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## **STUDYING THE EFFECTS OF PASSIVE DEFENCE CONSIDERATIONS IN THE FORMATION OF ANCIENT CITIES OF IRAN: BETWEEN ACHAEMENIAN AND THE ADVENT OF ISLAM**

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### **ABSTRACT**

Safety and security are considered as the most primitive requirements to approach agreeable standards to achieve human convenience in urban life. It deeply influenced the advent of incipient civilisations in the world and guaranteed the endurance of ancient powerful empires, i.e. Persian Empire. It can be claimed that the ravage-defence concept set the history of Persian cities' establishments in the past. Dwelling in unsecured environment compelled Iranians to make sagacious urban policies to diminish the effects of belligerent measures. Considering the time interval between Achaemenian Empire and Islamic period in Iran, the role of passive defence notations in forming Persian cities has been investigated in this research. The results have indicated that in addition to providing safety and security of citizenry, pursuing passive defence principles, including physical separation and dispersion, locating, camouflage, deception and early warning, led to determine the shape of ancient cities of Iran.

**Keywords:** *Iranian Ancient Cities, Safety, Passive Defense*

### **INTRODUCTION**

Security and developing policies to gain the internal and external security has always been a great concern to the most countries in the world. Basically countries draw their security plans according to their power requirements, geographic situation and ideology so that it would provide the most possible security in all directions. Generally defence may be defined as "elimination of an offensive opportunity" and therefore all the defensive actions would lead to a defence or to decrease the effects of offensive actions of invaders. But the state of defense depends upon a number of different factors. In general the state of defense may be divided into two different categories, namely; active defense and passive defense. The active defense concerns all the defensive plans, programs and actions which require weaponry means. On the other hand the passive defense concerns all the parameters taken into account when there is an aggressive threat to the nation, national economy and the territory. The difference between the two category is the requirement of man power for mobilizing and managing the active defense factors such as weaponry, education and management of the personnel, without which their application would be impossible. The passive defense, on the other is defined as facilities to engineer the warfare so that without any weaponry it would be possible to increase the capability of the military and defensive forces. The collection of the basic and infrastructural activities which may lead to passive defense goals are the actual principles of the passive defense as follows: Camouflage, cover, Deception, Separation, dispersion, hardening, early warning, and the Localization. Of course there may be other factors which are not taken into account and yet have great impact on the quality of the defense. Some of these are namely, natural and artificial barriers, availabilities and accesses, and shelters (Mohsenzadeh and Zandyeh, 2013). The prime objective of the passive defense is to establish and continue the basic and infrastructural activities, to supply the vital requirements, to continue public services, to ease the management of the country at the time of crisis and to safeguard the defensive stamina of the country at the time of crisis, by undertaking passive defense projects to reduce the damage to the sensitive. Important and vital installations.

Iran is a vast country which due to her geopolitical situation is covered by historic and ancient castles, bulwarks, garrisons, fortifications, Ramparts, battlements, fortresses and alcazars. In order to safeguard

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the nation, Iranians have had many defensive considerations through centuries. Fortifications such as Sialk fort of Kashan, Hassanloo castle in Orumieh, and Bolloor Abad in Khoy are all samples of constructions which have been erected for defensive purposes and traces of passive defense may be observed in them.

This article intends to study the factors of security and passive defense in formation of towns and cities in Iran before Islam.

#### **History of Urban Ship in Iran**

According to archaeologists, the first signs of civilization in Iran has been identified and fixed dates back about 10 thousand years ago (Tallaie, 2011). Basically urbanization is known to be a result of agricultural revolution. Humans entered an era of slow economic and agricultural development during 9 to 7 A.C by the sign of historic remains the first sign of civilized urbanization in Iran falls back to 10000 and started building shelters. At the time, colonies and societies; along with a boom in agricultural activities and increase in production; achieved improvements in technology, which in turn lead to construction of public buildings.

Construction of thickets is a sample of these constructions. Developments of societies lead to the building plans according to the social requirements of people. Construction of defensive areas, temples and workshops began during 6 to 1 A.C. HassanlooCastle in Uroomieh (figure1) and Sialk in Kashan (figure2) are samples of such primitive urban ship. The societies began to form different means of defensive constructions to defend any sort of threats during this era. This in turn led to development of various dimensions of social life with in societies which continued for centuries. Orartooie castles are samples of these constructions (The word “City” in the middle Persian was called “shaar” and “shaarestan”).



**Figure 1: HassanlooCastle, in Uroomieh**



**Figure 2: Sialk, in Kashan**

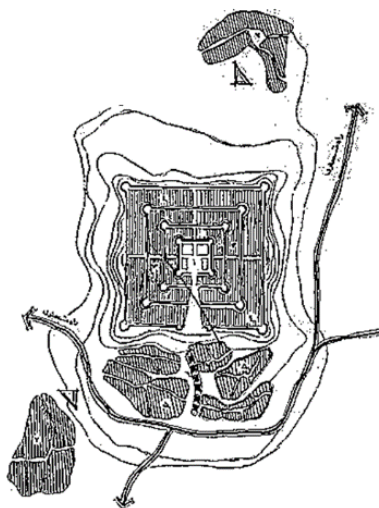
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After the agricultural revolution and appearance of urban life other parameters affected the formation of societies and urban life (Soltanzadeh, 1984). During the first Georgian millennium formation of dynasties such as Assyria, Babylon, Median and Achaemenian was due to developments in different aspects which caused reformations in social and urban life.

In general it may be possible to categorize the civilization and urban ship of the Iranians into three different branches. These categories may be defined as urbanization of the Iranian society, before Islam, after Islam and present day (Habibi, 2008). However, this article covers the period of urbanization before Islam in Persian, Hellenistic – Persian, and Parthian manners.

#### **Shaars in Persian Manner: From 9<sup>th</sup> A.C. to 4<sup>th</sup> A.C. Design and Context**

The Persian construction of Shaars began during Median reign and reached its highest point of flourishing in Shoosh, Estakhr and Passargad. The Median Shaar consists of a surrounded castle at a high point such as a hill top with scattered living communities within its surroundings (Figure 3). As a matter of fact the Median Shaar is a representative of a powerful centralized governing system and the public opinion of the different layers of the society. The design and programming actually concerns the castle and its internal divisions which actually is a center for organizing the three tribal, rural and urban societies (Habibi, 2008).

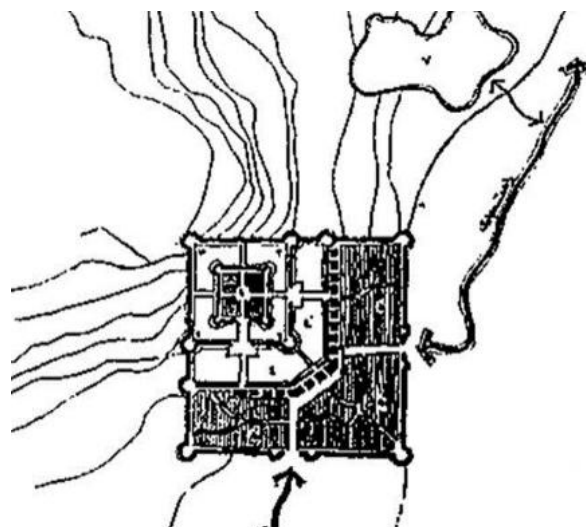


**Figure 3: A Median SHAAR**

During the Achaemenian era the wide span between the affiliated territories introduced a need for military and merchant roads. Therefore the government was responsible for the security of these roads and each Persian Shaar was submitted by the responsibility of the security of the roads within its territory. A Pony Express Home (Chaparkhaneh) and a public house, or an inn (Caravanserai) was constructed every 20 kilometers. In this era not only the governmental and clerical powers were situated in Shaars but economic activities were also centralized within Shaars, forming the first signs of Bazaar. As a matter of fact, concepts such as “city - temple”, “city - power” and “city - bazaar” were always carried by the Shaar concept. The ever increasing number of Shaars during the reign of Achaemenian shows the strong trend for urbanization.

Persians constructed their cities with plans learned from the ancestral traditions, sanctified by the clericals and they never made any changes in them. The city was built within a 700 by 700 meters square arena (700 meters is approximately is the distance which a horse can run in one go as its free will). Fire was kept at the center of this square as the prime protector of the place alongside which a public reservoir of water was established. After finishing the house of fire and the reservoir, houses and other buildings were started to be constructed. (Figure 4) The overall view of the Persian Shaar combines of the governmental fort, central Shaar and the outer or external Shaar (Habibi, 2008).

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**Figure 4: Persian SHAAR**

**Table 1: Considerations of passive defense in Persian SHAAR**

1	Chaparkhaneh and Caravanserais built to secure trade	Protection of intercity services
2	Selection of strategic points	Selection of places
3	Construction of platforms in the absence of natural ones	
4	Presence of bazaar in both the central and outer Shaar	Physical and parallel distribution utilities
5	Supporting Gardens and farms parallel to the industrial and commercial services within the city	Parallel civil service and the protection of civilians in connection with other parts of the country
6	Preparation of food and water storage reservoirs and numerous warehouse	
7	Presence of gates for moving from one section to another	Controlling the local access to protect the central regions
8	Construction of heavy circular walls around triple sections of the Shaar	Obstacles
9	Using natural enclosures(Mountains, rivers, Forests...)	
10	Sanctification of the city plan and making fire at the center as the prime patron	Mental security of citizens

***Shaars in Persian – Hellenistic Manner: From 3<sup>rd</sup> A.C. Design and Context***

Confluence of the two eastern and southern philosophy resulted in development of new Shaar concepts with Hellenistic “city government” and Persian “city power”. Principles of constructing such cities are influenced by what was used in classical Greece. Here the human basis determines the design of passages and houses. The passage networks and their design were formed on the checkered design and housings were designed in a manner totally different to the Greek ones and for the first time roundabouts and squares come into passage networks. As a matter of fact the square becomes a center for cultural and economic activities as in Agora. All the buildings of a Persian -Hellenistic city are centralized around this square. People of the privileged layers of the society live in this area and the rest would live in scattered residential areas further around the city (Habibi, 1983).

The Seleucid government tried to establish security and protection for the roads by organizing urban networks and renewing the roads and founding military stations through the network. They constructed water reservoirs, inns and aqueducts and flumes which improved the communications and transport to the highest attainable point.



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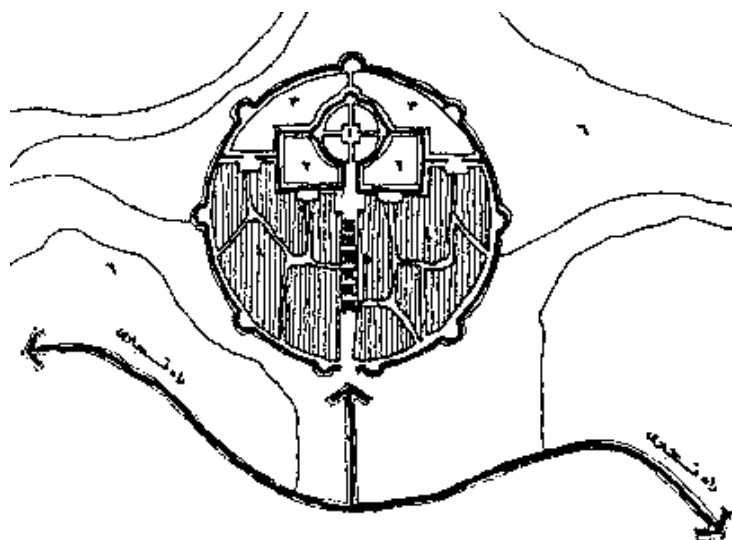
**Table 2: Considerations of passive defense in Persian– Hellenistic Shaar**

1	Establishing the road network, construction of new roads and maintenance of the present roads	Provide appropriate access and facilitating alarm
2	Construction of cities alongside the routes and fortifications	Taking advantage of locating to improve safety
3	Establishment of cities amongst villages	Using locating Principles (warning, creating obstacles and camouflage) and the physical dispersion
4	Construction of water reservoirs and aqueducts and inns	Physical divisions and parallel public services

**SHAARS in Parthian Manner: From End of 3<sup>rd</sup> A.C. to 7<sup>th</sup> A.C. Design and Context**

During the Parthian reign, due to the weakness of the central government and weak relations and communications between the central government and the local sub governments, they acted self-willed and started clashes with their neighboring countries. Cities were ruled on the basis of “city power” as “polises” which were autonomous (Pigolevskaia, 1988).

Here the city or “the polis” is the center for economic and industrial activities as well as agricultural activities. Rural complementary areas and villages act as supporting and complementary agents for the city activities. Merging the Persian – Hellenistic cities with other residential areas, and elimination of the social. Cultural and political inequalities and revocation of self-ordering of cities was the decisive decision of the Parthian government to establish the Greek urban concept into the Persian society. However, a relapse to the Persian cultural origins established a different way of living (Habibi, 2008).



**Figure 5: Parthian Shaar**

**Table 3: Considerations of passive defense in Parthian SHAAR**

1	Placement of strategic points	Continuation of locating features for security and defense
2	Considering the supporting role of the rural	Parallel utilities and distribution of food supplies
3	Optimum circular shape	To further safeguard the strategic core of the city, enjoying the impossibility of deceiving the international orientation in final form
4	building fortifications	Taking advantage of the strength of structural elements for security and alarm

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Actually the Parthian government induced a self-conducting discipline instead of its current logical discipline by merging the city and its environment. They establish circular walls and forts around the city generating the first circular cities (Figure 5). Firooz Abad and Nessa are two samples of such circular cities. However the judicial skeletal establishment of the city remains intact as the Persian Shaars (Habibi, 2008).

#### *Parthian Shaars within Sasanian Government*

Sasanian Ardeshir managed to establish a unified religion, economy and slavery throughout the country by the means of military power (Pigolevskaia, 2008). During these years the city becomes a foundation for social, economic, cultural, merchant and political institutions of the Sasanian government (Habibi, 2008). In the most of the valid historical documents, the Sasanian government has been known to support urban life and urbanization (Taghavinejaad, 1987). During the Sasanian reign the cities were considered to be the foundation of public and political organisms. Of the most important achievements of the Sasanian dynasty is the boom of economy and industry, improvement of road networks, rapid growth of closely related cities to the administrative system of the royal system, and diminishing the Greek institution (Taghavinejaad, 1987).

It is believed that the Need for establishment of new cities had a great role in the administration of the central government (Kiani, 2008). In the new Judicaël system the defense of the country was submitted to the border cities. These cities were all well equipped with the best possible weaponry. The Security and protection of the road network was undertaken by the central cities. The inner central cities were in charge of production. All three groups of cities actually resemble the old Shaar concept (Figure 6). According to the class system of the Sasanian society it could be concluded that the classing of the cities may also follow the same pattern. Here the four most important buildings, namely, the palace, temples, fortifications and bazaar under shadow the other buildings (Taghavinejaad, 1987). Persian Shaar like the Sasanian Shaar is affected by the religious attitude. Basically the city has four main gates facing the four main geographical directions (Habibi, 2008). Such a Shaar consists of the governmental fort, central Shaar, outer external Shaar, bazaar and the main square (Habibi, 2008). In terms of land application a Sasanian Shaar is divided into three major sections, which are namely, the fortification, the city (Shaarestan) and the Rabaz (Taghavinejaad, 1987).

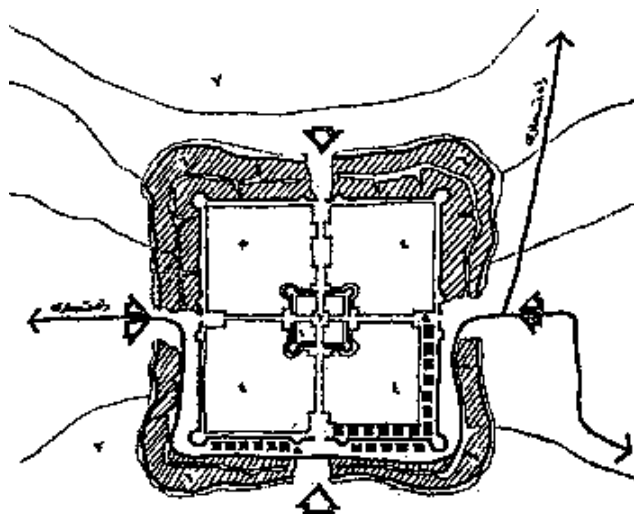


Figure 6: A Sasanian Shaar

In Sasanian cities presence of walls represents a sense of insecurity as means of separating the different parts of the city. Muslim historian defines the exact dimensions of the Sasanian s city walls. They state that the wall is made of bricks and the width of wall is such that three horsemen can ride alongside one

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another. Around the wall there is a wide and deep ditch (Taghavinejaad, 1987). Based on the characteristics of passive defense, Sassanid cities include following traits:

**Table 4: Considerations of passive defense in Sasanian SHAAR**

<b>1</b>	<b>Placement of strategic points</b>	<b>Placement</b>
<b>2</b>	Allotment of defensive responsibilities between the cities according to their situation	Physical Distribution and use of the principle of division and deception
<b>3</b>	Presence of gates	Controlling accesses
<b>4</b>	Construction of heavy walls around the Shaar	Obstacles
<b>5</b>	Using natural barriers	

**Reasons for Formation of Cities**

One of the most important reasons for forming cities in Iran is the political administrative reason. Then the military, economic, and commercial reasons would follow (Soltanzade, 1986). One of the main reasons of formation of cities concerns its political – administrative roles in handling the public affair such as construction and maintenance of watering systems and defending the society against foreign invasions, that is why the governors were not allowed to establish new cities and settlements (Soltanzade, 1986). The geopolitics system of the country forced the central Iranian governments to establish new military cities near the border lines to safe guard the country against the invasions. City of Tisphoon and Hettreh are examples of such military cities. Such cities not only could serve as a safe guard against the external threats but they could also help in resolving the internal unrests (Soltanzade, 1986).

During the Sasanian era the influence of clericals within the governing system was so powerful which resulted in establishing fire places all over the country and even constructing holy cities with large Fire houses. Examples of such cities are the city of Sheez (Takhte Soleiman), Karian and Neyshaboor with great fire houses such as Azar Goshasb, Azar Gharnbagh and Azar barzin Mehr respectively (Soltanzade, 1986). In a number of “ commercial – industrial” cities the most of man power was diverted towards the production and handicrafts. During the reign of Sasanians a number of ports were established and Persian Gulf ports were of the most important commercial centers. During this period most of the cities had a rural area at their outskirts which the city was economically depended on them and received different types of services from them.

**Morphology of Pre-Islamic Cities**

During the reign of Seleucids and Parthians the morphology of the cities gradually followed a defined pattern (Soltanzade, 1986). The Iranian cities before Islam mainly followed two certain patterns:

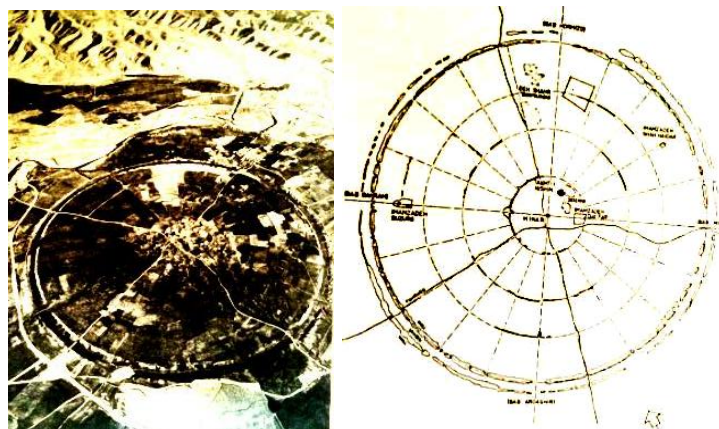
**A.** Cities with checkered street patterns in which streets and alleys join vertically, examples of which may be observed in various present historic forts.

**B.** Centrally organized cities with the main public buildings; such as the Fire house and governmental base; standing at the center and residential circle around them, such as Firooz Abad and Ardeshir Khor (Figure 7) (Pirnia, 2008).

The checkered cities had two main transverse roads and other roads, streets and alleys were laid parallel to them. Another design which during the Sasanian and Parthian era drew the attentions was the circular city design. Here the public buildings and the palace were all situated at the center of the city and the residential were situated circularly around them (Soltanzade, 1986). The main reason for such formation has been defined as the lack of security during that era. Also such design may consider having a symbolic concept.

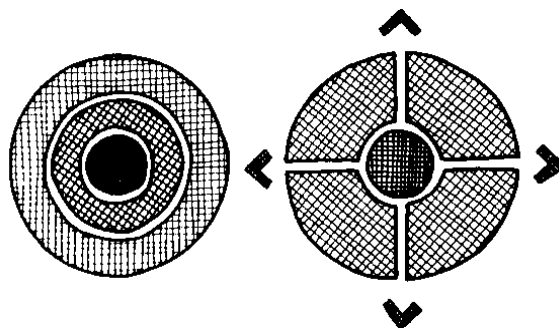
Titus Burckhardt believes that the actual circular or rectangular shape of the cities not only represented the way of living of the residents but also was related to the universe. This is due to the fact that the city actually represents the justification of the residents against the universe. A square shape with its axes parallel to the four geographical directions defines a strong way of living representing an urban way of living where as a circular shape defines the circular movement of the universe representing a desert type of life (Burckhardt, 1986).

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**Figure 7: The Sasanian city of Ardeshir Khor**

Generally the quality of the design of cities in Iran before Islam was based on a cultural view in which the dividing the city into four main parts stemmed from the four main geographical directions, so that the main entrance gates of the city actually faced these directions (Figure 8). The three layer definition of the society manifested itself in triple parts of the city design (Soltanzade, 1986).



**Figure 8: The triple and quadrilateral formation of the Iranian cities before islam**

In general the cities have mostly been designed on the basis of a certain discipline with their main axes crossing vertically with respect to one another in a cross resembling shape (Kiani, 1986). Cities were surrounded with fortifications all around. The new cities were divided to the various sections according to their application. As a matter of fact it could be concluded that the areas of business were isolated from those of palaces and temples (Kiani, 1986).

**Table 5: Specification of the cities before Islam**

Persian	Median	7 to 9 A.C.	City – temple city- power City - hall	Plunder r – defense and religion	Hegmataaneh
	Persian	4 to 7 A.C.	city- temple city - power	Defense – social classes	Shoosh
<b>Persian- Hellenic Parthian</b>	Seleucids	A.C. 3	city-government city -power	Defense and social classes	Sad darvaazeh
	Parthian	3 A.C. to 3 A.D.	-	Defense and social classes	Firooz abad & Nessa
	Sasanian	3 to 7 A.C.	city- temple city- power city- bazar	Defense and social classes snd commerce	Nishapoor



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In general the shape and the map of the city were always functions of natural factors and the fortification design. This could introduce the highest possible degree of security to the city design. Although the shape of the fortifications usually are defined in accordance to the natural topography of the city (Amini *et al.*, 2013), yet the kind and the specifications of the threats had a great impact on the design of fortifications.

However, preservation of the security of the habitants of the city have always been the prime concern of the formation of cities. Therefore consideration of these design parameters in a city design along with natural properties of the area was decisive principals in constructing a city before Islam. Traditionally, selection of a placement for forming a city has been involved with, criteria such as, the proximity of the city to the high ways, commercial reputation. Centrality with respect to the important places within the area, strong geological infrastructure and the distance from flood passage (Pirnia, 2008).

The above are all regarded as passive defense criteria for formation of cities.

Also designing buildings to represent the dignity of the ruling system has also been a defensive consideration in historic Persian cities. The glory and magnificence of “Taaghe Kasra” could naturally cause a fear in enemies which could be regarded as” a defense prior to attack”. This monument has not been built to represent the engineering power but it was meant to show the power and the wealth behind it so that the foreign ambassadors could take with them to their rulers (Pop, 1987). Therefore showing the power to build magnificent monuments and buildings for demonstrating the ability in building fortifications and weaponry is another means of the passive defense.

### **CONCLUSION**

In the remains of early residential complexes in historic Iran observance of principals of passive defense are regarded as the most important parameters of survival of societies. These principals were actually regarded as the prime factors of the safety of the residents and the city itself.

As mentioned before, as observed in early Median cities, Selection of a strategic point for a city, fortifications and preservation of security were the prime considerations in formation of Persian cities. In Achaemenian era also considering the passive defense factors were the prime objectives in determination of the security of cities.

Also in Persian – Hellenistic cities, Seleucids utilized the Persian passive defense factors. In order to improve the security of cities they also added; the establishment of the civil text surrounded by rural areas, presenting civil services and civil development; to the current Persian knowledge of passive defense.

In Parthian cities the overall geometry of the city map changed from rectangle form to a circular form due to mentalities and universal viewpoints. This would not only have a holy effect on the living atmosphere but it was regarded as a passive defense factor.

Considering the view points on the universe and the super natural world were regarded as the defense principals. However, organization and management of defensive responsibilities along with establishment of fortifications were still the prime factors in formation of cities.

Basically, principals of passive defense such as, dispersion of susceptible and strategic points, selection criteria and emplacement of the living areas and consideration of security principals such as; camouflage, hiding the living areas and the important strategic parts, alarming system and deception of the enemy were all decisive parameters taken into account when forming a city.

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