The restoration of a historical bathhouse of the 12\textsuperscript{th} century in Damascus, Syria

Roula ABOUKHATER

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SUMMARY

The bathhouse or hammam is an example of cultural heritage of Mediterranean civilization. As a vernacular building, it provides valuable lessons on traditional materials, construction techniques, water and heating management. In 2005, a multidisciplinary EU research project on bathhouses, The HAMMAM project was launched. It uses a case study approach for the study of six hammams in six Mediterranean countries. Despite its small scale, Hammam Ammuna the case study of Damascus is of great historical, scientific and esthetical value. The field study started in 2006 has revealed inappropriate maintenance work in different parts of the building. In 2007, as a result of effort of the Syrian team and the project consortium, a new manager started a rehabilitation work. The restoration of hammam Ammuna has encouraged local people to reuse it; so becoming a focal point in the neighbourhood. This paper presents three status of hammam Ammuna: the situation in 2006, the hammam during the pre-restoration work and in use situation with a focus on the present state. An evaluation of the rehabilitation work, based on observation, photos survey and discussion with the new manger is addressed.

INTRODUCTION

The HAMMAM project (Hammam, Aspects and Multidisciplinary Methods of Analysis for the Mediterranean region), funded by the EU, is coordinated by "The Vienna Institute for Urban Sustainability", working with eighteen scientific institutions from twelve countries. Its principal goal is to understand and evaluate the function and the technology for the running of a hammam. The partner in Syria is the (Institut français du Proche-Orient). The presence and count of hammams in a Mediterranean city, with a public bathing tradition, are evidence to its socio-economic development. In Damascus, the development in water distribution helped the spread of public fountains, hammams and the expansion of the city. The protection of the Old City within the walls in 1979 allowed the preservation of historical buildings against demolishing but the function of some buildings has changed and most hammams were transformed into warehouses or workshops which led to their physical deterioration. As for hammams in historic extra-muros neighbourhoods, most have not been registered in the antiquities’ list and large numbers of hammams were demolished (Aboukhater 2008).

Hammam Ammuna dating back to the 12th century, the Ayyubid period, has been selected to conduct a model study of the HAMMAM Project in Damascus for different reasons. It is an important historic monument with authentic construction materials (mainly earth bricks), structural systems, decorative elements and service systems such as traditional heating method based on wood shavings, natural ventilation and lighting through upper windows and small circular openings in the domes. All these elements and features contributing to its aesthetic and technical values represent the architecture, the construction and craftsmanship of its period.

Hammam Ammuna lies at al-Uqayba quarter, one of the earliest historic neighbourhoods to grow and expand outside the city walls. And, it is not yet listed under the protection of the Department of Antiquities.
1. DIFFERENT STATUS OF HAMMAM AMMUNA (2005-2007)

1.1. Physical situation in 2006

Until 2002, Hammam Ammuna received women in the morning and men in the evening. Afterwards, it received only male customers while women could hire the hammam for a certain time. Like most hammams in Damascus, Hammam Ammuna is under the responsibility of the endowment ministry. Its owners pay annual rent to invest it. First visits in 2006 have revealed physical deterioration, but at the same time preservation of the hammam’s original features. No changes of the plan realized by Ecochard and Le Coeur in 1942 are observed, except for some mild changes (Fig. 1).

Hammam Ammuna with its rectangular plan is distinguished by its main vast cold hall. A high dome with a lantern on the top covers the central part of the hall and supported by four arches and four spherical triangles. The successive two warm and hot bathing halls are covered by one vault and small domes. They rest on polygonal drum to make the transition from the square plan to the circular dome (Fig. 1). Domes and vaults, of about 20 cm thick, are made of earth bricks. The traditional heating system consists of windows that permit the vapor of water heated in two cauldrons in the furnace to penetrate in the bathing spaces and also of under-floor heating ducts. It uses smoke, previously heated in the furnace. The smoke travels horizontally through heating ducts under the floor of the washing rooms and then discharged by a chimney embedded in the inner wall of the cold hall (Behloul-Sibley, 2007). Natural lighting is provided by small circular openings pierced around the domes with star shaped patterns and covered by coloured glass bulbs (qamariyyat). The floor is covered with alternate stripes of tiles of black basalt and local rosy limestone. Basalt is used for covering the under-floor passage of the heating duct because of its high thermal conductivity values (Behloul-Sibley, 2007).

Observation and analysis of different parts of the building have shown the following problems:

The roof: Recent repairs have introduced new incompatible cement-based plasters which have caused peeling-off and fissures, and a consequent danger of direct water penetration into the roof. The accumulation of garbage on the roof, growing of plants above and the lack of drainage system have initiated cracks and dampness on the upper structure. The overcharge resulted of additional construction on the roof, and the heavy water tanks have affected the stability of the building.

The interiors: Cracks and biological growth are observed at the inner surfaces of the domes due to rainwater penetration and condensation problems. The walls of the bathing spaces partially covered with cement tiles show bulged sections, peeling-off, and microbiological attack (Fig.2) due to the dampness and high humidity (Caner-Saltik, 2007). The southern wall separating the hammam and the neighbouring house of the Kouzbari family is leaning towards the interior of the main hall.
The floor tiles were deteriorated due to ponds of water as a result of improper leveling. Façades on the street: Faults of the waste water collection at the interior and the lack of surface water drainage on the streets near the building, have increased the rising damp problem on exterior walls (Caner-Saltik, 2007). The stone part of the main eastern façade is painted with impermeable oil paints in black and white and had lost its historic attraction by covering the decorative strips and the geometric ornaments (Fig. 2).

Technical systems: The main problem related to the heating system is the smoke pollution caused by the use of wood chips and garbage as fuel in the furnace. Glass bulbs that traditionally provide natural lighting are broken or replaced by plastic dishes which cause the penetration of rain water inside the hammam (Fig. 2). The traditional water drainage system based on channels in the floor isn’t efficient in discharging washing water because of alterations in the slopes of the floor due to the replacement of some tiles with new cement ones. Insecure electric cables installations with unprotected joints, lightning bulbs are hanged inside the domes.

Interior ambiance: the air is highly polluted in the bathing halls due to the biological growth, humidity and lack of proper ventilation. Poor overall cleanliness is observed especially in toilets. Inadequate neon lightings fixed on the walls have been introduced, degrading the quality of the space.

1.2. The pre-restoration phase – Earth as a principal construction material

As a result of the effort of the Syrian team and the project consortium through a participatory process, a new manager started rehabilitation work in 2007. The Kubab family became responsible for its management. Their experience in the restoration of other famous hammam in Damascus (hammam al Malek al Zaher) and their skill in hammam management to provide the best services were the base to accomplish the rehabilitation work. The work started by removing all recently built cement benches as well as removing all the plaster and external coating to reveal the original construction materials (Fig. 3 - 4 - 5). The southern wall of the reception hall is built of stone whereas the eastern one is built with stone in the lower part and with earth bricks on the upper level over the arches of the windows. Only the base of the arches holding the dome in the northern façade is built with stone the other parts are built with earth bricks. All the walls of the successive bathing halls are built entirely with earth bricks. The accumulating layers of cement coating on the domes were removed. The domes are constructed of rows of earth bricks. The glass bulbs (qamariyyat) were removed and those which are in good condition were preserved for reuse. The circular openings in the domes are lined with pottery tubes that are hand moulded and dried in oven. Originally the glass bulbs were made in local workshops (Fig. 5). All the ducts and the chimney are made of earth bricks. These works revealed also some elements which were entirely or partly concealed and reintroduced the internal
spaces in their original status (Aboukhater, 2008). Demolishing the additional wall in the warm space revealed the fountain in this space and the plan assumed a rectangular shape parallel to the internal hot space. Oil painting on the main façade was also removed to permit the appearance of authentic decoration on the stones of the arches. The old water pipes made of clay appeared in the walls of the bathing spaces. Demolishing the deteriorated rooms, removal of water tank and plants on the roof helped mitigate the load and the impact of water accumulation on the safety and stability of the structure (Aboukhater 2008).

Figure 3: Cleaning phase, removing all types of coating (Author, 2007)

Figure 4: Floor plan illustrating construction materials – Status 2006 (Author, 2016)

Figure 5: Domes' construction (Photos, Author 2007 – Drawing, Author 2016)

2. THE RESTORATION PHASE IN 2008

The restoration process included all the interior parts as well as the exterior facades of the hammam. The Syrian team has presented to the new manager several recommendations about the restoration but the work has started after preliminary consultation with an architect working at the municipality. The main construction materials were conserved and the deteriorated parts were reconstructed as the traditional methods but the use of
incompatible materials especially in the mortar and the coating was the main problem in this phase.

A mezzanine in the cold room and new rooms on the roofs were added and used for some beautification services in women's times. Using light construction materials (the wood) to build these new additions is a good choice in order not to add more weight on the roof. The wooden benches and the concealed lights distributed within the main hall have a good effect of returning the glamour of the huge space of the reception area. Doors and windows woodwork was fully renovated to assure good isolation. The southern part facing the entrance door hosts the new reception and the buffet to provide hot beverages and "hubble-bubbles" to the customers (Fig. 6). The lantern in the main dome is replaced by an octagonal one with openings for ventilation. The sanitary services were improved and mechanical ventilation systems were installed. The extra load on the roof of the bathing spaces is diminished by placing the water tanks on the cement slab over the furnace. New functions were added, a Jacuzzi bathtub and a sauna in the warm bathing space, a steam room and a shower bath in the hot compartment (Fig. 7).

Figure 6: Interior spaces after restoration (Author, 2008)

Figure 7: Plan and section of hammam Ammuna with new functions (IFPO, 2008)

2.1. Hammam Ammuna in 2010

Main changes noticed afterwards concerning the marketing and the visibility of the building, which is presented by installing a new wooden sign on almost all along the upper part of the northern façade facing the open public space.

As the hammam is relatively a small one, and since the traditional heating system has been changed, the manger decided to use that space where water used to be heated and stored in the traditional tanks, as an additional bathing room added to the hot bathing space. A door is opened to facilitate communication and this place became the hottest one. Also the rooms on the roof are planned to be used in the future as a centre that provides beauty services to female users.
In March 2010, the manager has installed solar panels on the roof of hammam Ammuna as a result of raising awareness campaign organized by the IFPO through activities of the HAMMAMED project of Euromed Heritage IV program and addressed to hammam managers on energy saving (Fig. 8).

Figure 8: External walls and the roof after restoration (Author, 2010)

3.1. Evaluation of the restoration

After the official opening, hammam Ammuna became a good example of a well functioning hammam. It opens its doors to women seven days a week in the morning, and for men at the evening. Many users come from the neighbourhood. It is now well connected to the local community. Users of Hammam Ammuna include also tourists who want to experience the traditional bath. Different services are offered to clients and women can choose between low price and VIP services offered in different time space.

The evaluation of key points considered during the restoration, mainly those relating to the construction materials and the technical systems of the hammam is detailed in table 1.

<table>
<thead>
<tr>
<th>Conservation work</th>
<th>Evaluation/ remarks</th>
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<tbody>
<tr>
<td>Most of the parts built with stone in the reception hall and the spherical triangles built with earth bricks of the main dome were left bare (Fig. 6).</td>
<td>This intervention is not conventional in most traditional hammams in Damascus as they are usually covered with traditional lime plaster.</td>
</tr>
<tr>
<td>The interior walls were covered with basalt and lime stone sheets up to 120 cm high with cement-based mortar (Fig. 6).</td>
<td>For ease of cleaning, the covering could be accepted, but the cement-based mortar will damage the walls built of earth bricks and cracks have appeared.</td>
</tr>
<tr>
<td>The interior surface of the vault and the domes are covered with two layers of cement plaster and the last one of lime and the exterior surface are covered with cement plaster (Fig. 8).</td>
<td>The plaster mixed with cement in the interior part of the domes will probably crack because of the humidity inside. The traditional waterproof coating for the exterior part made of lime, finely-cut hemp and ash resulting from the bath's heating system should replace the cement one.</td>
</tr>
<tr>
<td>Glazed bulbs (qamarriyyat) were reinstalled to provide natural lighting to the interior spaces. Some movable ones were introduced to provide ventilation during the night. (Fig. 6)</td>
<td>The bulbs were fabricated locally in the same way and with the same forms and colours of the original ones. Better ventilation is provided to prevent dampness and biological growth.</td>
</tr>
<tr>
<td>The ornamentation stripes on the main façade and the ornamented arch around the entrance door were revealed (Fig. 8).</td>
<td>Missing parts were reconstructed using the same traditional colours and technique. Geometric and floral ornaments are carved in the stone and filled with coloured paste.</td>
</tr>
<tr>
<td>A wooden and plastic shed is constructed over the entrance façade.</td>
<td>The shed provides protection to the main decorated façade.</td>
</tr>
<tr>
<td>Transforming the traditional furnace working on wood to a fuel one that has been connected to the new water heater.</td>
<td>Maintaining both the old chimney and ground ducts, and the maintenance of wood shavings usability ensure alternative solution for heating if needed.</td>
</tr>
<tr>
<td>The traditional drainage system is removed. The stone flooring was stripped down and relined, and some decaying stones were replaced.</td>
<td>Reliance on floor inclination towards specific points for drainage is executed without taking into consideration the original drainage system.</td>
</tr>
<tr>
<td>Water and electricity installations were completely changed and hidden within the walls.</td>
<td>Using of new PVC water pipes and hidden installation ensure more safety against electricity shocks.</td>
</tr>
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Table 1: Evaluation of the restoration work
3. HAMMAM AMMUNA IN 2016

The Old City and the centre of the city of Damascus are at present threatened by bombs attack, but life is still going on and people are still trying to appropriate historical places and continue to use traditional baths. Hammams are still functioning for local people and especially for those looking for a warm place and hot water in the winter. The income from tourists is the most damaged through the last four years. Recently wedding parties in the hammam, especially during men period, are observed. Hammam Ammuna is still serving local dwellers in the Uqayba quarter and those coming from other cities or living nearby.

4. CONCLUSION

The main reason of the degradation of a hammam is its negligence and lack of maintenance. Physical problems during maintenance work or restoration have to be solved with special care to the conservation of architectural features, construction materials and technological characteristics of such a type of historical buildings. One of the major characteristics of the hammam building materials is the compatibility of their properties that ensures the durable functioning of a hammam as a harmonious unity. The rapid execution of the restoration of hammam Ammuna without taking advice of the consortium of the HAMMAM project, the disappearing of some traditional handicrafts and the high cost of some existing traditional techniques have led to some problems as the use of new building materials. Repairs were done without any concern to the similar performance properties with the earth bricks, the original materials of the hammam. Moreover, using of fuel instead of traditional heating system and the addition of new facilities in the spaces that are incompatible with the bathing tradition of a historical hammam may cause loss of identity. The HAMMAM project has offered different opportunities to discover traditional materials and systems and traditional know-how. A number of people engaged in efforts to revive traditional hammams may well benefit from the results of this research project. Further studies should focus on existing craftsmanship for restoration purposes. It is to be taken in consideration also that when developing a comprehensive rehabilitation actions for such a facility, to keep in mind issues as water shortage and the need to rely on clean and renewable energy sources as much as possible. Unless the historical hammams are protected as local heritage by the antiquities and are revitalised as integrated function of the historical neighbourhoods, there is a great risk to be demolished. Hammam Ammuna is now in a good physical condition, even with some negative remarks on its restoration. It functions in accordance with sound health and ethical standards. The restoration of hammam Ammuna laid the foundation for a sustainable development and a revival of an important social utility with an economic impact on the neighbourhood. It is becoming a focal point in the neighbourhood and appropriated as a valuable historical monument to be conserved.
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Author biographical notice:

Consultant in heritage studies by the Syrian Syndicate of Engineering. She obtained postgraduate diploma in (Biolcimatic Architecture and New Technology), 1995, France. She is member of consortium of three EU projects dealing with cultural heritage and participated in international conferences, (WSB14 - Barcelona - 2014, WOCMES - Barcelona - 2010, ICOMOS conference - Paris - October 2010 …).