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# An introduction to Iran's unknown architecture, AbAnbaar structure in Qazvin Case Study: Haj KazemAbAnbaarin Qazvin

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### ABSTRACT

AbAnbaar, lake, pool have been made to provide drinking water supply in Iran and other countries. However access to water was not same, but all of them have one thing in common, the storage of water. Haj KazemAbAnbaar was located in Maghlovak district which have made in Ghajar dynasty. This structure are include reservoir, stairway, Pa Shir, Sar Dar (portal) and two Bad gir (Windward). Reservoir capacity is 1870 m<sup>3</sup> and rectangle shape, which build from east to west. Tall portal have eight meter height and decorated with Maegheli (Islamic calligraphy). Date analysis has been indicated that excavation and construction of this AbAnbaar was done by Rikhtai method (poured i.e made of poured lime-plaster) and while digging out, its ceiling was constructed. The construction material used for abanbars were, slaked lime mortar, Saruj ( the type of plaster most commonly used called sarujm is a compound from six part clay, four parts lime, one part ash), stone, wood and AjorAbAnbaari( special bricks for construction of cistern). The roof of the reservoir has constructed barrel-vault and roof of the stairway constructed with two incrustation and Taghahang (kind of vault). This building have SaghaKhane and Moazeneh(on top of the portal there is a place which called Moazeneh). This study has been taken by data library and conducting field studies of AbAnbaar plan with triangulation method and technology of construction.

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### Introduction

The study of vernacular architecture which some authors called unknown architecture was prospered at late of 19<sup>th</sup> century with Sidney Eddy's book. From the past and middle of 1800, the Study was focused on temples, palaces, churches, that they know it as a typical architecture. Winckelmann (December 9, 1717 – June 8, 1768) was a German art historian and archaeologist. He was a pioneering Hellenist who first articulated the difference between Greek, Greco-Roman and Roman art. However, by the end of the 1960s, and with works such as Paul Oliver's (1969) and Amos Rapoport, they introduce a new concept which introduce vernacular architecture with a social & cultural view. From their point of view vernacular architecture was versus memorial architectural (churches, palaces and manor) .this type of the architecture is defined as unknown architecture. (Memarian2009,pp.126). The case study is Haj KazemAbAnbaar( Ab Anbar is a traditional type of underground reservoir)located at Moghovak area at east side of the MontazeriStreet, next to Tabriz alley which registered at No933, in Iran national monument. For conducting the study we need design and architecture data aboutAbAnbaar, some information was collected through existence document and interview with conversant people. Plot of AbAnbaar designed by normal and Triangulation method and surveyor engineer, the data were used for completing the archaeological information. Object of this project is complete introduction of Haj KazemAbAnbaar, there is an unknown aspect in Iran's architecture which required to be clarified, I hope this paper could carry out well this duty.

### Discussion:

#### Definition of AbAnbaar

AbAnbaar is an underground reservoir which always reserves drinking water (Moein2010). Abanbaaris underground covered pool which its roof constructed with brick, and used for storage of water. (Amid 2008).Abanbaar and other tank are isolated underground reservoir which have been used for water storage for instance,situation of war, lack of enough water and drinking cold water during summer in cities, villages, castle, road and so on. (Abedini et al 1990-30). They classified it as a public,traditional place, which people establish this kind of place from old times.( Behforooz1977,pp.89).

#### History of AbAnbaar:

At first, they was natural pan that filled with rain water and spate by passing times human being try to restore water in this pits and finally construct cistern in required place. By improvement of civilization, water storage methods were completed. In Iran, Egypt and Mesopotamia water were restored in covered Abanbaar that prevent evaporation of water. (Abedini 1990, pp.30). In mountain area, local always have consumed the springs water while using of underground water limited because of rigidity of soil. The People at foothills area used spring or stream water. The Villages in plain have used underground water in alluvial. Also at the desert area, they used rain water and Qanat<sup>3</sup> water. (Rezvani2003,pp.41) but Qanat doesn't have fix efficiency and were usable just in several month (October-January) so they reserve water in several times and water storage were made depends on size of the district. (Tasalloti1986, pp.74). Water was collected through roof of

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KarvanSara and water of vicinity area. They prevent from growing insects or harmful aquatic by inbreed fish, or solving salt for disinfection. Whenthey saw rainy clouds, they did clean the roof and prepare the chute for water. Therefore all of the rain water collected with less pollution and transferred to Abanbaar. (Asgari2010,pp.195).

#### Characteristic of Abanbaar Building:

AbAnbaar, lake, pool have been made to provide drinking water supply in Iran and others country. However access to water and supply water, was not same but all of them have one thing in common: storage of water. This important building spread through Iran and other country such as Turkey, Saudi Arabia, and Rome, Yemen. This subject was not specified in torrid area, also seaside of Persian Gulf and northern sites like Gorgan and Saari have the same method for water supply. Each of this element have characteristics which help to understand well the architecture of Abanbaar. In Yazd province, constructing the round reservoir with domical roof was common in Abanbaar Construction.

In Kerman city quadrangle shape tank with shaft were made were prevalent. (Memarian2009,pp.127), in Qazvin AbAnbaar were made quadrangle opposite of the Yazd and in Kashan have in both shape exist. Therefore we can study the elements of building and reach to typology of AbAnbaar .

#### Architecture s element of Haj KazemAbAnbaar in Qazvin



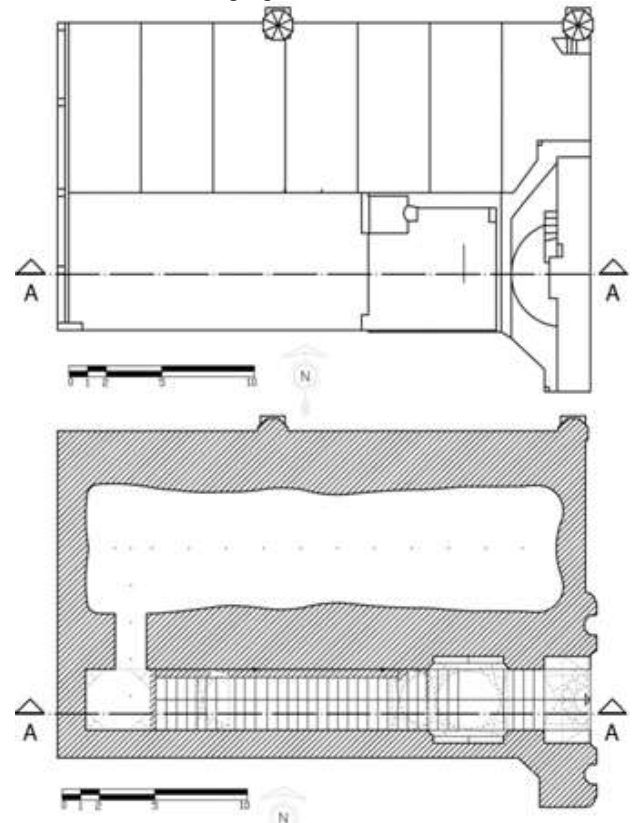
Fig 1. Haj KazemAbAnbaar in Qajar period – Portal – SaghaKhane<sup>4</sup> and Moazeneh

Reference: book of Minodar Bab Alhaneh Qazvin

In an old time Qazvin have more than 100 Abanbaar, and just 10 cases remain intact. Other Abanbaar remain only some part of portal (sar-dar)<sup>5</sup> or Tank and stairs or completely destroyed and replace it with other building. (Golriz 2003, pp.311). Haj KazemAbAnbaar remain intact at Magholak district. Water was supplied from northeast canal which called GhollerAghasi or Akhondcanal from the same district. (Memarian2002,pp.189). There were two entrances for supplying water. In eastern side consider entrance for control , clarity and dredge of bottom of Abanbaar. (Amin Saeidian 2013).

This AbAnbaar was located in vicinity of Darvazeh Moghlovak, One of the NinthDarvaze or Qazvin, which supply water for passenger and businessman that passing through Qazvin. (Shahidi1970, pp.132). Evidence showed that there was a SaghaKhane and place for lighting candy. (Parhizgari 2013,pp.152). At the top of portal there is place that called Moazeneh ,but today it destroyed completely, the same is exist in Masjed O Nabi Mosque in Qazvin. ( DabirSeyaghi 2002, pp.704).There were 37 stairs which each of them have 3.33 meter length and their width varied between 50-58 cm, their height is varied between 33 – 45 cm. Stairs and Azareh made from stone. By passing times 3 stairs were added to building but they are not genuine. After 4 stair there is place for rest. This space have 2 stage in sides and coated with RasmiBandi. AbAnbaarhas two faucets, first in 25th step and other in 2 meter

height from Pashir<sup>2</sup>. There is two Rasmibandiin Ceiling of tap for decoration and changing the environment.



Plan 1: roof and reservoir plan in Haj KazemAbAnbaar – Source: Author



Fig 2. Eastern Windward ( Badgir)

Source: Author

Entrances portal were bulid like a high arc and at the sides have two wide gaps, at the middle of them 3 TaghNama on each other. It is like niche. Two other decorated with tile with geometric design and Banaei script. The façade decorated with Moagheli<sup>8</sup> which replacing brick with colored tile. Before the main entrance Hashti enclosure located, in both side there is stone position. (Varjavand1998). Water tank have 25.2 meter length, 6.4 -7.5 width , height 10.8 m , and in right side of portal. Maximum capacity is 1870 m<sup>3</sup> .AbAnbaar pillar s is between 1.1 -2.9 m. there is two windward. And have 9.4 m height. One of the windward (eastern) decorated with tile and Moagheli. The other one is simple and by passing time slant 5 degrees.

Haj KazemAbanbaarhas a unique windward in Iran. Their design is compatible with its portal. Windward located at the corner of quadrangle reservoir. Wind wards are quadrangle Up to 3.5 m height but the edges beautifully beveled and make it octagon. Windward shapes up to 6.5 m are hexahedron and have

2 parts. The stem of Windward was ornament with several Koordar and Magheli calligraphy. Shelves of wind ward located at the top of it and decorated by Barnakhshbow. Bent conical roof was final vault (Memarian 2002,pp.197).

Wind ward is not current element but helps in cooling the water in reservoir tank. (Bourgeoi,j1983). But consider that Qazvin has not a hot summer such as central City of Iran. (Memarian2002,pp.196) . Other characteristic of this building is highly decorated portal which you are unable to guess the application of the building in first sight. Decoration belongs to Ghajar period. Beside this decoration there are two stone inscriptions in praising of forgiveness and deduction and description of builder and lithographed marble by Nastaligh. This inscription installed on top of the inner entrance, and AbAnbaar constructed by Haj KazemKozeh Gar And Haj EsmaelQazvini. (Varjavand1997). In the inscription the date were encoded to Abjad Alphabet which means:“Source of spring water Kowsar” and equal to 1840, which is date of construction.(Golriz2003,pp.314-315).



View 1. Eastern plat of Haj KazemAb Anbar

Source: Author

### Material and technology of Construction in Haj Kazem AbAnbaar, in Qazvin

Selection of material depends on the Resistance against high pressure of water and humidity. Storage of giant volumes of in underground reservoir needs a structure to resist against this amount of water. (Memarian2009).

**Bricks** :Bricks which used in building of reservoir, cover of stairs , wind ward and portal is called Lemon Brick. To construct some part of the wall they used Red brick of Qazvin. (Memarian2002,pp.189). Red Bricks were heated less and their color is red, their resistance is similar to bat. This red brick were used in wet building and covered by mortar. Brick sizes are 7\*22\*22 cm. South walls constructed from out and the arch made by brick.

**Stone**: stone were used in different part and due to water resistance feature of stone several layer used in lower part of the vault and within reservoir and Pakar, between reservoir and arc. This layer prevents the water to reach the bricks when tank is full. Stone Azareh, was covered around the outer walls of Abanbaar. Also they have use useless stone to mix in mortar of the reservoir wall.

**Wood**: wood shield installation is easy and fast but can bring the insect and small animal in reservoir and polluted the water due to this reason wood didn't use as a main element. In Haj Kazem Abanba are ,according to photos, they use wood for roof of the portal and entrance stair, back wall of portal and, Chahartarsh wood in Windward, and mound.

**Concrete**: concrete play essential role in water resistance and firmness of building. Type of the concrete depends on the place where they used. Concrete were used in construction of reservoir, wall construction and flooring. Wall construction used concrete mixture of mortar, sandstone and sand either for brick

or stone wall. (Pirnia2013).High pressure of water at the bottom of Ab Anbar caused to using plumb for the flooring of the reservoir. In addition to using of slacked lime mortar and clay, stone with lime mortar being laid, moreover sheet of plumb installed on the floor of the reservoir and have plastered. (Varjav and 1997). Some Table (untidy projected volumes created in the wall of the Abanbaar. which was due to the how the construction proceeded. Therefore these Taableh (Untidy projected Volume) exist at the floor of the reservoir till 1 or 2 meters height to consider hygienic aspect and reduce pollution by create wave at the bottom of the cistern and levitate mud from the floor of the cistern. This projection prevents pollution of water to sludge.

There are two canals for water entrance into main reservoir, however This Abanbaar located in arid area, so to prevent the creating of waves and levitate mud this Tableh (Untidy projected volume) control the pollution of water. Additionally they flooring the bottom by brick after slacked lime mortar. also interior corner of the floor and walls by constructed by building material and mortar with 45 degree bezel, which facilitated dredge.



Fig 3. Interior space of reservoir- Untidy projected volume (Tableh) on Reservoir wall

Source: Author

### Construction Methods:

#### Construction of AbAnbaar:

Preservation of healthy water requires exact construction of reservoir, especially for public place. Smallest neglect results in leaking and cause problem. At first review the excavation and brickwork briefly.

#### Excavation

Two methods were chosen for excavation and building of reservoir in soft land in plain. Prevalent method: complete excavation and other method which is cheaper and easier called casting. This part requires more work and time maybe half of the project time was for this part. Kind of the land affects the excavation. For example, in excavation of fort land more times required but strength of Reservoir wall is much better for water pressure, also maker feels more secure.

#### Complete excavation

In desert area is prevalent method for building of Abanbaar. After excavation, they concrete the bottom with mortar then bricking the wall with stone or brick. For built a strong reservoir they use well heated brick and before using in wall they immerse it in water. In some case immerse in water and lime. Their concrete is mortar. After built the arc with brick, bat, stone, and plaster they mortar the bottom and walls. The bigger Abanbaar covered with layer of brick and mortar. Smaller Abanbaar covered with dome of the cobblestone. They put them on each other.

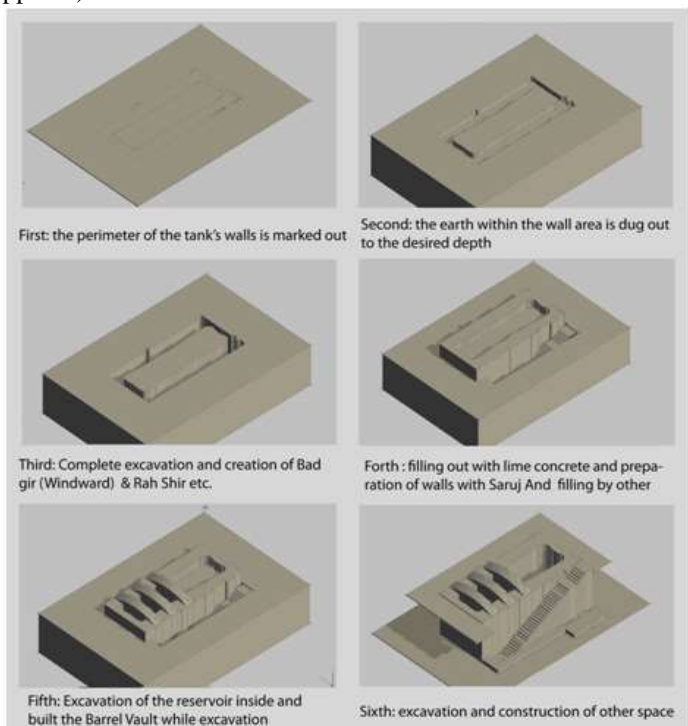
#### Pouring method

A type of cistern called rikhtei (“poured,” i.e. Made of poured lime- plaster). First the perimeter of the tank's walls is marked out, and the earth within the wall area is dug out to the desired depth. Next lime-mortar is poured into the square or rectangular trench until it is filled nearly to the ground level. This is left for a week or two until the mortar settles and is solidified. Then the area of earth bounded by the mortar walls is



dug out down to the desired floor level and for main reservoir. The floor is built by pouring lime-mortar; and, finally, when the walls and floor are dry, they receive a coat of plaster. At this time the roof were built, because later the creating the frame inside the AbAnbaar is difficult for roofer. (Maxim Siero 1970, pp.229-232).

In this case the volume of wall removed before main excavation, and then concreted with slacked mortar. Inconsistency and lumpy of walls and the reservoir did not being laid with normal brick and prevalent mortar, can prove it. Also, After creating tunnel at the bottom of the reservoir and make access to staircase for public disposal, you can see the pillar of the reservoir wall which poured and boursedisorderly and with stone and slacked lime mortar with stone and limy and Saruj<sup>6</sup>. Roof of the building was constructed while excavation was done, because reduce the performance time and did not need to scaffold for built the roof. Soil bring out from east and west side. East side was for Meerab<sup>1</sup> transit and west side used for Barf Andaz, Due to this reason is perfect for bringing out. Also this soil have been used for construct the other part. Thereasons for using Rikhtei method is easyness and fast construction, shortage of land in district, placing the stairway beside the reservoir due to rectangle shape. ( Parhizgari 2013, pp.133).



**Fig 4. Excavation process of reservoir Rikhtai Method (poured method) Haj Kazem Ab Anbar**

Source: Author

Also, we can justify the engender of Tableh inside the tanks wall of AbAnbaar. After reservoir were made, wall of the stairway bricked and point out the jointed then ornament were used in different parts of the stairway.

#### Brickwork

Brickwork started simultaneously with flooring of reservoir. This part bear high pressure and need to be strengthen. This part completely poured with lime mortar and cobblestone and coated with Saruj or Dimeh<sup>7</sup>. by melting plumb and coating it on the floor then smoothing the floor was privilege. This works can increase resistance of the bottom but some author believed that existence of plumb at the bottom cause coldness at this area (Varjavand 1997, pp.158). Digging the sinkhole for extra water

bring out was necessary during brickwork. Entrance of this sinkhole located in bottom of Pashir, covered by stone valve and directed water to Akhond flume. Just Two faucets were ejected water from reservoir. Actually huge pressure of water excreted on the walls due to these reason southern walls made carefully and enough strong by width of 3 meter and made wider than others wall.



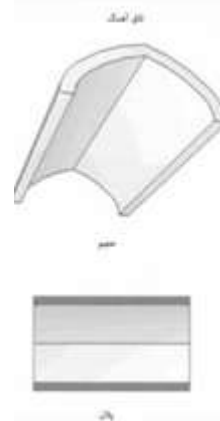
**Fig 5. Tagh Kazhave (Barrel-Vault) for Roof cover.**

Source: Author

#### Roof

Prevalent roof is arc for reservoir and stair. They selecting arc because there is a lack of wood in most central part of Iran. Other reason for selecting arc is that wood has weakness against the humidity. Water evaporated during the summer and cause decay, so permanency and firmness declined. Moreover penetration of insects and vermin in woods texture cause pollution and hygienic concern of water. But in barrel vault this problem were gone, by jointing of interstice and pores.

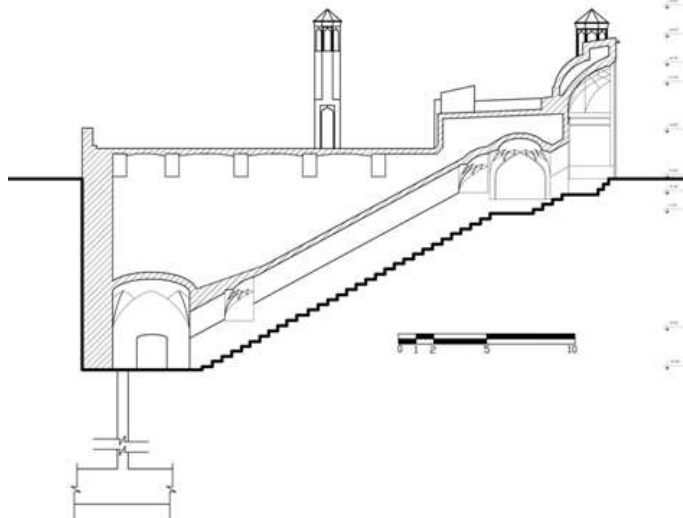
Also repairing and inspecting is difficult and they prefer high resistant and firm roof. Vault roof with high resistance was perfect choice for this kind of AbAnbaar. Perfect roof for rectangle like plan is Tagh eKazhaveh (barrel-vault) which was common in Iranian Architecture and buildings of houses. This roof made by putting several Tavizeh (groin) and to groin vault. Then bricks being laid within them. The characteristic of this roof is fast construction, high resistance and directed the force to different point. (Memarian 2009, pp.128). Haj Kazem Abanbaar have big barrel vault (Kazhave). For this kind of vault, at first groin a barrel-vault which are similar to Kolenboo Vault. In Haj Kazem AbAnbaar, the size of opening which covered by this vault was 7.5 to 7.6 meter.



**Fig 6. Tagh Ahang (barrel vault) volume plan**

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Section 1. Side view of AbAnbaar A-A

Source: author

Table 1. Introduction of roof in Haj Kazemabanbaar

Place	Plan	Roof method	Application	Performance characteristics
Reservoir	Quadrangle without column	Kazhaveh roof	Quadrangle Plan with large span	High speed in performance, high resistance, transforming force to several points
Rachine	Quadrangle without column	TaghAhang&TaghKazhaveh (using 2 parallel wall)	Roof of stair and quadrangle place	Arc with low bound Easier construction than others roof

Other common roof which used in thisAbanbaar called is TaghAhang ( like barrel-vault), it is curve (arch ) with low gradient. The propulsion force neutralized by allocating their Pakar (pillar) beneath the ground level .TaghAhang ( barrel-vault was the main roof for stairway of Haj KazemAbAnbaar. (Memarian 2009,pp.131). Between two shields is empty space for lighter weight, high resistance and controlling the humidity. There is a way in the past into the reservoir for sake of repair and maintain but today that way is blocked.



Fig 7. Roof and back of AbAnbaar space Two incrustations of portal

Source: author

Several study of AbAnbaar has been indicated that no reservoir covered withTaghbandi or KarBandi. (Memarian2009, pp.131). Haj KazemAbanbaar decorated daintinessly with Rasmi Bandi in portal. This decoration has been used in part of stairs too.



Fig 8. RasmiBandi and KarbandiAbAnbaar ornament - entrance portal and stairway and Pashir

Source: author

Conclusion

In this paper we present the design and architecture process of Haj KazemAbAnbaar, the beauteous AbAnbaar in Qazvin which is famous for its AbAnbaar. There are many aspects which must clarify for architecture society. In this trend you will know more about Iranian Architecture.

This AbAnbaar builds carefully for storage of drinking water. The least neglect in performing can cause leakage and wasting of water. These are the sign of the Iranian Architecture: building method, using of local element, quadrangle shape of AbAnbaar, controlling water for pollution and volume, beside the decoration. Important point of this study is finding the building process. The important point which focused in this article is:casting method and process, affecting factor in maintains of structure, storage of water, using wind ward, specific performance of roof.

The presence building shows how high quality construction cause lifelong which up to now is useable. This means being economic, the terms that have forgotten today.

The important lesson which we have learnt is accuracy in construction, quality, and persistence of building. AbAnbaar is one of the great symbols of Iranian architecture.

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References:

- 1-Memarian, Gholamhossein(2009)-**Introducing the corner of unknown architecture in Iran,Ab-anbar building**, Letter Architecture&Urban.pp.125-139.
- 2-Memarian, Gholamhossein(2002),**Ab-anbar architecture Qazvin city, Journal Asar**, No. 35, pp. 187 -197.
- 3-Golriz,Mohammad Ali(2003),**Minoodar (Bob Aljnh Qazvin)**,Qom,Alhadi, second edition. Pp. 311-315.
- 4-Parhizgari,mehrzaad(2013),**Proceedings of Qazvin-** third book,Tehran, RahavardMehr, pp 133.
- 5-Parhizgari,mehrzaad(2013),**Proceedings of Qazvin-** First book,Tehran, Ronas, pp. 152.
- 6-Pirnia,Mohammad karim(2013),**Introduction with Islamic architecture of Iran**, Tehran, Soroushdanesh Twentieth Edition. pp. 213-216.
- 7-Dabirseayghi, Mohammad(2002),**Historical monuments of Qazvin city and its monuments**,Qom,Alhadi, pp. 704.
- 8-Varjavand,Parviz(1998),**Face of Qazvin city**,Tehran, Neay, edition. pp. 37.
- 9-Varjavand, Parviz(1987), **Ab-anbaarin Iranian architectural**, Collector Mohammad YousefKiani, Tehran, Jahaddaneshgahi, pp. 154-165.
- 10-Varjavand,Parviz(1987),**Ab-anbaar in Shi'ism Encyclopedia**, First volume, Tehran, Islamic Foundation Taher, pp4.

- 11-Siero, Maxim(1970),**Iran caravanserai and a small building between the**,translation Jesus Behnam , Tehran, Iran national protected monuments. Pp. 227-233.
- 12-Shahidi, Yahya(1970),**The Journal Historical Review**, December1970,No. 29, pp. 132.
- 13-Behforoz, Fatehme(1977),**Research in the area of rural houses Desert East in Kashan**,Tehran, research center Iran desert and desert areas.
- 14-Memarian, Gholamhossein(2009)- **Second Conference history, architecture popular andIts place in the history of Iranian architectural**, Iranian architectural cultural heritage.
- 15-Memarian, Gholamhossein(2002),**architecture Ab-anbaar Iran**, Report of the research project, Water Management Company of Iran, Ministry of Energy
- 16-Tasalloti,javad(1986),**Geography of the Kashan city**,Degree thesis, Tehran, University of Teacher Education.
- 17-Rezvani,aliasghar(2003),**The role of water in shaping urban settlements**, Journal urbanism, Tehran, No.2,3.
- 18-Amid,Hassan(2008),**Farsi Dictionary**, Tehran, Amir Kabir Publications.
- 19-Moein,Mohammad(2010), **Moein Dictionary** ,Behzad Publications.
- 20-Asgari,Nasrolah(2010),**Ab-anbaarSardarbozorg Qazvin and its role in the cultural life economic,and social the people's in former Ray neighborhood**,Journal of Culture and People,Eighth year, Fall and Winter 2009-2010.
- 21-Abedini,Majidet al (1990),**Ab-anbar**,Tehran, Encyclopedia Great Islamic.
- 22-Saeidian,Amin.(2013) .**Ab-anbaar, sustainable traditional water supply system in hot arid regions, remarkable**

**example of Iranian vernacular architecture**, Elixir Sustain. Arc. 56A, 2013, 13584-13590.

23-Bourgeois J, Pelos C. (1983). **Spectacular Vernacular: A-New Appreciation of Traditional Desert Architecture**, NewYork, published by Peregrino Smith Books, pp. 67-71.

24-ASHRAE Handbook, Fundamentals, Am. **Society of Heat.Refrig And Air Cond. Engineers**, Atlanta, Georgia, USA (1997).

#### **Glossary of terms for Abanbaar:**

1- **Meerab**: A person who was responsible for distributing (providing access) water into abanbars via underground channels such as Qanats.

2- **Pashir** : The lowest point of an abanbaar stairway; the location where a faucet is installed to provide water from the abanbaar storage tank.

3- **Qanat** : A system of connected wells, usually originating from elevated locations that direct water to locations far away via underground channels to a lower elevated maz-har.

4- **SaghaKhane**: A place (usually an enclave in an alley) where candles are lit and prayers (or Nazr) are made.

5- **Sar Dar (portal)** :A gate-like entrance to a building, abanbaar, etc. The over-door decorations of this entrance.

6- **Saruj** : A special mortar made of sand, clay, egg whites, lime, goat hair, and ashes in specific proportions, and was very resistant to water penetration.

7- **Dimeh** :Similar to the Saruj mix with sand, ash, lime, clay soil.

8- **Moagheli**:Type of Tiles - a combination of brick and glazed tiles for decoration of old buildings