

The impact of mountainous geography of west of Iran on architecture and form of Hawraman dwelling

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In this article original architecture of Hawraman and its rural settlement as a descriptive and case study have been introduced and scrutinized.

The research findings show that architecture of the region is according to the organic architecture concepts formed at the passage of time, not predefined. Conclusion of research determines specified basis by scrutinizing the form and figure of stairs and Mastaba shaped settlements. These concepts consist: topography and form of Hawraman mountain (part of Zagros chain), climatic and atmospheric effects, economy and occupation of inhabitants and cultural and social specifications.

Key words: Hawraman, village dwelling, form, mountain architecture.

Abstract

Hawraman is a mountainous region located in western Iran or Iran Kurdistan, which includes the cities of Pawe and Meriwan, and north-eastern Iraq or Iraq Kurdistan, which includes Halabja. In spite of researches and studies about cultural and social specifications and living at rocky and rude mountain in the west of Iran, Hawraman architecture and its impressive potentials have seldom been scrutinized. Hawraman is best known for its unique arrangement of cities and villages built along the mountain slopes of the region. It has such a marvelous and special architecture that requires particular design for building settlements. One is shocked and amazed at how the people living in this area have managed very skillfully and orderly build their homes in the shape of a lot of long and wide stairs at the foothills of the mountain. These structures have been built in such a way that in most instances, the roof of a house built in a lower altitude is actually the patio (balcony) of another house built just a few meters above it.

The purpose of the present article is to survey configuration process and form of Hawraman dwelling, especially rural settlements and effective elements in unrivaled staged (stair shaped) structure and centralized texture of houses of the region. Are dwellings in sharp slope an answer to geography of this region?

I. INTRODUCTION

Hawraman place is an extensive region with 25000 km² area that in the primeval age contained a big zone of west of Iran and east of Iraq, but nowadays in Iran it has been limited due to historical mutation. In Iran it is located in southwest of Kurdistan province to north and northwest of Kermanshah province. The people in this region speak Hawrami dialect- a dialect of Kurdish language. Hawraman or Ahouraman refers to Ahouramazda- god in Zoroastrian religion, because Zoroastrian religion has been extended and outspread in this region. The people in this region were able to protect their customs and cultures against the passage of time among Zagros mounts.

Orarto's were descent of early nations of Iran that dwelled there from 1000 to 1500 B.C. and first found architecture signs, belonged to them. Rudiment structure of Orarto's architecture was based on timber and Column in the place that probably have had religious (temple) purposes. This has been the base of architecture of this region for prolonged centuries^[3].

At old ages due to its strategic position, neighboring governments attacked it and intended to destroy its cultural heritage. From 810 to 911 B.C “Ashur” governors to occupy Zagros mounts attacked to this region, and at the south of Zaribar River built a strict stronghold that is presently a collapsed structure [3]. “Hazrat Abdollah” mosque located at this region proves significance and position of Hawraman.

A. Climate

The climate of Hawraman is very attractive. It is somewhat cold, of course most seasons; it is mild and rather humid. Also plentiful Springhead and current rivers, in the green jungles, pastures and gardens, have made unique scenery in this region.

B. Mountain architecture characteristics

Words can't express this type of architecture. Perhaps Mountainous architecture, stairs and mastaba shaped, could be the most complete words to define it. To understand it clearly, we scrutinize architecture of Hawraman region, as a case study. Remarkable typical instances of this complex are Khanghah, Hajij and Shamsir villages at Kermanshah province and Palangan village at Kurdistan province.

II. THE MOST SIGNIFICANT CHARACTERISTICS

A. Orientation and locating of the villages

Most of villages are located at the sides of narrow valley with more than fifty percent slope. The direction of the majority of buildings is toward south and southeast to attract maximum sunshine. Most of the times one side of the valley is allocated to dwellings and the other side is intended to farming and gardening. The best location for structures is back to northern hillside and face to south, to attract the most light and sunshine at cold seasons, with a view of ranches and gardens. If structures are located at the bottom of valley, they may be exposed to flood of rivers and night winds that blow from the high to the bottom of valley, both dwellers. The structure located at the peak of the mountain makes

access to river water difficult; in addition it wouldn't be free from cold winds especially in winter. So the best position has been shown in the following picture.

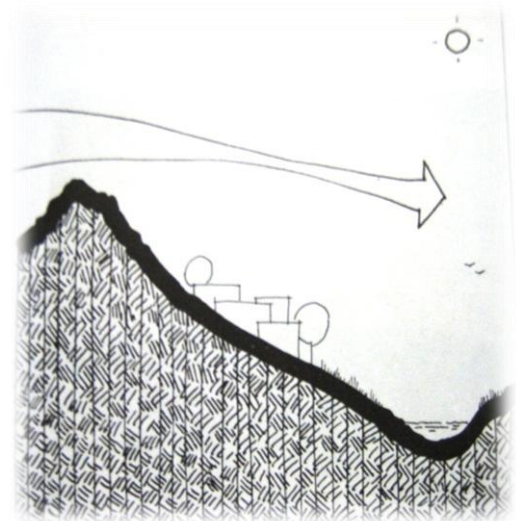
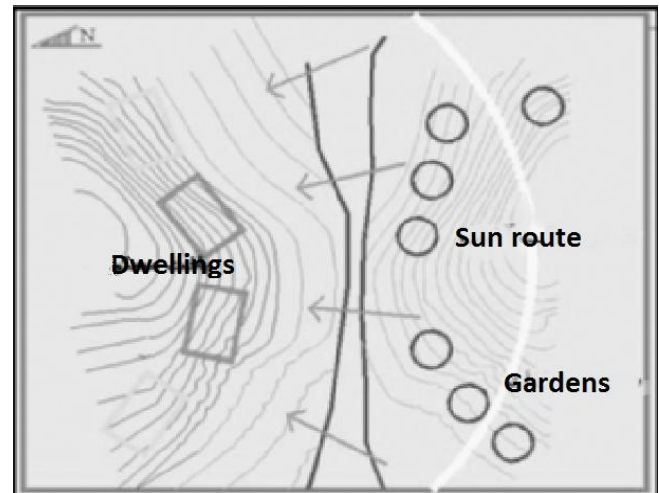


Figure 1, 2 : Locating village texture and movement direction of sun resource:(Watson,lab,2002)

B. Route and circulation

Village texture completely follows from common slope and routes have emerged based on direction and like parallel layers and interviewed public networks in the texture. Alleys located at hillside and usually one main pathway with maximum width as the most significant axis, connects two sides of village together. Other alleys make secondary ways

parallel to main way, and all follow predominant slope. Relative to village width, slope ratio, some vertical pathways, establish connections in the top and bottom of village. Significant point is that some parts of the pathways passing under the buildings and establish "Sabat" or "breezeway" which reminds desert architecture of central parts of Iran.



Figure 3: Pathway situation in the villages (resource: authors)

C. Center description

One of the most important qualities of this region architecture is centralized structure, making central part rather wide like square. Elements surrounding this center are mosque, market and some of services and welfare functions that are relative to magnitude of the place, and in smaller dimensions this centralization has been defined in houses and subspaces architecture. At mentioned villages in this article, due to impassable region, lack of ground and flat wide place, village elongation and much height, central texture of village have been organized linearly, and some larger villages have more than one center. Width of this center usually located along the main pathway, is a little more and with minimum services is a place for people gathering. Difficult accessibility from different parts of village to a specific center, causes service dispersal along the

main pathway. So several centers form with the minimum required services.

D. General common typology

The mentioned residential structure, doesn't completely follow centralized concepts, also decentralized architecture is not defined in this region. "Stratified architecture" may be a more appropriate term. Functionalism based on requirement is one of the most significant characteristics of this complex. Since there is not enough context to build the structures and also limitation is there in village expansion, most of houses built in stories and their balance have skillfully been preserved in the complex. Remarkable connection of every house with other surrounding houses, especially underneath and upper, finally causes social relation amplification.

Mankind and nature battle is exactly visible. Huge and rigid body of mountain have been carved and made a small cramped bed, and with those stones beautiful, lofty and steady structures have been built. The stones taken from that place located in the walls and compose completely vertical and plain surfaces. Wall color is similar to mountain color and its only different form is prominent at viewer's viewpoint. All of houses according to ground slope, have made a unity figure. Plan of every house has been designed with extremity simplicity and accuracy. In most of them mountain body has encompassed the end wall of houses. One of the biggest weaknesses of these houses design is difficult accessibility to stories. Most of circulations is usually performed by open or semi open places. Due to special position of ground and abundant slope and lack of suitable context, most places of houses have been allocated to main functions. Sleight wooden or stone stairs make vertical circulation possible. Balcony and terrace are visible at most of houses. They supply comfortable place to do some of house works and to gather family or neighbor members. Ajar place has been designed and performed in backward form at the central part of building elevation or protrusion of the building edges. Architects audacity and

skill in performing of these protrusion with minimum amount of autochthonous materials is praisable. Using blue color that has prominent importance in culture and belief of people, represents pretty sight and artistic composition.



Figure 4: position and situation of village dwellings at sharp slope, Hajji village. Resource: authors

E. Material

These houses walls have been created without mortar and built by putting the stones overhand. Stone is the most abundant material in this region, so it reduces structure expense, in addition saves the time. Weakness of the walls without mortar is their fragmentation of elements. Sliced embedded woods between layers of stones repels this problem. Interior surfaces of walls, is coated with clay, thatch or gypsum mortar and plaster. it makes interior places steady and beautiful, in addition the wall becomes impervious against wind and rain.

F. Structure Process

Builder first of all specify determined place, then dig needful ground about half of meter. Then fill foundation of building with stones and mortar. The next stage heighten all walls about two metres and in different distances between stone rows, insert wooden timbers from plantain or walnut trees and continue to heighten the walls. These timbers prevent stone walls from violent and hard pressure. Also if happen a split or break in the wall due to thrust forces or Partial settlement, it would be impeded in the wood layers.

After making the wall, wooden timbers places on wall width and Shingles are put on them. Then they will be covered by bush and deadwood after that they strew thatch and clay mortar on the roof.



Figure 5, 6: Random rubble and coursed rubble at building walls, Khanghah village at paveh. Resource: authors



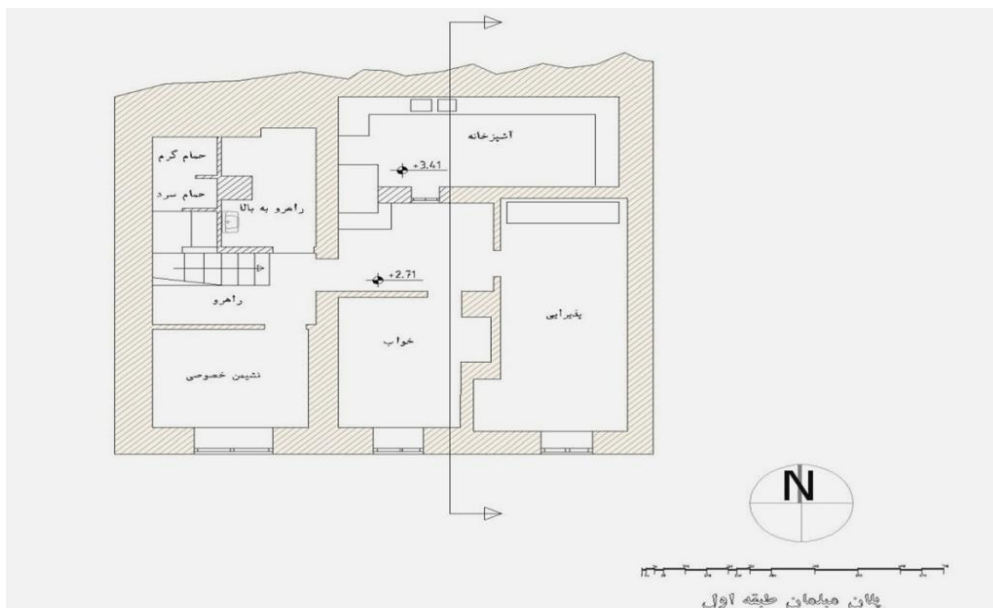
Figures 7, 8: Solid manorary ceiling construction with timber. Hajij village.
Resource: authors

Roof of some places like kitchen or baking place has a circular hole that sort of reminds domes in the architecture of central regions of Iran. If inner places of rooms have wide span, wooden columns for Stability of roofs are used. Considering slope texture of the region, mountain body acts

as a side or wall of the house and makes beautiful inner scenery. Nowadays using modern materials, architects have skillfully and expertly apply metal beams and columns with traditional materials in their composition.

III. RESIDENAL ARCHITECTURAL PLACES

Majority of houses are two stories. Based on their living, most of house places are different. For example farmers, gardeners, workers houses are rather varied. In many cases ground floor is allocated to storage, stable and firewood for fireplace fuel and to take care of animals and easier accebility to store and animals. Animal's body heat make upstairs floor warm. Major place is located to upstairs and includes different parts. Significant point is naming every place function in native dialect. This shows dwellers emphasize on place function and designing it in proportion to required function. Some of these places consist: "Nishteman" or biigest room that we call siiting room. In the middle of this room a place made for stool for cold monthes of year. At the ceiling a hole is embeded for ventilation and lighting. Big room is allocated to guests and has adequate equipment for them. Usually told "zher khan" to underground and "sar khan" to upstairs. "Porchs that are one of the most significant elements are called "hewan" and supply a great viewpoint. they are face to south and make pleasant place to rest and do house work (by women). Most houses don't have corridor they tell "naw dargah" to entrance vestibule. Service places like rest and bath room at the smallest size, are other parts of residenal architecture.



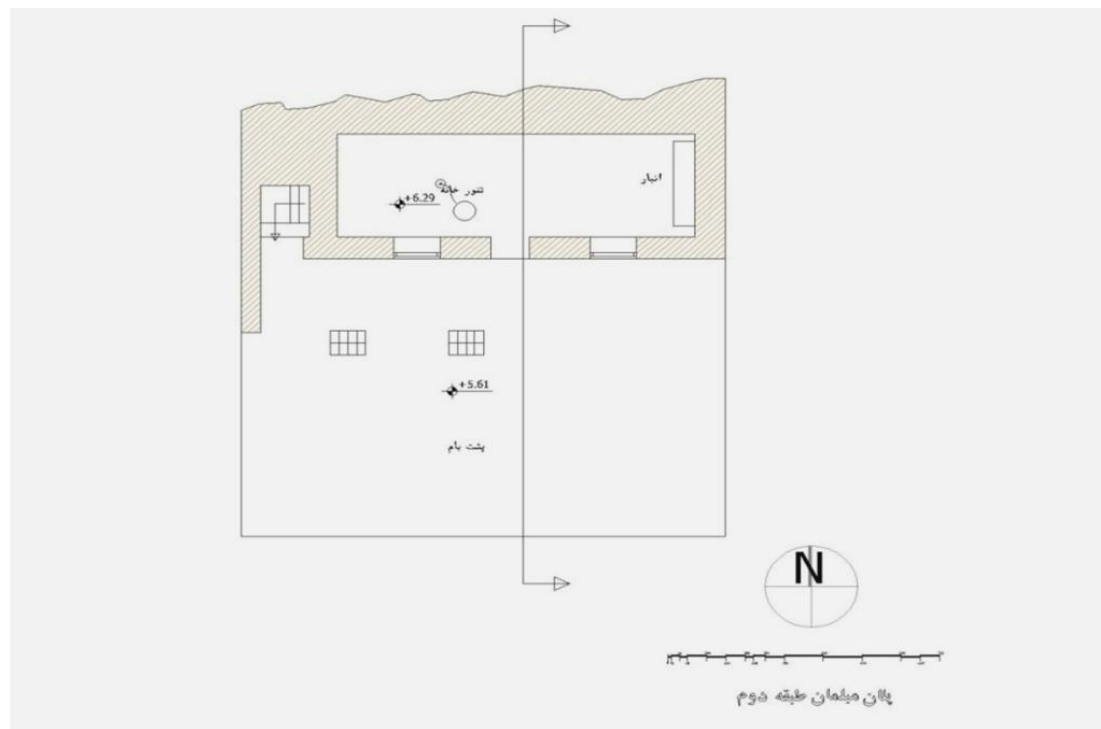
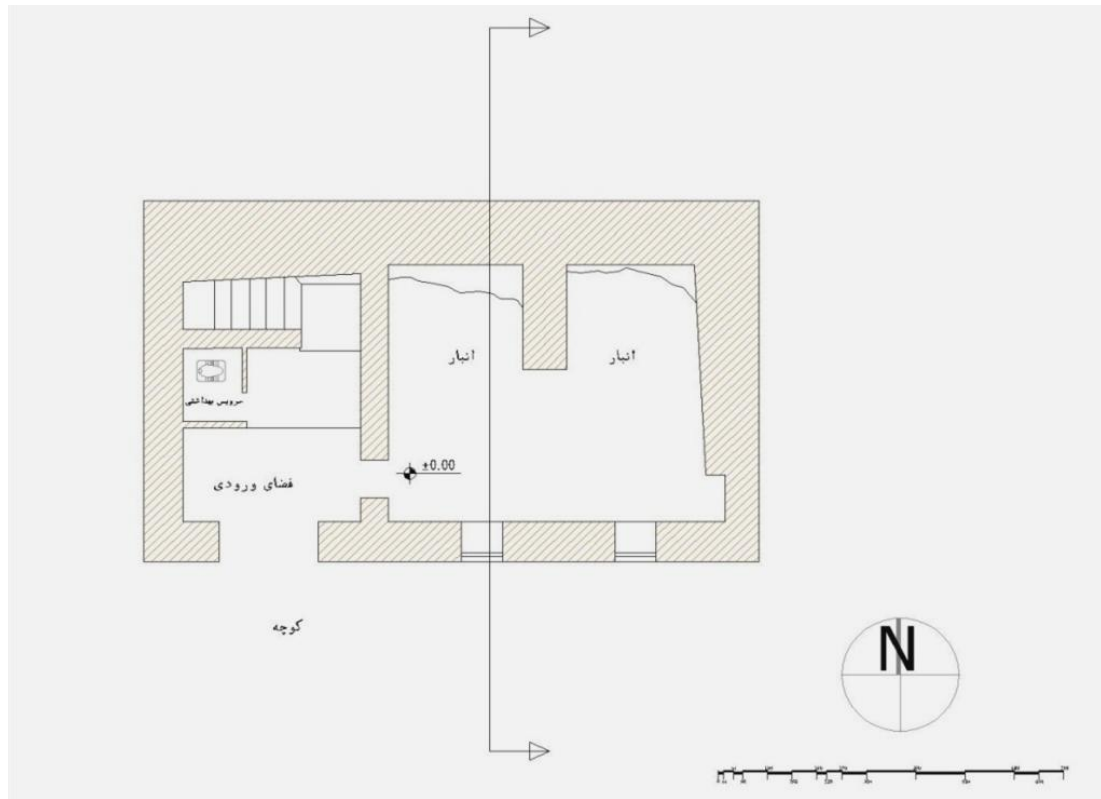


Figure 9, 10, 11: ground, first and second floor of a building Khanghah (resource: authors)



Figures 12, 13: Section and elevation of a house. Khanghah village (resource: authors)

A. A view to organic architecture –an approach to demonstrate the area architecture

Due to functionalism structure and harmony with environment and nature at Hawraman architecture, in this part one of the most famous international architecture styles at modernism age called “organic architecture” is scrutinized as a sample pattern to explain architecture theories and concepts in this region. Organic architecture clarifies and remembers well known architects like Frank Lloyd Wright. Sigfried Giedion in his book “place, time, and architecture” believes that Wright was unable to utter and describe organic architecture but with his design like waterfall house expressed naturalism architecture [8]. For many of modern architecture theorist that seek architectural explanation of beauty, nature was considered a momentous philosophy.



Figures 14, 15: Texture of Khanghah village (resource: authors)

Architecture should create a composition paralleled to nature and abstractly show cycle of nature, growth and expansion. Architects like Loei Saliwan and Wright clearly exposed organic architecture in most of their designs. research and study on the west of Iran architecture, can detect principles

coincident with this architecture style. At the climax of organic architecture famous theorist uttered numerous cases about connection between architecture and nature. Friedrich Wilhelm Schelling –one of the romantic philosophy originator- believed that nature is a part of human and there is no rupture between them. with respect to naturalism structure of the organic architecture, we can find similar principles in the architecture of regions like Hawraman and extend them.



Figures 16, 17: Public way slope and houses position of Khanghah village (resource: authors)

IV. SOME SPECIFICATION OF HOWRAMAN ARCHITECTURE-COINCIDENT WITH ORGANIC CONCEPTS

A. *Minimum alteration at natural environment*

Constructing at Hawraman region has been performed with least brunt to nature and all building made coincident with slope and topography. It means garbage producing has decreased as much as possible.



Figure 18: allegiance village texture of natural environment (resource: www.paveh.blogfa.com)

B. *Structure reconciliation with natural environment so be each other complement*

If watch to site plan of mountainous regions even big cities in this region like “Paveh”, reconciliation in the buildings and surrounded environment is visible perspicuously which imagine houses and environment are Component of a collection.

C. *Reconciliation of inner and outer place*

Balcony and terraces made skilfully, correlate outer and inner places anyhow. Besides, back sections of houses is completely at mount and at some cases extreme wall is same mount or rock. It increaces building resistance against earthquake, furthermore high heat capacity of earth and insignificance of thermal oscillation, help energy to be saved.

D. *Use natural material*

One of Iran architecture priciples from past to now is “autarchy” that is observable at here clearly. Use of stone and wood that is found from natural context.



Figure 19: use of porches as public way. Khanghah village (resource: authors)

Special Characteristic of villages

- 1 – Multifarious breezeway or vestibule at village texture
- 2 – Portico and stairs combination
- 3 - Corner making at cross pathway
- 4 – Existance of resistant details in walls and corners
- 5 –Existance of combined water path and stair shaped pathway details



Figures 20, 21: Palangan village at Kurdistan province (resource: authors)

V. CONCLUSION

West of Iran architecture specially Hawraman, like regions retained their originality and primeval structures, is unknown. Researches in this field indicate valuable architecture and urbanism structure. In this research some important specifications are mentioned: direction and locating of village, circulation, center definition, general typology of dwelling, material, design and performance process of residential place.

In addition some specifications of Hawraman architecture are: Minimum alteration at natural environment, Structure integration with natural environment to be each others complement, integration of inner and outer place, using natural material, continuity presentation of the materials from outside to inside of building and the evolution of social living structure. Result of this research shows continuing more study and research in this field, such as international famous architecture styles (e.g. organic architecture), a distinct definition of principles and architecture identity in these regions can be achieved. Achieving these principles is the most significant purpose of such researches.

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Electronically resources

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