

Urban Design Properties in Arak Old Fabric from Qajar Period

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Abstract: The old fabric of Arak is the first pre-thought city in the history of Iran that was constructed based on a pre-planned design. Therefore, all stages of the construction in this city from beginning to end including orientation, spatial organization, height order, composition of land application etc, were first designed and then executed. Goal of the research is to identify urban design features of Arak old fabric from Qajar period including landscape, town planning, development, activities distribution, communication networks, Combination of main elements, physical structure, Order of space division etc. The hierarchical method has been adopted in order to analyze of urban design properties from the whole to components, in such a way that the process of urban designing is analyzed in an order from zone to district, city, city center and eventually quarters. Conclusion of the study is presentation of urban design properties in different scales & phases.

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Introduction

Arak city as the capital of central province is located in Iran central plateau and near the Zagros Mountains. Arak as a symbol of pre-determined designed historical cities in Iran was constructed in 1812 A.D & in the period of Qajar dynasty.[1] So firstly, identification of designing properties of the fabric will lead to identifying the conscious layers of designer's thoughts concerning the major organizing elements such as form of the town, spatial organization, skeleton etc. Secondly, unlike all organic fabrics, having studied the process of urban designing of Arak old fabric, it can be realized how to plan the system in the execution process. Thirdly, since the designer of this old fabric has executed his ideas in pre-planned urban design, so through studying the works left in the fabric, designing techniques in various scales can be identified and evaluated. The analysis in zone scale consists of geographical studies, and since climatic features have maximum impact on the physical appearance of the primary fabric, description of various angles of climatic features has been emphasized. Following that the issue of foundation and development of the city is described in Qajar era. Firstly one of the most important factors in urban designing, which is in fact the role of city in at the time of foundation, is analyzed and it is implying the purpose of establishing a city; and effective factors on configuration and directions of development of the walled city in Qajar period is examined. Thereafter, organizing factors such as distribution pattern of activities, communication axes, composition of elements, the cityscape, compositional center and hierarchy within the limits of the walled city will be

analyzed. Since in the walled city, firstly axes have been designed then layout and zoning of urban elements are followed therefore hierarchy of axes are surveyed and their role are analyzed in the composition of urban elements.

Geographical features

The city of Arak is located in the central plateau of Iran, which is covered for the most part by high mountains. The city is located in the vicinity of Zagros Mountains which stretch from northwest to south east. In other words, the city is at the junction of this mountain and southeast end of the central plateau of Iran. In terms of Transportational position, Arak as the capital of Markazi province is located in the center of four main roads of country.[11].

Climate characteristics

In Arak city, amount of rain in summer is low and in winter is high and it usually snows. Winds in the region are originated from Atlantic Ocean and Mediterranean Sea, mainly blow from west- south and west. The prevailing wind in winter and spring is from West, East and East-north in the summer and in autumn blowing from the West and west- South. Overall, a desert climate with dry winds, dry months with no rain in summer and cold winters are main features of Arak climate. [1]

Historical features

Arak city was constructed in 1812 A.D in the rule of Fathali shah of Qajar .In the beginning, the city was named Soltanabad and then Iraq and in 1937 A.D, when train track started passing from there, the city was named Arak.[2] Although there was almost

stability in Qajar era, there were some rebels in different places. To cope with the rebels and to stabilize the area, Qajar governors decided to build some castles far away capital city. In Fatali shah period in order to suppress the rebels, he decided to send an army to Arak area. As leading and managing the army needed a servicing sector, building a powerful center was essential.[6] Ruler of city considered all of the details with a careful military perspective and chose a place to construct the new city which was dominant in the region, had a good view, was protected from cold and hot weather in different seasons, and nearby Aqueduct was available in northern part of the mountains. At the place which he chose, there used to be a village which was named Deskare which was destroyed during the Moqol attack and in the beginning of Zandieh era, "Eight Castles" were constructed at this place. But as the people had conflict with each other, ruler of the city destroyed them and immigrated the people to a new city. [13]

The establishment and development of Arak city in the period of Qajar

According to the historical documents the following points were the main reasons to form Arak city:

- 1- Military aspect: Arak region was a military important road between Tehran and central and western part of Iran. In the beginning of Qajar era, it was not secure enough and had no base to control such things. Thus, new ruler of the city decided to establish a military base like a castle considering all the details to find the proper location. [14]
- 2-Political and administrative aspect: Definitely, managing political and administrative stuff, collecting taxes, implication of policies in a region with more than 680 towns and about 500,000 populations made the ground to construct the new city. [14]
- 3- Economic- services aspect: Arak has some good features in geographical and ecological aspect which brought an opportunity for nomadic from different religion, race and culture.

Because of nomadic economical system and cultural conflicts prevented city construction in the region. In addition to the mentioned points, being located in one of the main passages which joins the central part to west and south, made construction of a city more important. [14]

Development process of Arak city in Qajar period

After initial settlement, and after a few years, the city's economic boom started, the bazaar became trade Center in the region and Arak were permits immigration from nearby towns and other

provinces. Because of limitation of residential area in the city and lack of land for building houses, the city should develop. As the slope of the city is from south to north and source of all aqueducts was in the south, thus, progress of the city, in the beginning, was toward south and then eastern and western south and some new buildings were built around the suburb and after a while, new quarters were constructed. The city's early settlers were concentrated in the wealthy neighborhoods of Abbas Abad, which was the center of the rich settlement. Vast and durable houses were made in this zone. In this time, government didn't supervise on construction of buildings. Thus, development of the city has been out of regularly. In all of the cities of the world, residential areas are classified for some economic, social and religious reasons. There are also some classes in Arak. Inhabitants of the southern part are richer than the northern part. Physical fabric of the city new parts unlike the first fabric are irregular and spreading organic as the city double figure is completely tangible. As west and south parts of the city are closed by the mountains, expanding of the city is to north, east north and west north. In city development to the suburb, most of the gardens were replaced by residential buildings and because the limits of the gardens were rivers which are not direct, so the current residential buildings are on a irregular limit which made irregular streets. It is today one of the failures of urban traffic in Arak. [9]

Town planning of Arak

The city of Arak consists of four urban layers including:

1. The old core which is located at the heart of the city and has a regular, check network structure. (The walled city)
2. The fabric around the central core which was formed at the first stages of development and has an irregular and organic design. In this texture, most alleys are narrow, and are often constructed along the water paths and old street gardens.
3. The regular, newly constructed texture, which has developed irregularly and web-like around the organic texture and has been designed based on the general urban plan.
4. The margin-settlement texture which has grown in some suburbs irregularly. Due to lack of order in the construction of buildings, they make up the majority of worn textures of the city. The city of Arak is divided into three districts, based on the approved master plan studies and within its limits of development, which are divided into 20 urban cores. [1]

Urban design stages of the walled city

The main stages of construction of the city were: [16]

1. Division of water of the aqueduct in southern part to supply the water for western and eastern part, the market and government building.
2. Locating the walls of the city in a way that the southern part is toward (Mecca is tilted 27 degrees to the south west side)
3. Construction of city walls with towers as a rectangle with dimensions 600 * 850 and trench dug around it to within 10 and 8 m depth
4. Building walls and gates of the fort
5. Divide the length and width of respectively 8 and 6 blocks to the city
6. Construction of the alley between the blocks of the city within 5 Meter
7. Associated interstitial market as the axis of integration that they end their four-goal lead and the intersection is located.
8. Separation of business from the residence as a physical and functional
9. User selection of locations outside of City Government
10. The establishment of welfare centers, social, cultural and religious (baths, schools, mosques, water storage and on market orders and limit set in the urban
11. Construction of Western and Eastern markets Seminary
12. Development of gardens and farms out of the walled city
13. Switching the location of cemeteries outside the city limits

The pattern of activities distribution in the walled city

The pattern of the distribution of activities in the walled city is based on a layered system around central axis with considering of functional and physical hierarchy and each element has its own spatial link. In the central part of fabric, bazaar plays an important role as a commercial axis in organizing fabric physic and function. In the middle layers of fabric, residential neighborhoods were organized around this axis and agricultural fields on the next layer as the last city functional ring defined the fabric within the inner boundary. [4]

Communication networks in the walled city

In the original plan of the walled city, the network has established cross-checkers. As a result of axes intersection, the whole city is divided into four main areas, each containing a residential quarter. [3] Hierarchy of communication networks in the walled city are as follows: [3]

1. *The public roads*: Public paths comprise most of the thoroughfares of the fabric, and urban equipments and elements are of the highest capacity, volume and degree on the sidelines, like the bazaar and the paths inside it which provide connection between the city and surrounding areas without getting into the quarter. Public facilities are mainly located along these paths.

2. *Semi-public roads*: These roads are forked off public paths and end up in quarter's centers. They provide services and communication within the quarter and have been created around the quarter center. Neighborhood facilities are located along these roads.

3. *The semi-private roads*: These roads link to semi-public roads and define the limits of urban block. The passages function as communication joint between urban blocks and are connected to the passages leading to the neighboring spaces in small scale.

4. *Private roads*: These roads are dedicated to some residential units and have established connection with several houses and link to the semi-private roads. Most of private roads are the dead-end. In Arak old fabric, bazaar is considered the main social public space, and having had all the relevant facilities & provides connection between quarters. Throughout the whole fabric, in order to both provide access to different parts and making the paths semi-public, attempts have been made to build cross junction roads on the main roads. The hierarchy in the order of roads in old fabric of Arak has made it possible to have a spatial hierarchy at city center, centers of quarters, and sub-quarters. The quarters of the city with such road rankings have had independent and clear borders: four sub-quarters are connected to the city's fortress from two sides, and from the other two sides, they are connected to bazaar.[8]

Combining of main elements in the walled city

Spatial design in the walled city was based on Iranian and Islamic model and has been integrated with modern time condition. The main part and structure of the city is bazaar and all the residential buildings are around it. Public needs are almost considered and alleys are as the joiners. Governmental and military buildings, like all of the Iranian-Islamic cities are in the suburb. A square was built as a connection between them and the city.[12] Arak used both Islamic traditional methods and modern knowledge to be constructed. The integrity of the market as a solidarity element, the combination of elements and their relationship with residential space, existence of mosque as a social center among the residential spaces and segregation of state space of the original fabric are the reasons. [11]

The city center and its Qajar monuments

The central core of Arak can be divided into two zones:

A) The historical fabric: This is the same walled city zone around which the city has developed; it contains a regular, check-designed network of pathways where bazaar axes function as the main skeleton of texture. In an overall perspective, in this section of the central core, we can view some single, double, and at times triple storey buildings woven into each other, and though look split in terms of view, they are similar in line of sight.

B) The zone surrounding the historical fabric: The first ring of urban development in this zone lies around the old castle which is situated in the south; since development has been entirely organic in this zone, the network of pathways are irregular and do not follow any specific structure. In this zone modern texture is dominating, and the rate of construction is so high that the old texture is lost in the modern one, and single buildings of historical value are scarcely seen in some pathways. Throughout all the access points of the zone the width of pathways and line of sight differ.[17]

Physical structure and communication network system in the central core of Arak city

The main coordinating structure in the city center is in line with the main axis of bazaar, with a little turn though, and stretches southward from the edge of texture. The other axis is perpendicular to the above axis, and their conjunction has created a square where almost all major activities have been organized. It is the main and central square in the city and where all urban paths and streets lead to. The pathway network within the internal divisions resulting from the crossing of the above mentioned axes are entirely organic and do not follow any specific order. [10] The uniform recess of the walls along pathways, regardless of the spatial quality of pathways and difference in the value of walls, has turned the urban spaces and ways into straight, void tunnels along which the buildings have been arranged. Heterogeneous heights of the new buildings in the proximity of old ones and the application of contrasting colors played an important part in this regard.[15]

The main elements of the city's central core

1. Bazaar: The old bazaar is one of the valuable cultural and historical spaces which has preserved its economic function in the center of city, and is regarded the most important joining element between the old texture and the central square.

2. Arg square: This is one of the old squares in the city and a connective nod among the main pathways

in the city, to which the north end of bazaar is also connected. Due to its historical status and the emotional attachment of the old generation to it, most religious and public services are organized in this square and in a way it is regarded as cultural heart of the city.

3. Shohada square: This Square is the first point of development outside the walled city, and is where the main axes cross; it is the economic center of city and has the highest density in commercial applications.[18]

The functional features of Arak central core

One noticeable function within the city's central core is trading which begins from bazaar and stretches throughout the Central Square and streets creating a strong business zone in city center. Unlike trade complexes in the historical texture that are often large, the commercial units in the city center are often small and lack the physical consistency. Some of these trade units are functional in community scale and have no significance in crowded streets.[1]

Qajar monuments within the central core of Arak

Maximum density of Qajar monuments is seen within the walled city; in fact 80% of all Qajar monuments are within this limit and only 20% are outside it. Outside the walled city, except a few houses and mosques that are located farther from the city's main axis (Abbas abad), the rest are situated in the margins of the main axis. Inside the walled city, the highest density of Qajar monuments is witnessed around the main axis of bazaar, so that each path in bazaar is functionally independent.[5]

Order of Division of space in the Quarters

The walled city was composed of two main quarters as each of them includes two south and north sub-quarters. So the whole limit has been divided into four quarters and Bazaar is communications joint of quarters with each other. Each quarter was homogeneous in terms of social characteristics that this point was considered during the transport of population from the destroyed castles to the city So that the area was formerly a place when migrating to a new city, under the settled community.[16]

Layout of the Quarters

Arak old fabric includes of four quarters in names of northern and southern Ghale , northern and southern Hesar which their layout are as following:[14]

1. Quarter of northern Ghale

The quarter is located in northeast of Arak historical fabric and in Qajar period has been limited to city wall from north and east, from west to main

axis of Bazaar and from south to minor axis of Bazaar and quarter of southern Ghale . With destruction of the city wall and development of fabric, currently it is limited to new quarters of Kalleiha and Hezaveiha from north and east.

2. *Quarter of southern Ghale*

The quarter is located in southeast of Arak historical fabric and in Qajar period has been limited to city wall from south and east, from west to main axis of Bazaar and from north to minor axis of Bazaar and quarter of northern Ghale . With destruction of the city wall and development of fabric, currently it is limited to new quarters of Abasabad and Hezaveiha from south and east.

3. *Quarter of northern Hesar*

The quarter is located in northwest of Arak historical fabric and in Qajar period has been limited to governmental castle from north, from west to city wall, from east to main axis of Bazaar and from south to minor axis of Bazaar and quarter of southern Hesar. With destruction of the city wall and development of fabric, currently it is limited to new quarter of Kalleiha from north and west.

4. *Quarter of southern Hesar*

The quarter is located in southwest of Arak historical fabric and in Qajar period has been limited to city wall from south and west, from east to main axis of Bazaar and from north to minor axis of Bazaar and quarter of northern Hesar . With destruction of the city wall and development of fabric, currently it is limited to new quarters of Abasabad and Olkeh from south and west.

The pattern for distribution of activities in the Quarters

In the past, every quarter was connected to bazaar at two sides, and to the walls of city at the other sides. The exterior shell of each quarter was associated with its commercial application and residential buildings have been designed in the middle layer within a specific order, and eventually the central layer has been allocated to quarter center included public buildings in community scales.

Communication network in the Quarters

The center of each quarter is located at cross section of two semi-public pathways. These semi-public roads are forked off bazaar axes and feed the semi-private paths inside the quarters. The semi-private paths have decent privacy and settlers were the only farers in the paths. These paths eventually lead to private pathways. Therefore, the structural order of quarters has been designed based on the hierarchy of roads and every limit of the quarter has its own hierarchy. [16]

Combination of urban elements in the quarters

In Arak old fabric, each sub-quarter center, in addition to close access to the bazaar and market ways split, includes mosques, baths and water storage as heart and the most basic requirements of sub-quarter. In sub- quarters, some municipal utilities exist that had sectional function and some of them had common function with bazaar. So every quarter is independent in terms of combination of urban elements from other quarters. The fabric center comprise of bazaar & Charsuq with facilities such as schools, mosques, baths and water storage on a larger scale with urban function. There are religious and cultural spaces in the vicinity of the fabric center and sub-quarters centers that create correspondence, spatial hierarchy and homogeneous spatial organization in fabric. [7]Dispersion of monuments in quarters was in such a way that each quarter has baths, mosques, and water storages, and has had independent function.[16]

Conclusion

The first and foremost reason for the formation of Arak was military and security aspects. This fact, which implies the dominant role of the city, is regarded a decisive factor in the urban designing of the walled city, so that it will lead to making decisions as to the positioning of the city and its spatial organization. The composition of the main elements in the walled city has been based on an Iranian & Islamic pattern which has been incorporated with the circumstances of modern times so that bazaar is the heart & the organizing axis of the walled city and residential buildings are situated around Bazaar. The governmental space has also been positioned outside the main fabric like Iranian-Islamic cities. In terms of town planning, the main stages of construction of the walled city were included of water division, construction of city walls, digging of trench, building gates of the fort, forming of urban blocks, construction of passages between the blocks, construction of bazaar as organizing axis, site selection of applications, development of gardens and farms out of the walled city so it can be concluded that the old core of Arak, unlike many old cities of Iran, has been designed wholly and constructed with a pre-determined planning. In the original plan of the walled city, the network has established cross-checkers. Charsuq is the composition center of the fabric & is intersection of main axes. Every axis ends in one of the main gates and finally the main roads of the region. As a result of this intersection, the walled city has been divided into four main quarters. The hierarchy of the composition is in behalf of the Arg square where is located at the end of Bazaar. Urban

designing in the walled city is based on a modular network.

References

1. Arse Consultation engineers, 1985, Comprehensive Plan of Arak, Arse publication, Tehran.
2. Ghadiani, Abbas, 2001, Comprehensive book of Iran history, Aroon publication, Tehran.
3. Gharib, Fereidoon, 1997, Connection network in urban design, Tehran university publication, Tehran.
4. Golkar, Kurosh, 2001, Composer Factors in urban design quality, Soffe publication, Esfahan.
5. Haji ghasemi, Kambiz, 1998, Bazaar buildings, Shahid beheshti university publication, Tehran.
6. Kamrava, Mohammad Ali, 2005, An introduction about contemporary urbanization of Iran, Tehran university publication, Tehran.
7. Kiani, Mohammad yusof, 2001, Architecture and urbanization of Iran, Culture ministry publication, Tehran.
8. Madani pur, Ali, 2008, Urban private and public spaces, Urban planning publication, Tehran.
9. Malekhosseini, Abbass, 2005, The study of affecting factors on development of Arak city, Amayesh Publication, Arak.
10. Naghizadeh, Mohammad, 2008, City and Islamic Architecture, Mani publication, Tehran.
11. Naghshe- Sepehre Parse Consulting Engineers, 2006, The study of plan for the historical fabric of Arak, Sepehre parse Publication, Tehran.
12. Ruhi, puyan, 2005, Urban design in Intermediate scale, Abadi publication, Tehran.
13. Shamim, Aliasghar, 2006, Iran in Qajar dynasty period, Zaryab publication, Tehran.
14. Shieh, Esmaeil, 1996, Arak–new city of Qajar period, Rahe danesh publication, Tehran.
15. Shieh, Esmaeil, 1999, City and region in Iran, Science and industry publication, Tehran.
16. Shieh, Esmaeil, 1998, The art of urbanization in the old fabric of Arak; Rahe Danesh Publication, Tehran.
17. Soltanzadeh, Hossein, 2007, Urban Spaces in historical textures of Iran, Amirkabir publication, Tehran.
18. Tavassoli, Mahmood, 2008, Designing Urban Spaces, Urbanization & Architectural Research publication, Tehran.

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