

## A Study of the Vernacular Architecture of the Uraman Region In Iran

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**ABSTRACT:-** A brief look at the vernacular architecture of various regions of Iran reflects the intelligent strategies of our ancestors in maximizing the use of natural resources and dealing with climatic challenges. Uraman is an extensive mountainous land encompassing the southern parts of Kurdistan and the northern areas of Kermanshah. The villages of Uraman are part of this vast region. The tradition of housing construction in Uraman has remained local over the years of the tribe's settlement and has adapted to the region's climate and the livelihood functions of its inhabitants. This study first introduces the region under investigation, and then describes the strategies and solutions of its vernacular architecture.

**Keywords:** Vernacular Architecture, Climate, Uraman, Rural Housing

### I. INTRODUCTION

Since the inception of architecture, vernacular design—rooted in local knowledge and experience—has aimed to achieve harmony between buildings and nature (Kirbas & Hizli, 2016). Vernacular architecture, using passive strategies (which depend on building form and orientation), seeks to respond appropriately to climatic conditions in order to ensure human comfort (Foster et al., 2014). This architectural style reflects a deep understanding and consideration of the surrounding environment, utilizing the technologies of its time and the local capabilities of the people. It respects nature while addressing the necessities and desires of the community. Vernacular architecture is created by people whose design decisions are influenced by cultural traditions, developed over a long period of trial, error, and innovation by local builders with specific knowledge of their environment. It can be said that in vernacular architecture, the homeowner is also the architect, designer, and builder—shaping the house based on personal needs and continually improving it over time. This process relies on local materials and labor (Agorsah, 1985). By using natural resources and traditional methods for heating and cooling, vernacular architecture causes minimal harm to the environment. Communities with traditional architectural forms view their buildings as central to their social, spiritual, and communal lives (Oliver, 2006). A glance at the vernacular architecture across Iran also reveals the clever problem-solving of our ancestors in using natural advantages and overcoming climatic disruptions (Ansari & Erfani, 2018).

#### 1. Introduction to Uraman Takht (Uramanat)

Uraman<sup>1</sup> Takht is a village located in the Uraman district of the Sarvabad county in Kurdistan province. According to the 2016 census, this district consists of two rural districts (Uraman Takht and Shalyar), with 9 inhabited villages and a population of 5,312 people, distributed across 1,512 households (Sajadi & Karimzadeh, 2021). It is situated 65 kilometers southeast of Marivan and 170 kilometers from Sanandaj (the capital of Kurdistan). This village lies at an elevation of 1,450 meters above sea level and has a cold and mountainous climate. The weather in spring and summer is very pleasant, while winters are extremely cold and

long. Occasionally, snowfall in the region can be so heavy that access to the village is not possible for several days. (Mollanai & Soleimani, 2013).

**Figure 1: Uraman Winter and Spring**



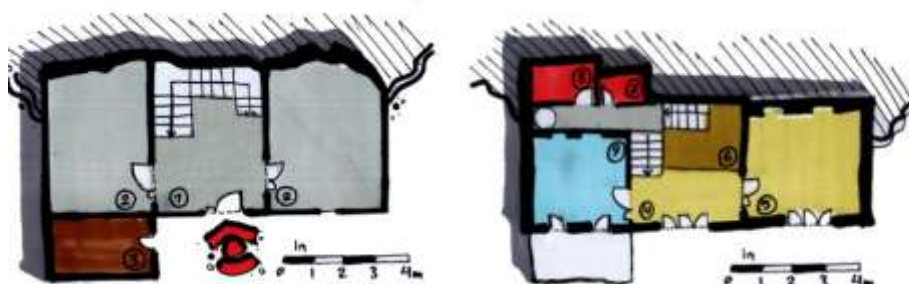
## II. GENERAL CHARACTERISTICS AND FEATURES OF BUILDING FORMS IN THE URAMAN REGION

- Small openings
- Flat roofs
- Lack of courtyards
- Continuity of stone, earth, and native wood as the structure of residential buildings
- Use of Dimek and Maroleh (Adherence to the principle of wall balance, uniform distribution of the wall's weight, prevention of cracks, and ensuring a rolling equilibrium during an earthquake)
- Construction of two-story homes, with the lower floor designed as a fodder storage area and livestock shelter, while the upper floor is used for human habitation and includes a hall or living room and two bedrooms.
- Presence of pasar <sup>2</sup>(a roofed outdoor space) to protect the walls during rain.
- Use of thick stone walls (to preserve energy during both hot and cold seasons, prevent moisture penetration into the building, especially in the mud mortar within the walls, which also aids in binding the stones).

## III. DESCRIPTION OF THE BUILDING FORM IN THE URAMAN REGION

The arrangement of spaces, including the entryways, storage areas for livestock, and areas for family members and guests, is based on cultural values and environmental and climatic considerations. For instance, the storage area and livestock shelter are placed on the ground floor, using the heat generated by these areas to warm the upper floor, which is the living space for the family (Rasoulpour & Azizi, 2015). The average size of residential units in this village is between 200 and 300 square meters, with a spatial-functional density on the ground floor. Almost all spaces on the ground floor, except for the ceremonial and traditional reception area known as Divakhane<sup>3</sup>, are located here. The house has multiple entrances, including those for humans, livestock, and service areas. The housing layout allows for easy access of agricultural vehicles to the service spaces, as storing fodder and livestock feed for autumn and winter consumption is vital for rural residents whose livelihoods depend on animal husbandry (Mollanai & Soleimani, 2013).

**Figure 2: Sample Floor Plan Drawing**

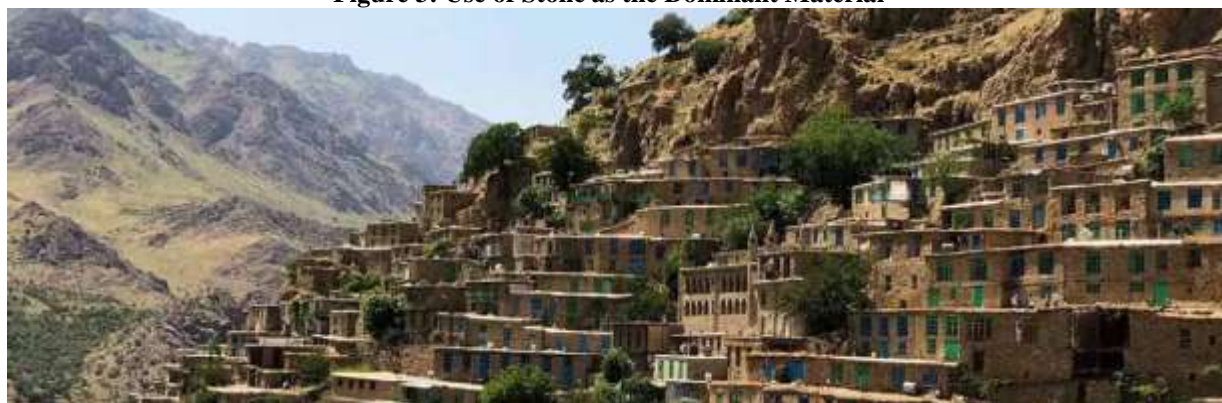


Left Image: Ground Floor Plan

Right Image: First Floor Plan (Soleimani & Mollanai, 2013)

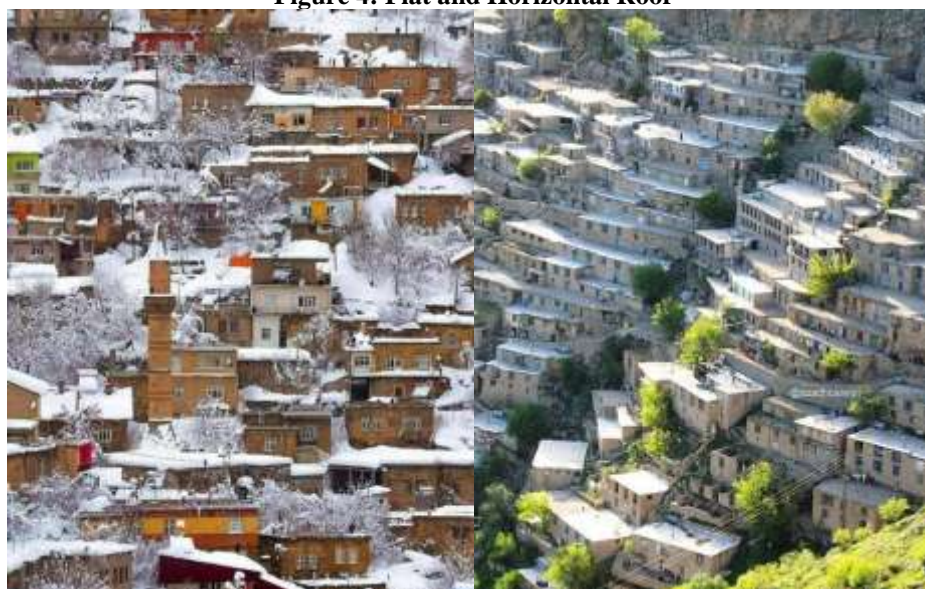
The cold weather during the seasons in cold and mountainous regions, along with the need for optimal temperature regulation, has led to maximizing the use of sunlight, benefiting from daily temperature fluctuations, and retaining heat in residential spaces. Therefore, the building form is designed and constructed to minimize exposure to extreme cold and reduce contact with the cold external environment. In many villages, particularly in the past, buildings had compact plans and dense layouts. The building form is designed in a way that minimizes its contact with the cold exterior, thus reducing heat transfer between the inside and outside. The stones found in the region are cut to desired sizes and shaped into cubes or rectangular blocks for use. Although the shape of the stones used in these vernacular structures follows a unified goal of combining strength and aesthetics, there is significant variation in the methods of arrangement or how they are placed together. In the exterior facades of the buildings, most of the stones are cut into regular geometric shapes (aesthetic consideration), while in other areas, stones are used more naturally (for stability and strength). The shape of the stone to some extent dictates the method of their arrangement to ensure structural strength (Shah Mohammadpour, 2013).

**Figure 3: Use of Stone as the Dominant Material**



The thickness of the stone walls with mud mortar prevents thermal exchanges between the interior space of the building and its external environment. These walls help to retain the heat and warmth of the daily sun exposure during the hot seasons and mitigate the chilling effects of cold weather during the winter, thus helping to stabilize the interior temperature of the building. Additionally, these thick walls bear the load of the roof. The best material available for this purpose is stone (Shah Mohammadpour, 2013). All roofs in this region are flat. As a result, rain and snow penetrate the roof, making it moist and damp. To address this, during the snowy seasons, after snowfall, the snow is removed with a shovel and then compacted using a stone roller to re-densify the clay surface, creating a barrier against water penetration

**Figure 4: Flat and Horizontal Roof**



#### IV. GENERAL CHARACTERISTICS AND FEATURES OF THE RURAL FABRIC



- Narrow alleys and corridors
- Most houses are oriented towards the south, southwest, and southeast
- The village stretches along the slope of the mountain

**Figure 5: Most houses are oriented towards the south, southwest, and southeast**



## **V. LOCAL MATERIALS OF THE REGION (STONE AND WOOD)**

Stone, as the primary local material of the region, plays a central role in the construction of buildings. The people of the region, with their valuable experience in identifying load-bearing and organized stones, have searched various stone quarries across the area and extracted stones in different sizes. After extracting the stone from the quarry, it was divided into various regular sizes depending on the need for the stone, ensuring coordination and uniformity in the work and construction. Very large stones were used in the foundation and footings, where aesthetic considerations were less important. Properly sized and regular stones were used in wall construction, including the facades of buildings. In the past, the maximum height of stone constructions was up to two floors, and dry-stone masonry was used without any mortar. (Rasoulpour & Azizi, 2015)

The second dominant local material in the region of Oraman is wood, which was traditionally used in the construction of building roofs. It was also used artistically for large wooden columns in public buildings, such as mosques, which required support in wide, open spaces inside. The lack of durability of roof structures has led to the replacement of wooden roofs over time due to moisture-related damage, causing wood to rot and, eventually, the roof to be replaced. Instead of using any form of insulation, the roof covering was made from clay, mortar, and straw. The mixture was then leveled and compacted with heavy small rollers. Wooden beams were also used within the stone masonry of buildings, adding decoration to parts of the facade, such as corners, and ensuring alignment in stone rows while providing relative shear strength in certain parts of the walls. Other uses of wood in the architectural fabric of the buildings included the construction of door and window frames, as well as doors and windows themselves. Local carpenters, using basic woodworking tools, made wooden doors and windows with unique wooden carvings and designs. (Beyti & Sharif Khajehpasha, 2022).

**Figure 6: View of Wooden doors and windows of the village**



## VI. CONCLUSION

One of the most important issues for human communities' habitats is the approach to the local environment and its challenges. Without considering the native aspects and the environmental characteristics of a region, along with the social, cultural, political, economic, and climatic factors of that area, planning for that place would face insurmountable challenges. On the other hand, traditional architecture should not only be viewed as a relic of the past; rather, there is a need to reassess it and attempt to bring its positive features into the modern architectural world. It is evident that the rich history of Iranian architecture has created a broad collection of criteria and methods for the design of local forms, which are shaped according to geographical, cultural, and livelihood variables. Understanding the local context, native architecture, form, and the shared meanings and functions of these factors can create a strong foundation for contemporary architecture.

The housing culture of the Hooraman region has remained native to the people over the years, harmonizing with the climate and livelihoods of the area. The architecture of the region, with its differences and similarities to the central areas, has distinctive and unique features that were explained in the theoretical framework section. Optimal use of renewable energy such as wind, temperature, sunlight, etc., was a key consideration for all builders in the region. The main geographical factors that have most influenced the traditional architecture of Hooraman are:

- Topography
- Climatic conditions
- Use of local materials
- Local culture and respect for nature
- Security of people and livestock

Ultimately, achieving these goals reflects the cleverness and wisdom of the people of this region in optimizing their relationship with the surrounding nature. The houses were constructed as part of a terraced, mountain-clustered system, with south-facing sun-catching windows. They were built in non-arable land with two-story buildings. The houses are arranged in terraced rows, where the roof of each house serves as the yard for the house above it, continuing this pattern up to the highest house in the village. The table below briefly summarizes the architectural characteristics of this region.

**Table 1 – Architectural Characteristics of the Uraman Region (Amini & noori, 2019).**

1	Type of Village Deployment (Dense or Key Form)	Most villages are located on steep slopes with inclinations of 50% to 60%. These settlements typically face south or southeast to maximize sunlight exposure during winter, and are situated in a way that protects them from cold mountain air currents. They are compact and often built on stepped platforms.
2	Prevalence of Traditional Structures	The majority of buildings are two-story and constructed with stone. Due to the abundance of stone and its resistance to fire, it is used extensively with minimal mortar or mud.
3	Village Structure	In many villages, a large number of housing units exist due to factors such as fragmented land ownership, uneven terrain, and a lack of centralized urban planning. Village layouts are typically organic and follow the natural topography.
4	Maximum Land Use Efficiency	Owing to the mountainous terrain and limited arable land, particularly in agriculturally valuable areas, building density is high. Structures are often closely packed and sometimes layered vertically to optimize land use.
5	Absence of Dead-End Alleys in Urban and Rural Layouts	Due to the regions sloped geography, paths and alleys are typically continuous and connected, providing multiple access routes and minimizing dead-end passages.
6	Optimal Orientation of Residential Units	Given the long winters and heavy snowfall in the region, residential buildings are oriented toward the sun to reduce snow accumulation, prevent freezing, and enhance natural lighting and heat during winter months.

### Postscript

1. The village of Oraman (Uraman) has a long-standing historical background. The existence of numerous remnants of fire temples in the surrounding area indicates that the people of this region practiced Zoroastrianism

before converting to Islam. In the past, this land was ruled by powerful local kings and chieftains, which is why the village is called “Ooraman Takht” — meaning capital or royal center.

2. Pasar is a rectangular stone slab placed on zavan to act as a drip edge for the roof, preventing rain and snow from soaking the walls. The zavan itself is a 1-meter wooden beam (traditionally mulberry wood) embedded in the top layer of the wall at 1-meter intervals, extending about 40 cm outward to support the stone slab balcony above and block rainwater from hitting the walls.

3. Diwakhan refers to the traditional guest reception room.

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