

## **The Tolerance and Limits of Acceptable Change in Heritage Buildings: The Case of Traditional Shophouses in Malaysia**

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### **ABSTRACT**

The protection of heritage buildings is of utmost importance. In today's world, historic buildings face various threats that push them to the brink of extinction or marginalisation. The natural fatigue process of buildings, uncontrolled urbanisation and socio-technical change are among the main driving forces. Therefore, heritage buildings need to be constantly monitored and carefully conserved so that they can continue to be used and retain their dignity. It is thus important to understand the extent to which we can alter the significance of heritage buildings during their conservation. The beginnings of the conservation approach are associated with an attempt to reject any changes to the physical characteristics of heritage buildings. More recently, however, conservation practice has evolved into a process of managing changes. Only by understanding the limits of acceptable change to heritage and identifying heritage's tolerance of change can we find an appropriate way to manage change to heritage and preserve its cultural significance. A literature review and content analysis were conducted to gain insights into the concept of change in heritage management theories and norms. This search was continued to explore the limits of acceptable change and the tolerance of heritage buildings to change through authorised international and national policies. The case of shophouses in Malaysia is studied. The results show that conservation standards have relaxed their stance on the presence of change in heritage architecture. However, intellectual research on understanding the limits of acceptable change for the careful transformation of heritage buildings through the management of change is still relatively scarce.

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## 1.0 INTRODUCTION

The axiom that every building experience changes to a greater or lesser extent over time, also includes our loved buildings. Historic buildings are not static entities; they undergo physical wear and tear, (mis)treated with the advancement of developments and social changes, or might suffer from the perceptual and practical relationships that the local people have with them. Indeed, these traditional buildings are important assets, particularly in this era of urban homogenization, where the modern international architecture style intentionally makes identical urban structures in every city regardless of its geographical, environmental and cultural specifications, across the globe. Traditional buildings form a visualistic urban character unique to the region as well as contribute to the local identity, sense of place (ICOMOS, 1967), viability and livability of societies (The World Bank, 2012; ICCROM, 2015), to name some. At the same time, these buildings are a major part of the everyday architecture that functionalizes the various daily tasks of the public. Thus, these buildings, as much as they are cultural heritage sources, are considered a medium to provide for and continuously improve the well-being of the inhabitants.

Change is the essence of all substances (Stickland, 1995). It is impossible to arrest changes; everything is in flux, the closer you look at things, the more they appear to change (Heylighen, 1990). Change can transform things either instinctively or deliberately. Three types of change are more obvious within the heritage buildings. Naturally, buildings undergo physical wear and tear; building elements decay with time, wooden and thatch materials erode with rain and humidity, bricks and mortar corrode, surfacing materials and tiles crack and delaminate, and paints peel off (Evans, 2014; Smith & Akagawa, 2009). Or change can appear as a phenomenon of time – how different generations perceive the transformation of things in their surroundings and as a solution – the agent of the development of a system (Weick & Quinn, 1999). Thus, change must be understood as part of the richness of heritage buildings (Avrami et al., 2000), the natural process of decay, the variation in heritage appropriation and valorization (Serageldin, 2000), and change as a medium to enhance the livability of heritage buildings (Bond & Worthing, 2016).

Conservation is a process that consistently recreates its product (cultural heritage) (Avrami et al., 2000), not a practice that merely focuses on arresting the decay of the material past (Harrison, 2013; Scott, 2016) anymore. Accordingly argued by David Lowenthal (Lowenthal, 2000, p. 23), "heritage is never merely conserved or protected; it is modified both enhanced and degraded by each new generation." Thus, transformation is considered a part of conservation practice (Roders, 2013). It should be subtle and fluid. The damage comes when the change is swift, immense in scale, and beyond local control.

Conservation, in whatever age, is a way of interpreting history through material remains, informed by the meanings and values of the present. Therefore, the protection of heritage buildings is of paramount importance (Ariffin, 2013), but it is not an easy task. Their conservation is a critical process that has to be properly justified between the retention of their cultural significance and the contemporary demands of societies nowadays. Definitely, the adaptation of these buildings will alter the inherent qualities that distinguish them as heritage places, meaning that the principal connotation of authenticity and truth will be altered to some degree. International organizations, the United Nations Educational Scientific and Cultural Organisation (UNESCO) and its advisory body, the International Council on Monuments and Sites (ICOMOS), are the main institutes that enact the philosophical and doctrinal frameworks for the protection of heritage, providing guidance on how interventions should take place. While these doctrinal texts emphasise "what" and leave the "how" open for the national and locals to appropriate and manage. Nevertheless, in these authorised texts, the threshold of change is abstract as they rarely interpret defined limits of acceptable change, beyond which the state of authenticity and integrity is considered irreversibly damaged (Roders, 2013). It is the national expert's responsibility to define the acceptable limits of change based on the associated contextual values and attributes and, thus, manage these changes accordingly.

The search for cultural heritage conservation in the Malaysian context, by Azmi et al., 2017; Wagner, 2017; and Eddy et al., 2020 highlighted that they are concerned with the various intervention approaches, scoping for the protection of the aesthetic and historic significance of the heritage along with the enhancement of the economic

and utility value of the historic buildings. But how far the intervention can challenge the physical significance of a historic building remains scarce. Therefore, the absence of clear limits for change from the authorized heritage discourse on the one hand, the relativity of the limits of change according to the attributes and values of the locals, and the undiscussed tolerance of shophouses to change on the other, initiated this review article. This paper aims to (i) explore the limits of acceptable change in heritage buildings from the authorized policies, (ii) define the limits of change in heritage buildings; and (iii) identify the limits of change in practice. This aim is achieved through the following objectives:

- To define the limits of acceptable change in heritage buildings based on the authorised conservation norms.
- To define the limits of change at heritage building level.
- To assess and apply the limits of change to real-case buildings – the tolerance of traditional shophouses to change.

## 2.0 RESEARCH METHODOLOGY

According to the purpose of this review, it is to understand and elicit insights related to the limits of acceptable change in theory and practice. This research is developed based on a literature survey and content analysis. This method is built to extract wider and more in-depth meaning from textual data through interpretation (Elnokaly & Jun Fui, 2014), and to draw realistic conclusions from it (Bengtsson, 2016). While in different themes, similar research methods have been conducted on shophouses, e.g., (Elnokaly & Jun Fui, 2014) in Malaysia and a similar attempt was done by Guan (2011) in Singapore.

To critically examine the relationship between the limits of acceptable change – theory, and the tolerance of architectural heritage towards change – practice. Three sources of data are explored: the contemporary theory of conservation; the doctrinal documents related to architectural conservation from international organisations such as UNESCO and ICOMOS and the regional charter, the National Heritage Act (2005); and the related scholarships on the protection of shophouses. By doing so, we provide insight into the contemporary theory of conservation, the official codes of conservation, and the recent scholarship related to the subject matter. Thus, five distinct sections are described in this paper: decontextualization of the concept of change (3.1), followed by extracting and defining the criteria related to the acceptable limits of change (section 3.2). They can provide an approach to combining the different aspects of heritage conservation from intellectual properties to the building's physical condition for the change in heritage buildings. Secondly, the limit of change in association with particular physical attributes of architectural heritage is deduced in sections 3.3 & 3.4). Finally, the paper has niched down into the recent cases of traditional shophouses (sections 3.5 & 3.6) to define their cultural significance and tolerance to change in light of defined factors and determine what architectural elements are most significant and ought to be protected during building conservation. Followed discussion and conclusion (sections 4 & 5).

## 3.0 LITERATURE REVIEW

### 3.1. Change as Defined in the Contemporary Theory of Conservation

The modern theory of conservation as we understand it today is initiated on the idea of Enlightenment: science as the primary way to reveal and avail truth and the involvement of the public sphere in the protection of art and culture (Harrison, 2013; Viñas, 2005). In the development of the early concepts and ethics, European scholars played a significant role, among all, the fundamental contributions made by John Ruskin (Jokilehto, 1999). The first structured conservation ideologies emerged within the English Art and Craft movement with the establishment of the Society for Protection of Ancient Buildings (SPAB) by William Morris a disciple of Ruskin with a reverence for the authentic state of the objects (Yount, 2005). Principally, both Ruskin and Morris rejected any deliberate change to historic buildings specifically the ongoing tendency to restore buildings by adding elements instead of just doing repair work (Jokilehto, 2002; 2007; Birabi, 2007). Morris, in his manifesto in 1877, accentuated the importance of the authenticity of historic buildings and valued the existence of the patina on the look of the monument (Yount, 2005). Changes to the architecture of historic buildings were defined as “lie” and “false” by

Ruskin and Morris respectively (Evans, 2014; Jokilehto, 1999; Viñas, 2005), and they preferred continuous maintenance over restoration.

Ruskin believed that restoration was the most total destruction that a building can suffer. In his words: "it is impossible, as impossible as to raise the dead, to restore anything that has ever been great or beautiful in architecture... Do not let us talk then of restoration. The thing is a lie from beginning to end ...Take proper care of your monuments, and you will not need to restore them" (Ruskin, 1885, p.184-186). Similarly, William Morris states, "these old buildings do not belong to us only ... they have belonged to our forefathers, and they will belong to our descendents unless we play them false. They are not in any sense our property to do as we like with. We are only trustees for those that come after us" (Yount, 2005, p. 221). On the contrary, Emmanuel Viollet-le-Duc believed in and practiced heritage conservation oppositely, in favour of stylistic unity in historical monuments, he welcomed any change that could restore a historic building into its 'pristine stage' a condition that might never have actually existed, as long as it was coherent with the true nature of the building (Jokilehto, 2002; Stanley-Price et al., 1996). In *The Foundations of Architecture Selections from the Dictionnaire raisonné*, he said, "the best way to preserve a building is to find a use for it, and then to satisfy so well the needs dictated by that use that there will never be any further need to make any further changes in the building" (Viollet-le-Duc, 1990 [1854]). Later on, the stylistic restoration of Viollet-le-Duc was criticised by other conservation pioneers. Likewise, the devotion of Ruskin to the state of ruination or age value of historic buildings was soon realised to be impractical by William Morris. To overcome this impracticality, he made a concession: if new work was to be done in an old building, it should be in a contemporary style, and all insertions have to be reversible, that is, could be removed without leaving a trace (Scott, 2008). Since then, their philosophies have strongly shaped the theory of heritage conservation and the degree and types of change during the intervention of historic buildings (Bond & Worthing, 2016). As for authenticity, the concept remained present as "the back-bone for urban heritage conservation into the 20th century" (Birabi, 2007, p. 41) and the most important module for conservation practices (Jokilehto, 2006).

Henceforth, many legislations have been established by UNESCO and its advisory body ICOMOS, to define the concept of heritage, the aim of protection, and the development of different frameworks on how-to employ the work on the site and whose responsibility it is. From the plethora of doctrinal texts published by UNESCO and ICOMOS, some are of utmost importance in regulating and governing conservation work, among all, the best-known and most influential could be: (1) the Venice Charter (1964) is the "foundation stone" of the ICOMOS (Petzet, 2004) and embodies the theoretical framework (Orbaşlı, 2008) which "has been the benchmark for principles governing architectural conservation/restoration ..." (Jokilehto, 1998, p. 229). Since its establishment, it has been considered as the "international best practice" (Logan, 2004, p. 3). (2) The World Heritage Convention (WHC) (UNESCO, 1972), "the most important international treaty" (Castriota, 2023, p. 185), is the first to recognize the close link between culture and nature (Francioni, 2023), introduces the concept of world heritage for those who have inherited an outstanding universal value and promotes a collective commitment to identifying and protecting cultural heritage (The Getty Conservation Institute, 2022). It is also the first international normative text that requires the integration of the conservation principle into comprehensive planning programmes (Jokilehto, 2010). (3) The Burra Charter (1979 [2013]) was the first that challenged the authorized principles of heritage conservation from material-based conservation to value-based conservation. It fosters a strategy that links the management of places of cultural significance to the assessment of cultural values (Taylor, 2004). It's mutually inclusive formulation, which overarches the philosophy of the Venice Charter and is a source promoting community inclusion in heritage conservation, has made it internationally appreciated and practiced (Waterton et al., 2006). (4) The Nara Document (1994), "one of the most important papers of modern conservation theory" (Petzet, 2004, p. 7), redefines the concept of authenticity from its seminal materialistic notion (Jokilehto et al., 2008) towards a more comprehensive understanding of the essence of cultural heritage (Akagawa, 2016). It is a significant rectification of the euro-centricity of the international conservation standards, the Venice Charter of 1964, and the World Heritage Convention of 1972 (Akagawa, 2014, 2015, 2016; Kwanda, 2009). As well as, (5) the National Heritage Act (2005) as a representative of the national level of the hierarchical order of the legislative norms. It is the only specific statute on the conservation of cultural heritage in Malaysia (Mustafa & Abdullah,

2013), developed as a comprehensive guideline for the management of conservation and preservation of heritage buildings (Hashim, 2017).

The next section will dig deeper into these conservation codes to define the position of international and national charters and guidelines towards the limits of change in heritage places.

### **3.2. The Threshold of Change in the International and National Codes**

#### **3.2.1. The Venice Charter**

The International Charter for the Conservation and Restoration of Monuments and Sites (ICOMOS, 1964), also known as the Venice Charter (1964), indeed the most referenced official code in the field of conservation (Petzet, 2004). Through definitions and principles, it provides a proper procedure for the restoration and conservation of historic buildings and sites. Within its core concept, authenticity, it strictly provides a specialized way of conservation (Stubbs, 2009). The Venice Charter defines conservation as a medium to maintain the authentic state of a historic building and refuses changes to the architecture of the historic buildings, inside and out (Preamble & Article 5-7). As described, the conservation process must retain the building's character, and its setting with respect to the relations of mass, colour and scale. Even though, it emphasized the continuous use of historic buildings, a change of use should not change the layout or decoration of the building and should be a compatible function (Article 5). A further prerequisite is that a monument is inseparable from the history to which it bears witness and from the setting in which it occurs (Article 7).

Consequently, the restoration section articles (9-13) mentioned that the aim of restoration is to reveal the historic and aesthetic values of the monument which is the work of experts. The decisions must be based on true evidence and preserve the original material. If new work is introduced, it must be recognisable from the authentic architectural composition and stamped contemporary. The aim of the restoration act is not unity of style, nor should it disrespect the previous intervention that was superimposed on the building over its life. In cases of unavoidable change, the replacement of missing parts and new additions, in the former, the intervention must be followed harmoniously with the whole, but also must be differentiable from the original to avoid falsification (ICOMOS, 1964).

#### **3.2.2. World Heritage Convention (1972)**

The Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1972) organised by UNESCO aims to contribute to the unity of global common values and raise the common sense of responsibility through establishing an effective system of collective protection of the cultural and natural heritage of outstanding universal value. As the most ratified global treaty, it permanently provides a legal, administrative and financial framework for international cooperation in the conservation of cultural and natural heritage. It contends that cultural heritage possesses objective intrinsic values independent of time and context that do not change. The convention redefined the process of conservation more inclusively than its predecessor, the Venice Charter (ICOMOS, 1964), to ensure that effective and active measures are taken for the protection, conservation and presentation of cultural heritage, by involving more stakeholders (Article 5). This integration is tied to the importance of giving heritage a function in the life of the community.

Furthermore, the threats facing the existence of cultural heritage are mentioned to be beyond the cause of decay and armed conflicts, which include the threats from changing social and economic conditions that aggravate the situation with even more formidable phenomena of damage or destruction (Preamble). The process of intervening in a historic building is mentioned to be in the spirit of the Venice Charter beginning with identification followed by protection, conservation and presentation for the present generation and its transmission to future generations (Article 4). However, this is a highly professional process, identified, planned and altered building by experts which must not take any deliberate measures that might damage the tangible characteristics of cultural heritage directly or indirectly (Article 6).

### **3.2.3. The Burra Charter<sup>1</sup> (2013 [1979])**

Initiated on the foundations of the Venice Charter, the Burra Charter aims to retain the cultural significance of a place, which is embodied in the physical and social characteristics of that place (Articles 1.4, 1.2). Conservation is a tool to manage changes in heritage places on an ongoing basis (Preamble), which aims to retain the existing fabric, use, associations and meanings of that place (Article 3). Intervention approaches should be cautious, changes to the heritage character should be as much as necessary and as little as possible. It should not diminish any cultural significance, it should be reversible if the change alters the state of cultural significance (Article 3, 15). Likewise, the result must respect the purpose for which the building was originally intended and if a change of function is expected it should be a compatible use (Article 7). Consequently, the charter mentioned the importance of the heritage setting, location, and content, as an essential part of the heritage imbued with cultural significance. Therefore, any intervention or change, should also, bear in mind the retention of the original location of the building, and its visual character which includes its form, scale, texture, colour, and material (Article 9-11).

### **3.2.4. The Nara Document on Authenticity (1994)**

It further defined and clarified the obscured aspect of authenticity as mentioned in the Venice Charter (ICOMOS, 1964) in light of changing values and circumstances (Articles 5-8). It is the first conservation instrument of its kind to deviate the focus of preservation from the retention of a building's physical substance and design to the various spiritual and intellectual aspects of the indigenous people, who experience the heritage (Article 7). The protection and enhancement of cultural heritage diversity in our world should be actively promoted as an essential aspect of human development (Article 5). In contrast with its precursor charters which aimed to produce the true heritage by experts through standard methods, the Nara Document highlights the cultural plurality and the need to respect the diversity of cultural values in different societies (Article 5, 9). Thus, it is not "possible to base judgements of values and authenticity within fixed criteria" (Article 11). Therefore, specific measures are mentioned in reference to the assignment of authenticity according to the nature, time and space of cultural heritage. These measurements include any tangible and intangible significance which inherits aesthetic, historic, social, and scientific values. Meanwhile, the assessment of authenticity should not be based on a single parameter but grounded on a critical consideration of the whole; in short, change takes account of both the physical and the immaterial (Article 13).

### **3.2.5. The Malaysian Conservation and Preservation Charter: National Heritage Act (2005)**

A national act, The National Heritage Act 2005 (NHA), identifies the taxonomy of cultural heritage based on a bi-hierarchy order: "Heritage" a status declared by a Commissioner<sup>2</sup> and "National Heritage" the highest status declared by the Minister of Information, Communication and Culture. Among others, this taxonomy involves "building" – a building or a group of buildings identified for their architecture, homogeneity, or place in the landscape; and "area" – a manmade or combined work of man and nature designated for their historical, aesthetic, ethnological or anthropological significance (Preamble). It further emphasizes the significance of outstanding universal value. .

The framework proposed in NHA (2005) highlights that conservation and preservation of heritage are joint responsibilities of the Federal and State Governments (Article 3 & 4), where the exercise of heritage identification, appropriation, registration, protection, provision, and supervision is a function of a Commissioner (Articles 6 & 7). For a heritage to be protected, it should be first listed in the official inventories, the "Register" (Article 23). The criteria that legitimised heritage registration are any of the 9-criterion mentioned in Article 67(2). Which are the historical significance, design or aesthetic characteristics, scientific or technical importance, social or cultural

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<sup>1</sup> Following the adoption of the 2013 Burra Charter, the previous versions are considered archival documents by Australia ICOMOS. The information is deducted from the latest version.

<sup>2</sup> An officer (conservation expert) appointed by the Minister for the purpose of currying the powers and functions assigned to under the National Heritage Act (2005).

associations, potential to educate, exhibit rich and diverse features, rarity and uniqueness and representativeness of the heritage. The process of protection demands a conservation management plan (Article 45). It aims to (i) promote the protection, rehabilitation, and restoration of heritage buildings; while (ii) ensuring the proper use and development of the heritage buildings including measures for the improvement of the physical living environment, and socio-economic wellbeing of the users. It also encourages community engagement in decision making.

In this framework, however, the threshold of change remains abstract. The various conservation approaches such as preservation, restoration, and rehabilitation are mentioned but provided in the definitions (Preamble), not particularly described in the conservation management plan. There, each approach slightly touches on the limits of change and the significant physical elements. As defined: preservation is a process aiming to arrest decay and provide structural safety and well-being that should not adversely affect the fabric or historic appearance; restoration is a process which accurately recovers the form and details of a heritage building and its setting, it can alter the building form, fully or partially, by replacing the missing original work; and rehabilitation aims to enhance the building's utility for an efficient contemporary use while preserving its historic architectural features. Accordingly, a comparison between these five legislations is presented in Table 1.

**Table 1.** Comparative analysis between the five conservation legislations in relation to the limits of changes in heritage buildings.

	<b>Venice Charter</b>	<b>WHC 1972</b>	<b>Burra Charter 1979: (2013)</b>	<b>Nara Document 1994</b>	<b>National Heritage Act (2005)</b>
Concept	historic monument	- cultural heritage - cultural property	place of cultural significance	cultural heritage	national heritage area, monuments, and buildings
Aim	to safeguard historic monuments for future generations	to protect the cultural and natural heritage of outstanding universal value	to retain the cultural significance of places	define authenticity in response to: - contemporary demand, - socio-cultural values, - collective memory of humanity.	to provide for the conservation and preservation of national heritage, ..., tangible and intangible cultural heritage, ...
Criteria	- authenticity - integrity - minimal intervention - reversibility	outstanding universal value	- cultural significance - minimal intervention - reversibility - relative authenticity	cultural diversity heritage diversity tangible values intangible values	- historical importance - design / aesthetic character - meaning - potential to educate - exhibit diversity, rarity and uniqueness - particular typology
Use	compatible use	compatible use	compatible use	appropriate use	practical use
Value	- historic - age - aesthetic - archaeological	- historic - aesthetic - scientific - social - ecological	- historic - aesthetic - scientific - social - ecological	- historic - aesthetic/artistic - scientific - social	- historic - artistic - archaeological - architectural - cultural / social

	- scientific				- scientific - spiritual - linguistic - technological
Cultural significance	Immutable, identified by experts		Mutable, assigned by experts	truthful information defines relative values	defined by the commission with consultation by local people and community
Focus	retention of the authentic object by objective methods		retention of existing fabric, use, associations and meanings	human development	protection and rehabilitation of heritage buildings, use and development of heritage buildings for the socio-econ. needs of the user, and economic growth of community
Change	resist the change		change if necessary, the least possible, guided by the cultural significance	values and circumstances change in time and space	continual adaptation is promoted (thus changes are expected for keeping a significant place in use)
Signif. Element	<b>Tangible:</b> building - form (exterior and interior) - settings location, colour, scale - previous superimposed works - traditional materials and methods <b>Intangible:</b> -	<b>Tangible:</b> - architectural characteristics - building location - settings <b>Intangible:</b> -	<b>Tangible:</b> building - fabric - settings (visual and sensory) - contents, fixtures & objects related to the building - traditional materials and methods <b>Intangible:</b> - use - meanings - associations	<b>Tangible:</b> building - form - design - material and substance - location & settings - traditional methods <b>Intangible:</b> - use and function - traditions - spiritual - feelings	<b>Tangible:</b> building - design / aesthetic characters - form / structural details - type - rarity / uniqueness - site - setting <b>Intangible:</b> - historical / identity - memorial - meanings / associations
Products	true object	true object	expected object	expected object	plausible object



### 3.3. Limits of Acceptable Change

Conservation laws and methods (as stated in previous sections) propose set core concepts that govern the process of conservation including what to preserve, why to preserve it, how to do it and for whom to do so. Initially, the concept revolves around the centre of attention and the type of danger the historical building poses. For instance, the Venice Charter (ICOMOS, 1964) and World Heritage Convention (UNESCO, 1972) understand heritage places as irreplaceable evidential resources that have to be protected and passed on to the future generations in the full richness of their authenticity (ICOMOS, 1964, Preamble). Heritage places are understood to be “vulnerable to destruction, damage, decay, disappearance, major alterations, changes and abandonment” (UNESCO, 1972, paragraph 11.4). The primary aim of the conservation approach is to arrest the deterioration of past fabric with an obvious attempt to avoid changes at all costs by imposing standards of authenticity and integrity regardless of their cultural significance for the community hosting that heritage. This static approach emphasises the tangible aspects as recognised by experts through objective methodologies with the intention to produce the true object (Clavir, 2012; Viñas, 2002, 2005).

Recently, philosophical understanding has drawn strong perception that cultural heritage is a concept dependent on time and space (Burke, 2010). Simultaneously, the conceptual domain of heritage has broadened extensively - from a single monument to encompass building ensembles, groups of buildings, and landscapes, and now into the inclusion of whole historic quarters (Ahmad, 2006, 2004; Fairclough, 2008). Hereon, cultural heritage is described as having the potential to act an active role in communities and bring benefit to people (ICCROM, 2015; Wijesuriya, 2015), boost the local and national economies through tourism and job creation (Rodgers & Veldpaus, 2013; The World Bank, 2012), and contribute to sustainable development in communities (ICOMOS, 2000; UNESCO, 2011). Thus, the vulnerability of heritage stretched beyond the impact of natural wear and tear to integrate the issues of rapid urbanization, human migration, advancement of technology, socio-economic change and growth, and the perceptual and practical links between people and their cultural heritage (Avrami et al., 2000; Combi, 2016; ICOMOS, 2012; Stone, 2019; The Getty Conservation Institute, 2009).

Thus, conservation approaches are redefined according to the new perspectives – the aim is not to resist the change but to control its negative impact (Araoz, 2011). Specifically, different approaches have been developed to protect while transforming heritage for the good of people and the community, such as ‘managing change’ (ICOMOS, 2013), ‘managing continuity’ (Ripp & Rodwell, 2015), ‘sustainable management’ (English Heritage, 2008), and ‘managing continuity and change’ (Wijesuriya, 2015). Within the approaches deemed necessary for the management of change, significant heed is paid to bringing all stakeholders into the decision board (ICCROM, 2015; UNESCO, 2011). Refer to Table 1 for more detail.

Undeniably, change is an innate part of existence. It's only the tolerance for change that has evolved considerably. However, despite the definition of cultural heritage being extended until its end, the limits of acceptable change are blurred. It is crucial to understand how far transformations are permitted to diverge from the main focus of preservation when changing the character of cultural heritage. The limits of acceptable change are conditional, and according to the Burra Charter, “change as much as necessary but as little as possible.” While admitting that change is mandatory to retain the significance of a place, how far it could challenge the state of authenticity and integrity of the building remains null. Just to mention, “as little as possible” is only achievable through “minimal change” and perhaps via minimal intervention. Salvador Muñoz Viñas claims the term ‘minimal intervention’ is a language jargon, that tries to fool us to be an exact concept, but it “... is an illusion. No intervention can be absolutely minimal” (2009, p. 49). In such support, Ana Pereira Rodgers (2013) believes the limits of acceptable change, beyond which the state of authenticity and integrity would be considered irreversibly damaged is still not clear, while somewhere else, stated defining the limits for acceptable change is a subjective process (Rodgers & Veldpaus, 2013), can be tailored to the context (Veldpaus, 2015).

For world heritage sites, the limits of acceptable change are identified in relation to the historic site's authenticity and integrity through clarification of the outstanding universal value (WHC, 2007). Referring to the fact that the majority of historical environments are in everyday use, indicates accepting that the consequence of continued use is continued change (Fairclough, 2003). It holds true that transformation is inevitable in heritage

buildings but predictable (Rodgers, 2007) and manageable (Bond & Worthing, 2016). In managing heritage places, decisions always revolve around the limits of change, what can be and what cannot be changed, while accepting an incremental change over a controlled intervention (Hall, 1997). This mechanism allows for some degree of “loss of attributes until reaching the minimum state of integrity required to keep cultural significance understood” (Rodgers, 2013, p. 41).

Recently, despite the intellectual development of the notion of conservation and the acceptable limits of change are still in their infancy in heritage conservation theory and practice (de Schetter & Schetter, 2016; Rodgers, 2013), the concept of limits of acceptable change has been used as a management tool to delineate boundaries between preservation and transformation. It acknowledges change and transformation, defines limits, produces guidelines and monitors the process while preserving identity and local values (de Schetter & Schetter, 2016). In *Approaches for the Conservation of Twentieth-Century Architectural Heritage* by ICOMOS it states the following: for determining the limits of acceptable change, prior to any interventions, a clear conservation plan should be established. The plan needs to define the significant parts of the heritage building, the areas where interventions are possible, the optimum usage and the conservation measures to be implemented (ICOMOS, 2011a).

Fairclough believes any decision about change is dependent on two questions: 1. how to reconcile minimising loss with the needs of the present and 2. how to ensure that the balance we strike does not reduce too greatly our successors' options for understanding and enjoying their inheritance (2003, p. 24). According to the Burra Charter (ICOMOS, 2013), “the amount of change to a place and its use should be guided by the cultural significance of [that] place” (Article 15). Where the significance of a place not only resides in tangible aspects but also on mutable intangible qualities (Araoz, 2013; ICOMOS, 1994, 2011b; UNESCO, 2011).

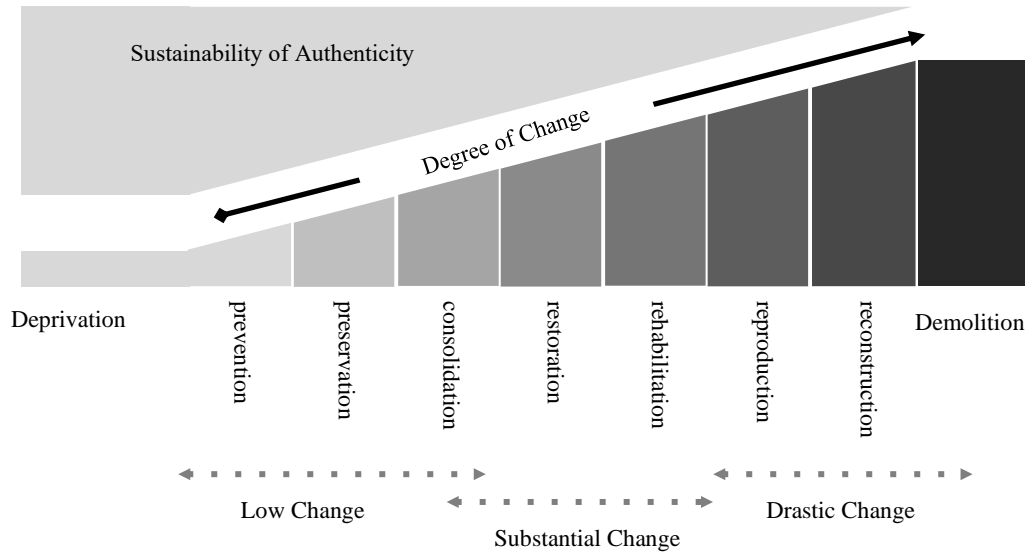
Nonetheless, there is no well-defined framework for an inclusive intervention procedure that could explicitly cover every aspect of a project. It is a selective process based on different values and emotional evaluations. The “values are not fixed, but subjective and situational” (Avrami & Mason, 2019, p. 11). Implying that when establishing the significance of a place, decision-makers favour certain values over others (de la Torre, 2013). Thus, some values will be valorized and protected, while those considered less important will remain in the background and can be eroded. Despite this, the limits of acceptable change reside within the fabric of heritage places (Buckley et al., 2016; Giliberto, 2018), while the conservation approach tries to consciously justify the loss of a certain degree of value for the sake of keeping heritage buildings alive (Petzet, 2004).

Therefore, conserving a heritage building involves various scales and levels of intensity, determined by the physical condition, causes of deterioration, and anticipated future environment of the historic building under treatment (Feilden, 2003; Feilden & Jokilehto, 1998). When introduced to buildings, physical intercession will change either the surface of the structure or its spatial fabric, or maybe both (Scott, 2008). In the case of historical buildings, the degree of change on the exterior of the building is very limited – the main focus is to maintain the building’s façade with all the physical elements that contribute to the building's history, aesthetic and cultural significance. Meanwhile, the interiors of the building are open to being adjusted for a higher degree of change (Rodgers, 2013).

### **3.4. Degree of Change in Buildings**

In an effort to understand how far a building can undergo a different degree of change. The two extremist ends expand between when change is diminished to nought, it is a state that the oldness of a building is privileged or when a building is abandoned or vandalised, on the other end, when the change totally destructs a building's form. These two phenomena are understood as deprivation and demolition (Rodgers, 2007). In fact, there are other alternatives in between these two extremes with different intensities. Bernard Feilden (2003) identified the different methods according to their potency to change the character of the traditional buildings as prevention of deterioration, preservation of the existing state, consolidation of the fabric, restoration, rehabilitation, reproduction, and reconstruction. The magnitude of the impact on the fabric and architecture of a building in relation to both the extent and nature of the change could be small, medium or large. Respectively, Douglas further distinguished these as 'low-key' when minor changes are applied to improve surfacing, upgrade fittings, or do

minor extensions; 'substantial' when major changes are applied to convert a building form and use; and 'drastic' when extensive remodelling work is applied to change the building form by extension or subtraction to enlarge or reduce a building volume or change its use (Douglas, 2006). Figure 1 demonstrates the authenticity of a heritage building in contrast with the different levels of intervention and the intensity of change.



**Figure 1.** Different levels of intervention and their relative degree of change in relation to the state of tangible authenticity in heritage buildings. Drawn by H. Fayez after (Rodgers, 2007; Feilden, 2003; Douglas, 2006).

Generally, the type of change in a building is diverse. For instance, three types of change have been encountered in the lifecycle of buildings (Slaughter, 2001) – change of building use, change of a building capacity to enhance its performance, and change of flow which is changes in the environmental flow and the movement of people and things. However, Douglas (2006) articulated the buildings' changeability slightly differently as the change in building condition which includes the change in size and change in performance and change in function. Therewith, the degree of change in buildings basically depends on the quality of the building (Feilden, 2003; Feilden & Jokilehto, 1998), the availability of resources, the demand for change (Douglas, 2006), the purpose of change (Heidrich et al., 2017), construction practices (Rashid Mohd, 2018), and the cultural significance of the building (ICOMOS, 2013).

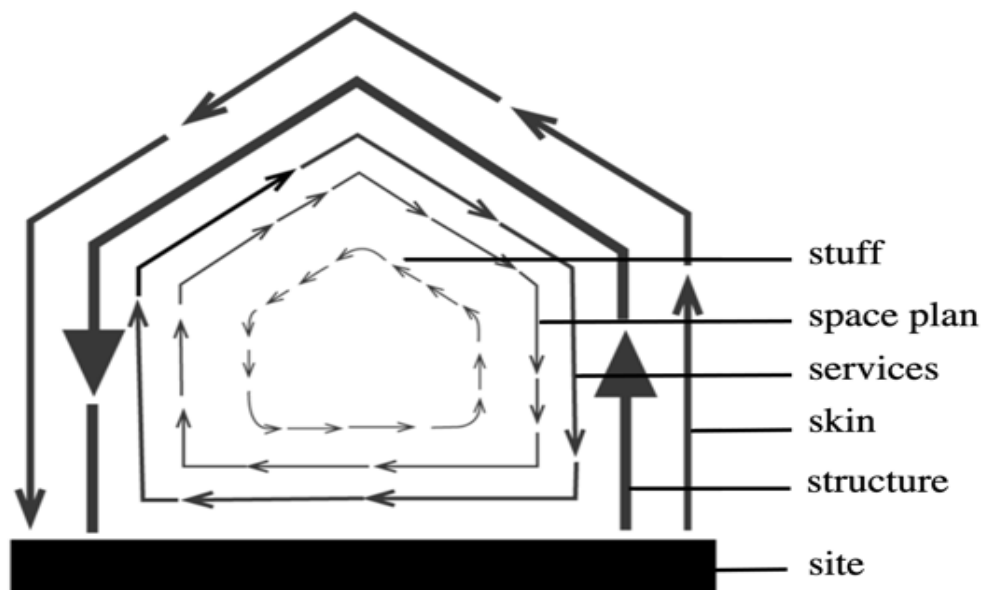
The ability of a building to change is a key attribute to preserving it. It can be defined as the capacity of the building to undergo different scales of change. According to Arge (2005), Heidrich et al. (2017), Pinder et al. (2017), Schmidt III et al. (2010) and Schmidt (2014), the different dimensions of changeability fall into these criteria; a building has to be:

- Adjustable: change of tasks by users
- Flexible: minor changes in space and location of movable objects to rearrange the layout and make it more convenient
- Refitable: change of performance
- Convertible: change of function – space and services
- Scalable: change of volume and capacity of the building
- Movable: change of location of the fabric of the building

These criteria are further categorized by Heidrich et al. (2017) into two main groups: user-driven changes that do not impact the fabric of a building – the two first, while the rest embrace some changes to the design and fabric of the building.

To investigate deeper the type of change in the building fabric, an interesting conceptualization has been made by Duffy (1990) and Brand (1994) that buildings are composites of layers having various rates of change. These models focus on the changeability of buildings' structure and architecture. Based on their formulation, a building is composed of different elements with varying service lives.

The model proposed by Duffy (1990), distinguishes four layers which he calls shell – the building structure, service – the building systems, scenery – the interior fittings, and set – the building furnishings, and each layer has an approximately 50, 15, 5-7 year life span and on a daily basis, respectively. This concept was further developed by Brand (1994) as site, structure, skin, services, space plan, and stuff. Brand's demonstration illustrates that buildings have six shearing layers of change (Fig. 2). His proposition states the first layer is the site: which defines the boundaries and location of the building which lasts forever, the next layer, structure, is the various elements assembled to construct the building form with varying longevity can last 30 – 300 years, skin is the envelope of the building often changes with fashion and technology as well to increase indoor air quality with a life span of 20 years, services are the operating machine keep the building in service (e.g. electrical wiring, plumbing, HVAC) which need to be upgraded within 7-15 year, the next layer is the arrangement of walls and slabs with a 3—30 years modification frequency, and the last layer is the moveable equipment and appliances in the building which can be moved easily around on daily or monthly bases. Table 2 provides a brief comparison of Brand's and Duffy's approaches as the broken building into a series of layers.

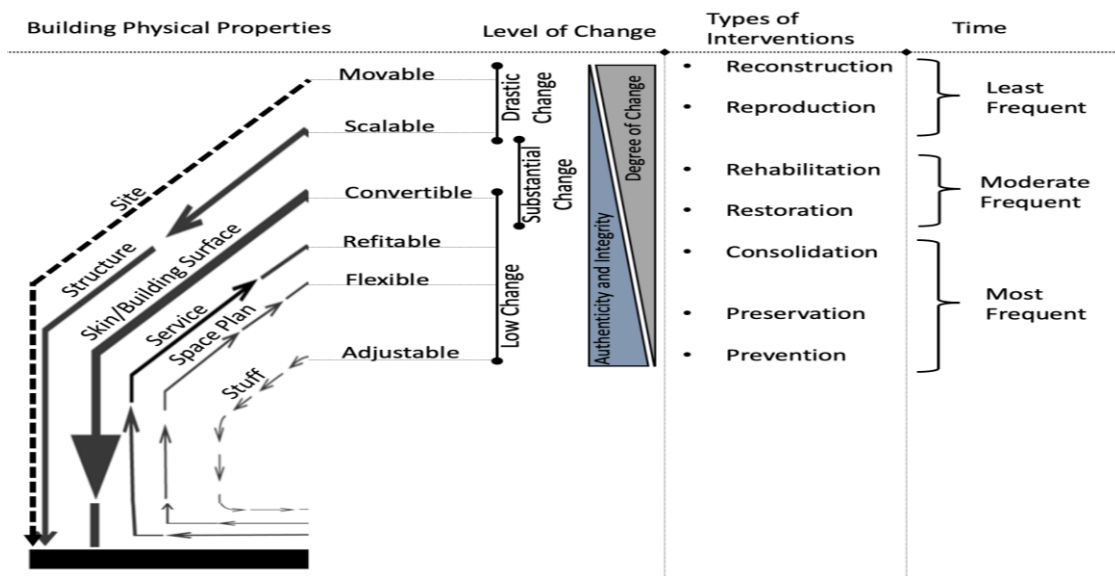


**Figure 2.** Building Layers, Brand (1994).

**Table 2.** Comparison of Duffy (1990) and Brand (1994) different layers of buildings and their relative life span.

Brands' definition of buildings layers			Duffy's definition of building layers		
Building Layer	Explanation	Time	Building Layer	Explanation	Time
Site	The urban location and the legally defined lot	Eternal	-	-	
Structure	The foundation and load-bearing elements	30-300 years	Shell	The building structure	50 years
Skin	Exterior surface	20 years			
Services	Building systems keep buildings operating	7-15 years	Service	The building systems	15 years
Space Planning	Interior layout	3-30 years	Scenery	The interior fittings	5-7 years
Stuff	Furnishing objects	daily/monthly	Set	The building furnishes	daily

In summary, the above articulation suggests that the buildings are not static entities they are dynamic and mutable and, if cared consciously, resilient as well. Change can enhance a building's character and performance. It may involve major internal space reorganisation and service upgrades or replacements (Bullen & Love, 2011) or minor refreshing to maintain the robustness of the building's age, history or artistic quality. It is the inherent properties of a building that give it the ability to change (Heidrich et al., 2017), and how far the change can alter the state of its heritage significance. A building is a system of indispensable integration of multi-layers. Despite their particularity, they are interrelated and work together. Figure 3 collides the Brand's identification of different layers with the different degree of changeability and the corresponding conservation approaches (shown in Figure 2) that a heritage building can go through. This diagram provides an option to fragment a building into layers, examine the magnitude, frequency and impact of change and define the appropriate intervention accordingly.



**Figure 3.** The degree of change in heritage buildings in relation to conservation policies, approaches, and the degree of the changeability of a building based on The Building Layers (Brands, 1994). Drawn by H. Fayez.

### 3.5. Traditional Shophouses and their Significance

According to Malay apprehension, “things that are handed down from generation to generation are defined ... as heritage or warisan” (Ariffin, 2013, p. 75). Some states in Malaysia are cherished with rich collections of historical buildings, handed down from old times, with diverse architectural styles where the traditional shophouses constitute the main typology in those urban fabrics (Shamsuddin, 2011). This building typology was originally introduced to Malayan societies by Chinese workers during the country's colonization in the 1800s (Hashim & Ghafar, 2005). Over time, they have evolved to adapt and suit the grounded circumstances of the colonized states (Wan Ali et al., 2016), nurtured with the intangible values of the multi-cultures, and as well matured in response to the tropical climate of this region (Wagner, 2017; Fels, 1994) (Zubir & Sulaiman, 2004; Zawawi & Abdullah, 2011; Tsutomi, 2008; Armani & Arbi, 2014). The ubiquitous mention is that these traditional shophouses are considered heritage assets with cultural significance and different attributed values (SAP TWD UNESCO George Town, 2022; Nomination Dossier Historic City of the Straits of Malacca, 2008; Gurstein & Badan Warisan Malaysia, 1990; Azmi et al., 2017; Elnokaly & Jun Fui, 2014; Wagner, 2017; Eddy et al., 2020; Fels, 1994). Therefore, these centuries-old historical buildings are the cultural legacy of Malaysians – demonstrate an extraordinary architectural style, and the subtle traditional way of workmanship, as well as environmentally adopted places (Harun, 2011).

For instance, the “exceptional architecture of shophouses” has contributed to the inscription of Melaka and George Town as UNESCO World Heritage Sites. The Malaysian State Party in the Nomination Dossier Historic City of the Straits of Malacca (2008) further defined: that shophouses<sup>3</sup> bear “living testimony” to the multi-cultural heritage and tradition in the region which “create a unique architecture, culture and townscape.” Hereon, justify the criteria of numbers (iii) and (iv) for the assessment of the outstanding universal value of the Straits of Malacca, which says, “bear a unique or at least exceptional testimony to a cultural tradition ...” and “be an outstanding example of a type of building, architectural ... which illustrates a significant stage in human history” respectively, in the Operational Guidelines (UNESCO, 2021, paragraph 77). Likewise, they enhance the local and national identity (Azmi et al., 2017; Elnokaly & Jun Fui, 2014; Wagner, 2017), even the accumulation of different architectural characteristics goes deeper to reveal the diverse ethnic identity (Eddy et al., 2020; Fels, 1994) in the region. In addition, Azmi et al. (2017) point to the intangible associations that signify this archetype with the particular events that had happened in the early development such as the Taiping town history, which was associated with the tin mining industry. The author further highlighted that these buildings possess many historically significant features that strengthen social cohesion and well-being within an urban environment.

### 3.6. The Tolerance of Traditional Shophouses to Change

Managing changes in heritage places is by understanding their tolerance for change and by identifying the likely impact of change on the significance of the building within their fabric. Thus, recognizing the attributes of a heritage place that are significant, assessing, analyzing and prioritizing them according to their sensitivity to change helps to define constraints and opportunities for each element to be managed (Burke, 2010).

To further narrow the niche, and in particular to look for what kind of changes to the physical features of a traditional shophouse in Peninsular Malaysia might be acceptable, or to what extent these traditional shophouses can tolerate change, a search of the literature review reveals the following picture:

Traditional shophouses are built on purely utilitarian principles. A hybrid architecture combines a residential and commercial space into a single place to better serve the convenience of the users (Wan Ali et al., 2016). According to Nomination Dossier Historic City of the Straits of Malacca (2008; SAP TWD UNESCO George Town, 2022), the architectural elements that embody the historical and aesthetic significance are: (1) the building form: entails the building height, jack roof, and internal courtyards; and (2) the urban form: encompasses their longitudinal rectangular form arranged in rows with uniform facades, facing main streets, the continuous covered

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<sup>3</sup> No description such as old, traditional, historic, or heritage has been assigned to the term shophouses used in the report.

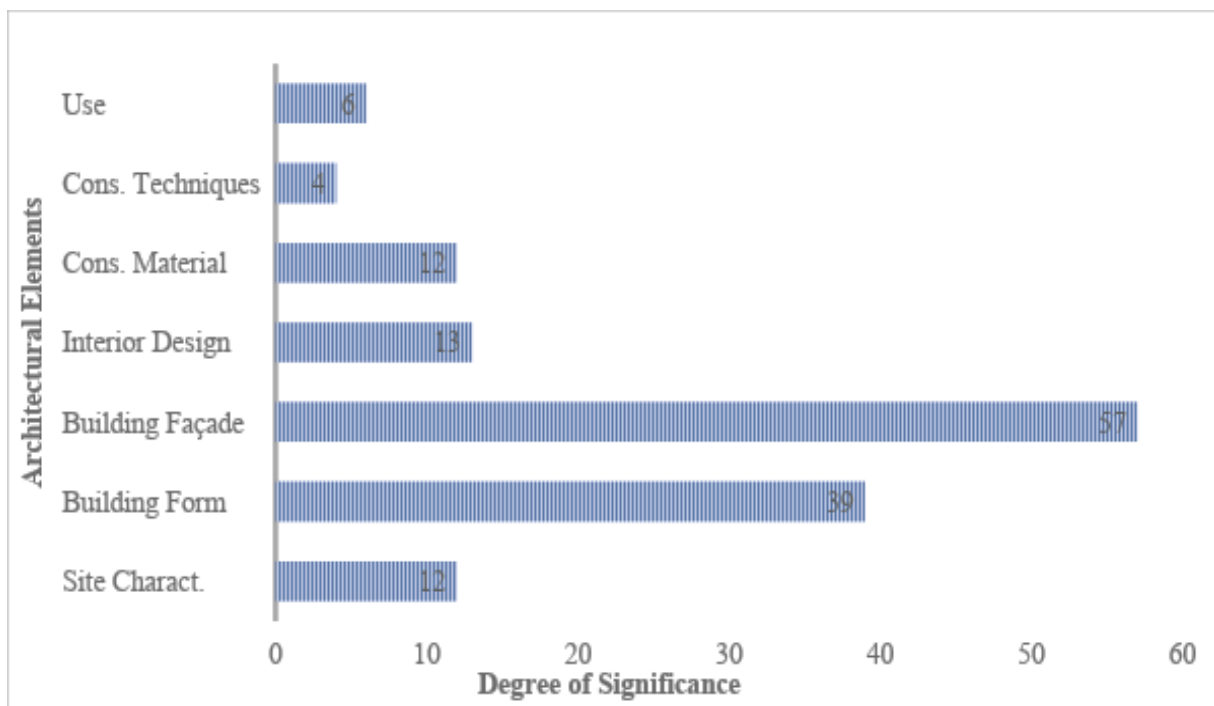
five-foot way in front; as well as (3) the building materials: such as the brick walls plastered with lime, wooden timber structures and clay roof tiles.

Indeed, the most appealing aspect of traditional shophouses is the fluent transformation of their form. The amalgamation of various cultures with the aid of traditional building techniques and skills manifested into architectural expressions, yet rich and distinctive. The architectural element that portrays this magnificent assimilation is the façade of the traditional shophouses (Knapp, 2003; Wan Ali & Ghafar Ahmad, 2022). Over the last two centuries, the façade has changed according to culture and style and developed into different architectural styles. Accordingly, Wagner (2017) contented six different architectural styles, while Nomination Dossier Historic Cities of the Straits of Malacca (2008) reported 9 and 7 - different variations in terms of design and style of shophouses in Melaka and George Town, respectively, Furthermore, Nordiana Wan Ali and A Ghafar Ahmad (2022), in their most recent research, proposed up to 17 different architectural styles according to the façade of the traditional shophouses. Perhaps the most fascinating aspect of traditional shophouses is the façade designs; different textures, colors, and architectural features are embodied. Hence, this suggests that change is inevitable and occurs progressively overtime.

In regard to traditional shophouse conservation practices such as those in George Town, the Penang State Government in 2010 established George Town World Heritage Incorporated (GTWHI) to manage the protection of the historic core and buffer zones. The general conservation approach they adopted for traditional shophouses was to maintain the façade, leaving the interior space open to be fully renovated (cited from Wagner, 2017, p. 42). Therefore, the façade of the traditional shophouses as the face of the building is the most important element that can clearly be referred to distinguish the architectural pattern, portray the trace of diverse socio-cultural influences overtime in Malaysian cities (Wan Ali & Ahmad, 2022). This suggests that there is a need for facades in traditional shophouses to be positioned as the main element to convey the historical, and aesthetic significance that ought to be preserved in conservation work.

Furthermore, concluding the significant architectural elements from previous sections such as site, building form and setting, design and construction material, with particular attention on the aesthetic characteristic of the façade, as this architectural element is mentioned to be of most importance for shophouses. Different cases were studied and assessed to understand the limits of change in shophouses when conservation takes place. Cases that were included in this study consist of the recent available practices, before 2015, one case from 1994 and one case as an element of a world heritage site, the Strait of Malacca. This selection is expected to demonstrate the limits of change over the last two decades, and the degree of significance of shophouses, as local or national heritage or part of a world heritage site. The findings are listed in Table 3.

The information deduced from the cases reviewed, Table 3, is summarized based on the degree of each element significance, mapped and presented in Figure 3.



**Figure 3.** The proportional significance of different building elements of the Traditional Shophouses. Graphed based on the data in Table 3.



**Table 3.** The different architectural characteristics demonstrate the cultural heritage significance of traditional shophouses resulting from the literature review.

Source/Scope		(Nomination Dossier Hist. City of the Straits of Malacca, 2008)	(Nor diana et al., 2022)	Zwain & Bahau ddin, 2021)	Eddy et al., 2020)	Mohd Barold in & Mohd Din, 2018)	(Wag ner, 2017)	Sabah, 2017)	(Azmi et al., 2017)	(Sabah & Abdul Samad , 2016)	(Abd ulqa der et al., 2016)	(Nor diana Wan Ali et al., 2016)	(Fels, 1994)	Total sub-category	Total
Category	sub-category														
<b>Site</b>	urban form	x						x		x		x		4	12
	location								x					1	
	kaki-lima	x					x	x	x	x		x	x	7	
<b>Building Form and Setting</b>	linear plan	x								x	x			3	39
	facing street	x						x	x			x	x	5	
	structure (beam/slab)		x						x				x	4	
	size/scale	x				x	x	x	x	x	x	x	x	9	
	courtyard/air-well	x		x				x	x			x	x	6	
	external wall		x		x							x		3	
	roof	x	x		x	x		x		x		x	x	8	

	addition/subtraction									x				1	
<b>Façade</b>	ornamentation	x	x		x	x	x	x	x	x		x	x	10	57
	entrance door	x	x		x	x	x	x	x			x		8	
	windows	x	x		x	x	x	x	x			x	x	9	
	fanlight vent	x	x			x	x	x	x			x	x	8	
	columns	x		x		x	x		x					5	
	surfacing (plaster, paint, tile)	x	x		x	x	x	x		x		x	x	9	
	design, order and placement				x	x		x		x		x		5	
	color	x							x	x				3	
<b>Interior Design</b>	spatial arrangement			x		x					x			3	13
	internal partition			x							x			2	
	staircase	x		x										2	
	black wood furniture	x									x			2	
	flooring tiles			x							x			2	

	ancestral hall	x											1		
	sitting room	x											1		
<b>Cons. Material</b>	brick walls	x	x			x		x				x	4	12	
	plastered with lime	x	x			x		x				x	4		
	wooden timber	x	x			x							3		
	clay roof tiles	x											1		
<b>Cos. Tech</b>		x	x						x			x	4	4	
<b>Use</b>							x	x	x	x		x	x	6	6
<b>Smell</b>									x					1	1
<b>Sound</b>									x					1	1
<b>Sight</b>									x					1	1
<b>Social Activity</b>									x				x	2	2
<b>Assosiation</b>									x					1	1

Case as part of world heritage site
  Cases from 2015
  Case from 1994

The results reveal the dominance of the building facades followed by the building form as the most significant architectural element to be protected in conservation work. Other elements with a considerable difference are interior design, construction material and site characteristics. Among the lowest are shophouse use and construction techniques. The architectural elements attributed to shaping the character of the façades include the number of building stories, the overall façade demarcation – the design, order, placement of components such as entrance doors, windows, air-vents, and columns; ornamentation – cornice, motives, geometric and floral patterns, windows, doors and vents framings; fenestrations – form and size of the openings, air-vents, entrance doors, and windows; surfacing material and color, as well as roof type and the 5-foot walkway (*kaki-lima*).

#### 4.0 DISCUSSION

We now elaborate to what extent this review and analysis have answered the objectives of this study.

##### **Objective 1: To define the limits of acceptable change in heritage buildings based on the authorized conservation norms.**

The acceptable limits of change identified from the heritage conservation legislative guidelines (Table 1) can be concluded as follow.

- The Venice Charter (ICOMOS, 1964) and the World Heritage Convention (UNESCO, 1972) emphasise the safeguarding of the tangible aspects of a heritage, the authenticity and integrity of the original form, material and function, history, color, setting and traditional craftsmanship. Authenticity as the core criterion, presenting historic and aesthetic significance, will be diminished by change, if alters the fabric and form. Thus, the established conservation approach is the one that counteracts changes inside and outside of a heritage building. If new work is mandatory for the survival of the heritage it must bear contemporary print.
- The Burra Charter (ICOMOS, 2013) and the Nara Document (ICOMOS, 1994) have established a more inclusive conservation approach by encompassing the intangible aspects of heritage. The need for and presence of change are acknowledged but demanded to be minimal and reversible. A building form and fabric, design, material, setting, use, meanings and associations, and traditions are the significant elements and need to be retained as much as possible. However, none has delineated a clear limit of change beyond which the state of authenticity and integrity will be irreversibly damaged.
- The National Heritage Act (2005), as the national conservation code, proposes a framework that is focused on the general aspects, mostly legal, such as provisions and legislation dealing with types, categories, status, and form of heritage. Despite being a national conservation code, it remains silent regarding the “how to” during practical implementations when intervention takes place. The well established criteria of heritage conservation such as authenticity and integrity, minimum level of intervention and/ or reversibility of the conservation work remained undiscussed. Neither did it particularly touch on the details of what physical elements contribute to the aesthetic significance of a heritage building, aside from design and form. Or how an intervention can alter those architectural elements remains abstract and left open to the Commissioners and local authorities to interpret and furnish the significance of a heritage. The criteria that designate an item as heritage are mentioned to be both tangible and intangible including history, design and aesthetic characteristics, meaning, richness, diversity, uniqueness, rarity and representativeness.

In summary, therefore, physical changes in heritage buildings evolved in conservation theories. Perhaps the most crucial and practical stands can be concluded as the understanding of conservation as a medium to arrest the decay to a process to manage changes and control the negative impact of change on the heritage building; denouncing the presence of change in the building (interior and exterior) and its immediate surroundings to admitting the flow of a gradual change; the original use of heritage building as permanent to change of use for an appropriate and practical function; the key concept of heritage authenticity as a fixed, immutable, and free of time and space revised to be relative, nonfixed, mutable, and context-dependent; eventually, conservation from serving the material past to be a comprehensive process integrates all stakeholders to serve communities. In this complex

stream, however, defining the limits of changes to a heritage building, what are the acceptable limits beyond which the significance of heritage would be considered compromised is conditional on heritage attributes and values, and the aims of conservation.

**Objective 2: To define the limits of change at the heritage building level.**

Intervening in a heritage building for its protection inevitably involves some degree of change and loss of significance (Figure 1). Nonetheless, identifying the right intervention approach according to the type of heritage building minimizes the native impacts of change. At the same time, this process as much as it is guided by conservation norms and furnished through the conservator's decisions on prioritizing heritage values and selecting the limits of change during the intervention approach, it is determined by the physical condition of the heritage building, how much it can tolerate the change without losing its significance. In fact, buildings operate as an apparatus of multiple layers, integrated systematically into one another. While each layer may function and change independently, at the end they are strongly chained and work together to create an efficiently livable environment.

Figure 3 maps the various layers of a building (Brands, 1994) to the degree of change. The change is considered low if it remains in the interior or slightly repairs the exterior of a building and does not intrude on the characteristics of the building's exterior design and craft. Here, conservation methods such as prevention, preservation and consolidation, perhaps, are the appropriate methods. Substantial change is when the building undergoes to some degree of loss of its cultural significance, due to the replacement of some original structural element that is needed for the rehabilitation of the building. Methods such as, e.g., rehabilitation and restoration can enhance the building's performance and justify it versus the loss of certain values for the sake of keeping the building alive. Lastly, the drastic change alters the form and fabric of the outer building's layers: the skin, the structure, and the site (Brands, 1994). It will severely affect the state of the architectural integrity of the building and diminishes its cultural significance beyond any justification.

**Objective 3: To assess and apply the limits of change to real-case buildings – the tolerance of traditional shophouses to change.**

The results concluded from the two objectives of the study applied to traditional shophouses. Overall, the findings highlight that the most significant architectural element is the façade of the traditional shophouses, followed by building form and setting. Interior layout, construction material and site came after. National policies leave the identification and appropriation of any transformation of heritage buildings in the hands of Commissioners, a conservation expert, to verify, approve and monitor the work. The limits of acceptable change during intervention in traditional shophouses vary from very restricted to be open for transformation to meet the purpose of the conservation work. The shophouses outer shell is considered the most significant architectural element because it carries historic and aesthetic qualities and is intolerant of change. Particularly, the façade as the immediate appearance, portrays the building's image, including design, demarcations and ornamentations is hardly allowed new changes.

Over the years, different architectural styles have appeared. The shophouse façade as the main representative of such styles, demonstrates that architectural elements evolved into new forms, but the general design, order and placement of fenestrations and ornamentations relatively remained similar, which also hold the equivalent significance.

On other hand, the exploration into finding the tolerance of traditional shophouses shows that the interior design is important to know the previous people's test and way of living, but it is still subject to a higher level of change. It is due to the need to improve the shophouses economic and utility values and supported by the local authorities (GTWHI, 2010; cited from Wagner, 2017, p. 42). Likewise, the construction materials as long as they maintain harmony, and the site characteristics, the urban form in the vicinity, can tolerate more changes.

## 5.0 CONCLUSION

Modern understanding of heritage describes it as a sociocultural phenomenon that shifted heritage conservation from a tangible and static object to a dynamic and evolving process. Thus, intervening in a heritage building for its protection and improvement inevitably involves some degree of change and, therefore, loss of some significance (Figure 1). Nonetheless, conservation should aim to identify the right intervention approach to minimize the native impacts of change to the least possible. While earlier international methods showed a strong intolerance to change, e.g., The Venice Charter (ICOMOS, 1964), acknowledging the presence of change and focusing on the management of change, e.g., The Burra Charter (ICOMOS, 2013). The aim here is to carefully manage changes and the limit of acceptable change is a variant of heritage significance.

The importance deduced from authorized heritage conservation discourse is that necessarily there is no more tolerance to change, however, the limits of change are not defined by universal norms but based on the circumstances of the context in which that heritage is held. However, the national conservation document (National Heritage Act, 2005) did not scope to describe the details on limits of change in heritage conservation but assigned this responsibility to the experts, the Commissioners.

On the ground conservation practice, the conservation of traditional shophouses, reveals that the limit of acceptable change varies from most minimal on the outer layer of the traditional shophouses to being more flexible when changing the interior design to improve the utility of the shophouses in response to contemporary life and the users' wellbeing. Thus, prove the impracticality of applying conservation norms that deny transformation.

## ABBREVIATIONS

UNESCO	United Nations Educational, Scientific and Cultural Organization
ICOMOS	International Council on Monuments and Sites
WHC	World Heritage Convention
NHA	National Heritage Act of Malaysia

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