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A Historical Building Functioned As A Museum; Bursa Umurbey Bath

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Anahtar kelimeler
"Bath", "Turkish Bath", "Bursa", "Historical", "Restoration", "Renovation"maksimum 6 tane, 9 punto ve ortalanmış olmalıdır. Anahtar kelimelerin ilk harfleri büyük olmalı ve ";" ile ayrılmalıdır.

Abstract

The Umurbey Turkish Bath, located in the present Sericulture district, one of the most important Silk production centers of Bursa in the past, was built in 1430. It is important because the bath reflects its architectural characteristics. The Turkish Baths are divided into two groups: "Single Baths" where men and women benefit separately, or "Double Baths", where separate hammams adjacent to each other for men and women are constructed together. The Umurbey Hammam is the "Single" Hammam. The change seen in the societies changes the needs of the people as well as changing the structures because of the places that are shaped by the time they belong. Structures that can't carry their function from past to today are provided with a secondary function to continue their lives. The Umurbey Bath was given a function as a museum. In this study, the daily change of the Umurbey Baths from the past, survey drawings, survey reports, restoration projects, restoration reports and photographs before and after the restoration were included.

1. Introduction

Historic buildings often contribute to the character of the city landscape. They create the urban spaces that are enjoyed by residents and attract tourist visitors. It creates urban spaces that residents enjoy and attracts tourists. By law, it is not only limited to the preservation of visual appearance but can also be protected with respect to materials and construction techniques to be integrated into original architectures. (Cabeza, de Gracia, and Pisello 2018)

In general, most of the historical buildings were found to be in a state of collapse and deterioration. The physical quality of the building is gradually decreasing and does not proper its intended use. Renovation is becoming one of the most important sectors to ensure that the building is suitable for its intended use. (Aksah et al. 2016) The purpose of all disciplines related to heritage and historical structures is to protect their content, to examine the processes of decay and damage (chemical, physical, biological, mechanical, etc.) and to develop strategies to investigate and reduce or reduce their relative causes. (Fabbri and Pretelli 2014) Due to environmental conditions and the natural consequence of user errors, restoration applications have become necessary in order to ensure the sustainability of structural and non-structural elements in historical buildings. (Bozkurt et al. 2016) One of the most important intervention decisions in restorations in historic buildings is the consolidation of the structure. Article 10 of the Venice section of 1964 "Where traditional techniques prove inadequate, the consolidation of a monument can be achieved by the use of any modern technique for conservation and construction, the efficacy of which has been shown by scientific data and proved by experience". (Congress and Monuments 2011) The process should be well evaluated to ensure that the

building to be renovated meets the requirements and performance standard of the user. (Aksah et al. 2016) The complexity of construction regulations for renovation projects is one of the important factors affecting design performance. (Ali and Zakaria 2012) The refurbishment of historical buildings varies according to the countries, policies, and laws. (Kamaruzzaman et al. 2018) Approximately 50% of Turkey's housing stock consists of masonry buildings. (Sadık Durak 2008)

Umurbey bath's rooms are designed as square spaces in different sizes on the plan, creating rooms of coldness, warmth, hot and halvet rooms. Apart from these, there are sections of heating furnace and hell in every hammam which is heated. The biggest volume in Turkish baths is coldness part. (Önge n.d.)

Umurbey hammam has only one entrance gate. The hammam is entered from the street with marble steps. The hammam was damaged in the fire in 1518 and repaired in 1556 and damaged again in the 1854 earthquake. Section and plan drawings of Turkish bath are given in Figure 1.

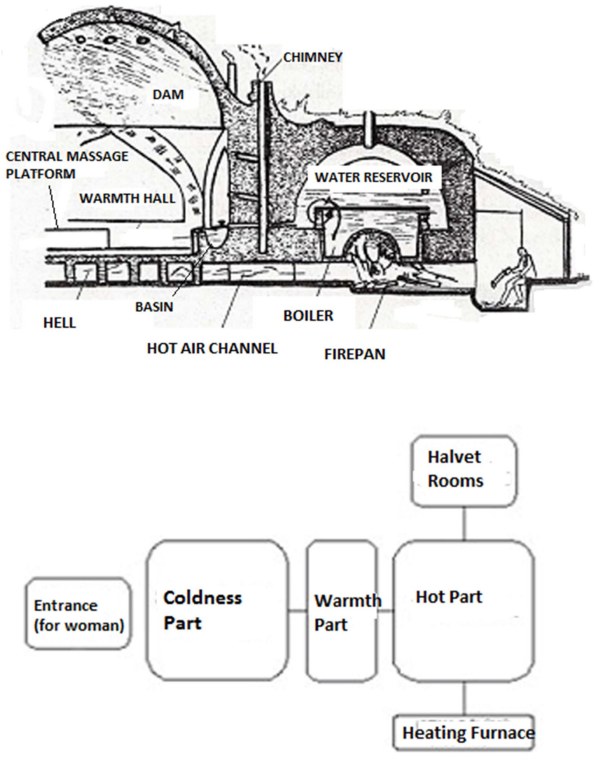


Fig. 1 Turkish bath cross-section and plan (Özbek n.d.)

2. Materials and Methods

2.1 Exterior of the hammam

The first construction technique is two or three rows of bricks, sometimes one or two rows of cut stones, and a vertical brick between them. The exterior walls of the hall of halvet are rubble stone walls. After that, most of these walls were renovated with cement mortar. Most of the exterior walls of the hammam were ruined because of the fire and earthquakes that occurred. In addition, a part of the rear wall was demolished and rebuilt in a recent period of the hammam. Lighting on the top of the dome there is no residue from the glass mounted on the metal parts. In addition, the boiler chimney was destroyed.

The window gaps in the front of the hammam were enlarged horizontally and vertically, and they were also changed. A water reservoir was added to the back of the hammam. The tops of the halvet rooms were covered with a roof with an octagonal plan but after that these shapes were deformed by renovation work. The parts where the lighting lanterns are located have been renovated with cement mortar. Most of the roof tiles are broken and lost. In addition, many plants are growing, with great wear on the roof. The bottom elevation levels of the windows on the northern side were lowered, the 90-degree angle of the side walls of the window is degraded. The original iron railings of the windows were rusted.

2.2 Interior of the hammam

The inside walls of the hammam were painted on top without scraping. It has been determined that there are eight layers of paint. Due to the dampness, most of the paint and the plaster on the wall have been damaged. Plants are grown in some cracks on the interior walls. All of the windows on the lanterns are broken. None of the doors in the hammams are available, but their location is determined. Hinge locations are visible. But the metal hinges are rusted and this rust also penetrated in the wall.

2.3 Coldness part

The coldness part of 10.75 X 11.00 m² which is the widest part of Umurbey Hammam is entered from the northeast. It is covered with a large dome over the coldness section. Transitions from the walls to the dome were made with squinch elements. The two windows on the eastern edge of the coldness part were laid up the brick. There isn't part of the fountain located in the middle of the coldness part. It was later found that a rectangular window was made on the western façade. There's no belt on this window. Most of the woodwork of the windows are deteriorated and broken.

2.4 Warmth part

The warmth area is close to the square plan with dimensions of 3.82 X 3.37 m². The dome is placed on the walls of the square plan. There are three doors opening to the warmth part; temperature, coldness and WC doors.

2.5. Hot part

The hot part is the rectangular plan in dimensions of 8.30 x 3.60m^2. There is a square plan height in the middle of the hot part. An octagonal tie beam was formed on the square plan to provide the dome connection. There are almonds shaped ornaments on the octagonal tie beam. There was a central message platform in the middle of the hot section. Today, there isn't this platform. There are iwans on the side and lancet arch vault was built on top of them. In the hot part, the seating steps were made. These steps are marble. The middle part of the hot section was collapsed. From the hot part, there are three doors open to the halvet rooms.

2.6 Halvet rooms

A dome was built on top of the square frame on the walls of the halvet rooms. It becomes a circular pulley which with an almond shaped ornamental on the square plan walls of the Halvet. There is a dome on this pulley. Most of the marble covering the walls of the halvet rooms has been torn down. The floor, which is raised 4 cm in the middle of all rooms, descends in a sloping manner to the edges, thus preventing accumulation of water in the middle.

2.7 Water reservoir

The top of the water reservoir is covered with a vault. Under the water reservoir there is a furnace (heating section) which is entered from the outside.

2.8 Materials

Masonry structures; composed of brittle materials such as stones and bricks that have little under tensile and compressive stresses due to their construction techniques. (Korkmaz et al. 2018). The mechanical properties of the materials used in historical buildings are given in Table 1 and 2. The poisson's ratio for masonry structures was accepted as 0.17 by Kocak (Ali Koçak 1999).

Table 1. Mechanical properties of materials (Ömer Dabanlı 2008) (Navzat Sallio 2005)

Sample	Compressive strength (MPa)	Tensile strength (MPa)	Elasticity modulus (E_m)	Density (kg/m^3)
Stone	18-35	2.0-6.0	12000-18000	0.25-0.30
Brick	17-25	0.2-0.5	2000-5000	0.20-0.50

Table 2. Mechanical properties of structural elements (Elyamani et al. 2017)

Yapısal elemanlar	Elasticity modulus (E_m)	Density (kg/m^3)	Poisson rate
Walls and domes	3816	2100	0,2
Buttress	3600	2100	0,2
Mortars	1908	2000	0,2

2.9 Pre-Restoration images

The pictures of east and west facades were given in Figure 1 before restoration.

Fig. 2 West and south façades

2.10 Restitution and surveying drawings

The ground floor survey drawing of the building is given in Figure 3. A-A cross section survey drawing of the building is given in Figure 4. East and north façade restitution and surveying drawings are given in Figure 5.

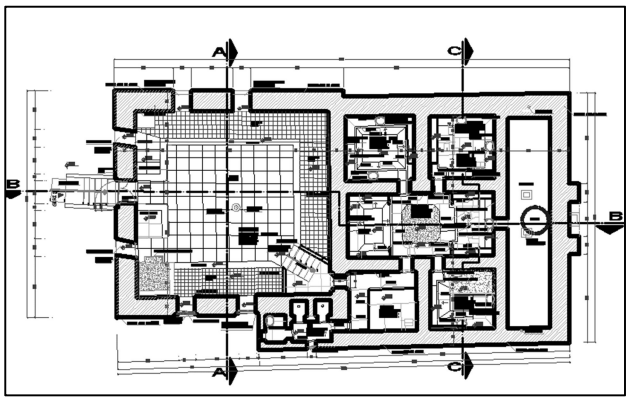


Fig. 3 Floor surveying drawings

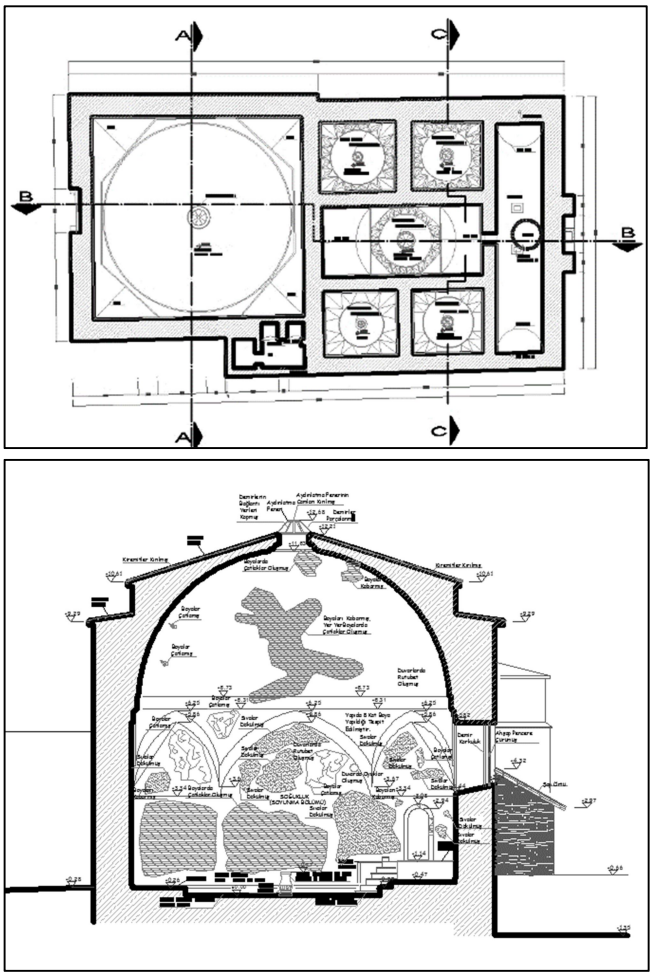


Fig. 4 Ceiling surveying drawings and A-A cross section

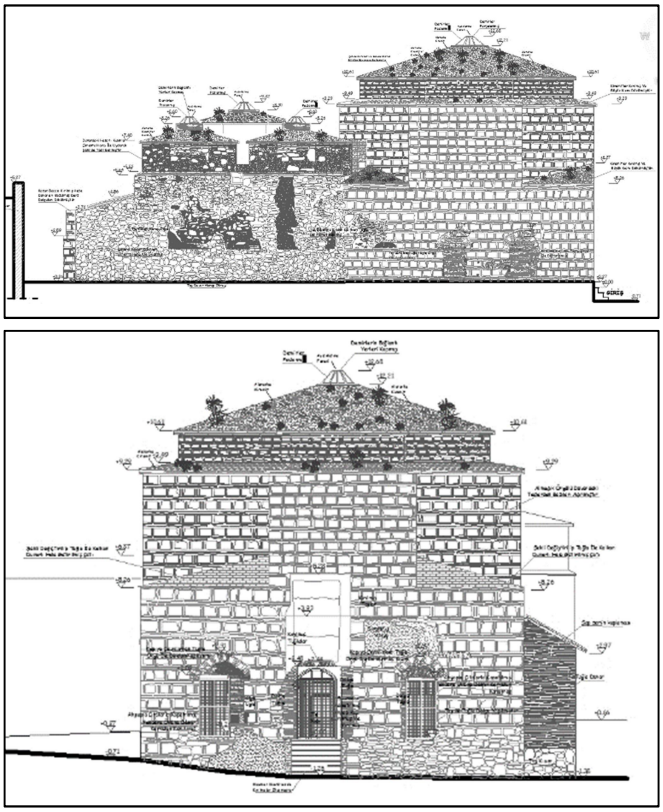


Fig. 5 East and north façade restitution and surveying drawings

3. Result And Discussion

Umur Bey Hammam is one of the most distinguished examples of architecture at that time. It is thought that the shape of the hammam shouldn't be deteriorated and it will be passed on to future generations as it is. It is thought that a new function should be given with minimum change of the hammam. Also, the different part should be built next to the hammam to make it function as a foyer.

3.1 Interventions made

The foyer building was built as a reinforced concrete and discrete arrangement on the east side of the hammam. The columns of the foyer building to be built have been designed so as not to damage the hammam. The foyer building is equipped with kitchen, relaxation room, male, female and disabled WC. The floor of the foyer part is covered with hexagonal brick. In addition, the roof of this additional building is kept lower and the terrace is germinated and adapted to the surroundings. Floors of wet areas will be covered with ceramic.

The exterior of the hammam; the worn out pieces of cut stone, rubble stone and blend bricks were replaced with new ones and a joint mortar was made between them. In addition, the interior walls of the hammam were scraped to reveal the masonry system and a joint mortar was made between them.

The main entrance door of the hammam was repaired. The damaged arched windows have been restored. The arch above the entrance door of the bath was unearthed. Additional steps that were added to the coldness part have been removed. The windows that were closed with bricks were opened. In order to establish a connection between the foyer and the hammam, the window in the coldness part was converted into the door. The difference in elevation between the foyer and the hammam was solved by the ramp.

The fountain in the coldness part was repaired and the missing parts were completed. The missing marble basins have been completed. The missing mirrors were made in accordance with the original, and the broken ones were repaired. Most of the marbles found at the site of all the rooms have been restored. In the region that has collapsed in the middle of the hot part; it is covered with marble, sloping to the sides to prevent water from accumulating in the middle. The doors that were not in place, were not made again because no information about their original state could be reached.

The metal parts of the lights above all the spaces are renewed and completely covered with glass to protect from external influences. The inside of the boiler was cleaned and the chimney was repaired. The top of the water reservoir is covered with khorasan (brick dust mortar) bricks as it was before. The roof coverings were removed and the insulation was applied to the roof's bottom and then covered with roof tiles. Landscaping of the garden was done.

3.2. Restoration projects

The restoration project of the ground floor is given in Figure 6. The restoration project of the eastern and western facades is given in Figure 7.

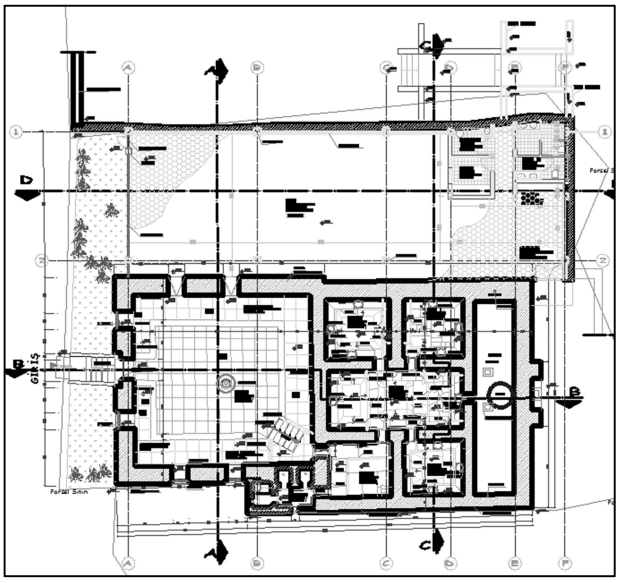
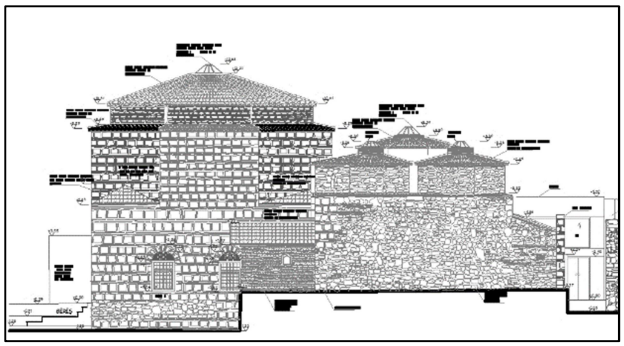


Fig. 6 Floor Plan



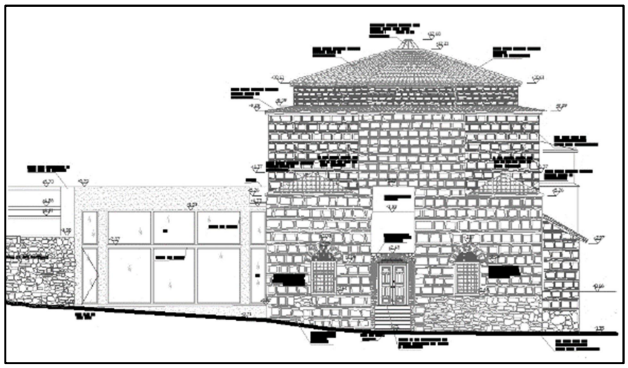


Fig. 7 West and North Façade and Foyer Building

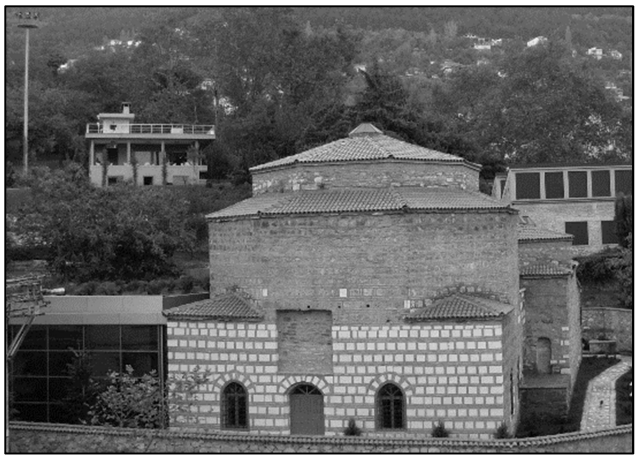
3.3. Images during restoration

The pictures of the restoration phase are given in Figure 8.

Fig. 8 Repairing of jointing

3.4. Post Restoration Images

The post-restoration images are given in Figure 8.



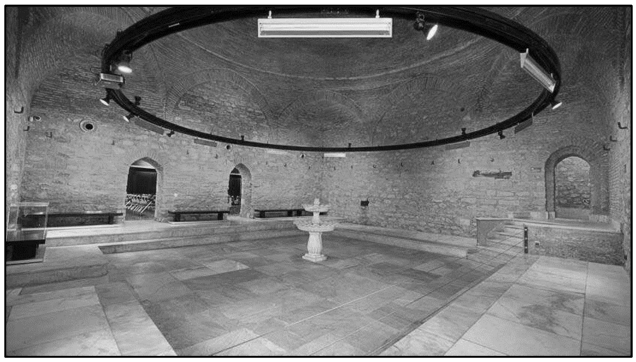


Fig. 9 Interior and exterior ımages of hammam (Sevcan Türe n.d.)

Fig. 10 Environmental landscape images of hammam (Sevcan Türe n.d.)

Conclusion

As a result of these restoration works, this structure, which was used as a hammam in advance, now has become a museum. Various works and collections are exhibited. At the same time, other historical buildings beside the hammam located in a complex were restored by Koç Holding and functioned as Tofaş car museum. These historical buildings, which are located in large and well-kept gardens, are transformed into a complex and these buildings have been benefited by society and transferred to the future with confidence.

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