

Original Research Article

Analysis of the effectiveness of the physical and spatial configuration components of Qajar houses on the culture and climate in hot and dry and hot and humid regions of Iran

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Abstract

Architecture has always been a physical and spatial expression of social, cultural, climatic and economic conditions in the society. The architectural structure of the historical houses of the Qajar era has not followed the factors that shape the architectural body to the same extent in order to adapt to the physical and psychological needs of the user depending on the background conditions. Components such as house orientation, composition, decorations, hierarchy, function, scale, light and illumination are among the indicators that have been influenced by various factors and have shaped the body of architecture. This research seeks to analyze the effect of the physical and spatial configuration components of the historical houses of the Qajar era from the viewpoints of culture and climate through a comparative study in two climates with a common feature, including the hot and dry and hot and humid climates of Iran. Components such as house orientation, composition, decorations, hierarchy, function, scale, light and illumination are among the indicators that have been influenced by various factors and have shaped the body of architecture. The importance of the research lies in that the body of the architecture can change under the influence of several factors, while in our current architecture, the view of the architects towards the building is only one-dimensional, and, most of the time they only consider the climate factor. This research shows that the factor of culture, like climate, has been very important in architecture. The research method is descriptive and analytical, and the collection of materials was done by library method and field observation. In the process of analyzing the subject of the research and in order to index the factors affecting the physical and spatial components, four Qajar houses with two different forms including the central courtyard and block forms were selected in the key cities of the mentioned climates to compare the contrasting forms in one climate and the same forms in different climates. The effectiveness of the physical and spatial components of different factors is also determined. The results of the research indicate that, in hot and dry climates, cultural factor have the greatest impact on the facades and decorations, the scale of the house and the function of the spaces. Moreover, the materials and composition are most influenced by the climate, while, in the hot and humid region, the components of light and brightness as well as the scale are more influenced by culture and the climate with the greatest impact on orientation and materials.



Extended Abstract

1. Introduction

The purpose of choosing this subject is to know the components of physical and spatial configuration so that the influence of climate and culture can be investigated in them. In order to analyze the issue, it was necessary to select traditional houses in the Qajar era with two different structures, including a central courtyard and a block in hot and dry and hot and humid climates. The desired result can be obtained by comparing the components of architectural configuration. It was found that a quantitative combination of cultural and climatic factors led to the specific architecture of the historical houses of the Qajar period in hot and dry and hot and humid climates, and cultural and climatic factors influenced the characteristics of the houses in each climate.

2. Research Methodology

The method of this research is descriptive and analytical, and the theoretical data have been obtained through library studies and field observation. Considering the subject of the research, which is how the physical and spatial configuration components of Qajar houses have influenced the culture and climate in hot and dry and hot and humid regions of Iran, certain examples are brought up to show the effect of the climate. In this regard, two contrasting forms were selected from each climate including an introverted form and a block or extroverted form. The purpose of choosing houses with different forms is that the body of each house is representative of similar houses in the same climate. In the past, houses generally had two forms, extroverted and far-sighted. Also, in each climate, according to the cultural and climatic conditions, each body was slightly changed to meet the physical needs of its users. For example, in the southern climate of the country due to the high humidity and heat, the semi-introverted body has replaced the introverted body. In the hot and dry climate, the four-faced body has been popular in this area. In every climate, every selected house is representative and includes all the formal and typological characteristics of the body in its own climate. Finally, the general result can be extended to all the houses of a complex. Therefore, the selected sample in the hot and dry climate, the house of Boroujerdi, which was in the form of a central courtyard in Kashan, and the house of Ganji in the city of Zavareh in a four-sided form, and the samples examined in the hot and humid climate, namely the house of Mostofi Shushtar with a central courtyard and the noble house in Bandar Abbas with a block shape, were selected. In the process of analyzing the issue, first, the mentioned case samples were described according to the historical background and attention was paid to the cultural and climatic factors influencing them. Then, the houses were compared, and their similarities and differences were examined. The influential cultural and climatic factors were analyzed as indicators, such as house form, orientation, hierarchy, materials and materials, facade and decorations, light and illumination, geometry, scale, function and composition. These indicators are the factors that influence the shaping of the architecture of houses. The other influential factors, including religion and religious beliefs, defense factors, social security, and psychological and behavioral factors, are also considered as the subset of the cultural factor. Finally, with the information obtained through the comparison of the physical and spatial

components, it can be concluded that the influence of culture and climate on the architectural components is greater.

3. Results and discussion

The method of this research is descriptive and analytical, and the theoretical data have been obtained through library studies and field observation. Considering the subject of the research, which is how the physical and spatial configuration components of Qajar houses have influenced the culture and climate in hot and dry and hot and humid regions of Iran, certain examples are brought up to show the effect of the climate. In this regard, two contrasting forms were selected from each climate including an introverted form and a block or extroverted form. The purpose of choosing houses with different forms is that the body of each house is representative of similar houses in the same climate. In the past, houses generally had two forms, extroverted and far-sighted. Also, in each climate, according to the cultural and climatic conditions, each body was slightly changed to meet the physical needs of its users. For example, in the southern climate of the country due to the high humidity and heat, the semi-introverted body has replaced the introverted body. In the hot and dry climate, the four-faced body has been popular in this area. In every climate, every selected house is representative and includes all the formal and typological characteristics of the body in its own climate. Finally, the general result can be extended to all the houses of a complex. Therefore, the selected sample in the hot and dry climate, the house of Boroujerdi, which was in the form of a central courtyard in Kashan, and the house of Ganji in the city of Zavareh in a four-sided form, and the samples examined in the hot and humid climate, namely the house of Mostofi Shushtar with a central courtyard and the noble house in Bandar Abbas with a block shape, were selected. In the process of analyzing the issue, first, the mentioned case samples were described according to the historical background and attention was paid to the cultural and climatic factors influencing them. Then, the houses were compared, and their similarities and differences were examined. The influential cultural and climatic factors were analyzed as indicators, such as house form, orientation, hierarchy, materials and materials, facade and decorations, light and illumination, geometry, scale, function and composition. These indicators are the factors that influence the shaping of the architecture of houses. The other influential factors, including religion and religious beliefs, defense factors, social security, and psychological and behavioral factors, are also considered as the subset of the cultural factor. Finally, with the information obtained through the comparison of the physical and spatial components, it can be concluded that the influence of culture and climate on the architectural components is greater.

4. Conclusion

In the hot and dry climate, the culture factor has the most influence on facades, decorations, scale and function. In the matter of scale, a mobile scale has been formed in the building such that, when needed, especially if there are guests, the dimensions of the room can be increased and sometimes reduced. Also, due to the importance of function in a building, the internal spaces were placed next

to each other without intermediaries. Living spaces, service spaces, ceremonies, etc. were all next to each other and around the central courtyard.

The climate also has a direct effect on the materials, composition, performance, facade, decorations, scale and performance. In the discussion of materials and materials, an effort has been made to use a material that has a high thermal capacity and loses heat and cold slowly. This is because this climate has hot days and cold nights due to the large difference between day and night. For the index of composition, an attempt has been made to select the texture and materials in the facade in such a way that, in addition to maintaining the balance, it functions against the penetration of heat and winds together with dust into the house. In terms of facade and decoration, the wind deflector helps to reduce the heat of the air, and the basin under it moistens the air entering the house and reduces the dryness of the air.

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