

العناصر المعمارية ودورها الوظيفي والجمالي في العمارة العربية في العصر الإسلامي

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**Architectural elements & their Functional and
aesthetic role in Arabic architecture in the Islamic era**

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Abstract

The emergence of architectural elements in the Islamic era was not the result of coincidence or a specific group effort ,it is the effort of groups of people united under one language, religion and geography. And we are not forgetting The Arab-Islamic architecture and art had a mutual effect with the former civilizations such as Byzantine and Sasanian and others. Arabs have taken from the rest of civilizations and developed and vice versa. The research aims to reveal the functional and aesthetic dimensions of architectural elements by mentioning the most prominent ones and highlighting their function for the construction as well as their overall dimensions.

The research also aims to eliminate the suspicion that these elements are non-Arabic ,but a mixture of other civilizations, and that this type of studies is a starting point for all new study aims to development not only in the field of archeology but in the fields of engineering and design. The functions of architectural elements multiple each element It has its location from the building .It has a specific architectural function , as well as function and decorative . and review these element and clarify its location and its architectural and decorative functions .

Key words : Domes , Muqarnas , Al-Uqud /Vaults , Cellars , Iwan , Windows , Shanashillas , Crowns ..

المستخلص

لم يكن ظهور العناصر المعمارية في العصر الإسلامي وليد الصدفة أو هو جهد جماعة محددة إنما هو جهود جماعات من الناس اتحدوا تحت لغة ودين وجغرافية واحدة ، ولا ننسى أن العمارة الإسلامية والفن العربي الإسلامي اثر وتأثر بالحضارات السابقة كالبيزنطية والساسانية وغيرها فقد اخذ العرب عن باقي الحضارات وطوروها وبالعكس. و يهدف البحث إلى كشف الأبعاد الوظيفية والجمالية للعناصر المعمارية من خلال ذكر ابرز تلك العناصر وإلقاء الضوء على وظيفتها بالنسبة للبناء فضلاً عن الأبعاد الجمالية لها . كذلك يهدف البحث إلى إزالة الشك في كون أن تلك العناصر غير عربية بل هي خليط من الحضارات الأخرى ، وان هذا النوع من الدراسات هي نقطة انطلاق لكل جديد يهدف للتطور ليس في حقل علم الآثار فقط بل في حقول الهندسة والتصميم.

إن وظائف العناصر المعمارية متعددة فكل عنصر له موقعه من المبنى، وله وظيفة معمارية محددة ، فضلاً عن الوظيفة الزخرفية. وتم استعراض هذه العناصر وتوضيح موقعها ووظائفها المعمارية والزخرفية.

الكلمات المفتاحية : قبة ، مقرنص ، عقد ، قبو ، إيوان ، شناسيل ، تاج ، شرفة .

First: Importance.

The true value of architecture stems from its emergence at a time marked by the emergence of a new religion. After the pagan thought dominated and the Arab thought was taken away as this thought robbed sanctity of the Creator and the new religion came to remove the abuse.

This value has necessarily created a favorable climate for the emergence of a distinctive art of architecture with a presence in various parts of the world. Topics of Islamic architecture favored subject for the Arab Muslim architecture, which led him to embody the idea of his Islamic thought finding vocabulary architectural with spiritual rather than material significances fit with his new faith to create a distinctive feature for his art.

Second: Target.

The research aims to reveal the functional and aesthetic dimensions of architectural elements by mentioning the most prominent ones and highlighting their function for the construction as well as their overall dimensions.

The research also aims to eliminate the suspicion that these elements are non-Arabic, but a mixture of other civilizations, and that this type of studies is a starting point for all new study aims to development not only in the field of archeology but in the fields of engineering and design.

Introduction:

Arab architecture and arts in the Islamic era is the result of a concerted efforts to tell us stories and episodes of lives of Arab and Muslim people, that is to say telling the civilization of a groups of people who have linked with each other by more than one links : geographical environment, Islamic religion, language, Arab traditions and others.

It is a civilization which is distinguished by varied and branched characteristics.

Those characteristics have attracted the attention of non-Arab and non-Muslim people since nearly a thousand years; especially the Western who had visited the Arab Muslims country.

The designation of "Islamic architecture and art" is an inaccurate one, refers to a deliberate denial of the virtues of the Arabs in those products, so the rightful one should be (The Arabic architecture and art in the Islamic era) to remove the ambiguity of ascribing the virtues of establishing the Islamic architecture and art foundations to non-Arab and

the non-Muslims, though the Arabs effected and affected by the ancient civilizations that preceded them.

This research was chosen in an attempt to shed light on the functional and aesthetic values enjoyed by the architectural elements that formed the final form of Arab buildings in Islamic times .So the architect and the Muslim artist did not restrict to the construction of buildings, rather he considered that those buildings must have aesthetic value that could be a source of visual attraction can be employed to be a source of pleasure as in the tourism sector. The other reason of selecting this subject is the scientific benefit by providing the research and studies with scientific subject involves researching and studying construction methods and art styles.

**The most important elements of the Arab-Islamic architecture
and its functional and aesthetic role**

First:Domes.

The beginning of the system of roofing by doming first in Mesopotamia,where there is some evidence to indicate its use in some buildings dating back to ancient times⁽¹⁾,The Arabs before Islam knew the system of roofing the door and it became the distinctive characteristics of their architecture⁽²⁾,especially in the construction of shrines,and the oldest of what reached us from the domes back to the Al-Amauy era in a short bath age is a hemispherical dome evening from the outside and polygon from the inside so is one of the oldest ribbed domes in the Arab architecture in the Islamic era⁽³⁾.

The dome is one of the best ceiling covering large square areas as well as its function of lighting and ventilating the interior of the building through providing its circular shape of the possibilities to open the windows with its neck and body⁽⁴⁾,As for the use in the roofing of the bathrooms is to provide paths to water vapor gathered in the form of drops to go down as the roof level retains those water droplets,which leads to the emergence of ,moisture in the ceilings,which reflects negatively on the structural state of the building.

The forms of domes have varied over historical periods ,including the bulb like dom,such as in the shrines of the Imams of the household,peace be upon them and the pointed,hemispherical and bulbous door ,as in most mosques in Baghdad (photo 1,2,3,4).

The existence of the dome was not limited to the benefits mentioned above,but its benefits exceeded the aesthetic characteristic of the building

through the decorations contained in those domes, whether for a purely decorative purpose, as in the decoration of the Arabic raqhish, which is an Arab-Islamic innovation. It is represented by the intertwined plant elements such as flowers and plants leaves of different shapes, types and colors forming unique paintings considered a piece of art, although these plant elements are not new, rather they are the work of the Arab Muslim artist to act and innovate so that lost her first identity. This decoration covered the interior and exterior surfaces of the domes. Moreover the domes had been decorated with geometric decorative elements, such as squares, triangles, the cross element, lacquers, star shapes, ... etc.

The inscriptions also participated in decorating domes, especially their interior and external neck parts. The types of fonts in writing varied: Al-thuluth, Al-kufic, A-neseekh, al-Ruqhaa and Al-Farisy. Al-thuluth is the most common type used in writing on domes, which contain verses from the Qur'an that were carried out in the form of types of ribbons. Some decorative elements were also applied to the glazed porcelain tiles until they reach the limit of overuse⁽⁵⁾, while others carried out plaster. Some domes are covered with gold as in the shrines of Imams.

In the current periods electric lights bulbs of different colors are used to stand out the aesthetics of the domes and to attract consideration.

Second: Muqarnas

Muqarnas or called also pendants, which is an architectural ornaments resembling beehives seen in the Arab Islamic buildings hanging in layers of matrix on top of each other. It is used for architectural decoration or for gradation from one form to another. Especially from the square surface to the circular surface to be built by the dome, It also sometimes acts as nightmares placed under the circle of muezzin⁽⁶⁾, an architectural phenomenon characterized by Arab-Islamic art.

The origin of this architectural phenomenon in Islamic art is the portholes that is held over the four corners of a square room to be covered by a dome. These portholes were used before the appearance of the Muqarnas, but they were idle of decoration⁽⁷⁾. It was used in Iraq and the Great Syria (Cham Land) in the early Islamic era to move the square areas to round areas on which the bottom rims dome stand⁽⁸⁾.

Spherical triangles were also used in the transition areas created by the Shami Arabs in the 4th century A.D. The Islamic architecture owed the Iraqis for the creation of the pillars and consists of placing them in each

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corner in the form of a semi-circular or half- oval cellar with a dimension that decreases towards the square corner of the (photo 6,7,8,9).

From the above it is clear that Muqarnas is an architectural and decorative element; it adds aesthetic feature to the building as well as the architectural feature and this is one of the characteristics of the Arab Islamic architecture which is usefulness, beauty and luxury.

Third: Al-Uqud /Vaults

Vaults arose with the beginning of settlement and construction of stable houses.

Some archaeologists believe that the beginning of the Vaults in the Iraqi architecture was in the houses of reeds⁽⁹⁾, and in the form of Vaults semi-circular or half oval or pointed and that this technique is still used in southern Iraq. Over time, vaults have developed with the development of human ideas and the use of new materials and the creation of modern methods in construction of buildings, especially after it reached the industry of adobes which is popular and used a lot, many of the examples that came to us constructed this article and remained used even after the use of tiles⁽¹⁰⁾.

Vaults were used extensively for architectural and aesthetic purposes inside and outside buildings, and at the top of the windows doors, in the pots, inputs, niches and basements.

Deaf Vaults were used to decorate the internal facades and varying degrees of capacity and height commensurate with the nature of the building and the purpose of its existence. There are many types of Vaults, including the semi-circular, tapered vault, flat one, cut vault, broken vault, triangle vault.....etc⁽¹¹⁾. (photo 9,10,11,12,13,14).

The architectural function was not the only one in the frequent use of vaults, there was another purpose that led to its popularity in the Arab-Islamic architecture, namely decorating. As the Muslim artist adorned the facades of those vaults and master the design and invent new forms.

Some of them are decorated with colored glazed porcelain tiles, while others are decorated with various types of plant clerical geometric decoration while we find Vaults established for aesthetic purpose only.

Fourth: Cellars

Most scientists said that the first model of cellars is represented by building reed bundles that are planted in the ground and fixed vertically and then bend towards the interior and connected together from the top to

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form a roof that consists of consecutive semicircular, oval or pointed arches covered by the mats and then covered with a layer of clay⁽¹²⁾.

This type of construction was probably the remains of the intermediate stage of the development of the building of cellars. In the end, the builders in the east tended to adopt one more durable building material that could be used in large building, namely adobes "clay dried by sun", therefore, all the remaining vaults and cellars in the east were made of adobes⁽¹³⁾. The reason for the use of adobes in roofing is the dry climate that makes it a typical material. (photo 15)

Vault roofing allows hot air to rise more than the flat roof, this helps to keep the living space cooler, and the more importantly is the scarcity of timber for the purpose of roofing. Cellars made from adobes do not need wooden beams, which makes them economical and distinctive way in covering building⁽¹⁴⁾.

The Arab Muslim artist had decorated those basements until the paintings became delightful views, they have been decorated with matting decorations in a way to manipulate ornamentation of the porches and make them with a Riazi and aesthetic field at the same time

Fifth :The Iwan

Architecturally Iwan is the high-rise building, with an open face, that is to say: it is hall roofed hall with an open cellar, presented to the foyer or yard, holding a circular, pointy, puffed, liquid, lying flat with a rear wall⁽¹⁵⁾ photo 16, 17, 18.

The Iwan is one of the elements that the Iraqi architecture has witnessed since the earliest ages. Researchers have conflicted opinions about the beginning; some believe that the development of the construction of the forms of the open Arab tent or embodiment of reed huts that were used by People Mesopotamia.

The use of iwan architecture up to the Ottomans period, we see it in palaces, houses, mosques, takkias, khans and bathrooms. The iwan was used to accomplish various daily works since it is a large room with a wide open façade and a high ceiling. Roofing methods differed from one area to another. Sometimes we see this difference in the same area, some with pointed, semi-circular cellars as in the northern area. Some with flat ceilings supported by wood as in the south and the middle of Iraq. Roofing was recently replaced with iron and bricks⁽¹⁶⁾.

Sixth: Windows.

The window is the name given to each hole that penetrates a wall regardless of size and shape. There was the wide that provide building with light and air, and the narrow high in the outer walls due to the necessity of climate, on one hand, and to religious and social reasons on the other hand⁽¹⁷⁾. (photo 19). Windows ,no matter how small or large internal or external, are of the architectural elements known to the population of ancient Iraq since the oldest times. We see them in many religious and civilian buildings, but because of their extinction it was difficult for researchers to identify the first beginning of their appearances and the rest of those windows of low height does not allow to know where the windows were taken.

In spite of this ,we have received models of by which we were able to form an idea even if it was simple through the archaeological excavations in the basin of Himreen from the era of slaves and the era of backward revealed the window in the city of Aredo threshold in the form of an arch consists of curvature of its upper side⁽¹⁸⁾.

The Arab-Muslim architecture has worked to make these windows beautiful aesthetic paintings, they have been held with different vaults decorated with vegetal and engineering elements, with the elements of decorative pots of beautiful colors come out of the different flowers ,some of them carried out glazed ceramics ,while others carried plaster as in the windows of the shrines of Imams (peace be upon them) like the Holly shrine of Imam Ali at Najaf and the shrines of Imam Hussein and Imam Abbas Sons of Imam Ali, at Land of Kerbala.

These windows were also clad in clear glass and colored with bright colors at other times such as red, blue ,green and others. These windows gained valuable artistic work. Some researchers have studied them as artistic works, as in most churches in Iraq.

Seventh: Shanashillas

Shanashil is one of the most prominent architectural elements in the Iraqi heritage house, it was found as a social and climatic necessary in order to preserve the sanctity of the house and prevent mutual supervision in the corresponding houses that converge in its upper sections consisting of an alley similar to the tunnel, which is characterized by a calm atmosphere and abundant shade⁽¹⁹⁾.

As a result of the customs and traditions that prevailed at the time, the windows were covered from the outside with a layer of wood

clamp⁽²⁰⁾, its usefulness gave way to those inside the house and observe what is going on without being seen, as well as the climatic aspect that was not neglected by the phenomenon of shanashils. Its design allows for a sufficient amount of light and air to penetrate into the room of the Shanashils which is characterized by a large number of windows. Shanashills became a symbol of Iraqi and Islamic architecture, even more, it had been developed by the Europeans and introduced into the designs of modern buildings⁽²¹⁾, as well as the preservation of the shanashill nets on colored and transparent glass(photo 20,21,22).

The Shanashills as we see them adorn the facades of traditional houses on the upper floors⁽²²⁾, it is a projection and twisting wood appear in the upper floors to correct the shape of the heterogeneous ground floor to a homogeneous form with right angles⁽²³⁾, then the rooms of the floor itself into the rooms with parallel and orthogonal sides, which makes some of them with strange shapes resembling teeth saw⁽²⁴⁾.

These projections extend towards the allay with 50-70 cm and in some cases more than this distance. It is made up of a group of glazed windows that are characterized by their fine ornamentation engraved or perforated to admire, it demonstrates the skill and mastery of its industry and the cooperation of the builder and the carpenter to make it in a thoughtful artistic way.

Shanashills are light in weight and thus reduce pressure on the walls of the ground floor. Al-Basrah was distinguished from other cities in Iraq by many Shanashills until it was named "The city of Shanashills"⁽²⁵⁾

Shanashills contain sophisticated and distinctive values and concepts and are designed for climatic, social and aesthetic goals. It is characterized by the presence of a number of narrow and thick windows that help to heat insulation and reduce the amount of hot air inside the building,

It is characterized also by the presence of wooden umbrellas that are above the windows in the front facades overlooking in the street and sub-alleys, also the colored and the translucent glass was used in geometric and vegetal formations dating back to the Arab art of the Islamic era⁽²⁶⁾

Eighth: Piers & Crowns

The pole constitutes one of the important architectural elements in Arab architecture in the Islamic era, and we have received many models of them.

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The oldest was made of palm trunks as the main material available in the region since a long time ago and it seems that this type was suitable for Iraqi architecture. Wood shafts have been used together with palm trunks, with a cylindrical section, a polygon, a square and a rectangle, topped with crowns with floral and geometric motifs and muqarnas consisting of several rows resembling beehives as well as columns with cylindrical section, spiral, square and rectangle⁽²⁷⁾. (photo 23,24,25,26)

The piers were used in various religious, civil and military buildings. The use was to varying degrees and in different places. The piers were crowned with different capitals. The way they are built, their shapes and their decoration vary from building to another⁽²⁸⁾.

The crowns are decorated with muqarnas and vegetal motifs and may be in the form of incomplete or inverted pyramid in an attempt by the architect to impart a wonderful artistic touch⁽²⁹⁾.

Ninth. Porticos & Balconies,

The hallway represents one of the important architectural elements in Islamic architecture. It advances the rooms in the ground floor, the rooms also in the top floor and the iwans (large sitting rooms) on the two floors in the form of a corridor that differs in its dimensions from building to another depending on the nature of use, the ceiling of some of them is vaulted by brick and plaster in the form of a cellar vaulted with iron and in most cases used in roofing with attention to show them commensurate with the status of the building owner⁽³⁰⁾.

The ceiling columns were covered with wooden panels, decorated neatly and beautifully with vegetal and engineering decorations, as well as the use of pieces, mirrors and colored glass and transparent and show their beauty as required.

One of the most prominent decorative elements embodied in the ceilings is star dishes. The wooden or iron-brick ceiling is based on a bridge carried by Seth wooden columns⁽³¹⁾ and sometimes it is marble or brick. Its floors are covered with square bricks (Al-farshi) that rise from the courtyard floor by about 10-20cm to prevent rain water and washing from reaching it.

We can call the corridors on the top floor (balconies) because the residents of the house oversee most of the home facilities inside. In some building, balconies overlook the rivers, as in Baghdad's Wali House (photo 27,28,29).

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The uncovered(open) or exposed spaces and semi-exposed hallways help to protect the building and break the intensity of the sun in summer and the rain in winter and regulate the air currents in the whole building.

The halls and balconies of the Iraqi architecture have been used in general to protect the building and regulate heating and cooling process, they are considered a link between remote installations and a key element of movement throughout the building. They are also the alternative to the iwan in some houses where there are no iwans and in the case of being the building on the river provides an opportunity to enjoy the view of the river and to increase the impact of the river⁽³²⁾

Tenth: Arcy

Arci is an important architectural element necessary for the heritage house in the Ottoman era and beyond that still exists to this day. Arci represents a series of precision-glazed windows overlooking the central courtyard. In some houses, the Arci was taken upstairs and consisted of a large room with three walls⁽³³⁾. Replace the fourth wall with a façade of windows clad in the wall called "Jam Khanah" overlooking the courtyard decorated with the finest vegetal and engineering decorations executed with wood accurately, which gave the house a great aesthetic and is always ready to receive guests⁽³⁴⁾.

Those were the most important architectural elements in the Arab buildings in the Heritage Period, which carry the characteristics of originality, beauty and durability at one time.

If we want to preserve such a legacy of the need to preserve the archaeological and heritage buildings as they constitute a precious cultural heritage against those who tamper with their privacy. And turn those buildings into touristic and recreational places such as museums in order to preserve them because any building abandoned prey to animals such as rodents, moth and others. It is damp because of the presence of groundwater which is a problem of most archaeological and heritage buildings. As well as the introduction of modern methods on the control of construction problems with the coordination between the competent authorities to document and study those buildings for fear of extinction.

Conclusions.

1-The emergence of architectural elements in the Islamic era was not the result of coincidence or a specific group effort, it is the effort of groups of people united under one language, religion and geography.

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- 2-The lack of reference to Arabism when talking about Arab architecture in Islamic times is an attempt to obliterate the role of the Arabs and their virtues in the development of architecture and decoration.
- 3-The Arab-Islamic architecture and art had a mutual effect with the former civilizations such as Byzantine and Sasanian and others. Arabs have taken from the rest of civilizations and developed and vice versa.
- 4-The dome is one of the best ceilings covering large square areas as well as its function of lighting and ventilating the interior of the building through its circular shape of the possibilities to open the windows with its neck and body. And the Arab-Muslim artist decorated them in various form such as gold ,porcelain and mirrors.
- 5-The muqarnas elements is used for architectural decoration or for graduation from one form to another,especially from the square surface to the circular surface to be built on the dome.
- 6-Vaults were used for architectural and aesthetic purpose inside and outside building and at the top of windows and doors and in the containers and inputs and niches and basements. The deaf Vaults were used to decorate the internal facades and to varying degrees of capacity and height commensurate with the nature of the building and the purpose of its existence.
- 7-Thr roofing using the Vaults is important as it allows hot air to rise more than allowed by the roof level,which helps to keep the building cooler and the various forms added to the building prestige and beauty,especially after decoration,especially in the shrines of Imams (peace be upon them).
- 8-Iwan was used for multiple purposes as a room or a room with three walls open to the courtyard and perhaps one of the finest examples of these works is AL-Mustansiriya school with varied geometric decoration.
- 9-Shanashill is rightly considered the most prominent manifestations of heritage architecture in Iraq and was used for various purposes,including social,climatic and constructive.
- 10-The pillars performed an important function in archaeological and heritage buildings.They were placed to withstand the ceilings directly by holding them on the pillars .The pillar may contain a crown decorated in various shapes and may not bear a crown.

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11-In some Heritage houses we see rooms overlooking the courtyard with a set of wooden windows that are decorated with ornamentation similar to the Shanashills.

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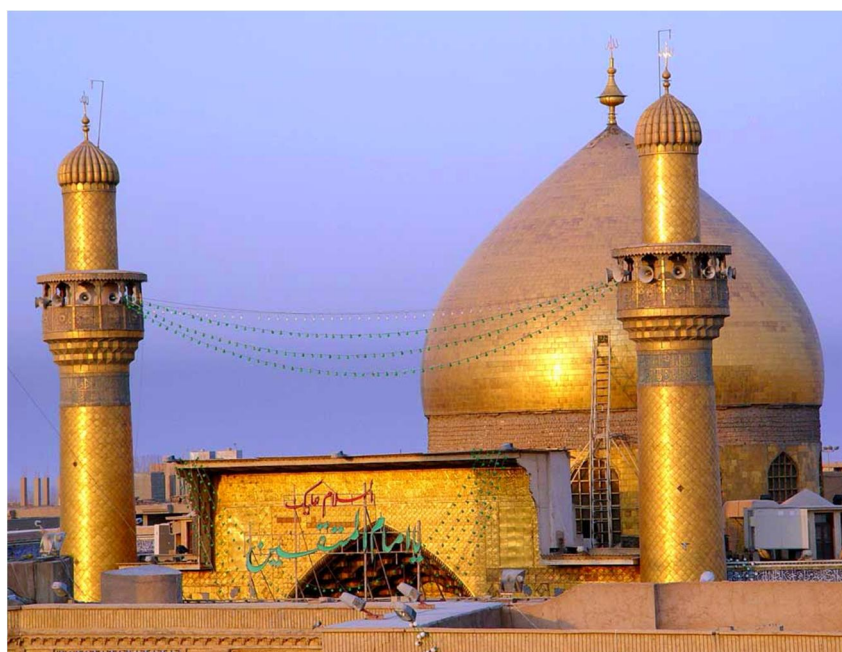
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(photo-1)



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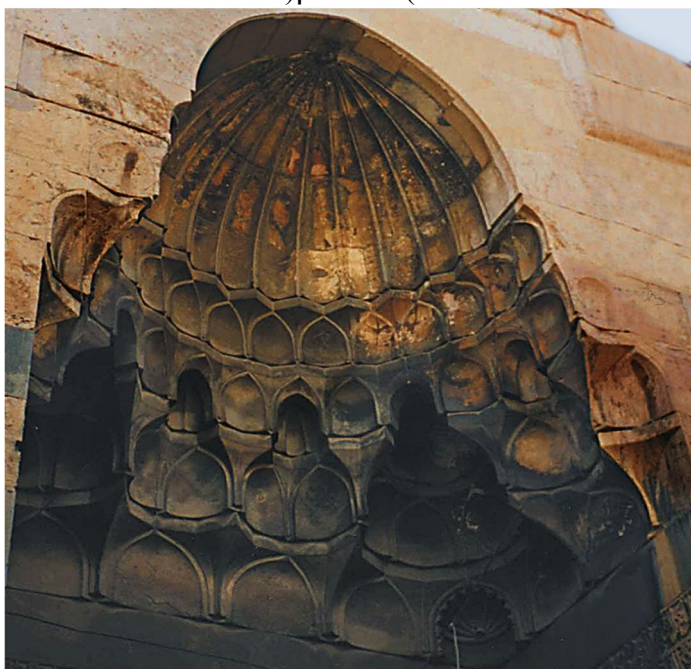
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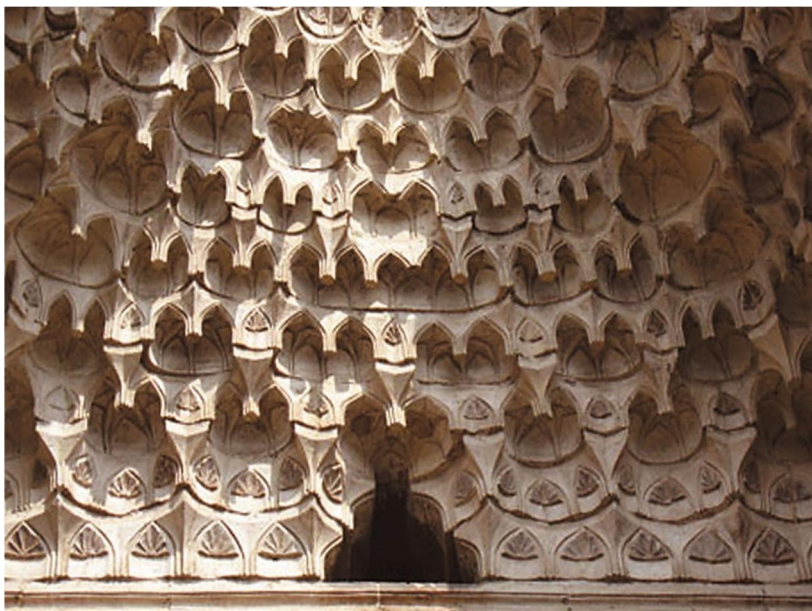
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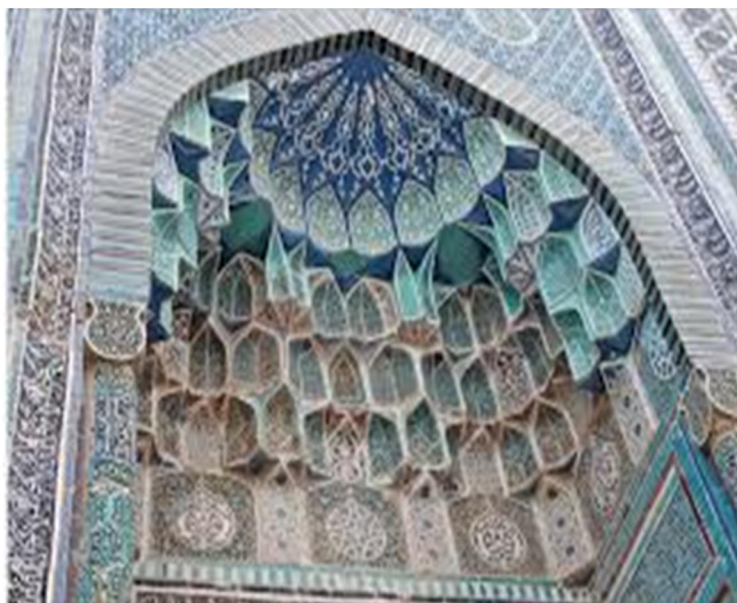
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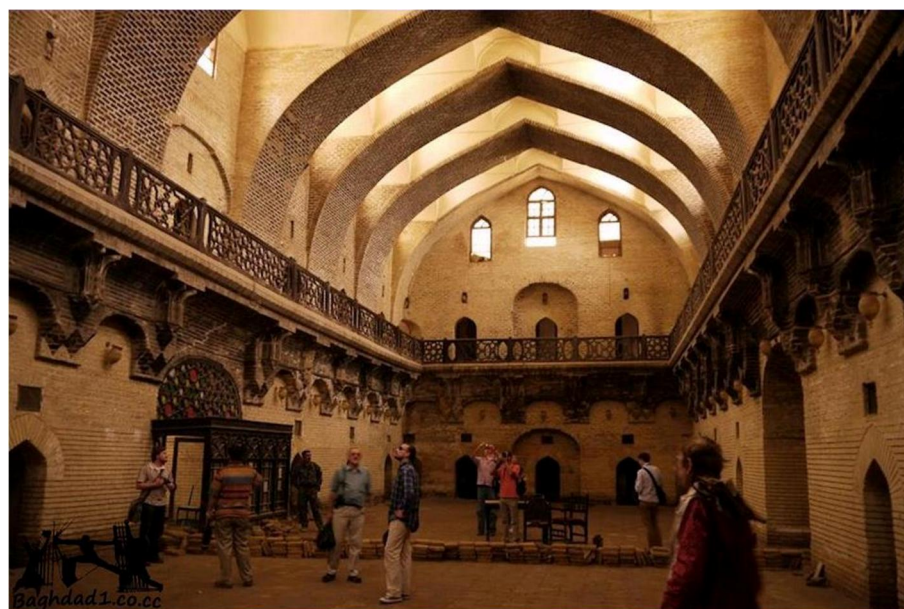
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photo-13(



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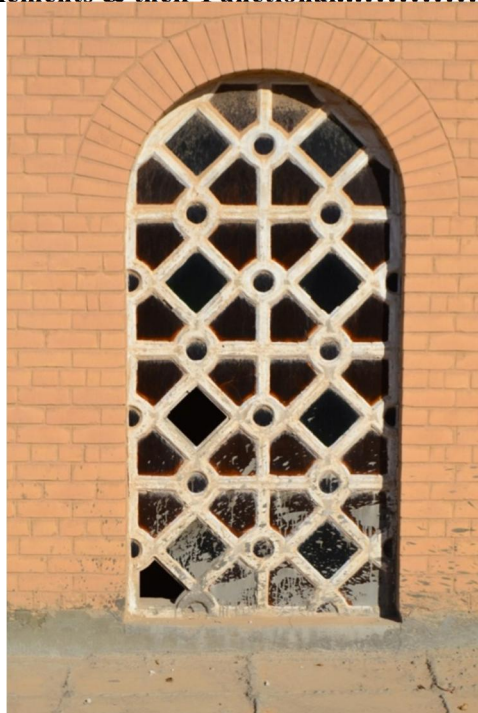
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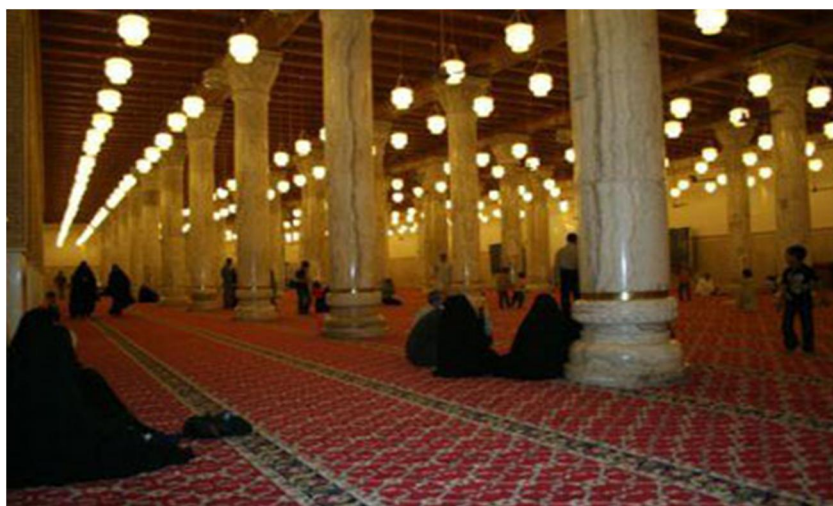


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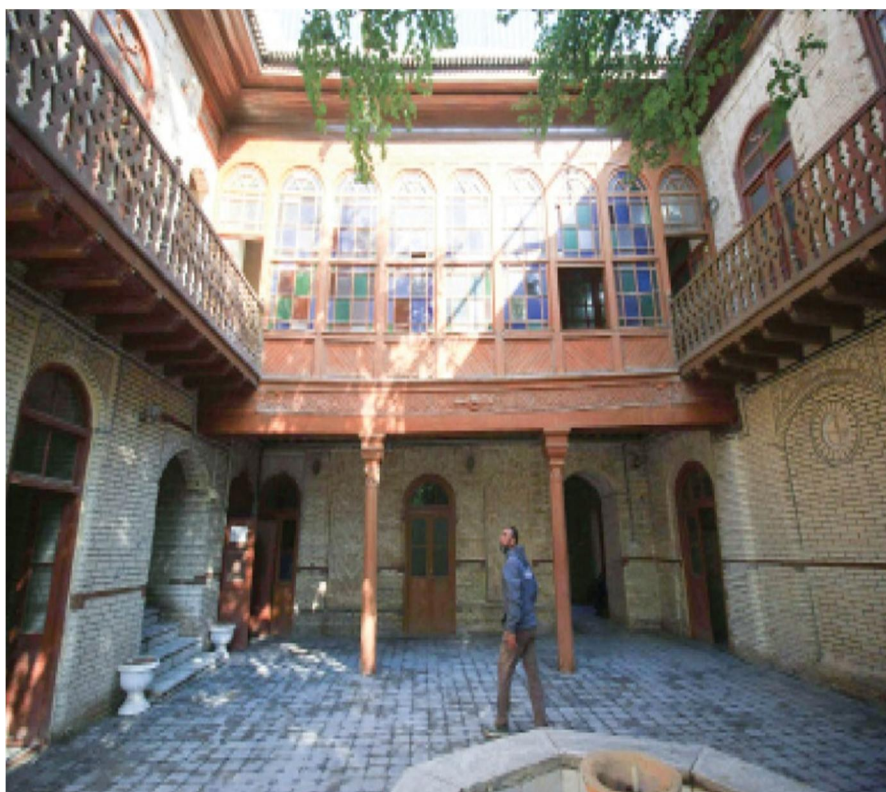
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