

# Adaptive Reuse of Heritage Building

Tanya Abraham<sup>1</sup>, Diksha B. Bankar<sup>2</sup>

<sup>1,2</sup>Dept of B.Arch

<sup>1,2</sup>Tulsiramji Gaikwad Patil College of Architecture

**Abstract-** Heritage buildings area unit crucial in terms of transferring the cultural identity for additional generations. Where heritage buildings cannot function with its original use, proposing an innovative function is inevitable so on preserve the importance of the heritage building. The aim of the research is to provide a comprehensive review of the factors affecting adaptive reuse decision-making and to develop a holistic model for adaptive reuse strategies for heritage buildings. Firstly, the knowledge has been collected through literature survey and content analysis. Then, selected adaptive reuse examples are investigated within the sunshine of the defined factors. At the end, the model proposal has been developed in line with the results. The model is accustomed propose adaptive reuse strategies for the abandoned or disused heritage buildings. On the other hand, it's accustomed evaluate the appropriateness of the new use for re-functioned heritage buildings and to define the problems within the decision-making. So on make a choice the foremost appropriate adaptive reuse strategy for the heritage buildings all the factors must be taken into consideration holistically. The model proposes a qualitative approach and also the adaptive reuse strategies is developed in line with the selection makers and policy problems with the related context.

**Keywords-** Abandoned buildings, Heritage buildings, Heritage conservation, Adaptive reuse.

## I. INTRODUCTION

**Aim-**To understand the cause of abandonment of historical buildings and how to restore it.

### Objectives-

- To look at the typologies of building that become subject to abandonment.
- To study techniques that can be used for conserving the abandoned buildings.
- To analyze the effectiveness of adaptive reuse to increase life span of heritage building.
- To gather a holistic understanding of the pros and cons of adaptive reuses.

### Need-

- To create awareness about heritage conservation.
- To learn the potentials of adaptive reuse as a conservation treatment.

### Scope-

- Adaptation links the past to the present into the future, maintaining the cultural and historic value of the site.
- Leads to sustainable development of the community.

## II. LITERATURE STUDY

**Building Abandonment-** A building that is derelict is empty and in a bad state of repair because it has not been used or lived in for a long time can be defined as an abandoned building.<sup>1</sup>Building abandonment has a negative effect in the society as it erodes the urban fabric. Abandoned buildings during a once-prosperous area of town have created a series reaction and spurred further dilapidation of adjacent structures, stores, and residences.

**Typology-** In many situations, the types of buildings most likely to become subjects of abandonment include:

- **Industrial Building:** As cities become gentrified and the process of manufacture moves away from the city. Factories, warehouses and docks are often left untouched which is abandonment in a large scale.
- **Public Building:** Includes religious buildings such as churches, temples or schools where the use has changed over time. Buildings built for a specific purpose are essentially those easily readapted by the society
- **Residential Building:** There are many bungalows, apartments, etc. which are abandoned due to various reasons including personal issues of the owner or migration of people due to environmental hazards.
- **Heritage Buildings:** Historic buildings give neighborhoods their distinct character and at the same time provide a tangible connection to the past. However, their history and that of their settings are often ignored and not honored as part of our cultural heritage. Palaces and other historic buildings which cannot support current and future visitors of the site are counted under this.

**Causes of Heritage Abandonment-** There are many reasons due to which a building can be abandoned. Some are as follows:

- **The area/town/city** was a town and thus the rationale that people moved there not exists: In many places, particularly mining towns, when the resources which financed the town's creation are tapped out, the residents move away. Depending upon their financial states and the way closely tied they're to the world, this will be as quickly because it takes for them to load the possessions they want and leave.
- **War or civil conflict:** repeatedly people will abandon homes and businesses in time of war. Depending upon the severity of the conflict and whether or they survive, they'll never return.
- **Natural disasters:** People will flee their homes in times of natural disaster. Again, depending upon the severity of the disaster, they'll or might not return.
- **Environmental/ecological disasters:** A sudden or long-term environmental or ecological disaster strikes and other people are forced to escape. They may or might not return and therefore the property is abandoned as a result.
- **Personal financial crises:** People find that their economic conditions have changed dramatically for the more severe. Either they're unable to afford their building or they break down to creditors. They abandon it as a result.
- **Local population drops:** Especially common in many areas of the American and Canadian Plains. Small towns begin to lose population as young adults find that they're unable to secure steady employment. They leave the area and the population drops. As it decreases below a particular point, the previous needs of the town decrease. Fewer students are enrolled within the schools and fewer businesses are required to support an ever-shrinking population.
- **Death of owner:** When the owner on record dies and there's no heir, property are going to be "abandoned" until an heir are often located or the property is foreclosed on for back taxes. In other countries, there are no real estate taxes, so the property can linger unimproved perpetually. Often, thanks to the age and health of the owner, the property has already had a few years of neglect that creates it look abandoned when it's simply neglected or vacant.
- **Zoning or Code Compliance:** Ever noticed how all the tiny town's you visit never have anything occupying the

second floor? This is due to fire codes. All floors above the ground floor have to have sprinkler system and it is expensive. There are often numerous other ways in which city effective render some structures functionally obsolete through code violations.

### **Heritage Conservation-**

It is an effort that seeks to preserve, conserve and protect buildings, objects, landscapes or other artifacts of historical significance. Architectural conservation describes the tactic through which the material, historical, and elegance integrity of any built heritage are prolonged through carefully planned interventions.

The majority of India's architectural heritage and sites are unprotected. They constitute a unique civilization legacy. This unprotected heritage embodies values of putting up with relevance to contemporary society. Conserving the 'living' heritage, therefore, ensures the survival of the country's sense of place and its very character in a globalizing environment.

There are various techniques or means of treatment for heritage conservation.

- **Preservation:** The term 'Preservation' within the context of Architectural Conservation refers to maintenance and repair of existing historic materials and retention of form because the property has evolved over time.
- **Rehabilitation:** In context to Architectural Conservation it refers to alteration or addition to a historic property to satisfy continuing or changing users.
- **Restoration:** It refers to depiction of a particular period by restoring in its purest/original form. Also, removing evidences/traces of the other periods to restore the buildings to its rightful period of existence.
- **Reconstruction:** It refers to recreation of vanished or non-surviving portions and interpreting with new materials aesthetically.
- **Facadism:** It is a practice of demolishing a building but leaving its façade intact for the purposes of building new structure in it or around it.
- **Adaptive Reuse:** It refers to the method of reusing an old site or building for a purpose aside from which it had been built or designed for.

## Adaptive Reuse-

Adaptive reuse broadly refers to the method of reusing an old site or building for a purpose aside from which it had been built or designed for. It can be viewed as a compromise between historic preservation and demolition. This process of reutilizing a building allows culturally and historically important buildings to be redeveloped and repurposed rather than demolished. Through adaptive reuse the internal and external structure of a building is adapted so that the character of the old influences the format of the new.

*“There are layers of meaning and history which help to enrich the character of these buildings. We think that this history and the stories associated with each layer are what make the buildings special.”*

*-Tim Hawk*

By reusing an existing structure within a site, the energy required to form these spaces is lessened, as is that the fabric waste that comes from destroying old sites and rebuilding using new materials.

Adaptive reuse deals with the problems of conservation and heritage policies. Whilst old buildings become unsuitable for his or her programmatic requirements, as progress in technology, politics and economics moves faster than the built environment, adaptive reuse comes in as an appropriate option for the reclamation of the sites.

## Criteria for Adaptive Reuse-

Built form is subject to mainly to three obsolescence namely: physical, functional and economical. Although building derelict is due to variety of factors it can be generalized that they are all natural outcome of changing modes of production and consumption triggered primarily by the consequences of technological transformations. Least hazardous among the three types is that the physical one because it can easily be remedied and put to its original state as long as funds are available. Whereas functional and economical obsolescence's, more often than not occur in tandem, and are the main causes of derelictions and building demolitions.

There are often criteria for deciding whether a building should be conserved and reused or simply demolished. Some of these determining criteria include:

- The **historical importance** of the location, in terms of both the physicality of the street-scape and therefore

the area, also as of the role of the location within the community understands of the past.

- The **societal value of** a given site, the importance to the community of the utilization of a site by community members or visitors.
- The **potential for the reuse** of a specific site, the physical damage sustained to the location and its support of future use, the character of the prevailing site in terms of the proposed reuse.
- The **natural ecological conditions** of the location, whether the location is suitable climatically or can support the proposed environmental work needed within the site.

## Limitations Faced-

The following are challenges in implementing adaptive reuse:

- **Physical Limitations:** Structural constraints involved retaining aesthetically appealing, architectural or historic features may make fitting a replacement use into an existing building challenging, and should require added creativity and adaptability.
- **Regulatory Constraints:** Existing structures may pre-date zoning, building permit, and other local development regulations and thus their rehabilitation to meet modern requirements can be challenging. For example, zoning may limit uses and restrict possible reuse opportunities, or require variances. Off-street parking could also be difficult for an existing older building to satisfy. However, the statewide code has built-in reliefs to assist address this matter.
- **Potential Environmental Hazards:** Environmental contaminants such as asbestos and lead can be present in many older buildings, requiring costly mitigation.

## Advantages-

Adaptive reuse of existing structure is associated with the following advantages:

- **Contributes to Sustainability:** Existing structures are often located in established growth areas with a significant population density and in developed areas, reusing these structures will help support the neighborhood. Often, the materials that are used are of top quality and have a few years left in their life cycle.
- **Enhances Community Character:** Reuse retains historic resources and community character by providing renewed life to historic structures in an economically viable manner. Building reuse can provide a link

between the community's history and its present and future while accommodating up-to-date need, and is usually more harmonious with community character than new construction.

- Encourages Investment: Reuse can encourage more investment, development and revitalization in areas and in other structures which can otherwise remain vacant or underused, yielding potential employment opportunities.
- Enhances Innovation: Changes in our society have created a chance to develop unique and innovative solutions for existing buildings. There are many vacant buildings just expecting innovative solutions. The challenge is to look beyond their rundown conditions to see the potential.
- Cost Saving: Rather than demolishing existing structure that have outlived their originally intended use, reuse saves on demolition costs, champion recycling, and creates unique design opportunities.
- Increases Market Value: Values are often increased by preserving aesthetically – appealing building features and architectural elements that are often characteristic of older buildings. Materials and quality of construction of the past is usually not economically possible to breed today.
- Energy Conservation: Energy is conserved by reclaiming and repurposing existing structures and their materials and their embodied energy, also as making use of existing available infrastructure like access to transportation and utilities.
- Save time: provides potential time savings may result through building reuse because the building and infrastructure is in situ, and municipal approval and permitting can occur more quickly and less expensively than comparable new construction.

### III. CASE STUDIES

#### Tipu Sultan's Summer Palace, Mysore

- Tipu Sultan's Summer Palace was the summer residence of the Mysorean ruler Tipu Sultan.
- Its construction was started by Hyder Ali within the walls of the Bangalore Fort and completed during the reign of Tipu Sultan within the year 1791. It's built within the fort walls of Bangalore, next to the Sri Ventakarmana Temple.
- Today it's a tourist spot located at the middle of old Bangalore near Kalasipalyam Bus Stand and maintained by Government of Karnataka.
- The structure has been built entirely with teak wood alongside stone mortar and plaster and stands adorned

with pillars, arched and balconies. It's an example of Indo-Islamic architecture.



Fig. 1. Verandah(Before)



Fig. 2. Verandah (After)

- It's believed that Tipu Sultan won't to conduct his durbar (court) from the eastern and western balconies of the upper floor. There are beautiful floral motifs embellishing the walls of the palace.
- The rooms within the ground floor are converted into a little museum showcasing various achievements of Tipu Sultan and his administration. There are newly done portraits of the people and places of that point.
- There's a reproduction of Tipu's tiger, which is presently within the Victoria and Albert Museum at London. The clothes of Tipu Sultan and his crown are present in silver and gold pedestals. The silver vessels given by a general to Hyder Ali is additionally displayed.

- The space before the palace is developed as a garden and lawn by Horticulture Department, Government of Karnataka.



Fig. 3. Balcony and Corridor (Before)



Fig. 4. Balcony and Verandah (After)

### French Haveli, Ahmadabad-

- The French Haveli is a 150 year's old artistically restored Gujrati heritage home, earlier owned by a Jain Mr. Chimanlal Shah and his family, now a Bed and Breakfast stay home.
- Maintaining its splendid traditional structure, the 'Haveli' offers a singular experience of living within the historic community called the 'Pol' (a housing cluster which comprises many families of a particular, linked by caste, profession or religion).
- The community space features a Chabutra (the bird feeder), a 100 years old Jain temple.
- Walking towards the French Haveli from the most street may be a remarkable transition from the traffic

filled urban landscape to the very serene and historic area.

- One may be reminded of the proceedings of daily lives back in the ancient times as one passes through the clusters of row of houses joined by labyrinthine streets to open again into sub lanes called 'khadki' and squares called 'chowks'.
- The name springs to commemorate the primary of its kind 'Indo-French Project' in India to 'revitalize the Old City of Ahmedabad'.



Fig. 5. French Haveli

- The Haveli, one a residence has been converted into a bed and breakfast hotel, wherein the visitors feel homely within the decorated space of a Pol house.
- The main entrance raised at a plinth of ground 750mm was once a larger verandah.
- On entering the verandah that went to expand inside, next was the sky lit mini courtyard that also acted because the front room.
- It then was surrounded by other private rooms with door opening to lead in.



Fig. 6. Interior, Gujrati Style



Fig. 7. Dining Space



Fig. 8. Sky-lit Courtyard

- While restoring it, the walls surrounding the courtyard were taken down so as to form a expecting the reception which was the second door on the proper. Left side was a seating provided around a table with decorated cushions and old restored furniture and articles.
- An electrical circuit box under the staircase, an indo-western looking washroom, a rain water harvest tank chamber top, then followed by a modular kitchen and the servant's room was provided on the right courtyard.
- Two staircase lead to the next level.
- The next level had corridors with windows overlooking the courtyard, and a dining area, with three bedrooms (two single occupancy and one double – as per the size of the room) and one staircase leading to the next level.
- The bedrooms were painted in simple subtle colors with furniture ranging from the era of the house, with timber unfinished slabs with exposed rafters painted in off-white or POP false ceilings to cover the uneven ones.
- Air conditioning was provided in the bedrooms, rest of the haveli was on naturally light and ventilation.

- The washrooms are provided by creating brick wall partitions within the room and are modern with dado finish up to the ceiling

#### IV. CONCLUSION

Buildings when built with a selected function in mind, face the threat of becoming obsolete when the necessity changes. There are various ways by which structures that are on the trail of obsolescence are often saved – creating ancillary uses, adapting, involving the building with its surroundings in order that its interactive to the users. As the times are changing, population is increasing, technology is rapidly advancing, but the quantity of land available does not stands as equivalent that it had been years ago. Thus, land value increases and vacant lots are reducing.

These factors coupled together have pushed adaptive reuse into spotlight as most preferred solution to tackle abandoned buildings. It strives to supply possible strategies for the successful adaptive reuse of heritage buildings with causing minimum interferences within the existing forms, designs and interior elements. It demonstrates that its not only important to retain and restore but also to adapt them so on give them new uses that are almost like their original intents.

Adaptation for contemporary use has resulted in new forms supported old forms but adapted for contemporary use. Finally, this process looks at future feasibility for a neighborhood; specifically, it proposes the transformation of uses for various typologies.

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