



Research Paper

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## **Potential of Rehabilitating Benghazi Historical Buildings - Challenges and Strategies**

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### **Abstract**

Preservation of the urban context and heritage buildings is crucial for conserving the cultural identity of a city and preserving its architectural heritage, which forms its urban character and memory. In Benghazi, numerous buildings of historical, heritage, and architectural value define its identity and require preservation, revitalization, and protection by conserving all their distinguished architectural and urban elements and utilizing these elements to their full potential. Heritage preservation also necessitates maintaining the overall character, which means preserving these buildings within their neighboring urban contexts. Today, historical and heritage buildings form a significant part of Benghazi's memory and urban fabric. However, the current state of this heritage has suffered from neglect and destruction. Among the important landmarks in Benghazi that still hold potential for rehabilitation and utilization and play important roles in the mental image of the city are the Qeshla Building (Al-Baraka Palace), Al-Manar Palace, and Benghazi Municipality Building. The Qeshla Building is a prominent historical landmark in the city and is known for its grandeur. Al-Manar Palace, with its architectural significance dating back to the Italian period, also holds high sentimental value among the city's residents. The Benghazi Municipality Building from the Ottoman period is a historical landmark in the main square of the old city.

This study focuses on the challenges faced by heritage buildings in historical cities by documenting the components of these architectural and urban landmarks. Furthermore, a general framework was developed for the systematic rehabilitation of these buildings by studying their current situation, conducting field surveys, identifying their potential, and establishing strategies that govern their revitalization. This study concludes that protecting Benghazi's architectural heritage is essential, as these landmarks shape the urban identity of the city and constitute a significant part of its cultural and social heritage. This emphasizes the importance of developing plans that help preserve and rehabilitate these buildings and reuse them with adaptive functions to achieve cultural, economic, and social benefits for the community.

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**Keywords**

*Conservation; Architectural Heritage; Qeshla, rehabilitation strategies, Identity.*

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**1. Introduction**

The preservation of the urban context and heritage buildings is essential for maintaining the cultural identity and architectural heritage of cities, which constitute their urban character and memory. This issue has garnered increasing attention in international discourse, particularly concerning the United Nations Sustainable Development Goals (SDGs), specifically SDG 11, which seeks to make cities inclusive, safe, resilient, and sustainable. (Vaidya & Chatterji, 2019) The conservation of historical buildings significantly contributes to this goal by preserving cultural heritage and promoting sustainable urban development. The necessity of conserving historical buildings extends beyond the mere preservation of the past. These structures represent the cultural, social, and architectural evolution of cities, serving as tangible links to history and collective memory. This also necessitates maintaining the overall character, which involves preserving these buildings within the surrounding urban context. In Benghazi, numerous buildings of historical, heritage, and architectural value define a city's identity and require preservation, revitalization, and protection. Safour and Elmazek (2018) asserted that various benefits can be achieved by preserving the architectural and urban character of historical areas and buildings, such as preserving the continuity of architectural and urban character of the heritage, protecting the distinctive visual character of the areas, safeguarding their values, and maintaining the continuity of heritage elements, thereby avoiding disparities in the relationship between architectural heritage.

Failure to rehabilitate these historical buildings creates several challenges, such as cultural identity, damage to the urban fabric, and missing opportunities for sustainable urban development. Parts of the city's history would be completely deleted if heritage buildings physically deteriorated to the point where they collapsed due to neglect. In addition, historical buildings, when they become centers of urban decay, negatively impact nearby neighborhoods. Previous studies have emphasized the significance of heritage preservation in maintaining the overall urban character. Urban heritage conservation is not only about preserving individual buildings, but also includes a comprehensive approach that considers the entire urban fabric with all its different elements (Huq & Puthuvayi, 2024; Serrano-Estrada et al., 2024).

This study focused on the challenges faced by heritage buildings in the historical city of Benghazi by documenting the components of these architectural and urban landmarks. Furthermore, a general framework is being developed for the systematic rehabilitation of these buildings by studying their current situation, conducting field surveys, identifying their potential, and establishing strategies to regulate their revitalization. This study aims to implement a thorough strategy for conserving Benghazi's architectural legacy, as these iconic structures continue to influence the city's urban identity and constitute a significant part of its cultural and social legacies. This study emphasizes the importance of developing policies that support the preservation and rehabilitation of historic structures, reusing them with adaptive functions, and acquiring cultural, economic, and social advantages for the community. It looks at the most important agreements globally regarding historical site restoration and preservation. This approach is consistent with international best practices for cultural protection and sustainable urban development and offers useful information for similar projects in other ancient cities with comparable problems.

Architectural heritage serves as a benchmark for national progress and as a living testament to diverse traditions and cultures throughout history. Owing to numerous deterioration factors that threaten to erase its features, it is crucial to establish international and local regulations for its protection during both peace and war. The foundation for subsequent charters and declarations addressing the protection of built heritage and urban areas was established by the Venice Charter of 1964, which focuses on architectural historical monuments. These include the Washington Charter (1987) for historic cities and towns, the Florence Charter (1981) for historic gardens, the Lahore Charter (1980) for Islamic monuments, and the UNESCO Recommendations for the Protection of Historic Areas (1976). Charters on vernacular-built heritage (1999), conservation of wall murals (2003), structural study and restoration (2003), and preservation of the spirit of place (2008) are examples of other advancements. Recent additions include the Valletta Principles for Historic Cities (2011), the Paris Declaration on Heritage as a Driver of Development (2011),

and the Salalah Guidelines for the Management of Public Archaeological Sites (2017). Together, these international charters collectively form a comprehensive framework for preserving architectural heritage across various contexts and periods.

After reviewing the main international charters related to architectural preservation, the next section addresses the methods used to preserve architectural heritage.

## **2. Rehabilitation Strategies**

Rehabilitation strategies for historical buildings are a complicated process that seeks to maintain cultural and architectural history while modifying structures to meet today's requirements. Almahari (2017), Al-Jassim (2018), and Friska and Andria (2023) have stated these strategies as follows:

1. Prevention, which is one of the most important processes in heritage preservation, aims to protect heritage sites from harmful factors by controlling the surrounding environment. This process covers several aspects such as environmental control, security measures, regular maintenance, and visitor management.
2. Conservation focuses on maintaining the site or building by conducting necessary repairs to prevent further deterioration, while preserving the original character. In addition, ongoing maintenance includes the limited replacement of damaged materials and the avoidance of modern additions.
3. Reinforcement or consolidation is a technique used to strengthen weakened building materials in historical structures. This involves introducing adhesives or reinforcing materials directly into the original fabric of the material to improve its durability and safety. This is typically achieved when the material is deemed to be unable to withstand future deterioration.
4. Restoration is a specialized process dedicated to preserving and highlighting the aesthetic and historical significance of monuments. Guided by respect for the original materials and reliable documentation, restoration aims to return a site to a known earlier state. The process involves the careful removal or reassembly of existing elements, avoiding the introduction of foreign materials. Work must cease when conjecture replaces evidence, and any essential addition should be clearly distinguishable and contemporary in design.
5. Rehabilitation aims to adapt a site for appropriate use by repairing, altering, and adding to it while carefully preserving its historical, cultural, and architectural values. The objective is to reuse the site, either for its original purpose or for a new, compatible function that respects these values. Reconstructing lost architectural elements during rehabilitation is encouraged when sufficient material, documentary, and photographic evidence exist to accurately recreate the missing part and contribute to the site's historical character.
6. Reproduction serves two main purposes: first, to recreate damaged parts of the artwork, such as paintings, to preserve their visual harmony; and second, to copy cultural properties facing threats to their survival, allowing for their transfer to safer locations.
7. Reconstruction: This is the step or process in which new construction work is carried out, either completely or for parts or features that are not present in the archaeological site due to its exposure to certain conditions that led to its destruction. The aim is to replicate its appearance, which characterizes it at a specific historical period and in the same old location.

It can be concluded that heritage preservation strategies require a delicate balance between protection, maintenance, and resource management to ensure the sustainability of heritage sites for future generations.

These strategies collectively ensure that historical buildings are preserved for future generations and serve functional, economic, and sustainable roles in modern society.

## **3. Research Methodology:**

This study employs a mixed-methods approach to investigate the potential for rehabilitating historical buildings in Benghazi, Libya, the challenges involved, and potential strategies for successful revitalization. The research

methodology comprises a number of key stages, starting with the Literature Review, as a comprehensive review of the existing literature was conducted to understand heritage preservation, rehabilitation strategies, and international best practices. This review includes academic articles, international charters, and relevant publications from organizations such as UNESCO. The literature review revealed the study's approach to defining rehabilitation strategies and identifying relevant international precedents. Three significant historical buildings in Benghazi were selected as case studies: the Qishla Building (Al-Baraka Palace), the Benghazi Municipality Building, and Al-Manar Palace. These buildings were chosen based on their historical, architectural, and cultural significance to the city as well as their current state of neglect and potential for rehabilitation.

Data collection involved a combination of primary and secondary sources, such as on-site visits and field surveys, to document the current conditions of the selected buildings. This includes visual inspections, photographic documentation of architectural details and structural issues, and observations of the surrounding urban context. The second tool was archival research, in which historical documents, architectural plans, and photographs related to the selected buildings were gathered from local archives and historical authorities. This information was used to understand the original design, construction history, and past use of the buildings.

The collected data were analyzed using a comparative analysis of the characteristics, conditions, and potential of each case study building to identify common challenges and opportunities for rehabilitation. A general framework for the systematic rehabilitation of historical buildings in Benghazi was developed based on a literature review, case study analysis, and international precedents. This framework outlines the key principles, strategies, and considerations for successful revitalization projects.

The next part of the research will present several historical architectural examples that have been preserved through reconstruction, restoration, and revitalization, ensuring their continued relevance and functionality.

#### **4. International Success Stories of Rehabilitation**

To explore the potential of rehabilitating historical buildings, it is necessary to examine successful attempts that have tackled similar challenges and employed innovative strategies. This paper presents four outstanding precedents for historical building rehabilitation: the Qishla and Saray of Baghdad in Iraq, the modernization of the Lourcine Barracks in France, the Daoíz y Velarde Cultural Centre in Spain, and the La Remunta Project in Spain. Each project provides valuable insights into the complexities and opportunities presented by the reuse of heritage buildings. The Daoíz y Velarde Cultural Centre in Spain represents the successful renewal of military barracks into cultural hubs. This example is particularly remarkable for its method of conserving the external historical envelope while redesigning the interior to adapt to different cultural activities and integrate sustainable technologies. The La Remunta Project in Spain illustrates the potential of rehabilitating historical buildings to boost the urban environment. This project faced the challenges of structural deterioration and unclear future functions, using strategies of careful structural consolidation and adaptable design to create a remarkable public space.

The Qishla and Saray of Baghdad were selected for their success in preserving Iraq's cultural heritage, while adapting to modern functions. This example features the challenges of rehabilitation buildings that have experienced multiple functional changes over time and illustrates strategies for balancing historical preservation with modern functions.

Lastly, the modernization of the Lourcine Barracks in Paris demonstrates a careful approach to adapting historical military barracks for educational purposes. This project, transforming 19th-century barracks into university facilities, displays contemporary methods of harmonizing modern academic requirements within a heritage background while preserving the site's historical features.

##### **4.1. The Daoíz y Velarde Cultural Centre, Spain**

The rehabilitation of the Daoíz y Velarde Cultural Centre in Madrid, Spain, presents a good precedent in the potential and challenges of adapting historical buildings for modern use. The Daoiz and Velarde barracks, constructed in the 1880s on a 23,000 square meter land area known as "Los Docks," have two distinct barracks for infantry and artillery. It was designed as a complex of military factories with direct access to Atocha station and was capable of housing 3,500 soldiers and 500 horses, and the carriages of a mounted artillery regiment (Ugc, 2024).

The rehabilitation plan was designed by Rafael de La-Hoz Arquitectos and was completed in 2013. The project transformed 19th-century military barracks into a lively cultural hub using innovative strategies to preserve architectural heritage while meeting modern needs (Valenzuela, 2024). The primary challenge lies in balancing the preservation of the building's historical features and fulfilling the requirements of contemporary cultural functions. This was achieved by preserving the original brick facade and special sawtooth metal roof, while creating an interior to create flexible, multi-purpose spaces for different cultural activities (Valenzuela, 2024). The architects used a strategy of "selective intervention," preserving the external shell while emptying the interior to form open, adaptable spaces (Figure 1). A new concrete structure has been inserted within the historical envelope, providing modern structural support and integrating advanced sustainable technologies (Mansanrod, 2017).

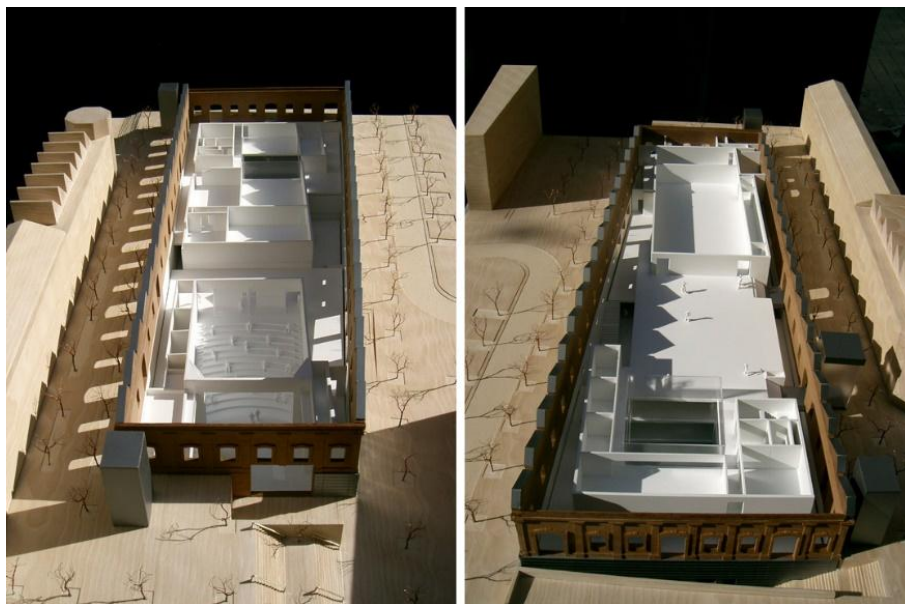


Figure 1: Building model (Daoíz Y Velarde Cultural Centre / Rafael De La-Hoz, 2024)

This method preserved the building's urban personality and historical excellence while implementing a comprehensive functional transformation. The design also addressed sustainability concepts, integrating geothermal energy systems for heating and cooling, thermo-activated concrete structures for climate control, and optimized natural lighting and ventilation (Daoíz Y Velarde Cultural Centre / Rafael De La-Hoz, 2024). These systems enhance a building's energy efficiency and represent a model of how historical structures can be adapted to meet modern environmental standards. The cultural center includes two distinct theater halls, each with its own unique layout. One follows the traditional Italian design, whereas the other adopts a more versatile cruciform configuration that can be adapted to various arrangements. This flexibility allows for a wide range of performance styles and audience settings. The design further enhances flexibility, with open floor plans and movable elements allowing for easy reshaping of spaces to fit different events and functions (Valenzuela, 2024) (Figures 2, 3, 4, and 5). This flexibility establishes the building's long-term viability, as a cultural center can evolve with changing community needs.

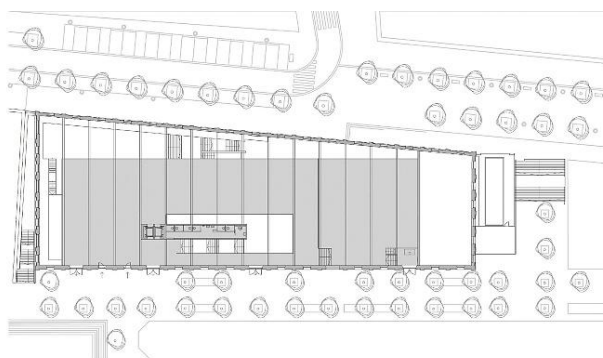


Figure 2: First floor (Valenzuela 2024).

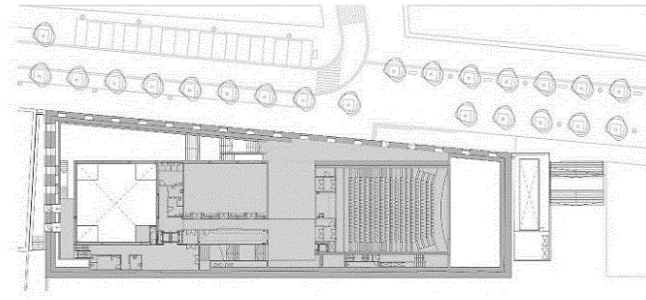


Figure 3: Ground floor (Valenzuela, 2024).



Figure 4: Building Section (Valenzuela, 2024).

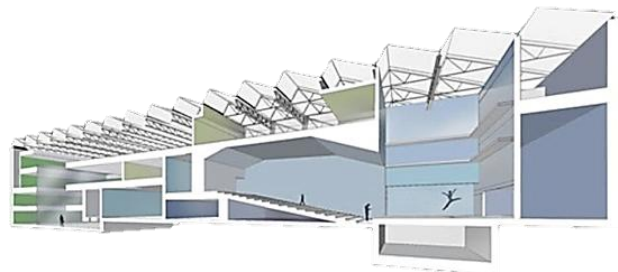


Figure 5: Building Section (Valenzuela, 2024).

Another key aspect of rehabilitation is the enhancement of public spaces. The renovation extended the adjacent plaza into the building, creating a covered public gathering area that served as a transitional space between the urban environment and the cultural center. This strategy enhanced the building's integration with its surroundings and increased its value as a community center. The ground floor included the main entrance and functioned as a common area. It is designed to work as a covered agora or plaza, and is used as a meeting place, information center, and exhibition space. The design allows for an open, fluid, and visual connection with the exterior. The Basement hosts cultural activities and includes an auditorium for conferences and performances. A project's success lies in the balance between preservation and innovation.

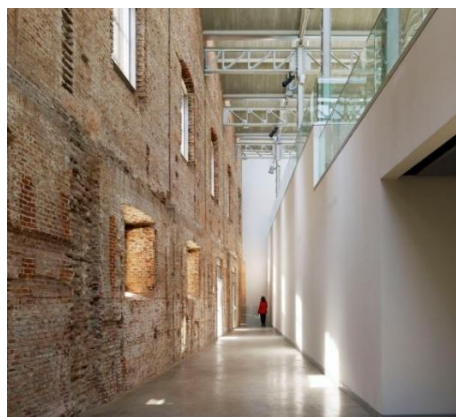


Figure 6 :Building Shell and New Structure (Valenzuela, 2024).



Figure 7: Roof Sawtooth (Valenzuela, 2024).

By clearly distinguishing between historical elements and modern interventions, the architects created a dialogue between the past and present, allowing visitors to appreciate both the building's heritage and its contemporary function (Valenzuela, 2024). The Daoíz y Velarde Cultural Center rehabilitation is an example of the potential of the adaptive reuse of historical buildings without negatively affecting their architectural significance through solid, innovative design and sustainable technologies that can convert vintage buildings into productive, environmentally responsible spaces that meet modern needs while appreciating historical heritage (Figures 6 & 7). The project not only preserved a piece of Madrid's architectural heritage but also established a cultural asset for the community, demonstrating that with the right methodology, historical buildings can be successfully adapted to play important roles in modern urban life (Mansanrod, 2017).

#### 4.2. The La Remunta project, Spain

The La Remunta project in Hospitalet de Llobregat, Barcelona, is considered an outstanding case study for the rehabilitation of historical buildings, demonstrating both the threats faced and the opportunities employed in such efforts. This former army barracks, originally devoted to horse breeding, presented a unique opportunity to conserve a piece of local history while modifying it to meet modern urban needs (La Remunta - Ravetllat Arquitectura, n.d.) (Figure 8). The renovation project focused on four of the six buildings in the old barrack complex: Building 1 (single-story stables, a hall, and dormitories), Buildings 3 and 4 (used for horses), and Building 5 (formerly an infirmary and laboratory). The remaining two structures, an old farmhouse and Building 2, were designated for different developments as nurseries (Figure 9).



Figure 8: Old building (Villa, 2019).



Figure 9: Master plan: Four restoration buildings (Villa, 2019).

The project undertaken by Ravetllat Ribas Arquitectes confronted several significant challenges that are common in historical building rehabilitation. First, the structural deterioration of the buildings needed careful consolidation and rehabilitation work to avoid further degradation (La Remunta: Consolidation of Barrack Buildings - UrbanNext, 2024). This threat was compounded by the unclear future use of the buildings, necessitating an adaptable concept that would conserve the buildings while leaving them adaptable for possible future functions (Consolidation of “La

Remunta” Barrack Buildings | Ravetllat Ribas Arquitectes | Archello, 2024) (Figures 10, 11). Moreover, the project had to handle the complex task of integrating these historical buildings into a new urban context as part of the site was being altered into a public park (Villa, 2019). These challenges echo the broader concerns often confronted in historical building restoration, such as balancing preservation with adaptation, working with unclear future functions, and integrating historical structures into growing urban landscapes (Figures 12,13).

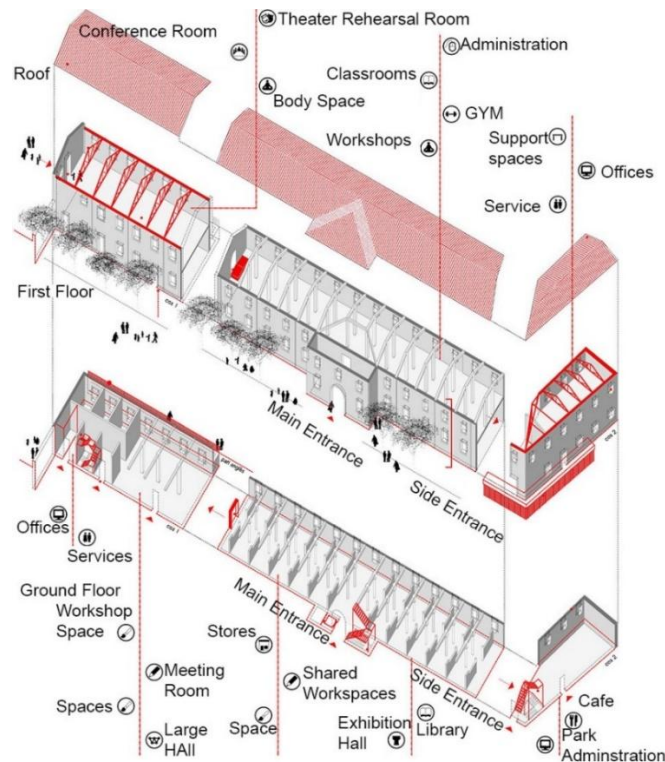


Figure 10: Building 1(Villa, 2019) (Translated by Author).

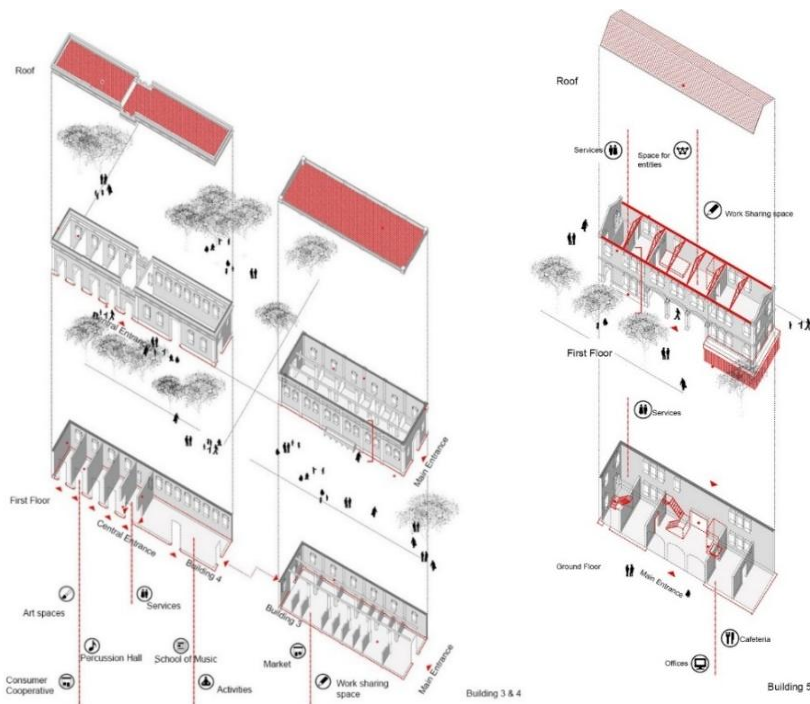


Figure 11: Buildings 3 and 4 (Villa, 2019) (Translated by Author).

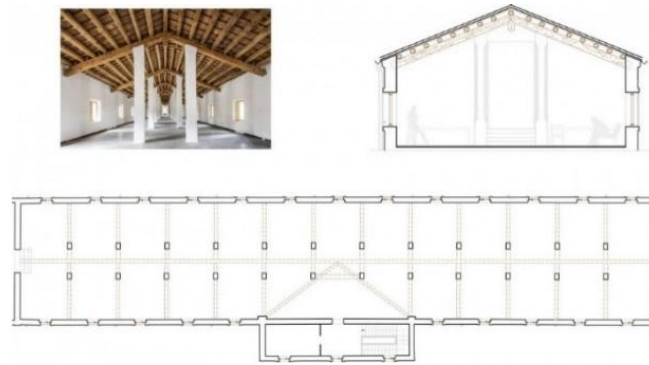


Figure 12: Ground floor orthographic views (Villa 2019).

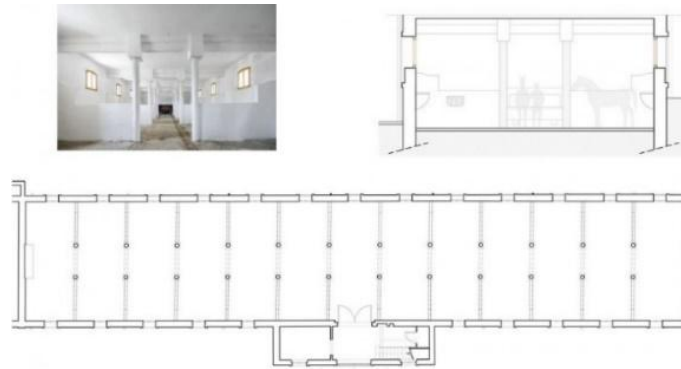


Figure 13: Ground floor orthographic views (Villa, 2019)

The strategies employed in the La Remunta Project provide valuable insights into these challenges. The architects conducted selective dismantling and rehabilitation of existing structural buildings, avoiding more invasive interventions, such as reinforcing the supporting structure of the foundations where possible. This method is responsible for conserving the original structural principle of buildings while ensuring their stability for future use. The rehabilitation of the building envelopes was achieved with care for historical integrity, utilizing materials and techniques that matched the original building. Facades were restored using lime mortar and mineral silicate paint, while roofs were rebuilt while conserving current trusses and beams. This attention to detail in material selection and application is necessary to maintain the historical features and credibility of the restored buildings. Mainly, the project demonstrated a sustainable approach to rehabilitation (La Remunta: Consolidation of Barrack Buildings – UrbanNext, 2024) (Figures 14 and 15), respectively. Existing materials were reused where possible, such as recovering tiles from demolition for roof restoration. This strategy not only conserves the historical fabric of the buildings but also adjusts to modern sustainability goals, reducing waste and the need for new materials (Figures 16, 17). The conservation of original elements such as floors, troughs, and animal feeders serves a dual purpose: it maintains the buildings' historical value, allowing future users to connect with the site's past while highlighting the exact features of the restored structures. This method highlights the significance of employing tangible links to the history of a building in rehabilitation projects.



Figure 14: Exterior view of building after renovation (Villa, 2019).



Figure 15: Exterior view of building after renovation (Villa, 2019).



Figure 16: Before restoration (Villa, 2019).



Figure 17: After restoration (Villa, 2019).

Most notably, the La Remunta project shows the potential for restoring historical buildings to improve urban environments. By successfully integrating rehabilitated barracks with a new public park, the project created a unique space that mixes historical preservation with modern urban needs. This result shows that restored historical buildings can serve as catalysts for urban regeneration, creating spaces that are both historically rich and suited to modern city life. The project was recognized by different organizations, including selections for the Catalunya Construction Awards and the European Award for Architectural Heritage Intervention AADIPA in 2017, which highlights the success of the rehabilitation strategies used (La Remunta-Ravetllat Arquitectura, n.d.). These awards validate the proposed method and provide a model for future historical building rehabilitation projects.

In conclusion, the La Remunta Project exemplifies the complexities and multifaceted benefits of historical building rehabilitation. It demonstrates how such projects can overcome important challenges through careful planning, innovative design strategies, and commitment to both historical preservation and contemporary relevance. The success of this project in preserving cultural heritage, improving the urban environment, adapting historical buildings for contemporary contexts, and contributing to sustainable urban development serves as a testament to the potential of rehabilitating historical buildings. As cities worldwide grapple with the commitment to conserve their architectural heritage while meeting the needs of urban growth, projects such as La Remunta offer useful lessons and insights for architects, urban planners, and stakeholders.

### 4.3. Qishla and Saray of Baghdad, Iraq

The documentation and restoration of historical monuments such as the Qishla and Saray of Baghdad face challenges due to erosion, vandalism, and changes in construction over time. The preservation of cultural heritage is important for educating younger generations and preserving the history of society. “In 1831, central rule returned to Baghdad after the fall of the Mamluks. At that time, there was serious consideration of constructing buildings, some with a civilian character, and others with a military character. Among them was the Qishla, which was erected next to the Saray (Palace) as part of a complex housing all the departments related to the military institution in Baghdad.” (Munshed & Ashour, 2024). In 1855, Al-Qishla was built near Al-Serail to be within a large complex; it was constructed to be used as a school under the name of "Al-Mawfakia School," but later on, the Ottomans turned this building into barracks (Aksulu and Almkhtar, 2021).

Al-Qishla is located near Al-Mutanabi Street in central Baghdad and overlooks the banks of the eastern Tigris River. See Figure 18. The Saray buildings, including the Qishla, were constructed during the rule of Wali Namik Pasha (1851–1852). Namik Pasha erected the Qishla with a single story to house numerous infantrymen during the winter. The upper level was later constructed within Muddhat Pasha's leadership (1869-1872 AD) when the work was finished. “Muddhat Pasha demolished the eastern wall of Baghdad to fund the construction. He also installed a clock in the middle of its courtyard to wake up the soldiers; it was carried on a tall tower (Al-Azzi 1978). In 1917, during the British invasion, the Qishla became an accommodation for British officers and their families; following that, the Qishla served various governmental functions.

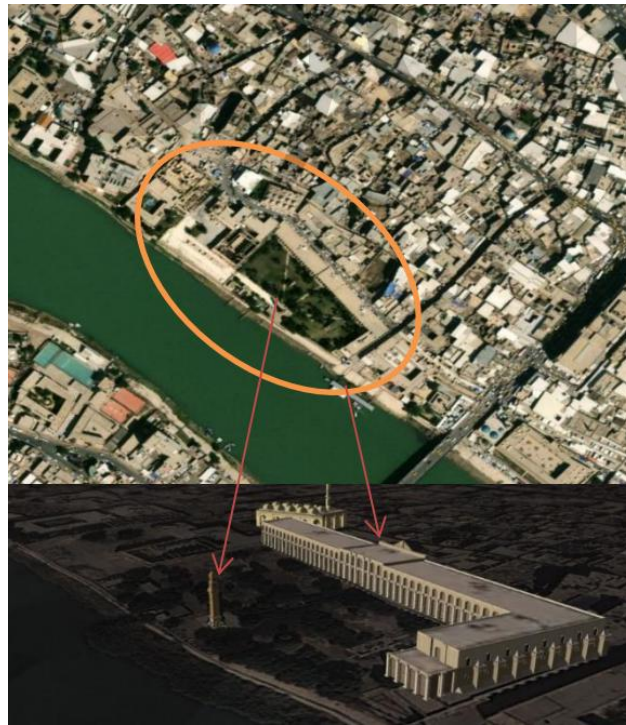


Figure 18: Study area of Jaded Hasan Basha District and Qushla (Aksulu and Almkhtar, 2021).

In 1991, a decision was made to use the Qishla building as a museum, collecting documents related to the reconstruction efforts after the 1991 Gulf War; therefore, to maintain the quality of the building, it must be occupied with a unified functional program that suits the building and its neighborhood. The Qishla were in good condition and had few problems due to the restoration that took place in 1989. In addition, the Saray gate is structurally sound under good conditions (Aksulu and Almkhtar, 2021). Figure 19 shows the open spaces and the inner eastern façade of Qishla and Saray in Baghdad.



Figure 19: Inner eastern facade (Aksulu and Almkhtar, 2021).

After two decades, it was decided to include the restoration of Al-Qashla in the Baghdad governorate plan, as it had been looted by negligence and waste until some of its historical parts had almost fallen. However, the restoration involved removing the inner partition to create large halls that could be used for exhibitions (Aksulu and Almkhtar, 2021). *“Interventions and adaptive reuse of the new expansion for the purpose of reuse included the construction of a new floor above the single-story building with the same ground floor system consisting of a corridor opening onto a series of rooms; it is natural for the corridor on the ground floor to differ from that on the upper floor because they are not synchronized in history”* ( Munshed, Ashour, 2024). Figure 20 shows the Ground floor spaces of Qishla, and Figure 21 displays the Eastern wing section. Nonetheless, *“Currently, the Qishla and Saray doors are open to tourists and citizens for cultural and recreational purposes”* (Munshed and Ashour, 2024).

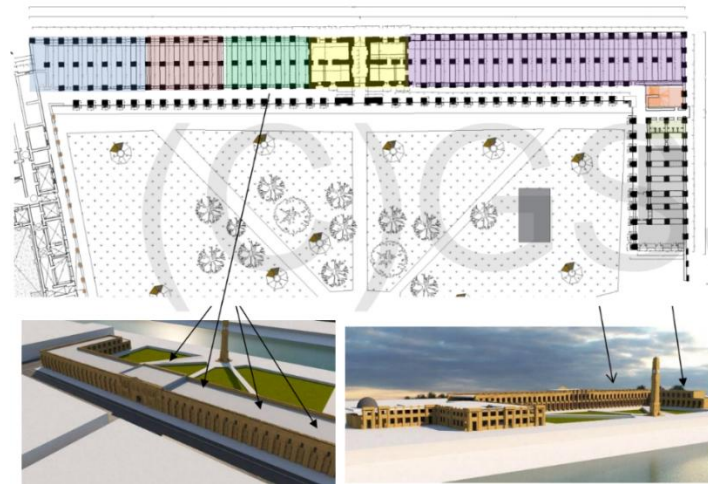


Figure 20: Ground floor space of Qishla (Aksulu and Almkhtar, 2021).



Figure 21: Eastern wing section (Aksulu and Almkhtar, 2021).

To elucidate the importance of preserving the historical and heritage remnants of these buildings, which serve as evidence of various eras and play a crucial role in the urban fabric of the city, it is imperative to document them using appropriate scientific methods to ensure their proper maintenance. To sustain these buildings, they must be operated and reused in a way that reflects their value and the urban, political, and military history they embody, thereby preserving them as a living monument.

#### 4.4. Modernization of Lourcine Barracks, France

The Lourcine Barracks, presently a law university that completed its modernization in 2019, is the result of a modern approach to restoring architectural heritage and introducing new methods. This project is located within the old military barracks in the 13th arrondissement of Paris and is organized around a parade ground with its military buildings built in 1875 (ChartierDalix, 2023) (See Figure 22).



Figure 22: The location of the project within old military barracks (University of Law Paris I, Paris 13 - ChartierDalix, n.d.)

The Lourcine Barracks have been considerably altered, yet they keep the original design around the historic courtyard and the main north-south orientation. The two military buildings were preserved with respect to their overall space and the majority of their interior layouts. See Figure 23.

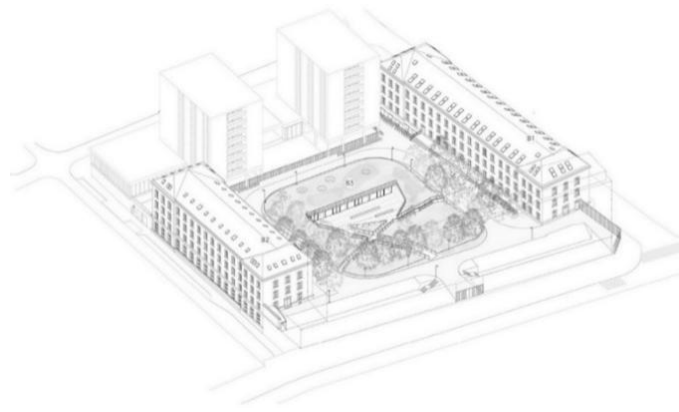


Figure 23: The original design around the historic courtyard and the main north-south orientation (University of Law Paris I, Paris 13 - ChartierDalix, n.d.).

The idea proposes that parts of the University of Paris be installed within the old buildings and in the basement levels under the parade ground. See Figure 24. It aims to make the most of this Parisian heritage, taking a precise approach that will retain existing spaces and preserve the historic character of the site as much as possible.



Figure 24: The idea was proposed to be installed within the old buildings and in the basement levels under the parade ground. (University of Law Paris I, Paris 13 - ChartierDalix, n.d.)

The new activities integrate with buildings while preserving their antiquity. The parade ground retains its fundamental, unifying, and symbolic function as a landscaped forecourt leading down to define the new entry to the gallery, which required the installation of a library, a 500-seat lecture theater, 27 classrooms, a 2,000 m<sup>2</sup> library, 1,500 m<sup>2</sup> offices, and two service apartments, all incorporated into existing structures, embracing their spatial characteristics. See Figure 25 (Fundació Mies van der Rohe, 2022).

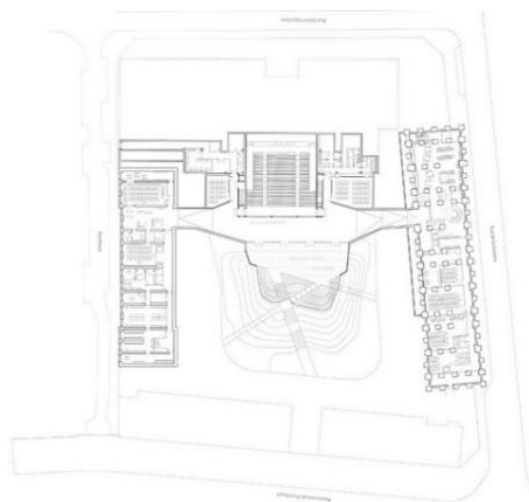


Figure 25: The New activities integrated with buildings while preserving their antiquity. (University of Law Paris I, Paris 13 - ChartierDalix, n.d.)

The central courtyard of the complex is bounded by large structures, each with a main portion and wings. “The strategic urban function of the central courtyard is restored: once more, it is a place where flows of people come together and disperse again, and where the overall coherence of the place must be preserved, avoiding conflict between different users.” (Dalix, Chartier. Paysages, D&H, 2022).



Figure 26: The continuity and relation that architecture can establish between the past and the future. (University of Law Paris I, Paris 13 - ChartierDalix, n.d.)

The rehabilitated Lourcine barracks stand as a modern address on continuity and the relationship that architecture can establish between the past and the future, and develop in such a way that it accommodates the existing without driving the building to shift into conflicting configurations. See Figure 26. The project received several awards, including nominations for the Equerre d'Argent 2021, laureate Prix AMO 2021, nomination to New into Old Awards 2021, Frame Awards 2020, Audience and Jury Prize, and nomination for the Mies Van Der Rohe Award 2022. (ChartierDalix, 2023).

#### **4.5. Learning Lessons from the International Success of Rehabilitation Approaches**

Rehabilitation approaches to revitalize historical buildings should be based on studied examples and previous experiences, as observed in our study. In Baghdad's Qishla, the approach focused on maintaining and preserving the building with all its external elements, while changing its functional nature. It was adopted as a cultural hub in Baghdad City, keeping the internal spaces as much as possible and modifying some to suit new functional needs. Some internal partitions were adjusted for certain parts. The inner courtyard of the Qishla was also revitalized to host cultural and community activities. This approach was also followed in two examples from Spain, which were also adopted as cultural centers. The project focused on documentation and restoration, addressing issues of erosion and vandalism, while adapting spaces for new uses.

As for the Lourcine Barracks in Paris, its function was changed to a university, which necessitated the construction of a new building, including an amphitheater, library, and public space. This new structure was built partially underground, ensuring that it did not interfere with the historical appearance of the barracks while remaining harmonious with the site and solving functional problems for new use. The modernization of the Lourcine Barracks utilized a precision approach, carefully adapting new functions to existing spaces and preserving the site's historic character.

In the Barcelona barracks in Spain, the building was restored to its original state, entirely preserving four of the six buildings. The building was not assigned any specific functions; instead, it was given flexible uses, ranging from cultural to training purposes, including music and theater facilities. Historical elements such as horse stables were preserved. The central courtyard has become a community garden for cultural and social festivals. The new project contains various functions that are mostly compatible with the current building without altering its form or layout, including art halls, conference centers, training centers, and cultural centers. The La Remunta Project emphasized the sustainable reuse of materials and integration with the surrounding urban context.

For the Madrid barracks in Spain, the external envelope was preserved, while a new, modern internal structure was created, clearly separating the old from the new. The new building includes a large theater, a small theater, and an exhibition hall. Notable additions to this project include focusing on the external garden, preparing it for open cultural events, and adding sustainability elements to modern buildings. The Daoíz y Velarde Centre employed a strategy of

"selective intervention," preserving the exterior while radically transforming the interior and incorporating sustainable technologies.

## **5. Samples of architectural heritage in Libya.**

In this section, we discuss some of the most prominent historical and architectural landmarks in Benghazi. Among these examples is the Ottoman Qishla Building in Benghazi, which dates back to the second Ottoman rule during the era of Rashid Pasha, who constructed it in 1893 as a barracks for soldiers (Elsahli, 2013). The current building consists of three parts or wings: the central section dates to the Ottoman period, while the parts on either side were built during Italian occupation in 1914. The municipality building in Benghazi, dating back to the Ottoman period, was further developed during the Italian colonial period. Another notable building dating back to the Italian occupation is the Manar Palace, or the Palace of Governor Cursiani, located opposite Al-Khalisa Square. This building has historical and symbolic significance for the residents of Benghazi.

### **5.1. The Qishla of Benghazi**

The term 'Qishla' is a Turkish word meaning a military barracks where soldiers were stationed and not sent to war during the winter season. Today, most Ottoman-era Qishla buildings have fallen into disrepair and decay, either because of the passage of time or human encroachment. This is sometimes due to the lack of awareness among those in charge of urban development agencies in our Arab and Islamic cities about the importance of preserving such heritage buildings and the value of rehabilitating and repurposing them culturally as centers, forums, museums, and cultural exhibitions. Of the few remaining examples of 19th-century Ottoman Qishla buildings influenced by modern European architectural styles, there are very few—one can count them on the fingers of one hand, such as the Qishla in Baghdad, Damascus, Sana'a, and Benghazi (Khashbour, 2022). Benghazi Qishla is located in the center of the al-Burka neighborhood, which has become associated with the name of the Qishla, also known as the Burka Palace. Today, the Qishla are situated in the heart of Benghazi, surrounded by residential communities, vital facilities, and a network of major roads. Historically, the location of the Qashr has been distinctive and serves as a notable defensive element.

The Qishla in Benghazi, Libya, still stands in its place, resisting the ravages of time and struggling with the schemes of those who covet their land for investment. The historical significance of the Qishla al-Burka lies in the fact that it was the largest urban project implemented by the Ottomans, not only in the city of Benghazi but across Libya. It is also a part of the history of the city and some of its cultural heritage. The Qishla is a prominent architectural landmark in the fabric of the city, and for its significance, it deserves research, study, preservation, and attention. By tracing the current state of the Qishla, we find that the original building dates back to the Ottoman period, with additions made during subsequent periods, including Italian and British times, and the latest Libyan additions (Khashbour, 2022). It should be noted that there were several initiatives aimed at developing the Qishla; one of the initiatives undertaken by the Libyan state was the formation of a committee in 1993 to maintain the Qishla and convert it into a historical Museum. The field study and proposal preparation stages were completed, but the work was halted. Governor Rashid Pasha began the construction of the camp during his second term (1889-1892), which was completed in 1896 during Tahir Pasha's rule. Traveler Pedretti mentioned the camp when he visited Benghazi in 1901, noting that the building was in its final stages of construction (Khashbour, 2022).

#### **5.1.1. Description of the Qishla building**

The camp was designed in the form of a strip measuring 155 m long and 9.90 meters wide internally, consisting of two floors. The facade features three prominent sections: two at the ends and one in the middle, which also has a projection to highlight the entrance, topped by three windows. These projections help to reduce the perception of the length of a building. The façade has numerous large rectangular windows arranged in a repetitive rhythm. The main entrance is located in the center of the facade on a platform that rises above the rest of the camp structure and is crowned by a massive semicircular arch. Similarly, there is an entrance to the rear. The height of the entrance ceiling is six meters, the ground floor is five meters tall, and the upper floor is four meters tall. Figure 27) shows the court and main entrance from the court of the Qishla. The wall thickness was approximately one meter, with the walls

supporting the ceilings in addition to stone columns situated in the middle of the halls. Figure 28 displays the ground floor consisting of two large halls, with a row of columns made of limestone and lime mortar in the center. These columns have a square cross-section measuring  $130 \times 130$  cm, topped with massive wooden beams that are six meters long, and have a rectangular cross-section of  $20 \times 30$  cm. The front façade, especially the entrance and the section to its west, suffered significant damage due to shelling by Italian warships on October 19, 1911. The camp was restored and maintained by Libyan experts and Italian construction technicians who came from Tunisia, and it was named "Moccagatta" after the colonel, who successfully captured it during the attack on Benghazi (Khashbour, 2022).

The restoration and maintenance works did not preserve the original form of the old entrance, including its front projection from the facade, the cornice above, and the number of windows above the entrance.

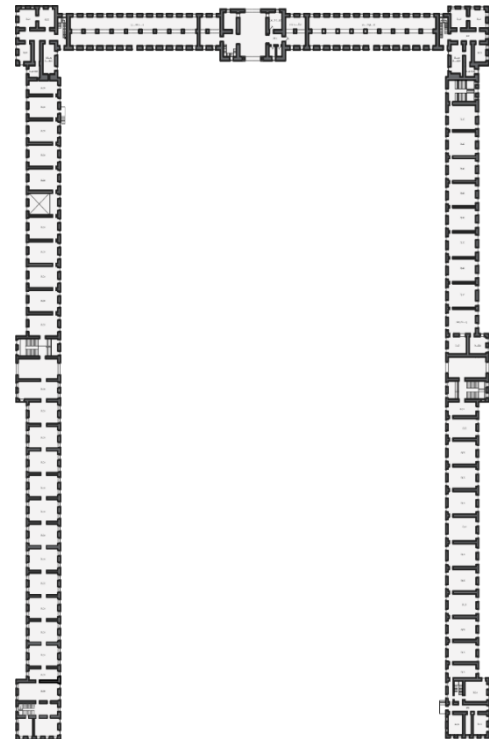


Figure 27: The court and main entrance of the Qishla (Source authors, 2024).

Figure 28: The Ground Floor of the Qishla. (Khashbour,2022).

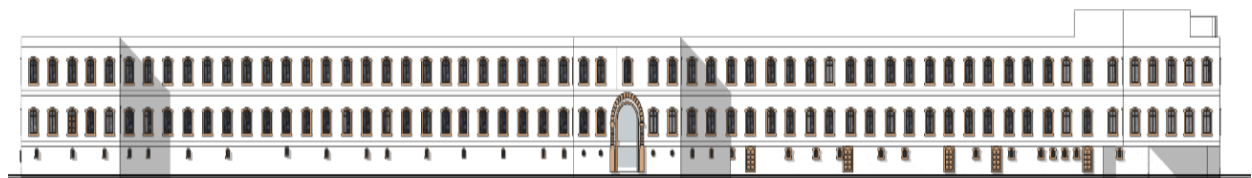


Figure 29: The Side Elevation of the Qishla (Khashbour, 2022).

### 5.1.2. Addition of the Eastern and Western Sections

Military work began in mid-April 1912 to construct the eastern and western sections of the Qishla after the wall around Benghazi was completed. Their exterior design closely matched the existing buildings to the extent that the additions appeared as if they belonged to the Ottoman period. Each of the two new sections measures 202.50 meters in length and 11.50 meters in width, making the total length of the camp exceed half a kilometer, with more than 800 windows, as shown in Figure 29. The two sections were constructed in a manner that complemented the original facade. The area around them is landscaped with plants, trees, sidewalks, and roads. The western section was designated for aviation, with an aircraft landing area located southeast of the camp. Figure 30 describes the composition of the building in 3D, as well as the Ottoman and Italian parts.

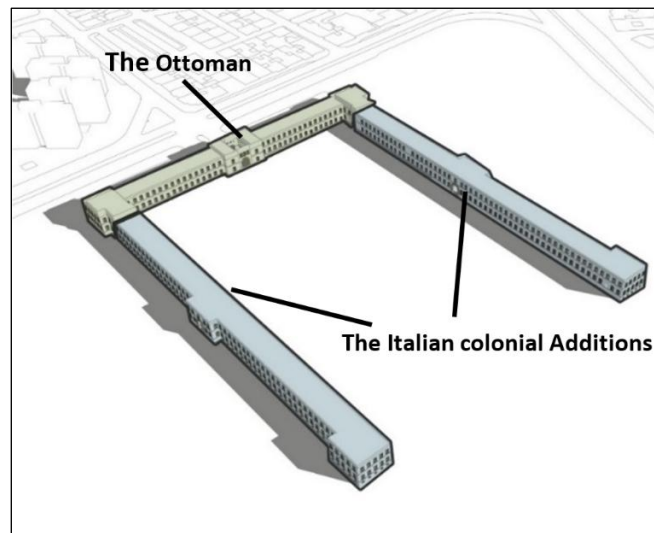


Figure 30: The 3D of the Benghazi Qishla (Source authors, 2024).

## 5.2. Benghazi Municipal Hall, 1882 and 1923.

The Benghazi Municipal Hall is located in the Municipal Square, which is the main hub of the old city of Benghazi, featuring the most important commercial, religious, administrative, and banking buildings. Municipal buildings are considered the heart of Benghazi and serve as a central reference point for measuring distances to other areas, as shown in Figures 31 and 32 show the Municipal Square and Municipal Hall buildings.



Figure 31: The Municipal Square and Elatig Mosque (Source authors, 2022). Figure 32: Benghazi Municipal Hall (Source authors, 2022).

### 5.2.1. Description of the Municipal Hall Building.

In 1882, the municipal building was a single hall located in the center of the current building. Mayor Ahmed Al-Mahdawi, with the approval of the Ottoman Mutasarrif (Rashid Pasha), purchased one of the neighboring houses, demolished it, and constructed a three-story building as shown in Figure 33. The ground floor was designated as a pharmacy, the first floor as a reception hall, and the last floor as administrative offices. This new construction became the central part of the current building (Al Faqih, A. 2021).

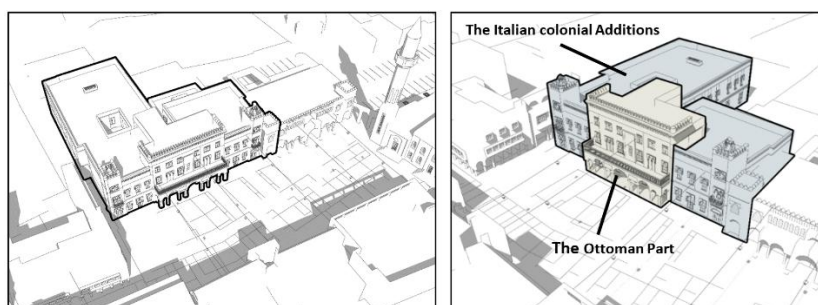


Figure 33: Benghazi Municipal Hall, Ottoman and the Italian Parts (Historic Cities Management Authority, n.d.).

Today, historical sources and archaeological studies related to the architectural style of the Benghazi municipal building confirm that the middle part of the building dates back to the second Ottoman period, specifically during the first term of the Turkish Mutasarrif, Rashid Pasha, from 1882 to 1885. Later, between 1923 and 1925, the Italian authorities executed a new building, or more accurately, developed an old municipal building. The redesign concept involves new additions to existing structures. The new construction preserved the existing street, resulting in a ground floor consisting of two separate parts, whereas the sections of the first floor were connected, creating a covered street. The narrow rooms disappeared and were replaced with well-ventilated rooms. Figure 34 displays the ground floor and first floor of the Italian construction. The tiring wooden stairs were also replaced by marble stairs in the center, with one side leading to the mayor's office and the other side leading to other administrative offices. These excellent-quality Italian marble stairs are still present in the building today, and Figure 35 shows the interior of the first floor and stairs of the Municipal Hall (Manzoni,2009).

The municipal building features a classical style, with elements derived from the old municipal building and decorations inspired by Andalusian architecture. The architect Ivo Lebboroni was responsible for designing the facade, and Marcello Piacentini designed the front colonnade as well as the interior layout and furnishings. The artist Guido Cadorin executed the murals featuring botanical shapes related to the local environment, such as the silphium plant, along with geometric decorative designs, and Umberto Bellotto created innovative designs for the chandeliers and was the first to incorporate glass into metalwork (Al Faqih, A. 2021).

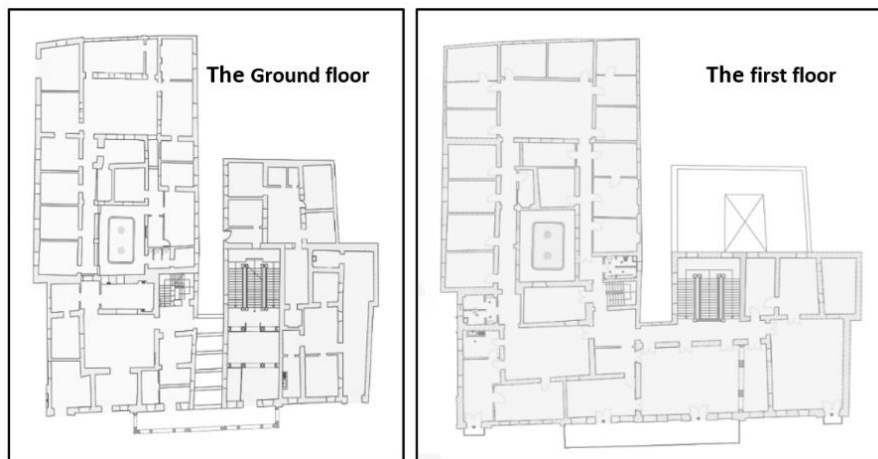


Figure 34: Ground floor and first floor of Benghazi Municipal Hall (Historic Cities Management Authority, n.d.).

Municipal buildings are considered one of the finest Italian colonial buildings in Libya. The building was redesigned in a neo-Moorish style that was popular at the time in Italy, and the costs for its interior decoration were high.(Al Faqih, A. 2021).



Figure 35: The interior of the first floor and stairs of Benghazi Municipal Hall (Manzoni,2009).

Additionally, the new architectural style respected the existing building and incorporated many of its architectural elements, giving it a grander and more elaborate composition. It is also important to note that the rational approach adopted by Italian architects in Libya was successful because they benefited from the local architecture that was

already in place. He also followed the same orientation based on an inward-looking design, simple facades, and semi-circular arches.

Architect Lebboroni excelled in designing the façade of the municipal building in the style of the old structure by replicating the existing façade and preserved the existing street, while artist Cadorin used geometric decorations and plant shapes, avoiding the depiction of people, which is common in his works from Italian cities, also adorned the ceiling in a manner typical of the old houses in Benghazi (Manzoni, 2009), Figure 36 explains the main features of the elevation of Benghazi Municipal Hall.



Figure 36: The main elevation of Benghazi Municipal Hall (Historic Cities Management Authority, n.d.).

### 5.3. Almanar Palace in Benghazi (The Graziani Palace: Governor's Residence)

Almanar Palace, the Governor's Residence, or the Graziani Palace is a historic building located in the city of Benghazi, Libya. It was constructed in 1928 and 1930. The palace is situated in the center of Benghazi in an area known as Al-Khalsa Square. Architect Piacentini designed a square with a large fountain located in front of the palace. The palace is built in the Italian architectural style and is characterized by its magnificent facades adorned with carvings and decorations. It contains numerous spacious rooms and halls. The classic style of the governor's residence was designed by three talented architects, Capitati, Alpagio, and Ferintsa. Pirazza supervised the execution of construction work (Al Faqih 2021).

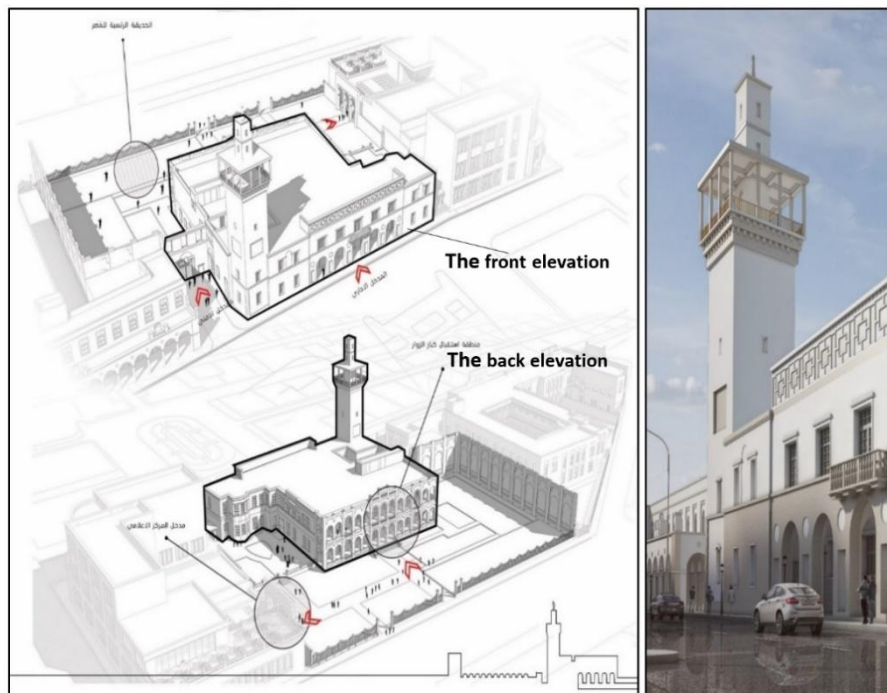


Figure 37: Almanar Palace, front and back entrances, and building tower (Historic Cities Management Authority, n.d.).

It should be mentioned that the Italian architecture during the Italian colonial period dealt with the local architectural heritage in a way that took into account homogeneity, integration, and continuity. This architectural output was in line with existing urban formations in a way that achieved the desired beauty (Safour & Elmazek, 2023). The design

concept aimed to create a building suitable for the governor's residence, while ensuring protection, security, and ease of access and egress. It is also important for the building to harmonize with the local architecture and environment. The architects skillfully embodied these ideas, evident in the building's horizontal orientation, simple façades, arches, and prominent main entrance, reminiscent of the doors of Benghazi that dominate the façades of residences. There is complete harmony between the front facade and the buildings constructed at the end of the Ottoman era along Corso Italia. Figure 37 shows that the composition of the palace includes the main, and the elevations of the building also illustrate the key entrance and the back entrance.

### 5.3.1. Description of the Almanar Palace - Graziani Palace

The Governor's residence consisted of two floors and a lower section. The ground floor features a corridor (hall) connected to a grand hall, allowing vehicle access from south to north, along with rooms and offices for guards and building management, as well as the main staircase leading to the first floor. The first floor includes a large reception area for ceremonies, the governor's residence, and the family's quarters. Additionally, there are several rooms for building employees, a long terrace overlooking the sea, and a small terrace on the main façade that offers views of Corso Italia, designed for greeting crowds during celebrations and military parades. Figure 38 contains the first and second floors of the Palace. Marble powder was used in the plastering of walls, and the interior floors and walls of the building were clad with famous types of Italian marble in various forms, such as CipolfigureIl Gillo di Siena, Il Bianco Venato, Il Verdi Tinos, and Il Nero di Belgio (Al Faqih, 2021).

A massive tower dominated the main façade and was constructed after the building was completed. It is the only tower in Benghazi that is connected to a residential building, featuring a square cross-section, and is approximately 25 m tall. Its symbolic function represents power and authority. Similar square-shaped towers can be found in some buildings in Italian cities, like the tower of the Governor's Residence in Benghazi. Figure 39 includes the main elevation and main entrance, and the back elevation of the Palace.

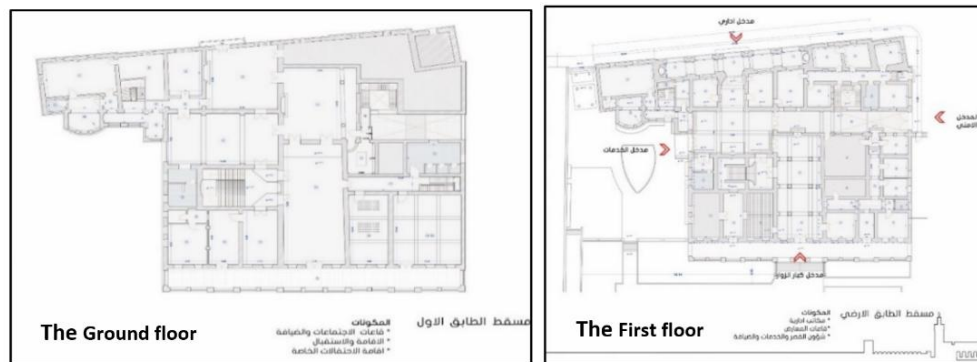


Figure 38: Almanar Palace, ground floor, and first floor (Historic Cities Management Authority, n.d.).

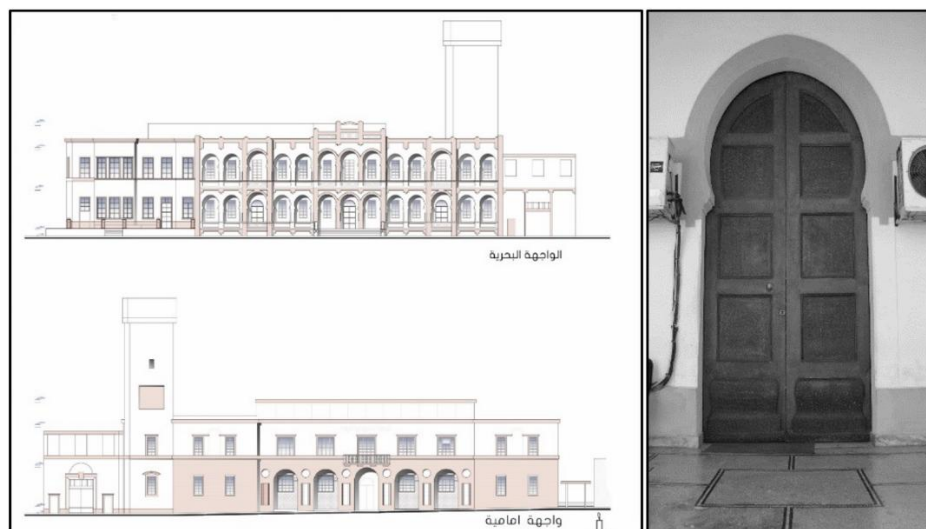


Figure 39: Almanar Palace, the main elevation, main entrance, and back elevation ((Historic Cities Management Authority, n.d.).

After 2011, the palace was renovated and converted into a museum that displayed the artifacts and history of the region. It is an important tourist landmark in Benghazi. The Almanar Palace is considered an important architectural and historical landmark in the city of Benghazi.

## **6. Rehabilitation approaches, methodologies, and ideas for historical Libyan buildings**

Rehabilitation approaches to revitalize historical buildings should be based on the examples studied and previous experiences, which can be observed in our study. The revitalization of historical buildings, as seen in examples such as Baghdad's Qishla and projects in Spain, involves maintaining and preserving external elements while adapting internal spaces for new functions, often as cultural hubs. This approach includes documentation, restoration, and addressing issues such as erosion and vandalism, with modifications made to suit new functional needs, while preserving the original character as much as possible. For Libyan examples, and based on the analysis of the case studies, international precedents, and specific strategies for the rehabilitation of each building were proposed, considering their unique characteristics, potential uses, and the needs of the community.

The Municipality building could adopt the Madrid barracks approach, preserving the exterior facade while inserting a new internal structure and separating the old and new. This is because municipal buildings suffer from structural problems, and their original internal divisions are restrictive and difficult to use for cultural or other purposes. In this case, the building could be repurposed as a museum or exhibition space with a new internal structure aligned with this new function.

For the Almanar Palace, the Barcelona Barracks approach could be beneficial, preserving the building inside and out entirely. It can be repurposed with functions suitable for its varied spaces, as it contains both large and small areas. This diversity of spaces facilitates its repurpose, and some free functions that can change over time can be added, mostly cultural, training, exhibitions, or heritage museums.

Regarding the Turkish Barracks, the building is relatively large and contains various elements from different historical periods, including Turkish and Italian wings. Some areas were structurally sound, whereas others were partially or completely collapsed. Therefore, it can incorporate multiple ideas or approaches to revitalization. The Turkish part, owing to its historical and architectural value, should preferably be restored to its original state, as it contains large spaces that can be used for flexible functions such as workshops. For Italian wings, there is a structurally sound part where the layouts can be preserved, especially because removing partitions is difficult owing to the load-bearing wall system. Therefore, this function should be modified to suit its existence. The collapsed part presents an opportunity to build a new block that provides a function that the old design cannot accommodate, but is needed for the building's new purpose. The large courtyard in the barracks can be utilized as an open cultural square for cultural and social activities, as seen in the three cultural examples of the Baghdad, Madrid, and Barcelona barracks. It is also possible to benefit from the Paris Barracks approach by adding a structure like a theater or library, partially underground, to harmonize with the site and the building without disrupting the architectural values of the historical building.

## **7. Conclusion.**

This study illustrates the importance of safeguarding Benghazi's architectural heritage and its urban cultural identity. It advocates comprehensive planning to conserve and rehabilitate historic structures as an absolute necessity and suggests that adaptive reuse might be the best approach for conservation efforts to support social, economic, and cultural aspects in the community.

Detailing actions for restoration, reuse, and rehabilitation takes precedence in the restoration of Benghazi's urban identity. Importantly, urban heritage and architectural inheritance are representations of the distinctiveness and collective memory of a city, and how often interrelated urban and social fabric and cultural identity need to be preserved. By prioritizing these initiatives for preservation, the city can preserve unique architectural and urban characteristics, unaltered plans of neighborhoods, and productive renewal of existing spaces, which will benefit the city today. Taking the time to examine and analyze other plans that will maintain some of the history and cultural significance while allowing for urban growth will be a sustainable and socially responsible means of looking after Benghazi's rich culture.

The study illustrates how important a few historical monuments and significant architecture have become embedded and woven into the cultural memory and urban fabric of Benghazi, in addition to bringing to light the urgency of the missed opportunity and the need for stabilization and protection for other significant parts of a city comprising both antiquities and other significant architecture. This approach aimed to protect preservation goals in a successful and culturally appropriate manner. Acknowledging that the world is going to notice that a portion of its urban heritage and history is presently in disrepair, and in a position of being lost or fading. This study suggests using lessons learned from examples and previous experiences to guide future rehabilitation strategies for historic Libyan buildings. This approach aims to ensure that preservation initiatives are both successful and compatible with the culture.

Ultimately, the preservation of the architecture of Benghazi is not only about preventing buildings from being destroyed or entering a state of dilapidated conditions, but also about saving the city's unique identity and cultural continuity.

### **7.1. Implications for Rehabilitation**

The rehabilitation strategies applied to historic buildings should be based on the experience of other historic buildings and their outcomes. The evidential basis for rehabilitation will help ensure that the work is effective and treats built specialism for its historical value and meaning, and any best practice approach being undertaken. In the rehabilitation approach, there is a wealth of previous projects that contribute to the evidence base of their use. Architects and the conservation profession are well placed and able to reach informed decisions about the properties of the place, about the other functions, safety requirements, and still provide their conservation purpose.

In terms of rehabilitation, these approaches should be developed based on the unique properties of the building. Every historic building has a unique set of conditions, issues, challenges, characteristics, specific function requirements, and cultural values. For instance, the municipality building could have an approach of keeping its main building's external character but allowing the implementation of a new structure using the internal area of this significant heritage building. This would allow it to maintain the historical character of the municipality building as a key contributor to the urban landscape, and it could modernize today's necessary internal uses of a complex building.

In contrast, we may need a more extensive preservation approach for the Almanar Palace. To consider this building, our strategy may be twofold: to preserve both the interior and exterior, including the outer landscape, and then adaptively reuse the building, implementing functions that are appropriate for utilizing the space. This approach preserves the breadth of historical and architectural values and adapts them for reasonable use.

Turkish Barracks suggest an opportunity for a multilayered approach to rehabilitation. The complex structure of military buildings means that barracks can only be partially preserved, fully adapted, or not deemed to have significance either to their form or to their historic value in the community. It might make sense to acknowledge the best-preserved part of the barracks by restoring it, keeping other parts of it preserved for their significance, and making decisions about building anew where it would replace things that were so far gone or damaged that they no longer existed. In this scenario, we would aim to retain the essence of barracks' history while making decisions about its structural integrity and future use.

### **7.2. Limitations of the Study**

This study does not explicitly state its limitations. However, it appears to focus on a limited number of case studies in Benghazi and does not cover all the potential rehabilitation approaches or challenges.

### **7.3. Recommendations.**

- Develop comprehensive plans for preserving and rehabilitating historical buildings in Benghazi.
- Adopt flexible approaches to rehabilitation tailored to each building's specific needs and potential uses.
- Consider adaptive reuse strategies that can provide cultural, economic, and social benefits to the community.

#### 7.4. Areas for Further Research:

While not explicitly stated in the conclusion, potential areas for further research could include detailed structural assessments of historical buildings in Benghazi and economic feasibility studies for various adaptive reuse scenarios. Moreover, future research might include community impact studies to understand the social implications of rehabilitation projects and comparative studies with other cities facing similar challenges in preserving architectural heritage.

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#### Ethics approval.

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#### Conflict of interest.

The author(s) declare that there is no competing interest.

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