Old yet majestic
A study of Adaptive reuse in the case of Opera House, Bengaluru

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Abstract- Once a garden city bustling with many heritage structures, Bangalore is now a busy software hub with heritage structures pulled down one by one, losing its threads to past. Of the few heritage structures that remain, the concept of "Adaptive reuse" has been nothing short of a revelation. The term adaptive reuse maybe defined as 'a process of reusing an existing building for a purpose other than which it was originally built or designed for; but when heritage buildings are to be considered adaptive reuse should be a process of preserving and restoring the building with minimal changes and for a use that does not effect the cultural and historical background of the building.'

This research explores the effectiveness of adaptive reuse in preserving the heritage value of the buildings in Bangalore, considering the case of Samsung Opera House, a century old structure, located at the main junction of Brigade road. The paper will focus on how this structure has been restored and how the building has been repurposed as a showroom. It will also draw similarities and how other heritage buildings in Bangalore have been reused to meet the needs of the current day using few case studies like Cinnamon Boutique.

This paper will focus on documenting the heritage building- Opera House and to frame reuse guidelines for similar buildings and also the efforts in doing an adaptive reuse.

Keywords- Adaptive reuse, repurposed, preserving, heritage, sustainable

INTRODUCTION

Any building once built, is not just a mass or an architectural masterpiece, it in turn models a landmark and has emotions associated with it. Any building with historical significance acts as a piece of an intricate puzzle, without which the timeline cannot be completed or understood. Every building has its own significance and any act to preserve or maintain them can be understood as 'conservation'. Conservation is a very important method to protect any building from further damage and to maintain them in their 'original condition'. Conservation is also a sustainable method to preserve historical monuments such that it 'focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs.' 1

Adaptive reuse is an alternate method of preserving historic buildings. It is a process in which the building is repurposed such that it meets the needs of the present without affecting the architectural legacy of the building. This method can be adopted to conserve old buildings as it helps preserve the architectural elements of the building, repurpose, appreciate the significance and value of the building in the past and adds economical value. As architects it becomes our prime duty to preserve and protect historic buildings with architectural significance and hence a study and understanding about adaptive reuse becomes important.

Adaptive reuse has been the go-to method for preserving heritage buildings and there have been many examples where this method has worked effectively to bring life back and add value to the building, and one such example is the 'Samsung Opera House' in Bangalore, India. It is located on the Brigade Road intersection and has always been a landmark since its construction almost 100 years ago in 1910s. The land first belonged to Mr. Yusuf Sait who was a royal tailor for the Mysuru Maharaja. It was later bought by the British so that they could construct a recreational space. It was originally used as an opera house for theatrical performances and boxing matches. Since then, till this day it has been used as a space for recreation though

[1] https://www.investopedia.com/terms/s/sustainability.asp

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the purpose served might have changed over the years. It is because of adaptive reuse that it still stands there majestically as an architectural masterpiece.

BACKGROUND

1910 The opera house was built as a recreational space for the Britishers by a contractor named Thomas CW Skipp. It was used for theatrical performances and also to conduct boxing matches.

1939 After Skipp died, it was sold to the Mudaliars who ran it as a cinema hall. Later it was leased out to many people and as time passed by, b-grade movies began to be aired and hence the user group changed, women and children were hardly seen near the building.

1980 Things began to change and now it was used a space to conduct small businesses like selling jewelry and local delicacies. It became a popular hangout spot for anyone visiting brigade road.

1990 The owner of the building Mr. Ramakrishnan wanted to vacate the vendors, a dispute raised; and it continued for 24 years. The opera house was shut down for almost 20 years.

2000 As time passed the building lost its beauty and was succumbed to bad maintenance and pollution.

2008 Mr. Ramakrishnan won the battle under a condition that the building should not be demolished and should be preserved as it was a heritage building.

2016 The building was leased out to Samsung. Even today known as the 'Samsung opera house', stands majestically in the brigade junction with the same motto of entertaining the public but with a refined look.

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AIM

To explore/interpret the concept of adaptive reuse in preserving architectural significance and character of heritage buildings in Bengaluru.

OBJECTIVES

The primary objective of this study is to document the process of adaptive reuse of opera house Bengaluru with an aim to compare the past and present use of the building in term of space planning and building use. With the aid of this study, we aim to formulate a comparative analysis of Opera house and other repurposed historic buildings in Bengaluru in terms of adaptive reuse and in the process to recommend a set of policies for efficient reuse and conservation of heritage structures in the city.

SCOPE

The extent of this study is to comprehend the concept of 'Adaptive reuse' and its context in India by conducting an architectural and photographic documentation of Opera House in Bengaluru. The process includes carrying out a comparative analysis of conservation and consequent adaptive reuse of similar buildings. Conclusions are then drawn from the documentation and a set of policies for efficient reuse of heritage structures in and around the city are suggested subsequently.

LIMITATIONS

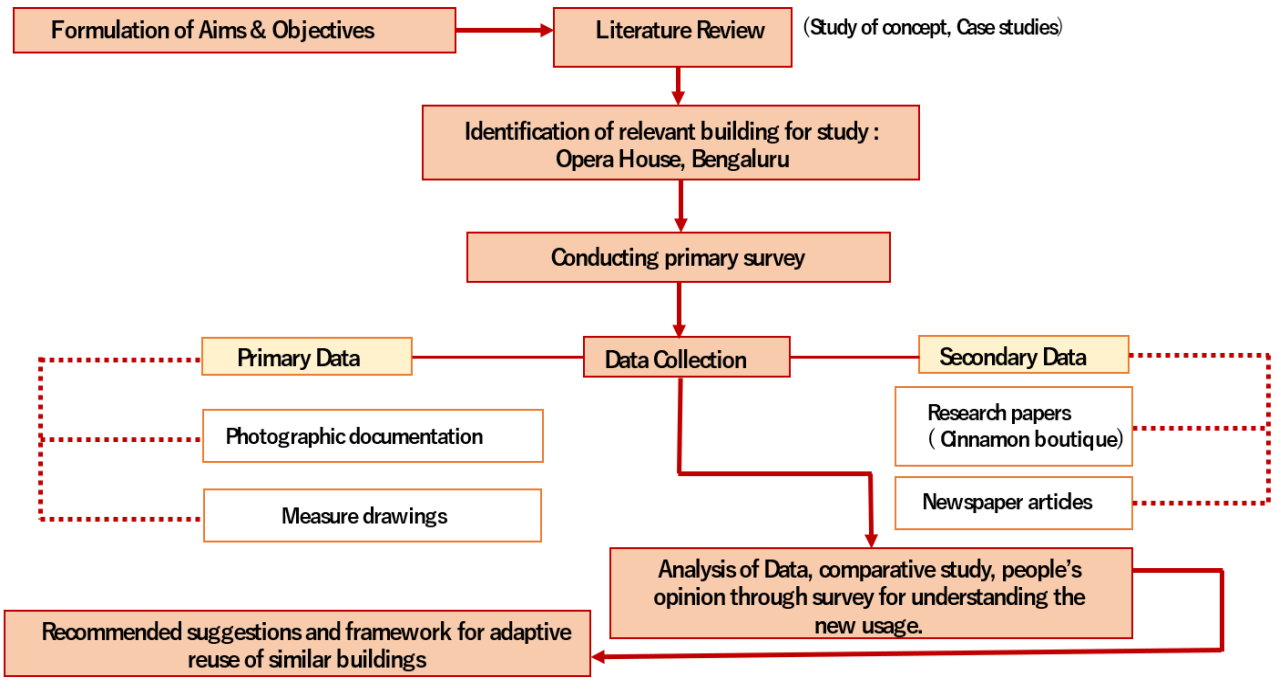
There were certain limitations while conducting this study. Only restricted number of case studies were considered due to paucity of time and limited data was available for the primary case study.

NEED FOR STUDY

There is an urgent need to retain the rich cultural heritage and character of the city as we are losing many of our heritage structures and also to pay homage to the dominant styles of the past. A sustainable method like adaptive reuse should be considered to preserve the character of the buildings and reduce construction waste.

There are also economic and social benefits of adaptive reuse that can be understood by this study.

METHODOLOGY



The only way to reconnect with our past is through monuments and heritage buildings. These buildings are the mirrors to our rich cultural and historical past and losing them would mean losing connections with our ancestors. Hence conservation of these buildings becomes very important and as architects it become our prime concern to protect and maintain these architectural beauties. is The best way to preserve and conserve our culture is to keep it alive and one of the best ways to preserve heritage buildings is 'adaptive reuse'.

Adaptive reuse is a process of adapting a old building or a structure for a new purpose by either preserving or renovating it, but without affecting the true essence of the building.

Adaptive reuse can be classified into different types on the bases of:

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ADAPTIVE REUSE

REASON OF REUSE

- ARCHITECTURAL USAGE
- ECONOMICAL
- SOCIAL

TYPE OF REUSE

- HOTEL/CAFES
- MUSEUMS
- RETAIL etc.

A. Architectural usage

Buildings with architectural significance can undergo adaptive reuse to maintain and preserve its heritage value. It helps in reflecting the culture and social behavior of the place. These structures also have social significance as historic people and events are associated with them. These can be a true example of adaptive reuse as their reuse may be completely different from what it was originally used for. In such cases very little changes are done to the building to maintain the true essence of the building.

Case study 1:

Tipu Sultan's Summer Palace[i]

Tipu Sultan's Summer Palace was the summer residence of the Mysorean ruler Tipu Sultan. It is built within the fort walls of Bangalore, next to the Sri Ventakaramana temple. Today it is a tourist spot located in the center of Old Bangalore and is maintained by Government of Karnataka. The structure is built using Teak Wood along with stone, mortar and plaster and is ornamented with pillars, arches and balconies. It is an example of Indo-Islamic architecture. Now the rooms in the ground floor have been reused as a small museum showcasing artifacts of Tipu Sultan and his administration. The palace is maintained and preserved in its original state, only few changes like replacing some weak timber rafters, restoration of floral motifs and architectural details and plastering and repainting.

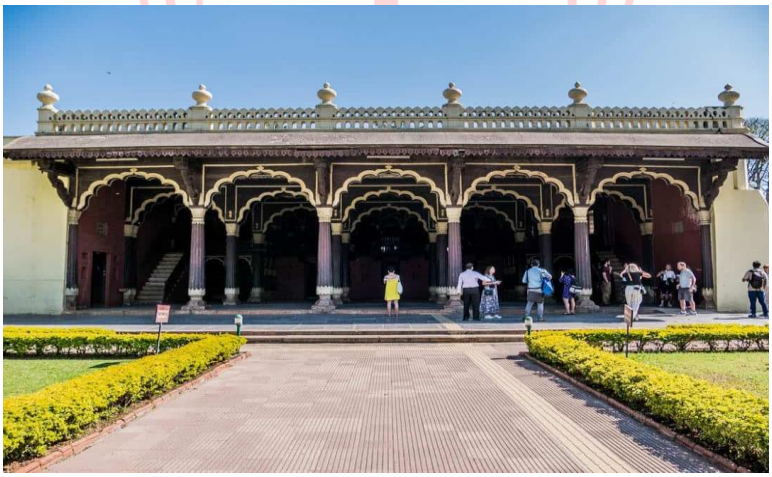

Figure 1: View of Tipu sultan summer palace

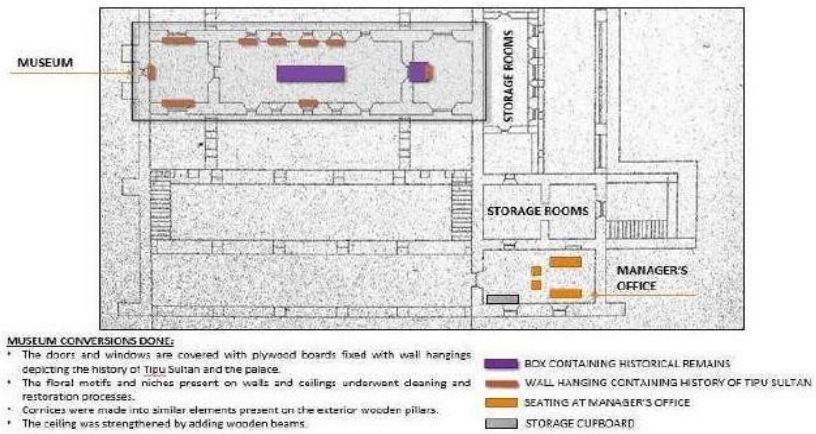

Figure 2: Plan of Tipu sultan summer palace after adaptive reuse

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B. Economical

Buildings are reused for an economical reason as demolition or rebuilding such building could incur huge losses, in such cases adaptive reuse is adopted and the building may be reused for a new or similar purpose.

Case study 2:

Alembic Industrial Heritage and Redevelopment

This factory is located in middle of the city of Baroda, it is a 112-year-old structure that has seen multiple alterations over time due to change in the functionality. Once a factory manufacturing penicillin is now a museum, art studio, display and exhibition space with ancillary spaces for library, AV room and a café. The main architectural purpose of the architects was to 'maintain the true spirit of the building in terms of materials and the physical quality of the space'. Very few alterations to the existing building was done like adding partition walls in between the studios. Few materials were replaced with newer ones as the existing materials were battered and ruined- the Mangalore tiles. Everything including the walls and the trusses was kept intact.

Figure 3: View of the factory after adaptive reuse

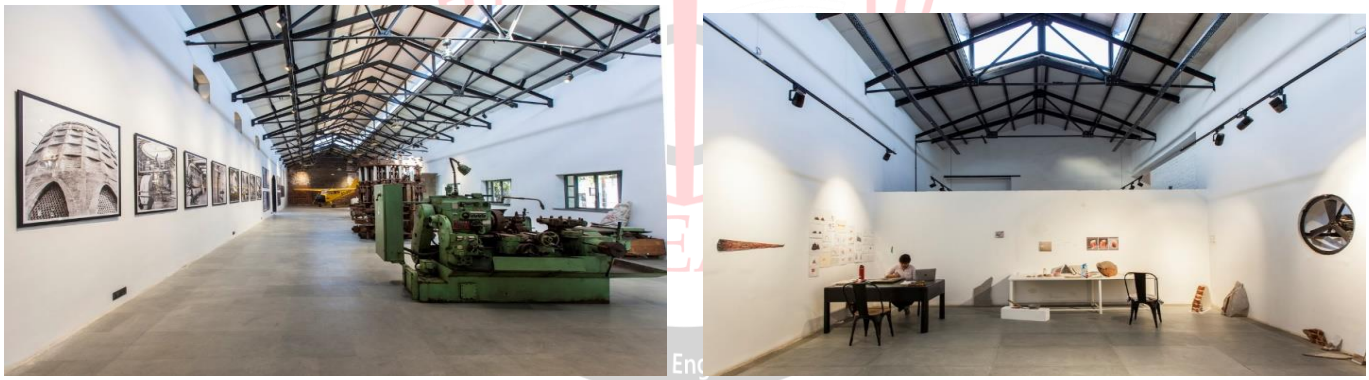

Figure 4: Interior view of the factory after adaptive reuse

[1] https://www.archdaily.com/923851/alembic-industrial-heritage-and-re-development-karan-grover-and-associates Date of access: 22/03/2020

C. Social

Some buildings are socially and emotionally very important in the lives of the localities and hence need to preserved, but when these buildings are down to ruins or no more serves it original purpose; adaptive reuse can bring back life to the building by adapting it for the needs of newer generation.

Case study 3:

Selexyz Dominicanen

A church can not only be used for prayers and gatherings but also other activities and this building shows how it can be done. A church in Holland is converted into a book store when it was no longer in use. The church was built in 1294. The architects have managed to use the space of the church to create a unique and interesting bookstore. Both internal and external features of the church have been persevered. The large open space of the cathedral is used to create a series of three storey bookshelves. They have also preserved the religious motifs and have incorporated them into the new design. The original thought of enlightening and giving peace to the users is still maintained and kept intact even in the new purpose.

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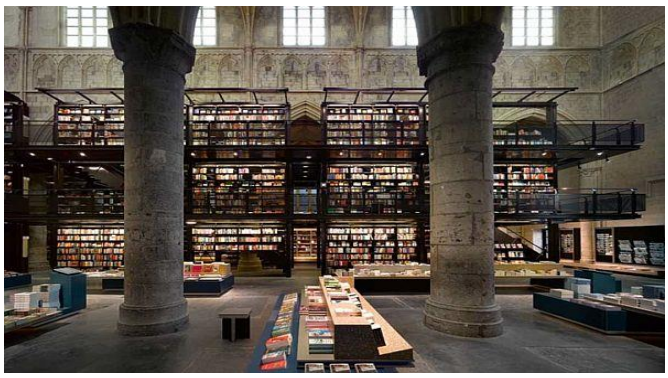
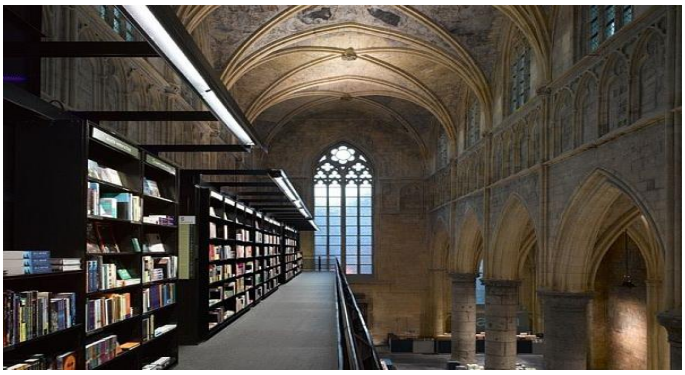

Figure 5 & 6: Interior views of the cathedral after adaptive reuse

INFERENCE FROM CASE STUDIES

Already existing structure can be carefully reused to meet the need of the present. Repurposing the structures without affecting or demolishing it. Preserving all architectural details and elements. Carefully analyzing the location and the neighborhood of the building

LITERATURE STUDY

Cinnamon – Ghosh, Soumitro

Cinnamon- A boutique store housed in a building from the 19th century. It was first started as an orphanage by Rai Bhadhur. This 120-year-old building was almost down to ruins until restoration brought an extended life to it. The building is located in the wetlands near Halsooru lake due which the soil below the structure was subjected to slippage and deterioration. In the East and South of the building there was an open rain water drainage that was flowing due to which there was subsoil deterioration and the soil below the foundation began to wear off. Over the years the foundation was fractured and the edges of the building began to separate from the building, all these was dealt with by- underpinning and fill the soil hollows, tie and stitch structurally the upper parts of the building at the corner. The adaptive reuse was effective in this building because- all architectural elements of the building was kept intact and also the elevation of the building was left rugged to keep the essence of building intact.


Figure 9: The interior view of cinnamon before restoration Figure 10: Present interior view

[2] https://www.homedit.com/church-converted-into-bookstore-in-holland/old-church-into-bookstore5/ Date of access: 22/03/2020

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INFERENCES FROM PRIMARY STUDY

Architectural features and elements are kept intact. Structural systems are strengthened. Reused for a different purpose i.e. boutique and a café. There are very little changes made to the façade to maintain the original identity of the building. Maintaining all ornamental features in lime plaster as per original design & resolution.

Table 1: Summary of case studies and literature study.

Name of the building	Tipu Sultan's Summer Palace	Alembic Industrial	Selexyz Dominicanen	Cinnamon boutique
Location	Bangalore, India	Baroda, India	Holland	Halsooru, Bangalore, India
Year of construction	1781	1900s	1294	1900s
Original use	Palace	Factory	Church	Residence
Original users	King and his family	Factory workers	Public	Residents
Style	Indo-Islamic architecture	Industrial architecture	Gothic architecture	Vernacular architecture
New use	Museum	Art studio and gallery	Library	Café and boutique
New users	Public	Public	Public	Costumers
Intervention done for reuse	Preserved in its original state, only few changes like replacing some weak timber rafters, restoration of floral motifs and architectural details and plastering and repainting.	Few alterations like adding partition walls in between the studios	Internal and external features of the church have been persevered, also preserved the religious motifs and have incorporated them into the new design.	Strengthening of structural members, water proofing

THE SAMSUNG OPERA HOUSE, BANGALORE

The Opera house in Bangalore presents a perfect case of amalgamation of both British Colonial and Indian architecture. The colonial elements of this building are the semi-circular stone arches, Corinthian columns, cornices, double heighted atrium and pediment. The Indian features include sloped roof covered with Mangalore tiles and the stone brackets supporting the projecting balcony above. The entire structure was built using local materials like stone, mud, timber and lime.

Figure 10: View of opera house as a cinema theater in 1940s[3]

A. Planning

The building occupies a space of 33,000 sq. ft and is rectangular in shape with an unobstructed central space with double height. The front facade faces the west. It has verandas on both the longer sides of the building. The central space is surrounded by a series of columns supporting the semi-circular arches and the balcony above. The balcony overlooks into the central space which was once used as private dining balconies overlooking the dance floor. It had four entrances, two to the ground floor from the south façade and two directly to the first floor through an external staircase on the front facade(west). In

[3] https://bengalurureview.com/2019/08/16/samsung-opera-house/ *Written by Aveline Thomas, Jeenus Shrestha, K Sanidhya, Qamar Motiya and Tijo Tome, students at Acharya N.R.V. School of Architecture, Bengaluru.* Date of access: 12/02/2020

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the ground floor, the columns were built in front of the entrances to optimize sound. The double height not only added grandeur but also added to the acoustics of the building. The monotony of the rectangular building was broken by the curved organic shaped balconies. The stage was placed at the rear end of the building and was used for theatrical performances and boxing matches. The verandas were lined by series of smalls columns that added value to the facade of the building. It had a semi-circular roof from the inside whereas from the outside it was sloped and was covered by Mangalore tiles. The western facade of the building looked like a pediment and had two staircases leading to the first floor.

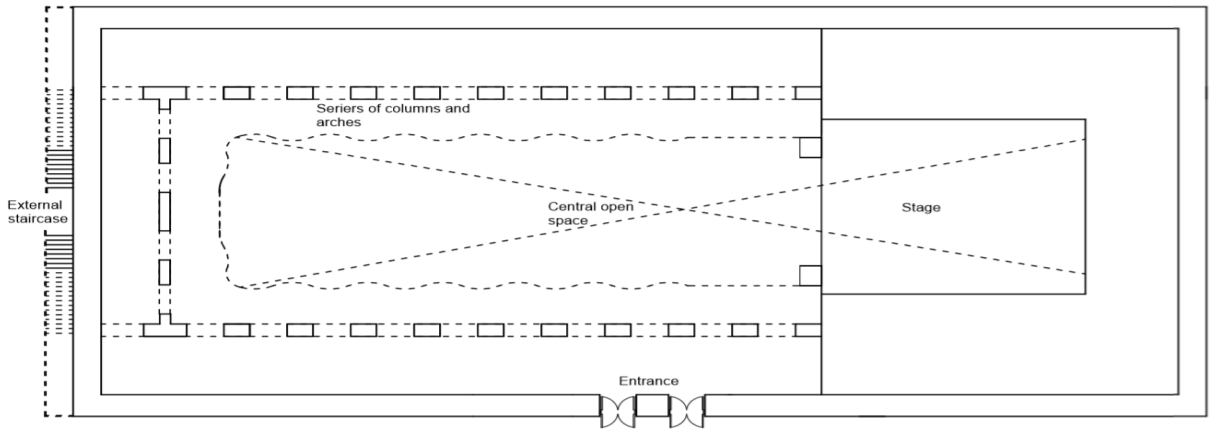

Figure 11: Ground floor plan of opera house before adaptive reuse -- Source: Author

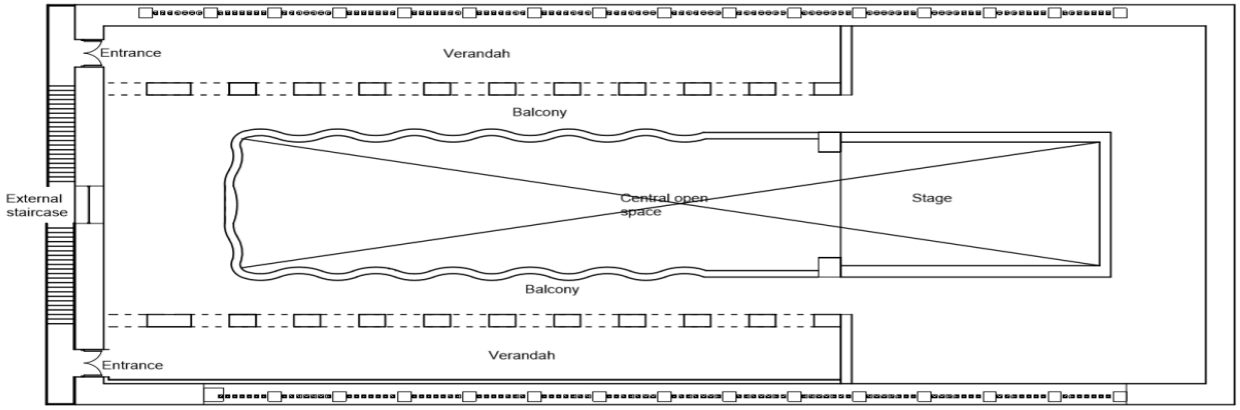

Figure 12: First floor plan of opera house before adaptive reuse -- Source: Author

B. Architectural features

Figure 13: Stone brackets supporting the balcony above

Source: YouTube

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Figure 14: Semi-circular arches around the central space.

Source: YouTube

Figure 15: Corinthian column

Source: YouTube

C. Construction

Constructed using locally available materials. The building stands on a stone plinth approximately 2m height. The walls are made of stone and was cemented with lime mortar and plastered with mud; they are approximately 13cm. the lintels and balustrades were made of stone. Timber was used for flooring and roofing. The roof was built from timber rafters and covered with Mangalore tiles.

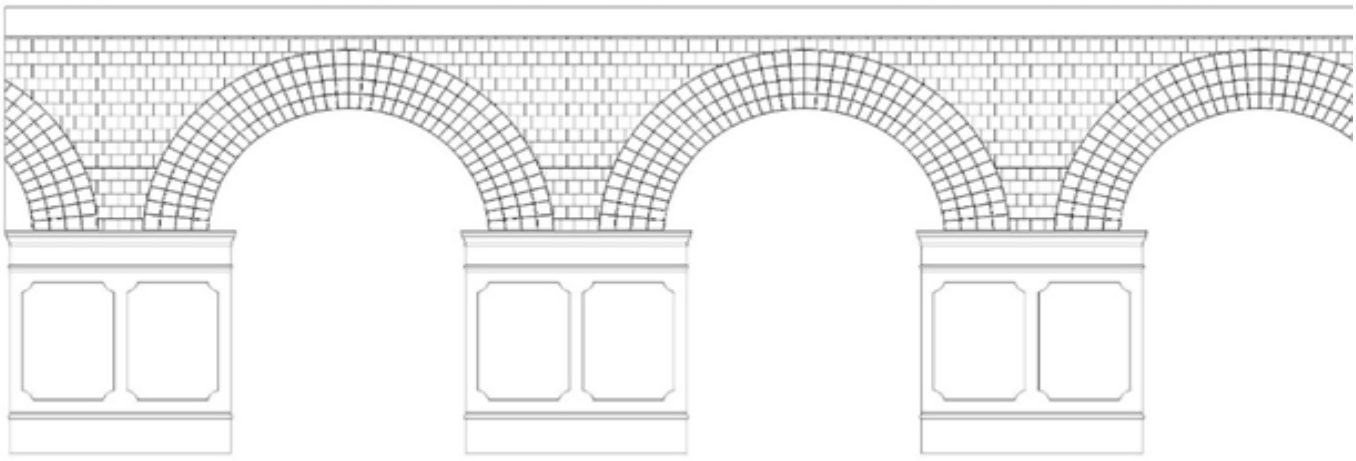

Figure 16: Semicircular arches and columns around the central space

Source: Author

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Figure 17: View of opera house before adaptive reuse

Source: YouTube

D. Renovation

The old and abandoned building was found and reused by the Samsung into the world's largest 'experience centre'. The architect Naresh V Narasimhan, of 'Venkataraman and associates' put in a lot of efforts to preserve and renovate the structure with minimum intervention. The structural elements were strengthened, the walls were re-plastered and painted and stone was polished. The balconies were restructured into proper shape and the architectural details were retained. The exterior staircase was closed and the entrance to the first floor was sealed; instead a timber staircase was constructed from the central space to the first floor. The veranda around the building was covered and is now used as office or display area. The stage was retained in the same space, but was renovated with a huge display screen and some seating space near the screen. The space beside the stage was utilised for washroom and services like lift and storage room. To install HVAC system the verandas were covered with glass and air-con ducts were placed under the balconies to distribute air to both ground and first floor and a false ceiling covered the ducts in the ground floor. Three entrance doors were added on the south façade and a fire exit on the west façade and few other openings were converted into fixed windows to allow light into the building. The interior was partitioned using timber and glass. A café was also added on the west end of the building. The lighting in the interior of the Opera house is completely different from its dull and dark past. The heavy curtains used to block sunlight out when the theatre was running, and now LED lights have been used to light up the space. The space outside the structure was renovated to include an amphitheater and a seating area where artists, stand-up comedians and musicians were invited to perform and entertain the public.

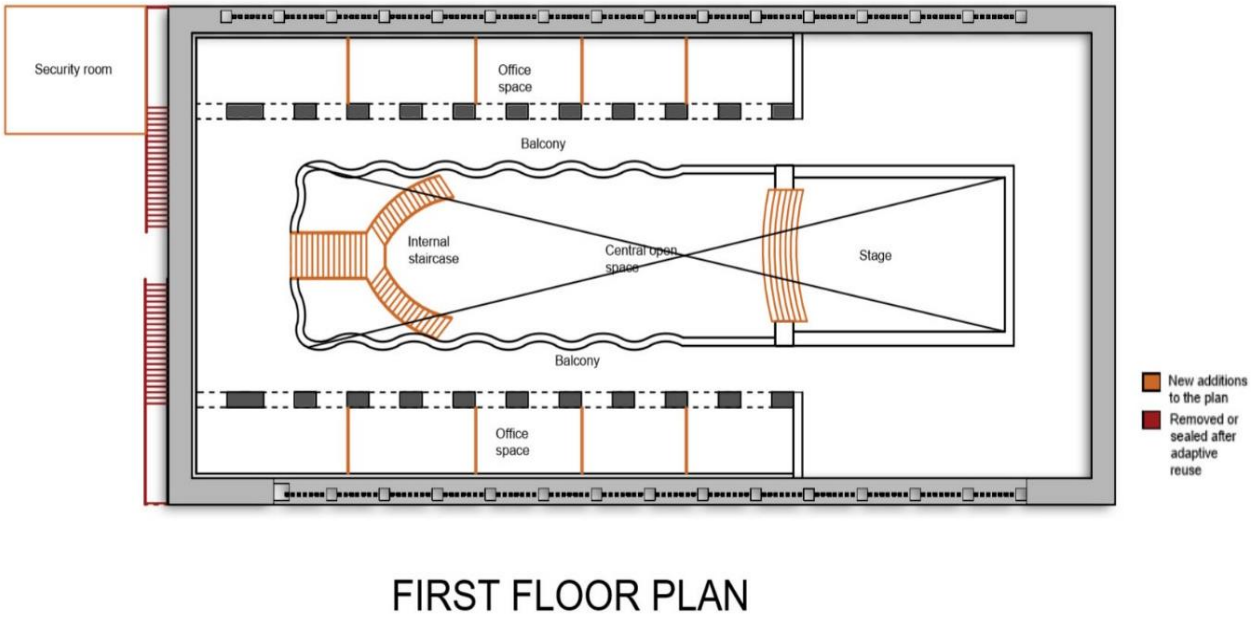

Figure 18: First floor plan of opera house after adaptive reuse -- Source: Author

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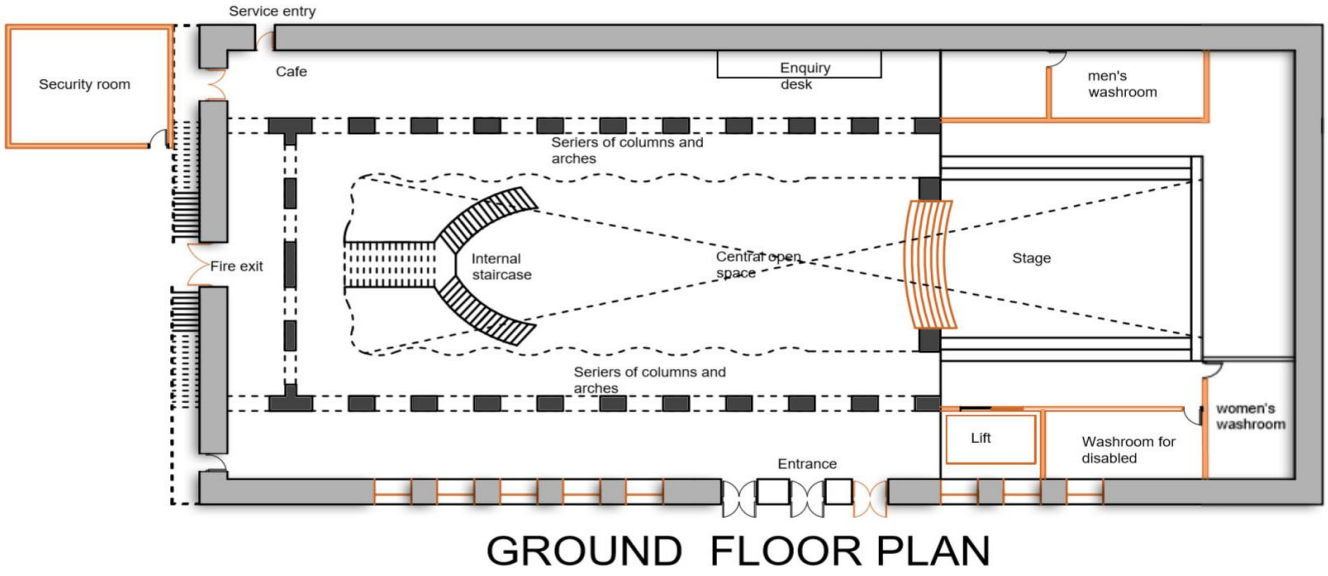

Figure 18: Ground floor plan of opera house after adaptive reuse -- Source: Author

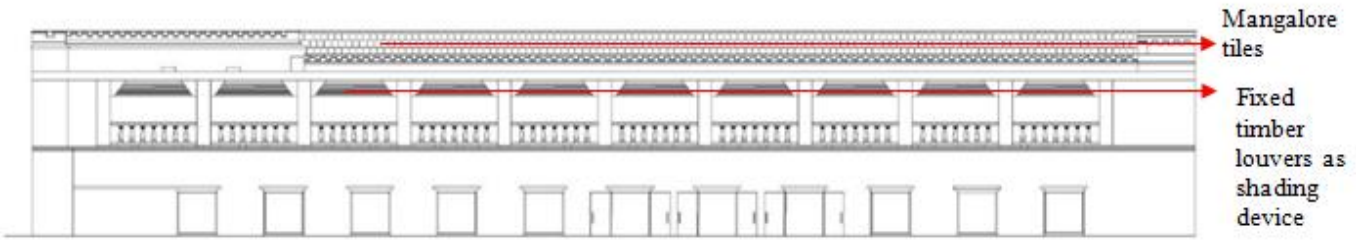

Figure 19: Elevation of opera house after adaptive reuse

Source: Author

Figure 21: Restructuring of balconies during the renovation process

Source: YouTube[4]

[4] https://www.youtube.com/watch?v=T_4eXYXjRGU date of access: 02/04/2020

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Figure 22: Construction of the new staircase inside the building

Source: YouTube

Figure 23: Landscaping on the outside of the building

Source: YouTube

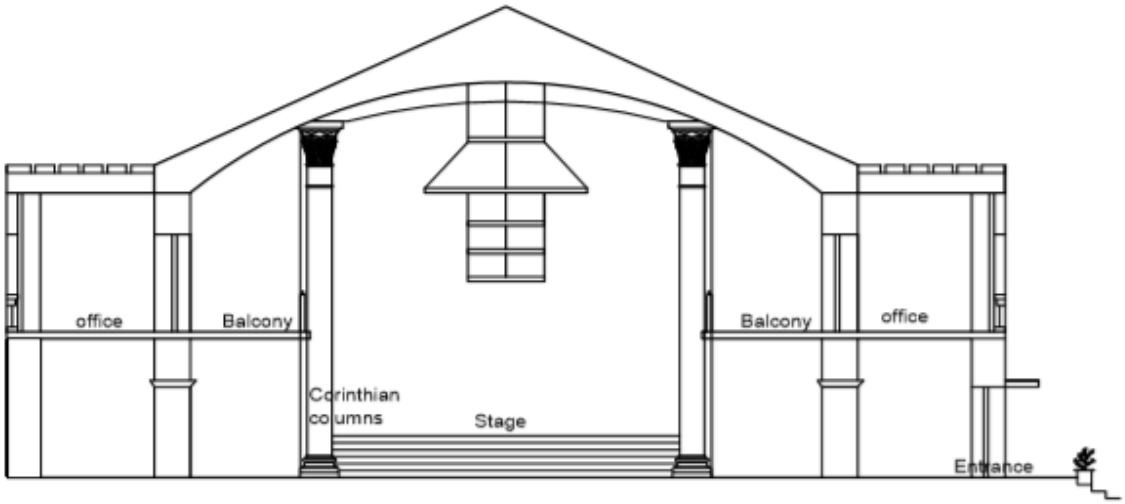

Figure 20: Section through opera house after adaptive reuse

Source: Author

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Figure 24: The interior view of the Samsung opera house after adaptive reuse[ii]

INFERENCES FROM PRIMARY STUDY

The renovation of the structure is done carefully keeping in mind the heritage value of the structure. All the important architectural elements are preserved and maintained intact with minimum intervention. Adaptive reuse gave new purpose and life to the old and dull building. Opera House stands majestically even today with the same purpose as before i.e. Entertainment.

Table 2: Comparative analysis between adaptive reuse of Cinnamon Boutique and Samsung Opera House

Name of the building / Description	Cinnamon boutique	Samsung opera house
Year of construction	**1900s**	**1910s**
Plan	**Rectangular with a central courtyard**	**Rectangular with central double heighted open space**
Original usage	**Residence**	**Theatre**
Original user group	**Residents**	**Customers**
Material of construction	**Local materials- mud wall, lime plaster timber roof**	**Local materials- mud wall, lime plaster**
New Usage	**Boutique and a cafe**	**Samsung experience centre**
New user group	**Customers**	**Customers**
Techniques of adaptive reuse	**Strengthening of structural members, damp proofing, roofing**	**Strengthening of structural members, repainting and polishing**
Changes in plan according to the new purpose	**Almost no changes**	**Addition of internal staircase, addition of services- lift, washrooms and store rooms**
Changes in elevation after adaptive reuse	**Left rugged to preserve the true essence the building**	**Repainted and the front area is landscaped**
Value of building after adaptive reuse	**Important landmark in halsooru**	**Asia's biggest Samsung showroom**

Figure 25: The exterior view of the Samsung opera house after adaptive reuse[1]

INFERENCES FROM THE COMPARATIVE ANALYSIS

Adaptive reuse should enhance the heritage value of the building. Almost all the heritage buildings need strengthening of its structural members for further use. Any new materials that need to be added should be such that's it blends with the existing materials. It is important to use local materials or materials similar to the original materials used to keep the originality of the building intact. Any plastering or repainting works that has to be should similar to the style and colors used in its original state. The new user group also plays an important role in maintain and preserving the building. The new purpose should be such it can function with minimal changes done to the spaces of the building. The elevation is a very important part of any heritage building and hence all efforts should be made to preserve it in its original condition.

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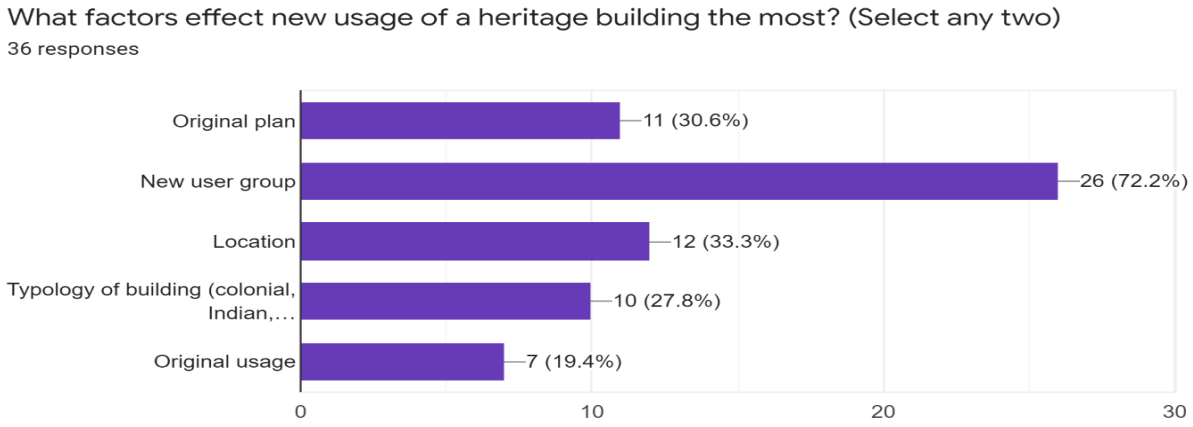
ANALYSIS THROUGH USER OPINION

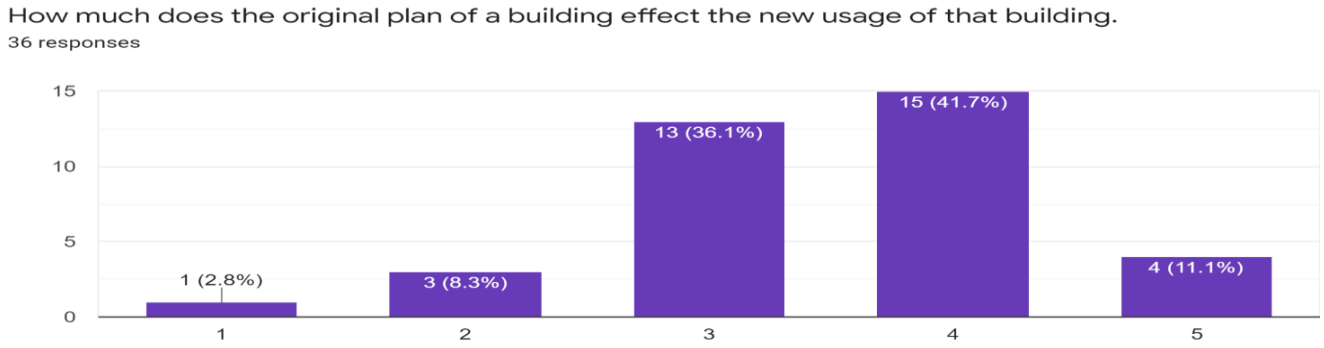
We conducted a survey on students and teachers and people who were familiar with architectural terms using Google forms on 'new usage of a heritage building'. The responses (36) have been collected and the data has been analysed through the following graphs:



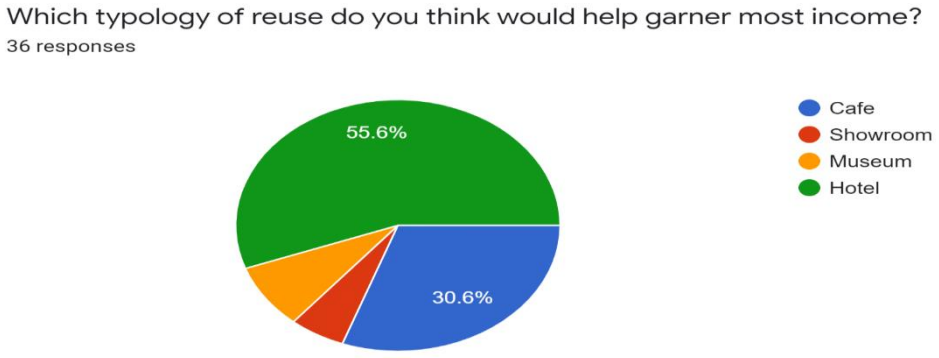
Through the data collected in the above graphs it is understood that the original plan of a building plays an important role in the new usage of that building after adaptive reuse, and the important factors beings the new user group and the location of the building.

Firstly, the new user group plays an important role in maintaining the building in its original condition, the new usage of the building should be such that the users do affect the architectural or historical value of the building. The choice of wrong user group or the new usage may lead to depreciation in the value of the building as in the case of Opera house in 1939 (Change in user group due to B-grade movies being aired).

Secondly, the location of the building also effects the new usage as the probability of using a particular typology of building greatly depends on the people in the location.



Economy also plays important factor in selecting the new usage of a building. Through the graph it can be analyzed that hotels and cafes can garner the most income because of the user group i.e. youngsters and mid-aged group. The typology of cafes and hotels also have growing trend in adaptive reuse due to their economic benefits and also because it helps the users appreciate the heritage structure.



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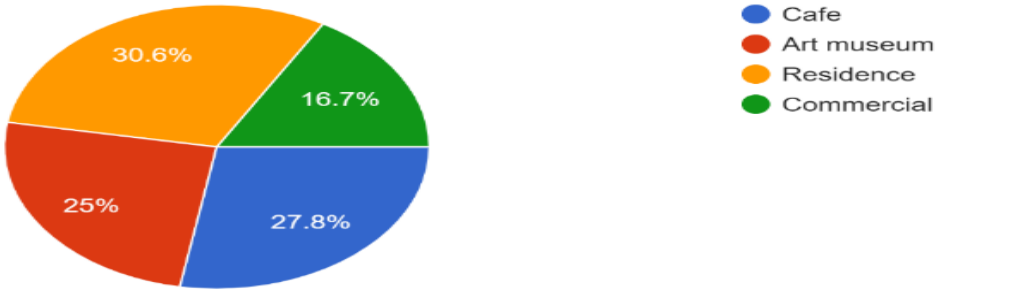
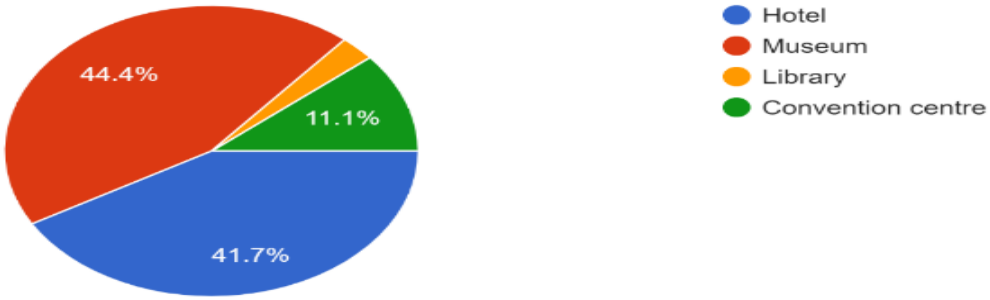
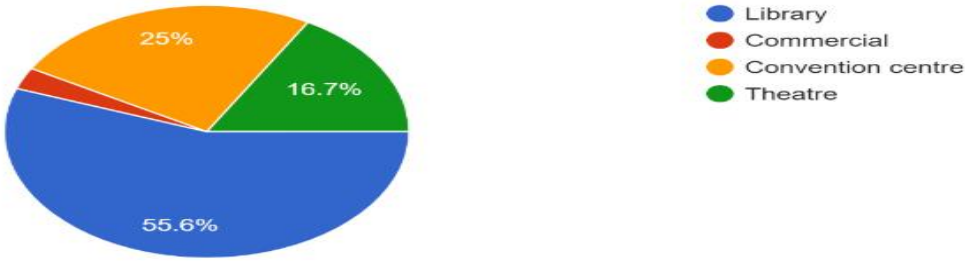
What could the following buildings be effectively reused into- a) Residence
36 responses



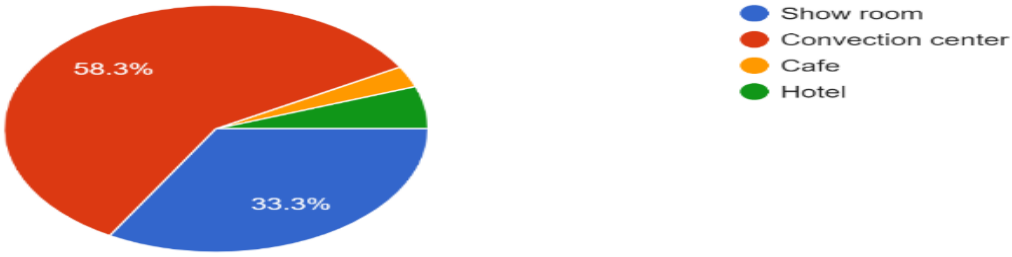
b) Palace
36 responses



c) Church
36 responses



Theatre
36 responses



From the above graphs it can be analysed that the original plan of the building plays important role in deciding the new typology into which it should be converted into. A space like a residence can be best reused as a residence itself because of the planning, a residence is a typology where there is a lot of division in the spaces and many smaller spaces that will have to be

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altered to make it a building for public usage. Another option is to convert it into a café where the user type is almost similar i.e. youngsters. Youngsters usually prefer cosy and smaller spaces to relax or hang around and hence converting a residence into a café would not require much of alterations, the original plan can be adapted to the new typology by adding a few elements that would attract the new user group.

Larger buildings or spaces like the palaces and the theatres that have a lot of large rooms or spaces can be easily converted into any public buildings irrespective of the user group. Buildings which have religious sentiments connected to it like churches or temples should be carefully reused, reusing it into typologies which do not affect the sentiments of the original users like libraries, meditation centres etc could be beneficial.

GUIDELINES FOR DECIDING THE NEW TYPOLOGY OF A BUILDING AFTER ADAPTIVE REUSE

The repercussions of the new user group should be considered while deciding the typology of the building after adaptive reuse. The Opera House was first used as a theatre for entertainment and now houses an entertainment centre, hence retaining the same user group. The new user group should thus be such that it does not have an negative impact on the architectural value of the building.

The location of the building to be considered as it governs the income as well as the user group coming to the building. In the case of Opera House, the location favours it in garnering the most income as it is located in the busiest shopping areas of the city.

To garner most income the selected typology should be such that it is frequently used irrespective of the season or time such as cafes and hotels.

For smaller buildings like residences it would be better to reuse it in the same typology or typologies with similar user group like cafes. We can take the example of Cinnamon boutique to understand this, the cinnamon was first a residence had hence had smaller rooms and spaces which has now been efficiently reused into a small around the central courtyard, and the rooms have been converted into small boutiques. For larger buildings like palaces or industries the selected typology should be such that the open spaces and larger spaces can efficiently used without having to create partitions or walls like that of the 'Alembic Industrial Heritage and Redevelopment' where the larger spaces were used for the art gallery and the smaller spaces or rooms were used for the studios. For religious buildings selected typology should be on similar lines with the original usage like libraries and meditation centers for example **'**Selexyz Dominicanen**'** such that the religious sentiments are not hurt.

Finally, the selected typology should always be such that it does not affect the heritage value of the building and is reused in way that the users can understand the significance of heritage buildings as well as adaptive reuse in conserving them.

Table 3: Guidelines for deciding the new typology of a building

Typology	Reuse typology	New user group	Typology to garner more income	Alterations to be made	Suggested typology
Small buildings **A) Residence**	Residence, Café, boutique, Studio	Residents/Customers	Café, boutique	Structural strengthening, walls to be retained as much as possible, flooring can be changed	Cafe
Larger buildings **A) Theatre or convention centre**	Showroom, commercial space, restaurant	Customers	Commercial space	Structural strengthening, architectural features to be retained, addition of few partition walls.	Showroom
B) Palace	Museum, hotel, convention hall	Public	Hotel	Structural strengthening, addition of plumbing, electric lines hvac. Architectural features to be maintained intact.	Museum
C) Industry/warehouse	Studio, office, commercial space	Workers/ Customers	Commercial space	Structural strengthening, Addition of partition walls and hvac.	Office
D) Library	Kindergarten school, co-working space, studio, Cafe	Kids/ workers/ Customers	Café/ kindergarten school	Structural strengthening, addition of few partition walls	Kindergarten school

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E) Office	Warehouse, Commercial space, Hotel	Customers	Hotel	Add necessities according to chosen typology	Commercial space
Religious buildings	Library, co-working space, art gallery	public	Art gallery	Structural strengthening, addition of plumbing, electric lines hvac. Architectural features to be maintained intact.	Library
Other buildings **A) Railway station**	Park, Factory/warehouse	Public/ workers	-	Structural strengthening	Park

CONCLUSION

The guidelines are based on case studies and primary studies and relate to general rules to be followed while adopting any new use into a building and are based on the common techniques and methods of adaptive reuse. Adaptive reuse could pave the way for old buildings to be preserved and conserved and could give them an entirely new purpose. It can also be used as a sustainable method to reuse buildings and to garner more income. For a developing country like India, with many a few heritage structures, measures such as adaptive reuse can be adopted to restore longstanding and dying architectural marvels, this method would not only attract more users but also reflect our concern towards our rich heritage and history. It can also be used as an alternate method to reuse a building without actually having to demolish it or just letting it stand as a monument such that the users recognise and appreciate the value of the building as well as adaptive reuse. As architects it becomes our prime duty to adopt such measures and safeguard our buildings. Following commendable examples like the Opera House in Bengaluru, architects can pave way for upcycling and reusing structures that would have otherwise become obsolete and would disappear eventually, had they been left alone after living up to their original function.

REFERENCES

[1] [i] https://amazingindiablog.in/tipu-sultan-summer-palace date of access:14/02/2020

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