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DOCUMENTATION AND RESTORATION PROBLEMS OF (QISHLA AND SARAY OF BAGHDAD)

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INTRODUCTION

It is well known that the preservation of cultural heritage can helps to educate younger generation through the history event happened. Furthermore, historical monument is something inherited from ancestor, what we live with today, and what we pass on to the future generation (Prentice, 1993).

Because cultural heritage is a reflection of the progress, past, civilization, legacy, customs and traditions of a society.

Includes material things such as a site, cultural significance, and important sites located on it that are related to its culture, and intangible things include stories, customs, traditions, and emotional relationships associated with ancestors.

In order to maintain the history of the community we restrict archaeological buildings that include the exact detection of the case and representation of the building and is such as a period of his history and the protection of its archaeological value, where the buildings can be done to maintain and not investigate them. [1]

This research focused on the documentation and restoration problems of the Qishla building and saray of Baghdad as it is considered one of the most important heritage buildings in the city of Baghdad

documentation historical monument is an important issue due to its high historic value. because it is subject to erosion, vandalism, and as long-lived artefacts, they have gone through many phases of changes in construction, damage and repair.

It is important to measure and model a historical monument with relatively high accuracy.

Due to the complexity of the case study (Qishla and saray building) , 3D visualizing and modelling of these structures is time consuming and difficult, usually involving much processing effort. To achieve this approach, the advent of new digital 3D terrestrial laser scanning technique is applied to reduce the time of visualize a 3D historical monument model using automatic method as well as the traditional method of survey.

The application of 3D laser scanning for reconstruction and conservation of heritage buildings, monument or archaeological sites is generally accepted by survey community due to its completeness, accuracy, and fastness characteristic (Sgrenzaroli, 2005).

In recent years, the use of 3D terrestrial laser scanning (TLS) seems to be increasing as its effectiveness in recording and documenting cultural heritage is widely documented.

This building was constructed in 1855 to be used as a school under the name of "Al-Mawfakia School", but the Ottomans turned this building into a barracks and added many parts to this facility, such as the tower, which is 22 meters high, with a large circular clock at the top and used it as an alarm for soldiers. This tower was built of bricks taken from the eastern wall of Baghdad. [2]

1.1 Aim and scope of the study

The main objective of this study is to first establish a reference for the first step of restoration which is advanced documentation of heritage buildings in the city of Baghdad - the Qishla region and saray building. this paper aimed to shed light on detailed documentation by Advanced and traditional techniques for (Qishla building and saray of Baghdad), and mention the restoration problems to give appropriate recommendation for restoration process in future, in accordance with the laws of UNESCO and ICOMOS. This documentation process and restoration problems includes several stages, starting with a comprehensive survey of the area by using laser scanner method, studying the historical buildings and previous maintenance projects, in addition to studying local and international examples of similar studies, it became clear that it tended to study each building as a separate part, which led to poor connectivity and operation of these

structures. This study also tends towards proposing preparing a basic data for the forth coming that will be prepared for restoration of the building.

1.2 Mythology and structure of the research

We adopted a methodology based on analytical, qualitative and field approaches to be used in analysis and explanation.

To address the problem at hand, we have followed the following steps:

• The first stage: theoretical research

After determining the goals to be reached, we contacted the field of study and became familiar with it in its finest details and parts, we have collected the scientific material and everything related to the subject of our study, which are:

Maps, plans, books and studies, in addition to research and notes, which are all included Within the theoretical research, with the aim of forming a background on the various research elements.

• The second stage: field research

It is the stage of contact with the field of study to get acquainted with its most important characteristics and to know its exact components, as it was done:

obtaining all the necessary documents, Architecture survey by using 3D terrestrial laser scanning (TLS) and traditional method, and determining the extent of the importance of this area, which is considered the most important and difficult stage of the difficulties that exist, especially in gathering information.

Charts:

Tables have been prepared containing a detailed explanation of description of each space , mentioning its restoration problems

•The third stage: application This stage is considered the most important stage in preparing any scientific research, analyzed the data which is obtained According to the scientific methods, pursuing a descriptive and analytical approach.

General description of the city Bagdad

Baghdad is the capital of Iraq and one of the largest cities in the world. With a small area of 673 KM^2, it is located along the Tigris River, near the city of Babylon and the Iranian capital, Ctesiphon.

It is located 85 km north of Babylon, at latitude 33 and longitude 44 on the Tigris River in the central region of Iraq, from its Basra is 445 km to the south, Mosul 350 km north, and Erbil 320 km, It is located between Syria to the west, Jordan at 800 km, Lebanon 830 km, Palestine 875 km, Egypt 1290 km, Kuwait to the south and Iran to the east and to the north is Turkey. [4]

2.3 General Architectural characteristics of the city

Baghdadi architectural style was characterized by a harmonious harmony between the functional and the aesthetic. The Iraqi architecture took into consideration the climatic conditions, its neighborhoods and shops, and made the windows overlooking the outside few openings close to the windows of the other side of the role, and made the open spaces facing the center of the house to provide a shady and enlightening atmosphere that might be possible taking into account the prevailing social conditions at the time. Al-Baghdadi architecture made more use of wood to reduce temperature fluctuations inside the house. [10]

Bricks were and are still considered the basic material in building Baghdad architecture due to the lack of stone, as in the Levant, and the use of bricks in crafting types of round and pointed arches, which were formed with muqarnas bricks that combined the structural function and aesthetics of formation. As for the ceilings that were erected on the columns, wood was the main material.

It is worth noting that Baghdad witnessed at the end of the twenties of the twentieth century a transitional pattern between the old Baghdadi style and the pattern that prevailed later, represented by the construction of the "Al-Sinak District", which was used in its construction a

new style represented in the use of Sheelman steel in roofing houses, public shops and khans for commercial purposes. Al-Rashid, Al-Hamra, and Aladdin cinemas also appeared. [11]

Description of the study area

The study area in Baghdad in Rusafa side located between the Shuhada Bridge and Bab al-Muadham Bridge and between Rasheed Street and the Tigris River and includes a diverse historical fabric and includes the Jaded Hasan Pasha neighborhood and al-Maidan district, where it includes a number of historical buildings that witnessed important events in the past, such as the Qishla, the Military Courts Building, the Wali House, the House of Wisdom, and the Abbasid Palace, In addition to a number of mosques, schools, markets and cafes, as well as Al-Baghdadi Museum and Al-Mutanabi Street, which represents the artery of the historical region and the Center for Books and Culture in Baghdad, and that the region contains historical and heritage buildings for the various periods that Baghdad has gone through. And that the urban fabric of the region is characterized by organic fabric and traditional buildings of proportional height, and that the highest point in the region is the Qishla clock tower, which overlooks the riverfront.

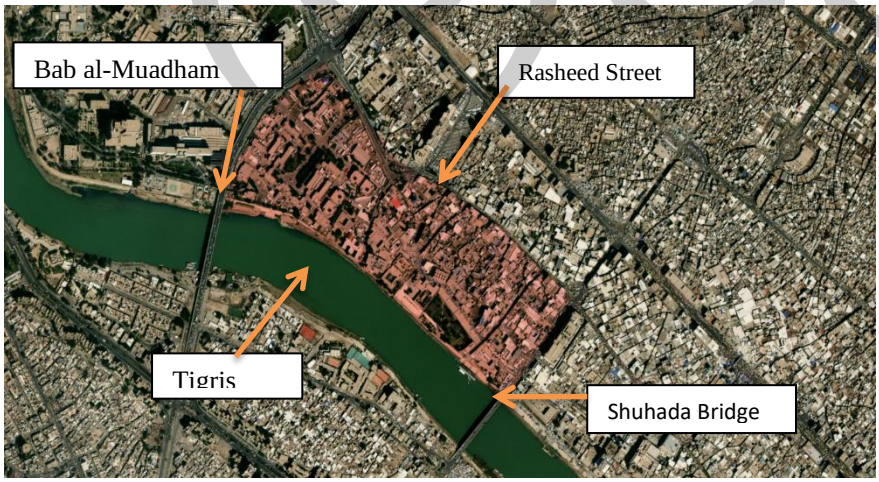


Figure 10: the study area (Jaded Hasan basha district and Qushla (by Author)

The importance and reasons for choosing the region

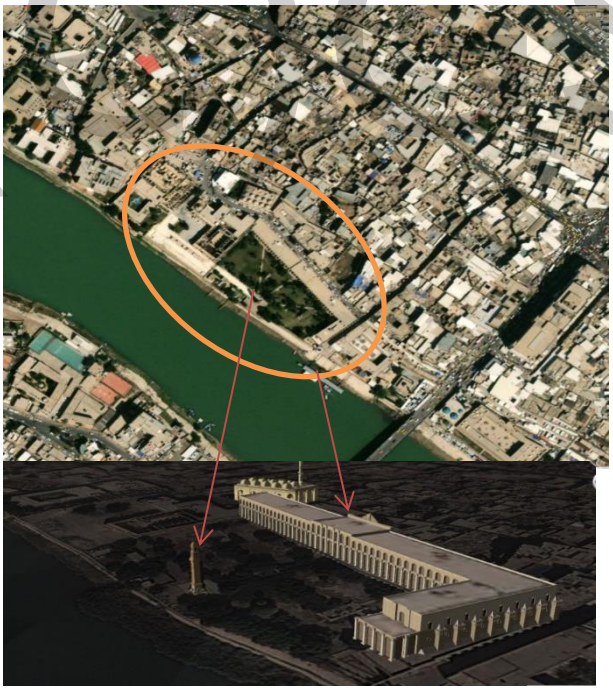
The region contains multiple historical landmarks, so it constitutes the historical course of the region in addition to forming the historical focus of the region. As for its importance to Baghdad,

as it was the center of government in the past, and the region witnessed multiple revolutions and events, as for the fact that it contains many cafes, it was the cultural focus in The former, as the cafes represent forums and a center for an elite group of intellectuals, and as it includes Al-Mutanabi Street, it is the center of culture, as it attracts cultural activities, and the region contains a distinctive traditional urban fabric, with its distinctive historical and historical buildings and architectural landmarks as a result of the region's passing through different periods of time that left its mark from Throughout the buildings, the location of the area on the bank of the Tigris River helps to ease the atmosphere

CASE STUDY/ QISHLA BUILDING AND SARAY

Location

Al-Qishla was built near Al-Serail to be within this large complex that includes all the departments of the military establishment in Baghdad. Today, it is located near Al-Mutanabi Street in central Baghdad, overlooking the banks of the eastern Tigris River. In the northwest corner inside the walls at the old Ministry of Defense location. [20]



The history of the buildings

History of the Saray of Baghdad

The seat of government before the construction of the Seray was in the castle, which was known as (iç Kalesi) the inner castle ,Which was established inside the walls of Baghdad on the site of the current Ministry of Defense at the end of the rule of the Turkmen family, Qara Quinlu.

Baktash Khan, the governor of Baghdad in the year (1041-1048/1631-1638) is the one who built the Saray on the bank of the Tigris River near the citadel during his reign. During the period of Wali Hassan Pasha.

The history of Al-Saray and Qishla building after the British occupation and under the Republican rule.

During the time of Minister Daoud Pasha (1231-1247AD/1817-1831BC), then the Seray was the main headquarters that managed the affairs of the country, and because of the destruction in parts of it, he ordered its reconstruction in the year (1236-1820), where he ordered the demolition of the Saray gate opposite the mosque because of Its corners were reduced and lowered, and then he rebuilt it and made a tower to its left and renovated many sections of the Serail buildings.

The Seray was subjected to burning and parts of it demolished when Minister Daoud Pasha was dismissed, because of the strife that broke out between the soldiers and tribes, and as a result, the Seray remained for a long time in a bad state of deterioration and neglect.

In the middle of the nineteenth century, a map of the city of Baghdad was drawn up by Felix Jones and Concord, and it is the clearest map of Baghdad at that time, in which the location of the Seray and the Qishla was determined.

The remaining buildings of the Saray go back to the time of the governor, Namik Pasha in the year (1268-1269/1851-1852) during the first period of his rule in Baghdad.

With the renewal of the Seray after the chaos of the previous disturbances, the Qishla was built from only one floor and was known as Qishla Al-Biyada (the infantry soldiers' barracks).

Several years after the construction of saray building and during the reign of the governor Midhat Pasha (1285-1288/1868-1872) he ordered the demolition of the eastern wall of Baghdad (1287/1870) to use bricks in the construction of the second floor of Qishla and the reconstruction

of the Serail. The clock tower was also built in the middle of the Qishla square to wake the soldiers in a year (1285-1878). He renewed the top of the tower after its fall in the thirties of the twentieth century.

These buildings went through different conditions and periods, so Qishla Building was taken after the English occupation in 1917 as the residence of English officers and their families. As for the Saray, it was a government house and a prison for political detainees and police departments.

When the Iraqi government was established in 1921, it was necessary to find buildings for employees, ministries, and new government departments.

And the Saray (Mushiriya Building) was taken as a court for King Faisal after his coronation in 1921, but it was swept away by the flood of the Tigris River, which prompted the construction of the royal court in another place.

The modern building of the Saray was constructed keeping the old Saray gate which is the only remaining part of the old Seray and a small part of the right wing of the entrance which was occupied by the anti-crime police in the 1970s.

The history of Qashla and Saray after 1988 AD after maintenance

In view of the archaeological and architectural importance of this building, the Department of Antiquities has worked to maintain this building, to be used as museum exhibition halls or for various artistic performances due to the vastness of its halls.

The history of Saray and Qishla after the mid-nineteenth century

The history of Saray and Qishla building after the British occupation and under the Republican rule.

There is a detailed report on all the maintenance work that took place on the building, the details of which are available in the Antiquities Authority.

As for the Serail building, no restoration or maintenance was mentioned about it during this period, but the last restoration was written on the wall of the Dome of the Serail gate in 1993

Qishla after the war in 2003

According to what Muhammad Al-Safi quoted Sheikh Adnan Al-Jabri when they were on a tour in Al-Qashla, saying: (The Ministry of Culture decided, before the matter was transferred to the Ministry of Tourism and Antiquities, to rehabilitate the building that was looted during the days of the lawlessness, and the restoration operations began since 1/15/2005, and the time limit set for these works is until 9/15/2005, but it happened Some delays due to security aspects hindered the workflow)

Years later, according to what Dr. Salah Abdel-Razzaq, when he was a member of the Council of Ministers, said that he visited Al-Qashla in July 2008 (the Al-Qashla, that Baghdadi heritage, had become plundered by neglect and waste until some of its historical parts almost fell, and the jungles of plants and trees, some of which were dry, filled the scene and the remains of Previous construction works are piled up in the corners of a place, and the clock has stopped working for years, its hands have broken, and dirt has piled up on its bells. (Al Qishla, Baghdad Cultural Lighthouse (1-2) | Nakhla News Agency (nna.iq))

It was decided to include the rehabilitation of Al-Qashla in the Baghdad governorate plan for the year 2012, and the matter was presented to Minister Dr. Liwa Sumaisem, who welcomed the project financed by the governorate. Indeed, they started work under the supervision of the Antiquities Conservation Department headed by Eng. Dhafer Al-Tamimi. Figure () shows the images before rehabilitation.

Opening of Qishla on March 22, 2013

With the ticking of the Qishla clock at eleven in the morning, the opening ceremony of this heritage monument began with the presence of official and popular, intellectual and political figures and the media, and the symphonic band played the national anthem in addition to musical pieces from the Iraqi heritage. The military musical choir also participated in the celebration ceremony, which brought great joy. The stage of the ceremony was set up in front of the clock tower so that the audience could watch the clock during the ceremony. Figure () Pictures after qualification and at the opening

Documentation

5.1 Graphic documentations

5.1.1methodology

The site study and measurements in buildings are done at the site, between dates 18 September 2020 -12 May 2021.

the buildings and the surrounding area are documented with using optic, electronic devices and other traditional measuring elements.

Before the measurement studies, sketch drawings of plans are prepared, for façade and section measurements photographs are taken that cover whole surfaces.

The collected data during survey study is transferred to these sketches and photographs, afterwards they are proceeded in digital media.

. Documentation drawings are created in digital media by using AutoCAD, Work-sharing Monitor for Autodesk Revit 2018, Re Cap and Cloud Compare.

Plans, Facades and Sections are measured by using laser scanner X 300 device[1]. In places where optic and electronic devices cannot be used, the measurements are done using simple tools (laser meter) In addition to these the site and the surrounding area is documented photographically using Nikon 5300 digital camera.

*The buildings are measured like as follows: all exterior elevation for qushla and saray, spaces of ground floor of qushla, (F1, F2, F3, F5) from first floor of qushla, saray gate (the dome) , interior courtyard of saray building measured by laser scanner technique fig(?) showing those spaces with red color

the interior spaces of saray building (GROUND FLOOR G1, G2, G3, G4, G5, G7, G8) (FIRST FLOOR F1, F2, F3-A, F3-B, F8) measured by traditional technique (laser meter) the spaces in green color fig(?)

the spaces of southern wing of first floor of Qushla, (G6 wing, G3- C,D,E,F, G5, G6,G7) colored with yellow fig () refer to the spaces could not be measured

After this all the measured points cloud are evaluated with digital laser scanner technique by using cloud compare and recap program. By using this measurement from points cloud and scaled photography, the site plan and the buildings model are created in digital media by using RIVIT and AutoCAD. In the 1/200, 1/100,1/50 and 1/20 sealed drawings.

fig () shows some pictures for the spaces in qushla and saray building which is documented by laser scanner technique (point cloud)

[1] Laser scanning is a state-of-the-art technique with far-reaching potential. Current laser-based geomatic technologies and methodologies for the conservation of cultural heritage provide very realistic 3D results. The rapid acquisition of a large number of point clouds in 3D by laser techniques opens up the world capacity to conserve and restore damaged artifacts supported by using 3D printing to replicate the objects (Duca et al., 2015).

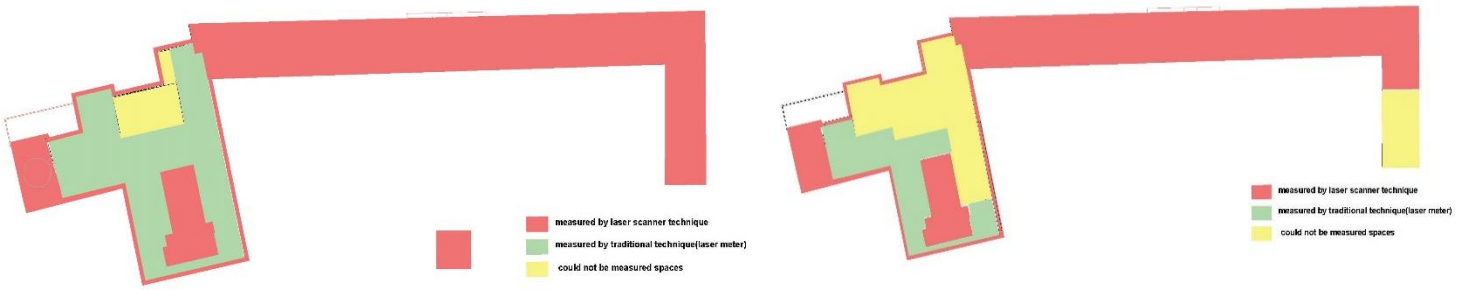
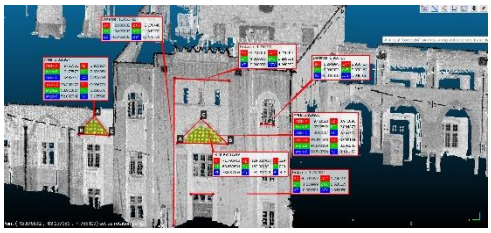
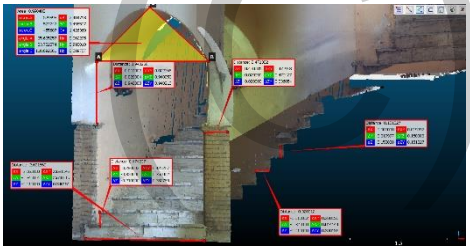


Fig ground and first floor of Qushla and saray building shows measurement technique

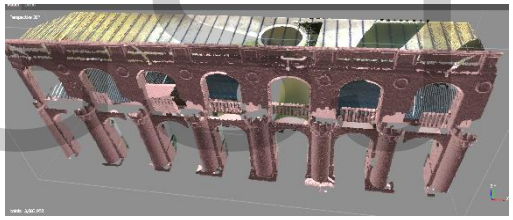
laser scanner device



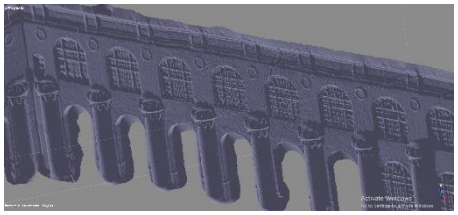
3D points cloud for exterior facade



3D points cloud for the staircase

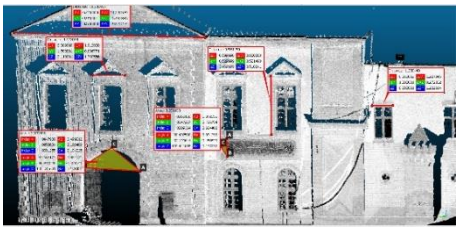


3D points cloud for interior facade E



3D points cloud for interior facade S

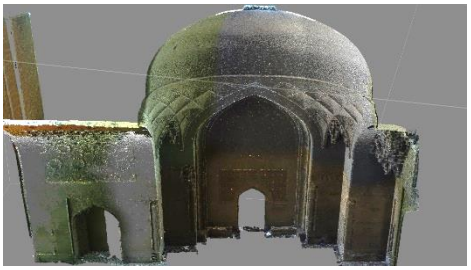
3D points cloud for space G1



3D points cloud for exterior facade E

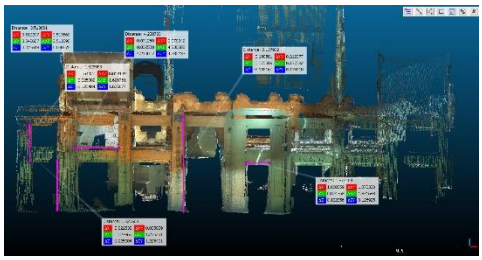
3D points cloud for space G2

Fig () output of laser scanner survey as 3D points cloud

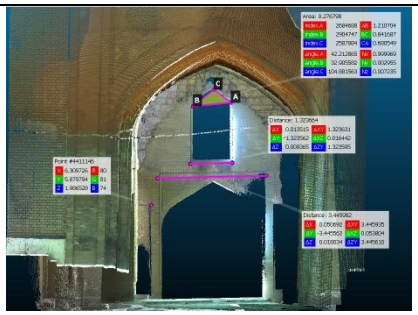


3D points cloud for saray gate

3D wireframe Model for saray gate

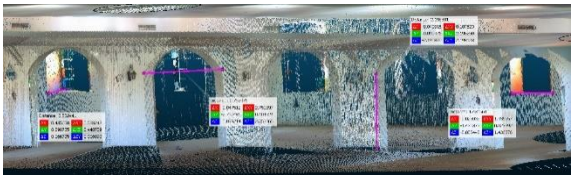


3D points cloud for interior facade

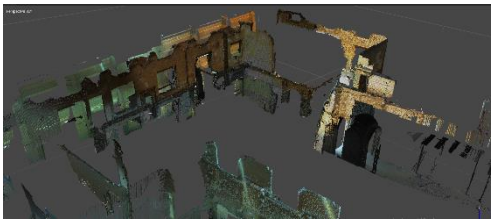


3D points cloud for interior facade

3D points cloud for the watch tower

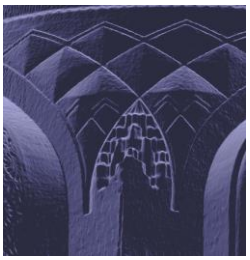


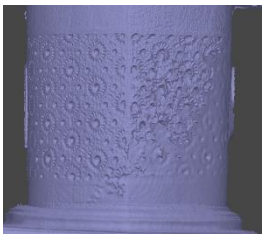
3D points cloud for interior facade



3D points cloud for courtyard of saray

3D points cloud for space





3D points cloud for details of saray dome

Fig () output of laser scanner survey as 3D points cloud

5.1.1 Laser Scanning Technique

Over the last few years, the scientific community has noticed an increasing interest in cultural heritage field due to the rapid development in digital techniques such as laser scanning (LS) (Cowley, 2016). The idea of gathering heritage information by laser on the site does not only apply to its history but also includes its features of position, shape, and geometry, which give pace to end-users. The field of cultural heritage in geomatic science benefits from

integrated approaches to techniques and diverse technologies. Every cultural site is a case in itself, with its characteristics, problems, and specificity. Current LS techniques provide an opportunity to develop new methods of representing and visualizing cultural sites, with a view to a better metric description. These techniques are tools for site analysis and support the restoration and repair activities process (Vacca et al., 2012). The new technologies of collecting 3D data have been produced by 3D laser scanning which overcomes the conventional measuring techniques and utilizes efficient, non-contact methods of measuring to gain a huge amount of 3D data. Surface scans can be conducted for all visible objects and are not restricted by day or night. The actual spatial details can be quickly turned into 3D data. Further, the accuracy and speed of data acquisition have been enhanced with the advent of LS (Zhao et al., 2018).

Survey drawings

Aforementioned1/200, 1/ 100, 1/50 and 1 / 20 scaled drawings are prepared with the collected data in site and Qushla building.

So, the digital drawings are created by using rivet program.

In this Respect 1/ 200 scale Site plan 1/100.Scale ground, first floor and roof plans are prepared. Three sections for all spaces of building produced at1/ 100 scale That pass in north- South and east -West direction from space is 1/ 100 scale elevation drawings and 1/20 details drawing are produced.

3D model is grated according to produced drawing. In order to understand the construction and represent the space relations in three dimensions schematically every detail is not determined on model. Such as deformations break out, et cetera, the model is greeted by using rivet program.

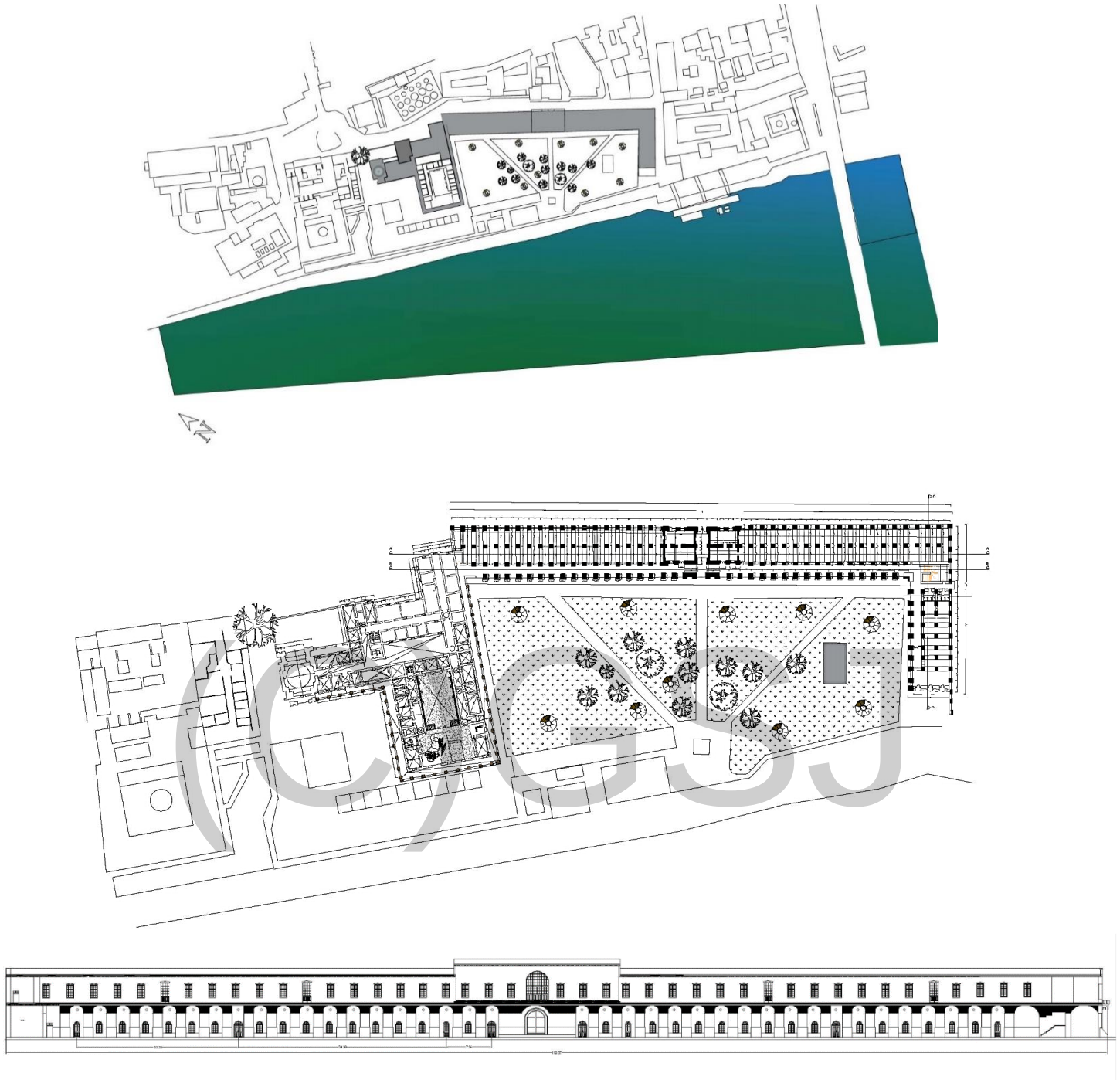


Figure 25 eastern wing section. AutoCAD drawings by author

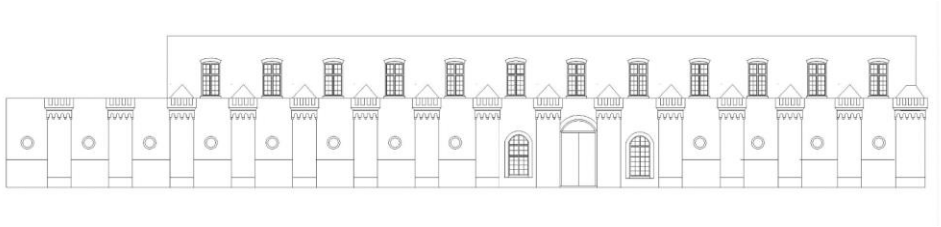


Figure 26 Southern wing facade. AutoCAD drawings by author

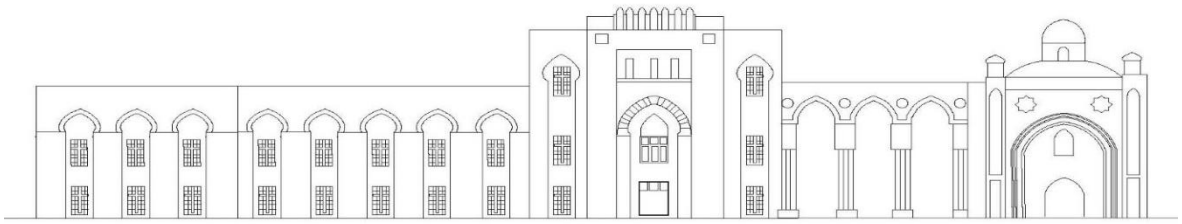


Figure 28 Southern wing interior facade. AutoCAD drawings by author

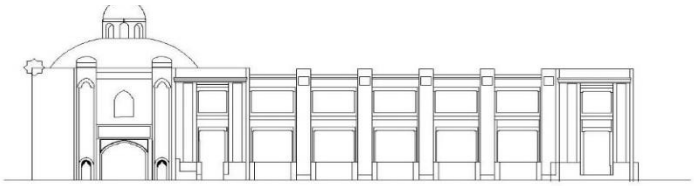


Figure 28 Southern wing interior facade. AutoCAD drawings by

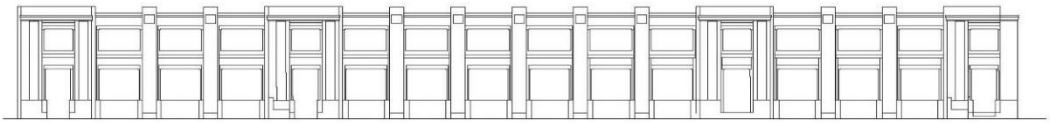
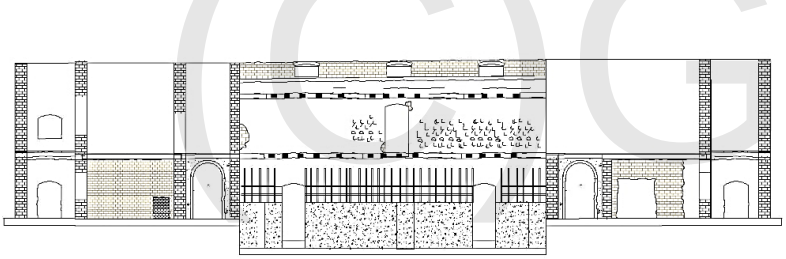
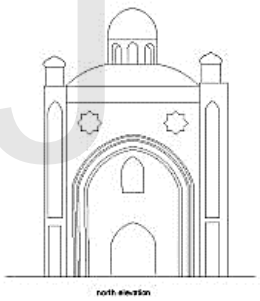


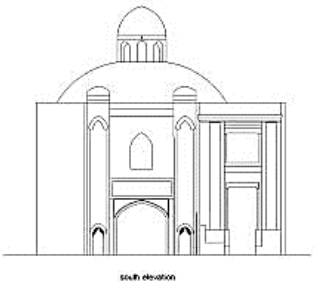
Figure 28 Southern wing interior facade. AutoCAD drawings by author

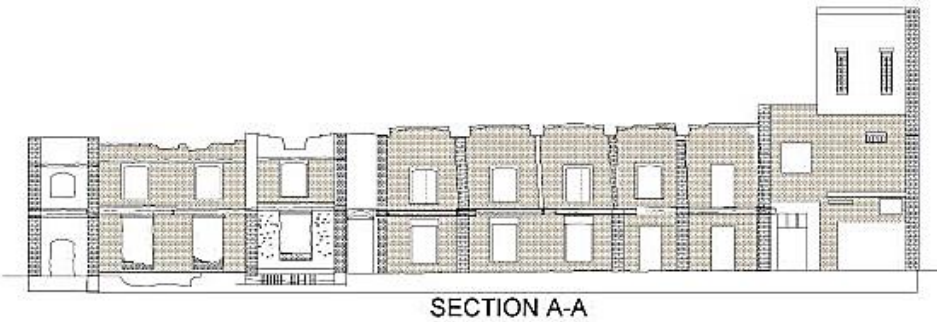


SECTION C-C

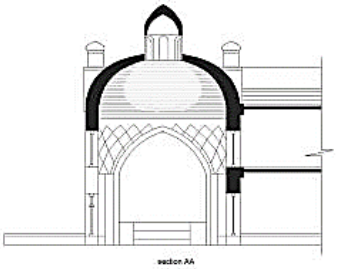


SECTION D-D

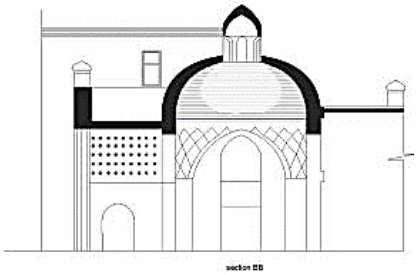




SECTION A-A



SECTION B-B



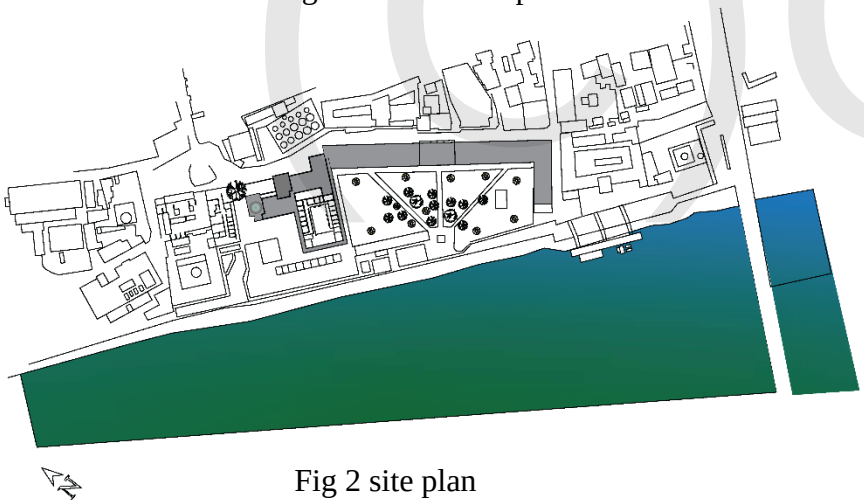
GROUND FLOOR SPACS G1		Distribution
 Fig 1 land use site plan  Fig 2 site plan	Along a distance of about one kilometer on the eastern bank of the Tigris River, a complex extends that includes five main heritage buildings known as the Baghdad Saray buildings, which included a political history of Iraq in the nineteenth century. The oldest and largest of these buildings is the old Qishla building, which is located opposite the Saray Mosque, next to the libraries market. This building was used by his Excellency as a barracks Soldiers have time to camp and not leave the war in the winter The construction was started in 1860 AD during the reign of Governor Namik Pasha, and the second floor was added during the reign of Governor Medhat Pasha.	 Fig 3 south view from the Shuhdaa bridge  Fig 4 north and east view (B)  Fig 5 the river view (C)

Table 1- Deformation for Close Environment

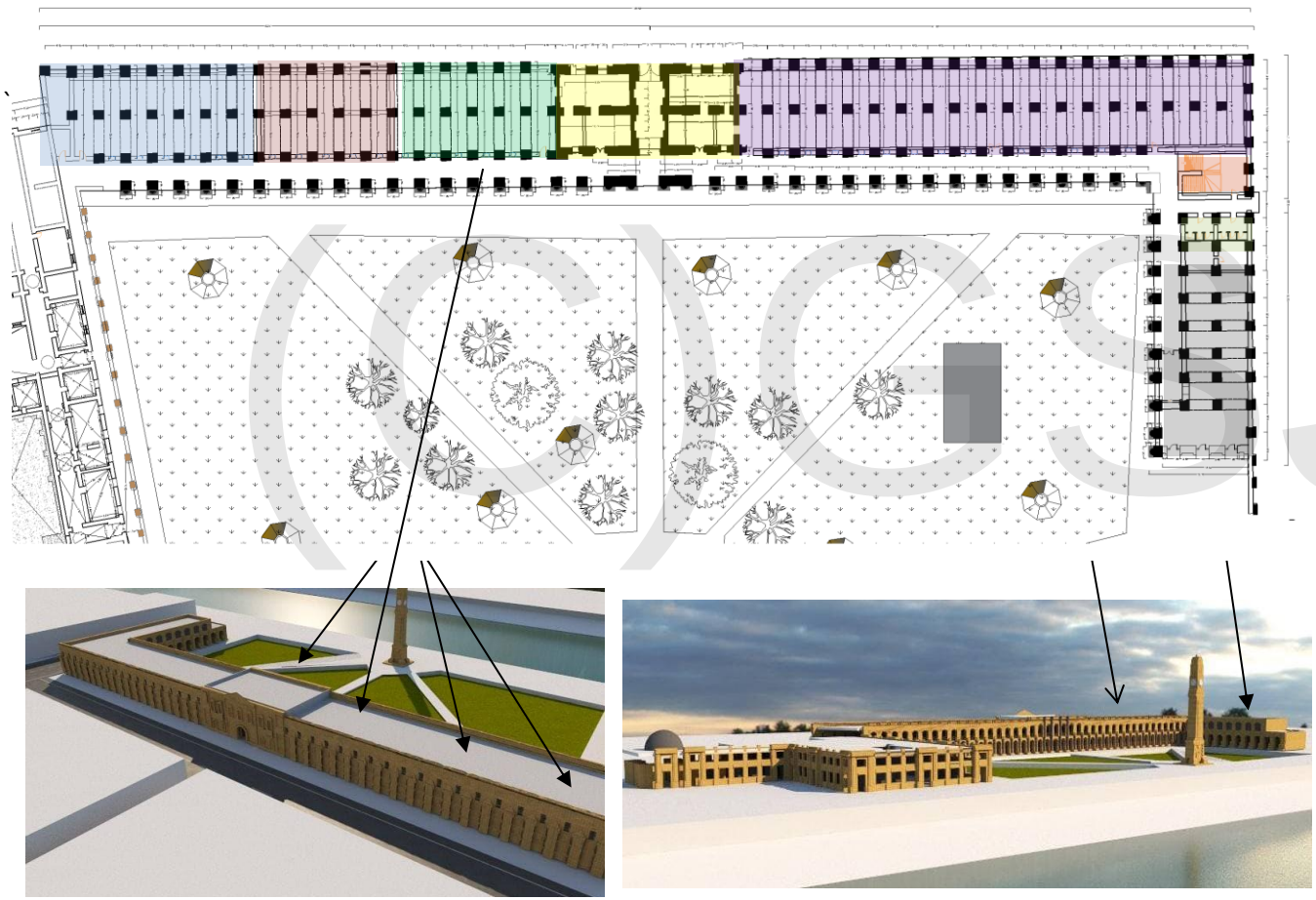
GROUND FLOOR SPACS	Distribution
	**Space G1 main entrance** **Space G2 (The Cultural Heritage Museum in Al Qishla** **Space G3 IRAQI journalist's syndicate** **Space G4 (The book store)** **Space G5 (the** **Space G6 (the library)** **Space G7 (WC)** **Space G8 (staircase)**

Table 2- GROUND FLOOR SPACS

GROUND FLOOR SPACS G1	SPACE G1-A	Distribution

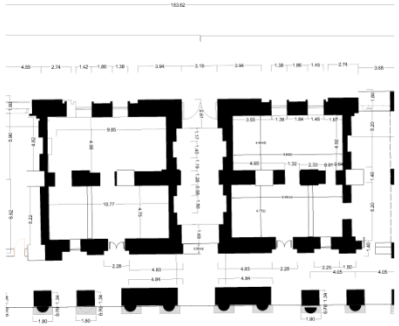


Fig 6 plan

Fig 7 elevation

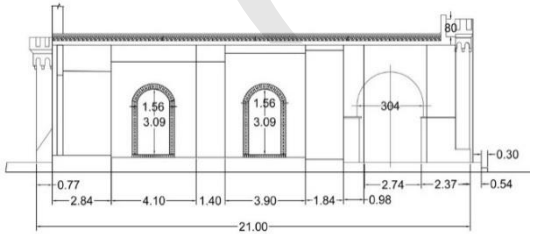


Fig 8 section

Location: The entrance is space and is directed towards the eastern side of the building
Size: The space is roughly rectangular with size (30M) (15M)
The space has an approximate height (4.5) and it starts to rise gradually to reach a high (4.7) Start with the arched of the gate end with the arch overlooked the inner courtyard.
The entrance goes down from the main street three Steps(0.35)
The entrance half door with two shutters decorated with Iron nails arranged in a beautiful geometric shape.
To the right of the entrance and within its mass there is a space with two rectangle windows topped by a semi-circle arch overlooking to the street and from rectangular window and door with two shutters overlooking to the courtyard through the Riwaq On the left, also the same space that means the entrance mass is symmetric.
Finishing
1-The door from Wood and Iron nail
2- Walls and arches from break finished with plaster.
3- The ground finished with mozaic tiles.

Windows: the number of windows in the entrance spaces are three windows in the left and right spaces two looking over the street one looking over the Riwaq with size 1.6*1.1m and semicircle above with size 0.5m.
Doors: there are five doors in entrance spaces, the main gate with size (3.5) m (3.8) m and two doors for the left and right spaces have two shutters with size (2.1m), (2.00m) and two doors inside the spaces with size

The part of entrance in Riwaq has an arched roof rests on four pillars two stuck to the wall and two pillars are free.
The arch roof finished with Fair face break Stucco decoration, we can see also two Lantern and two ceiling lamps on the antique characters.
Structural problems: there is above the window air-conditioning device for cooling and heating and artificial lightening on walls and other lanterns hanging from the ceiling.
Also swelling in the ground in some part of spaces

Fig 1 the main entrance facade

Fig 2 inner view for the gate

Fig 3 ceiling of the entrance

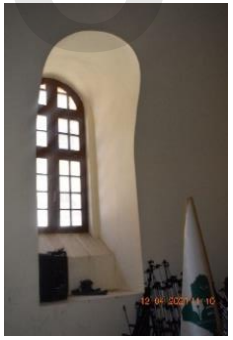
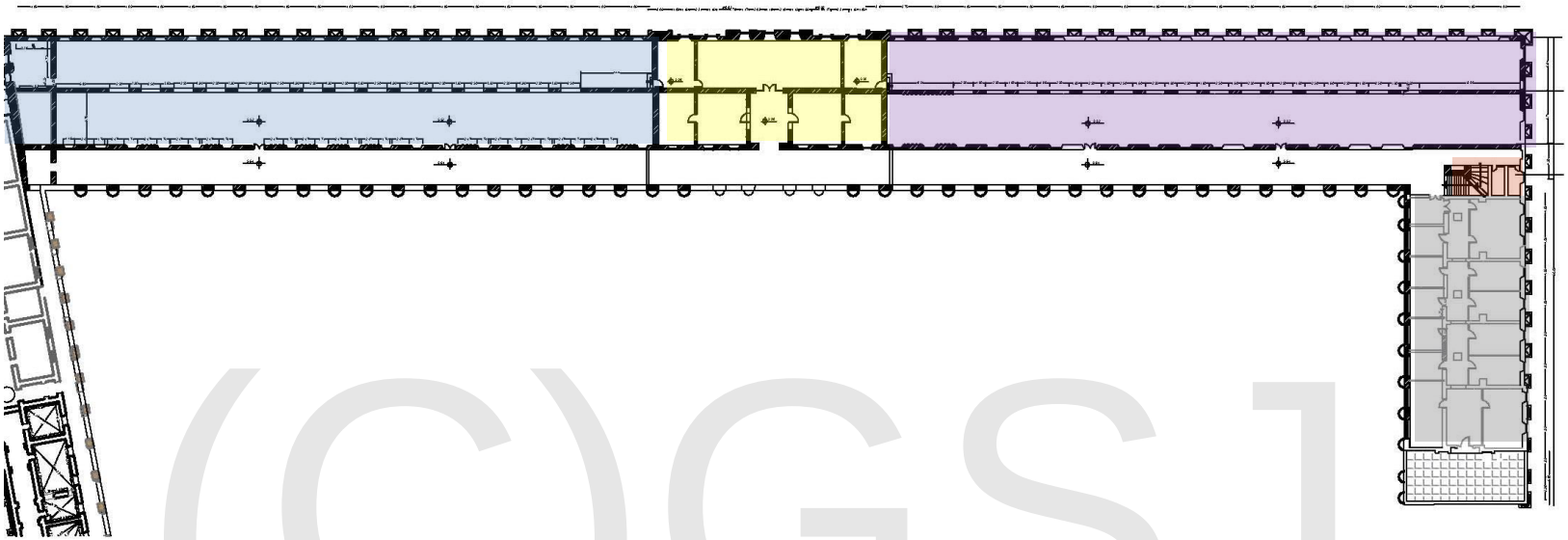


Fig 4 window shape

Fig 5 inner door

FIRST FLOOR SPACS



Space F1 The main entrance of first floor

Space F2 The gallery of martyrs holding

Space F3 empty space

Space F4 unmeasured wing (the Administration)

Space F5 the stair case

Watch Tower

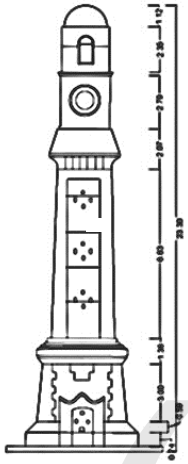


Fig 1 Elevation of watch tower

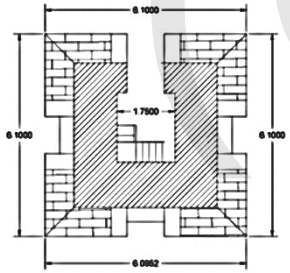


Fig 2 Plan of watch tower

Location: the watch tower take place in the middle of inner courtyard inside Qushla building front of the main entrance on one axis.

Size: The watch tower roughly squer with size 6.10m *6.10m and high 23 m.
The structure of the tower is bearing walls on all side inside there is small space with size 1.7 m*1.7m fig9

Finishing
1-the body of the watch from fair face brick size of brick peace 0.24m* 11.5m*0.8m
2- the circle watch from metal fig 4 also the direction axis fig6 .
3- the door from timber fig 5
Windows: the number of windows in the tower is 4 windows opened to the courtyard with size 1.68m*0.96 m

Doors: this space of the tower have one door from the eastern side with one shutter with size 2.4m *1.5 and around the door there is a frame wavy from the top fig 5

CO Structural problems: there is no structural problem appear because the tower was restored in 2012 in rehabilitation of qushla fig 8

Fig 9 The iron stair of the watch tower

Fig 8 The restoration of the watch tower in 2012

Fig 3 Laser scanner model

Fig 4 Qushla watch tower

Fig 5 the door of the watch space

Fig 6 the watch tower

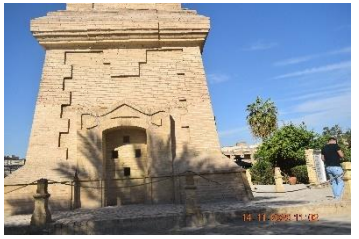


Fig 7 the other side of the tower

The staircase G5

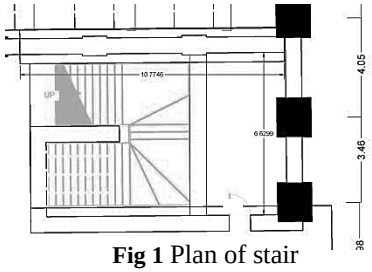


Fig 1 Plan of stair

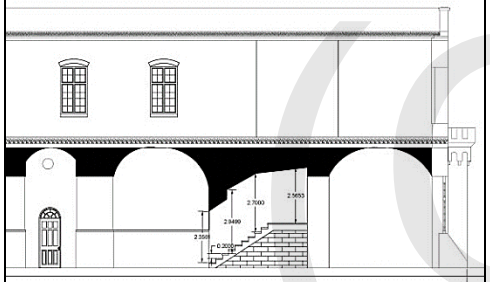


Fig 2 Elevation of watch tower

Location: The staircase take place in the right side from the main gate in the ground floor in the end of the Riwaq

Size: The space of the stair rectangular with size 6.6m *7m and the width of the flat is 2.5m * 0.3m with raise 0.18 m and behind the stair there is a space with size 6.6m *3.2m.

The structure of the stair is bearing walls on two side and arched roofs.

Finishing
1-The flat and raise from marble
2- Walls finished with plaster.
.the structural problem is limited to loos of plaster in some part.

Fig 5 Qushla watch tower

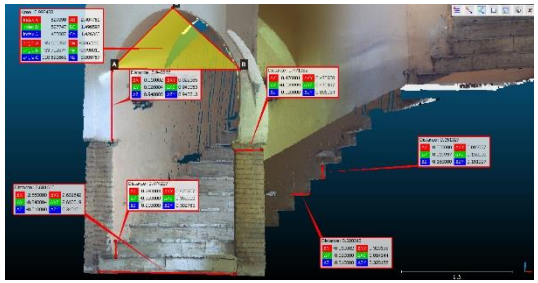


Fig 4 Laser scanner model

WC G6

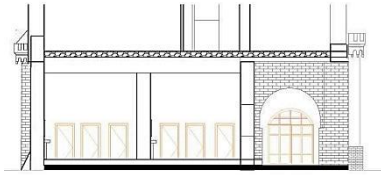


Fig 1 the door of the watch space

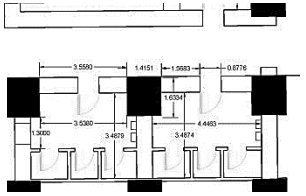


Fig 2 the watch tower

Fig 3 the watch tower

Location: This is space take place in the left side from the southern gate in the ground floor.

Size: The space is rectangular with size 4.10m *3.5m and high 4 m with arched roof and there are two WC for man and for women each one has 3 space.
The structure of space is columns 160m*140m from two sides with arched roof.
The annex space with size 5.2m 3.4m 6.1m

Finishing
1-The door from timber
2- Walls finished with plaster In the high half.
2- Walls finished with fair face brick in the lower half.

Saray plan

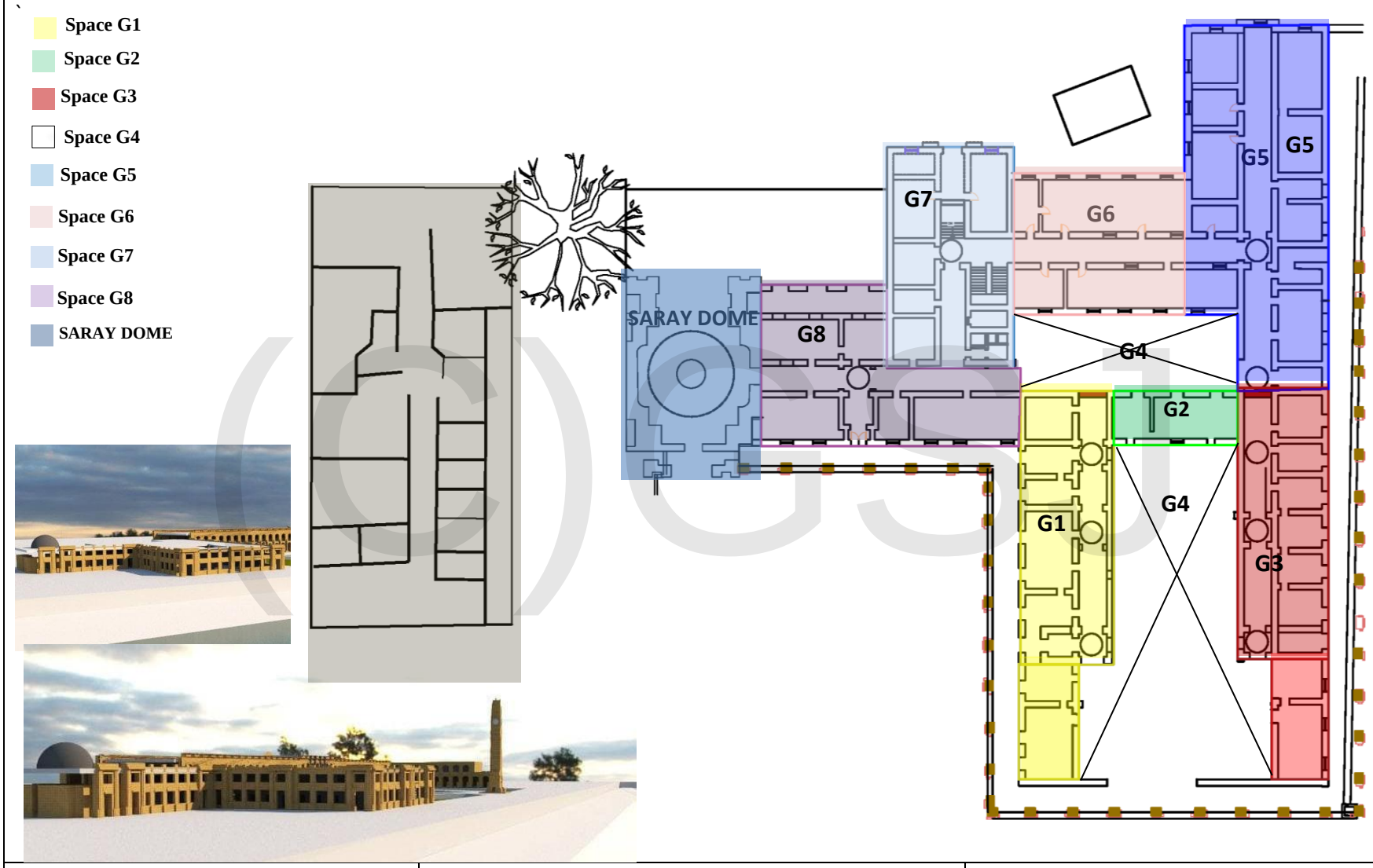


Table 17- FIRIST FLOOR SPACS

GROUND FLOOR SPACS G 1	SPACE G1-A	Distribution

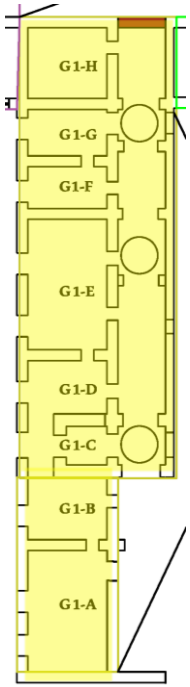


Fig 1 G1 wing

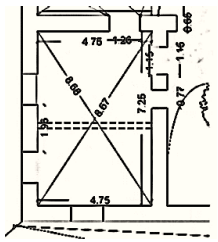


Fig 2 G1-A

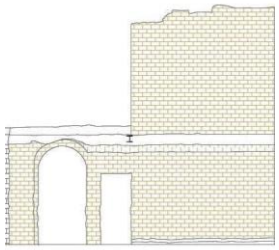
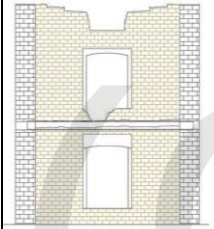


Fig 3 east side



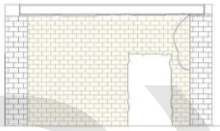


Fig 5 north side

Fig 4

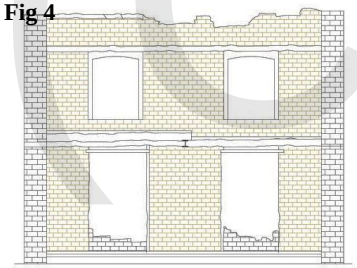


Fig 6 west side

Location: This space is considered the first space of the G1 wing, symbolized by G1-A, and it is located on the left side of the Serail building (formerly the Council of Ministers).

Size: The space is approximately rectangular in shape, with dimensions of 7.25 m * 4.75 m, with a height of approximately 3.00 m. There is difficulty in determining the exact height due to the demolished floor and ceiling and the presence of a lot of waste that rises on the walls.

windows:

The number of windows in the space is two on the western side, as in Figure 5, with a height of about 2.4 m * 1.68

The window lacks the wooden structure and glass, and the shape of the outside frame is somewhat irregular due to the loss of some bricks (constructive material) and the presence of some bricks inside the window, which is believed to be part of the window.

The third window is on the southern side, with a height of 2.40 m * 1.60 m, and all the windows have their side ribs tilted outward at an angle

doors: There is a small door on the eastern side, 2.10 m * 0.95 m high, and next to it is an arch-shaped gate, 2.96 m high, surrounded by a brick frame.

And the third door appears in the northern side between this space and the space G1-B in the form of an opening that loses dimensions due to a change in its shape due to the loss of some structural material (bricks) in its frame and its current dimensions are approximately 1.20 m * 2.30 m

There is an iron I section in the middle of the ceiling in the space

Structural problems:

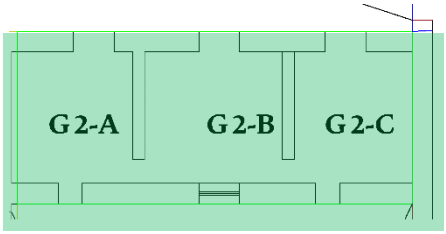
1- The ceiling is completely destroyed, except a small part of the southwestern part

2- The finishing material is completely missing in this space, and from some traces it appears that it is plaster and white paint, and the building material appears, which is bricks that suffer from corrosion on the surface due to weather factors and the obsolescence of time and neglect.

3- Loss of finish material for floor

4- The absence of any trace of electrical installations and services

GROUND FLOOR SPACS G2	SPACE G2-A	



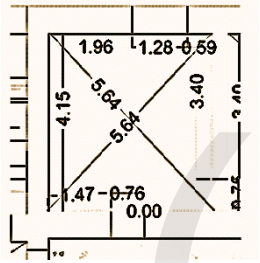


Fig 1 G1-C

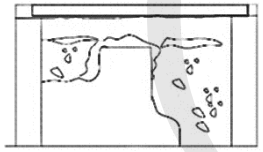


Fig 2

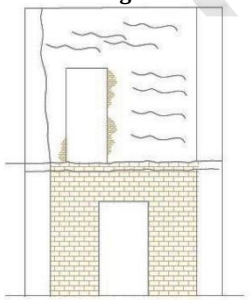


Fig 3

Fig 4

Fig 5

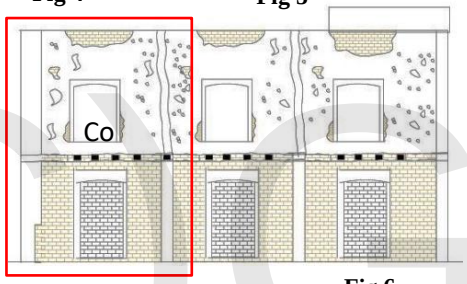


Fig 6

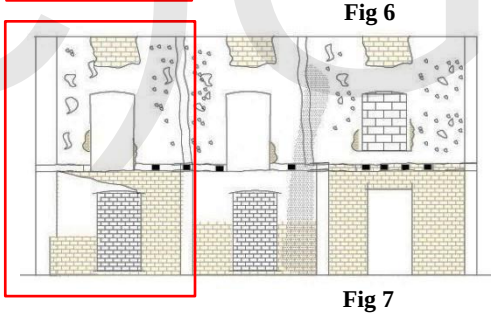


Fig 7

Location: This space is considered the first space of the G2 wing, symbolized by G2-A, and it is located on the middle part of the Seray building (formerly the Council of Ministers).

Size: The space is approximately rectangular in shape, with dimensions of 3.80 m * 4.15 m, with a height of approximately 3.00 m.

windows:

The number of windows in the space is one on the northern side, as in Figure 5, with a height of about 2.4 m * 1.68

The window was closed by bricks wall

doors: There are one door one in the southern side, 2.10 m * 1.00 m size, and the other one in the eastern side it was lose it shape because demolished half of it and distort the other part this door open to the adjacent space G2B.

Structural problems:

1- The ceiling is completely destroyed.

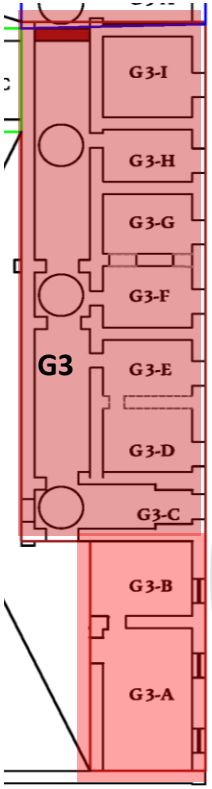
2- The finishing material is completely missing in this space except some small parts, and the construction material appears, which is bricks that suffer from corrosion on the surface due to weather factors and the obsolescence of time and neglect.

3- Loss of finishing material for floor it is just concrete slab

4- The absence of any trace of electrical installations and services

5- the eastern wall was demolished partially

ROUND FLOOR SPACS G3	SPACE G3-A	



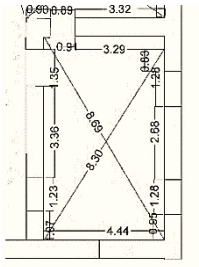


Fig 2

Fig 3

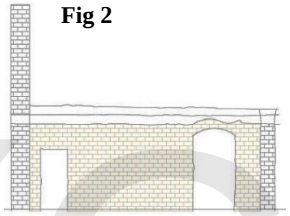


Fig 4 west side

Fig 5

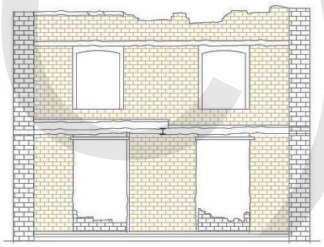


Fig 6 east side

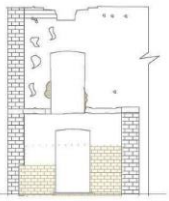


Fig 7 north side

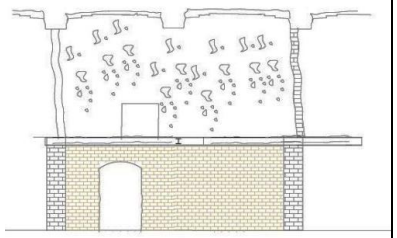


Fig 8 south side

Location: This space is considered the first space of the G3 wing, symbolized by G3-A, and it is located on the right side of the Seray building (formerly the Council of Ministers).

Size: The space is approximately rectangular in shape, with dimensions of 7.6 m * 4.44 m, with a height of approximately 3.00 m.

windows:
The number of windows in the space are two on the western side, as in Figure 5, with a size of about 2.4 m * 1.68m, windows don't have timber frame and glass, the third one in the southern wall with size 2.4 m * 1.68m.
doors: There are two doors in this space one in the eastern side, 2.10 m * 1.2 m size open to the courtyard, the second one in the same wall but smaller than the first about 1.84m Hight*1.25m width these doors previously connect the space with currently demolished spaces

- this space rises about 0.8m from the level of other spaces

Structural problems:
1- The ceiling was completely destroyed, except small part of ceiling in western part, also there is I section beam in the middle of the space extends from the western wall to the eastern wall
2- The finishing material is completely missing in this space except some small parts, and the construction material appears, which is bricks that suffer from corrosion on the surface due to weather factors and the obsolescence of time and neglect, the finishing material is plaster and white paint.
3- Loss of finishing material for floor it is just concrete slab
4- The absence of any trace of electrical installations and services

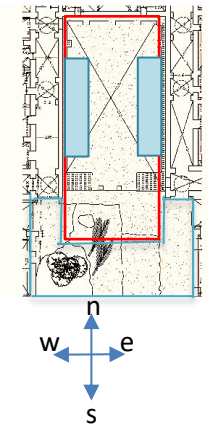
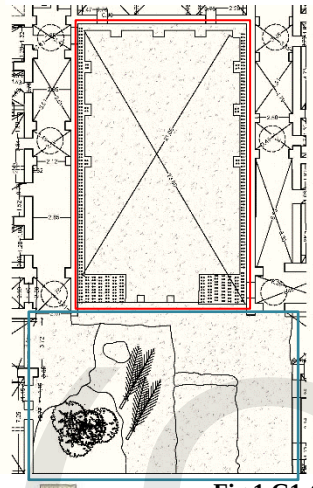
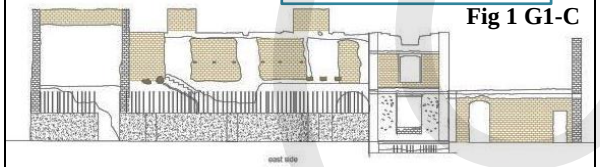
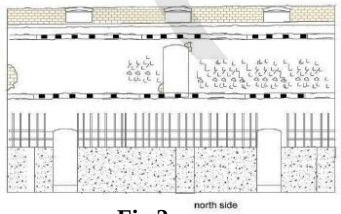
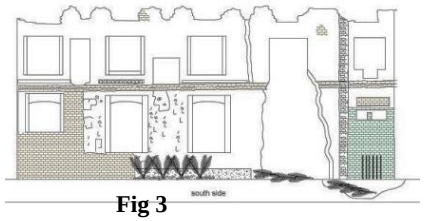
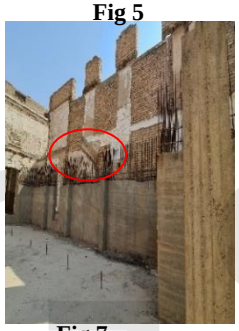
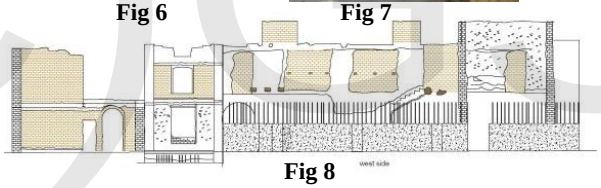
ROUND FLOOR SPACS G4	SPACE G4-A	
 virtual directions for explain  **Fig 1 G1-C**   **Fig 2**  **Fig 3**	 **Fig 4**  **Fig 5**  **Fig 6**  **Fig 7**  **Fig 8** Location: this is the middle courtyard of the saray building, it is the first space of G4 spaces symbolized by G4-A and it is located on the center of the Seray building (formerly the Council of Ministers) the shape border of the courtyard is the red line in fig 1 but the green line the demolished spaces which is become part of the courtyard. Size: the courtyard can be divided to two rectangular shapes, rectangle extending from north to south (red)and another from east to west (green)to give approx. dimensions for the courtyard fig 2, all details of the courtyard documented by laser scanner device.	windows: The number of windows in the courtyard are 5windows for the ground floor ,5 windows for first floor in the northern side where it belong to spaces where demolished, as in Figure 6, windows don't have timber frame and glass and the shape of the outside frame is somewhat irregular due to the loss of some bricks (constructive material). doors: There are six doors open to this courtyard, first and second doors in the eastern side which is the doors of space G3-A, from the eastern side also two doors belong to space G1-A, two doors in the northern side belong to spaces G2-Aand G2-C. all size of door in explanation of the previous spaces Structural problems: 1-northen side: a-there was demolished wall front of the exist one. b- uncompleted reinforced concrete wall built front of the original wall c- the door in this wall without timber frame d- the finishing material plaster and white paint was worn out by weather 2- southern side: a-this wall is belonged to the demolished spaces for that we can observe different material as plaster and white paint, and ceramic tiles for service spaces with green color fig 8. 3- eastern side: a- uncompleted reinforced concrete wall built front of the original wall b-there a trace of the demolished stair fig 7. c- can observe space G3-A, G3-B with this side the problems with table of these spaces. 4- western side: a- uncompleted reinforced concrete wall built front of the original wall. b- can observe space G1-A, G1-B with this side the problems with table of these spaces. 5-the ground of the courtyard have different levels because of the reinforced concrete slap, the ground of the demolished Spaces ,excavations in ground in some parts of it

Table 33 SARAY BUILDING SPACES

EVALUATION AND CONCLUSION

evaluation of Qishla and saray building is made up to reveal out the current state of it, by documentation for the spaces and its restoration problems as tables.

also, the original drawings and photographs that are taken from (General Antiquates Authority) archives from these drawings we obtain detailed information about materials and some of the architectural elements the drawings of plans and details which is drew depend on comprehensive survey in 1987 to restore Qishla building it is very accurate and similar with the exist building

there is a few information about saray building because it was belonged to the government and occupies the council of ministries in the period of previous regime the important study did on this building is (the Italian study by the Italian institute of restoration) fig

Saray building

1- the building which is related with saray gate from the left side was demolished there is some traces of it. fig 2,4,6 the green circle

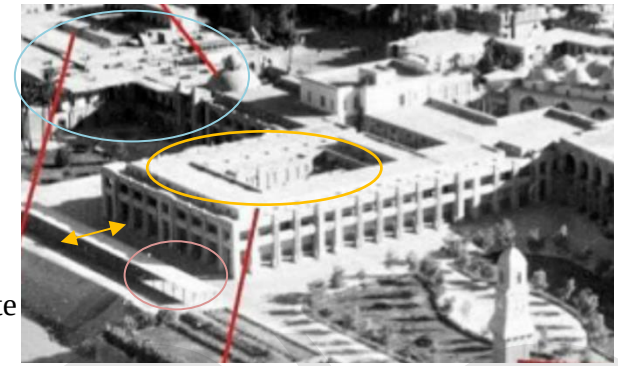


Fig 2 saray complex buildings in nineteenth century

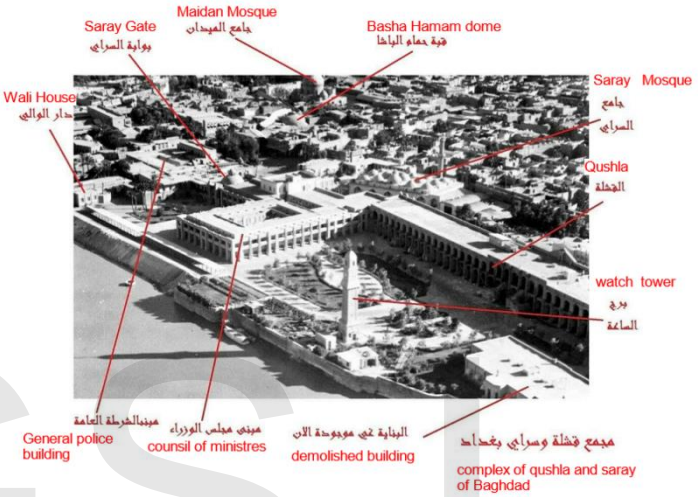


Fig 1 saray complex buildings in nineteenth century

2- There is no fence and gate between qushla and saray buildings it was continuing yard but now there is. fig 5 Pink circle

3- clear area for courtyard and trace of staircase but its demolished now fig 5 yellow circle

Fig 4

Fig 5

4- the distance between saray building and the bank of Tigris River is less than now fig 2,7 orange arrow

Fig 6

Fig 7

Fig 3 saray complex buildings recently (google earth)

Qishla building

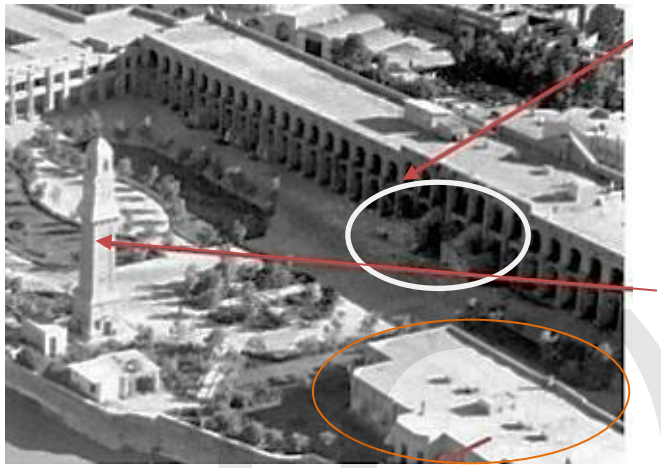


Fig 2 Qushla buildings in nineteenth century

Fig 5 the main stair in façade

Fig 6 watch tower of Qushla in fifteens of 20th century

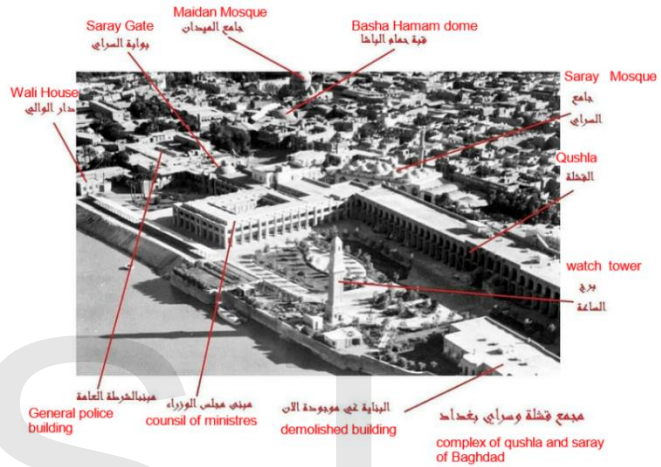


Fig 1 saray complex buildings in nineteenth century

1- The main stair in the inner eastern wing facade it was demolished fig 2, the white circle

2- there is building in the courtyard beside the watch tower it was demolished fig 2 orange circle

3- the layout of court yard has change also green spaces is different fig 2,3.

4- the building is occupied new in another function

5- the watch tower fig 6 is different in shape at the top from fig 4 because the tower in the Baghdad flood the upper part of it was lost and it was rebuilt differently

Fig 3 Qushla buildings

Fig 4 Qushla buildings in recently

Qushla and saray building ground floor plan

Changes at the level of the plan

1-One of the stairs in the main internal facade was removed after the restoration completely, and it is one of the most important features of the buildings of Qishla such as the Qishla of Kirkuk

2-except that all the internal partitions were removed and emptying the halls became large halls used for displaying

3- the windows on the ground floor with a width of 1. 25 m in the eastern and southern outer wall of the building, as well as removing them and blocking the openings and leaving a small circular opening

4- The southern part appears as a cafeteria in the form of a large hall. Cutting it into spaces showed the reality of the situation. A library was used and pieces of wood were placed.

5-There is no corridor in the southern part The southern corridor was created after the restoration of the building

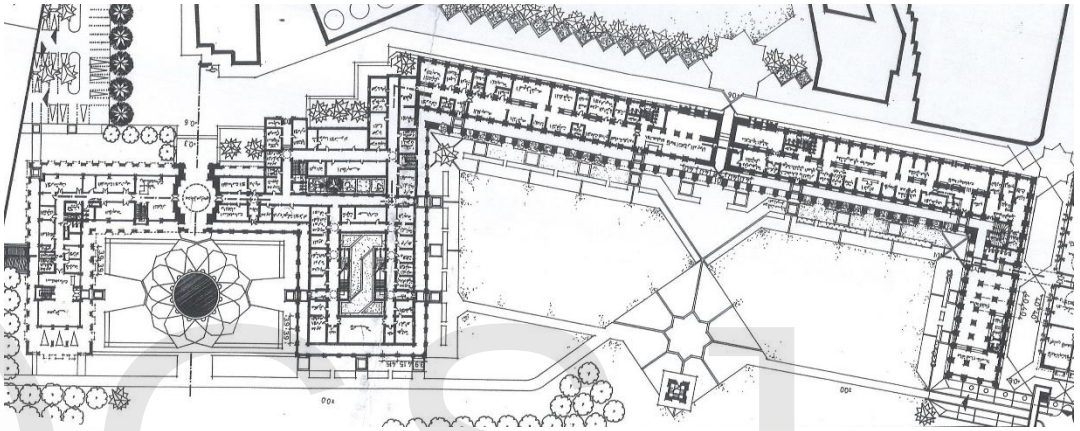


Fig 3 Qushla building ground plan
(ALhadithi thamer thesis)

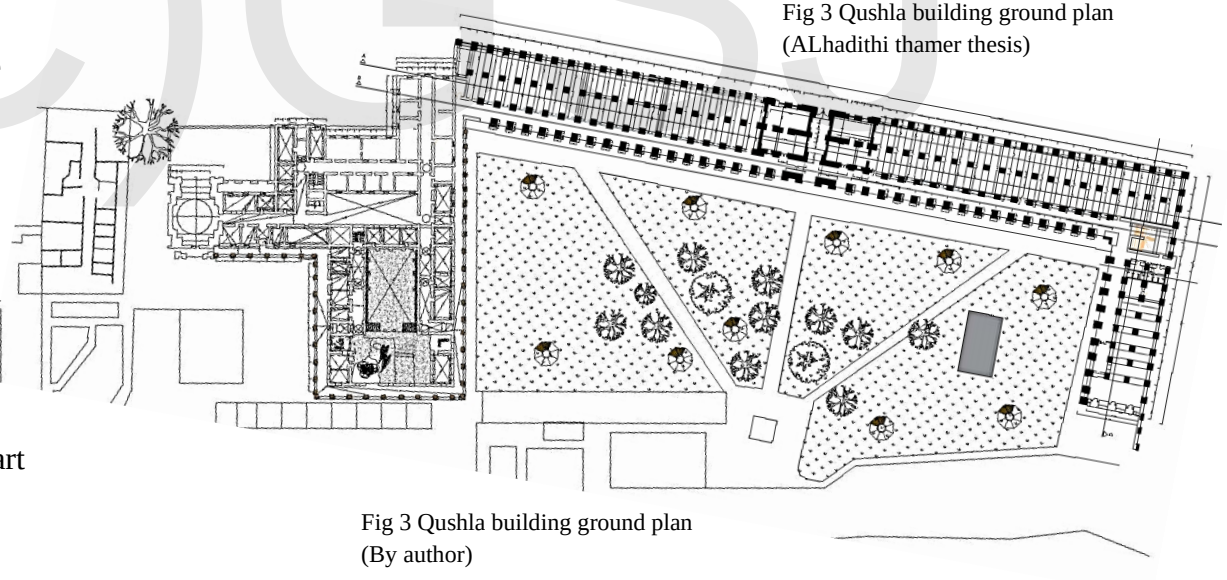


Fig 3 Qushla building ground plan
(By author)

Qushla and saray first floor plan

1- The spaces after restoration are different in shape where the inner partition was removed to create large halls can use it us exhibition (Qushla plan)
2- The southern wing (the shorter wing of Qushla) was different in partition shape it was one large space which is divide to offices by partition fig 3
3- (Saray plan) the important change is the courtyard Shape after demolishing the stair and some spaces
4- Lose the floor of some spaces in the first floor
5- Cannot reach all spaces of the first floor because the demolished floors and stairs

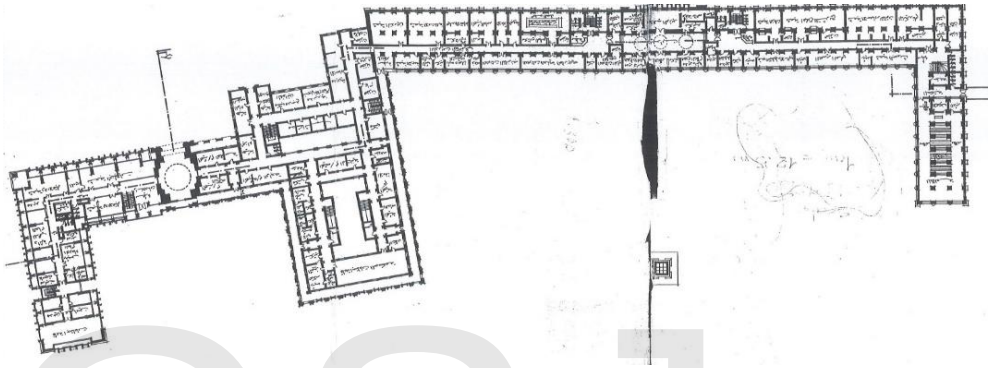


Fig 1 Qushla building first floor plan
(ALhadithi thamer thesis)

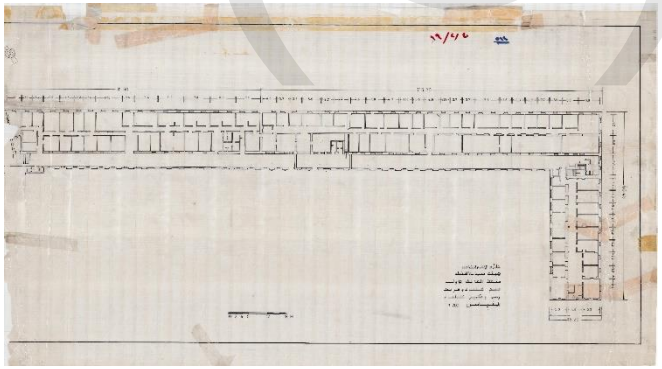


Fig 2 Qushla building first floor plan
(general authority antiquities)

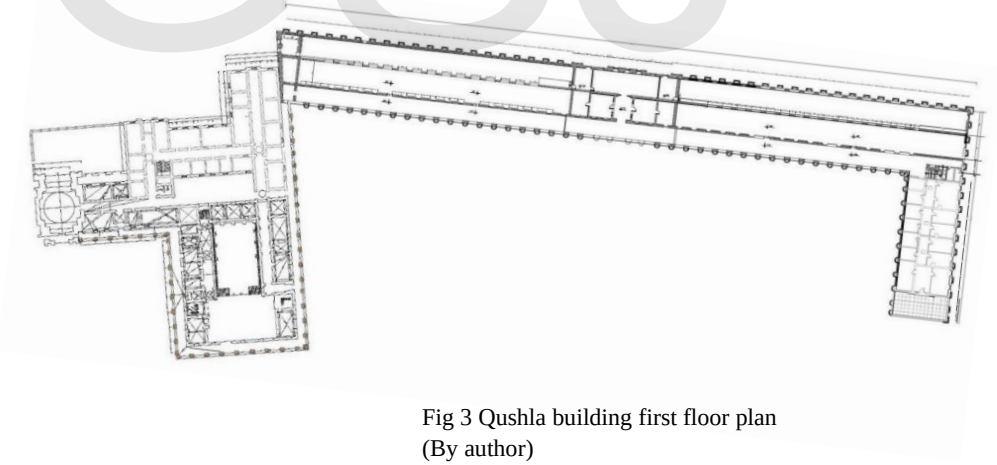


Fig 3 Qushla building first floor plan
(By author)

Qushla eastern façade

the eastern and southern facades.

The changes that occurred to the facade can be summarized:

1-Removing the sheds that cover the windows on the first-floor windows fig 1,2

2- Replacing the covering material (the bricks) for the ground floor of the two facades completely and painting the first-floor fig 3, 4

3- Closing the windows on the ground floor and opening small circular openings with a width of 50 cm, on the eastern and southern facades, but on the southern facade closed by bricks fig 5,6.

4-Lifting the electrical installations that were distorting the facade fig 3

5-The height of the street above the building level led to covering part of the pillars of the

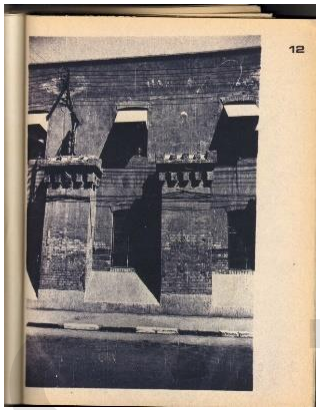


Fig 1 exterior columns
(General Authority of Antiquities)

Fig 2 exterior columns
(By Author)

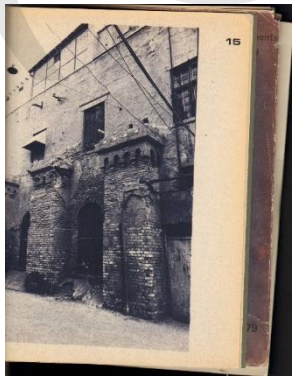


Fig 3 entrance in the southern façade
(General Authority of Antiquities)

Fig 4 entrance in the southern façade (by author)

Fig 5 eastern façade (by author)

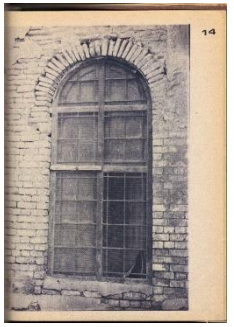


Fig 6 old style of window in the Exterior façade
(General Authority of Antiquities)

Qushla building Inner facades

Inner facade of the southern and eastern wing

1-Removing the walls and doors between the columns and creating a portico overlooking the inner courtyard, complementary to the facade Main porch

2-Lifting all the cooling ducts from the facade fig 2

3-Replacing the finishing material with bricks and the cornices with new packaging fig 1,4

4- demolishing the main stair in the entrance fig 1

Fig 1 inner eastern façade (by author)

Fig 2 inner southern façade
((General Authority of Antiquities)

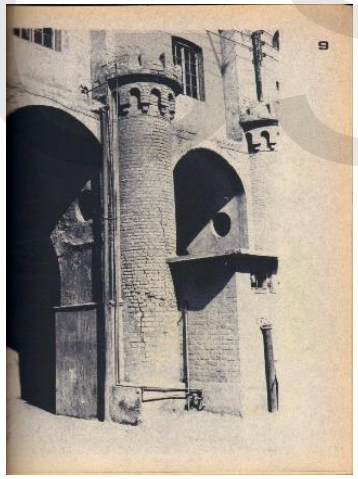


Fig 3 inner eastern façade
(General Authority of Antiquities)

Fig 4 inner southern façade (by author)

Saray building elevations

Fig 1 inner saray façade (by another)

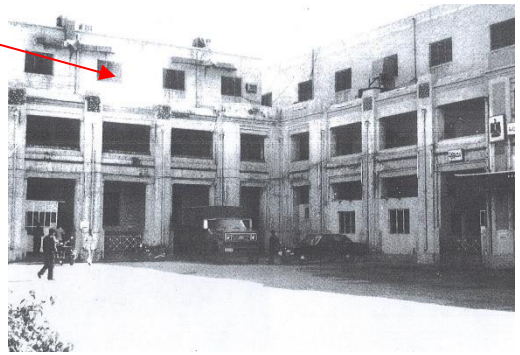


Fig 2 inner saray façade (General Authority of Antiquities)

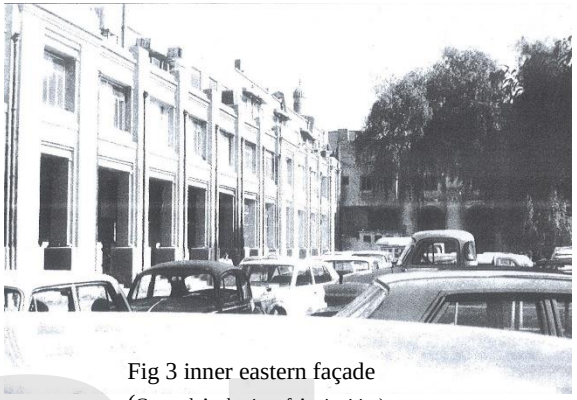


Fig 3 inner eastern façade (General Authority of Antiquities)

the southern and eastern interior facade For the Seray Building
1- removing the building between the column's fig 1,2
2- The second floor is currently completely demolished fig 1,2.
3- The finishing material has not been changed in the facades; the facades maintain their original external shape.
The northern facade (the saray facade overlooking to Qishla courtyard) fig 3
1-Removing the second floor, which was added in an emergency
2- Closing the openings on the ground floor between the columns and placing iron nets
3- The windows on the first and ground floor are mostly missing
4- Loss of parts of the external facade at the top of the curtain and some decorative tiles. fig 1

front of the Saray Gate
1- the staircase behind the arches that does not exist now fig 4
2- garden opposite the facade that did not exist previously fig 4

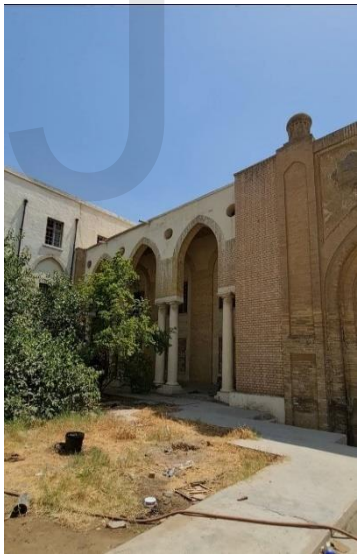


Fig 4 saray façade (by another)

Saray dome

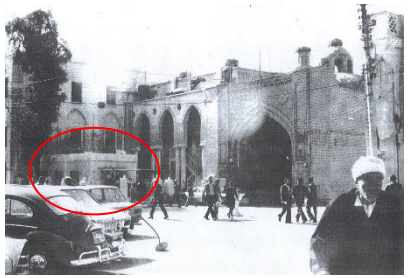


Fig 1 inner eastern façade (General Authority of Antiquities)

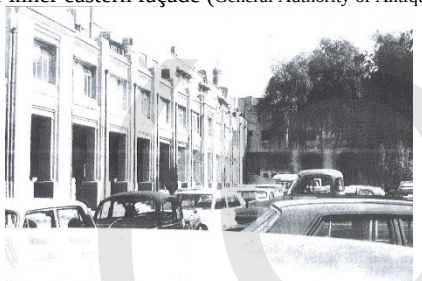


Fig 2 inner eastern façade (General Authority of Antiquities)

Fig 3 inner eastern façade (General Authority of Antiquities)

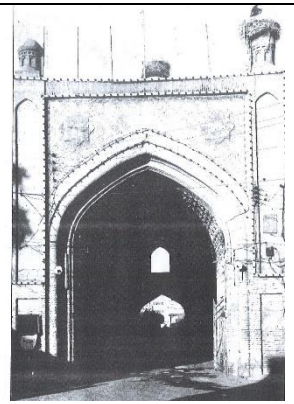


Fig 4 inner eastern façade (General Authority of Antiquities)

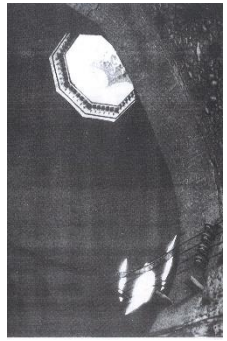


Fig 5 inner eastern façade (General Authority of Antiquities)

Saray Gate

1. There some changes in palace gate in outer bow grand entrance and form internal arc from other side
2- The existence drawer separate street from gate height 1.5 m from main street
while informer gate and main street in one level and can be accessed directly from street
3-There is a fence opposite the gate prevents entry to the gate previously there is direct entering from the street to the gate
4- a small building resembling a kiosk that was removed fig 1

Fig 6 saray façade (by another)

Fig 7 saray façade (by another)

Evaluation of Qishla building Spaces

Evaluation of Al-Qishla spaces

Most of the Qishla spaces are currently occupied in different jobs for each space

space G1 is the entrance and from table () it shows that the space is in good condition, except for some moisture in the walls.

The space G2 is the space of the traveling museum and it is a large hall. The construction problems are few due to the wrong use of the space in terms of coloring the windows and perforating the walls to fixed the air-conditioning devices.

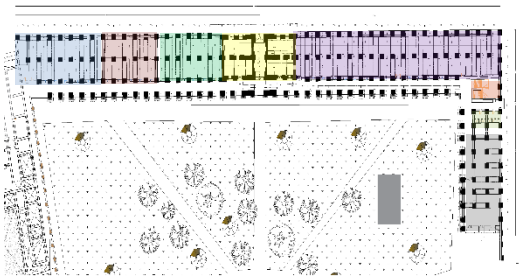


Fig 1 saray façade (by another)

space G3 is the space of the Iraqi Journalists Syndicate. This space as in table () a space that was recently restored, where everything in the space is new and there is no trace of moisture on the walls because of the new painting

space G4 that occupies a small store for books and the problems in this space are limited to perforating

G5 space the newspaper is the space that has the most structural problems, as moisture and salts appear on the walls, especially the space attached to it as in the table ()

As for the spaces in the table () it represents the end of the eastern side of the Qishla, where these spaces are neglected and were used as stores, which led to damages and what made the damage seep into the space of G5 newspaper and progress to the rest of the spaces unless it is employed and renovated

G6 space, the library space, the walls were covered with a material different from the spaces of Qishla, and this could harm the original walls of the space.

spaceG7(WC) A new material of ceramic tiles was used, as well as a lot of moisture and salts in the wall from the entrance side and under the window table

G8 is the staircase is in good condition except for some supplementary as handrails and peeling paint

F1 F2 F3 All of these spaces have been newly rehabilitated, so there are no problems, and there are few defects, such as coloring the glass in colors that do not suit the building or fixed objects on walls table().

Evaluation of saray building Spaces

Saray Spaces Evaluation

The common problems of the spaces of each wing will be explained together

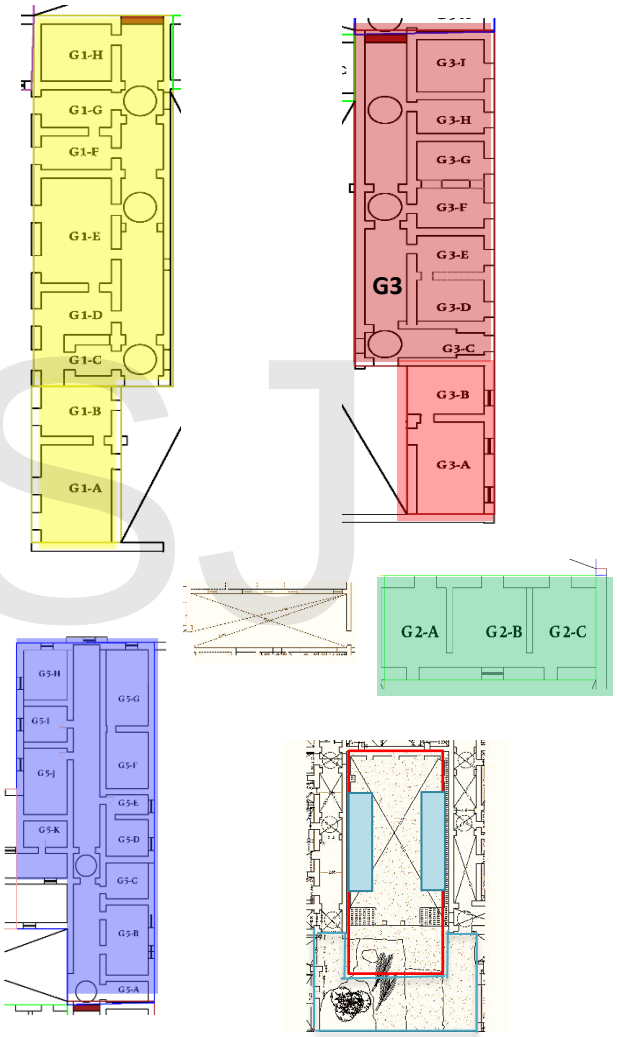
All spaces in G1 G2 G3-A, B suite have similar problems that can be summarized as follows:

1- Loss in the building structure (walls, ceilings, floors).
And the shape of window and door openings changed due to the loss of some building materials
2- Remains of construction materials such as I section beams with the loss of the roof that it was carrying.
3- Complete absence of any impact on electrical and health services
4- Loss of spaces belonging to the G1 and G3 wings that connect them, as they are completely demolished

G4 represents the inner courtyard, G-A, B, the most important thing that can be observed
1- Losing the stairs that are connected to the wing of G1 on one side and G3 on the other
2- A change in the shape of the original inner courtyard G1A and its dimensions due to the loss of spaces, which increased its area table ()
3- The presence of a concrete structure, the reason for its construction is unknown, and the collapse of part of the floor, which led to different levels in the ground of the courtyard.
4- Loss of finishing material to the walls and exposure of the building material (Brick) to erosion due to weather factors

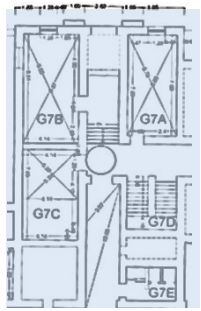
G5 wing has been studied for the G5 -A, B, C, D space but another spaces G-E, F, G, H, J, K could not be measured due to the difficulty to enter and the darkness because the closed opining

The most important thing that can be observed in the spaces
1- The spaces are complete in their structure
2- The lack of electrical installations and services
3- The termination material was worn out due to neglect and abandonment
4- The ceiling loses the finishing material, where the structural material appears

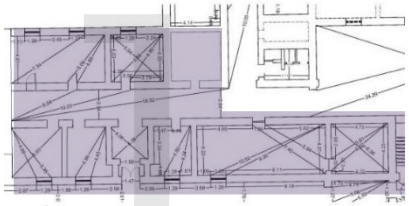


Evaluation of saray building Spaces

G6 could not be measured due to the difficulty of accessing the space

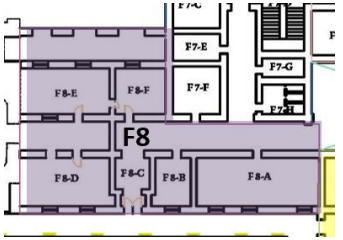


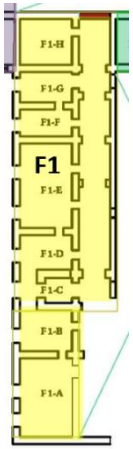
The G7 wing consists of four spaces, WC, and a staircase
1- Spaces with complete structure (walls, ceiling, floor)
2- There is a loss of the finishing material for the walls, floors and ceilings, either completely or partially in some spaces.
3- The windows are present with a slight loss in the glass
4- The staircase is in good condition except for the loss of the finishing material for the walls
5- There is a staircase consisting of five steps between the space of G7a and G7b Leads to a closed end with a brick wall
WC space in good condition, missing doors only
G8 wing is adjacent to the Saray Gate



1- The wing can be accessed from four sides, two open(from the side of the corridor leading to wing G7 from the north side, the second from the inner courtyard G4-B the eastern side, and two are closed.
to the south the door is closed, To the west is the gate connected to the Saray Gate also closed

2- The presence of a lot of abandoned tools in the corridor leading to the Saray Gate
3- The presence of traces of electrical installation and air fans in the ceiling
4-The presence of many closed openings of doors and windows tables () show this
F wing 1, 2, 3- A, B The problems in these spaces are the same as in the G1 ,2, G3 suite, missing the ceiling, the floor, some walls , and it have the same problems.





F8 wing Spaces is in good condition from the structure, but
1- lacks windows and only its frame remains
2- Damage to the finish material due to climatic factors and negligence
We conclude that the saray spaces are divided into three kinds of space
1- Completely missing spaces that need to be reconstructed
2- Partially demolished spaces that need restoration and placement of doors and windows
3- Spaces that are integrated in their structure and the lack in the finishing materials, windows and doors.

conclusion

The case chosen for the this is a part of various other topics Qushla and saray of Baghdad is ottoman building Built-in the ottoman period and cross through different eras start from ottoman to British Occupied, the Coronation of king faisal king of Iraq also the republic of a Iraq, American occupation and democracy governance at last all this make the building important and have special memories in the memory of Iraqi people.

This topic is large enough and multiple to carry out many studies, and a detailed survey was conducted to reach a proposal to preserve a building and the proposal to preserve Neighboring.

Al Qishla and Al Saray were studying as a whole community, but the focus was on the Al Saray building in the restoration problem, as the building is in a dilapidated condition and part of it was demolished.

As for the Qishla, it is in good condition and has few problems due to the restoration that took place in 1989 Also, the saray gate is coherent with its structure in good condition.

a scientific restoration is based on

1- Architectural survey

2-Restitution

3-Restoration

in this study worked out till restitution step because the detailed documentation is very important to precise restitution and restoration proposal.

From the Documentation and evaluation of buildings can be conclude:

Qishla spaces

1- Qishla spaces are in good condition, due to the comprehensive restoration that took place in 1989 after the building was in worse condition at that time, as shown in Table ()

2- To maintain the quality of the building, it must be occupied with a unified functional program that suits the building and its neighborhoods, as it increases the fun and the visitors' turnout to the building.

Saray building spaces

1- Completely missing spaces that need to be reconstructed

2- Partially demolished spaces that need restoration and placement of doors and windows

3- Spaces that are integrated in their structure and the lack in the finishing materials, windows and doors.

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