

Recognizing the Design Patterns of Native Houses of the Mazandaran Province based on a Climatic Approach

Abstract

The formation of native Iranian architectural elements is strongly influenced by environmental factors. By studying, recognizing and analyzing Mazandaran's native architectural patterns, one can understand how such structures can adapt to climatic conditions. Recognizing patterns are one of the significant topics that strives to recognize practical methods to achieve the elements and patterns of native identity. This article has been compiled with the aim of creating design solutions for architects in order to benefit from the use of native architectural patterns in buildings. Therefore, it is based on corresponding the functional spaces of native houses with the climatic characteristics of the Caspian Sea shore areas (Mazandaran province) and determining patterns. In regard to housing spaces of the mentioned regions, the following questions are raised: are the types of native houses in the temperate and humid regions of Iran (Mazandaran) in terms of the patterns of internal functional spaces suitable for the climate of the region? and how are the climatic characteristics of the region influential in the overall house formation? By examining the climate components, it is depicted that the native architectural features of Mazandaran province have a direct relationship and are in harmony with the climatic stratum of the region; moreover, it improves the comfort level of the house during the summer. Finally, it can be concluded that the native houses of the region are in accordance with the climatic zoning and environment; in addition, natural ventilation is the most important factor affecting the improvement of environmental comfort. The results of the research, with the aim of exploiting the potential of natural ventilation, will aid the architect in selecting the optimal design parameters for creating a design compatible with the climate of the region.

Research aims:

1. Do certain physical patterns govern the architecture of Mazandaran?

2. Does the porch, as a main element in Iranian architecture, have physical characteristics that can accelerate building ventilation, especially in the coastal areas of Mazandaran?

Research questions:

1. Investigating the architectural pattern of the native house in various types of native housing in Mazandaran province.
2. Recognizing the effective factors in the formation of the porch in Iranian architecture by focusing on the residential buildings of Mazandaran province.

Keywords: climatic design, patternology, typology, natural ventilation, local architecture, porch

Introduction

The formation of Iran's native architectural elements is strongly influenced by environmental factors, and the miracle of native architecture, in the use of regional materials and the creation of special construction techniques, is obvious to everyone as the best way to respond to the physical and spiritual needs of mankind for building. Investigating native structures is a short step to understand the technique and science of its builders, at a time when traditional tools and materials provided only limited facilities. The similarity of the characteristics of today's houses in different climates has caused problems due to the excessive consumption of fossil fuels. The temperate and humid climate is widespread on the shore of the Caspian Sea in Mazandaran province. Being attentive to the climatic factors as well as the native architecture of these areas can lead to patterns that not only save energy but also provide a higher level of comfort. This research seeks to answer this question. Does the porch, as a main element in Iranian architecture, have physical characteristics that can accelerate building ventilation, especially in the coastal areas of Mazandaran? Therefore, the purpose of the research is to explore the ventilation patterns in various types of native housing in Mazandaran province.

The method of data collection in this research is collected through case study which makes it possible to gather in-depth and detailed information about the subject of the study. Deep and detailed investigation, focusing on real events in real contexts in limited time and place and holistic view are the characteristics of a case research. This type of study is suitable for generating and

testing theory; thus, it can be efficient in the context of this research. In the current study, observing and reviewing documents are the two main methods of data collection in this research.

Research steps:

A: The first stage is related to information regarding the climate, cities, houses, models and measurement criteria. The findings of this stage include:

- 1- The stage that leads to the identification and selection of cities.
- 2- The stage of selecting houses to be studied in cities and villages.
- 3- General typology of houses and identification of dimensions, orientation, proportions and physical characteristics of houses.

B: The second stage includes simultaneous analysis of research data. There is a visual description of the selected ones and examples made.

C: The third stage of conclusion: In this research results are specified and presented.

Conclusion

The results of this research displayed that in the cities and villages of Mazandaran province, the location of the houses was chosen based on the maximum distance of 20 kilometers from the sea. The common microclimate was COA. All native buildings emphasize the need for ventilation in the climate charts and in most cities with a common sub-climate, they provide comfort conditions in winter; however, they cannot provide comfort conditions in summer days and nights using the climate model. The results of the research display that although the patterns of functional spaces cannot fully provide comfortable conditions in the summer nights and days in the studied buildings, the physical characteristics of the house are a very important factor in providing comfortable conditions. The main element in Iranian architecture has physical characteristics that can accelerate building ventilation, especially in the coastal areas of Mazandaran. The climate has played a major role on the shape of the porch element and its dimensions and proportions. The sizes of the porch are effective on the ventilation of the building and the physical proportions of the porch and its components affect its thermal behavior.

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