SUSTAINABLE ARCHITECTURE PATTERNS IN THE TURKMEN NATIVE HOUSING, IRAN

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ABSTRACT:
Various guidelines that can response different Climatic, cultural and social human needs have been created by sustainable design between environment and building throughout history. Turkmen native houses in north eastern of Iran (Turkmensahra region) have architectural values and urban planning identity. The research subject is formation and layout of residential patterns and constructing technique taking effect of lifestyle and native culture. The results of this research can provide suitable field for using in Turkmen contemporary housing design and planning for development or rebuilding residential contexts. For this purpose, many case studies of Turkmen native houses have been analyzed with respect to physical and spatial values. Paper results include various scales from house, district to town layouts. In this paper, a sustainable relationship between culture, environment and economy existed in life and housing architecture of Turkmen society has been investigated.

KEYWORDS:
Native Architecture, Sustainable Architecture, Turkmens, Housing

INTRODUCTION

Turkmens Were Nomadic tribes that they were always moving due to their lifestyle and livelihood based on ranching and agriculture. Thus, their living space organization should be according to this kind of serious climatic and environmental life conditions. Stages of spatial arrangement, spaces construction and their placement manner next to each other have principles and special features in alachigh (the ancient temporary housing of Turkmen nomads). It seems that the alachigh has many similarities to early houses built after being sedentary in some areas such as Turkmensahra and Gomishan.

In this paper, living space revolutions and historical stages effecting on housing construction have been investigated. Then it compares ancient temporary housing to primary houses of Turkmens. Finally it introduces sustainable templates and Principles from single building to neighbourhood contexts in Turkmen society.

MATERIAL AND METHODS

The method of this research is descriptive, comparative and analytical. Information needed have been gathered by means of interviews, observations, pictures and essential maps in this research. Also, the descriptive data are collected from field studies and also summarizing and taking notes from written sources, including: books, articles, theses in libraries and universities of the city and archives of departments, organizations and sources. All analytical and graphical plans have drawn by author.

Introduction of the study area

The study area is Turkmen Sahra region in north eastern of Iran.

Turkmensahra that means plain of Turkmens, is a region in the northeast of Iran near the Caspian Sea, bordering Turkmenistan, the majority of whose inhabitants are ethnic Turkmen. The biggest city is Golestan which is dominated by Persian inhabitants, though in recent years there has been immigration of Turkmen and Zabuli from southern Iran. Figure 1 illustrates location of the Golestan province and the city of Bandar Torkaman. Other cities of Turkmensahra are Gonbad, Aqqala, Kalaleh and Gomishan, meaning the "silvery hill" in Turkmen, and Bandar Torkaman, generally just called Bandar [1]. Bandar Torkaman (Formerly: Bandar Shah, Persian: Bandar-e Torkaman) is a port city in Golestan province, Iran on the Caspian Sea. It is approximately 375 km from Tehran and had an estimated population of 126,000 in 2006. Bandar Torkaman city is one of the seven cities of Golestan Province. This city comprises of two parts. The central part is Torkaman seaport and another part is Gomishan district. Torkaman city's weather, affected by Caspian Sea area climate, is cold in winter and very humid in summer [2]. Turkmens today in Turkmensahra live fairly modern lifestyles although the effects of religion and the Muslim way of life are visible. The economy is based on industry even if agriculture still plays a great role in some Turkmens' life, like in other places of Iran.

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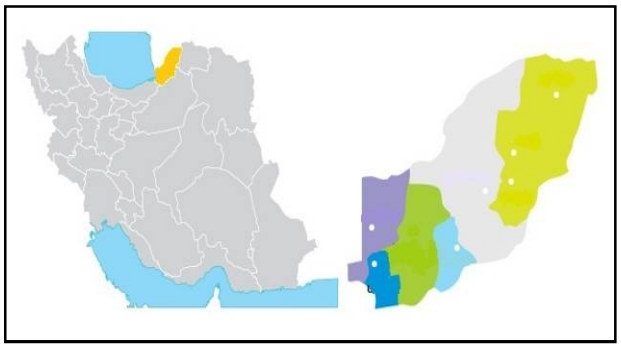


Figure 1: Location of the Golestan province and the city of Bandar Torkaman [3].

Comprising Alachigh to primary houses

The mystery of Turkmen housing sustainability is the Interaction of social and cultural structures, and environmental and climatic factors effecting on housing design. Comprising alachighs and their placement manner next to each other to primary houses of Turkmens leads to perception of their living and residence sustainable values. Alachigh has long been Turkmen housing [see Figure 2]. It was responsible for their moving and nomadic living needs so that it was simply set up and removed in short time. Alachigh included the smallest Turkmen social unit that was a Turkmen family [4].

Their livelihood was based on the pastoral economy. So they should always be going to summer and winter quarters for grazing herds. Finding extensive pastures was one of the most important concerns in Turkmen society [5]. Alachigh was not only a place for inhabitant's convenience, but also for keeping livestock, the food garner, dairy products Preparation place, wheat and grain garner, handicraft producing place such as felt rubbing, matting, carpet weaving and embroidery. Its floor was covered by felt ground cloth or carpets. The fire igniting place located on southern portion was open. A carpet usually was on one part so that it was spread at the time of guest arrival.

Figure 2: A view of Turkmen's alachigh [6].

On the other hand, early houses of Turkmens often have two rooms built of wood or brick. These rooms have been built on two storeys. They have often gable roof. For example, houses of Gomishan region (the area of Turkmen's early settlement) comprise of two rooms formed major living spaces in residential units. They have square and plain shape in most cases. Each room has two doors and also has two or three windows. One door relates per room to Ivan and another one relates these rooms together. They are major centers for family activities. Eating and sleeping, keeping children, placing house furniture and different instruments, and welcoming guest are activities performed in these spaces. Figure 3(b) illustrates these spaces. The rooms of residential units are the most similar spaces to the alachigh. Furniture placement manner and functions in a room is almost corresponded to Turkmen's traditional lifestyle in alachigh [see Figure 3(a)]. Sketches of figure 3 have drawn by author.

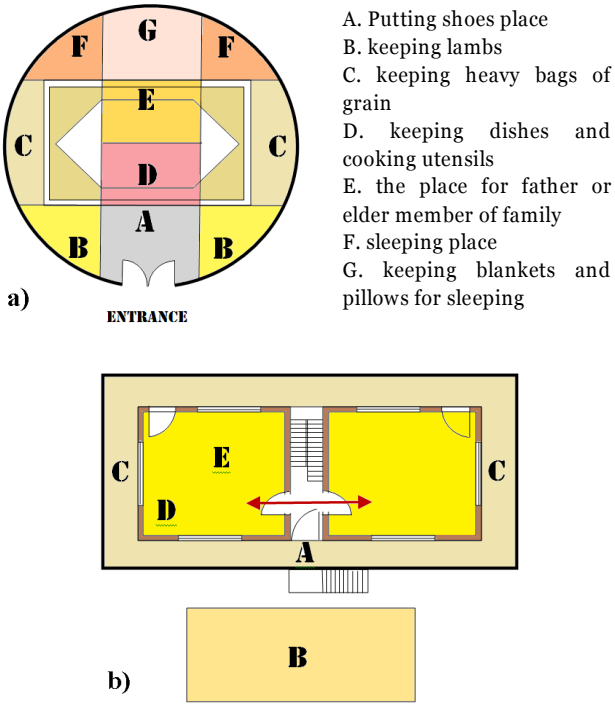


Figure 3: Composition of inner spaces in (a) alachigh plan and (b) plan of primary houses

Sustainability in housing adjacency discipline

The distance between alachighs and their situations illustrated that their owners were related to which tribe and used of what pasture. As a result, the position of the alachighs represented social and economical relationship between inhabitants [7]. The inhabitants of neighbor alachighs usually were kin and they had common pasture. Composition of several alachighs was called obeh located far from another one. The distance between them varied based on pasture capacity. This social hierarchy existed for all Turkmens. Geometric shape of placing alachighs expressed social relations between inhabitants.

A researcher has done attractive research on housing features in Gomishan region and has concluded that the alachigh of each complex, obeh, usually set up along a straight line [see Figure 4 (a

and b)]. Doyen's alachigh was situated in the beginning of this row. He reports complexes that have twenty alachighs along two detached rows [8].

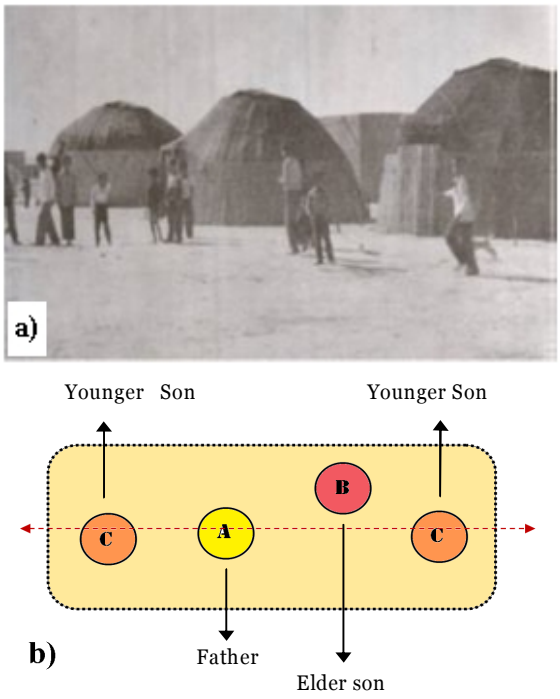


Figure 4: View (a) and graphical plan (b) of the alachighs placement manner next to each other [9].

The considerable point is that we can understand the effects of traditional constructions in that area after converting them to fix houses. It seems that Turkmens have built houses, after being sedentary, similar to original housing, alachigh, from several aspects. This similarity can be divided in two categories:

- Similar interior spaces
- Similarity in houses placement manner

We usually see some houses that have several rooms located side by side in Turkmen nomad's villages. These rooms have been situated along one row. Each of them has a door opened toward an overall Ivan. This Ivan has a roof held by several columns. It exists usually another storey below these rooms used for stockroom or stable. The majority of rooms dimensions are almost 20 meters While Ivan length is very various [10]. This length being equal to that of rooms' row depends on family extent. Sanitary spaces are usually seen additionally adjacent to the building. Above all, there also is an oven situated upper than ground level in the area of house. It is commonly used for all of rooms.

Although Turkmens don't live in the alachigh today, they have not varied their habitations very much. Turkmens have serious social relations from family to tribe level. This social and cultural stability has been also appeared in housing organization. The majority of houses are in the form of a rectangle including a row of rooms. The living place of father or patriarch's tribe is situated on the first room. That of the married sons is on the other rooms. If building land is not sufficient, the rooms should be situated on several rows. This house construction approach, survived from obeh layout, is thoroughly adapted to Kinship system.

This Kinship discipline and subsequently this housing construction style have an economic base. Because Turkmens were nomadic, their Survival depended on ethnic solidarity. A Turkmen could not live in desert alone, pastured flock, produced dairy products, resisted against attacks of other tribes and survived natural and human events. Thus it was important for Turkmen tribes to keep ethnic solidarity. Sons stayed at father's home after they married. Then they together with their father and brothers went to pasture for grazing their own flocks. However an obeh, a complex of several alachighs next together, was a kind of familial cooperative. For example the flock of one obeh used the pasture belonging to the same one. The pasture belonged to all of the obeh members. When all of tribesmen contributed to building shelters, the owners could not recommend on designing method very much. As a result Turkmen tradition of house construction was applied effectively to inhabitants. This way produced a kind of prefabricated architecture and it caused unity in housing and residential context appearances.

Kinship systems and tribal hierarchy disciplines usually determined social relations between neighborhoods. These social relations effect on neighborhoods context and house construction style. Familial relationships composition mainly forms neighborhood units. A quarter produces fields for developing houses and provides more adjacencies. Neighborhoods are situated at much distance but in close relationship to each other in the study area. Economic, familial and social discipline is the most important factors causing them to place next to each other. The few families next to each other form a private limit. This is a new method for the creation of neighborhood spaces and a different pattern of providing hierarchy and boundary formed based on social discipline, tribal and ethnic identity. Photography of figure 5(a) is a Turkmen neighborhood and figure 5(b) is a Site plan illustrates residential units' placement based on kinship systems.

Patterns of sustainable housing architecture

Generally speaking, patterns and rules of sustainable housing architecture can be categories in four groups:

- Adaptability to climatic and environmental conditions (light, wind, moisture, rain,)
- Prefabrication and lightweight construction
- Constructing shelters from available materials and applying native methods
- Adaptability to their livelihood

These guidelines follow some rules that have been common from nomadic period, when they were

living in the alachigh, to sedentary period when they were living in fix houses.

Figure 5: View (a) and Site plan (b) of residential units' placement based on kinship systems [10].

Adaptability to climatic conditions

Comparing nomadic residences with sedentary houses leads to this result that environment and climate have always considered for providing convenience in architecture spaces and residential contexts. Alachighs have been prepared to be appropriate for inhabitants' life in all respects. They resisted against wind because of their circular shape and against coldness and rain for their felt blanket. They were often established on a platform, built by mud and brick and brought up 10 centimeters, for protecting against rain and rat. A special rope, hung from the ceiling of alachigh, to which the bags filled with sand or wooden mortar were fastened, protected the ceiling against strong desert wind.

on the other hand, climatic architecture features of Turkmens, considered for designing houses and residential contexts, briefly are as follows:

- Using of high platforms upon which houses have been built due to moisture
- Building wide and roofed balconies all around the house for protecting it against rain
- Developing a small number of houses spread out over a large area
- Applying some materials having low heat capacity
- Using of natural ventilation without exception in all buildings and passages
- Designing extensive and open plans having linear geometric shapes along east- west direction
- Using of Inclined roofs due to downpour

Figure 6 and Figure 7 illustrate some of these climatic considerations. Figure 7 is a sample plan of Turkmen houses drawn by author.

Figure 6: A view of a traditional house in Gomishan: Using of wind for ventilation [11].

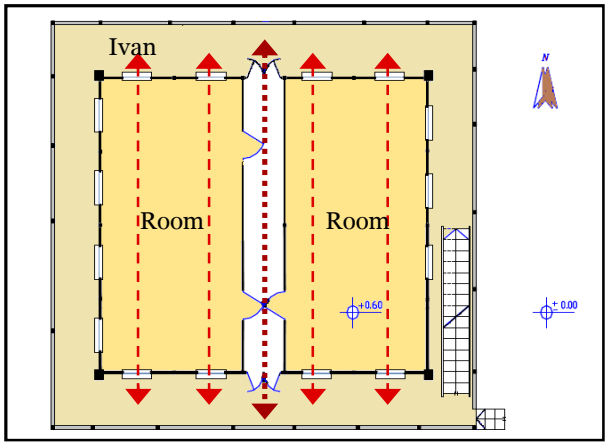


Figure 7: Plan of a traditional house in Gomishan: Using of wind for ventilation

Prefabrication and lightweight construction

The need for setting up temporary residence in short time enforced Turkmens to construct their shelters by simple speedy methods so that their parts could be put together somewhere else. So their housing often built by separable and removable materials both in the structure and wall's cover.

The noticeable matter is that wooden houses in Gomishan, the place of building primary houses, and many ancient villages, developed by Turkmens, have used of prefabrication and lightness property of materials and joints. These buildings were also movable and separable by means of notch and tab and sliding joints between beams and columns. The

structure of alachigh was completely wooden. Its circular shape and centralized form increased its resistance to weather conditions specially desert strong winds. The crossover narrow wooden beams, in the bottom of wall, were the main structural factors helping interior furnisher design as well. Figure 8 illustrates setting up these crossover narrow wooden beams for constructing alachigh. Those wooden beams were also used for designing primary houses to join plaster with wooden walls. Author has drawn some Junction methods of structure components, and the joints of entrance door, used in both alachighs and primary houses in figure 9.

Figure 8: Setting up alachigh by Turkmen women, and junction method of structure components [10].

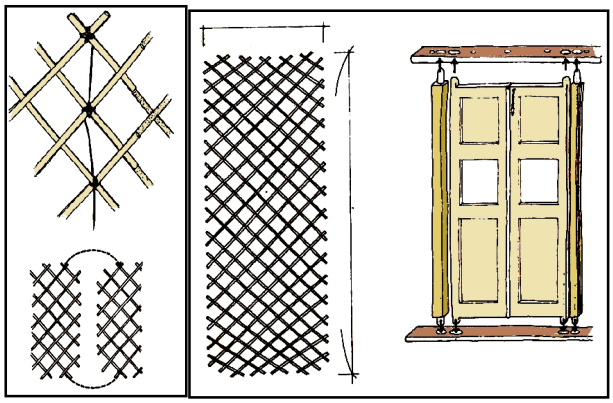


Figure 9: (a and b) Junction method of structure components, and the joints of entrance door

Available materials and native methods

All of materials used for constructing alachigh were native, accessible, cheap and recyclable. Material of the structure was natural wood, that of floor and the body cover was felt, and that of all of joints was ropes gained from livestock products. Wall's Daub of houses was also native materials, marine sand and lime, found very much at beach close the area [12].

Adaptability to livelihood

Turkmens always determined establishment place of alachigh considering availability of pastures for each tribe. They specified even a place for keeping Lambs. Their houses also followed this pattern after sedentary. Figure 10 illustrates adaptability spatial organization of a traditional house to livelihood manner.

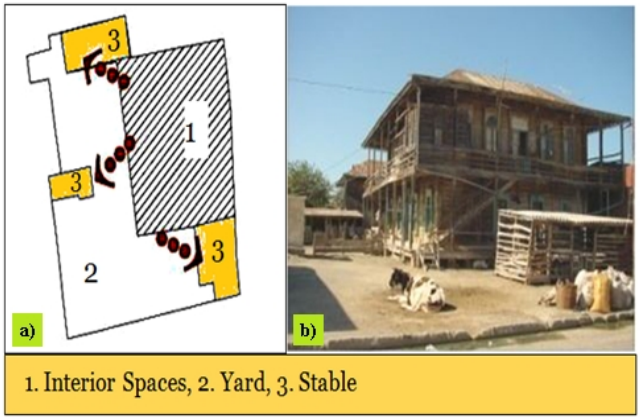


Figure 10: diagram (a) and view (b) of a traditional house in Gomishan: the close relationship between residential spaces and stables [10]

CONCLUSION

Many factors caused appearance of Turkmen village and town to have unity and harmony. Some of them studied in this paper are as follows:

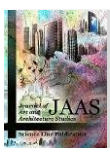
- Adaptability housing to livelihood approach
- Selecting native materials
- Suitable solutions to climatic problems
- Constructing collective shelters due to the cooperation spirit of inhabitants
- Building houses in short time considering their lifestyle
- Adaptability adjacency structure of houses to tribal social and politic rules

It seems that unity and harmony between these factors is the mystery of residential contexts sustainability. However contemporary residential units design and urban planning should be compatible with the context and adapted to patterns derived from social and cultural structure.

REFERENCES

1. Tajbakhsh A (2004) Organizing plan for the old texture of Gomishan city, the municipality of Gomishan publisher.
2. Moeeni A (1986) Golestan and plant geography, Amirkabir publisher.
3. http://en.wikipedia.org/wiki/Golestan_Province
4. Azimi T (2004) Culture and art village of Gonbad, Architecture M.S. Thesis, International University of Gazvin.
5. Vosughi F (2004) Turkmen tribe housing. Journal of Geography collage, Ferdosi University of Mashhad, No. 7, pp: 2-27.
6. http://parsinews.ir/news/page/a715614c1772c8970532af0784e6fbfa
7. Rastegar A (1996) the cultural and sportivecomplex of Gomishan, Architecture M.S. Thesis, Science and industry university of Iran.
8. Nazari A (2003) Revolution of Turkmen houses in villages, urban planning Ph.D Thesis, Tehran University.
9. http://geo-turkmensahra.persianblog.ir/post/9

10. Tazike I (2010) Sustainability in Turkmen housing. 1st Sustainable architecture national conference, Hamedan, Iran, pp: 37-51.
11. http://komishdefe.mihanblog.com/post/45
12. Abughasemi L (2000) Border of culture, Journal of Cultural heritage, No. 15, pp: 7-24.



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