

Method to Assess Historic Palaces Rehabilitation Projects

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Abstract

Heritage consider one of the non-renewable resource, which should be conserved to preserve the historic evidence which carried by the historic palace, as rehabilitation operations help in raising efficiency of heritage buildings, as it represent historic district node of development. To conserve historic palaces a suitable use should be chosen, that may require a partnership between governmental and private sectors to reach the maximum economic benefits, the mentioned partnership depends on understanding the historic values, a combined strategy of experimental and case studies methods of researches will be used, that to evaluate the existing use in Egypt to make the assessment of the rehabilitation of the historic palaces, to reach the research objective of draw rehabilitation polices keep the historic evidence within heritage districts morphology.

Keywords

- *Heritage Districts*
- *Rehabilitation*
- *Historic Palaces*
- *Reuse*
- *Efficiency*

Introduction

The adaptive reuse of heritage buildings is considered as one of the main important sustainable tools for heritage preservation. Therefore, the kind of use selected for the

heritage buildings is very important for the success of the preservation of heritage building due to the sensitivity of these buildings to preserve its identity and community memory linked to the heritage building or palace.

In respond to urban expansion pressure and secrecy of vacant lands for urban expansion the past 50 years, Egypt's owned valuable collection of historic heritage palaces from the 19th century were subjected to deterioration and severe damages making it very difficult to preserve this valuable heritage as part of the Egyptian heritage on one hand and part of the heritage of humanity on the other. This situation in Egypt and across the globe urged countries to explore the adaptive reuse of heritage buildings to provide finance for

heritage building restoration and maintenance.

in this context; charters & international conferences issued by both the United Nations Educational, Scientific and Cultural Organization (UNESCO), as well as the International Council of Monuments and Sites (ICOMOS), those charters focused on the

recommendation that the rehabilitation of heritage buildings helps the efficient performance of its internal spaces by choosing the appropriate rehabilitation for these buildings while preserving the historical identity of the building.

1. Research method

An experimental method of research applied on a purposed sample of architects, to evaluate the rehabilitated case study which is the palace for Princess Samiha Kamel

2. Heritage Buildings & Rehabilitation

In order to reach a mature judgment on heritage buildings rehabilitation, it is then very important to understand the value of heritage buildings, process, goals and studies of heritage buildings rehabilitation must be clearly recognized.

2.1 Heritage value:

The word value is used to reflect that something is held to deserve, the importance, worth or usefulness of something, when the word is related to Heritage; it reflect all inheritance left by left the predecessors that worth keeping, preserving and protecting, whether it's a tangible or non-tangible. By the end of 18th century and through 19th century Countries around the globe started to adopt heritage preservation competing in the revival of its heritage.

from that came the importance of identification and classification of heritage value. classification include; Historic value (Inheritance acquire through time), Aesthetic value(which basically depend on the nature & personality of the recipient, and strongly connected with the unique aesthetics, creativity and design aspects, and it's a relative value that has no fixed determinants) and functional value (acquired from the function and/or purpose the thing is used either temporary or permanent value, this value increasesby maintain the same function or purpose it was originally built for)¹.

2.2 Studies of heritage buildings rehabilitation

This include the existing situation studies aiming to evaluate the adequacy of the building spaces to serve the new proposed use. The studies include; historic, architectural, structural, interior design element and complementary studies [see figure 1].



Fig. 1. Rehabilitation Studies

2.2.1. Historic Studies.

These studies aim to identify the purpose of construction of the heritage building and Sequence of functions of the building through the history, Also help to identify the importance of different internal architecture elements whether it is related to historic events and/or figures.

hence, the historic studies can identify the importance / non-importance of architectural elements that were added to the building In a later period of its construction which help inthe decision whether to keep these additions or not, also identifies the damages that occurred to the buildingⁱⁱ.

2.2.2. Architectural Studies.

This include the analysis of all architectural elements, interrelations between them, open spaces study, spaces hierarchy and the design concept for the heritage building.

Also, include the study of vertical and horizontal circulation and its interconnection with building spaces, analysis of floor plans, identifying spaces zoning ,entrances, cross sections showing connections between different floors and heightsⁱⁱⁱ.

2.2.3. Interior Elements Studies.

This include the analysis of the geometry of interior spaces, un-used spaces and possibility of linking with main spaces, interior style, lighting elements, furniture leading to a deep consideration of the building interior to decide the importance of different element, its role within building identity and whether to keep or remove certain elements appropriate for the existing / future use ^{iv}.

2.2.4. Structural Studies.

This include the structural system of the building, roofing system, ability of the structure to bear additional loads and building materials and its specifications^v.

2.2.5. Supplementary Studies.

This include the analysis of supplementary disciplines / systems within the building such as lighting, sound, electrical, water and sanitation, firefighting systems which reflects a strong effect on architectural and structural design of the building.

2.3 Different approaches for optimum reuse^{vi}

The theories of determining the function of heritage buildings have developed during the second half of the twentieth century. At the beginning of the 80s, conservatives and were working Enthusiastically to transform buildings to different types of uses without mature awareness of the dimensions of function type selection for heritage buildings causing the loss of identity for most of these valuable buildings. Trends differed since then for choosing the appropriate function of the heritage building.

Part of the conservatives have argued that the preservation of the buildings can be achieved through reusing it with the same function and objectives it was built for earlier, where reuse is more successful when the new use is the closest to the original use of the building, and thus they measure the efficiency of the reuse function with the minimal modifications applied to the building & preserving all historical parts and features of the building. Subsequently, it can be possible to use the building for a different function later, taking into account that the new use of the building is not necessarily the ultimate use for the building.

Another group them stated that the success of the re-use project was related to the use of the building in a totally new function related to its original use; such as the transformation of school buildings to housing, if they are flexible and allow this change. But they do not support Improper functional shifts from the symbolic point of view, such as the transformation of a mosque to a theater, nor form the character point of view, such as the reuse of a theater building to an office building through structural changes and adding stories for theater height.

The above described theories adopted for type of reuse function selection for heritage buildings, on the other hand concerning related charters. The Venice charter 1964, defined the functions to be adopted for heritage use to be of social / community benefit, and this reuse should not result any changes in the layout of the building, nor its decorations. Also several charters supported the same approach in regards to community service function and avoiding any changes to building elements.

Hence, we can define number criteria for selecting sufficient function for the reuse of heritage buildings as follows ^{vii}:

- **Adequacy of selected function to building value.**

The selected function should be adequate to the artistic and visual identity of the building, subsequently; the original use of the building is the optimal functional reuse in case it's efficiently functional. Also, the function selected shall not

contradict with all valuable elements of the building, even the elements that were added and became part of the building identity.

Also, good consideration should also be given to the classification of the building historic, aesthetic and functional value of the building, as connected the function selected to the building different value aspects lead to a proper efficient reuse.

▪ **Adequacy of selected function to interior spaces.**

The adequacy of the interior spaces and location of spaces of the heritage building to hierarchy and zoning of spaces required to efficiently serve the program of new use requirements. Where the setup of the heritage building is sufficient to respond to the functional, cultural and security requirements of the new use. thus, any spatial changes either by adding or demolishing may affect the heritage building identity and elements unless it respect the rules and regulations of international charters and recommendations.

▪ **Functional adequacy.**

Functional elements must be adequate for the new selected function such as spaces hierarchy, spaces relations, vertical and horizontal circulation, size and location of openings, natural and artificial lighting, where the change in any of the above elements affect the functional, historic and aesthetic value of the heritage building.

▪ **Structural adequacy.**

The adequacy of the structure system of the heritage building to bear the loads requirements of the new use, and the effect of the new function on the building materials of the heritage building and the safeguard of the building materials from deterioration. Nevertheless; The elements of the structural building can be supported or structural components added according to the need of the building.

2.4 Practical elements for the rehabilitation of heritage buildings for adaptive reuse^{viii}

- **Executive Program proposals:** Include a building management plan that begins by defining needs for the new use of spatial distribution and the relationship of spaces to each other and architectural layout for proposed use.
- **Proposals for internal spaces:** proposals for division or partitioning requirements for the internal spaces, and the search for the types and shapes of internal partitions.
- **Proposals for finishing materials:** The proposals for the finishes of spaces including partial and total restoration techniques.
- **Proposals for decorative motifs:** proposals for building decorative motifs either through completion, maintenance or restoration. This should be handled accurately in order to preserve the heritage building architectural identity for

original ornaments and decorative motifs elements.

- **Proposals for internal treatments:** proposals include the surface treatments inside the building through Partial or total restoration or painting works.
- **Proposal for Energy Element :** proposal Power elements (heat and light) to meet the measured levels according to the requirements of the new function, and in a manner that is not inconsistent with nature and building finishes.
- **Proposals of elements of the circulation:** include proposals for the possibility of adding new circulation elements of stairs and elevators according to new function requirements.
- **Supplementary works proposal:** include proposals for supplementary works essential for the efficient reuse function such as firefighting, health, electricity, heating, HVAC and acoustic requirements, where all these proposals shall be introduced in a manner integrated with the heritage building elements and without affecting building identity.

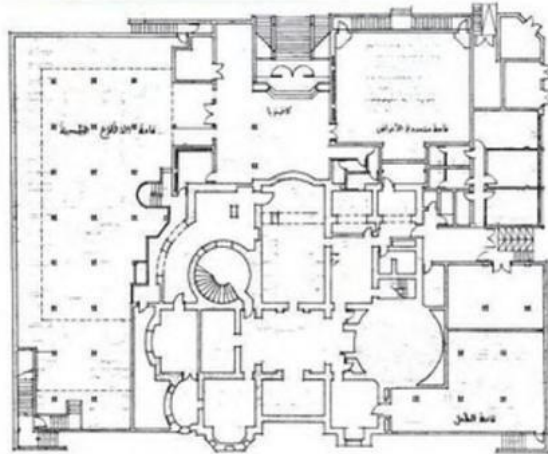
3. Case Study: Greater Cairo Public Library ^{ix x xi} [see figure 2]

Date of construction :	1900.
Date of Rehabilitation :	1991 - 1995
Location :	Al-Zamalek, Giza Governorate.
Architect:	Mohamed mostafa Saleh.
Original use :	Residential Palace.
Rehabilitation use :	Public Library.



Fig. 2. Palace of Princess Sameha Kamel

- **Historic Background :** This building is located in the Zamalek area in the center of Cairo, specifically at 150 Mohamed Mazhar Street. It was built as a palace for Princess Samiha Kamel in 1900, the granddaughter of Khedive Ismail and the daughter of Sultan [see figure 3].



▪ **Fig. 3. Main plan of the palace**

Hussein Kamel was the last Sultan of the Mohammed Ali family. The palace has a distinctive location overlooking the Nile directly, and the surrounding area includes a number of foreign embassies. The palace princess was known for her love and passion for various arts such as music, singing and poetry, and she recommended that her palace be dedicated after her death to serve cultural and artistic purposes.

- **Causes of deterioration:** After the death of Princess Samiha Kamel in 1984, the ownership of the palace was transferred to the Ministry of Finance, which removed the palace from all its contents. In 1988, the property was transferred to the Ministry of Culture, which decided to renovate the palace and turn it into a public library in 1991. The renovation work was officially completed in 1995, and the beginning of the renovation work suffered by minors all this period of negligence resulting from non-use. The damage and deterioration on the finishes of all the architectural elements of the interior spaces, as well as parts of the decoration and the fall of some of them and the removal of some parts of the floors due to humidity and high water content.
- **Rehabilitation Goals:** Was an invitation by the Ministry of Culture to modernize the palace building and turn it into a public library, in order to preserve the value of the historical building and to be a cultural center of great weight and an

attempt to integrate these historical values within the contemporary environment.

- **Rehabilitation Approach:** The development works started with building support for the building and extending the area to 2200 m² to accommodate the new activities of the library which includes (main reading hall, multi-purpose hall, reading room for children connected to the garden, management rooms and services, book stores, cafeteria). In the ground floor, some doors and walls were expanded to increase the area of the towers and an external extension of the reading rooms on the terraces mostly the use didn't harm the historic building but it hid its character with reversible interior design elements [see figure 4].



▪ **Fig. 4. Reading Hall furniture which separate from the original walls**

- As for the ceilings, the ceilings of high value was preserved with restoration such as the western ceiling of the director's room and the ceiling of the colored cataloging hall. The bishop, who confirmed that it was unsafe and damaged, was repositioned in its original design. The other decorative units were cleaned and restored. Some gypsum units decorated with colored stained glass were also added in the auditorium hall of the audiovisual hall in the last floor.
- The floors were treated with sound-absorbing materials, the use of the hard-to-userugs in the main reading room and the dark blue carpet was used to absorb any noise from the hall. Parquet floors were also used in other halls, such as the auditorium. As well as ceramic flooring in some spaces.
- Modern elements of furniture were used to suit the new function, to introduce a system to adapt the building and to raise the efficiency of spaces. All elements

were concealed above the suspended ceilings. Electromechanical systems played a prominent role in improving the performance of the project [see figure 5].



- **Fig. 5. Halls furniture used the original walls which hid the original interior**
- The designer retained its historical and artistic value of the building. Try to preserve some of the main spaces in the building with its original design and various proportions. And some of the other spaces interior with a cautious and moderate way to perform its function with high efficiency, on other hand the external faces of the building were totally preserves with the same openings size and location with an efficient use in coordination with selected interior specs use [see figure 6].
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- **Fig. 6. Absence of the historic character of the palace**

4. Results

- Well managed rehabilitation projects is much better than non-usable heritagepalaces

- Rehabilitation act as a continuous source of heritage buildings maintenance
Cultural uses safe the historic places because of audience type who are interested in culture
- Original interior perception affected negatively from the rehabilitation furniture, that need a careful selection to show the historic value and perform the use

Discussion and Analysis

A questionnaire was prepared including a group of questions and two groups were addressed to provide answer for the questionnaire; First group include experts in the field heritage preservation and rehabilitation, second group include architects.

The data were collected and analyzed statistically to reach the search results and to determine the extent of the reciprocal effect And the impact on the historical value and identity of the building, and on the other hand the impact of controls imposed by the constraints of dealing within the heritage buildings rehabilitation on the efficiency of the targeted function for the project, the results were as follows:

- **Questionnaire results:** The results of the questionnaire indicate that the process of rehabilitating the Greater Cairo Library building introduced a functionally
- efficient rehabilitation outcome and but negatively affected the historic value and identity of the building, where almost 80% expressed their disagree with the level of interventions applied to the building in order to accommodate the new use, effect of added elements to building value and the adequacy of the interior style to the value of the building.

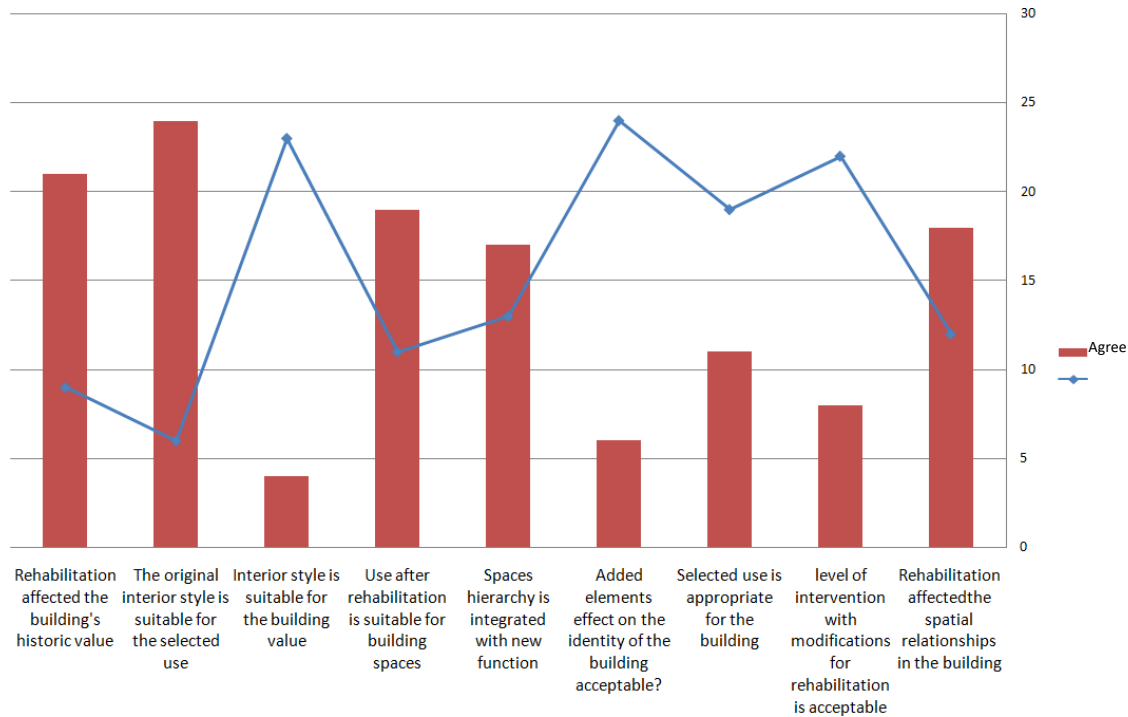


Fig. 7. Questionnaire outcomes analysis graph

- **Results Discussions:** The questionnaire introduced three groups of questions; first group examine the effect of new use on building identity & value, second group examines suitability of the building to the proposed new function and the third group examines both of them.

The analysis of the results of the questionnaires was conducted, which showed the inevitability of the impact of rehabilitation on historical value, but it must be taken into consideration that minimum as possible as preservation of value is the main objective after all which was not achieved in Greater Cairo Library rehabilitation, severe interventions especially in the interior of the building were introduced leading to a total loss of the building identity and the absence of the sense of the place while performing the newly introduced function.

more attention should have been given to interior treatment, finishing materials, lighting and complementary requirements proposal in order to avoid this severe intervention to preserve the heritage building identity, value and sense of place.

5. Conclusion

The research was based on analysis of the rehabilitation approach of a heritage building of Greater Cairo Public Library Buildings to evaluate the adequacy of the selected new use to the building , The majority of the results indicated a positive process of rehabilitation of the building in terms of its functional value. The architects were interested in the functional aspect in order to confirm the addition of contemporary elements, but the historic identity lost because of the new interiors.

6. Recommendations

The research concluded many recommendations to be followed when dealing with interior design with an archaeological building, including the following:

- The different building values, whether historical, aesthetic or functional, must be taken into consideration. The priority of the historic building should be taken into account and the intervention in the interior design must be carried out by neutral elements.
- Respect the proportions of the original building, and review the feasibility of the addition of mezzanine because it is one of the most important reasons that influenced the highlighting of the identity of the impact, especially the scale and proportions.
- Scale, unity and interior principals must be observed so that the main layout is the elements of the building and the secondary elements of interior design added so as not to lose the spaces of identity.
- Most of the buildings of the nineteenth century used the element of emphasis on the entrances of the buildings as well as the emphasis on the elements of vertical and horizontal communication, the confirmation of these elements must be respected as part of the confirmation of the nature of the building and it is not recommended to intervene on this element by adding any of the foundations of the interior design.

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