays are allocated near to alternative accessible entrance.
Approach & Entry	1. No designated footpath connects gateway to the entrance porch. 2. No accessible pathway with tactile guiding block is provided. The footpath is exposed to the 40meter driveway with tarmac finished. 3. Visitors are allowed to drop off at the covered front porch.
Entrance	1. Granite stair steps were preserved at the original building entrance. 2. Handrails are allocated on both sides of the stairway and comply with standard's requirements. 3. Alternative entrance with metal ramp is allocated beside the church.
Accessible Toilet	1. No accessible toilet is provided although public toilets are constructed within the ancillary block.

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Table 5.2, continued: Summary of access auditing report of St. George Church

Emergency Exits	1. No emergency routes or refuge space is provided
Step Ramps / Ramps	1. Reversible metal ramp is constructed at the side entrance to the church. 2. Accessible entrance was converted from one bay of windows; near to altar shrine. 3. The metal ramp with gradient 1:6 not complies with requirement at 1:15. However, according to the interviewee, mostly visitors are assisted and it has never been an issue until now.
Stairs	1. Stair is preserved from the original; but it was not concerned in the study. Because the staircase is not allowable for public's access.
Lifts	Not applicable
Doors	1. Doors at the main entrance are kept opened during operation hours for easy access
Wayfinding / signages	1. No wayfinding and signage system is prepared
Accessible floors	1. There is alterative access with ramp to reach the praying hall in the church. 2. There is a reserved area for wheelchair users right in front the altar shrine and next to the alternative accessible entrance.

(a) Approach and Entry

The church is located at the middle of the open compound with Mahogany trees. There is about 40meter tarmac driveway from entrance gate to drop off porch in front of the church. However, there is lack of accessible footpath connecting the front porch to the bus stop next to the main gate. According to interview with an on duty officer, he mentioned visitors with disability are usually driven into the drop off porch or alternative side entrance with ramp. Approaching into the church, there are four granite steps with riser 200mm at main entrance door way.

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Figure 5.23: Main entrance with steps at St, George Church

(b) Public Toilet

Public toilet is located at new annex block which was constructed at the end of the conserved heritage site. The annex block was built detached from the main building of St. George Church and separated by the open car parking lot. The travel distance is approximately 1km away from the church to the annex block (Figure 5.24). There is no accessible pathway delegated to the travel distance but also exposed to traffic and weather. Without companion, persons with disabilities might have problem and dangerous to reach the annex block.

Figure 5.24: Public toilet at annex block

Figure 5.25: Handrail surrounding the building

Access auditing encounter, there is no accessible toilet provided for visitors. The only cubical toilets and bathrooms for male and female located within the annex block. The managing organization has initiative to assist the persons with

disabilities by providing some handrails to guide visual impaired visitors to toilets (Figure 5.25). However, handrail and grab rails are obstructed and discontinued at a few corners. Doors steps at the entrance to toilet will trap persons with disability especially wheelchair users and visual impaired visitors. The cubical size is too small for wheelchair users' access; and the basin with full pedestal is difficult for them to reach basin mixer. Possibly, the managing officers will be more concerns on persons with visual disability. Because there is a group of visual impaired church members has been practicing in St. George Church currently. This is likely to be one of the reasons why intervention of physical access for example temporary structured metal ramp was taken placed in the latest conservation and preservation programme. Even though, there is still minor design setting faulty need to be improved.

Figure 5.26: Pedestal basin outside of toilet

Figure 5.27: Cubical public toilet

(c) Ramp (alternative entrance)

One bay of existing window which is near to altar shrine has been altered as accessible alternative entrance at right elevation of St. George Church. The alternative entrance provides a temporary structured metal ramp to address access

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need of persons with disabilities and elderly people to ease the four steps height from ground level to the main building. The ramp is placed next to accessible car parking bay to convenient of users to reach without any hassle. The ramp is wisely located at right elevation of the Church where it is hidden behind the building viewing from Masjid Kapitan Kling Street and Bishop Street. It is not only practically planned for users easily to reach from accessible car parking and also preserve authenticity of conserved St. George Church.

Reporting by managing officer, the metal ramp has taken placed since the latest restoration programme funded from National Heritage Department. However, the alternative entrance will only open for users during Sunday service unless upon permission by on duty officers during working days. The main reason is to avoid exploitation during weekdays as reported by interviewed on duty officer.

Nevertheless, the access auditing report shows that the ramp was constructed not up to standard. The gradient at 1:6 is smaller than 1:15 which is really steep and difficult for wheelchair users to maneuver themselves. Managing officer explained that usually wheelchair users are assisted to climb the ramp. It is believed the reason why it is not an issue until now.

The clearance width at 860mm should be wider to 1200mm to accommodate wheelchair users which is the standard dimension stated in guideline. However, the interviewed officer reported that there is never an issue since it has been used until

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today. He further explained, most of the time wheelchair users are assisted by their family friends and officers on duty.

Figure 5.28: Additional metal ramp

(d) Accessible Parking Bay

St. George Church is nested within a spacious compound with mahogany trees, which are also preserved until now. The compound gives a deep setback to the main building of St. George Church from main streets namely Kapitan Kling Street and Bishop Street. The interviewed officer explained that the compound is under preserved zone; that is the reason why no permanent building structure is permitted. To accommodating needs of car parking spaces, the compound (Figure 2.9) was then constructed with tar finished as car parking area; except the front yard still remains with mahogany tress on greenery lawn.

Figure 5.29 A, B: Parking compound surrounding St. George Church

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Currently, there are two accessible car parking bays (Figure 5.30) provided for persons with disability and elderly people. The car parking bays are located close to the alternative entrance with accessible ramp. It enables persons with disabilities and elderly people easily to reach the alternative entrance. Access auditing found that size of accessible car parking bay is 3600mm x 4800mm which is equivalent to standard. The car parking bays are clearly marked with accessible symbol on floor to avoid exploitation. However, there is lack of demarcated transfer zone provided at accessible car parking bays.

Figure 5.30: Accessible parking bays at St. George Church

(e) Accessible Path

Accessible footpath form gateway to the main entrance porch and alternative entrance with ramp is not clearly demarcated. Pedestrians are exposed to vehicle traffic along the tarmac driveway. No designated pathway with tactile block is mapped out leading from gate to church and church to the ancillary building. Nevertheless, alternative entrance with ramp near to accessible parking bays was planned in later restoration project. The additional temporary structure further enhances accessibility of St. George's Church eventually.

(f) Praying Hall

Praying hall is equipped with fixed timber benches for prayers to practice their ceremony. Benches are arranged on both sides with a central linear walk way at the praying hall. The walk way is clearly distinguished with a red carpet indicating the walkway connecting main entrance to altar shrine. From the interview, the managing officer reported there are reserved spaces for wheelchair users; if who is not comfortable with the benches. Wheelchair users may just park at the reserved space where it is also close to the ramp. The officer added, they have a group of visual impaired church members are practicing in St. George Church constantly. Most of time, they are seated at front rows or close to alternative entrance and assisted by officers or church members.

Figure 5.31: Fixed timber bench at praying hall

Figure 5.32: Reserved seating area for wheelchair users in front of praying hall

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5.2.5 Conclusion

St. George's Church was conserved to its original building setting and resume to its formal function. Church service is still taking placed in the church on every Sunday. According to the interviewee, he mentioned that occasionally there will be persons with disabilities and elderly persons will practice their worshiping in the church. He further added that the alternative entrance will only opened during church service despite St. George's Church still open to public visiting during weekdays. Access auditing uncovered the church has performed a good exemplary sample of core elements in approach & entry, accessible parking and ramp. It even shows a good initiative to include barrier free design principle within national heritage building - one of the Malaysia's 50 National Heritage Treasures.

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5.3 Case Study 3: Suffolk House

5.3.1 History background

Suffolk House, has been known as the first 'Great House' of Penang, located off Ayer Itam Road, George Town; it is a house standing on the estate which was originally owned by Captain Francis Light (born in Suffolk, England 1740, died in Penang, 1794), founder of Penang British Settlement in 1790.

The origin of Suffolk House is still the subject of debating and under-researching; whether it was built by Captain Francis Light, the originally owner of the estate, in early 1790 or did the subsequent governor, William Edward Philips, built in 1809. However, tracing back to the history, Captain Francis Light lived there with his common-law wife, Martina Rozells and his five children until his death in 1894. He left the estate for his family as mentioned in his will: 'the pepper gardens with my garden house, plantations and all the land by me cleared in that part of this land called Suffolk…'. Literally, it would means that the house was just a simple thatch-roof adobe unlikely the present elegant mansion appearance as drawn in painting of early Penang. It might be come after when the estate was sold to William Edward Philips in 1805, who married the daughter of John Alexander Bannerman.

In fact literature shows that he lodged at Suffolk House only from 1818 to 1819. In 1818, it was the house Sir Stamford Raffles came and discussed on establishing British port east of Malacca which later turned out to be Singapore. The Governor

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Philips left the house in 1823 but was still retained as headquarters, but it lost its prominence when headquarter of the Straits of Settlement was transferred from Penang to Singapore. Suffolk House's ownership was changed several times and its structure and façade was shorn off its former glory over the years. The building had gone through remodel due to poor condition in 1830 by the local Government and eventually owned by a Chinese Millionaire Lim Cheng Teik.

1929, Peach of the Methodist Missionaries bought Suffolk House to move in Anglo Chinese School and was renamed Methodist Boy's School (MBS). Suffolk House was first used as an office then a canteen. During the Japanese Occupation it became their outpost. Eventually, the British Government reclaimed it back after the war. When MBS started plan for a new building on Suffolk land in 1954, preservation was first brought up to consideration. The intension to preserve it as a historic relic had came in 1957 but nothing had been done up till. Over the years, the structure and façade had set in decay and became danger to the school still using it as canteen. By end of the year 1974, the building finally vacated and slowly crumbled.

Rehabilitation of Suffolk was lodged in 1987 when Board of Trustees was invited by the Municipal Council to form the Suffolk House Trust to work jointly with the State authority to reinstate the property. In 1999, the ownership of the Suffolk House site was transferred to the State Government of Penang, which made it possible to allocate funds to begin the conservation effort. Funded by the Penang

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State Government and various sponsors from community support, restoration works that started in 2000 were finally completed in March 2007. The restoration has returned its significant heritage landmark to its nineteenth century former glory, and looks like a stately old Georgian Mansion. It won the Award of Distinction in the 2008 UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation.

Figure 5.33: Existing front porch of Suffolk House

5.3.2 Architecture Significance

Suffolk land once was a pepper estate owned by Captain Francis Light and he built the 'Garden House'. Then it was sold to William Edward Philips who is believed built the Suffolk House as captured by painters. Suffolk House is one of the purest exhibits of Anglo-India Garden House in Penang, outside of India. It is believed that almost all of the building materials were imported from India and Burma through the trading route of East Indian Company. The construction methods were believed mirror those methods could be found in Garden Houses of Madras. It is a detached double storey building with grand proportions set in an open ground with greenery along the Air Item river bank. Its grandeur of Georgian architecture

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setting was captured and immortalized in a painting of 1818 by William Daniel and also featured by Captain Robert Smith even other 19th century painters.

> *'Originally, it was a colonnaded house, half-Palladian, half-Indian, whose drawing room housed a great collection of insects, birds and small animals; deer roamed its well-kept lawn surrounded by majestic trees and a box hedge; a clean brook meandered through its extensive woodland with a park and an aviary. Italy itself could not produce a more vardant or lovely landscape, described early chroniclers. Clove and nutmeg trees led from different directions to the House.'*

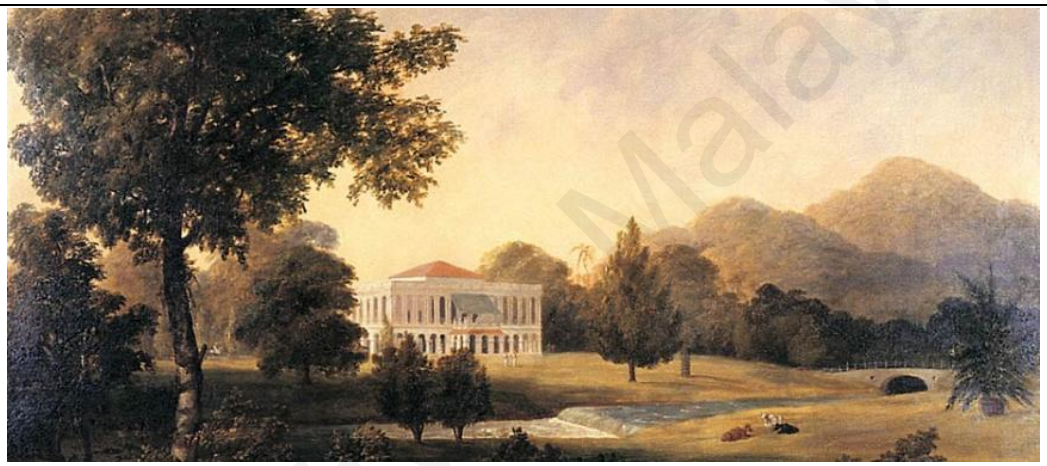

Figure 5.34 A: Suffolk House by Captain Robert Smith,1818
Resource: Penang State Museum Board

Figure 5.34 B: Suffolk House by Captain Robert Smith,1818
Resource: Penang State Museum Board

Figure 5.35: View of Suffolk House, Prince of Wale's Island, by Captain Robert Smith, 1818
Resource: Penang State Museum Board

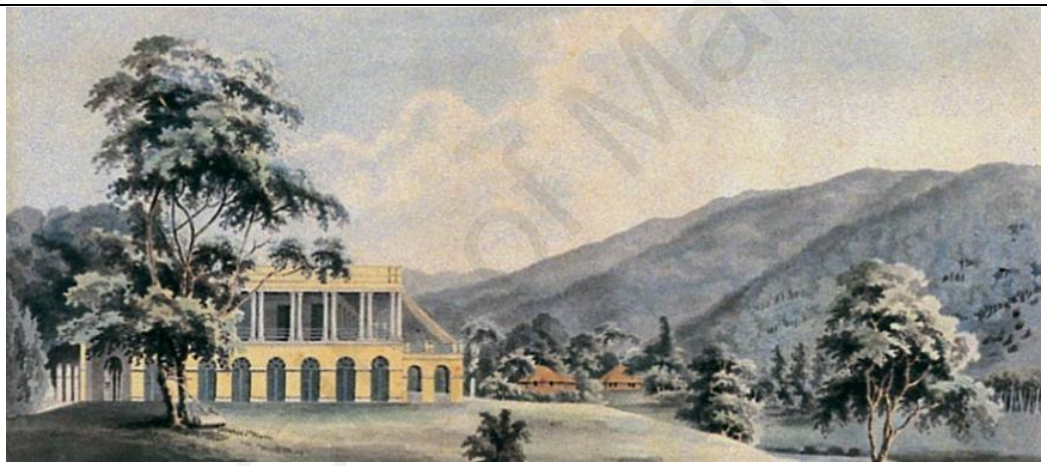

Figure 5.36: Suffolk House by James George, 1811
Resource: Penang State Museum Board

Suffolk House has been the prime example of Anglo-Indian Bungalow which style was first developed in India in the 17th and 18th centuries and in other part of South-East Asia in the mid 19th and 20th centuries. Suffolk House demonstrated fusion between British Palladian Revival during Georgian and Regency periods in equatorial region. The colonial style architecture adapted Palladian principles and used in India. The appearance of these simple vernacular building was outcome of a direct and appropriate response to native way of life, climate and available

resources. Suffolk House was built in its characters with high ceilings, neo-classical ornamentation and white stucco on walls. It was masonry construction on ground floor with mostly timber flooring at upper floor level.

The bungalow has a typical projecting central bay and porch which is facing to the river. The porte-cochere projecting from the central bay is believed to provide both required emphasis and shelter for pedestrians and a further roofed ventilated space above. The tall main door into the building, below porte-cohere, enters into central hall flanked by rooms on either sides. Front and rear portions of the building open full width of space allowing ventilation to the hall providing an area to one side of the front door for timber stairs, an arrangement contrary to geomancy principle.

The bungalow originally was built with jack roof above the ballroom which allowed a tall vaulted ceiling. It was an early modification and has originally been covered in the ridge and furrow Chinese roof tiles which were used in temples. A few remained original tiles were obviously different in pattern from the new tiles brought in from China, as were newly salvaged brick in the walls. On later addition after having proved unsuitable flat roof in a tropical climate, the main pitched roof used Indian ridge-and-furrow tiles as still can be seen on many shophouses in George Town. This alteration from flat to pitch roof has meant that the original colonnade facade has had either end chambered to take the slope roof. Colonnade terrace surrounding the first floor level was opened out to well ventilate the rooms.

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Suffolk House has been recognized as one of the Penang's most important colonial heritage landmark. It has been an important remnant of Penang's history over past two centuries and reminder of the British colonial era in Malaysia. Apparently, intangible heritage value is significant to safeguarding Suffolk House for future generations.

5.3.3 Restoration

In 1830, decision to remodel Suffolk House and ground work has first come from the Penang Government due to its poor condition. Government engineers recommended demolition of eastern and western colonnades. They ordered to lowering roof parapet to accommodate a terracotta tile pitch roof and partially rebuilt the façade and interior setting. Side extension was completed to create more space; windows were added to replace the open colonnade at the ground floor level. After the restoration, it was passed on to several owners and eventually to Methodist Church. Over the years, the building dilapidated, disrepair and was abundant in mid-1970. July 1980, the school was to make delineation of its boundary and handed over the piece of land on which Suffolk House stand on to State Authorities.

Figure 5.37 A, B: Suffolk House before restoration
Source: Harun, S.N & Ahmad, G., 2003

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In 2000, Penang Government took important first step to begin conservation through grant but the start-up fund was depleted after 18 months. Second phase was resumed back in 2003 through effort of Penang Heritage Trust, State Government, and financially supported by HSBC Bank broker to arrange the fund. Consultants and supporters raised another fund from individual contribution of the community to complete interior work restoration. Eventually, restoration of Suffolk House was completed in March 2007.

As a consequence of Suffolk House experienced many changes on ownership and has existent for two centuries. Numerous alterations in structure and appearance were unrecorded. Thus project team was unable to access to historic building plans and documentations. Eventually, the team came to a decision after examination on limited records; Suffolk House should be restored to the period between 1812 and 1820. Because preliminary survey on the property by South Australia Conservation Unit (SACON) recommended it was the best exemplifies significance of the property. The period portrayed perfect expression on its historic and aesthetic values.

Authenticity and significance were laid out as core for the project. The project design was guided under principle of recovering the ‘spirit of the place’ and the phase ‘restoring the image’ became rallying point for the project’s supporters. Due to limited records, preliminary research on secondary data was conducted on written documentation, historic images, archeology excavation and essentially the

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oil paintings by painters from 18th century. The restoration required to remove later additions as well as reconstruction of significant features, including the original roof profile parapet, details of arcades and reconfiguration of passageways and rooms. The project was under controlled with meticulous testing and dilapidation survey was conducted before execution on site. Method of statements and drawings on particular techniques were drafted by contractor to conservation architect's approval for all aspect of restoration work.

Components such as balustrades, cornices, columns and building colour scheme were carefully compared to remaining physical traces to allow reconstruction design to proceed with high level of accuracy. The conservation philosophy was underlying on principle of all materials and methods of construction had to be true to the origin structure as close as possible. Nevertheless structural and safety concern were taken as priority. For example, the perimeter Tuscan columns were also of modern substitute materials, to prevent termite damage, dampness and to provide stability. Beside traditional craftsmanship, modern techniques were employed to resolve problems especially salt efflorescence caused by rising damp.

Figure 5.38: Conserved timber staircase

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Key to success of the project relies on the management plan, viable and sustainable business plan was developed. Project team identified strategies and potential activities to provide the basis for long term sustainability. Ideas included hosting special events, commercial use and other means of generating income for the properties. Eventually, Suffolk House was known as art and cultural museum and managed by Penang Heritage Trust. They provide daily guided tour for public and rentable place for private events. The ground and upper floor hall were reconfigured to ensure its potential as venue for special events. Besides, the historic dining room has been turned into in-house restaurant – Suffolk House Restaurant which is richly decorated with period furnishing.

Figure 5.39: Restaurant setting at ground floor

Figure 5.40: Gallery setting at first floor

To support the building use as a public venue, a two storey annex building was constructed onto the east end of the site, between the historic structure and the school. It was built in modern building in respect to proportion and composition of the main historic fabric. It houses modern functions including commercial sized kitchen, accessible toilet, escape staircase and lift. The annex block is connected to the protected fragile historic fabric with a steel, timber and glass bridge connecting with upper floor of Suffolk House. In addition to work on the core building and

annex block, substantial upgrading work on its landscaping and site's surrounding were included. Especially reconstruction of an ornamental bridge once part of the property's ground added another dimension of the project by recognizing its intangible values.

Figure 5.41: Metal bridge connecting original Suffolk House with additional ancillary block

Suffolk House restoration project won the Award of Distinction in the 2008 UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation. The jury citation clearly concluded the project impact advocating its sustainability and viability management plan. craftsmanship and technical execution has been hailed as a benchmark for future similar initiative in Penang World Heritage site.

> *'The restoration of Suffolk House has returned one of the most important colonial heritage landmarks in Penang to its former state of grandeur after years of neglect. The massively dilapidated building was restored to its 1812-1820 form in strict accordance with historic paintings and archaeological evidence uncovered after a meticulous process of research and investigation. Modern additions to the site have been handled in a sensitive manner while the period landscaping consolidates the historic setting of the building. The restoration works were carried out to a high level of technical competence and demonstrate standard-setting excellence in craftsmanship. The public-private partnership in undertaking the project has renewed the building's historic role and serves as a worthy model for future restoration initiatives in the Penang World Heritage site.'*
>
> *(Asia Conserved, 2007)*

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5.3.4 Access Auditing

Access auditing was conducted to Suffolk House with checklists in the research protocol in 2010. Among the cases, Suffolk House is considered the exceptional heritage building from the unit of sampling in the research protocol. It is not located within the core zone and not designated as Category I heritage building in heritage listing. Notwithstanding restoration of Suffolk House has been awarded and was completed in comprehensive conservation process. It has known with its high level of conservation with modern insertion technically. The assessment explored accessibility within the conserved building and identified core elements of access provision and service.

Table 5.3: Summary of access auditing report of Suffolk House

SERVICES PROVISION	
Customer service assistance / counter services	No service counter is set up at the waiting hall.
Braille & large print guides / tape guides	No printed Braille or tape guides are provided to aid visitors' needs.
Sensory information / sensory trail	No sensory information or trail is provided neither at the site, nor official website.
Induction loops	Not provided
Manual wheelchair availability / portable ramp	No wheelchair service provided
Assistance dog welcome	Not allowed
Access guide	1. No access guide provided 2. The management provide a private tour in the building
ACCESS FEATURES	
Accessible Parking	1. Public car parking area is provided at open field in front the gate. 2. No accessible parking is provided
Approach & Entry	1. The driveway is covered with loose gravel from gateway to entrance.

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Table 5.3, continued: Summary of access auditing report of Suffolk House

Approach & Entry	2. Concrete pavement is provided aside along driveway. The width is not fit to wheelchair and gaps between pavement slabs easily trap its wheels. 3. Visitors with access needs could be driven into the yard upon permission of security guard at the gatehouse.
Entrance	1. The entrance is significantly accentuated with a timber ramp. 2. The reversible timber ramp is fixed to ease the threshold at entrance doorway. 3. The timber ramp is gently constructed and capped with metal plate at end piece to seal gaps between timber plank and loose gravel. 4. Bagging chain handrail marks hazardous along the edge but cannot support visitors.
Accessible Toilet	1. An accessible toilet is provided within the ancillary building without affecting the main building. 2. Accessible toilet was designed with a spacious turning radius for wheelchair and standard layout. 3. Sanitary fittings, fixtures and colour contrast fully comply with the standard.
Emergency Exits	1. Emergency staircase is provided for first floor level at ancillary building. 2. No evacuation plan is developed.
Step Ramps / Ramps	1. Reversible wooden ramp is constructed at the entrance leading to main door. 2. The gradient is 1:10 but still negotiable with assistance
Stairs	1. Newly built staircase at ancillary building connecting to first floor level comply with standard 2. The new staircase functions as emergency escape for first floor level
Lifts	1. Lift is allocated at the ancillary building for first floor level access 2. The lift comply with standard requirement 3. It is lack of audible indication on door movement.
Doors	1. Doors at the public access are kept opened during operation hours for easy access
Wayfinding / signages	No wayfinding and signage system is prepared
Accessible floors	1. Brick pavement is laid out to connect timber ramp to ancillary building. 2. Yard space between ancillary block to main building is shaded with roof. It is interval space connecting to vertical access. 3. First floor level is accessible with lift and staircase. 4. No tactile blocks or tactile warning are provided

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(a) Pre-visit information

An official website was setup by the management of Suffolk House at http://suffolkhouse.com.my/index.html. The website briefly introduces the history background of Suffolk House with a few photos. It gives only basic ideas on building services like restaurant, events and contact for any further enquiries and arrangement. Unfortunately, the provided accessibility services have never been published in the website for visitors' information.

(b) Approach and Entry

Suffolk House is located at the Suffolk Land with green compound setback from tarmac road. The land is safely gated with fencing all around to prevent intruders. There are public car parking bays provided in front of the entrance gate, but lack of accessible parking bay. According to the managing officer, visitor with mobile disability is allowed to drive into the main entrance. Upon permission granted, they could be dropped off in front of the timber ramp connecting to main entrance.

Figure 5.42: Public car parking bay next to guard house and gateway

Pathway from gateway to the main entrance is covered with loose gravel and slab pavement by one side. Pavement is sturdy constructed as footpath and clearly

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demarcate pedestrian. However, it is too narrow for wheelchair users to travel along the pavement; uneven level and gaps between pavement slabs easily trap the wheelchair.

Figure 5.43: Gateway to main entrance

Figure 5.44: Loose gravel along the footpath from gateway leading to entrance

Figure 5.45: Concrete pavement as alternative footpath

(c) Entrance

One of window arch way was converted into main entrance to Suffolk House. It is accentuated with a timber decking leading from the pavement. The decking was lifted up to ease threshold at the main entrance door way and furnished with a step ramp. The step ramp was gently constructed with a metal plate to finish joining gap between loose gravel and timber end piece. There are string handrail placed along timber decking but it serves no purpose to safety concern. The bagging chains are unable to assist persons with visual disability and elderly people.

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Figure 5.46: Timber ramp to main entrance

Figure 5.47: String handrail along the timber ramp

Entrance doors to the main foyer at ground level are kept opened during operation hours. It gives convenience and clear entry way into the building. Through the entrance door, an open foyer will be the reception area for guests.

Figure 5.48: Entrance door

Figure 5.49: Entrance lobby

(d) Accessible Path

Accessible path connecting from gateway to the main entrance was well planned with designated pedestrian. Despites slab pavement width is too narrow for wheelchair users. Slab pavement and timber decking clearly give direction to visitor once reach the gateway. An annex block with lift access to upper floor was built at the eastern end of the site and hidden behind the main historic fabric. It was connected with brick pavement starting from the junction of timber ramp and

slab pavement. The 1400mm width brick pavement is accessible for wheelchair users but is not shaded. Approximately 58522mm travel distance of the accessible path is totally exposed to weather. (Figure 5.50)

Figure 5.50: Fair face brick pavement from timber ramp to

Figure 5.51: Fair face brick pavement with skylight roofing at service yard

Glazed roof was added to the yard space between annex block to main building. The covered yard functions as interval space to support the restaurant at historic dining room. Managing officer claimed that the accessible toilet and lift is approachable from the main building through the interval space. Lift is provided as alternative access for persons with disability to reach upper floor of Suffolk House. Wheelchair users are able to experience the first floor and fully access to Suffolk House. Nevertheless, audible signal is lacking at the service lift to assist persons with visual disability despite Braille words are indicated.

Figure 5.52 A, B, C: Additional new lift at ancillary block

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Timber floor finishing at first floor level was replaced match to existing. The colonnade at first floor level is free of obstruction and loose furniture are neatly arranged.

Figure 5.53: Open terrace at first floor

Figure 5.54: Gallery at first floor

(e) Accessible Toilet

An accessible toilet was newly constructed in compliance with Malaysia Standard at the annex block. Fittings and turning space are meticulously fixed to ensure its practicality and usable. Colour contrast of wall and floor tile finishing are effectively selected. It is believed an exemplary accessible toilet for all. To make it perfectly done, door soft-closer could be added to assist users. However, during the auditing conducted, author encountered the toilet was locked up all the time. User may need to get access permission from their staff all the time. According to managing officer, it is to avoid exploitation of the accessible toilet by others.

Figure 5.55 A, B, C: Accessible toilet at ancillary block

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5.3.5 Conclusion

Suffolk House had undergone a comprehensive conservation process. It benchmarks high quality in conservation with new insertion to conform regulations and public interest especially accessibility needs for persons with disabilities and elderly persons. The assessment revealed Suffolk House demonstrated the exemplary case study in core elements including approach & entry, ramp, entrance, accessible path, lift, accessible toilet and emergency exits. In general, Suffolk House is accessible for persons with disabilities and elderly persons. Accessible pathway, usable toilets and safety emergency exits are meticulously integrated into the property. Barrier free design principle is accurately accommodated into the conservation process.

In fact, the ancillary building equipped with lift, staircase and accessible toilet has uplifted level of accessibility to the case study generally. The additional block is wisely intact to the main building without affecting prominence of main building from main elevation. The additive block was constructed in simple block and distinguishable from the main building. It is to keep authenticity and integrity of Suffolk House.

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CHAPTER 6: ANALYSIS AND DISCUSSION

6.0 Analysis and Discussion

This chapter further elaborates cross case analyzing of the multiple case study into research problems. Previously, case study reported on outcome of access auditing and indicated access provisions being in place based on respective contexts. Departure from the research sampling units to access auditing was justified in discourse. Heritage aspects and current statutory postulate access provisions in Malaysia practice was discovered in the study. Besides, research ascertained the access core elements in heritage sites and indicated prevalent access problems in the practice.

6.1 Conservation Approach

6.1.1 Conservation Areas

Conservation effort in Penang Island has started since implementation of the urban renewal scheme of KOMTAR in 1907. Subsequently, conservation policies were established and incorporated with Penang Master Development Plan entitled the Interim Zoning Plan in 1973. It demarcated urban conservation zone for preservation of historic early settlement for the city of George Town. In 1987, the first conservation guideline entitle ‘Design Guidelines for Conservation Areas in Inner City of George Town’ was implemented and the Municipal Council of Penang Island Structure Plan 1987 was imposed in 1989. The MPPP has been duty upon to identify and list heritage buildings in Penang Island and safeguard the character of areas of special architectural or historic interest. The State Planning

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Committee functions to regulate the development and use of land in public interest. It plays an important role in safeguarding historical buildings and natural heritage in Penang Island. The guideline provides a full statement of the State Government's policy for identification and protection of heritage buildings, conservation areas and other elements of historic environment in Penang. MPPP has empowered in planning approval otherwise criminal offence to carry out any work of alteration or extension which would affects its special architectural or historic interest of the buildings or demolition without consent.

According to the guidelines, Penang Island has been designated into two zones in the conservation areas. There consist core zone and buffer zone which are areas with special architectural or historic interest that the character or appearance of which it is desirable to preserve or enhance. The prime consideration of the designation relies on the quality and interest of area rather than individual buildings. It is parallel to recognitions of Outstanding Universal Value in nomination of Penang to the UNESCO World Heritage Sites;

> *Criterion (iv): be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history.*
>
> *(State Government of Penang, 2008)*

This criterion was justified on grounds that reflect mixture of influences which has created unique architecture, culture and townscape without parallel anywhere in East and Southeast Asia. Townhouses and religious buildings make them an exceptional sample of architectural ensemble in George Town, Penang. The

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historical buildings are preserved in great numbers, forming coherent areas and self-sustain. In this research, the heritage buildings were mainly selected from core zone area including Leong San Tong Khoo Kongsi and St. George Church; likewise for the pilot case studies Cheong Fatt Tze Mansion and Han Jiang Ancestral Temple. Besides the Suffolk House which is located outside of the designated conservation areas.

"Guidelines for Conservation Areas and Heritage Building in George Town" formulates unique development themes by zones to facilitate systematic and coherent implementation of conservation efforts. Based on action plan of the area, there will be no new physical development within the core zone while development within the buffer zone is only restricted to 4-storey. Type of activities and usage of all commercial premises are guidance by the guideline yet the emphasis will generally need to be controlled and positive management of change. All development proposals are guided based on their effect to character and appearance of conservation area and they should be given full weight in planning decisions of State Committee. Principally the guideline concerns aspects affect the special interest and character of heritage buildings including;

(a) alteration and extension
(b) use
(c) height
(d) demolition
(e) profile
(f) setback, and
(g) preservation and conservations standards

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Table 6.1, continued: Heritage aspects in "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Height	The original building height is retained.	The original building height is retained.	The original building height is retained. The additional new annex block was erected in proportion to height of the original building. It is hidden behind the Suffolk House from the front view of entrance to the building.
Demolition	The original structure and building elements were retained.	The original structure and building elements were retained.	Conservation assessment and dilapidation survey was meticulously carried out before execution of site work. However, limited historical data and records, the Suffolk House was decided to be restored to the period 1812 – 1820 by SACON. Later additions and reconstruction of significant element previously were removed. Demolition works were justified with clear and convincing evidence.
Profile	The building profile is retained and reinstated to its origin.	The building profile is retained and reinstated to its origin.	The original building profile is retained; but new use has been inserted.

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Table 6.1: Heritage aspects in "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	**St. George Church**	**Suffolk House**
Conservation area	Core Zone	Core Zone	Outside of conservation areas
Building Category	Category 1	Category 1	Category 1
Alteration and extension	Leong San Tong Khoo Kongsi was preserved to structural and architectural origin. Additional removable timber ramps to all thresholds at ground level.	St. George Church was preserved to structural and architectural origin. Additional removable metal ramp was added to new side entrance for visitors with mobile disabilities.	A new annex block connecting with a steel bridge was erected next to house new services and facilities for new use particularly kitchen for restaurant, public toilets and vertical access to first floor level.
Use	Khoo Kongsi is no longer the assembly centre for clan members and is opened for public visit with admission fee. It has been converted into a museum at the ground level.	Committee of church decides to continue their services and open for public visit without admission fee. Volunteers of the committee duty in church during weekdays to assist tourists.	Suffolk house was converted from a private mansion into a public building. It caters private tour with admission fee imposed. A signature restaurant is taking place at the historic dining room and the origin front porch area. Rooms at the first floor level exhibits with historical artifacts and furniture. The first floor level hall is reconfigured to host private events.

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Looking closely into the research case study; conservation approach to heritage buildings in core zone are basically towards preservation or enhancement. Leong San Tong Khoo Kongsi and St. George Church are remained in genuine function as public oriented buildings whilst they were only accessed by their clan members respectively. The genuine space planning functions of the buildings are towards public oriented to accommodate numbers of visitors. Unlike Suffolk House, the mansion was adapted from private residence to a gallery and event avenue at first floor level, offices and restaurant at ground floor level. Eventually, extension and alteration were taken place to accommodate new facilities and services in public building. Notwithstanding all case studies were initiated to address easy access as shown in Table 6.1; reversible ramps and new lift specifically in Suffolk House.

As shown in Table 6.1; use of building, building height and building profile of case studies at conservation core zone are well preserved and retain to authenticity and integrity. The special interest and significant heritage character of the buildings were completely identified in conservation assessment before execution of conservation. Both conservation approaches generally were similar in accordance to Burra Charter (1999) and the State Government's fundamental principle – Maximum retention and minimum intervention, as stated in the guideline. In the practice, no alteration or demolition was carried out to generate new life to the case studies in line with 'Living Heritage City' concept of the guideline.

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Exception to Suffolk House among case studies in the research, the building is located outside of conservation zone. Adaptive reuse was literary adopted in conservation of Suffolk House to retain its heritage significance. Although Suffolk House is not included in the demarcated area of the guideline, it has been listed as Category I of heritage building in Penang. Thus the State Planning Committee was empowered to be responsible on it. The conservation practice was approached to principle of the guideline within allowable degree of intervention. New annex building block, modern building services and space arrangement were undertaken in the case study but not dominate to the original fabric either in scale, material and building elements.

In other words, heritage buildings in conservation area are legitimated in the "Guidelines for Conservation Areas and Heritage Building in George Town", and governed principally under aspects affecting to special interest and character of buildings as indicated in Table 6.1. It clearly elaborates each concerning aspects from the data collected in case study. Three case studies were triangulated and research found conservation approach in conservation area varies from buildings outside of conservation areas. However, the listed heritage buildings outside of conservation areas are still regulated under the guideline to ensure its settings, or view into or out of the area. They are controlled under the preservation and conservation standards as stated under the guidelines upon approval of planning permission from MPPP on admissible degree of intervention on ground of some other public interest. Withstanding heritage significance should be identified in

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conservation assessment before execution in individual case basis. While heritage buildings within conservation area are authentically preserved and retained with integrity.

6.1.2 Heritage Buildings Classification

According to the "Guidelines for Conservation Areas and Heritage Building in George Town", heritage buildings are classified based on their exceptional interest attributed to significant history symbolic to Penang. MPPP have identified 1,715 heritage buildings in the Core Area and another 1,928 heritage buildings in the Buffer Zone and all planning proposals, infill development and redevelopment;

Table 6.2: Numbers of heritage property in George Town

No	Type	Core Zone	Buffer Zone	Total
1	Category I	57	14	**71**
2	Category II	1658	1914	**3572**
3	Infill development	301	206	**507**
4	Replacement	262	237	**499**
	Total	**2278**	**2371**	**4649**

Source : Application Dossier for Registration of Historic Cities of the Straits of Melaka and George Town, 2007

The category 1 heritage buildings are; (a) buildings of exceptional interest and (b) buildings and monuments declared an ancient and gazetted under the Antiquities Act 1976. Likewise the selected case studies in this research are Leong San Tong Khoo Kongsi, St. Geroge Church and Suffolk House. Apart from that, the St. George Church also has been listed in National Treasured of Malaysia and been gazetted as national monuments under National Heritage Act 2005. It was

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protected under the Department of Museum and Antiquities, the Ministry of Culture, Art and Tourism.

Based on the guideline, the case studies are listed as heritage buildings in accordance to the general criteria as summarized from case study in Table 6.3. It is essential in assurance to retain their authenticity and restores with appropriate treatments in design, materials, methodologies, technologies and workmanship. According to the guideline, incentives are given upon fulfillment of the standard. Nevertheless, standard guideline is not applicable to all heritage buildings due to each heritage buildings have their own unique distinctive tangible and intangible heritage value. Conservation approach are varies to their unique architectural and historical background as listed in Table 6.3. Restoration are planned based on their approach and principle on the identified significance of each case after a complete conservation process with meticulous testing and dilapidation survey on the building.

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Table 6.3: General criteria of each case study in "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Historic Interest	Leong San Tong is the temple for Khoo family and houses their ancestral hall. It mainly serves as a temple for their deity and ancestral worship rituals.	St. George Church is the oldest Anglican Church in the Southeast Asia. The church was built according to the plans obtained by Governor William Petrie from Madras with modification by a Bengal engineer Captain Robert N. Smith, who painted early views of Penang.	Suffolk House has been recognized as one of the Penang's most important colonial heritage landmark. It has been an important remnant of Penang's history over past two centuries and reminder of the British colonial era in Malaysia. In 1818, it was the house Sir Stamford Raffles came and discussed on establishing British port east of Malacca which later turned out to be Singapore.
Architectural interest	Leong San Tong is a colonial hybrid building. It is integration of an early Anglo-Malay bungalow with front porch based on the Malay stilt houses during the colonial era with the style of temple in Southern Fujian with a prayer pavilion.	The church was designed in the Georgian Palladian Style which is combination of the Georgian style, named after the reigns of King George I and IV, 1714-1830; and the Palladian style, named after the Grecian architecture of a Roman called Palladius.	Suffolk House has been the prime example of Anglo-Indian Bungalow which style was first developed in India in the 17th and 18th centuries and in other part of South-East Asia in the mid 19th and 20th centuries. Suffolk House demonstrated fusion between British Palladian Revival during Georgian and Regency periods in equatorial region.

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Table 6.3, continued: General criteria of each case study in "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Close historical associations	The temple is believed as the centre heart of Khoo Kongsi which is one of the most distinctive Chinese clan associations in Malaysia.	The first significant event taken place in the church after completion was the marriage of Janet Bannerman, daughter of Governor Bannerman, to William Edward Philips in 1818. In 1885, Mahogany trees were planted around the church compound and followed by erection of the Francis Light Memorial in 1886 to commemorate founding of Penang by Sir Francis Light.	It is a house standing on the estate which was originally owned by Captain Francis, founder of Penang British Settlement in 1790. The origin of Suffolk House is still the subject of debating and under-researching; whether it was built by Captain Francis Light, the originally owner of the estate, in early 1790 or did the subsequent governor, William Edward Philips, built in 1809.
Townscape value	The association developed the area with configuration of 62 units of terrace houses and shophouses to demarcate their territories by four sided perimeter enclosing the central courtyard where their clanhouse majestically sits on the granite square.	-	-

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Table 6.3, continued: General criteria of each case study in "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Townscape value	The Khoo Clansmen settlement was developed in referring to Chinese spatial concepts as what has been planned until today.		-
Group value	It was surrounded by clusters 19th century terrace houses and shophouses.		-
Age and rarity	It is well known with its magnificence architecture value and extensive lineage that can be traced back to 650 years	The church was completed in 1816 when Colonel John Alexander Bannerman's term as British Governor of Penang. St. George Church is the oldest Anglican Church in the Southeast Asia.	Record showed the house was just a simple thatch-roof adobe unlikely the present elegant mansion appearance as drawn in painting of early Penang. It might be come after when the estate was sold to William Edward Philips in 1805, who married the daughter of John Alexander Bannerman.

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Table 6.3, continued: General criteria of each case study in "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	**St. George Church**	**Suffolk House**
Physical features	The temple was featured with timber craving, shardwork, mural painting and Chinese architecture. The Prayer Pavilion, main hall and rear verandah are laid out in terraced perspective in different levels. It reflects the Chinese Feng Shui principles as well as Chinese propriety of '*bu bu ao sheng*' (step by step one prospers). It also marks hierarchy of spaces where the main hall is standing stately and magnificent.	The most significant feature is the huge Roman Doric columns lined below the pediment at the portico and also inside of the church. They are fine and unique erected with chunam (quicklime) finished. The church was architecturally built in proportion and order. It portrayed the beauty principle of Palladian style. It was originally constructed in with flat terraced roofs including its portico. In 1864, Indian V shaped tiles pitched roof was replaced to the nave due to leakage. After World War II, all flat roof particularly above apse, aisle and portico were replaced to pitched roof finished with the Marseilles tiles and remains until today.	Suffolk House was built in its characters with high ceilings, neo-classical ornamentation and white stucco on walls. It was masonry construction on ground floor with mostly timber flooring at upper floor level.

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6.1.3 Recognitions and Awards

The selected heritage buildings are awarded conservation projects from local like Malaysian Institute of Architects Award and region recognitions especially UNESCO Asia Pacific Heritage Awards as listed in Table 6.4. They are exemplary projects demonstrating best practices conform to conservation principles and local authority requirements. Awarded heritage sites are mostly appropriately adapted their unique distinctive heritage value to current use and well interpreted both conservation guidelines and local standards by the stakeholders especially professionals and managing officer or owners of the properties. As mentioned in earlier chapter, UNESCO Asia Pacific Heritage Awards are guided under 'First Principle' and refers to international charters and recommendations. The awarded projects grounded comprehensive conservation system from understanding its heritage value to adapt into current practice. In fact, the projects not only exemplify technical excellent but essentially make significance impact by contributing to local cultural and historical continuum.

Table 6.4: Receiving awards and recognition of case studies

Case Study	Award / Recognition
Leong San Tong Khoo Kongsi	2000: Malaysian Institute of Architects Award for Conservation
St. George Church	2007: National Treasure of Malaysia
Suffolk House	2008: UNESCO Asia Pacific Heritage Awards 'Awards of Distinction'

Conservation approaches of case studies rehabilitate physical buildings and revive its former majesty to generations. New use, adaptation and rehabilitation in conservation well portray its heritage significance to community, especially

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converting into a tourist spot. Thus commercial value has been inserted into all case studies at the same time achieve conservation objectives as stated in the guideline, especially optimize and revitalize the use of heritage resources and assets for future generations in relation to economy growth, social cultural and education.

Table 6.5: Comments on initiative to inclusion accessibility needs for PwDs

Case study	Comments
Leong San Tong Khoo Kongsi	▪ Since admission fees apply, the management dedicates to cater services for all including PWDs and elderly visitors. As such, accessible toilet and ramps are provided at the museum.
St. George Church	▪ Church service still takes place in the church every Sundays, and has been opened to public without admission fee. ▪ There are groups of devotee with disabilities for example visual disability and wheelchair users come for the church service occasionally. ▪ Management aware of the users' need, as such reversible metal ramp and accessible car parking are provided.
Suffolk House	▪ Admission fee and private tour is provided in Suffolk House upon appointment with the management. It caters complete tour service with a complimentary of drink at their signature restaurant. ▪ The consultant team and management awared the importance of inclusion PWDs since it has been adapted into a public building. Thus ancillary block with accessible toilet and lift are provided. ▪ The team was consulted from access experts and users to assess the provision in place to ensure its practicality.

As show in Table 6.5 reflects intension in making heritage sites accessible were initiated at primary stage of the restoration. As commented in the interview; Leong San Tong Khoo Kongsi and Suffolk House mainly due to commission of admission fee, basic services needs of visitors should be well taken care. Besides,

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there are visitors with disabilities often joining the Sunday Church Service in St. George Church. Based on interviews with respective managing officers of case studies; frequency of visiting by tourist with disabilities are relatively low. However, they still initiated the idea to include them in their facility and service provisions. Understanding from interview with management of each case, consultant team especially architects, conservationists and management team initiated the approach of barrier-free and inclusion in their heritage property. It was mainly due to public usage and their obligation to contribution. Managing team is eligibly oblige to cater services and facilities for all including PwDs without discrimination. Heritage management is required at all times and encompasses both resource conservation as well as visitor support services. It should be based on the principles of combining the satisfaction of both users and clients, as well as ensuring the quality of the visitors' experience (Ahmad, 2008). At this point, accessibility needs for all including PwDs should be taken place to include all in barrier free tourism approach.

Not only it was approached by the stakeholders, conservation principle due to gazetted zoning indirectly oriented pragmatic consensus. It affects appropriate use of the heritage buildings whilst social interests are well accommodated to achieve quality conservation approach. In fact, appropriate use undertakes methods of alteration and modification to the site without diminishing its heritage significance. Authenticity and integrity were underlined in the aspect to succeed a heritage conservation work adherence to the international charters and conventions

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developed for conservation of cultural heritage. In such, awarded case study well delineated balancing the requirements with those of other cultural communities and obligation upon fundamental cultural values.

6.2 Heritage Significance

George Town is living testimony to multi-cultural heritage and tradition of Asia. Early architecture of the island developed from amalgamation of cultural values, ideas, traditions, and memories of the immigrant and indigenous builders adapted to availability of materials, transport and needs to live comfortably in a tropical climate. Clanhouses, religious buildings, bungalows and mansions are major components creating urban pattern to form neighborhoods or quarters in George Town.

Each building type has its own characteristics and architecture style contributing to its heritage significance. Martin (1999) explained the significance of a place can lie on its construction materials, its style, principal elevations, major architectural or landscape features or principal public spaces. The building type orientates the setting and layout suite to activities and building use. Building compositions, orientation, building materials, arrangement of windows and doors to ornamentations are usually related to its rooted origins and later subsequent functions. Although materials and fashions influenced and building style changed, their building form still remained a reflection of its former use.

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Based on case study selection, there were three types of architecture buildings in Penang chosen for this study. Significant heritage of each case study differs from their architecture styles and building types. It reflects evolvement of cultural elements from elsewhere in Malay Archipelago and from India and China with those of European to create unique architecture, culture and townscape without parallel anywhere in the East and Southeast Asia as shown in Table 6.6.

Table 6.6: Case studies architecture style

Case Study	Building Type	Architecture Style
Leong San Tong Khoo Kongsi	Chinese Kongsi House	Ching Dynasty Baroque Style & Straits
St. George Church	Religious Building	Neo-Classical
Suffolk House	Bungalow	Anglo-Indian

1. Leong San Tong Khoo Kongsi

Chinese Kongsi House has no standard form until the style found in their respective homeland and with adjustment to local context. Function of the Kongsi house varies from each clan family but the spaces needed are similar such as meeting hall for events and activities for members, and prayer hall for their ancestors' altar. Clanhouse formed a special type of settlement where their kongsi temple was usually set within an open space surrounded by shophouses belonging to the same clan. The setting acted as a screen of privacy for their society to assemble or hold meeting obscured to police and others in the early days. The network of narrow alley ways and a legacy of the 19th century are reminiscent of the founding secret society of the olden days. This urban geography of clan temples and houses is a unique historical feature of settlement in Penang.

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Out of five clans of major surname in George Town, Khoo Kongsi erected a typical clan village transplanted from southern Fujian. It is an urbanized mono-surname village brought over from China and adapted to colonial town shape. Especially Leong San Tong Temple or clan house of Khoo Kongsi showed a certain degree of integration with local context. The double storey Leong San Tong clan house is synthesis of an Anglo-Indo-Malay bungalow and a Ming Non temple with the prayer pavilion attached to the main hall adapted from the central porch typical of an Anglo-Indian Bungalow. The temple adopted local Malay house with main halls on stilts with a front porch as prayer pavilion and granite stairway, as shown in Figure 5.9. Kitchen and services were located at the basement which has been converted into museum gallery.

2. St. George Church

St. George Church is the oldest Anglican Church in the Southeast Asia. The church was designed in combination of Georgian and Palladian style and was classified as one of Neo-Classical style built in 19th and early 20th century. The style was derived from British engineers and architects who were sent over to Georgetown to serve the colony during the 19th century. The architectural vocabulary was seen to be the language of authority, power and privilege which is why the style is frequently encountered in colonial institutional or administrative buildings; yet it was interpreted also into St. George Church. At the same time, St. George Church was influenced by Anglo-Indian Architecture through colonial British with East Indian Company which brought influences practical to their

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tropical experiences. It was typified by high ceiling, large porch and painted in pastel or white finishing on exterior and interior walls that can be seen in the colonial government buildings and bungalows for European masters in all major cities, similarly to this church. Besides, Palladian system of neo-Greek columns, pediments and fenestration, neo-Roman arches and domes and Renaissance parapets, staircases and balconies were comprehended in most non-tropical forms. The church was elevated with steps at the front porch from ground level to building proportion principle of traditional church architecture.

3. Suffolk House

Another significant type of mansion is the Anglo-Indian style bungalow which was first developed in India in the 17th and 18th centuries and in other part of South-East Asia in the mid 19th and 20th centuries. It adapted colonial architectural into local context where Palladian architecture was introduced into vernacular architecture. Suffolk House is the exemplary bungalow in Anglo-Indian style in Penang. It has high ceilings, neo-classical ornamentation and white stucco on walls. Suffolk House was masonry construction on ground floor with mostly timber flooring at upper floor level. A typical porch was projecting at the central bay to provide both required emphasis on entrance and shelter for pedestrians. Tall main doors at the entrance below the porte-cohere was leading to central hall which was flanked by rooms on either sides. The front and rear portions of the building open full width of space allowing ventilation to the hall and providing an area to one side of the front door for timber stairs. In fact the arrangement was contrary to

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geomancy principle. Timber staircase connected to colonnade terrace surrounding the first floor level which was opened out to well ventilate the rooms. The restoration project altered the building orientation whereby rear hall of Suffolk House was converted to main lobby hall. The front porch area has been converted into restaurant, to capture panorama view of the Air Item river bank.

Chapter 5 clearly deliberates the characteristics and appearances of the building are given full weight in conservation work of each case study. Tangible and intangible heritage values were well taken care in these conservation awarded projects. They successfully authenticate distinctive heritage significance of the buildings to current use as discussed in previous section. Indeed, conservation assessment was undertaken by the practitioners at initial stage to understand the heritage significance constitutes to relative architecture style and characteristic. Once their identical elements are fully researched and meticulously restored, authenticity and integrity is not an issue in conservation practice. Whereas Martin (1999) and Foster (1997) agreed with English Heritage (2004), conservation assessment or conservation plan is critical to complementary part in access planning process to heritage sites.

In accordance to the Guideline for Conservation Works on Listed Heritage Buildings, there are several key elements contribute to special interest accentuated in the guideline. Table 6.7 indicates the identified significant elements of each case study referring to the case study reports in Chapter 5.

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Table 6.7: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	**St. George Church**	**Suffolk House**
		External	
Roofs	It consists of gable roof on both ends and tri-sectional roof ridge with elaborate 'jian nian' decoration and swallow-tailed ridge end. The roof is structured in form of *xie shan* (half-pitched, half gable roof) where the main ridge is divided into three sections and tips of each sections are decorated with turn-up swallow-tailed motifs. The tri-sectional roof ridge marks three sections of main hall on upper floors where Cheng Soon Keong at the central hall, Hock Teik Soo to its left and Ee Kok Tong to its right. Oriental traditional expose timber roof trust system with cravings.	It was originally constructed in with flat terraced roofs including its portico. In 1864, a pitched roof was replaced to the nave due to leakage. Indian V shaped tiles were used for pitched roof before they were then replaced with Marseilles tiles in 1907 until today. After World War II, all flat roof particularly above apse, aisle and portico were replaced to pitched roof finished with the Marseilles tiles and remains until today. It has high ceiling with big opening and is claimed to adapt humid and warm climate.	Roof parapets were lower down in restoration to accommodate terracotta tile pitch roof.

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Table 6.7, continued: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
External			
Forecourt	The clanhouses and temple sit on an open courtyard (Cannon Square) facing to west-northwest and enclosed by clusters 19th century terrace houses and shophouses. The shophouses and terrace houses demarcate their territories by four sided perimeter enclosing central courtyard where clanhouse majestically sits on the granite square.	The open compound with Mahogany trees and a memorial of Sir Francis Light in front of entrance has been designated as historical sites besides St. George Church.	
Front & Side Facades	Leong San Tong is a colonial hybrid building. It is integration of an early Anglo-Malay bungalow with front porch based on Malay stilt houses during colonial era with the style of temple in Southern Fujian with a prayer pavilion.	The church was designed in Georgian Palladian Style which is combination of Georgian style. The Roman Doric columns and framed with entablature and pediment at all entrance porches. They are fine and unique erected with chunam finished, and polished with soapstone and calico.	Suffolk House is one of the purest exhibits of Anglo-India Garden House in Penang, outside of India. It is a detached double storey building with grand proportions, set in an open ground with greenery along Air Item river bank and imitate the Garden Horses of Madras.

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Table 6.7, continued: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
External			
Front & Side Facades	The uplifted ground floor which housing main hall has been the most noticeable feature of the temple until today. (Figure 5.3)	Series of shutters windows and doors at side elevations.	The bungalow has typical projecting central bay and porch which are facing to the river. The porte-cochere projecting from central bay is believed to provide both required emphasis and shelter for pedestrians and further roofed ventilated space above. Windows were added to replace open colonnade at ground floor level in restoration.
Five footway and verandah way	Three halls at first level share a common verandah at front and rear section. The front verandah is connected to the prayer pavilion with a grand staircase which apparently adapted from the semi-open stairway of a local stilt house.	-	Colonnade terrace surrounding first floor level was opened out to well ventilate the rooms.

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Table 6.7, continued: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
External			
Five footway and verandah way	In rear verandah, there is a staircase connecting to basement level from main hall.	-	
Internal			
Floors	The Prayer Pavilion, main hall and rear verandah are laid out in terraced perspective in different levels. It reflects the Chinese Feng Shui principles as well as Chinese propriety of '*bu bu ao sheng*' (step by step one prospers). On the hands, it marks hierarchy of the spaces where main hall is standing stately and magnificent. (Figure 5.6)	The building is elevated by four steps from ground level at main entrance approaching to praying hall. There are another four entrances access to the rooms situated at four corners of church where are not public access allowed. It is a two storey floor level over entrance foyer and double volume height nave of the church. Praying hall (nave), aisles, altar, vestry, instrument room, switch room and children's rest room are sited on ground level; while utility room, filing room and balcony are located at upper level.	

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Table 6.7, continued: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Internal			
Walls	There are stucco sculptures, wood and stone carving, cut-and-paste porcelain shardwork and mural colour paintings feature in the temple. Those are precious detail handcraft and art which enriches grandeur of Leong San Tong Temple	There are decorative elements on interior wall like lime plaster swag, rose and garland motifs above the wall and portico.	
Staircase	The prayer pavilion is elevated terrace 1.2m above ground floor occupying front porch of Leong San Tong building. There are four sided staircases leading to the pavilion and the 'Stone of the Royal Way' protruding at front of terrace accentuating sense of grandeur to entrance of the clanhouse. The prayer pavilion and main hall are connected by a stone staircase which adapted semi-open stairway of local stilt house.	Four granite steps at the main entrance leading to hall. (Figure 5.23)	Timber staircase with timber balustrades leading to first floor level was restored from original.

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Table 6.7, continued: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Internal			
Exterior and interior finishes	Granite flooring at open courtyard. The modern flooring at Prayer Pavilion and front verandah which were installed in 1985 restoration; was replaced with traditional terrace cotta tiles from China in recent restoration. Acrylic paint finished on underside of the timber flooring at uplifted ground floor was sandpapered to repaint in traditional material.	-	-

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Table 6.7, continued: Heritage significance key elements of case study based on "Guidelines for Conservation Areas and Heritage Building in George Town"

	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Internal			
Others	Wrought iron fencing of flora motif at main hall verandah which is custom made from England, is the most significance evidence The two statues of turbaned watchmen at Prayer Pavilion demonstrate eclecticism of society and an epoch when Leong San Tong Khoo Kongsi was established.	Two rows of Roman Doric columns are lined up along nave of the church and bowing at column shafts. A monument was affected to commemorate Sir Francis Light in 1886. It sits facing to front porch of St. George Church in 1886. There was a clock placed at each face to north, south, east and west at spire of bell tower. In late 1880's the clocks and their hoods were removed except the clock facing to north was remained at spire. Unfortunately, it was destroyed during the World War II and removed leaving the clock face blank and empty.	

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6.3 Accessible Problems in Heritage Buildings

Heritage buildings were chosen as case studies which are apparent accessibility problems. Each case responded to the needs in respect to their interpretation and rooted context respectively especially building use, settings and layout. Due to each heritage buildings vary with their unique historical and cultural significance as mentioned in previous chapters.

To look more closely, the common access problems occur in key elements of heritage significance in conserved buildings. In reference to the 'Guidelines for Conservation Areas and Heritage Building in George Town', access auditing generalized the key access problem in Table 6.8.

In fact, no case completely accessible for PwDs was encountered in the study. Among the cases, Suffolk House has performed a good initiative and example in accommodating accessibility needs in heritage conservation approach. Indeed, all access provisions are mainly located at the new ancillary building block especially the newly built accessible toilet is usable and easily approached by public. In most cases, connectivity or sequence of journey in the case study was not well defined and clear to users. Accessibility features are likely ad hoc in later addition without proper planning at initial stage.

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Table 6.8: Key problems occur in core element of accessible provision in heritage sites

Key elements	Case study	Key Problems
Pre-visit Information	▪ Leong San Tong Khoo Kongsi	▪ The provided website was not developed in compliance to Web Accessibility Standard to include users with disabilities.
Accessible Parking	▪ Leong San Tong Khoo Kongsi ▪ Suffolk House	▪ No parking lot is available within the boundary of case studies. ▪ Visitors with disabilities always need to ask for permission from on duty security guard to be dropped off in front the entrance. ▪ Visitors have to find the public car parking and travel along the main traffic road to reach building.
Approach & entry	▪ Leong San Tong Khoo Kongsi ▪ St. George Church ▪ Suffolk House	▪ No demarcated covered footpath and tactile guiding block leads to main entrance from front gate. ▪ Ground cover material especially loose gravel aggregates, fair face brick is not suitable for wheelchair users. ▪ Passengers loading zone is not clearly located in front of entrance or alternative accessible entrance. ▪ Passage way is exposed to weather or not roofing.
Entrance	▪ Leong San Tong Khoo Kongsi	▪ Timber thresholds at doorway especially at Chinese temple block wheelchair users' access. ▪ Entrance terrace and foyers of heritage buildings are elevated with steps and staircases. No alternative accessible entrance is provided in any case study.
Lift & Staircase	▪ Suffolk House ▪ Leong San Tong Khoo Kongsi	▪ No lift is provided for double storey heritage buildings – Khoo Kongsi and Cheong Fatt Tze Mansion, except Suffolk House. ▪ Conserved staircases are the only access connects to upper levels and it is not accessible for users.

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Table 6.8, continued: Key problems occur in core element of accessible provision in heritage sites

Key elements	Case study	Key Problems
Accessible Toilet	▪ Leong San Tong Khoo Kongsi ▪ Suffolk House	▪ No accessible toilet is found in these two case studies. ▪ Accessible fittings especially foldable grab rails and sanitary ware are not compliance to standards.
Emergency Access	▪ Suffolk House	▪ No emergency evacuation plan is developed in all case studies.
Ramp	▪ Leong San Tong Khoo Kongsi ▪ Suffolk House ▪ St. George Church	▪ Ramps are constructed with not suitable material especially timber decking. It is slippery and uneven finished surface. ▪ Ramps are designed not compliance to standard measurements especially gradient and clearance width.
Accessible Path	▪ Leong San Tong Khoo Kongsi ▪ Suffolk House	▪ No sequence of journey or access route is mapped out in any case to indicate access provisions being in place. Connectivity of the services is weak still some provisions are not reachable independently by users.

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6.3.1 Pre-visit Information

Most cases have not developed their own website; likely accessible website is yet taken consciousness. Although rights of accessibility to Information and Communication Technology (ICT) including the internet and Web has been advocated in disability conventions and recommendations. Web Accessibility Standard should be undertaken to ensure equal participation and accessibility for all. At the same time, information about accessibility provisions within the site is important for visitors for preparation and their arrangement. Despite Leong San Tong Khoo Kongsi, St. George Church and Suffolk House develop their web page, accessibility features and information are not well stated.

6.3.2 Accessible Parking

Not all historical buildings were built with a compound except St. George Church. In spite of Kongsi buildings nested within an open courtyard and surrounded by clanhouses to hide from main road access, heritage sites are limited with open space to allocate accessible parking for vehicle. The open courtyard is connected with small narrow alley between clanhouses. Secondly, the listed heritage buildings are usually special building with low density historical areas. Public parking area is not frequently acquired in restoration project and current statutory requirements; unless the managing committee and consultants suggests.

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Figure 6.1 A : Open courtyard of Khoo Kongsi

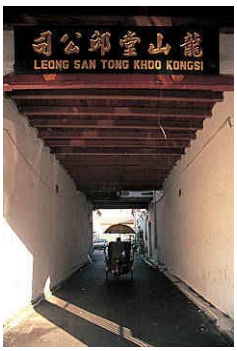

Figure 6.1 B : Narrow alley of Khoo Kongsi

6.3.3 Approach and Entry

The case studies were well restored in referring to the conservation guidelines, external floor finishes are retained to original material.

Key Elements	***Design / Location***	***Material***
External *4.1 Floors*	*Original floors shall be restored. If repair or replacement is necessary, finished used shall be of material close to original in terms of colour and texture.* *Existing granite slab edging shall be retained and exposed without covering up by other materials.*	*Traditional finishes of cement screed, coloured cement with gridded rope indentation, terracotta tiles, mosaic complete with granite slab edging are recommended. Finishes of high polished gloss ceramic tiles are not allowed.*

(Municipal Council of Penang Island, 1989)

However access auditing encountered access problem in pathway finishing and exposed to weather in the case studies. Traditional finishes and material use of footpath in case studies were restored with original finishes for example granite slab pavements at Khoo Kongsi and Suffolk House. Uneven and improper sealed joint gaps of pavement trap wheelchair wheels and trip off visitors with clutches. Gravel and loose pebbles are laid on the roadway surface instead construct

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reinforced concrete with finishes at St. George Church and without designated footpath. It is to keep the landscape and surrounding environment intact and reversible material for future restoration work.

Figure 6.2 A : Granite pavement at Suffolk House

Figure 6.2 B : Driveway to St. George Church

All access pathway approaching to main entrance from gateway are not covered with roofing, expose to weather. According to the guideline, new roof or skylight light is not allowed for building Category I as stated in the guideline. In such, covered footpath is not recommended in Category I heritage buildings; but Category II buildings could be considered with conditions. Research identified the skylight at Suffolk House is well designed at the service yard between Suffolk House and new ancillary block. The skylight was deigned in compliance to the guideline.

Figure 6.3: Skylight at service yard between Suffolk House and new ancillary block

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Key Elements	*Design / Location*	*Material*
External		
1.0 Roof		
1.4 Sky Light	*New skylight is not allowed*	-
	<u>Category II</u> – new skylight may be allowed subject to location, building use & total area of skylight.	*Transparent material on framework of timber or metal (painted or colour coated) is preferable.*
	Position of skylight shall be located on the rear slope of main roof or on secondary roof. Total area of skylight shall not exceed 30% of the subject slope of roof.	
	<u>Extension</u> – skylight is allowed but subject to condition of positioning & total area involved.	*Transparent material on framework of timber or metal (painted or colour coated) is preferable.*

(Municipal Council of Penang Island, 1989)

6.3.4 Entrance

Research found out most of heritage buildings are elevated with stairs from ground level and threshold at the doorway. Intention was not only due to avoid rising damp from ground and also old buildings were acclimated to principle of proportion in architecture. Especially religious buildings like church and temple were literally constructed base on the principle and reflected composition of its elevation to scale and structural engineering.

Thresholds are usually found at doorway of old buildings especially main entrance of Chinese temple. It was placed as door sill with a horizontal piece of wood or stone. It forms the lowest members of doorframe or supporting structure in old

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construction. At the same time, door sill can prevent insects or water splashing into the rooms. According to Oriental architecture, threshold at the main entrance is higher compared to internal doorway. Literally it reminds visitors to lower their forehead and keep their pace gentle before entering to the building especially Chinese temple. In a way, threshold symbolizes tranquility and respectful in belief. So, threshold is one of the important significant elements of heritage sites; still it gives barrier to visitors with mobile disabilities.

Figure 6.4 A : Granite steps at entrance to St. George Church

Figure 6.4 B : Granite threshold at one of the entrances at Khoo Kongsi

6.3.5 Lift and Staircase

In Category I heritage site, lift installation is impossible due to stability structure of building, cost implication and authenticity of heritage significance. In fact, Suffolk House is the good example in building annex block with lift to reach first floor level. The annex block connects to the fabric with steel structure which is reversible and minor construction acquired.

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Figure 6.5 A : Ancillary block is connected with metal bridge at first block to Suffolk House

Figure 6.5 B: New lift is provided inside the ancillary block of Suffolk House

Key Elements	***Design / Location***	***Material***
External		
14.0 Mechanical & Electrical Systems		
14.5 Lift	*Installation of lift is allowed for extension / annexed building. The lift shaft shall not protrude from the front slope of the roof of new building.*	-

(Municipal Council of Penang Island, 1989)

Staircase is recognized as one of significant heritage elements in historical buildings. It reflects the construction method and material in its history and contributes aesthetic appreciation in the building. However, granite staircase at Khoo Kongsi is slippery in wet condition and the timber staircase at Suffolk House is too steep. There is no warning tactile being place at the staircase. Based on the guidelines, no alteration or modification to staircase is allowed although it confront with current practice.

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Figure 6.6 A : Conserved timber staircase at Suffolk House

Figure 6.6 B : Granite staircase at Khoo Kongsi

However, the guidance allows providing new external staircase at rear court. As long it keeps proportion of original proportion and staircase can be reversible.

Key Elements	***Design / Location***	***Material***
External ***Rear Court*** *10.0 External Staircase*	*Existing external staircase, if any can be retained or removed. New external staircase is allowed.*	*Any material is allowed. If metal is used, it shall be anodized or coloured coated.*
Internal *10.0 Staircase*	*Original staircase positioning & design with fine craftsmanship shall be retained & restored*	

(Municipal Council of Penang Island, 1989)

6.3.6 Accessible toilet and Accessible Bath

Conservation guideline never mentioned in regards to additional toilet within heritage building. In fact, it requires major alteration to existing toilet or to additional new toilet within heritage building. Case studies found the existing toilets are usually narrow space and improper planned sanitary wares. For example,

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water closet and basin are yet commonly installed in old days, not even universal design fittings.

Nevertheless, the new constructed toilet still not completely complies with the standards. This might consequent to discrete interpretation of existing guidance and lack of advice from resource person like persons with disabilities and access consultants. According to conservationists of Suffolk House, Gwenn Jenkin in interview; she claimed the consultant team engaged resource person to audit the new accessible toilet. It proves that resource person is important to ensure usability of the toilet. Besides, access auditing should be carried out to evaluate the accessibility.

Figure 6.7 A : New accessible toilet at Suffolk House

Figure 6.7 B : New accessible toilet at Khoo Kongsi

6.3.7 Emergency Access

Emergency access is important for public buildings especially tourist spots. As stated under the code of practice MS 1183:Part 8:1990: the design of escape routes and organization of management procedures are particularly critical in these classes of buildings (entertainment and cultural use buildings) because the users

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are likely to be unfamiliar with the surroundings and population densities in term of the numbers of person per unit are very high. However, old buildings were constructed before fire precautions consciousness aware. Seemingly designers, conservationist and architects neglected fire procedures and not taking seriously on alternative way out in planning and management system.

In fact the code of practice leave a lee way for heritage buildings that such restriction are unnecessary. It provides guidance for management to apply philosophy of the code to existing buildings wherever possible. Access auditing encountered most heritage buildings are single storey building with direct access to open space or outdoor. Thus, fire access route should be easily identified and develop the fire evacuation plan. Designer may provide some or indeed many locations for disabled persons to be integrated with the assembly as whole from whence they may be evacuated without disrupting the generous exodus. On top of this, fire procedures should be pre-planned by management clearly marked out access route or evacuation route with signage would solve the problem.

6.3.8 Ramp

In most cases, timber ramp is preferable by conservationist, designers and architects in heritage site. Certainly timber ramp is reversible and cost effective compared to cast-in-situ concrete ramp, taking example the new concrete ramp to the accessible toilet at Khoo Kongsi. Suffolk House and Khoo Kongsi are good examples how the timber ramp was accommodated to changing level and threshold

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at main entrance. It could be designed as landscape element adapt into heritage fabric without undue burden to the structure. Besides, metal ramp is another alternative to be structured as accessible ramp to heritage sites. It can easily differentiate from the original fabric; mark another layer of history to the sites.

Figure 6.8 A, B: Timber ramp at entrance to Suffolk House and Khoo Kongsi

Indeed, metal ramp unlikely dominate over authenticity and integrity in the conservation. It is parallel to the "Guidelines for Conservation Areas and Heritage Building in George Town" states modern extension should not dominate the existing building in scale, material or situation. There will always be some heritage buildings where any extension would be damaging and should not be permitted. The guideline stresses importance of judgment to assess the new elements that make up special interest of the building in question. The St. George Church shows an exceptional sample new metal ramp is well addressed accessible needs of visitors without effect its heritage value.

Nevertheless, research revealed breach of interpretation in some context although ramps are provided for easy access. Gradient and handrail design of ramp are the common problems identified in cases. Ramp gradient with 1:12 or smaller is too

steep for wheelchair users to access by themselves independently. For example metal ramp at the alternative accessible entrance of St. George Church was constructed at 1:6 which is too steep and wheelchair users still need assistant. Similarly portable metal ramps are not stably secured to floor at doorways of Khoo Kongsi museum. The ramps were placed without appropriate fixing to ease thresholds at doorways adversely creates hazard to PwDs especially wheelchair users and visitors with visual disability. Secondly, timber ramp is not suitable for external ramp due to it is slippery in wet condition if improper staining finished. Timber is natural material which easily weathered over the time and acquires periodical maintenance. In addition, skillful construction method is needed to ensure accessible and sustainable.

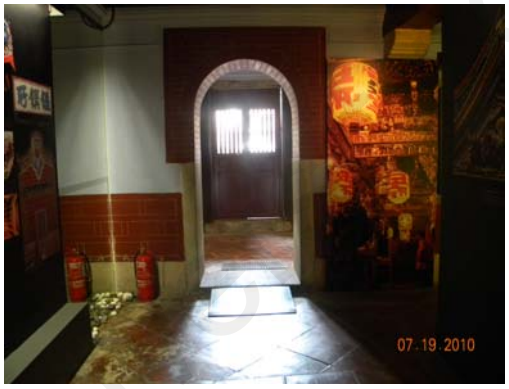

Figure 6.9 A: Metal ramp at door way thresholds at Khoo Kongsi

Figure 6.9 B: Metal ramp at alternative entrance at St. George Church

6.3.9 Accessible Path

Access auditing found accessible path was unlikely mapped out at the restoration stage when accessible provisions were being planned in the case studies. Research identified sequence journey of access provisions are weak in most cases. The situation reflected understanding and coordination of stakeholders during the

initial planning stage was vague. Seemingly the access provisions are apparent ad hoc without proper planning, still standards of the provisions deviate from guidelines and code of practices. Apparently, conservation approach is predominant than accessibility in the case studies.

According to MS 1184:2014, building having less than 280sqmeter of floor area per level need not be required to provide vertical access for PwDs provided ground floor is made accessible. The statement clearly claims not entire buildings are necessarily accessible considering ground floor is accessible. In a way, access route or access path at ground floor may orderly map out along sequence journey of the provisions. Whereas all accessible features and services ought to be interconnected particularly at critical points for example entrance to service counter, lobby to accessible toilet and accessible parking area. In fact, the St. George Church has proper laid out the access route, from access parking lot connecting to alternative accessible entrance with metal ramp and leading to the seating area for wheelchair users. On the other hand, Suffolk House provides a comprehensive access path. Timber ramp connects to entrance lobby and adjoins to fair face brick pavement leading toward the open foyer between original fabric and the additional ancillary building block. The foyer was covered with skylight and functions as interval space to the restaurant and the ancillary block. Accessible facilities like accessible toilet, lifts and fire staircase are located at the ancillary block which was linked with a metal bridge. The ancillary block was wisely constructed to make the Suffolk House fully accessible.

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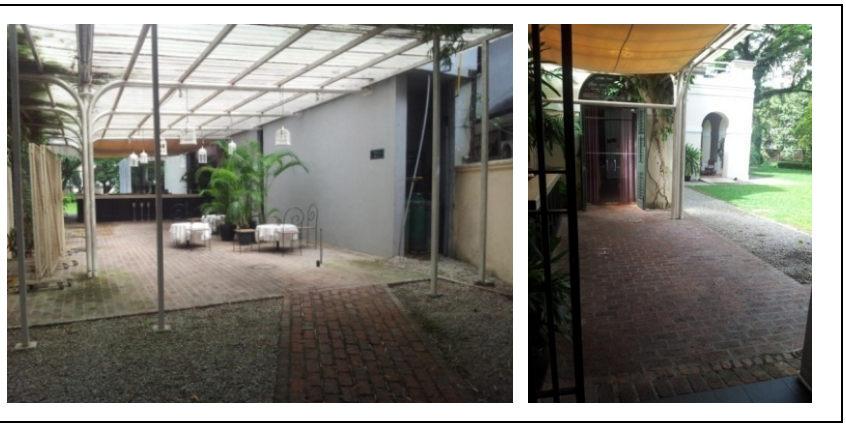

Figure 6.10 A,B: Open yard between ancillary block with original fabric is covered with skylight

Barely heritage site completely altered or modified conform to accessibility needs. It is consequent to heritage significance and initiative of stakeholders in the practice as shown in the study. Perhaps accessibility needs for PwDs is still newly introduced to heritage conservation in Malaysia. Code of practices and standards are undergone researches especially adoption of the guidelines into conservation approach. Access route or accessible path has never mentioned in the current guidelines whilst the guidelines provide a basic principle for barrier free environment. Reviewing to literature study and preliminary study in the research, access planning process is still absent in conservation practice even for new building approval system.

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6.4 Accessible Core Elements

Provision of easy access was assessed based on the tested research protocol in pilot study and research methodology. The assessment tools which were conducted in filed work consisting the existing Access Audit Form for Existing Building (Appendix A) and the supporting inventory Access Audit Checklist for Heritage (Appendix B). The Access Audit Form for Existing Building is a comprehensive checklist for new and existing buildings. The checklist completes with magnitude measurements in determining appropriateness of the access provisions. It analyzes quality and provisions precisely based on local guidelines together with decisive standards from developed countries.

Besides, the checklist was assisted by an inventory Access Audit Checklist for Heritage which was tested in pilot study in auditing heritage buildings. As explained in previous chapter, the inventory is essential in auditing of this research due to the research phenomenon and nature of the case studies. As discussed in Chapter 4, the inventory would map out access route and identify to what extend easy access to be adapted into heritage significance. It monitored field work to determine accessible level on key elements for the needs of PwDs within heritage building without diminishing its heritage value.

Reflecting from access auditing, different key elements are accommodated to accessibility needs in respective selected heritage sites. Due to unique heritage significance and conservation approach in each case study, correspondences to the

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listed key elements in checklist are various as stipulated in Table 6.8. Understanding from the study, each heritage is denoted with its origin heritage significance (Table 6.3 and Table 6.7), and later physical provisions were restrained from conservation principle from case to case basis. It was evident from previous analysis; the restoration and initiative approach are strongly depending on respective context and stakeholders. Standard design and requirements of access design likely make little sense to all heritage buildings.

Table 6.9: Core elements of accessible provisions in heritage sites

Core Elements	Access Audit Inventory for Heritage	Access Audit Form for Existing Building
Pre-visit Information	Service Provisions	-
Accessible Parking	Parking	Item 2: Car Parking
		Item 3: Passenger Loading Zone
Approach & Entry	Approach & Entry	Item 1: Accessible Footpath
		Item 20: Taxi Stand / Bus Stop
Entrance	Entrance	Item 4: Entrances and Doors
Lift	Lifts	Item 15: Lifts
Accessible Toilet / Accessible Bath	Accessible Toilet	Item 6: Public Toilet
		Item 7: Accessible Toilet
		Item 8: Accessible Shower
		Item 9: Accessible Bath
		Item 10: Urinals
Emergency Exists	Emergency Exits	Item 11: Emergency Egress
Ramp	Ramps	Item 12: Step Ramp
		Item 13: Ramps
Accessible Path	Stairs	Item 14: Stairs
		Item 16: Escalators
	Doors	Item 4: Entrances and Doors
	Wayfinding / signages	Iten 17: Wayfinding and Signs
	Accessible floors	Item 5: Rooms & Areas
		Item 18: Public Telephones
		Item 19: Accessible Hotel Bedroom

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Based on the checklists, pilot study justified building elements can be grouped into key accessible point within heritage sites. The key accessible points were tested and revealed in pilot case study in current practice. Furthermore, main study ascertained nine core elements (Table 6.9) to make heritage site accessible as suggested by English heritage (2004), Foster (1997), Kent (2003), Martin (1999), Prudon and Dalton (1981). Research identified listing elements in Access Audit Inventory for Heritage Buildings were met, except stairs, doors, wayfinding or signages and accessible floor. Generally the listed heritage key elements comply with accessibility standard and conform to current code of practices.

Without taking measurements on accessible level, Table 6.10 clearly shows to what extend accessibility being initiated by stakeholders in making case study sites accessible against conservation approach. Although the proposed accessibility provisions are still deviate from guidelines. Indeed, it reflected current practices of service providers especially designers, architects, conservationist and managing owners intend in accommodating accessibility needs physically challenged persons within heritage buildings. Case studies best reflected implication of accessibility needs for PwDs to Category I heritage buildings in the guidelines: 'Design Guidelines for Conservation Areas in Inner City of George Town' with accessibility code of practices and anthropology standards. On other words, current conservation guideline is reconciled with barrier free environment principle at certain extent in Malaysia.

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Table 6.10: Key elements of accessible provision in case studies;

Case Study	Access Features	Key Elements
Leong San Tong Khoo Kongsi	Website provides basic information with photo gallery, history and layout drawings of the site. A virtual tour has been developed into CD to show around the building	Pre-visit information
	An accessible toilet is provided in adjacent building. The toilet complies with basic standard.	Accessible Toilet
	A structure concrete ramp is located at the entrance to accessible toilet; and a reversible timber ramp is provided at the entrance to museum at the basement level.	Ramp
		Approach & Entry
St. George Church	A reversible metal ramp is located at alternative entrance for persons with access needs.	Ramp
		Approach & Entry
		Entrance
	Accessible parking bays are located near to the ramp. The size complies with the standard.	Accessible Parking
Suffolk House	Concrete pavement is provided at aside to ease the loose gravel pathway. It connects to a timber ramp leading to the main entrance and is continued with a brick pavement to the ancillary building behind the main building.	Approach & Entry
	A reversible timber ramp is provided at the main entrance. The timber main door is kept opening during operation.	Ramp
		Entrance
	An accessible footpath is mapped out starting from entrance gateway to additional lift to first floor level at the annex block.	Accessible Path
		Lift
	An accessible toilet is provided in the annex block. It fully complies with the standard.	Accessible Toilet
	Emergency exits for the first floor level is connected to the fire escape stair at the annex block.	Emergency Exits

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CHAPTER 7: CONCLUSION

Heritage conservation approach has been sprawling propagate in Malaysia since inscription of UNESCO World Heritage Sites to George Town, Penang and Historical Straits of Malacca in 2007. Government has listed number of heritage buildings as national heritage property and allocated a considerable sum of fund to upgrade heritage tourism facilities. The upgrading work includes infra-structure work, public facilities and amenities particularly adequate accessibility needs for all especially PwDs. Substantially, persistence origin of local tourism resources and improving social interest like accessibility needs may contribute to quality tourism. Study revealed accessible heritage would address all levels of market in tourism industry and it benefits to social economic growth at the same time. It helps social development in conjuncture to reform an inclusive society in parallel to shifting paradigm of PwDs from welfare to right base approach. Research indicated importance of accommodating accessibility within heritage buildings departure from tourism perspective to reflecting well living of PwDs in current society. Chronology study shows accessible tourism has been promoted before than accessibility. However, accessible heritage still has been a new approach inserted into mainstream development in Asia and Pacific regions, especially Malaysia. There are gaps encountered when accessibility is accommodated into conservation heritage building from legislative framework to current practice by designers, architects, conservationist and service providers.

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International, regional and local conventions and recommendations broadly advocate heritage tourism should be made accessible for all including PwDs. In fact both accessibility and conservation principle barely uphold accessible heritage with comprehensive structured basis. Despite awareness of human rights of PwDs has been uplifted in society, until gazetted Persons with Disabilities Act 2008 in Malaysia; specifically mentions accessibility should be taken place within cultural activities and places. Although National Heritage Act has yet specifies heritage properties should be accessible for all. Looking back to previous mentioned importance of accessible heritage tourism, the research believes accessible tourism should be essential stepping stone leading to accessible heritage; since series of conferences and conventions in accessible tourism have been consecutively taken place in Asia and Pacific region. Thus, study researched into both accessibility and conservation approaches in conjunction to understand the basic research question as following;

Research Question 1:

Does current practice in heritage building conservation incorporate with accessibility needs for persons with physical disabilities in Malaysia?

Research accentuated the phenomenon with the listed UNESCO Heritage sites of Malacca and George Town; which are the states enriched with historical and heritage site in Malaysia. Heritage tourism mainly contributes to social economic trends in both states and heritage properties are governed under comprehensive

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conservation legislative framework and supportive NGOs especially Penang Heritage Trust and Malacca Heritage Trust. Two case studies were selected from both states respectively for Pilot Study; and another three heritage sites were selected from Penang as in-depth Case Study for the research. Referring to access auditing, the reports encountered accessibility problems for the needs of PwDs within the conserved buildings. There are barriers obstructing visitors with physical disabilities access to the heritage buildings independently. In spite of international and regional award winning conservation practices are still in absence of barrier free environment approach. The approach was apparent plausibly since the local government had allocated a heritage fund to upgrading inadequate facilities and services in heritage tourism sector to be mentioned accessibility needs for persons with disabilities. Hence local heritage legislations and promulgations of disability affair are plausibly developing in the states.

The accessible problems were identified in the pilot study and in-depth case studies through the access auditing. Pilot Study in Chapter 3 and Case Study in Chapter 5 clearly indicated the access problems of elements being in place since respective undergone conservation. Indeed it reflected variant interpretation of accessible heritage among stakeholders particularly service providers and professional teams. Furthermore, accessibility problems informed implementation of the standards and guidelines deflected from legislative framework in current practices. Perhaps those defective elements mainly caused by the heritage significance attribute to each heritage sites.

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Besides, pilot study and literature review learnt that assessment on accessibility level is not depending solely on the checklist but notion of accessibility within heritage sites plays the fundamental basis. It was due to the unique heritage significances and architectural attribute relatively in each case. By employing the access auditing protocol as tested in research methodology to the main case study, core elements of accessibility within heritage sites were revealed. Research justified the accessible core elements along sequence of journey traveling from one point to another within heritage sites by persons with disabilities independently. In conjunction with the study ascertained the common accessibility problems of the core elements in relation to the conservation guidelines in Penang: "Guidelines for Conservation Areas and Heritage Building in George Town", accessibility code of practice Malaysia Standards MS 1184:2014, and precedent cases from developed countries in literature reviews. In such both conservation and barrier free environment principles were undertaken at the same time.

Besides, research still identified certain elements were well attained within both principles; for example Suffolk House. It shows good example of accessible core elements which are appropriately incorporated with conservation guidelines. After all, the study ascertained that barrier free environment principle coexists with conservation practice in certain substance still conflicts acquaint with both approaches at the same time.

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a) *What are the conflicting issues to accommodate accessibility needs for persons with physical disabilities in conservation practice?*

Provisions for accessibility needs varied from each heritage size due to its heritage significant and respective background. The accessibility needs for physical disabilities are initiated based on conservation approach and site constraint relatively. Tracing back to sampling units of case studies, research realized conservation zoning areas, building category listing and recognitions indirectly leverage the implication of access provision within heritage sites. Case studies which are nested in conservation area, are governed under local conservation guidelines; especially St. George Church which are listed as national monument under National Heritage Act. The conservation process was restrained in guidance for major alteration and monitored for additional new elements to original fabric. Plausibly authenticity and integrity of the sites were weighted against interest of persons with physical disabilities.

Buildings in conservation zones are collectively appended attribute of heritage significance to George Town. Conservation works are usually taking accounts the aspects as listed in Table 6.2 and key elements as stated in the “Guidelines for Conservation Areas and Heritage Building in George Town”. On the contrary, Suffolk House which sits at outside of conservation zone is given more flexibility in alteration and modification as long as the heritage significances are not diminished. It was seemingly conserved in respect to the guideline since Suffolk

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House has been classified as Category I building in George Town. Instantly, it gives resilience of conservation process to include accessibility needs in the conservation process.

Standard design and requirements of access design likely make little sense to all heritage buildings. In fact accessible core elements as discussed in the research should be the included along the sequence of journey from one point to another within the heritage building. Although not all core elements are entirely take place in all cases like finding in the case study in Table 7.1 as following;

Table 7.1: Summary of accessible core elements in case studies

Core Elements	Leong San Tong Khoo Kongsi	St. George Church	Suffolk House
Pre-visit Information	√		
Accessible Parking		√	
Approach & Entry	√	√	√
Entrance		√	√
Lift			√
Accessible Toilet / Accessible Bath	√		√
Emergency Exists			√
Ramp	√	√	√
Accessible Path			√

Nevertheless, accessible problems were still encountered on the core elements among the case studies. At the same time distinctive interpretation standard of accessibility provisions among professionals and managing committee were reflected in the cases.

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Besides, literature review pointed out ‘reasonable accommodation’ is quoted to inform appropriate modification and adjustment not imposing disproportionate or undue burden where needed in particular case as stated in Persons with Disabilities Act 2008. It is parallel to statement being claimed by Martin (1999) alteration to fit in new work should be reversible and enable easily return to its origin. It is supported by Bladerstone (2007) and Chapman (2007) stated new additions are separable from existing structure. New features reflects changing of social altitude towards accommodating accessibility needs for PwDs to future generations, and in a way presents newly intervened elements to heritage fabrics (Martin, 1999). In such, ‘reasonable recommendation’ indicates barrier free environment approach does accord with the conservation principle in addressing accessibility needs for physical with disabilities within heritage buildings.

b) To what extent local legislative framework in addressing accessibility needs for persons with physical disabilities within heritage buildings in Malaysia?

Accessibility for PwDs has been mandated since amendment to the UBBL on Section 34A at the 35th National Council of Local Government on 1990; making compulsory for new or existing public buildings to provide access to enable disabled people access into, out of and within the buildings. UBBL 34A is the only gazatted law specify new and old buildings which were built before the enforcement date between 1993 to 1994; should conform to the legitimate standard. The requirement of the law shall be deemed to comply with Malaysia Standard

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Code of Practices on accessibility and mobility for Public Works Department. The standards refer MS 1184:2014 and MS 1183:2003 which specifies only basic requirements of buildings and related facilities so as to permit access by persons with disabilities.

Enforcement of Persons with Disability Act 2008 marks the turning point of human rights of PwDs in Malaysia to include their accessibility in mainstream development. Accessibility for PwDs has been targeted as one of seven priority areas to ensure full participation of PwDs on equal basis in the inclusive society. However, the documents are mostly applicable to new built and existing buildings but not buildings with cultural significance. Looking closely into the standards, they recommend public buildings including religious buildings and cultural buildings which public has access as visitors should apply the practice. It further extends inclusion of accessibility in cultural life and places as stated under Section 31;

> *'Access to cultural life*
> *31(2) Persons with disabilities shall have the right to enjoy access –*
> *(a) to place for cultural performances or services such as theaters, museum, cinemas, libraries and tourism services, and as far as possible, to monuments and sites of national cultural importance.'*
>
> (Persons with Disabilities Act, 2008)

On the contrary, accessibility has never been mentioned in any article of conservation guidelines especially National Heritage Act 2005 although it is only imposed to listed national heritage properties. The conservation practices in

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Malaysia obviously has yet enclave with comprehensive legislative framework. Relative enactments were drafted base on general principles and interpretations individually; the implications still depends on respective traits of local governments by taking example of Malacca and Penang as listed in Table 2.3.

In short, Persons with Disabilities Act 2008 is likely proactive to include heritage buildings in tourism industry to make into accessible for PwDs as stated under Article 31. However guideline to improve accessibility within heritage environment is deficiency. Others than UBBL Section 34A, Malaysian Standard Code of Practices on accessibility and mobility; there is lack of supportive guidance which is fostered under conservation approach to conform into accessible heritage in legislative framework as illustrated in Figure 2.3.

Conclusively, interference between conservation and barrier free environment approach within statutory framework in Malaysia is yet constructive. The enforcement appears to be not correspondence with the gazetted regulations. As shown in case studies in George Town, accessibility features and services within the heritage sites are likely deviate from the guidelines and standards. It is believed mainly due to National Heritage Act 2005 and Persons with Disability Act 2008 are newly enforced in Malaysia not more than five (5) years only and lack of constructive legitimate framework to administer the standard.

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Research Question 2:

How does barrier free environment approach reconcile with conservation principles in accommodating accessibility needs of persons with physical disabilities to achieve accessible heritage?

Literature reviews and pilot study learnt that barrier free environment concept was codified in internal, regional and local standards; and has been broadly adapted in mainstream development including building heritage. The concept evolves from interaction between persons with disabilities with environment embracing physical and attitudinal barriers. The physical barrier refers to obstructions hinder accessible level of user groups. Whereas confined participation of persons with disabilities within social mainstream signify attitudinal barrier. On the other words, barrier free environment is removing barriers either physical or attitudinal obstruction full participation from persons with disability in mainstream development. Research found accessible heritage likely evolves from intersection of barrier free environment principle into conservation guideline. Whereby removing barrier or obstacles without adversely affect heritage significant of the fabric may accomplish to accessible for persons with disabilities.

‘Authenticity’ and ‘integrity’ are usually the main drawback to address accessibility needs for persons with disabilities in conservation practices. Indeed heritage significance is the major aspect in conservation as it contributes heritage value. Heritage buildings are governed under conventions, charters and guidelines

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without diminishing its heritage significance. Besides interest of visitors should be undertaken to ensure its viability and sustain the historical building in respect to social economic perspectives.

Nevertheless, research justified standard guidelines or regulations are not sensible for all heritage sites. Obviously, defective practices were revealed in the cases studies where heritage sties were chosen in different attributes. As proven from case studies, accessible provisions were indirectly influenced from conservation zones, building category and conservation principles. Each historical building is valued with respective heritage significance embracing architectural elements and also intangible historical background. The restoration methodology varied from case to case basis still was governed under general principles referring to international, regional and local conservation axioms. Therefore access provision functions appropriately in correspond with heritage significances of different historical sites. In fact, access strategy has been practiced by developed countries like English Heritage to incorporate access planning with conservation principle. The access strategy is an effective way facilitating the approach in accommodating access needs without adversely affects its heritage significance. However, it is still new to Malaysia practice whereby conservation process and access planning process are being researched concurrently.

In fact, research discovered the radical to meet accessible heritage where barrier free environment approach reconcile with conservation principles. Research learnt

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that there are methods to improve degree of accessibility within heritage sites in respect to current guidance and practice. Degree of accessibility can be improved with three scopes such as additional assistive devices and removal identifiable barriers or obstructions. To be more specific, ‘reasonable accommodation’ is the means of gauge to measure degree of accessibility as stated in Persons with Disabilities Act. It states appropriate modification and adjustment without any undue burden should be proportionately allowable in cases basis. In fact, the statement is likely conjuncture with conservation approach- reasonable modification. Reasonable modification or reasonable adjustment is allowable in conservation practice. Alteration to heritage properties is guided under degree of intervention as long as the significant tangible and intangible heritage is well preserved. As codified in international standards and documents, the primary objective and requisite of conservation is ‘authenticity’ and ‘integrity’ of the practices. They are governed under two essential aspects which is appropriateness use and degree of intervention. According to UNESCO Asia-Pacific Heritage Award for Cultural Heritage Conservation; ‘appropriate use’ is the key factor in evaluating quality of heritage conservation abides by ‘intensity of use’ and ‘degree of intervention’. They are the two essential aspects in underpinning conservation approaches. Both impart to enable conservation could be more flexible in changing of use and conform to current regulation requirements.

Adherence, research identified niche to incorporate barrier free environment with conservation principle within reasonable modification (conservation approach) and

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reasonable accommodation (barrier free environment). Both revealed the minimum level of easy access for persons with disability without adversely effecting heritage significance of the historical properties. Nevertheless complete framework in monitoring process is yet completely drawn out especially in Asia Pacific regions. It is mainly due to the approach is still newly inserted especially heritage conservation approach in Malaysia.

After all, research scrutinized framework determining reasonableness in providing accessibility needs and identifying heritage significance are the essential steps to draw out comprehensive planning. The access planning should be adopted in conservation practice to develop access strategy in respect to heritage significance in case to case basis. There is never a fixed standard in proposing accessible heritage and a concluded standard to be applied to all but comprehensive planning progress plays the fundamental basis.

Basic Research Question:

Looking into closely, the study justified the research questions and met the required objectives. In turn, the findings conceive the basic research question ultimately;

Does thinking about accessibility needs for persons with physical disabilities happen within conservation practice in Malaysia?

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Demographic trends shows population of PwDs is greatly increasing over the years. It urges mainstream development should reform to include barrier free environment principle within the society; which is parallel to the proclamation and signatory of conventions in UNESCAP to achieve right based, barrier free and inclusive society. Hence, it benefits to social economic growth especially heritage tourism in Malaysia. Accessible heritage has been another segment to widen tourism audience to different levels including persons with disabilities. In conjunction to UNESCO Heritage Sites Listing of Malacca and George Town in Malaysia, accessible heritage would benchmark quality tourism to elevate the industry to international platform. At the same time, accessible tourism indirectly reflects participation of persons with disabilities in mainstream development equally.

Evidently, pilot case studies in Malacca and Penang which are the predominant heritage capitals in Malaysia shows emergence of accessibility needs for persons with disabilities in current conservation practice. It was further supported by the access auditing in the main case study which were selected from heritage sites in George Town. Nevertheless deficiency of current practices indicating access problems in Malaysia was encountered. In regards to conservation zones, building categories and heritage significance attributes to the three case studies; inappropriate access core elements were audited.

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Inception of barrier free environment within conservation approach has been newly inserted since enforcement of the Persons with Disabilities Act 2008 apparently. In light of advocacy in human rights policy, persons with disabilities shall claim for their equal right to access to all public places including heritage sites. Subsequently, legislative framework and regulations like Malaysia standards code of practices on accessibility has introduced and revised UBBL Section 34A further emphasizes compulsory for new or existing public buildings to provide access to enable disabled people access into, out of and within the buildings; including heritage sites since 1990. On the contrary, the research ascertains accessibility needs for persons with disabilities has never been indicated in National Heritage Act and conservation enactments since ever. Whereby breach of conservation and accessibility practices in current legislative framework stands.

Research affirmed pattern of development in Malaysia in addressing accessibility within heritage properties is 'bottom-up' approach. Although regime has been reformed in current legislative framework yet defective implementation still coexists. Referring to case studies, interest to create accessible heritage property was initiated by owners, professionals, specialists and some NGOs. They foresee advantages and enthusiast to put up their effort to study into existing accessibility standards and incorporate into their conservation practices. To some extends, they manage to interpret and manipulate principles of both barrier free environment and conservation approaches in conjunctivitis. Creditable to professionals and specialists work out on great specified details to accomplishment especially from

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case to case basis. Most importantly, they have invented practical and workable references as precedents to influence social developments. These case studies become the best practices and base elements to reform a subsystem; which in turn may link and inform the existing framework to top-down system.

Therefore, it is recommended further study extending from this research to include more phenomenon accessibility needs for persons with physical disabilities in Malaysia. Secondly, the newly proposed access auditing inventory to heritage sites can be further examine to verify efficiency in determining appropriateness of access provisions.

7.1 Limitation of the Study

Since scope of the study was limited to three heritage sites in George Town and not represented all attributes of historical sites in Malaysia; due to time constraint and limited precedent cases, literature and researches on accessible heritage in Malaysia. The research phenomenon has been newly introduced in Asia Pacific region especially Malaysia. Ground theory of accessible heritage has yet defined and under researched academically. Moreover selections of conservation best practices were constrained by sampling units as defined in case study design.

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