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Investigating the Courtyards of Traditional Houses and the Effect of Western Architecture

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Abstract: The passage of time enters the determinism which makes the architects far from the traditional architecture and can be economic, social, cultural or political. However, the existence of determinism in all cases above is the result of passage of time. The art and architecture are always the subject to the certain and known principles and rules and have the stable, steady and inseparable link with the culture, behavior patterns and values of society. Therefore, the architecture styles of any era reflect the culture and art. This study, entitled as "Investigating the courtyards of traditional houses and the effect of Western architecture" investigates the effect of local culture of climates, Western culture and the social factors on the morphology of courtyards in the traditional houses of Iran.

Keywords: Climate, courtyards of traditional houses, morphology, western culture

INTRODUCTION

The traditional houses of Iran have elegant interior structures based on the beliefs and culture and have long been taken into account by the architects. The space flexibility, understandability, introversion, spatial hierarchy and respect for the privacy of family have special importance in the Iranian architectural and have been replaced by the extrovert architecture (Nosratpour, 2012). The traditional houses and structures had the appropriate performance against the uncomfortable weather factors due to the consideration of climatic criteria and naturally protected the human from the hot and cold weather. However, as the result of the human technological development since the industrial revolution and the achievement of fossil energies, the weather criteria in housing construction were not taken into account although the limited fossil energy resources and occurrence of biological-environmental issues since the mid-twentieth century led to the human tendency towards the nature and considering the structural weather criteria which innovated a variety of climatic techniques (Espanani, 2004).

The application of natural resources and energies in the traditional sets was one of their principles of construction and spatial organization. The traditional houses in the desert textures were typically facing Qibla in terms of position. This direction created the climatic conditions under which the summer and winter spaces were logically located around the central courtyard (Tahbaz, 2005). The central courtyard was the main space of desert houses (Robinson and Littler, 1991). The water pool in the middle of courtyard with the maximum dimension reached the solar energy. Therefore, the cooling air supply and air conditioning for each residential unit became possible through the enclosed deep courtyards and ventilation of compact houses from these courtyards. The courtyards, which

were enclosed from any sides, settled the cool night air like the pit for applying on a hot day (Asadpour, 2006).

The early examples of modern architecture in Iran were initially created as the result of extraversion and paying attention to the construction of urban spaces coincided with the appearance of street in the morphological and physical organization of Iranian cities (Zekavat, 2003). However, based on the structures remained from the old historic settlements, which were existed in most of the Iranian regions and remained from some of the settlements in Mesopotamia, each house typically had two spaces, the enclosed constructed space and the open one, because the weather in the central and southern regions of Iran and Mesopotamia was in a way that a half of year had cold weather and the other half had the moderate and warm weather and a part of residential activities in comfortable weather were conducted in the open spaces. Despite the obvious role of geographical and environmental phenomena in forming the open space or courtyards, some of the researchers have paid attention to the cultural factors and the main reasons for construction of different courtyards in the traditional houses. Furthermore, it seems that this classification of open spaces and their relationships with the constructed spaces in Iran is too general with no sufficient accuracy (Soltanzadeh, 2001). The physical features of Iranian traditional houses reflect the natural and cultural needs and unique requirements (Nosratpour, 2012). It should be noted that the adaption of such these houses with the weather (hot and dry) is the reason why their numbers are increased in most of the regions of Iran. In hot and dry regions, a few elements of architectural art are seen as the environmental and cultural reflection with the inherent potential in the houses (Ayvazian, 2005).

On the other hand, the negative impact on the physical structure of cities in Europe as the result of



Fig. 1: The courtyards of Iranian traditional houses (Nosratpour, 2012)



Fig. 2: A sample of decoration in traditional houses of Iran

modern architecture and its consequences for other countries including Iran have become the problems with which we are facing in the morphology of spaces. The most appropriate solution to the avoidance of discontinuity with history is to utilize the underlying experience and values before the modernism (Edwards and Plessis, 2008).

The houses with courtyards are among the prominent houses in Iran (Nabavi and Goh, 2011). The idea of garden and courtyard, which are complementary to the hot and dry plateau of Iran, is maintained in significant forms in the concept of paradise in the Islamic era (Shokouhian *et al.*, 2007). The heat is greatly reduced in such these courtyards (Fig. 1) by the trees and water pool and through shading by high walls and this region is applied for recreation during the day (Belakehal *et al.*, 2004).

The Iranian architecture, which was first built in the Iranian Plateau and then in the sphere of influence of Persian culture, paid attention to the climate like all architectures, which had the roots in the local culture and resulted in the valuable monuments until the end of Qajar era. Investigating the remained instances indicates that the colors of structural decoration were influenced by the hot and dry climate (Roaf, 1988). Even the trace of sun, as the most important climatic factor, can be seen in the decorative motifs in the form of Shamse and Solar wheel (Parsi, 2010). As mentioned, the people's interior living was based on the specific tradition and culture, collaboration among the family members, climatic condition, economic infrastructure and religious factors, but the imposed Western architecture was initially raised as the single-

element houses with the specific open space or yard surrounding the residential house in the opposite direction and enclosed open spaces by the high walls which in fact introduced a completely different way of life. Then the other courtyards were embedded behind the houses and the urban life attracted to design the porch and Iwan (Robinson and Littler, 1991). Afterwards, designing the porch and iwan was eliminated from the structures and the people got inside their houses because of formulating the new laws of municipalities based on preserving the citizens' rights.

The way of life in the desert tropical areas of Iran especially during the past was around the enclosed courtyards which represented the so called interior life in those eras and the relevant porches and rooms were surrounding this courtyard. The courtyard in the traditional houses was the center and heart of structure (Mirmoghtadaee, 2009). The central courtyard along with the porch in every side was the specification existed in the Iranian architecture since the past eras; despite the fact that the courtyard might not often be at the center of house, it was considered as the center of house in terms of life, doing the activities and making connection among different parts of house, creating the view and other issues. The courtyard was usually square and considered as the place for holding various ceremonies such as the wedding and religious ceremonies and family gathering (Nosratpour, 2012). Dimensions of courtyard are determined by the number and performance of surrounding spaces. Each courtyard usually has a pond and several gardens with different shapes based on various local conditions like the weather and cultural factors. The construction of enclosed courtyard spaces was consistent with the seasonal changes and different functions of adjacent rooms (Nosratpour, 2012).

The individuals' requirements are changed with the passage of time and changing the lifestyle despite no changes in most of their spiritual and physical needs since the past 100 years. For instance, the human needed the wider, happier and more open perspective as well as preserving the privacy and nature. Despite the fact that the traditional architecture has the valuable and gorgeous factors, it is not applicable today. Some of the valuable concepts like the spatial resolution, simplicity, versatility, introversion, hierarchy, privacy preservation, etc are hidden at the heart of this type of architecture and the architects and designers should seek to apply these concepts in the modern architecture (Mirmoghtadaee, 2009). The following Fig. 2 shows one of the modern houses with shared courtyard and without any elements above.

In modern houses with the perception of its Western types, the ground is enclosed and often small with rectangular shape. The personal houses (Villa) were replaced by the complexes and buildings. Since the size of ground has been smaller, the buildings are



Fig. 3: A typical and modern building with shared courtyard (Mirmoghtadaee, 2009)

situated in the northern or southern direction of ground. The new construction laws have allowed allocating 60% of ground to the building and 40% to the courtyard and open space; this has had a significant impact on the structure of modern houses. The central courtyard of traditional houses are replaced by the courtyards in front of the entrance and exit door of structure and are shared for all residents (Arjmandi *et al.*, 2010). As seen in the Western samples of modern houses, this type of courtyard is gradually disappearing. The existence of so high buildings versus the small traditional houses is another important difference of modern buildings and traditional houses (Nabavi and Goh, 2011). This variation has totally changed the height of shapes and the way of constructing the courtyard of modern houses. This factor has also other consequences for the modern houses' deficiency which cannot be negligible. The following Fig. 3 shows the variation of houses' heights.

As mentioned, the society and human being have thought about the reuse of houses with the potential for coldness and heat auto-resistance. The courtyard is significantly important in the structures and especially the hot and dry regions. According to all mentioned descriptions and as Espanani argued, "The climatic designing techniques, which are derived from the local climatic criteria, have the maximum efficiency" (Espanani, 2004). Accordingly, this study sought to investigate the situation of courtyard in the traditional houses and influence of Western architecture on the location and morphology of this part of structures.

RESEARCH BACKGROUND

Soltanzadeh (2001) investigated the role of geography in building different types of courtyards in the traditional houses of Iran. He argued that despite the obvious role of geographical and environmental phenomena in forming the open space or courtyards, some of the researchers have considered the cultural factors as the key factors which form different courtyards in the traditional houses. Furthermore, it seems that this classification of various open spaces and their relationships with the constructed spaces in Iran is too general and there is no sufficient accuracy in them. The aim of conducting this study was first to pay attention to the impact of geographical factors on

forming the open spaces of houses and then providing a kind of comprehensive classification for different types of courtyards in the houses. This study applies the historical interpretative research method. The geographical phenomena are the independent variables and different types of open spaces or courtyards are among the dependent variables of this research. Data collection method has both the documentary and field types. According to the theoretical framework of this study, the geographical and climatic phenomena play the important role in forming the traditional houses with the courtyards. The results of this research indicate that the shape of open space or courtyard in the traditional houses of Iran has been affected by the geographical phenomena. Moreover, it seems that all open spaces in the traditional houses of Iran can be identified and classified according to the new classification of different courtyards. One of the main results of this study is to provide the new classification and definition of different environmental applied open spaces or courtyards of Iranian residential units.

In a study, entitled as "Central courtyard city-house (Sustainable city-house; spiritual city-house", Ahmadi (2005) argued that the central courtyard structure is the essence of organizing the space in the Iranian plateau. This structure makes the integrated appropriate responses to these people's spiritual and material lives. This study represents the functions of central courtyards in the traditional houses and cities according to the principles of Islamic and traditional architecture in Iran and seeks to investigate one of the basic elements of cities in the plateau of Iran (central courtyard) and examine it in terms of sustainability.

In a study, entitled as "Investigating the history of entrance", Dousti-Motlagh (2009) argued that each new style of architecture is based on the principles, methods and traditions of previous styles, thus there were strong relationships among different styles of architecture during the past, so that it is difficult to separate them. This proximity of architecture principles and methods in different styles of architecture is resulted from similar individuals' cultures, traditions and behavioral patterns which made architectural styles through changing the new lifestyles and culture that are rooted in the time of emergence for responding to the new requirements. The aim of this study was to investigate the importance of the entrance designing on the human comfort in his life environment. The impact of entrance on the surrounding physical environment is what is important in the field of this space. Furthermore, this study investigates how the formation of entrance can lead to the favorable space and achieved valuable principles in designing the house. The research tool of this study relies more on the Iranian people's cultural documents and signs which are evident in the previous sources and architectures. The research methodology for preparing this research report has applied (analytical-descriptive) type which analyzes the designed spaces for entrances and investigates the

background of traditional architecture samples of Iran. According to the solution of this study for most of the problems in the Iranian contemporary architectures, the traditional and Iranian architecture should consider the contemporary technology and techniques and fulfill the today requirements and be along with the beats of modern life. Therefore, it is helpful to pay attention to the basis of traditional architecture and adapting it to the today life context in order to improve the quality of contemporary architecture, which is among the major issues of such this architecture; furthermore, its history and data can be the appropriate ways in achieving this objective.

In a study entitles as "The role of courtyard in the sustainable architecture of past", Mashaei-Shokouhi and Ziapour (2009) studied the sustainable architecture and courtyard and its role in the sustainable architecture of Iran and ultimately concluded that the lack of courtyard can be felt in this country. Thus, this study seeks to provide the solution for its re-presence. Finally, they argued that according to the experience of Iran in designing the complexes and utilizing two courtyards in two sides of house, it seems that we can experience the sustainability in the segmentation system and today architecture of cities in order to see the courtyard element again in the today sustainable and green architecture.

RESEARCH METHODOLOGY

This study applies the historical interpretative research method. The cultural factors of different climates in Iran are the independent variables and different types of open spaces or courtyards and the courtyard morphology are among the dependent variables of this research. Data collection method has both the documentary and field types. According to the theoretical framework of this study, the climatic phenomenon plays the important role in forming the traditional houses with the courtyards.

The house, where is linked with the concepts such as the security, enclosure, intimacy and affection, attachment, etc, is a strange and multidimensional context, so that it is easily to see the presences of human, social relations, traditions, cultures and custom in such this house. Furthermore, its atrium, basement and porch and sash can be studied and can analyze it and determine its points without wondering. The Qajar early houses, which followed the old pattern of Iranian houses, had the interior and exterior spaces. The more we get closer to the First Pahlavi era, the more this pattern is faded. Then it was disappeared in the First Pahlavi era and the houses became extrovert and this procedure is still continued with the rapid pace (Shirazi, 2005). With changing the lifestyle in the past half century, the concept of house and habitation is replaced by the resettlement of residential unit. The changed lifestyle has almost covered all dimensions. What



Fig. 4: The view of residential complexes formed under the influence of western culture and architecture

happened for cities in Iran was the replacement except for the restoration. No timely intervention was done in the historic textures to coordinate them with the new industrial phenomena, thus the traditional houses in the old texture were sacrificed for the new urban phenomena such as the street, asphalt and pole (Haeri, 1996). The single-family house was the form of house which has been preferred since the past. The prominent form was often as a single-floor house with the courtyard during the 19th century. Maintaining the pressure on the urban areas due to the population growth and the arrival of Western housing types including the two-storey houses with terrace and multi-storey apartments have led to the new morphology of housing. The residential units are generally smaller and the apartment living culture has become common. In general, these changes have been led to the fundamental differences between the traditional house and the residential units (Fig. 4).

The modern residential apartments are often designed elegantly, but in terms of preserving the privacy if a stranger bells the door ring and the door is open, he can see the whole house in a glance; in this case, if the bathroom is next to the kitchen, the disaster occurs in the privacy of family relationship. The family members in such these houses are constantly disturbing; for instance by the sound of TV, music, or any activities, so that they occasionally are annoyed with each other. The residents of these houses do not have the sense of peace and comfort, thus they need to go to the park for comfort and study, as is happened in the Western culture and be familiar with the strangers and forget themselves. Under such these conditions, the family members become far from each other day after day. In the traditional architecture, the children were playing in the courtyard of house and were frequently not faced with the adults' orders in modern houses; this ensured their mental requirements. However, the high towers are not only fulfilling individuals' needs, but also they have made their surrounding small houses with the courtyards or ponds and terrace (balcony), which at least provide the place for relaxation, useless. It seems that excluding the people from the courtyard has led to his exclusion from the life (Lynch, 2008).

CONCLUSION

For years, the human living space and shelter were not separated from his desires and abilities, but also they were the hand-made shelters which were formed and developed under the great struggle for survival that was entirely consistent with the environment and prevailing climate and in line with the of ideas, cultures and interests of a family in several generations. Therefore, the traditional house was born and developed. However, as the result of specialized science and technology, the necessities of modern and mechanical society and the ethnic and cultural fragmentation, this shelter is built by the architects in the best status and then by the mass producers who have given it the befitting name, "Residential Unit". This residential unit is completely built without the presence of its owner and without paying attention to the climatic conditions or its residents' culture and destroys the sense of belonging, security and settlement. While talking about the house, the image of a shelter and the numbers of rooms with different services is created in our mind, but if we talk about the settlement, it refers to the vaster space than the house including a collective system and consisting of a set of houses in the urban units. The house is one of the elements depending on the settlement and its residents' requirements of a residential unit determine its dimensions. As the result of changing the life style during the past half century due to the Western and modern culture and architecture, the concept of house has been replaced by the residential unit and accommodation. The changed lifestyle has almost covered all aspects. What happened for cities in Iran was the replacement except for the restoration. No timely intervention was done in the historic textures to coordinate them with the new industrial phenomena, thus the traditional houses in the old texture were sacrificed for the new urban phenomena such as the street, asphalt, reduced area and optimization of space. In general, these changes have been led to the fundamental differences between the traditional house and current residential unit. Here, their obvious differences are summarized as follows:

- **The climatic incompatibility of place with modern and Western architecture:** For instance, the materials which are applied in the desert areas are not compatible with the location, loss the energy and are inconsistent with the environment.
- **Differences in form and function:** Most of the houses had multiple roles during the past since they were considered as the family's residential places as well as the places for business, keeping the livestock, etc, but they have only the residential role because of changing the architecture style and attitude towards the life.
- **Changing the closed to open spaces (introvert to extrovert architecture):** The view of cities is

totally changed because of changing the introversion to the extraversion pattern. Application of the courtyard-facing windows, which were common in the traditional architecture, was gradually abolished and the house with short walls and the windows facing the street provided the open forms of urban architecture.

- **Replacement of modern elements:** Some instances in this regard are the replacement of poles by the gas lights, which provided the advanced type of artificial lighting before the emergence of electricity into the houses, the video intercom by the percussion and the open kitchens by the old ones and the replacement and sometimes elimination of central courtyards and terrace in the houses.
- **Fading the collective life versus the today's common individualism:** Changing the extended to nuclear families led to the emergence of individualism culture, so that the places like the courtyards were most common in the past because of the extension of families, collective life, relationships and the need for places to be gathered; changing such these families to the nuclear ones led to the changed living pattern and ultimately to the emergence of individualism pattern instead of the collectivism and also the elimination of its past requirements.
- **The disappearance of sense of belonging to the structure:** In general, the mentioned cases led to the faded intimacy and attachment to the structure and thus the loss of its identity.

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