

Khān al-‘Askar Rehabilitation Project

Report
April 2013



CLIENT



REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANTS



Rafik El-Khoury & Partners
Consulting-Engineers

Joint Venture
TEAM/ BITAR



تضامن
تيم - بيطر

CONTRACTOR

JESCO Contracting Trading & Enterprising

nathalie chahine al chabab
architecture . conservation

OUTLINE

- 1. Historical introduction and location**
Old Tripoli
- 2. The Project**
Project Description
Social aspect of the project
- 3. Khan al-'Askar: Location**
The Neighbourhood
- 4. Khan al-'Askar: History**
- 5. Description of the building prior to the works**
Description
Architectural features, construction techniques
and Stylistic tendencies
- 6. Observations and building archaeology**
- 7. Executed Works**
Philosophy of restoration
Execution



1. Historical introduction and location

Old Tripoli ¹

Located on the northern coast of Lebanon, Tripoli is one of the many ancient towns of the Eastern Mediterranean. Flourishing since antiquity, it witnessed the most drastic changes once it shifted from the Crusaders period to the Mamluk dynasty in 1289. Fearing the return of the Crusaders from the sea, the ancient town next to the sea was abandoned and by the end of the 13th ct., the entire city was re-built approximately two kilometres from the shore on the western foothill protected by the mountains and the citadel.

Tripoli is the only Mamluk (1250/60-1516) urban foundation of the region. Different from most of the cities along the coast and in Bilad al –Sham, Tripoli's urban structures are relatively new and provide a rare example of urban development of the early-modern period.

Its rich architectural legacy dates back mainly to the Mamluk (on its new location since the early 1290s) and the Ottoman (1516-1918) eras. Tripoli is, from an architectural historic point of view, the most important city in Lebanon and an outstanding example of the rich Mediterranean heritage.



¹ WEBER Stefan, *the restoration of suq Haraj, Tripoli, Beirut Blätter, Mitteilungen des Orient-Instituts Beirut, V12-13 2004, 2005*

Unfortunately, today much of the city's glorious heritage has decayed and this architectural treasure is still exposed to great dangers. The rampant crisis of urban societies and structure in the Middle East accompanied by an almost total neglect of their historical and architectural value. In addition to special situations due to the Lebanese War (1975-1990) has led to generalize critical conditions in the historical urban fabric of Tripoli.

Reasons are many, problematic urban planning concepts and social change are some of them. Large streets were cut through the townscape without proper finishing or conceptual analysis on how to connect the new thoroughfares to the affected neighbourhood.

Wealthy families left old Tripoli while poorer strata of society took over the empty spaces.

Subdivision of houses and public buildings, like khans, and many additions by the growing populations led to an urban densification.

But social change and socio-economical crises are not the only or most dangerous reasons for the decay of the built environment : a general attitude of indifference and a lack of responsibility are probably based on a much deeper societal problem to which restoration of a building is still not the right answer.



Khan al 'Askar and old Tripoli, 2003 (courtesy of youssef al khoury)

2. The Project

Project Description

Co-financed with a loan from the World Bank, French Agency for Development and Italian Cooperation, and implemented by the Council for Development and Reconstruction (CDR), Lebanon’s Cultural Heritage and Urban Development Project (CHUD) will initiate a series of actions in the historic cores of Tripoli. The aim of the CHUD project is to preserve the cultural heritage of the country through four principle components: (a) the conservation and management of archaeological sites with a view towards promoting tourism, (b) the rehabilitation of the historic centres and public spaces of Tripoli, (c) the improvement of the urban infrastructure of areas surrounding the sites to benefit local communities and visitors; and (d) the strengthening of institutions responsible for managing and preserving cultural heritage sites.

The Khan is owned by the government of Lebanon (Ministry of Finance) with the Right of Use provided to the municipality of Tripoli.²

Works included:

- Review and Complete the Preliminary Design and Survey
- Preparing the Detailed Design Drawings
- Cleaning of the historical buildings and removing chaotic additions
- Consolidation and reparation of structural problems
- Restoration of the elevations and roof, openings
- Setting up of mechanical and electrical main installations
- Final restoration of some of the shops at the ground floor level

The final finishing works are to be carried out in a next phase depending on the users and the function to be integrated in the building.

The construction period was limited to 18 months.

Announced Date : December 10, 2009

² <http://www.cdr.gov.lb/chud/v%202%20RAP%20shops-revised-Jan9-2012.pdf>

Social aspect of the Project

In 1955 Tripoli's Abu Ali River overflowed, destroying dozens of homes and businesses. many families were temporarily moved to the Khan al-'Askar until they could be compensated and relocated.

their stay in the Khan, ended up lasting for more than 50years.³

and Many of the residents were 3rd or 4th generation tenants.⁴



Al nahar newspaper, December 20th 1955

and as of 2005, when the most recent census was conducted, the khan housed 71 families – approximately 350 people – and had 47 shops in and around it.

2010 the rehabilitation project was launched and the families living in the khan moved into their new apartments, a short walk from where many lived for half a century.⁵



³ https://now.mmedia.me/lb/en/reportsfeatures/moving_out1

⁴ http://charbelnahas.org/textes/Amenagement_et_urbanisme/Cultural_Heritage_Report/E-Tripoli_64-106.pdf

⁵ https://now.mmedia.me/lb/en/reportsfeatures/moving_out1

3. Khan al-'Askar : Location

Today, Khan el-'Askar is one of the largest covered spaces, occupying around 5200 m². It is surrounded by severely dilapidated privately owned structures to the north and west, the 19th century Church of St. George to the South and the 14th century al Tawbah mosque and public square to the east.⁶

It is situated in the old historic city of Tripoli, in the Hadid quarter. It is also close to the intersection of the extension of Lahhamin (butchers) bridge (which was destroyed after the flood 1955) and the enlargement of the Abu Ali River, which divides the city into two.



Aerial view of Tripoli before the flood and the location of Suq Haraj. (courtesy of IFPO)



The Lahhamin bridge

⁶ <http://www.cdr.gov.lb/chud/v%202%20RAP%20shops-revised-Jan9-2012.pdf>

The Neighbourhood

The quarter held no pre-mamluk in situ structure

And it is interesting to note, that probably large parts of the north-western quarter of the city belonged to waqfs of Manjak...the surrounding changed quite a lot during the last decades and decay and partially demolition makes the understanding of the surrounding streets quite complicated.

Between Khan al ‘Askar and souk Haraj many houses were cleared away in favour of a square which serves as a parking lot. Towards the east, the situation is more dramatic: in the name of modernization and as consequence of the flood of 1955 the river Abu Ali was straighten and pressed into a concrete channel (and no longer just flowing behind the Tawba Mosque) while all the prestigious houses next to the river were destroyed and replaced by quite large and low quality houses and straight streets.⁷



fig. Plan of the north-wetsern quarter , OIB 2004 (not to scale) 1. Khan al askar, 2.Tawba, 3. Suq Haraj, 4. Attar Mosque, 5.Khan al Masryin, 6.Khan al Khayyatin and Hammam Izz an Din

the restoration Project of souk Haraj in Tripoli history, Archeology and Rehabilitation, BAAL V10 2006, P 281

⁷ WEBER Stefan, *the restoration Project of souk Haraj in Tripoli history, Archeology and Rehabilitation, BAAL V10 2006, P267 268*

4. khan al-'Askar: History

...Khān al-'Askar which is endowment of the wife (Khāṣṣekī Sulṭān) of an Ottoman Sultan: the famous Haseki Hürrem wife of Sultan Sülaymān (died 965/1558).

The village of Amiyūn , Khān al-Misriyīn and Khān al-'Askar belonged to a waqf of a Khāsseki Sulṭān, the favourite wife of a Sultan. A record of 1143/1730 mentions her as al-marhūm - i.e. "the deceased", but the one of 1088/1677 not, which might be an indication for Gülnüş Emetü'llāh Sulṭān, one of the kadins of Mehmed IV (1648-87). A record from 1169/1756 mentions only Amiyūn and Khān al-Masriyīn. SMST S2/P218 [old 44] (1088/1677), S6/P2 (1143/1730); S14/P379 (1169/1756). See for the first two records: Tadmurī, Wathā'iq nādira, 135, 273. The hints in the sources match quite well the observations made on the building itself⁸.

On the other hand, a court record from 1726/27, which mentions al-asara khan situated in mahalet al-yahood close to al-dabagha. This khan belongs -according to the record- to a waqf of haseki sultan. haseki (hürrem) sultan is the famous "Roxelane", wife of Suleyman I. she died in 1558.

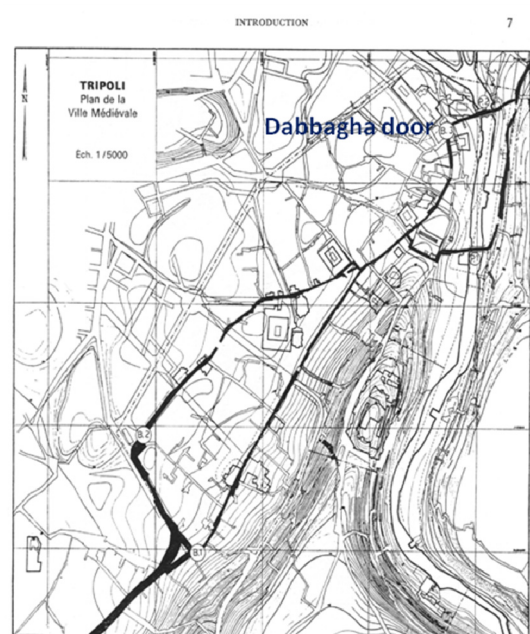
the prestigious size and character of the big khan, specially the ablaq decorated main gate could be a sin of an imperial waqf.

anyhow the court record does not state that Roxelane had built the khan or was its originator. therefore it is also imaginable that she bought an existent khan for her endowment.



Roxelane, wife of Suleyman I

www.wikipedia.com



Salamé-sarkis H./Contribution a l'histoire de tripoli et de sa région a l'époque des croisades

⁸ WEBER Stefan, *the restoration Project of souk Haraj in Tripoli history, Archeology and Rehabilitation, BAAL V10 2006, P267 268*

Sources mentioning the history of khan al askar

- *The Khan al Askar, or Soldiers' Khan, has no founding inscription, and was probably built to serve as a garrison for the new city. This would explain the mammoth scale of its two massive units, too large for any ordinary trading or commercial purpose. In the more recent past, the Khan al- Askar certainly performed that very function for the Ottomans and French.*⁹

Chronology of Monuments

A.D.	Mosque	Madrassa	Tombs	Khans & Saja	Other
1284-1294-98	Great Mosque	(Qutaybiyyah)	‘Isa al-Dhi		Mausoleum of ‘Isa al-Dhi
1301			al-Hayh		
1305	‘Abd al-Malik			al-Masall	
1309		Khayriddin			
1310-1319		Qutaybiyyah			
1315-1326					
Before 1324	al-Burtal				
1323		Nitriyyah?	al-Nad?		
1336	Tayyal				
1341				al-Khayriddin	
Before 1358				al-Mayyā	
1369		Shamsiyyah?			
1380					
1384-40	al-‘Agha				
1394		Nasiriyyah			
1395		Sa‘adiyyah			
1363		‘Ajamiyyah			
1403		Khalidiyyah			
1394-98	Anglata Sakh				
1396		Zahiriyyah			
1413					Tombs of al-Shah
1463	Umayyā				
Before 1465		(Dhaliyyah)			
1466		(Umayyiyah)			
Abou 1467					Khanqah
1475		Tawashiyyah			
Undated Monuments	(al-Tahiri) (al-Tawabi)	Qidiriyyah, Anwariyah, Mamluk		Bay al-Masall, Khan al-Askar	Mausoleum

N.jidejian, Tripoli through the ages, Dar El-Mashreq Publishers-Beirut, 1961

- *Khan el Askar a été connu aussi sous le nom de "Khan el Asra" (cf p.25) TADMORI, O.A.S*
تكنية

1992 مجلة: تاريخ العرب والعالم , الذراويش المولوية في طرابلس

- Khan el Askar a été connu au temps des Ottomans sous le nom de "Khan el Ghommaïda", et les recettes que faisait rentrer le Khan, servaient à financer les dépenses de la "Takiyyat" (cf p.15-19)

1992 مجلة: تاريخ العرب والعالم , تكنية الذراويش المولوية في طرابلس TADMORI, O.A.S

- Khan Al-Askar: construit durant la période mamlouke comme caserne militaire
 SALEM, Abdel-Aziz, *Taraboulus Al-Sham fi Al-Tarikh Al-Islami, Ramsis- Alexandrie, 1967*

- Dans Khan Al-Askar: le tombeau du cheikh Saïid Al-Jreh
 Le Khan Al-Mayya (de l'eau) :2ème bâtiment (p139 et 140)
 BABA, Mohamad Kamel, *Taraboulus fi Al-Tarikh , Jarrous Press- Tripoli, 1995*

- Khan el Askar fut construit durant le 14ème siècle
 AADRA, Chaza, *dalil tarablous al syyahi- Guide Touristique de Tripoli, bourak, 1996*

- les mamelouks ont construit le khan pour servir de caserne aux soldats, vue que la citadelle ne fut reconstruite que 17 ans après(1307) . des vestiges croisés peuvent être repérés au khan.

MOUAWAD, Mounzer, *dalil tarablous al syyahi- koussat Madina*

⁹ http://archnet.org/library/sites/one-site.jsp?site_id=3692

5. Description of the building prior to the works

The Khan al askar consists mainly of two adjoining rectangular khans, designated as Block A for the big khan and Block B for the small one.

The two khans taken together are 100meters long.

In between there is wide vaulted space, used as stable as traces revealed. The block A was flanked on its north-eastern facade with an additional souk on a later phase.

Block A is about 50 by 35meters and Block B is 40 by 25meters and the vaulted space is about 15 by 26meters. The additional souk measures 30*9meters.

It is a composite structure consisting of a khan (east, cadastral No. TZ60-533), a suq with a dome to the entrance of the khan, the khan-like living structure with the cross qa'a to which I am referring (west, cadastral-No. TZ60-14), and a connection hall (stables) between them.¹⁰

The Big khan is entered via the added souk [from the north east] and the small khan via a decorated gate from the south west.

The plans for both the ground and upper floor show the larger unit to be a typical simple khan with a line of rooms around the court and around the gallery; the smaller unit has large double rooms and a more complicated use of space. Assuming that administrators, officers, and soldiers were all stationed there, the smaller building would have housed the former and the larger building the latter.

The two courtyards make the khan occupies 5200 m2 and are surrounded by two storeys of rooms behind arcaded corridors.

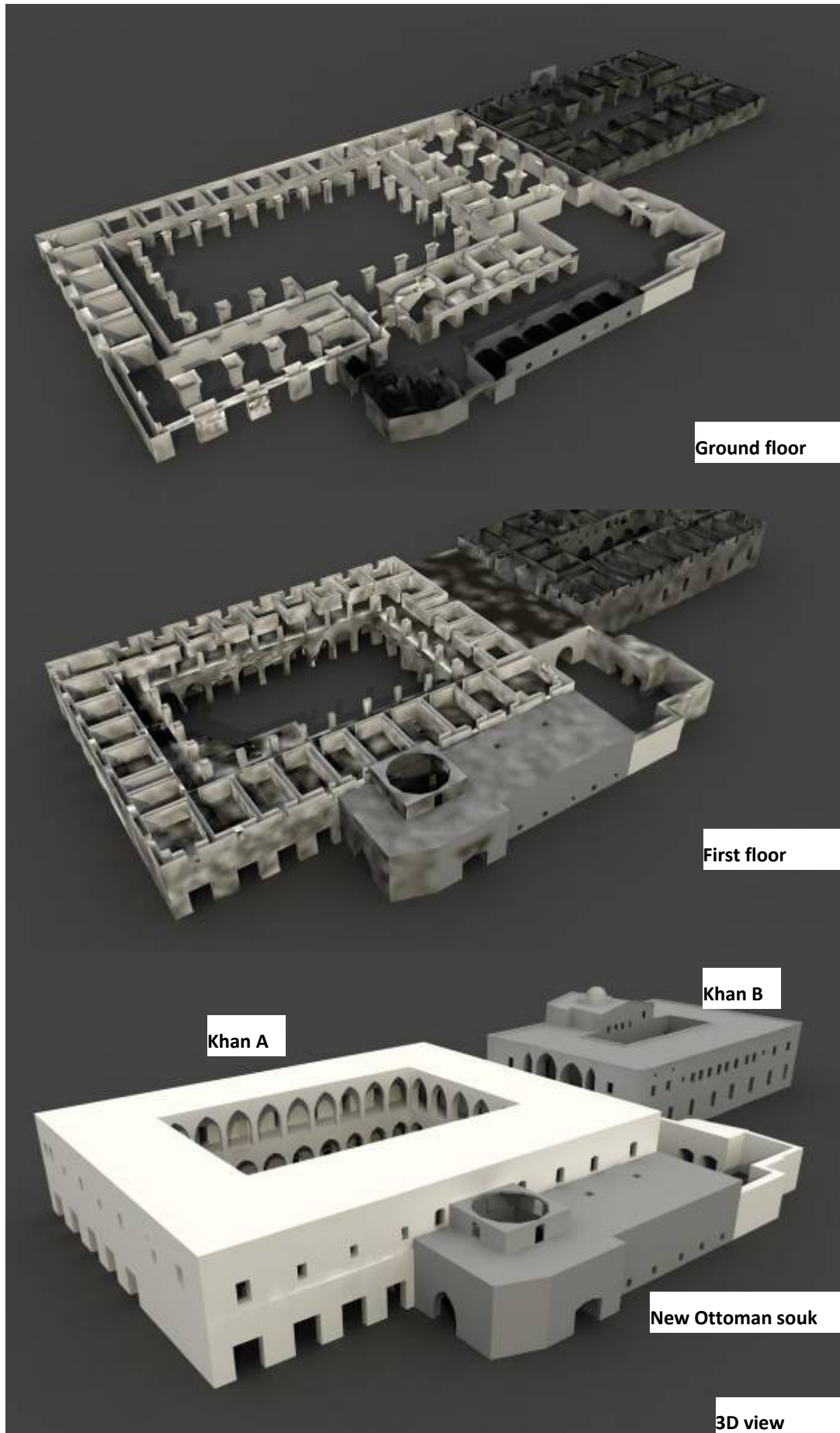
Khan B

The whole western structure of the Khan al-'askar is an impressive building topped by a domed qa'a, which was – in analysing its layout- not a commercial structure but most probably a residential complex. The building consists only of living units and does not indicate any commercial use; storage space and shops are missing. It may have been built next to the northwest city gate to host travellers or military troops.¹¹

It is important to note that from 1955 to 2010, residents built makeshift kitchens and bathrooms in the hallway that wraps around the first floor. The outside perimeter of the Khan was originally completely closed except for one entrance. People, however, basically reversed that design in some places, smashing down walls to open the Khan to the street and create shop entrances while building new walls to close their shops off from the inner courtyard.

¹⁰ WEBER Stefan , *An Egyptian Qa'a in 16th century Damascus , from handaxe to Khan essays presented to Peder Mortensen on the occasion of his 70th birthday*, AARHUS UNIVERSITY PRESS, 2004

¹¹ IDEM



Architectural features, construction techniques and Stylistic tendencies

*The muqarnas ribbon on the entrances to both structures in the west and east allows for a dating between the late 16th and early 18th century.*¹²

Although military and therefore functional in general aspect, the Khan al Askar nonetheless has three decorative elements on its ground floor. An alcove to the right of the entrance to the larger unit is decorated with two engaged braided colonnettes. Braided columns flanking a central element was a popular scheme for the decoration of khans in Aleppo, as, for example, on the facades of Khan Uzdampur, Khan al Sabun, and Khan al Wazir.¹³



Khan A fountain



**Khan al-Gumruk , Aleppo (1574)
Courtesy Dr.Stefan Weber**

¹² WEBER Stefan , *An Egyptian Qa'a in 16th century Damascus , from handaxe to Khan essays presented to Peder Mortensen on the occasion of his 70th birthday*, AARHUS UNIVERSITY PRESS, 2004

¹³ http://archnet.org/library/sites/one-site.jsp?site_id=3692

Two other decorative elements are set around arches. The first, set on the inner side of the entrance of the connecting vaulted corridor, is a framing band of Tripoli fish scale, with each of the units or "scales" containing a fan-like stylized leaf in both its lower and upper part. The area between this repeat and the arch above is filled with the same stylized fan-like leaves opening vertically toward the top.¹⁴



Khan A entrance during restoration



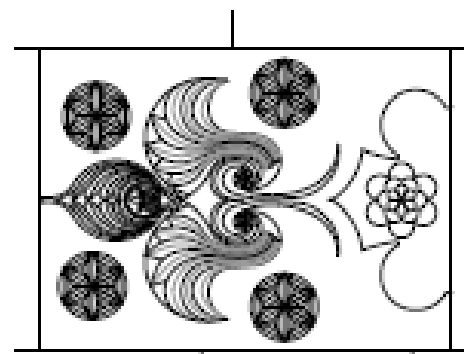
**Khan al-wazir , Aleppo (16ct.)
Courtesy Dr.Stefan Weber**



**Khan Qurdbeck , Aleppo (16ct.)
Courtesy Dr.Stefan Weber**

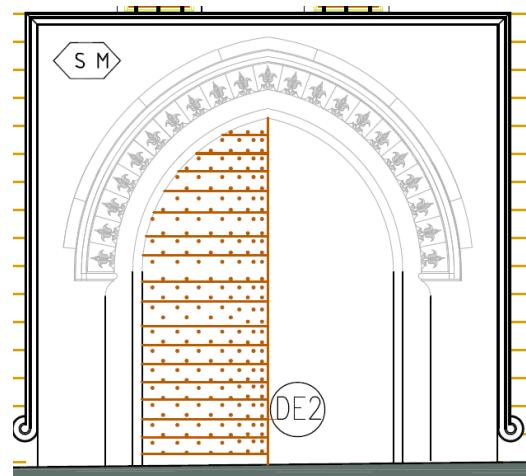
¹⁴ http://archnet.org/library/sites/one-site.jsp?site_id=3692

The second gate that is flanked from exterior wall with the ottoman toghra, has a decorative marble motif on its interior lintel



[DETAIL D1 1/5]

Another decorative band set around an arch is seen on the exterior of the main entrance to the smaller khan. A rectangular gateway is framed by a band of stone molding and encloses an outer arch, also framed by a stone molding and including a repeat (one on each stone) of a stylized, Arabicized fleur-de-lys motif filled with a linear carving following the shape of the flower. The inner arch of this gateway is decorated with the commonplace fish scale. The two main areas of the double Khan al Askar are connected at street level by a vaulted corridor; the smaller unit has its own entrance and appears to be the more official of the two" (Salam 1983 :181-6)¹⁵



¹⁵ Salam-Liebich, Hayat. 1983. The Architecture of the Mamluk City of Tripoli. Cambridge: The Aga Khan Program for Islamic Architecture.

6. Observations and Building archaeology

A. One khan or two khans

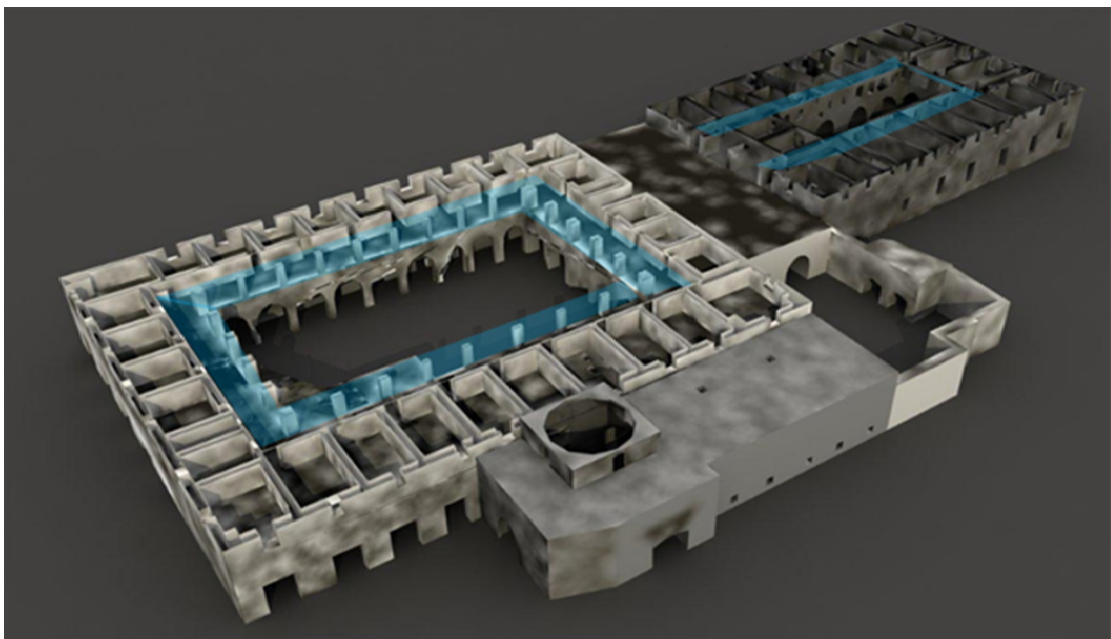
The first question that was risen, is khan askar on khan with two courtyards or 2 separated khans?

Some sources opt for the first hypothesis:

The plan shows two adjoining buildings, which follow the same principle of a central courtyard surrounded by rooms below and rooms above set behind a gallery. It is as if the architects, needing a very large number of rooms and storage spaces, simply duplicated the plan of a typical khan, rather than planning a single building of a scale sufficient for their needs. The results were two adjoining khans to serve as one. Rural caravanserais with two courtyards are known in Anatolia, but not urban khans, and in the caravanserais the two courtyards served two different functions. Here we find a doubling up simply to provide the necessary space for a single function.¹⁶

Exhaustive analysis that were carried out during the works and that were allowed thanks to the removal of the plaster, and the cleaning of the walls revealed traces confirming that we are dealing with two different buildings built next to each other's and on different phases;

1. The plans of both khans are too different from each others: typology, circulation and details show a different approach and treatment.

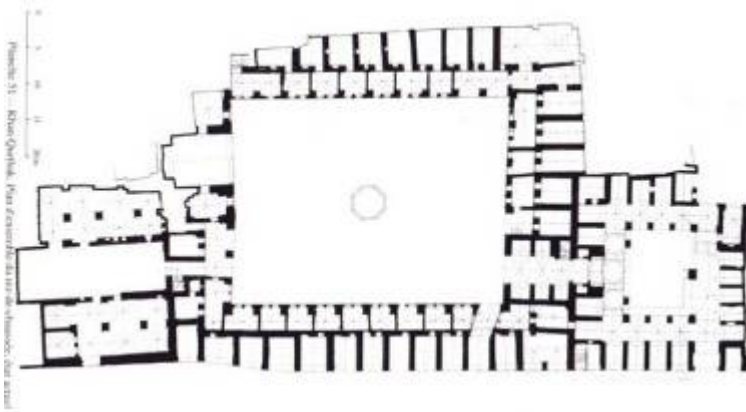


¹⁶ http://archnet.org/library/sites/one-site.jsp?site_id=3692

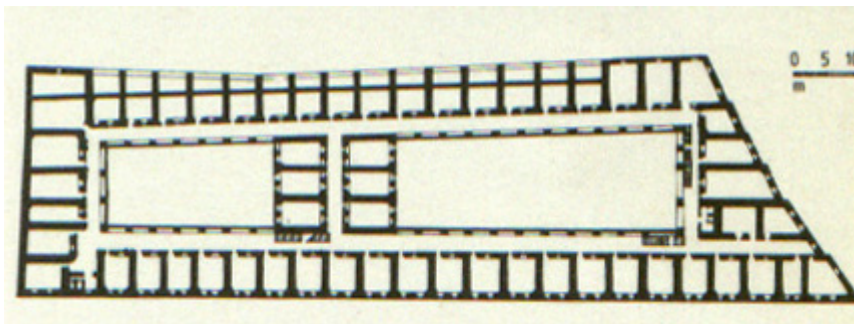
2. *Rural caravanserais with two courtyards known in Anatolia* show a homogenous approach in the plan and the link between the two courtyards are clear and planned. In the case of Khan askar the two khans were planned differently and the link was opened after the occupation in 1955



Khan al askar



khan-qurtbak- alep

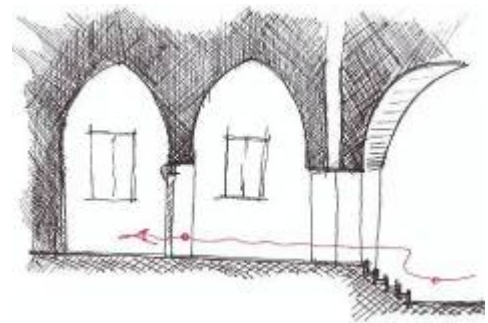
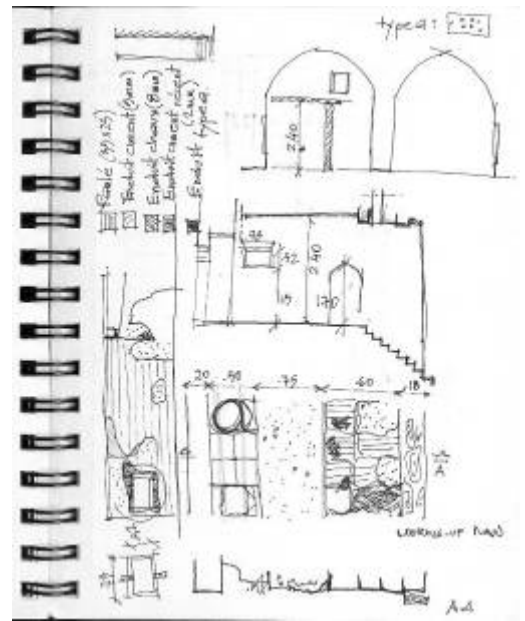


Buyuk Yanni Khan - Istanbul

- 3. The muqarnass detail at the intersection gives an evidence that khan A was built prior to khan B.



- 4. The canalisation in the filled area between the two khans is an evidence that one of the elevations was an exterior one.



B. 'Ottoman indices'

1. Chimneys

Chimneys were found and identified in both khans A and B

They are a major ottoman evidence. Niches that were transformed by the inhabitants into cupboards revealed after removing the additions , vertical conducts; the chimneys conducts.

Khan A



← The chimney

↑ traces of fire

Khan B



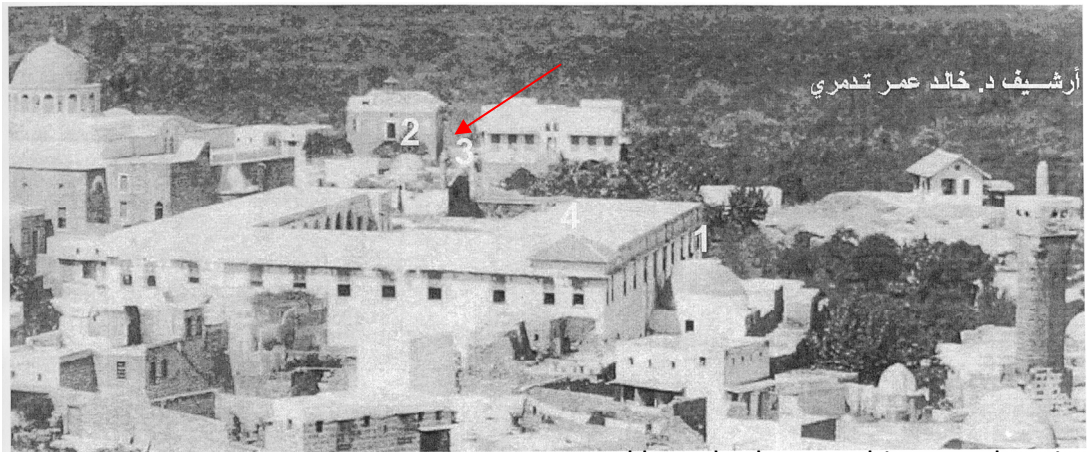
↑ Hypothetical restitution

↑ in situ chimney conduct

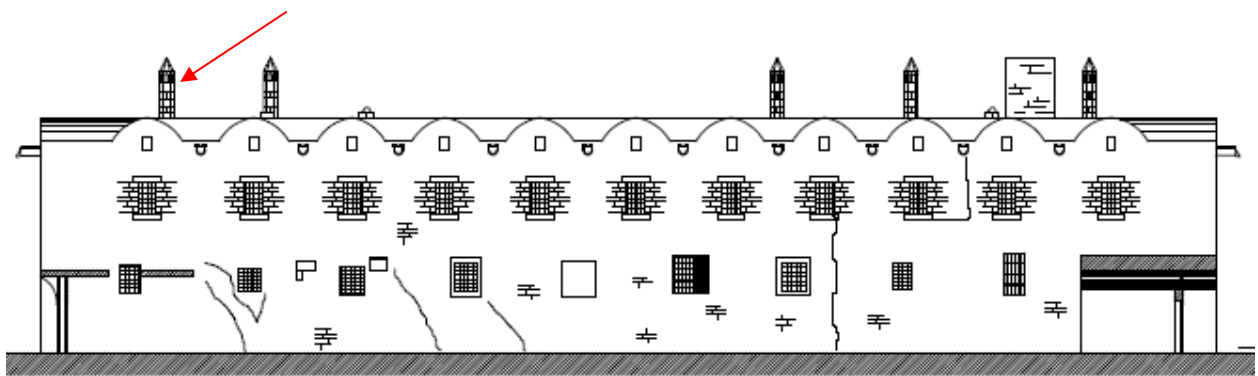


↑ the chimney used as a bed niche

Another historical picture showed still standing exhaust . similar examples are found in khan al saboun in old Tripoli.



khan al askar – archive K.Tadmori



FACADE SUD-OUEST

Khan al saboun – Tripoli LU2000

C. dating indices : the toghra

the Imperial monogram *toghra* of the Sultan Abdul Majid, dated 1852: *Terminus ante quem* for this façade installation



D. The Qa'a

Ottoman feature: the dome building is a four-winged qa'a



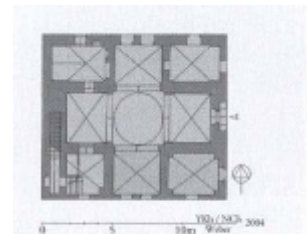
The – as yet-undated khan al-Askar in Tripoli includes a room that responds to the shape of a cross qa'a. the domed qa'a is located on the 2nd floor in the western part .it is the most important room and is marked on both steet façade and coutyard façade by a gable that serves no architectural purposes.

The interpretation that the domed qa'a with four tazar/iwans belongs to a residential complex is supported by another important residential complex, the Bait Kastanflis – 'Adra in the Rammane quarter.¹⁷

Another example of a domed house on a top of a khan, is the qa'a on the top of khan al franj in Saida;



Qa'a on the top of khan al franj. Old Saida 1936 . courtesy IFPO



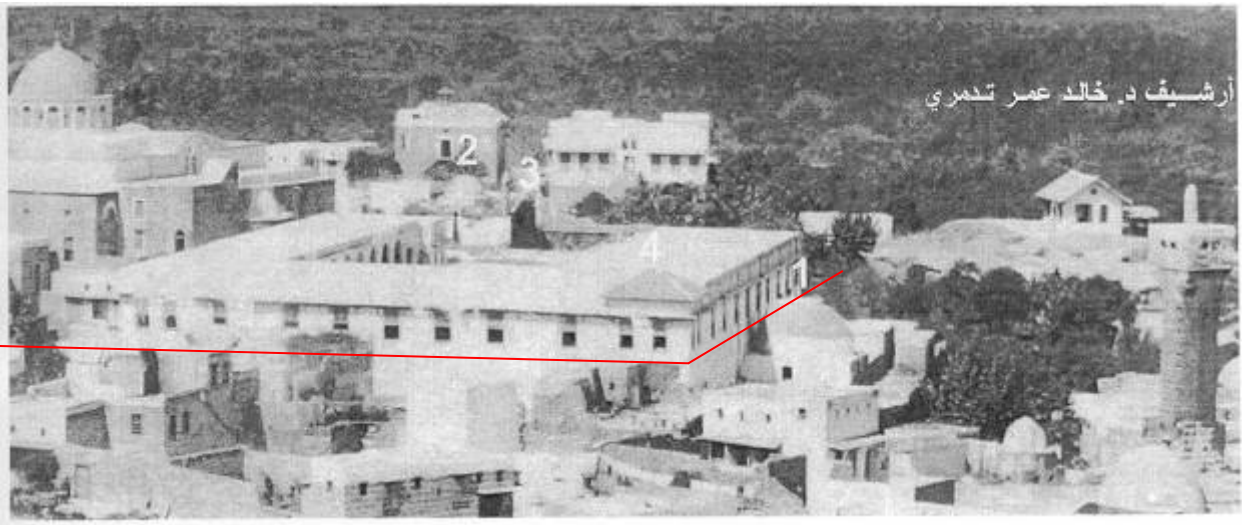
Qa'a plan. Chahine & Khoury 2004 WEBER Stefan , *An Egyptian Qa'a in 16th century Damascus , from handaxe to Khan essays presented to Peder Mortensen on the occasion of his 70th birthday*, AARHUS UNIVERSITY PRESS, 2004

¹⁷ WEBER Stefan , *An Egyptian Qa'a in 16th century Damascus , from handaxe to Khan essays presented to Peder Mortensen on the occasion of his 70th birthday*, AARHUS UNIVERSITY PRESS, 2004

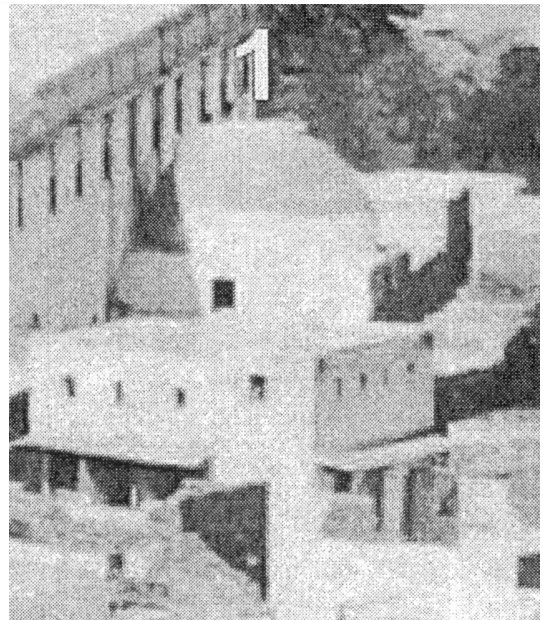
E. The additional third floor and the dome

Old picture showed an additional third floor that doesn't exist anymore. When cleaning the roof, traces of stone masonry wall were noticed and they were removed under the supervision of an archeologist who submitted the report at the end of the works.

On the other hand, the same picture shows a dome above the souk main entrance. The *pendant* of the dome are still visible. Decision was taken not to reconstruct the dome for both financial and conceptual reasons. Instead, a light wood and glass structure was installed allowing light to enter and keeping the reading of the original structure possible.



The entrance without a dome and a no traces of the 3rd floor
1939 . IFPO



The entrance with the dome and the 3rd floor

7. The restoration project

Philosophy of restoration

Concepts and schools of restoration are numerous and experts do not agree on one method. However, some criteria and rules need to be followed in order to respect and preserve the conservation of the building in question (see ICOMOS recommendations). To achieve the project in the best results, a multi disciplinary team should be gathered.¹⁸

To develop a consistent theory for khan al askar restoration, the building was to be studied from different points of views. the study was carried out in parallel with the cleaning works. The building became the source of information, and evidences of the building archaeology were gathered and brainstormed . the final outcome was evaluated by the DGA, and the CDR and it was integrated in the concept of restoration.

For the development of the concept five points were taken into consideration:

1. the original structure
2. the history of the khan and the different alternations through the history
3. the meaning of the building and its surroundings today and its future use

Since "the original" building is the outcome of continuous change during many centuries, the question was which historical phase of the khan to emphasise on or to restore.

The original late-mamluk building layout was respected, its typology re-valorised and its in situ elements preserved.

Elements, belonging to other phases [ottoman, late-ottoman and mandate] and that are still present on site were identified and restored.

Elements on which we have no evidence weren't invented or imagined, as per international restoration charters.

The concrete additions after the war damages and the inhabitants interventions were removed and the collapsed vault in the 1st floor rebuilt after the study of the original vaulting system. A whitewashed lime plaster was added to protect the stone covered masonry of the building.

In some spots new systems were invented mainly to avoid maintenance issues; it is clear that they are a new addition and not a copy from existing structures.

¹⁸ WEBER Stefan, *the restoration Project of souk Haraj in Tripoli history, Archeology and Rehabilitation, BAAL V10 2006, P267 268*

Execution phases and actions

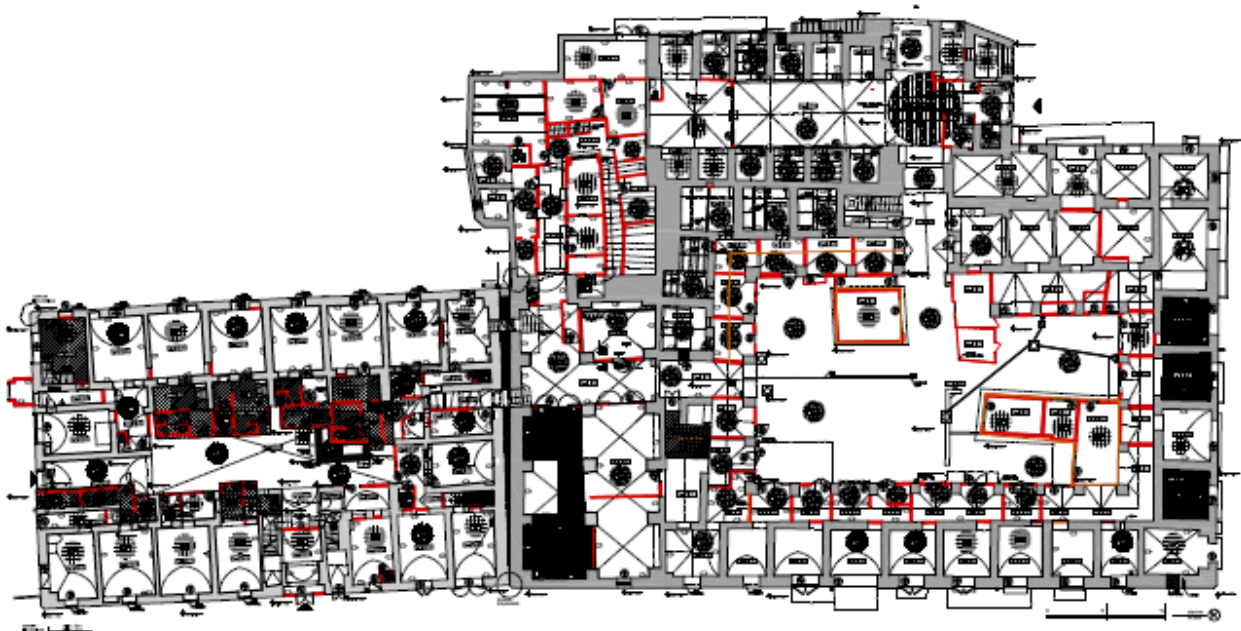
Particular measures of protection were taken to insure the safety of the site and the pedestrians.

Rehabilitation works in parallel with the study

- 1- Assessment and Shop drawings for the urgent measures
- 2- Documentation of the new uncovered structures & details
- 3- Mapping the new uncovered structures [materials, decays]
- 4- Analysing the layout and architectural features
- 5- Proposal of the new design

A. Cleaning and clearing the site

The site was cleaned from all sorts of debris, all concrete additions and partitions added by the inhabitants during 55years.



The Ground floor : all modern additions were identified [red] and removed



Khan A: north east interior elevation - Demolition and removal of all concrete harmful interventions



Khan A: north west interior elevation - Demolition and removal of all concrete harmful interventions

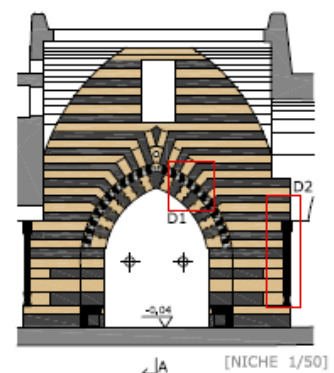


Khan A: south west interior elevation - Demolition and removal of all concrete harmful interventions

B. Cleaning of the Decorative Features

Special care was taken while cleaning the decorative features of the gates and fountain at the souk entrance. The fragile used stone was carefully cleaned ; and after removing the black crust beautiful details were revealed.

They were all documented and surveyed.



B. Urgent structural measures:

- a. All structural decays were treated: injection and grouting of all cracks

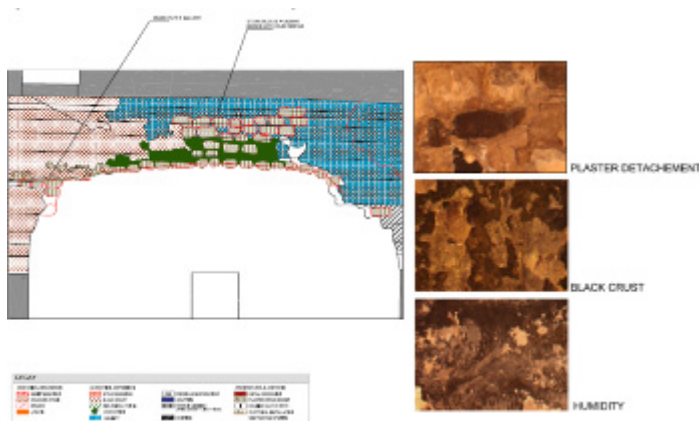


- b. The collapsed vault in the south east interior elevation – khan A was reconstructed following the traditional construction techniques

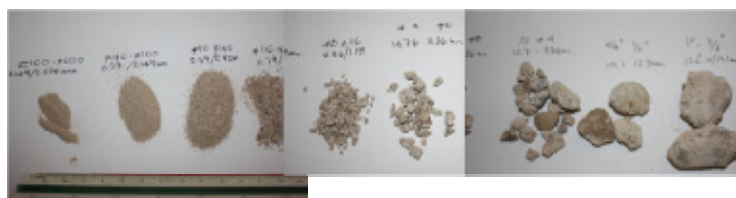
C. Reconstruction of destroyed parts

1.the vault

The interior south east façade was marked with two partially collapsed vaults that were rebuilt in traditional techniques and with the same traditional building material of the building in question (sandstone). Concrete and modern blocks were dismantled and the entire façade and the vaulting above reconstructed. Decayed stones were identified and replaced with stones of the same characteristic in order to preserve the physical and architectural coherence of the building. Hydraulic lime mortar was used in the construction of these items.

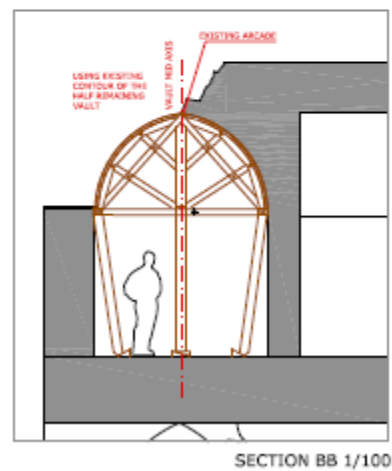
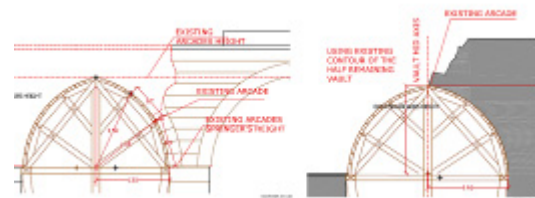
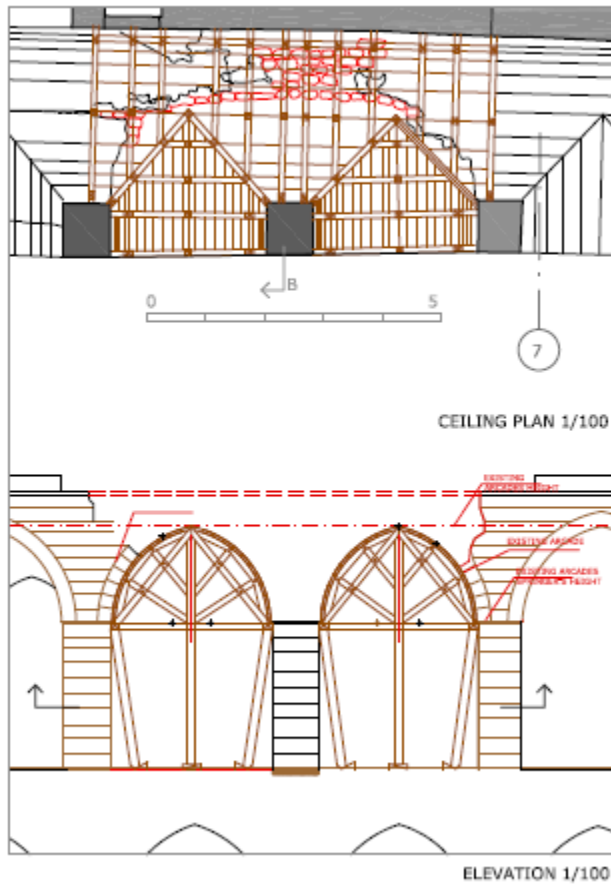
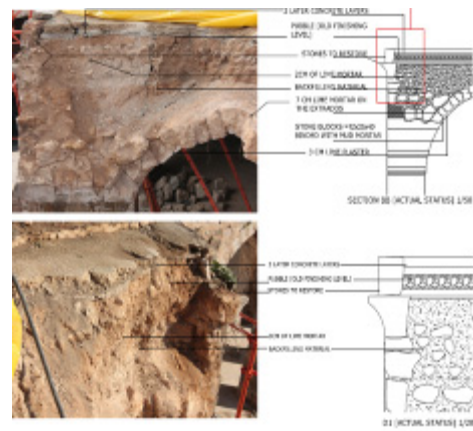


Material and structural mapping on the graphical survey

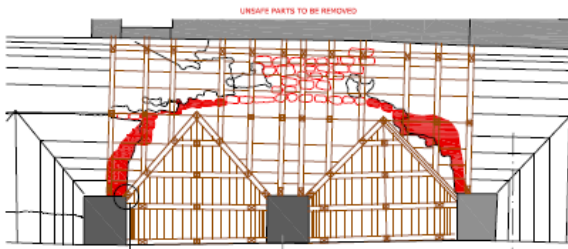


Analysis of the material inside the vault

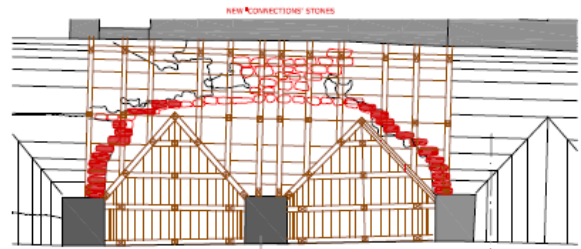
[PHASE 0: STATUS AFTER DEMOLITION]



[PHASE 3: CLEANING AND REMOVAL OF UNSAFE PARTS, OF THE REMAINING PART OF THE VAULT IN ORDER TO CONNECT IT WITH THE NEW VAULT]



[INTRODUCTION OF NEW STONE-CONNECTORS IN THE REMAINING PART OF THE VAULT IN ORDER TO CONNECT THE EXISTING VAULT WITH NEW ONE]



The vault pillar basis was found during the cleaning



Craftsmen and workers using traditional building techniques.



And the vaults were reconstructed following the submitted approved shop drawings



1964 - APSAD



Before the project launching - 2003



After removing the concrete structure

2.the masonry walls : construction and replacing

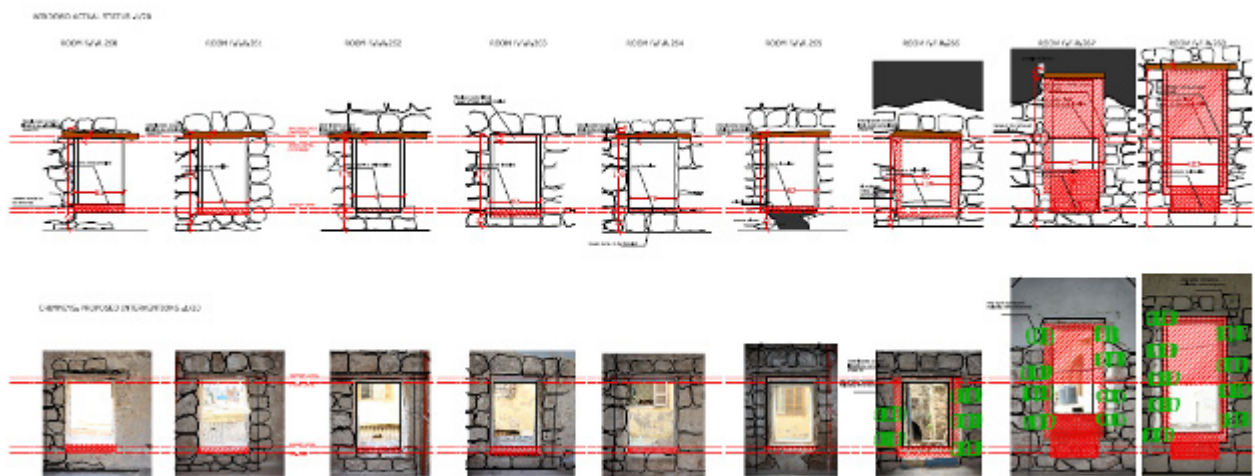
It included mainly the interventions on the openings and some walls in order to give them the original shape .

The type of masonry used is the ‘stonework’ type; composed of natural cut stone elements, variety of lime and sandstone, of various shapes [big blocks, small blocks, rubble or roughly squared elements], held together by lime mortar.

Mortar: Made with a mix of mud+ sand+ water+ lime+ binding material [straw]

Natural decayed stone masonry replacing – phases

- prior consolidation of the wall if needed
- Carefully removing by hand, at locations indicated, stone that has deteriorated, shifted, or is damaged beyond repair.
- Supporting and protecting remaining stonework that surrounds removal area.
- cleaning of the mortar surrounding the altered block
- Relocation of blocks according to historical techniques : Cutting a block with a similar size and geological nature [use the loose stones].
- Laying the block on wooden wedges in the cleaned cavity
- Introducing the lime mortar all around the block from both inside and outside. The mortar should completely coat the stone.
- documenting the various stages of work



Windows :

- Surveying the actual status
- Identifying the original size
- Shop drawings : interventions on the masonry
- Execution

Cleaning the walls

The masonry was washed and cleaned with water and plastic brushes without affecting the historical structure or masonry.

- manual removal of weeds
- removal of fragments of wood or metal
- removal of all doors and windows
- Removal of cement joints



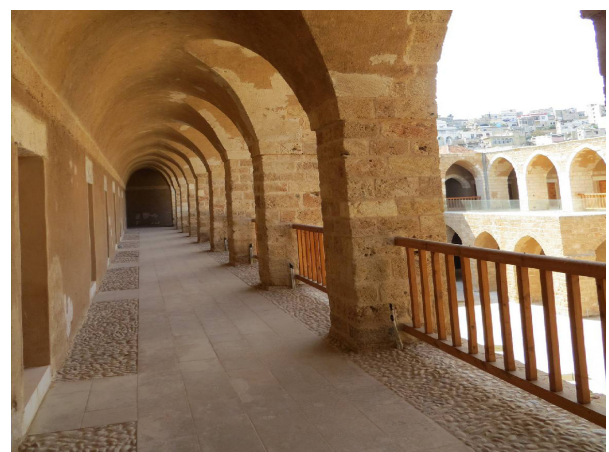
Tiling works

All the floors were covered with multiple layers of cement.

Once those layers were removed, the original floor was revealed:

In the first floor all galleries were covered with pebbles, probably coming from Abu ali's river. A small spot of furni's stone was found in the southern corner.

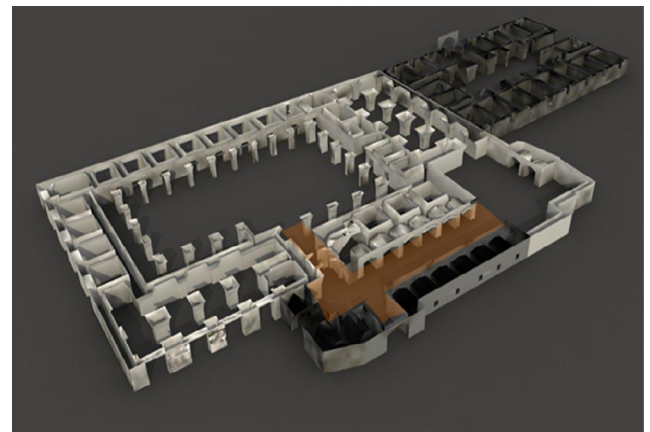
- The pebbles were removed, stored, cleaned and reused in a new pattern adequate with the modern daily life; in the middle of the gallery new lime tiles were installed in a geometry following the galleries. Beneath all the mechanical and electrical installations
- The furni was documented, numbered, dismantled and re-installed after installing all mechanical and electrical installations.





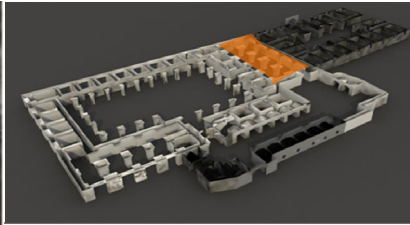
In the **ground floor** traces of original furni tiles were found in some rooms, the vaulted stable, and the new ottoman souk.

The new ottoman souk



1. 1964 picture [APSAD] where traces of original furni
2. Before removing the cement layer
3. After removing the cement

The stable



The rooms



Before Concrete slabs Demolition Block A- Ground Floor, Room 129

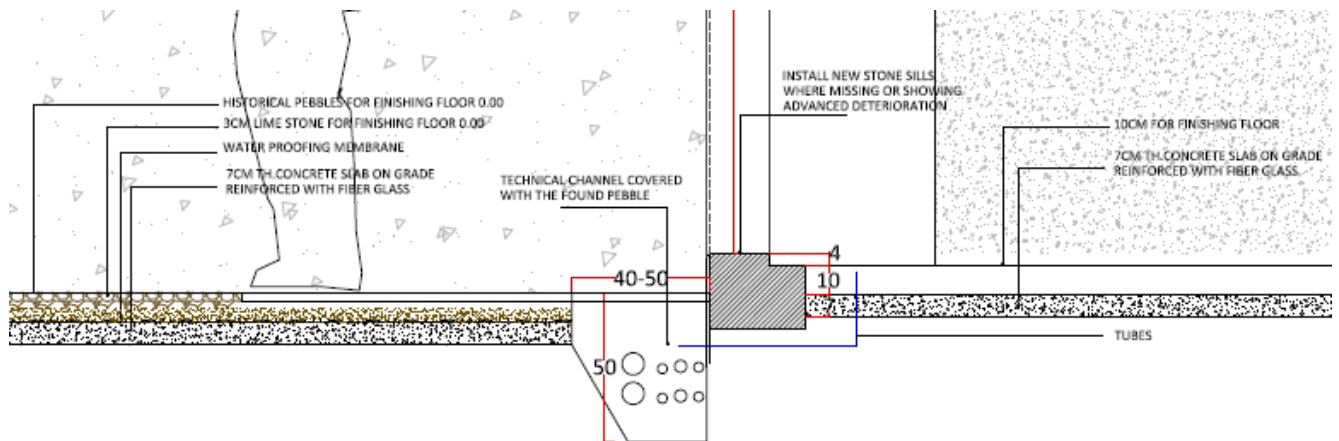


Before Concrete slabs Demolition Block A- Ground Floor, Room 114



The courtyard





Infrastructure [sanitary & electrical works]

electrical works consisted of installing all pipes and conducts ready to receive the wires whenever the khan is occupied. As for the sanitary, the installation of all necessary piping and accessories was executed.

Rain water was drained on the interior facade angles.



Lime Plaster

No industrial whitewash was used during the restoration. Instead natural lime was only used. Lime plaster was applied on the surfaces of the gallery vaults and the rooms interior.

All the original plaster was removed because of its advanced decayed state.

While all the exterior plaster had 3 layers applied, all the interior rooms and shops are the responsibility of the owners.

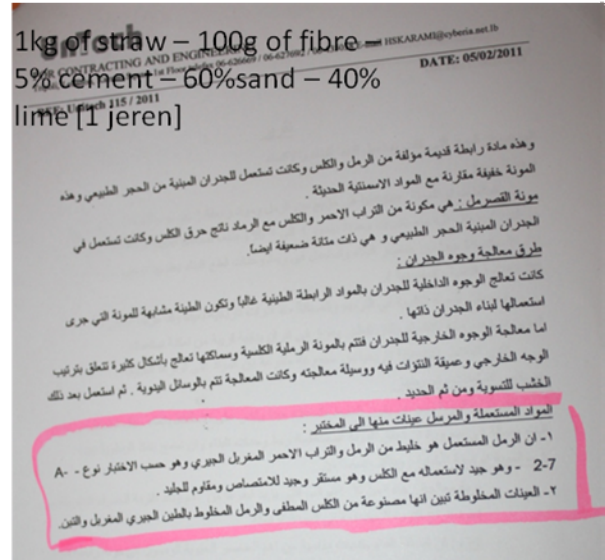
The procedure consisted of:

Removing the old decayed plaster without altering the masonry. Cleaning the joints and surfaces to insure a better adherence with the plaster. The first layer of adherence is around 5cm thick dosed 400 to 450 kg of hydraulic natural lime for each one cubic meter of sand, when dry, a second smoother layer is applied to insure specifications of insulation, 300 to 350 kg of hydraulic natural lime for each one cubic meter of sand 15 to 20 mm thick. The finishing layer is dosed of 250 to 300kg of hydraulic natural lime for each one cubic meter of sand, with a thickness of maximum 7mm. Humidifying and drying each layer of plaster takes around three days.



1. 2 Original plaster status

3.4.5 Original plaster analysis



1. New lime plaster application
2. Laboratories analysis of the Original plaster components



Wood works

Room Doors

No traces of original traditional mamluk door was found.

Instead, more than 10 doors of a same design [most probably a late ottoman one] were found in situ.

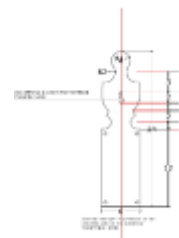
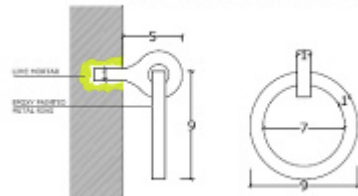
The restoration project had to meet the needs of the users without compromising the building’s image and character.

A similar door with few modification to provide better insulation was designed.

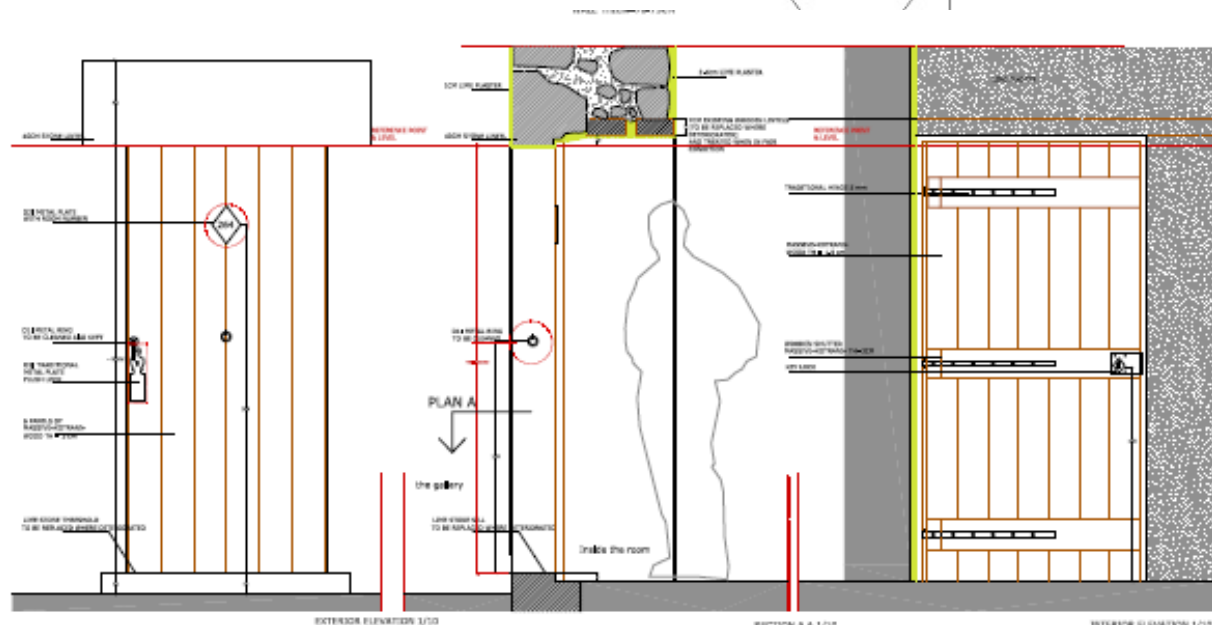
In places where traces of crappaudine was found, the type was adapted to fit with this technique.



DOOR DR1 - PROPOSED ACCESSORIES
DETAIL D1. METAL RING 1/2



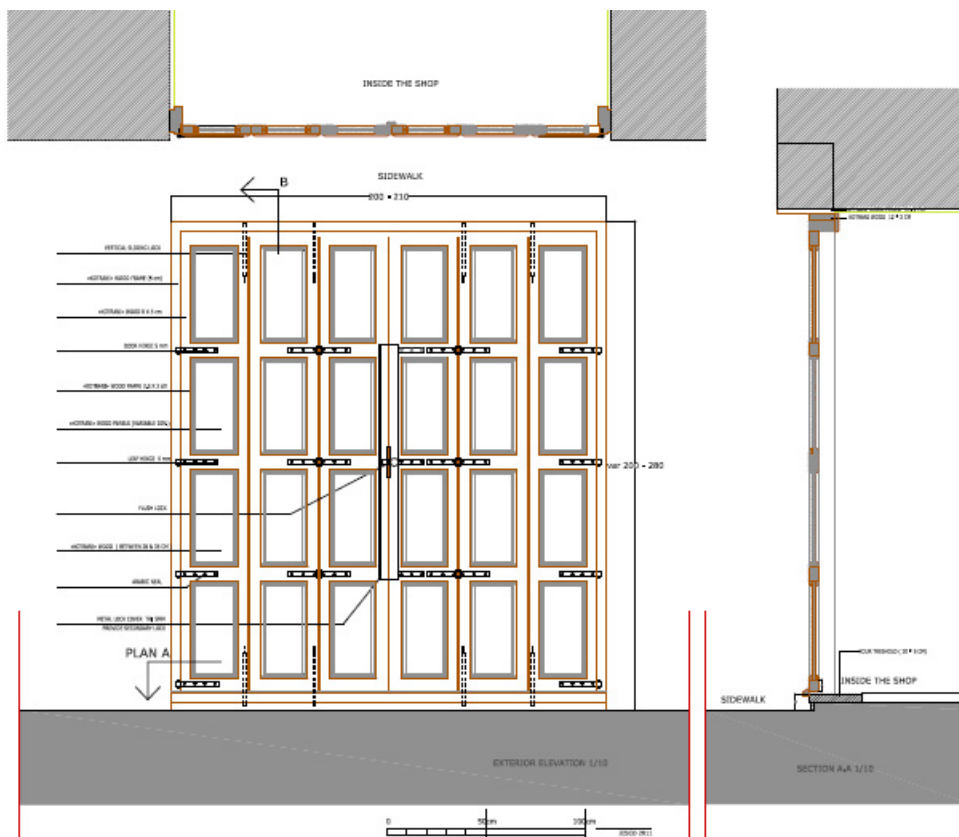
DETAIL D2. METAL PLATE 1/2





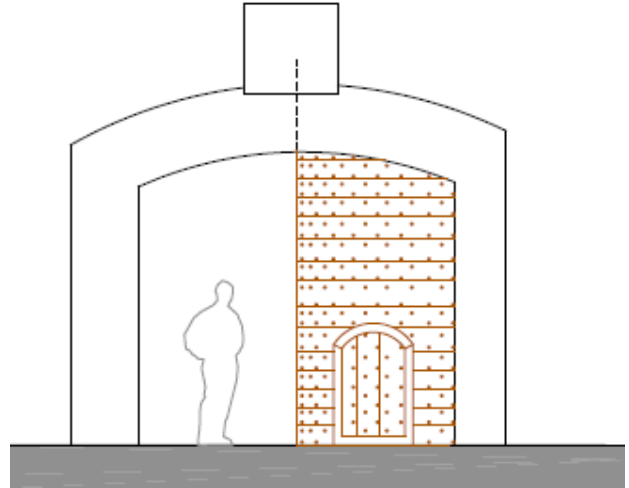
Shops doors

The shops kept their doors giving to the outside instead of the courtyard. The traditional shop door found in traditional souks in Tripoli and Saida was adapted.



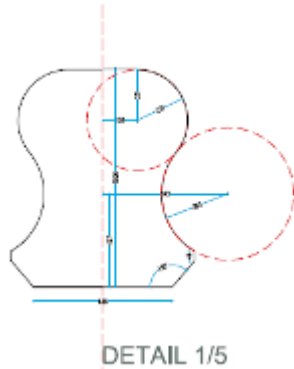
The main gates

The traditional khan's door found in traditional khans in Tripoli and Saida was adapted.



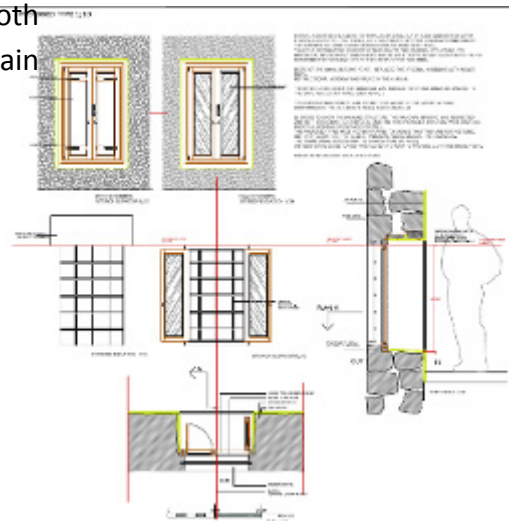
The handrail

Traces of the original wooden kotrani handrail were found in their original location. After being surveyed and copied, the same shape was proposed and executed. Additional horizontal bars were added for security reasons. They were inspired from balustrades in Syrian khans .



Windows

A new type of window was designed. It integrates both wood and glass within the same frame in order to gain thickness.



Canopies and Shamsiyyat

the proposed shamsiyyat are a simplified copy from the ones belonging to the 1900 period.

The canopies were made as a very simplified, light wooden structure inspired by historical models and techniques.



Stairs

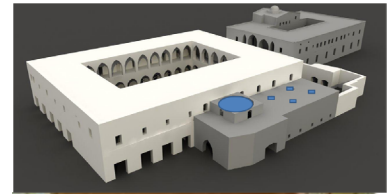
In order to protect the original steps and at the same time to allow a secure use of the stair, new wooden steps installed on metallic structure were designed and executed.



The skylights

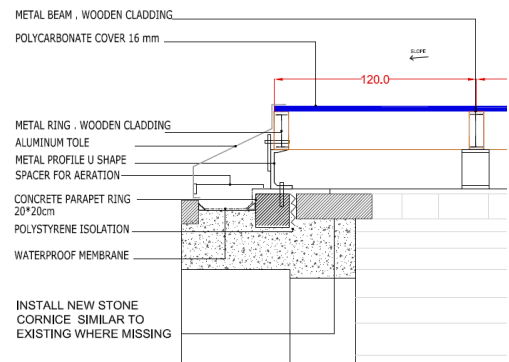
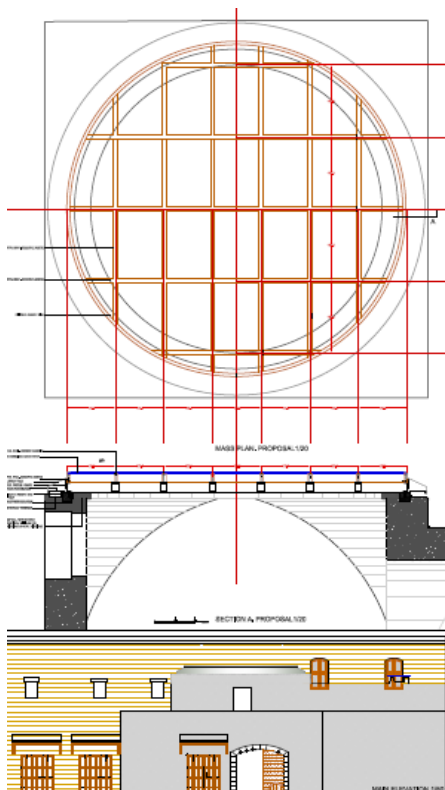
Souk Skylights

All the skylights in the new ottoman souk were closed with concrete for protection against water. In order to retrieve the original character of the space as it was conceived by the builders and to meet today’s needs, these skylights were covered with glass to protect from rain but letting in the day light and air for ventilation.



Entrance Skylight

Old picture showed a dome over the opening. In reference to the international charters, reconstructions aren't recommended it was decided not to reconstruct the dome but instead to install a light wooden glazed structure allowing light and air to enter.



New distinguishable elements

In some areas, new elements were installed. Their 'reading' is clear.

Such strategy was adapted when there were no traces of the original elements and when the modern intervention was necessary.

fig1. The handrail installed on the part that was added during the ottoman times was designed in glass in order to allow the reading of the addition and the original continuity of the courtyard.



Fig2. The stair added during the mandate was partially demolished by the inhabitants.

It was decided to cover it with cement and epoxy in order to distinguish it from the original structure



Fig3. The basalt tiling in the middle of the courtyard
It retraces the limits of the fountain as defined in the old cadastre without building it .





08



خان العسكر 2012
Chan Al Askar 2012



خان العسكر 2012
Khan Al Askar 2012



04

