

Adaptive Reuse: An Innovative Approach for Future Built Environment

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Abstract

Adapting existing structures to new functional space is not a fresh trend. The adaptive reuse strategy was created as quickly as the beginning of the 19th century. The need for different kinds of buildings decreases as time changes. An adaptive reuse as it reaffirms their existence in the neighborhood is one of the necessary lifelines for such buildings. This contributes to the urban fabric a smaller building and has less adverse impact on the environment. Adaptive reuse is based on the assumption that the purpose of spaces is restructured, mostly in order to meet the current requirements of society. Throughout the globe, adaptive reuse initiatives have provided fresh life to structures and the building's identity is being transformed, it still maintains its integrity. This paper will explore strategies to a conservative adaptive reuse practice of how traditional mansions/villas are being converted to commercial retail space that not only complements but challenges and reveals the history of the structure and its architectural design style by maintaining the character and spirit of the place. The importance of this research study lies in the fact that these preservation methods and techniques of restoration can be used as a guide for other similar projects in the district where these mansions are in abundance, thereby facilitating a sustainable conservation method. Through case study examples, the adaptive reuse approach will be framed and tested.

Keywords: Adaptive reuse; Traditional mansions; Commercial space; Conservation method; sustainability

Introduction

In today's economy, when compared to constructing new, retrofitting an elderly building makes real sense. There's a lot of factors. For any project, the cultural difference, aesthetics, and expenditures need to be weighed. It is essential to realize that restore or preserve adaptive reuse is distinct. While a restore or preserve project includes restoring a building to its initial state, adaptive reuse effectively shifts a structure's purpose to satisfy the requirements of the contemporary user. Nevertheless, some adaptive-reuse projects do include restoring the façade or sections of the interior of the building to look like it did in previous times. There are many architects pointed to the importance of adaptive reuse within the conservation practice.

The old buildings, without needless and premature destruction, can breathe new life through adaptive reuse as a well-documented technique. The building's particular context and original design are the important factors that depended on it for the success of this intervention. Most buildings are not designed to maximize future adaptive reuse, so this is a serendipitous chance. With the staggering number of historic buildings around the world-especially those that cannot be renovated for their original use and how these sites are adapted to meet the new community requirements. (Conejos, 2011). Historical buildings are the result of a massive accumulation that represents the past period's cultural, social and economic structure. Such principles have been able to survive to this day. Protecting these values from extinction would result in the restoration of historic buildings for public use by renewing them to the current level of comfortand making the necessary functional enhancements. The most effective adaptive reuse initiatives constructed heritage are those that

best respect and maintain the heritage meaning of the building and add a modern layer of value for the future. Where a building can no longer work with its initial use, the only way to maintain its heritage importance can be a fresh use through adaptation. At the most basic level, adapting a building is viable and also helps to maintain the urban environment while adding wealth and vitality. This space reuse gives rise to distinctive and innovative responses. Adaptive reuse is a solution that retains the building's character while ensuring its functionality and integrity are not compromised.

Materials and methods

Role of Adaptive Reuse

As the world ages socially, there is a growing need for restoration and rejuvenation of buildings with rich history; adaptive reuse is the conscious decision to maintain the past while planning for the future. Some adaptive reuse initiatives, for instance, churches that become cafes, hospitals that become colleges, and more. The development of the particular personality of spaces for human use and pleasure is a prevalent and meaningful trend. As societies continue to re-examine their inventory of existing structures, re-architecture is becoming increasingly essential for people wishing to preserve, conserve and adaptively re-use buildings. Adaptive reuse is a technique that has been widely used to preserve the old buildings and site and while the ' character, spirit and sense of place ' is often lost in most of the projects where adaptive reuse practice is applied. As modern architecture increasingly becomes part of the continuum of architecture history and its buildings experience, various threats that range from materials to functional obsolescence, demolition due to abandonment and lack of appreciation, concern for heritage preservation is needed. The main problems regarding adaptive reuse of buildings are:

- Recognizing the proper reuse building.
- The correct reuse for a specific construction is recognized.
- Addressing the building's historical importance.
- Assessment of possible damage that may result from reuse
- Analysis of the building's structural strength prior to adaptation
- Overcoming spatial constraints and re-creating the function with minimal changes.
- Benefits of Adaptive Reuse



Figure 1: Studio 877: Khushru Irani Design Studio Source: thinkmatter.in.

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

Energy Conservation: by reclaiming and repurposing exiting structures and their materials and their embodied energy as well as making use of existing available infrastructure such as access to transportation and utilities.

Results and discussion

Enhances Community Character: building reuse can provide link between the community's history and its present and future while accommodating up to date needs and is often more harmonious with the community character than new construction. Promoting Innovation: the adaption of buildings presents a genuine challenge to architects and designers to find innovative solutions. As development pressures increase in our cities, more buildings are being reused, providing many excellent examples of creative designs that maintain their value. Contributes sustainability: the materials that are used are of high quality and have many years left in their cycle. Brick, copper, stone, slate, concrete and masonry units. Encourages Investment: Reuse may encourage more investment growth and revitalization in areas and other buildings that may stay vacant or underutilized, resulting in future employment possibilities. Cost Savings: reuse saves on demolition costs, champions on recycling and creates unique design opportunities.

Environmental benefits: one of the main environmental benefits of reusing buildings is the retention of the original's building embodied energy that makes the project much more environmentally sustainable than entirely new construction.

Conclusion

This research focuses on all possible strategies of adaptive reuse that can be implemented to the building before it leads to abandonment. It is not only important to retain the structure but also restore them by analyzing and studying the structural stability of the building and adapt a new use that are similar to their original intents. The research mainly focuses on the case study analysis on how traditional heritage residences are being converted to commercial building by changing the existing forms, spatial organization and interior elements that are necessary for the modern needs.

The possible options for adaptive reuse based on building typology:

The aim for adaptive reuse is an alternative to demolition and replacement of buildings since it requires less energy and waste and also gives remarkable identity to the surrounding environment.

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