Urban morphology and transformation the pattern of housing in the historical cities of Iran

Case Study: Historical Texture of Shiraz. Iran

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Abstract
Regardless of the historical and cultural collapse of today's contemporary architecture that arose in the aftermath of the advent of modernity, if we look at the process of the emergence of architecture before this era, we see that most architectural monuments in different periods have been able, due to modeling, to possess A distinct and defined style. The study of urban morphology and architectural typology on different scales show that the formation of ancient cities in the Middle East has always been subject to various conditions, including political, social, economic, geographical and cultural conditions. Cultural conditions are the most important and the first parameter in the formation of urban structure in Iranian cities. The city of Shiraz is one of the sample cities. By studying the historical context of Shiraz from the past and reviewing its morphology, it can be understood that the city's structure is based on cultural conditions. The modern city structure in Shiraz is very different from the historical structure that continued to Qajar period that is the finalist historical period of Iranian urbanism. In this paper, by analyzing different parts of the historical texture of Shiraz, the concept and dimensions of changing the pattern of housing based on urban morphology have been analyzed and analyzed. The results of this descriptive-analytic study show that the concept of housing in this city has been changed and the main factor of development has been derived from the inside. Therefore, it can be argued that the core of the forces forming the Islamic cities, based on the concept of housing in the present age, has lost its meaning.

Introduction

Urban morphology is a major trend in studying the shape of a city in urban geography (Madanipour, 2001 .)Urban morphology is a study that studies the shape of urban tissue and its current state of affairs. In other definitions, urban morphology can be described as follows: Urban morphology is a study of the combination of form and urban space that helps urban designers to become familiar with local patterns of development and change processes(Carmona, Tiesdell, Heath & Oc, 2003).

Therefore, it is observed that the emphasis of the existing definitions is on the physical aspects of the city that urban designers can intervene in shaping. However, in some definitions, it refers to social and economic forces that affect urban texture over time. It goes on to say that how much research and studies on urban morphology have succeeded in analyzing social and economic forces over time. It seems that the lack of serious attention to these forces is a common critique of existing morphological studies. Accordingly, due to different approaches to this concept, various definitions of urban morphology are presented, examples of which are:

- Urban morphology is a science that focuses on the tangible effects of socio-economic forces and, in this regard, examines the process of shaping the notions and tendencies that form the form of cities. Buildings, gardens, streets, parks, and sculptures are important elements of morphological analysis, although these elements are always subject to change over time (Moudon, 1997).

- Urban morphology examines the form, shape, map, structure, and functions of the urban fabric and the origin and mode of evolution of these tissues over time (Madanipour, 2001) .

- Morphology means "Planning's, Buildings, Uses, Streets, Maps and Urban Prospects" (Madanipour, 2001) .

- Urban morphology is a term used as a variety of types of research, all of which focus on the physical form of urban areas(Whitehand, 2001).

Urban morphology studies in different periods, as well as influenced by different perspectives, have differentiated in the study method and the final product, which is categorized in the form of different morphological schools. Status of urban morphology has changed over time. Until the sixties, the main attention of urban geographers was the city's dense structure, with particular emphasis on morphology, which depicted the ages and types of construction, and identified different historical elements and maps of cities. Hence, since the categorical failure of the functional classifications and the economic foundations of the urban landscape, the urban morphology, which is more descriptive, has been severely criticized, which does not provide the organizers with the result to achieve proper solutions, and only looks at insignificant things (Madanipour, 2001).

But in the aftermath of the systemic thinking and interactions between architects, geographers, historians and economists, a new form of urban morphology was established and it was actually attempted to assess the city's structure as the result of historical development in different periods(Whitehand, 2001).

To do such a study, different approaches and schools have come up with different patterns. Compared to different patterns of urban morphology in historical textures, the British school is more than the rest of the researchers. Nevertheless, suggestions can be made to complete it with respect to the social, economic, and political factors affecting the city's body. In this study, by examining the morphological structure of the historical texture of Shiraz, which is one of the most valuable historical buildings in Iran, examines examples of residential buildings in the city typologically and examines the impacts of construction regardless of morphology.

Methodology
The research methodology has defined the search process (rather than the search product) (Grout & Wang, 2007). Research methods are considered in a variety of ways such as basic research, descriptive, exploratory, exploratory, empirical, strategic, comparative, analytical, and so on(.Andalib,2003). The method of this research is an analytical-exploratory method. For this purpose, we first study and analyze the physical structure of the cities of Iran in terms of urban morphology and then, by comparative comparisons of existing samples in Shiraz and its morphological structure, we will address the mutual effects of the typology on urban morphology. The main approach to this study is based on the critical paradigm. For this reason, by examining the criticisms of the various parts of the urban texture of Shiraz (the historical context) and the construction of it in the period from 1950 to 2017, we try to present a dominant pattern for reading the historical texture.

The stages of this research include reviewing the theoretical foundations of research, analyzing research findings, and concluding and presenting a solution.

Theoretical fundamentals of research
The city is a kind of social organization, whose emergence in the time-frame required the provision of specific conditions. In a survey of cities and a general look at cities, it is a feeling that each city has its own space and with a scientific look that has a morphological distinction. In cities, every activity that is considered by humans is essentially reliant on culture, and culture is the result of habits, customs, traditions, traditions, styles, and common ways of life. In general, it can be said that in urban spaces there is a complex of civilizations that are like islands in the city.
One of the factors that have always played a decisive role in the construction of cities and is used in all cities is the "urban culture" factor. It can be said that urban culture is the very foundation of civilization and behavior of citizens, which is the result of values in the heart of society, which is the product of this process of the concept of space in the city, which is itself a very important part of the morphology of cities. The concept of space, continuous and unceasingly, has been ups and downs since human thought has taught and focused on reflection and thinking about metaphysical and abstract concepts, and with the consideration of the interplay between different domains of thought, including exchange Philosophy and science, especially metaphysical science and external factors. Urban spaces are now being studied in relation to the behaviors of users of that space. Available spaces in the city can be classified into three general categories of private spaces, semi-private and semi-public spaces, and public spaces. And it should always be noted that urban spaces are not used as expected. And behaviors do not occur in predictable spaces. The spatial structure (city) shows the order and relationship between physical elements and uses in urban areas. Regarding the physical elements that are thought to be constructed, it can be said that each of the cities has its own morphology, and it is reasonable, however, that the principles of city-based surveys should be taken into account:
1- Emphasize the difference in the space of urban areas.
2- Accuracy in the impact of these contradictions on the emergence of urban patterns.
In the early stages of urbanization, the two factors of social construction and technology were very effective in the development of cities, in such a way that, at any given time, the construction of cities influenced a certain kind of historical background and a certain worldview. In the morphological development of medieval cities in Europe has been important five factors more than other factors: 1) city wall 2) market 3) military fortress 4) church 5) special philosophy of life.

In the morphology of the Renaissance cities, three factors have been most influential: architects, urban theorists, military engineers.

In the morphological development of Islamic cities, the following factors have been involved: 1) religious factors 2) climatic factors 3) economic factors 4) communication factors 5) governmental and military factors 6) health factors 7) waqf factors.

Islamic culture, with the slogan of equality, fraternity and vertical and horizontal movement, caused the dynamics of urban society and the dynamics of people in the urban community. In the beginning, a close relationship was established between the concept of the city and Islamic culture. And was formed in the city of the first Islamic state. Islamic culture has been important for the privacy of its family and its values. Consequently, all of the rules and regulations in the way planned affected the construction of cities and gave them a special identity to their morphology that it is different from other cities in the world. Therefore, the religion of Islam was also effective in the transformation of the former cities, and also the establishment and growth of new cities with its own special structure. On the other hand, Islamic ideology is not only effective in the emergence of cities but also has greatly influenced the structure of the body. This structure involved various changes during various periods of time, with new governments and ideologies.

The Morphological Changes in the construction of the City in an Ancient period of Iran
The city's design of the city is characterized by a map, aerial photograph, replica, or city-highlighting of the city, indicating the extent, the environment, the geographical boundaries and how to use the urban land and the organization that employs this space (Farid, 1989). Accordingly, the city map represents the city's texture, which consists of houses replaced by natural and topographic conditions, compact or unpolluted, and replaced by a special order within the boundaries of the smallest unit of the city (i.e., blocks and urban neighborhoods), and It gives the city a special geographic feature.
The pattern of town formation has always been either organically (without a previous design) or based on a predetermined design. Although today's modern urban plans are often the product of a new civilization, human civilization experiences examples of cities with preconceived patterns, some of which precede thousands of years ago. One of the most important urban patterns shaped by pre-designed designs can be referred to as chess and radial patterns. Today, some cities, especially large cities, are less likely to be identified with a single pattern because of the variety of patterns they use. These types of cities are usually identified by a combination pattern. The use of a specific urban model in different places and times depends on its environmental, economic and social conditions, and therefore, in different parts of our country, we are witnessing the formation of different urban patterns.

The organic pattern in the urban plan includes a plan that has not been designed in advance, and the city's development is based on natural and occasional conditions, and roads, streets and narrow alleys are welded with twists and turns. Most European cities in the middle Ages had such a plan. Over time, as a result of accidents such as fire, earthquake, and war, the cities went to ruin and, at the time of their reconstruction, changed their geographical and geographical outlook on the basis of a new map and adapted themselves to the needs of the time (Farid, 1989). In Islamic regions, these forms of cities were usually formed inside the walls and controlled by gates to pass through them(Shirley, 2005).Generally speaking, the pattern of organic cities, cellular systems, balanced diversity, good health, close relationships, stability, interdependence and return to the natural world are considered(Lynch, 2005). In ancient Persia, the shape of cities in the Seljukian

and Parthian periods gradually began to follow more or less established rules and some cities were constructed in a racket. Most of these cities had two main roads, and roads and alleys parallel to them. In the Sassanid period, the city of Jondishapur was built as a chessboard (Hekmat Nia & Ghanbari & haft cheshmeh, 2008). In Persia and in the Sassanid era, circular shapes were typical for the cities, so that they had important government and co-ownership in their center, and then the residential areas were circular around the center. These cities have been defensive, and the main reason for their lack of security has been in the region (Farid, 1989). A typical example of a radial urban pattern in Iran today is the city of Hamedan. In urban post-Islamic periods in Iran, urbanization is subject to the environmental and natural and political conditions of the region. Except in some cases, most of Iran's cities have been formed with an organic or hybrid construction pattern.

In cases where a city has used more than one pattern in its development process, it would be difficult to determine a single pattern in such cities, so this brigade of cities is characterized by a hybrid pattern. Many times large cities use different urban designs in their physical expansion process and cannot maintain a single urban pattern. For example, while many of the big cities in their old parts have organic texture, in their further development in parts of the city, they use different patterns of chess, radial, or linear, in other words, they have a hybrid pattern. Many parts of many old and big cities in Iran have an organic pattern since most of these cities have been created in the past and are not specific and well thought out. Most of these cities have developed urban development plans over the past four decades, and are now imposing new streets on their organic texture. In contrast, new sections in these cities are often developed with patterns of chess, radial, or linear patterns. Therefore, today's pattern in these cities is a combination of different designs. The cities of Tehran, Isfahan, Shiraz, and Tabriz are from this sample.

The process of city formation and urban centers in Iran
The formation of a city in Iran can be divided into three periods. The first two periods lasted from the beginning of the Aryan settlement to the arrival of the Muslims. Major cities of Elamite, Medi and Achaemenid were mostly religious, administrative and sometimes religious. The second period begins with the beginning of the arrival of the Muslims, their invasion, as well as other great invaders of history, not only did not prevent the growth of urbanization, civilization, and culture of Iran but in the light of the teachings and worldview of Islam, it sped so fast. The brightest period of the third century began and continued until the fifth century AH. In this period, due to the growth of trade and commerce, urbanization is very high and important centers and elements such as bazaar and mosque are formed in the city. The third chapter begins with the beginning of the Pahlavi government (Soltanzadeh, 1983). One of the major changes that took place during the Pahlavi era and the spatial organization of cities in Iran was the transformation of the structure of urban centralization. In this period, the destruction of a large number of neighborhoods of the city as well as the collapse of the market by new streets and undermining the role of market functioning as the most important factor contributing to the urban center in Iran, the old city center was severely damaged and weakened (Soleimani, 2012).

Morphology of Islamic cities
In the morphological construction of Islamic cities, the following factors have been involved:
1. Religious factors 2. Climate factors 3. Economic factors 4. Communication factors 5. Public and military factors 6. Health factors 7. Active endowments
Some researchers consider the effective factors in the morphology of Islamic cities as:

1- Most Islamic cities surrounded by walls and the city had several gates.
2- The city's administrative district was located in the central part of the city and adjacent to the mosque.
3- Markets were created in a linear way along major lines.
4- In all Islamic cities inspired by Islamic ideology, there has always been a significant separation between the private and the public (Shokouei, 1979).

Ehlers also presented a model of the Islamic city in his studies, which include:
The existence of a hierarchy of functions with the mosque (religious function) and the market (the economic function and heart of traditional business activities) as the core of each Islamic city. And centers of

residential neighborhoods within the city at appropriate distances and in harmony with social, ethnic, religious, and ... conditions.

The process of changes in morphology of Shiraz city
Morphological characteristics of a city are affected by various factors. In urban Shiraz, urban morphology is more than natural environment. The climatic, political and strategic features have shaped the city's morphology somewhat. Commercial function also affected the morphology of the city of Shiraz, where the formation of the city in the direction of the commercial axis of the market to the north and south. The periodic development of the city of Shiraz has been formed by following its central core and in line with the business axes of the city and the political ways of the country that connected Cesfun to the pool in the pre-Islamic era. The city has expanded from the inside to the center of the circle in different periods. The main roads in the city through the Gateway to the "Istakhr" are linked to two major urban areas of government and the religious center of the city. Gradually, urban markets and services are created along the paths of these streets and create the core skeleton of the city. Observing the distance between government and religious centers is the main cause of the city's two-branch expansion. There is no obvious reason why the city environment has remained circular at the time of the construction of the city's rain at the time of the "Abukalanjar". But the city of Shiraz has always been influenced by the main communication axes (Bazar-compatible) and the axes of communication between the Jakumatian and religious spaces that coincide with the city's waterways, and the growth of the spot has caused its environment to remain close to the circle.
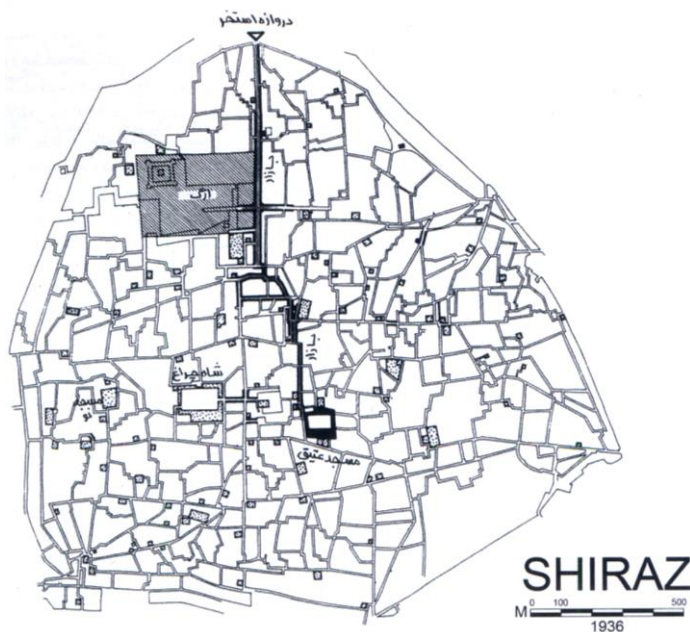
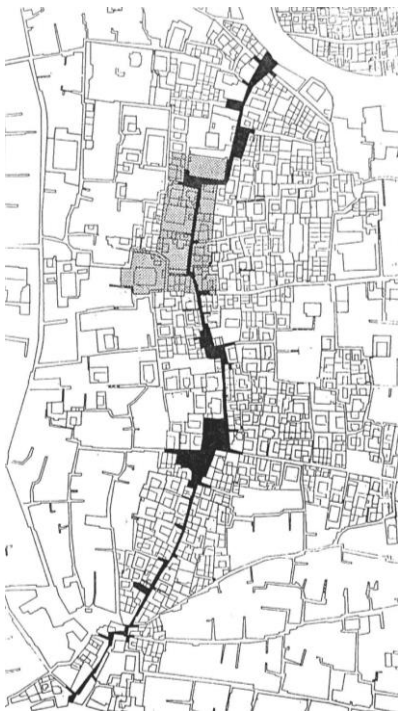Historical texture of Shiraz and its physical structure the base map of Donald Wilber-1936

Physical structure of Shiraz city and formation of its paths

Urban spatial analysis
Urban Pathways
Considering the city as a vibrant and dynamic creature, the streets and streets of cities are the vital arteries of every city. In the past, they also played a role in the importance of the market in the city in the past. The basis of the sculpture of Iranian-Islamic cities is based on urban axes, the most typical of which are the markets. During the Islamic period, the city's streets have played a role in connecting and communicating urban spaces and elements that the Shiraz city streets are no exception. It has played a major role in the structure and organization of the city as the main factor of the city's morphology.

One of the historical passages of and the formation of urban texture around it

Shiraz Historical texture of Shiraz and its position in contemporary city

Squares

Fields and squares, or in general, open and accessible public spaces are the main historical elements of Iranian cities that have played a role in various ways as a place of activities and social interactions and identity factors of Iranian cities. Also, the squares are also victims of modernity, which have given their place to the fields and never have the potential to operate on the field but has reduced the importance of an important old field to the intersection of the unimaginable number of modern streets (Movahed, 2012).

Neighborhoods

Neighborhood concept is one of the familiar and familiar concepts in Iranian urban tradition. After Islam, the neighborhoods formed on existing commons, for example, based on the homeland of the two Shiraz and Isfahan Neighborhoods, or on the basis of joint activities of the two neighborhoods of the weavers and the Hesirbaf neighborhood. The neighborhood was a small town in the heart of the city, which required a Bazar, Mosque, School, and other things (Pour Jafar, 2012).

Mosque (Religious User)

The Islamic State is born in the city and given the formation of this government for the first time in the mosque. Therefore, the central Mosque becomes one of the main characteristics of the city of Islamic period. In the city and neighborhoods of Islam, the mosques and its neighborhoods along with other centers of pilgrimage and education create the spiritual and intellectual dimension of cities (Zarabi & Ali Nejad Tayebi, 2010). Religious buildings are one of the most important monuments of old cities. Old mosques are located in the center of the neighborhood. Like the Ardakan mosque of the 10th century, located next to the market and in the old neighborhood. All the old neighborhoods of this city have been formed around religious places (Omidvar &Hatifi, 2012).

Houses (residential user)

Properties of housebuilding are that the entrance of Islamic homes to the door opens, in contrast to the non-Islamic and Arabic houses where they enter the outside. In other words, this suggests that the home is the individual's kingdom, where the character, the sanctity, and secrets are reserved (Samir Akasash, 1998). The

separation of the family from other spaces inward and outdoors in the construction of houses and the separation through the wall is a matter of observance of the principles of architecture. Homes often have entrance doors to prevent direct viewing (Zarabi & Ali Nejad Tayebi, 2010).

Madraza(school) (education user)
Most major Islamic schools were located along or near the main body of the market and the main orders of the city. Cities like Tabriz, Isfahan and Yazd are examples of this (Zarabi & Ali Nejad Tayebi, 2010). In the second and third centuries, the number of schools and teachers grew. The important feature of the school, their religious aspect, was one of the important factors determining their position in the city.

Typological design of architecture
Map of the building
In ancient Persian architecture, house architecture was designed and built on the basis of special principles and patterns (Memarian, 2009). Specific climatic conditions in Shiraz caused the ancient texture to have an introvert and closed structure, and houses in the historic neighborhoods of the city have an introverted pattern. Therefore, architects used the introspective map as a suitable and efficient plan for designing and building the house.

Entrance
Entrance homes are invited at all times, even in the simplest of houses. The interior surface is usually decorated with tapestry bricks. In traditional Iranian homes, the entrance is not merely an element and includes a multi-element set with a variety of functions. Many traditional Iranian homes have different entrances to manage the entry of different people into the home. Generally, these inputs are defined for guests with grading close to the family of the family(Nairi Fallah, 2013).Among the principles that architects considered in the design of the entrance to traditional houses are:
  1- The privacy of the home must be preserved.
  2- Allow entry during the gradual process.
  3- The entry process is a sign of modesty.
  4- The control of the entrance is non-direct.
  5- View the house in a distinctive neighborhood (kateb, 2012).

Vestibule
The vestibule or crayus is a space that has been designed and built in many of the entrance spaces and immediately after the entrance, and one of its functions was to divide the input path into two or more directions (Memarian, 2009). The vestibule is a mediator space inside and outside a home. Separating the outside space from inside and creating privacy in Iran's residential architecture.

Corridor
The hallway or the atrium is the path that connects the vestibule to the courtyard, and this pattern is a prerequisite for Iranian architecture, which was considered by the architects during the Islamic period, especially in the design of the collection of mosque and house entrances (Memarian, 2009). This space is the simplest component of the entrance space, which is the main function of providing connectivity and access between the two locations.

Courtyard
The composition of the courtyard in traditional homes was fundamentally consistent with the diversity of physical and spiritual needs. These requirements also explain the relationship between the private and public sectors. And based on the same necessities, various courtyards were designed and constructed. The outer courtyard (man's yard), a semi-private place, was devoted to guests and non-members. And the inner courtyard was unique to the family and no one had the right to enter it. This kind of courtyard is considered to be the most private traditional courtyard (Mahdavi Nezhad, 2012).

Analysis of the findings

Any urban space will be confused and destroy its spatial structure if it develops without plans and urbanization goes beyond urbanization. If urban neighborhoods and districts are created without infrastructure, this will, in addition to physical disorientation and urban design, cause social damage and a lack of sense of belonging to the place and social issues that will weaken and fracture the city's body from within.

In the last two decades, the development of the city of Shiraz has been caused by two main phenomena of villagers' migration and natural growth of the urban population of Shiraz. The population of Shiraz has increased from 170659 people in 1956 to 1214808 people in 2006. And while the population of the city's historical texture is from 102,395 people in 1956 to 59,438 in 2006. This increase in population in the city and the decrease in population in historical context causes a change in residential per capita per hectare, which results in a change in the city's morphology and, consequently, the architecture typology and in particular the housing typology. The migration of indigenous people from the texture to the marginal areas of the city and the migration of the villagers and the poor to the historical context and the change in per capita housing causes the architectural grains of the historical context to change their typology. This change in typology creates houses that either have been built up from the division of a historic home into two or more houses, or made without regard to the morphology and typology of architecture and only as a shelter.

Changes in Urban Morphology of Shiraz-2017

Conclusion

The new urbanization is trying to change the traditional definition of the city and the spaces and functions it has. According to this definition, the transformation of cities is quite normal and necessary. Although changes in the structure of cities occur over time, maintaining the structural nature of the urban fabric is one of the most fundamental principles. But what has happened in Iran in recent decades reflects the idea that it does not consider the city as a living organism, but considers the city as a set of functions in a common context. The exploitation of this pattern in Iran led to the polarization of cities. Because the new urban fabric built on the basis of a modern urban model was in contrast to the old texture that had organic texture. This cannot be just a simple visual coincidence; it shows the organic nature of the structure of these cities; Interconnected structures that are connected with strong ties on large scale also on small scales. However, todays planned and modern cities lack such structures. Today's urbanization has created a fragmented structure between the old texture and the new texture. Therefore, in the first step in modern urbanization, it is necessary to reconstruct the lost connection between the two parts of the historical context and the new context of the city. In order to fully utilize environmental conditions, urbanization is required for all environmental, cultural and social conditions.

Accordingly, attention to these points is essential:
- Attention to the elements forming and coherence of the historical context, such as squares and open spaces of the city.

- Attention to the nature of Iranian authentic architecture in designing and redesigning abandoned and abandoned spaces of historical texture.
- Open the design of access routes based on the principles of urban morphology and social structure of neighborhoods.
- Redefining semi-public and semi-private spaces to create a sense of belonging to the place in the citizen.

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