

AESTHETIC ASPECTS OF INFILL ARCHITECTURE IN HERITAGE CITY; A STUDY WITH REFERENCE TO KANDY

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Abstract

Development of a city is a unique historical process, which has grown up over centuries and derived its shape and appearance. The concept “Caring cities” form on the ground in terms of the tangible “experience” of our cities. The physical structure of a city is the result of the order of the built form, which is a creation of man of living. Within this physical structure, built fabric becomes the most important component, as it contains of people that creates the image of the city. To liveable and lovable, cities need to be continuously cared for and managed.

The unified environment is harmonious and has a distinctive architectural character and townscape value. When designing an infill building in a heritage context, it is essential to consider about the aesthetic aspect and contextual design. Previous studies have focused on compatibility of new buildings and their surroundings but not on the aesthetical features that are needed to preserve its cultural harmony. Making guidelines is not the sole purposes of infill designing in a heritage context but also there should be a better understating of visual harmony which makes the sense of the place and the aesthetic value of the buildings. Such as mass, colour rhythm proportions etc.

The author suggests five aesthetic design strategies that the author has developed according to Davis (2003), Semes (2007) and Shane (1976). Those five strategies were applied to the selected ten buildings in three different streets in Kandy city namely Dalada Veediya, Temple Road and Deva Veediya were examined.

The design of infill buildings should respect the aesthetic character of the context and it should be harmonious with the surrounding. This research is based on existing vulnerable situation of Kandy and inappropriate maintaining process of historic city by infill architecture. Facilities for the city have been provided according to needs of the city without considering any value. This undesirable growth can be seen as breaking position of the linkage of past, present and future situation of the city. Therefore it is necessary to use proper methods to fulfil aesthetic sense of infill buildings.

Keywords: Aesthetic, Fitness, Compatibility, Heritage Context, Infill design, Character, Harmony, Tangible.

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Introduction

“Those who are able to see beyond the shadow and lies of their culture will never be understood, let alone believed by masses” - Plato (427-347 B.C) -

History, culture and heritage of a city or country describe the nation and people who were there. People, who understand the value of their own culture, live in a disciplined life style. For that, there should be a suitable environment and that has to be created by the architects and city planners based on the environment. The value of the cultural heritage city is important socially, culturally and economically for the people who live there and people who come to get the essence from it.

Designing in a historically important city while keeping the spirit and the sense of that place, is one of the major critical challenges faced by architects, urban designers and planners. To be successful in a historical context the designer should have a better understanding about the historical environment, its components, aesthetical value and parts and how these work together to create whole. However, the designers have tried to infill buildings in a historic setting by responding to its historic context before the modernism. But now a days, designers and architects are trying to come up with new innovative design concepts without responding its environment.

Based on the study, it is evident that Kandy, one of the most important heritage city in the island, is losing its value due to new developments. Though, there are lot of institutes, guidelines and regulations, less has successfully applied for new development in Kandy city. Kandy consists of more important places that have involved with historical, socio cultural, environmental, religious, administrative value. Because of new development in the city, it believed that heritage of Kandy will be a typical urban polluted city in the near future. Therefore, the study area focuses on identifying the aesthetic impacts on infill architecture of the heritage city and the way of applying the strategies to infill buildings according to theoretical framework.

Research Background

Issues Identified

The historic built environment of the city has started to lose its character and sense of the place, mainly due to the new constructions, which do not respond positively to the heritage setting. A historic city as living space, continuously makes pros. Day by day, it changes with its qualities and elements, area of activities, moving people in to city, and life of the city become complex. In this city growing process, bad impacts on the historic city characters of could be identified. In this case, few aspects involved in destroying the value of the Kandy city, were identified. Some of them are political impacts, some sociological issues, and some bad influence of economic development and high density of population etc. As a key issue, unplanned developments can be identified as most prominent reason to destroy the historic city in Kandy.

Justification of the study

Though there are a lot of institutions for creating guidelines and control unsuitable projects, less has been implemented. As a result of unsuitable infill buildings, historic value of Kandy is in danger. In this study, the influence of infill buildings in Kandy will be identified and also the aesthetic characteristics which are harmful for the historical context will be identified.

Considering all these it is clear that there is a dire need to do a research about the existing situation and aesthetic response to heritage setting in Kandy.

Objectives of the study

The research area is based on existing situation of Kandy and unsuitable building fabric which has influenced aesthetic value of historic city. The infill architecture has influenced; visually, contextually as proportions, mass, color form sizes, rhythm etc. The study shows that the main reason of losing the identity of “Kandy” is due to the new developments which do not respond to the historic context. The main purpose of the study is to observe historical context and discuss aesthetic aspects of infill architecture and how it has influenced the city with reference to theoretical frame work. The findings of the analytical study can be recommended as design strategies for further development in historic cities in Sri Lanka.

Scope and Imitations

The research area is based on existing situation of Kandy and unsuitable building fabric which has affected the aesthetic value of the historic city. The infill architecture has influenced; visually, contextually, properties, mass, color, form, sizes, rhythm etc.

There are many studies that have focused on compatibility of new buildings and their surroundings. Aesthetic features that need to preserve its cultural harmony have never been discussed by previous studies. So the scope of this study is on aesthetic aspects of infill architecture in a heritage city.

Research outcome

As a research outcome, it provides with Proper identification of the impact of both historic & contemporary urban characteristics in a particular city. Ability to create a visual linkage to building categories and activity pattern in an urban infill. As architects or city planners, should understand that the heritage city needs to allow for new developments while responding to the historic value according to design strategies.

The City and The Historic Living city:

“Cities, that is by large, relative dense settlements of heterogeneous around themselves.”

- Kevin Lynch good city form (1981) –

The city is a large permanent human settlement with a lot of human activities related to trade public work and the city also act as an administrative centre. It is a dynamic organism with physical entity, a social phenomenon and an economic unit. The manifests itself is continuously changed, being exposed to economic, physical, socio cultural and administrative forces.

The city is rooted in the habits and customs of the people who inhabit it. The consequence is that the city possesses a moral as well as a physical organization, and these two mutually interact in characteristic ways to mold and modify one another. On the other hand, this vast organization which has arisen in response to the needs of its inhabitants, once formed, imposes itself upon them as a crude external fact, and forms them, in turn, in accordance with the design and interests which it incorporates.

(E. Park The city 1915: page 4)

Kandy heritage city is growing and expanding while struggling to have competitive trade and commerce, industry and an ever-increasing variety of services prevails, this is unlikely to happen unless necessary steps are taken to ensure that this is pursued as one of the objectives of a plan of development of the city as a whole. Eventually, the old city has become livelier and the habitable present city and the ancient parts have been merged to form one city in Kandy. So it is considerable that there is always a conflict between preservation and development. Old buildings have been adopted and modified for present day usage.

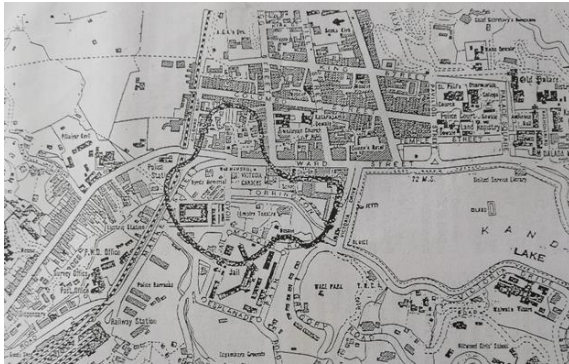


Figure 1: Map of Kandy; (Source: World heritage city of Kandy)



Figure 2: Historic living City of Kandy; (Source: <https://www.google.com>)

Infill architecture is also one important section of new architecture in a historic city. Infill buildings are always situated in between historic buildings or objects. In historic cities, there is a public interest beyond that of client or architectural inventiveness. No developer or architect has the right to destroy the quality of an ancient street or the setting of an historical building. Doing opposite is not always infill architecture in a historic setting, but it could be a revival of a previous architectural style. There have been times in the past when it was fashionable to use historical styles to generate the design of infill buildings. When designing new development in a historic setting, guidelines can be considered as a key technique. However the final result should be that infill design should be respond to its existing historical context.

Character of heritage city of Kandy:

When considering the tangible context of Kandy city, very important and significant object buildings are identified scattered all over the city. These buildings are very different to each other by their architectural style and function too. There are various type of buildings in Kandy city, such as; religious temples, churches, mosque, land mark, old post office, Sylvester collage etc. The most significant and spiritual imagery of the city is the temple of tooth.



Figure 3:
Clock Tower



Figure 4:
Temple of the Tooth



Figure 5:
Tank in Kandy

Single or two storied narrow building facades and large scaled wide colonial building facades define the pathways of city. There is specific hierarchy that has been maintained in the enclosure of the space. Interesting sceneries are the most important aspect of the city. Every end of the street offers green hill side panoramic view and framed views, such as Udawattakele, Bahirawa kanda and Hanthana. These sceneries give the person a visual interaction with nature and more emotional feelings.

The intangible Kandy city, consists of many visual and spatial concepts of Indian, British, postmodern etc., and organized in a regular gridiron spatial order. The city character is unable to categorize as a dynamic for the presence. The city is apparent, is not organic in character, for how the nature features were incorporated in the spatial organization of the city was more or less determined by cultural aspiration associated with it.

New developments of the built Environment of the city of Kandy:

As discussed above Kandy is unique with physical and qualitative characters. As Kandy is growing rapidly, construction of new buildings in the old context is happening swiftly than ever. Core area of the city is mostly filled with buildings. Settlements are trying to spread towards the western range of Hanthana Mountain toward Lewella at the eastern side has taken place. And also people are doing settlements along D.S. Senanayake Weediya to Katugasthota on northern side. But the contextual respond of these constructions are weak as this development destroys the natural environment and panoramic view on the hill side.

Kandy is full of different types of architectural styles. All these express unique character of that period. But those are respected to past while maintaining historical layers of development process. But the new construction process violates the old architectural style without responding to the context. It directly affects the total image of the city.



Figure: 6: Infill buildings in Kandy
(Source: Author)



Figure: 7: Infill buildings in Dalada veediya
(Source: Author)

New construction process has different materials, details, colours, textures, and scale when compared with old buildings. When considering the present situation the scales have become unimportant matter in construction. As an example; new bank of Ceylon building is constructed with new material such as; wall tile, glass and aluminium. Detailing is closed to British style. By installing a Kandyan roof, designer has tried to give a Kandyan character to the building. But only the Kandyan roof alone can't crate that unique style. It is about composition, proportions and combinations of other all factors.



Figure: 8: Panorama view of Infill buildings in Dalada veediya
(Source: Author)

Aesthetic Strategies of new architecture in a heritage city:

Creating or designing an infill architectural environment which fits into a sympathetic manner with the existing heritage built fabric, is so difficult and it's demanding the infill development in heritage built fabric. The most significant evidences of the past life style are heritage urban sites and cultural contexts. By motivating the cultural properties by enhancing architectural and aesthetic characteristics of heritage settings, visual sense, improving their heritage built environment are the main goals of the conservation and preservation.

According to (Davies,2003), as cited in (Sotoudeh,H. Abdullah,W.M.Z.W. & Wan, 2012) there are more than one way of designing and planning of new development in a heritage built environment. Mostly it depends on the owner, cost, influences, aspirations of the building owner, cost, aesthetic sensibility of planner, the skill of the designer of the building and so on. (Davies, 2003), Davies has mention about good designs which can be designed in heritage setting. If the new building fabric controls the environment of existing setting, the historic character might also be moderated, while a comparatively indifferent design might enhance the historic qualities of the existing environment. However, these treatments for 'good' design are no alternatives for the skill of the designer. Even the most passive design can ruin the presence of a beautiful old building or street. Davis has given five different approaches for new designs in historic settings; "The pastiche approach, Traditional approach, Subtle approach, Modern approach and Arrogant approach."

In the period of post-war, it was an important issue that how to construct new development by considering enhancement and appropriately support according to its heritage setting, rather than, detract form, historic buildings and regulatory protection. So the designing infill buildings or new addition a building which is similar styles as "fitting" was a rear issue. According to Steven W. Semes, (2007), also mentions that the balance between differentiation and compatibility will, in fact, vary from case to case, and so the architect preservationist must approach each project with a range of options rather than a single rule. Semes has given four different strategies for new designs in historic settings; "Literal replication, Invention within a style, Abstract reference, Intentional opposition."

Shane, (1976) has explained about some aesthetical aspects and it helps to create the theoretical framework according to research area: copying imitating or reinterpreting its older neighbour is the most widely used approach to architectural compatibility. Shane (1976) pointed out four levels of correspondence might be observed: "Facsimile, Correlation, Simile, Metaphor, and Contrast."

Suggestions by author according to design strategies:

According to Semes (2007) and Davis (2003) strategies they introduced different infill development approaches to design in a heritage setting. The relationship of balance between infill buildings and its heritage context is the most important feature when designing new buildings in heritage context. While Semes (2007) and Davis mostly consider about the examining about the infill development in historic setting, Shane has pointed out for levels of correspondence which should consider for compatible designing. Observing those all the strategies of Semes (2007), Davis (2003) and Shane (1976), I have created some suggestions according to design strategies by focusing aesthetic aspects of the heritage built environment. Suggested design strategies are:

Imitate - Exact imitation or mirroring of older facades is the extreme level of replication used generally in sensitive historical sites. (The design should be prioritizes compatibility and minimize differentiation, Focusing on sustain the main character by considering the heritage context and its culture, the intangible aspects should imitate according to relevant historic setting.)

Relate - Achieving harmony by relating design features or elements relationships of the new building to its older neighbour. (For the infill design, adds new elements which are closely related to the older design, Sustaining the essence of the architectural character and language, Main focus is to balance between the aesthetic quality of differentiation and compatibility, Find out the appropriate and harmonious relationships of mass, scale, colour, materials and textures.)

Duplicate - Copying specific design features from the prevailing styles to establish a visual conceptual link as demonstrated in ecclesiastical architecture. (For the infill design, copying specific design features from the older design, Create a visual and conceptual link between old and new, Reflects the older details and geometrical principals, Design features maximize the differentiations but keeping the compatibility.)

Conceptual - Copying design element and relation to achieve a harmony with the context, instead it should go beyond such superficiality and consider more significant issue. (The strategies are limited by formal language or classism, Design should keep the main elements in abstract way and symbolic, Keeping the cultural aspects and ritual roles and primary strategies can be applied for it, new designs can be related to the old designs, but in a conceptual way to enhance the phenomenological or imaginary level.)

Contrast - A minimum ratio or background to object is needed to achieve the balance needed in contrasting relationship. (This design way is prioritizing the differentiation at the expenses of compatibility, Minimum ratio or background to objects from the heritage settings and to archive balance needed in a contrasting relationship, If used careless and contrast design can occur a disordering or confusion way by itself, If object is contrast it should be an essential part of the design concept.)

Methodology: Research design process:

As a case study Kandy is the most important heritage city because it has faced problems in a critical way. However, the study is more towards the quantitative study. Three different layers of time in Kandy heritage city, which has clearly developed as Pre-British period developments, British period developments and contemporary developments can be identified. The contemporary

developments can be divided in to another two different time layers such as post independent development (1948-80s') and present day developments.

Buildings along Dalada veediya, Temple road and Deva veediya were selected as case study area, because those are the busiest roads situated next to Temple of the tooth. So it is a more important area to be considered when applying infill architecture according to aesthetic aspects.

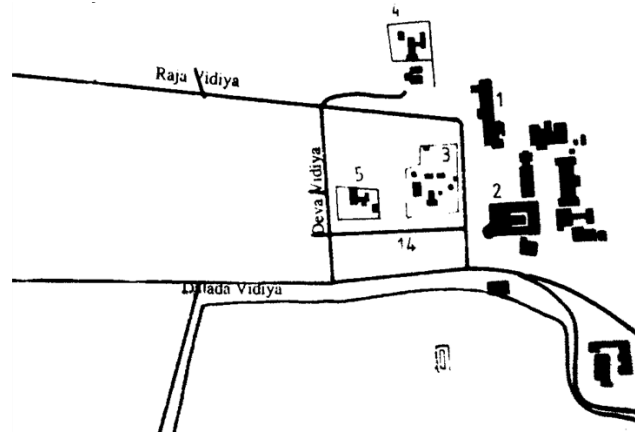


Figure: 8: Panorama view of Infill buildings in Dalada veediya; (Source: Author)

As the first step, buildings along to Dalada veediya, Temple road and Deva veediya were categorized in to the time layers as mentioned. Categorized buildings are shown in the Appendix 01

Appendix: 01

Name of establishment	Year of construction	Present use	Building character	Description on the building
Bank of Ceylon building	1900-1950	Bank/Offices	British colonial	Three storied building with timber balustrade and valance board
The Bake House Kandy(Pvt.Ltd)	1850-1900	Restaurant	Dutch Kandyan	Front facade is single storied and the three storied section on one part is set backed from the street, half round tile roof with masonry moldings and Doric columns The original would have been a beautiful facade. Still the proportions and character is charming Colonnaded front may have been a verandah
People's Bank	After 1950	Bank	Sri Lankan classic	Two storied with double height front verandah lined with square columns Modern construction that clusters with other buildings
Champa stores	1900-1950	Shop	British	Two storied building with glass or timber windows
Kodithuwakku Arachchi Building	After 1950	Office	British colonial/Sri Lanka	Three storied building with double height verandah on 1 st floor, Square columns with lotus moldings Building with mixed character and Sri Lanka
Lake House building (Bank of Ceylon)	1900-1950 'B'	Bank/Offices	British colonial	Three storied building Timber/glass doors and windows Imposing building with colonial features, square pilasters with moldings
Lawyers buildings	Around 1850 'A'	Offices	British colonial/Kandyan	Single storied, half round tile roof Beautifully proportioned buildings
DFCC building	1850-1900	Commercial	British/Kandyan	Two storied building with glass/timber doors and windows with fanlight. Proportions provide a good example to guide new establishment.

Olde empire	1857 'A'	Hotel	Dutch/British	Low rise two storied building with half round tile roof and simple timber valance board Gorgeous front arches and cast iron balustrade on upper floor
Pizza Hut building	1936 'B'	Shop	British colonial	Low riser with two stories Calicut tile roof Gorgeous gable and intricate designs.

Brolin (1980), has discussed about new building which are designed in heritage context can be compatible or differentiated from the surrounding building by considering some design criteria. As, Massing: how the main masses of the building are composed, Spacing from adjacent buildings, Approximate height, Keeping distance from the street, Facade symmetry and directionality, Shape and outline, Window and door locations, Window and door size and asymmetry, Material, scale and colour (Tiesdell et. al, 2010), the basic design criteria which help to achieve contextual design in heritage built environments are shows in below table. According to the analysing information about building has based on this below table.

Table 1: Design Criteria for Achieving Contextual Harmony (Adopted from Tiesdell, 2003 & Brolin, 1980)

Design Criteria	Contextual/Compatible - ●	
	Non- Contextual/Incompatible - ○	
Spatial Characters	Massing	Three-dimensional character of the building mass is massing.
	Sitting	Concern about the occupation of the building to its site and the relation of it with street or other spaces and other buildings.
	Height	Consider about the consistency of new buildings with their neighbors' rooflines, the existing height of the neighborhood.
Visual Characters	Set back	Respect to the set back of buildings from the street.
	Orientation	Consider about the respect of the entrance of buildings with its neighboring buildings.
	Rhythm	Organization and size of the component of a building's facade that is usually repeated.
Visual Characters	Proportion	Consider about the relation between, for example, the different parts of a building, and between any part and the whole.
	Material & Color	Material helps to establish a significant local distinctiveness by manifesting the color and leading a various range of vernacular building traditions and materials.
	Scale	Concerns dimensions of buildings and perception of it relative to the objects around it

The research focuses on aesthetic aspect of infill architecture in Kandy. After identifying the time layers of buildings according to Appendix 01, analysing aesthetical building information shows in appendix 02. For those design criteria, has considered about the contextual compatibility and non-contextual compatibility

Table 2: Analysis of Compatibility

Analysis of Compatibility of....			
Design Criteria	Contextual/Compatible - ● Non- contextual / Incompatible - ○	Result of the analysis	Map / Picture
Massing	○		
Setting	○		
Height	○		

As discussed in before, strategies according to Semes (2007), Davis (2003) and Shane (1976), the author have suggested aesthetic design factor which categorize building according to its aesthetic features with sense to its heritage setting. Such as; “Imitate, Relate, Duplicate, Conceptual, Contrast.”

Table 3: Identifying building category According to suggested aesthetic strategies

Suggested Aesthetic Design Strategy by author	Imitate	Relate	Duplicate	Conceptual	Contrast
Buildings / Building Cases					

The main study focuses on how the new development has been done in the heritage setting in relation to aesthetic aspects of heritage built environment. According to previous analysis of compatibility table

Imitate	81 – 100 %
Relate	61 – 80 %
Duplicate	41 – 60 %
Conceptual	21 – 40 %
Contrast	0 – 20 %

If the building is Non- contextual / incompatible, it contains 0%. If the building is Contextual / compatible, it contains 10%. After analysis of compatibility, it is easy to categorize buildings, according to suggested aesthetic design strategies as mentioned above percentage ratings.

Basically, this questionnaire is based on new buildings, British period buildings and as well as the Per- British (king’s period) buildings. Through this, there are five properties which is asked for their preferences about the building which in contrast to immediate context. The five properties are: “Consistency, Relevance, Powerfulness, Similarity, and Friendliness.” For this Questionnaire, there were 30 respondents who had completed GCE advanced level. The reason behind the selecting specific category is, the advance level students have more expose to the smart knowledge with well sensitivity for to interpret a place, and they active in a place with different movement according to the spatial arrangement and visual fitness of a space. A picture of the building was attached to the questionnaire to identify the building. The analysed questionnaire shows in Appendix 02. (Page.19)

The survey proves the aesthetic response to its heritage context. However, the suggested strategies and the user respond is verified, aesthetic aspects of the heritage setting is important to create the sense of the place.

Study of infill architecture in kandy:

Dalada veediya is a one of busiest roads in Kandy. It begins from the point of clock tower which ends at the junction where the Sangaraja Mawatha is located. Most importantly this main road creates access to Dalada Maligawa. Therefore this main street is prominent in visitor’s mind. At the same time, this road is used by people who come from other streets to access Dalada Maligawa. Comparatively to other street, this street appears to be narrow and pedestrian pavement is quite wider than other streets. At present Dalada Veediya is the main commercial area of the city within

which the activities exist in different shapes and forms. The building fabric of this street has the features of urbanized area.

Identifying aesthetic aspect of Dalada Veediya, is one of the important study which needs to create a sensitive environment in heritage city of Kandy. Due to its changes of new built construction the sense of the heritage setting has damaged its context. Some issues could be solved if focused on aesthetical aspects, when infill designing and it would help keep the heritage built environment sensitively. Dalada Veediya is a major road which should keep the character of heritage value. For study about Aesthetic character of infill architecture in Dalada Veediya, there are few specific building which were selected according to different time layers. The selected case studies along to Dalada Veediya are; BOC building, Lake house building, White house building, People’s bank building, Bake house building, Chapma Stores.

The study alone to Dalada Veediya, by analyzing those above six buildings, about design criteria for achieving contextual harmony, helped to categorize the building according to suggested aesthetical design strategies. A summary of that categorized buildings can be shown as;

Table 4: Identifying building category According to suggested aesthetic strategies along Dalada Veediya

Suggested Aesthetic Design Strategy by author	Imitate	Relate	Duplicate	Conceptual	Contrast
Buildings / Building Cases	Bake house building	Lake house building	People’s bank building	BOC building	Champa Stores building
		White house building			

User response to the changes of built environment is shown in Appendix 02 according to five design properties. The over view of user response is depicted below as a percentage

Table 5: User response to the selected building along Dalada Veediya

Buildings /Building Cases	Consistency	Relevance	Powerfulness	Similarity	Friendliness
Bake house building	78%	81%	78%	78%	84%
Lake house building	64%	66%	68%	65%	67%
White house building	59%	61%	60%	62%	63%
People’s bank building	68%	60%	57%	57%	64%
BOC building	58%	68%	63%	58%	50%
Champa Store building	27%	33%	25%	30%	34%

Analytical study of user response to its heritage context and buildings of Dalada Veediya, users are more attractive and appreciate Bake house building according to the response of above five factors. Friendliness has got the highest percentage than other four factors of Bake house building. At the same time, its consistency, powerfulness and similarity are in a same percentage. According

to analytical study of user respond to the Champa store building in Dalada Veediya, it has the lowest user response to the aesthetical factors.

Temple road is another busier road where mostly pilgrims use for secondary access into Dalada Maligawa. At the same time most of the florists are using this area from morning to evening. In festival season, this area is dedicated for “Perahara”. There for this area is prominent for pilgrims and visitors who comes to worship “Temple of the Tooth Relic”. The Temple road begins from the point of “Bo-tree” where the new entrance of the Dalada Maligawa and it ends at the junction where The Central Cultural Fund Books sales shop is located. Comparatively to other streets this street is short and narrow.

Identifying aesthetic aspect of Temple road is one of important studies which should respond to create a sensitive environment according to its context. Because of the pilgrims who come to worship “Temple of the Tooth”, the buildings should be responding to the heritage built environment. For the study about aesthetic character of infill architecture in Temple Road, there are two specific building selected according to different time layers. The selected case studies along to Temple road are; Pizza Hut building, Olde Empire building. Analysing compatibility according to its heritage context by using above two buildings which has constructed according to different time layers and categorizing those buildings according to suggested design strategies.

The study alone to Temple Road, by analyzing those above two buildings, about design criteria for achieving contextual harmony, was helped to categorize the building according to suggested aesthetical design strategies. As a summary of that categorized two buildings can be shown as;

Table 6: Identifying building category According to suggested aesthetic strategies along Temple Road

Suggested Aesthetic Design Strategy by author	Imitate	Relate	Duplicate	Conceptual	Contrast
Buildings / Building Cases		Olde Empire building	Pizza Hut building		

User response to the changes of built environment is shown in Appendix 02 according to five design properties. The over view of user response is given below as a percentage,

Table 7: User response to the selected building along Temple Road

Buildings /Building Cases in Temple Road	Consistency	Relevance	Powerfulness	Similarity	Friendliness
Olde empire building	66%	71%	72%	73%	78%
Pizza hut building	63%	61%	53%	52%	63%

According to analytical study of user response to its heritage context and buildings of Temple Road, users are more attracted and appreciate Olde Empire building. Friendliness has got the highest

percentage mark than other four factors. In Temple road, the selected two buildings respond to its context. This is proved by the user responses towards to the aesthetic aspect of those buildings.

Deva Veediya is another busy road at day time in the city of Kandy. It begins from where The Cultural Fund Books and Republication building was located in Temple road and it ends where the Raja Veediya starts. Most importantly this road is used for officers and commercial purposes at day time. At the same time, this road is created as a secondary access to Dalada Maligawa. The lawyers' building which is mainly highlighted as a linear building in this street is mainly used by Lawyers and the users come for official and commercial purposes. Therefore this street is prominent for lawyers, officers and also pilgrims who come to Dalada Maigawa. This street appears liner and narrow pedestrian pavement is used for official and commercial purposes.

Identifying aesthetic aspect of Deva Veediya which needs to create a sensitive environment in heritage city of Kandy is an important study. For study about Aesthetic character of infill architecture in Deva Veediya, there are two specific building selected according to different time layers. The selected case studies along Deva Veediya are; Lawyers' building, DFCC building. Analyzing compatibility according to its heritage context by using above two buildings which has constructed according to different time layers and categorizing those buildings according to suggested design strategies.

The study alone to Deva Veediya, by analyzing those above two buildings, about design criteria for achieving contextual harmony, was helped to categorize the building according to suggested aesthetical design strategies. As a summary of that categorized two buildings can be shown as;

Table 8: Identifying building category According to suggested aesthetic strategies along Deva Veediya

Suggested Aesthetic Design Strategy by author	Imitate	Relate	Duplicate	Conceptual	Contrast
Buildings / Building Cases	Lawyers' building	DFCC building			

User response to the changes of built environment has shown in Appendix 02 according to five design properties. The over view of user response is shown below as a percentage,

Table 9: User response to the selected building along Deva Veediya

Buildings /Building Cases	Consistency	Relevance	Powerfulness	Similarity	Friendliness
Lawyers' building	77%	83%	75%	72%	82%
DFCC building	63%	57%	54%	59%	58%

Analytical study of user response to its heritage context and buildings of Deva Veediya, users are more attracted and appreciate Lawyers' building according to the response of above five factors. Friendliness has got the highest percentage mark than other four factors.

Infill architecture constructed in a heritage context makes it easy to identify and understand building characteristics. At the same time, creating guidelines for aesthetic aspects from these suggested strategies is one of major objective of this study. However, this analytical study helpful for designing buildings with responding to its heritage context with keeping the sense of the environment.

Analysis of the study:

The above study discussed on ten buildings which have been gone thorough in different time layers in Kandy city. Six buildings were selected from Dalada Veediya which is a commercial and busy street in Kandy. According to analytical study of Bake House building it respond to context. At the same time visual harmony of this building has responded by material and colour. Considering the suggested design strategies by author the Bake House building has been identified as 'Imitate' design strategy. This was the mostly responded building into its context with visual harmony which imitates the aesthetic aspects from heritage build environment in Dalada Veediya. The user response to the Bake House building also prove that the building has responded to the heritage setting. According to analytical study of Champa stores building was not positively responded to its context. At the same time visual harmony of this building has not responded to its contextual materials and the colour considering the suggested design strategies by author Champa store building has been identified as 'Contrast' design strategy.

In the second study, two buildings were selected from the Temple road which has mostly used by pilgrims and tourists in Kandy. According to analytical study of Olde Empire building was responded to its context. Visual harmony of this building has responded by its colour and material of the context. The Olde Empire building has been identified as 'Relate' design strategy. This was the fairly responded building into its context with visual harmony which relate to the aesthetic aspects in heritage build environment in Temple road. The user respond to Olde Empire building also prove that the building the building has fairly responded to its context. According to analytical study of Pizza Hut building has fairly responded to its context. Visual harmony of this building has not that much responded to its context Due to infilling new material the aesthetic aspect of this building has destroyed unfortunately. Considering suggested design strategies by author the Pizza Hut building has been identified as 'Duplicate' design strategy. The aesthetic aspects of this building features has duplicated from its heritage setting. User respond to its aesthetic experience also prove that the building is not that much harmonies to its context.

In the third study, two buildings were selected from the Deva Veediya which has mostly used by officers and Lawyers. According to analytical study of Lawyers' building was positively responded to its context. Visual harmony of this building has responded by its colour and material of the context. Considering suggested design strategies by author the Lawyers' building has been identified as 'Imitate' design strategy. User responded to this building has proved that building has a highest quality of friendliness. According to analytical study of DFCC building has responded to its context. Visual harmony of this building has not that much responded to its context. Due to infilling new material the aesthetic aspect of this building has destroyed its aesthetic value. The visual sense of this building has vanished because of adding new Martials such as glass openings. When considering suggested design strategies by author the DFCC building has been identified as 'Relate' design strategy. The aesthetic aspects of this building features has related from its heritage setting. User respond to its aesthetic experience also prove that the building is not that much harmonies to its context.

To find the amount of buildings which have been responded to the historical context, buildings are listed under five aesthetic design strategies which has suggested by author, categorized buildings according to the study results.

Suggested Aesthetic Design strategies by Author	Imitate	Relate	Duplicate	Conceptual	Contrast
Buildings / Building Cases	Bake house building	Lake house building	People's bank building	BOC building	Champa Stores building
	Lawyers' building	White house building	Pizza Hut building		
		Olde Empire building			
		DFCC building			

According to survey and the responses to the five aesthetic design strategies from Analysis of Compatibility results by author; shown below as a percentage,

Suggested Aesthetic Strategy	Buildings /Building Cases	Consistency	Relevance	Powerfulness	Similarity	Friendliness
Imitate	Bake house building	78%	81%	78%	78%	84%
	Lawyers' building	77%	83%	75%	72%	82%
Relate	White house building	64%	66%	68%	65%	67%
	Lake house building	59%	61%	60%	62%	63%
	Olde empire building	66%	71%	72%	73%	78%
	DFCC building	63%	57%	54%	59%	58%
Duplicate	People's bank building	68%	60%	57%	57%	64%
	Pizza hut building	63%	61%	53%	52%	63%
Conceptual	BOC building	58%	68%	63%	58%	50%
Contrast	Champa Store building	27%	33%	25%	30%	34%

The suggested aesthetic design strategies – Responses to the five properties,

Suggested design Aesthetic Strategy	Consistency	Relevance	Powerfulness	Similarity	Friendliness
Imitate	78%	82%	77%	75%	83%
Relate	63%	70%	64%	65%	67%
Duplicate	66%	61%	55%	55%	64%
Conceptual	58%	68%	63%	58%	50%
Contrast	27%	33%	25%	30%	34%

From the selected building cases ten buildings were taken for the discussion and two of them were found as 'Imitate', four buildings as 'Relate', another two buildings were found as 'Duplicate', one newly built building was found as 'Conceptual' and another one building of them was found as 'Contrast'. By constructing new buildings and adding new parts or renovation to the old building without knowing the character of its context has led to damage its aesthetic quality. Proportion, scale, colour, material, rhythm and the height of the heritage built fabric, most of the infill design building fails to give the real sense of the building and built environment. So it has affected indirectly to the city. So respond to the aesthetic aspect of the heritage built environment is essential.

As supportive survey, a questionnaire has been done to find opinions of daily users of Kandy. It shows appendix 02 out of thirty responses, around 80% stated that they prefer the heritage built environment. According to both research study and the supportive questionnaire states that the buildings which have done without any concern on the heritage context ruin the city character and the aesthetical value and visual harmony and the sense of place by destroying the continuity of heritage value which has been kept it throughout the centuries. However, it is an essential task to be done by understanding the aesthetic value and visually harmonize the heritage built environment to sustain the image of the city. That will lead us to correct way of infill design in the heritage city like Kandy.

Conclusion:

Historic buildings are the main cultural identity in a heritage city. It reflects the different time layers and the changes with the human activities. Heritage of a city consist both tangible and intangible values. Social, cultural spiritual and sensible things which can experience could be identified as intangible character and built and natural environment could be identified as the tangible characters. If the heritage city is ignored by human beings, rapidly it becomes a dead city and it can be a museum city. But living city accommodates a rich environment for living people. To increase the tangible and intangible value of a city need to be continuously cared and managed.

Living city has been changed time to time according to several factors and careless. Globalization can be identified as a major impact of changes of a city. Mainly needs of people increased according to economic development. Therefore infrastructure facilities have to increase according to needs of the city. City doesn't change according to changes of the world, it cannot survive itself. Building environment has to change in suitable manner with providing needs and necessities of the city.

Kandy is the greatest example for a living city in Sri Lanka consisting characteristics of Pre-British, King's period and British period. Through the Pre-British period built environment could be identified as the most important historic era, since the British destroyed lots of Pre- British buildings are less in count. However, British buildings have been done by responding to the previous built character.

The research based study became an attempt taken to find out the reason for the aesthetic character and visual harmony loss of the living city, Kandy and to proposing proper aesthetic design strategy/ strategies for the infill designs. According to Davis (2003), Semes (2007), and Shane (1976), there are being discussed five aesthetic suggested design strategies by author, (Imitate, Relate, Duplicate, Conceptual, Contrast). Those five strategies have been applied to the selected ten buildings in three different streets in Kandy grid city. Dalada Veediya, Temple Road and Deva Veediya were examined along those three streets. The analysis of the study point out that, different strategies have been adopted in designing the new buildings along Dalada Veediya,

Temple Road, Deva Veediya, in Kandy during the past independence period. The classification of selected ten cases buildings according to the five aesthetic design strategies which were suggested by author reveals the following.

According to selected ten case buildings, there are two 'Imitate' buildings which have aesthetically harmonized to the heritage setting. Those examples have been conserved by imitating or mirroring of older facades is the extreme level of replication. This design strategy used generally in sensitive historical sites. Within the selected case studies, most of them were in 'Relate' aesthetic design strategy. It provides achieving harmony by relating design features or elements relationships of the new building to its older neighbour. The Two cases of 'Duplicate' founded among the selected case buildings. Those examples have been constructed by copying specific design features from the prevailing styles to establish visual conceptual link. Within the selected case buildings, there is one building appeared as 'Conceptual' strategy which designed by copying design elements and relation to achieve a harmony with the context. Another one case building appeared as 'Contrast' strategy which represents differentiation to the heritage context. It has minimum ratio to background needed to achieve the balance in contrast relationship. Most of the case buildings of 'Relate' strategy has attempted to response to the pre- British Kandyan period architectural features.

The survey data of the responses to the case buildings demonstrate that, The 'Imitate' aesthetic strategy has scored very high on "Friendliness" and "Relevance" aspects. It is also considered as "Consistency" and "Powerfulness". It has a medium grading for "Similarity". However, it could be argued that this aesthetic design strategy is highly suitable for the continuation of the significant heritage setting. The strategies of Relate, Duplicate and Conceptual have scored in a medium level around 50% - 69% for every properties. "Consistency", "Relevance" and "Friendliness" archives in superior ratings. "Powerfulness" and "Friendliness" has started that the aesthetic aspect critically damages the heritage value of the setting with a low score of ratings. The 'Contrast' design strategy has scored the lowest ratings from the users. "Consistency" and its "Powerfulness" have destroyed the aesthetic value according to ratings.

Finally, the study shows the need of aesthetic aspect and visual harmony for quantitative responses in designing within the heritage context. When planning and designing according to guidelines the main aesthetic aspects of the visual linkages and its relationship to the heritage built environment to enhance Liveability, flexibility, sustainability and compatibility. So, proper understanding in such contexts of their advantages and limitations with considering aesthetic aspect as 'Imitate' or 'Relate' strategy could be more responsive and harmonies the value of heritage context which is more concern with caring and managing cities.

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