



**University of Zabol**  
**Graduate school**  
**Faculty of Art & Architecture**  
**Department of Architecture**

**The Thesis Submitted for the Degree of M.Sc**  
**(in the field of Iranian architectural studies)**

**Study of Climatic Compatibility of Historic Buildings**  
**in Sistan in the Pre-Islamic Period (Case Study:**  
**Dahaneh-ye Gholaman & Kuh-e Khajeh)**

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January 2023

## **Abstract**

The ancestors from the past have always had a special look at the issue of climate in order to spend money and benefit from the minimum available facilities for their well-being and their desired residence, and this is an issue that is always evident in historical buildings. In the country of Iran, in the hot and dry climate, you can see clear examples of the influence of the climate on historical buildings, and familiarity and attention to these elements and techniques used in architecture to adapt to the environment. Sometimes, combining it with modern technology can be useful and practical for the modern settlements of the current society. Sistan is one of the regions where the influence of climate has always been observed in its historical buildings from the past. The purpose of the current research is to reach the elements and characteristics involved in the formation of buildings and the influence of climate and climatic adaptation on historical buildings in two historical sites in Sistan (Dahaneh-ye Gholaman and Kuh-e Khajeh) in order to get to know the architectural techniques of the past against environmental and climatic conditions. Therefore, in this research, with a quantitative method in the quantitative data section, and with a descriptive-analytical method in the quantitative and qualitative data section, two historical sites, Gholaman mouth and Khajeh mountain, are investigated as two examples of the pre-Islamic era in Sistan. The benefits of the climate can be seen in their buildings. The results obtained from the qualitative and quantitative data indicate that the climate components such as: temperature, intensity of sunlight, latitude and intensity of wind flow have the greatest effect on the structure of the building and the compatibility of the climate with the architecture of the region. Therefore, structures such as arches and domes, central courtyards and introverted architecture, north-west and south-east orientation of buildings and high thickness of walls are among the techniques that have been applied in the architecture of this region to adapt to the climate. In order to reduce the heat transfer capacity of materials, closed spaces are in more favorable conditions of thermal comfort, and open spaces are in less favorable conditions due to strong sunlight and less intensity of wind flow.

**Keywords:** Architectural history, Climate, pre-Islamic period, Sistan, Dahaneh-ye Gholaman, Kuh-e Khajeh.