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Vernacular Architecture of Bakhtiari Tribal Black Tents

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ABSTRACT: The Iranian tribes have their unique architecture due to their lifestyle. They resort to a portable shelter type, the black tent, that can be carried and assembled easily. This article introduces this shelter type applied in the Bakhtiari tribe, which has a history dating back to the Iranian civilization. This structure has retained its identity due to its ability to meet the needs of its inhabitants for centuries and remains a valuable legacy of Iranian architecture. The field study of Bakhtiari tribes is run by assessing their spatial conditions and adapting them to the library studies. The uniqueness of this architecture is in its flexibility and compatibility with the environment. The harmony and rhythm used in interior decoration are directed by climate, culture, customs, and living conditions, thus forming temporary architecture. According to the given site, the natural material type consumed in this structure is feet, creating comfort in the inhabitants' lives. The seasonal and functional condition flexibly dictates the size and plan of the black tent. In this context, to preserve this heritage running in-depth studies on this issue is of the essence.

Keywords: *Architectural heritage, Temporary architecture, Local architecture, Bakhtiari tribe, Black tent.*

INTRODUCTION

Due to diverse climatic and cultural conditions, Iran is influential in having diversified architecture (Pirnia & Iqbal Ashtiani, 2006). The subject area of this study is the territory for tribal seasonal movement (Fig. 1) (Maghsoudi, 2006). Bakhtiari is one of the great ancient tribes in the southwestern part of Iran. They are the largest floating migrants in the country and attached to the traditional lifestyle (Amanollahi, 1988). The material evidence found in the study zone indicates the inhabitants' migrating nature (Talaei, 2014). The nomadic lifestyle forced humans to adapt to become a given environment for a certain period (Dahl & Hojrt, 1976). For this purpose, their sheltering is portable and temporary (Sutliff, 2015). This lifestyle is adapted for the wellbeing of their life stock (Filberg, 1993). Consequently, their temporary sheltering is named the black tent whit an 8000-year background (Amanollahi, 2004). Defining some specific terms is necessary to shed more light on the issue.

Tribe: a group of people, often of related families, who live together, sharing the same language, culture, and History, especially those who do not live in towns or cities (Watts et al., 2017).

Nomad: A member of the tribe that moves with its animals from place to place (Stevenson, 2010).

This study aims to assess the black tent structure's techniques, architectural principles, and vernacular methods as an example of temporary and flexible architecture (Fig. 2).

MATERIALS AND METHODS

The method adopted in this article is a combination of qualitative based on field and library approaches. In this context, the Bakhtiari tribal lifestyle in black tents as a valuable temporary shelter is introduced in the first section, explaining the element and material used in black tent assembling. Their movement is subject to geographical climate conditions. This structure system is subject to certain effective parameters.

Theorical Foundations

Introduction of the Nomads of the Bakhtiari Tribal Lifestyle

Bakhtiari tribes are forced to adapt to various temporary

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Fig. 1: Iran Map and Its Neighbors

Fig. 2: Migration of Bakhtiari Nomads

architecture styles due to their seasonal migration, which should be compatible with their lifestyle and climatic conditions. Because of this lifestyle, they have a unique architecture of the tent structures that is somehow a heritage left to them for thousands of years (Rouhi, 2016). The black tent is affected by structural elements of landscape and is originated from the interaction between humans and nature during the time (Rastande, 2010). The black tent is the name of the temporary residential shelter that meets the tribal needs and is one of the earliest examples of the human habitat that was designed and built. The fabric of the black tent is made of livestock hair and wool. The tent is made of woven strips sown together, which act as hot and cold weather controllers (Figs. 3). During this field study, it is observed that material like canvas is gradually replacing this handmade natured fabric in recent years.

Glenn Murcutt (2007) states that the building should touch the earth lightly (Sayyadi, 2012). The concept that the interaction between the building and site should not harm the earth consider whit the black tent structure. It can be claimed that some advances have been made in this type of structure during a time (Zarghami, 2016). According to the hole,2004 black tent dwellers move to mountains area in summer and the opposite in winter (Fig. 4) (Hole, 2004). Considering the unique features of this nomadic shelter and its durability against natural ups and downs and unpredictable events, the black tent makes a temporary shelter despite the availability of other accommodation facilities (Ranjbar & Mahmoudi, 2020).

Fig. 3: Bakhtiari Tribal Black Tent in the Shimbar Region of Zagros Mountain Chain

Fig. 4: Map of Winter and Summer-Quarter of Bakhtiari Tribe Movement

Flexible architecture has been valuable, inexplicable, and fundamental human architecture. When humans came out of caves as a tribe, they began to live in some tents, thus, its History (Jadid Moghanloo, 2013). Naturally, the sense of belonging prevails in any dwelling site, whether in its permanent or temporary sense (Rappaport, 2014). The house has a comprehensive concept. Its spaces and functions are put in it easily. Since all of these meanings of the life and culture of nomadism are in the black tent, it is possible to replace the black house with the black tent to bring the comprehensive meaning of the house (Hassas, 2016). There exist a direct relation between black tent-dwelling life pattern and interior arrangement concerning the migration bio pattern (Papzan & Afsharzadeh, 2011).

Black Tent Site Selection

Danaeinia and Eilbeigipoor (2018) assessed the black tent shape formation and position in their geographical and economic sense concerning the construction materials, traditions, and kinship. The topographic features of the selected site and its efficient use are issues that tribal chefs pay much attention to. The safety in sheltering, the direction of adverse winds, protection against torrential water flows, sufficient light, and a good vantage point on the pasture and the surrounding environment are the important factors in this endeavor (Afshari & Alinaghizadeh, 2012). Other withal factors for selecting the erection site are avoiding tent erection under the large cliffs, selecting the flat surface, having proper routes, considering an emergency exit, having a perspective view on the pasture, being close to a water source, and selecting flat surface (Fig. 5).

Livestock Enclosure

This enclosure must provide livestock safety against wild

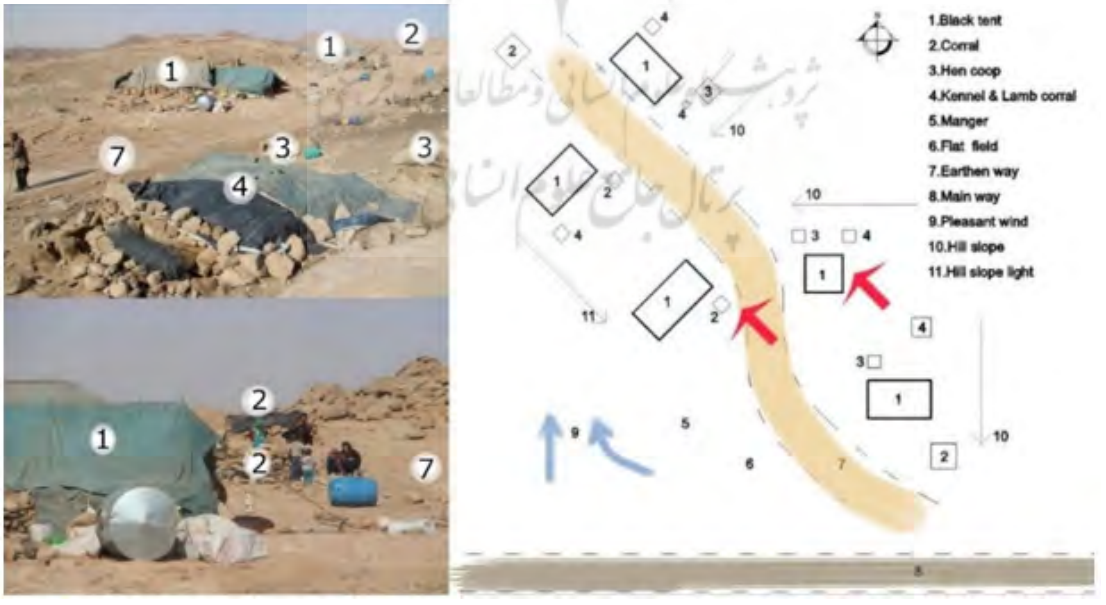

Fig. 5: Arrangement of Back Tents and Their Components

Fig. 6: View of Black Tent and Position of the Component Around It

animals and rain. For this purpose, they choose land with less exposure to wind and away from the water flow path whit a slight sloop. The shabby tent covers the stony or wooden enclosure walls to provide proper temperature day or night. The livestock enclosure should be in the vicinity of the black tent (Fig. 6).

The flexibility of Black Tent Architecture

This structure is flexible both in plan and form (Fig. 7). Tents can be easily joined to form a larger space to occupy more people, especially during given ceremonies, for the specified period (Fig. 8).

Black Tent Interior Arrangement

This arrangement inside the black tent prevents wind and dust entry (Fig. 9). As a rule, the black tent interior is divided into men's and women's sections, and each section is occupied with its related spaces and facilities. For example, the kitchen with its facilities is close to the entrance in the

Fig. 7: Connection of Some Black Tents to Make Larger Tent for Special Ceremonies.

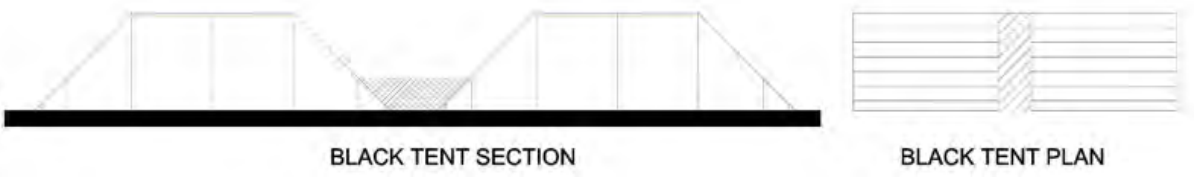

Fig. 8: The space between the tent is an open space courtyard

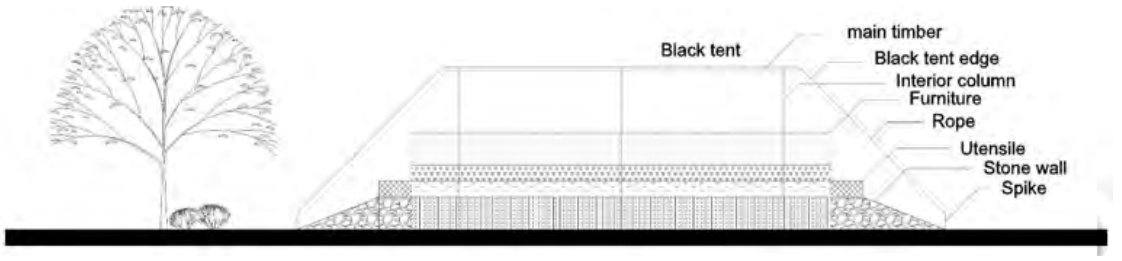

Fig. 9: Section of a Black Tent and Its Interior Arrangement.

women's section, and the armory is kept at the corner, the men's section.

Black Tent Interior Setup

In certain situations, their arrangement can be as such that the uncovered open space in between can serve as a one-side open courtyard for miscellaneous purposes. The interior setup can be relocated easily. Like regular houses, these tents have their private and common space, subject to changes in utility space, indicating that some space is assigned for guest sleeping space for both genders daily if necessary. Assigning space in the setup change takes place with no tent and partition, but object replacement in the tent (Fig. 10).

As observed in (Fig.11), scheme (a) represents the winter mode and (b) the summer mode. As to cooking in the summertime, it takes place in front of the tent. Coming from enceinte time existence of fire symbolize the gathering focal point for human, consequently. In tribal lifestyle, this tradition is held inside and outside the tent. The daily

Fig. 10: Variations and Flexibility of space usage during a day of a hot and cold season

Fig. 11: Interior components of the black tent and its special decorations

activities in tribal life take place indoors and outdoor almost equally. (Alinaghizadeh & Afshari, 2012). The tent entrance is always open in summer mode during the day to facilitate indoor and outdoor (Shakoori & Khodadadi, 2014).

Nomadic Craft as Interior Traditional Decorations

As an interior decoration item, the Bakhtiari rugs are woven by tribal women, unique to their lifestyle, inspired by their surrounding nature. They come in different sizes and thicknesses for various applications. The big ones cover the tent floor, and the smaller ones (the rug) cover the sleepwear storage (Safari & Zaheri, 2010) (Fig. 11). The creative sense of Bakhtiari tribal women leads to having a colorful interior space to please the eyes and soul, unlike the simple black color of the exterior, which corresponds to the vernacular aspect of Iranian architecture (Memarian, 2008) (Fig. 12).

Black Tent Structure Subject to the Geographical Location and Local Materials

Each family erects its tent on Vorgah, a piece of land enclosed whit stone to determine its boundary (Fig. 13). It is land cleared of stone. To erect the tent, it is spread on the ground according to a predetermined plan to allow the placement of the connecting hooks and linkage rings from either side. The involved go under the tent to erect the main poles. The wind barrier stone wall is built inside the tent opposite the entrance. The function of this wall is to break the wind and act as a platform to put on facilities the Pishe (the shorter poles) are posted in their determined spots (Fig. 14).

Bakhtiari Tribal Black Tent

This tent consists of several lats (strips made of goat hair joined together by a thread by the tribal women) arranged along their longitudinal axis and are sewn together by a thread. These strips are woven on a traditional wooden frame placed on the ground, the width of which does not exceed the device width, and the length is upon need (Fig. 15).

The texture of this tent is such that it prevents insect entry and allows smoke exit. This texture is flexible against climatic thermal ventilation because the rainy season becomes water-resistant, and in the dry season, it expands enough to allow an outside view.

Wood

The Dirak (the main pole(s) that hold the tent) installs a black tent. The connecting ropes of the tent are made of goat

Fig. 12: The elements of a black tent

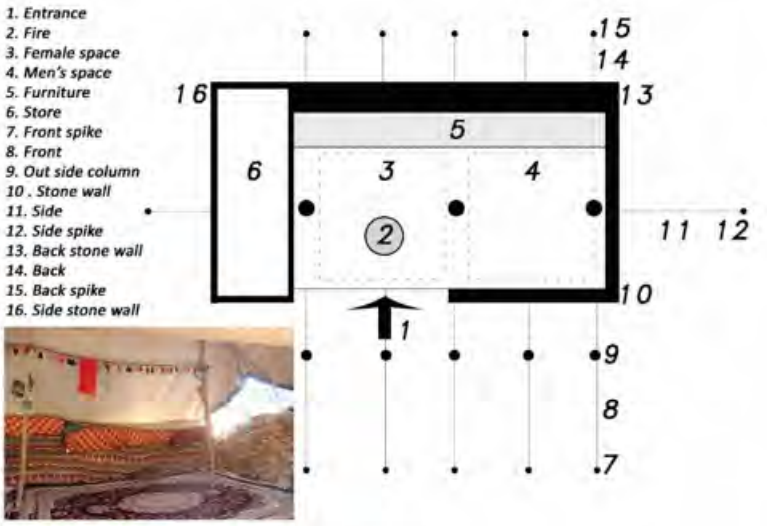

Fig. 13: Details of Black Tent Structure

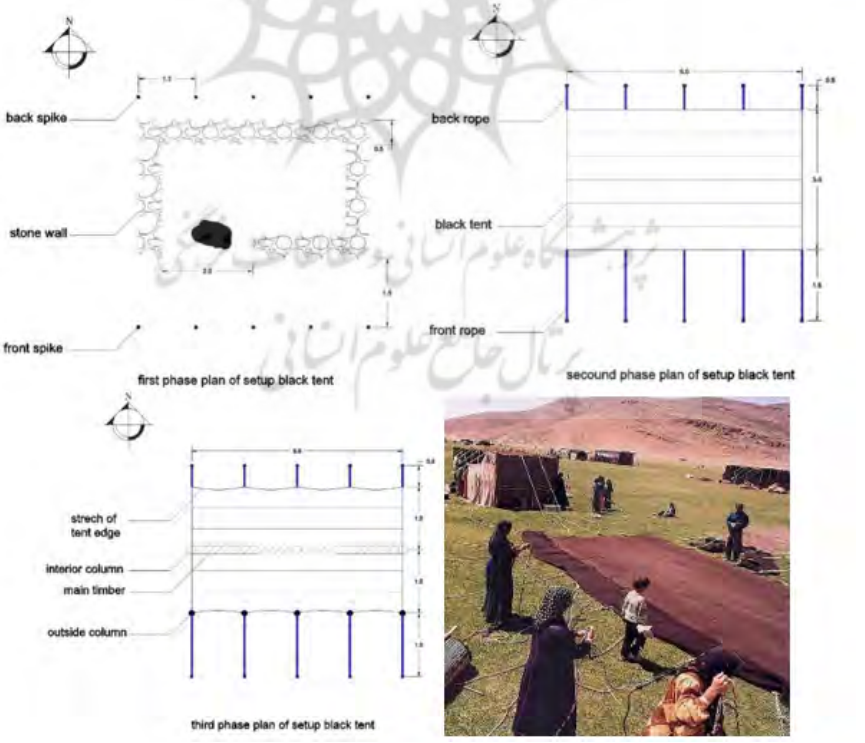

Fig. 14: Installation stages of the black tent in Vorgah

Fig. 15: A black tent that tribal women weave

hair and sheep wool mixture to increase strength versus both stress and strain. The top of the dirak is a V-shape to hold the horizontal pole. The poles outside the tent are not always straight. The count of pishes depends on the area to be covered by the tent.

The tent is stretched from sides to keep the wooden structure in place, thus, the black tent formation (Filberg, 1993). The tent remains intact through the central and marginal poles. Usually, these columns are not inserted in the ground but kept stationary due to the pressure exerted by stretching the tent (Fig. 16). The back and the sides of the tent are spread and covered with stone piles to prevent it from being blown up. The wooden hooks keep the tent edges attached to the ground through the ropes.

The Ring and Ropes that Connect the Tent to the Ground

The ropes are connected to the hooks on either side of the tent. In a windy climate, the ropes passed over the tent roof are first connected to the top of the pishes and, next, to the ground hook to make it resistant against the strong wind (Fig. 17).

The tent ropes are tied to a wooden nail or a spike tightly pierced in the ground in the plain areas. The distance

Fig. 16: The methods for installation of interior columns

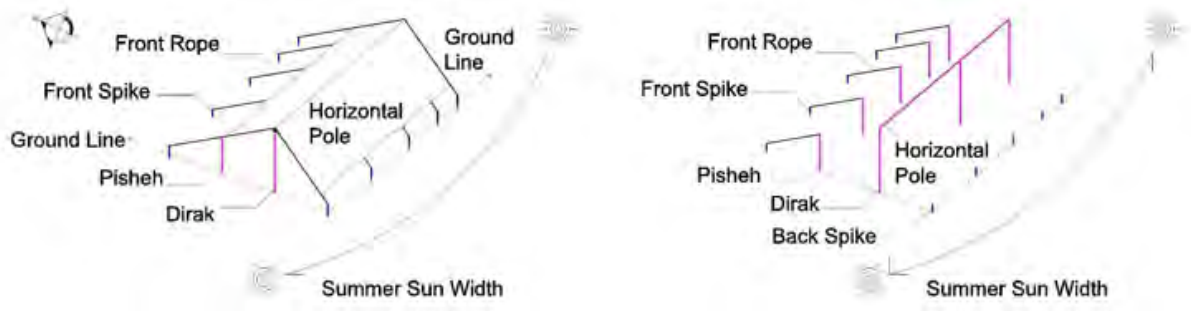

Fig. 17. Arrangement of Dirak, Pisheh, rope, and hooks in front and back of the black tent in summer

Fig. 18: How to fasten the ropes to the tents and hooks that are pierced in the ground

Fig. 19. Arrangement of the stones without mortar.

between these nails should keep the weight transfer to the ground in balance.

Stone Usage

Except for the entry section, the surrounding of the tent edge the skirt is covered by stone piles to prevent it from being blown up and prevent reptile entry (Figs. 18).

Experience has shown that a wind barrier wall must be built on the opposite side of the tent entry or in a U shape surrounding the tent (Figs. 19).

Black Tent Occupant Comfort Zone

In this structure, air conditioning is adjustable, which assures the comfort of the occupants in both ligaments.

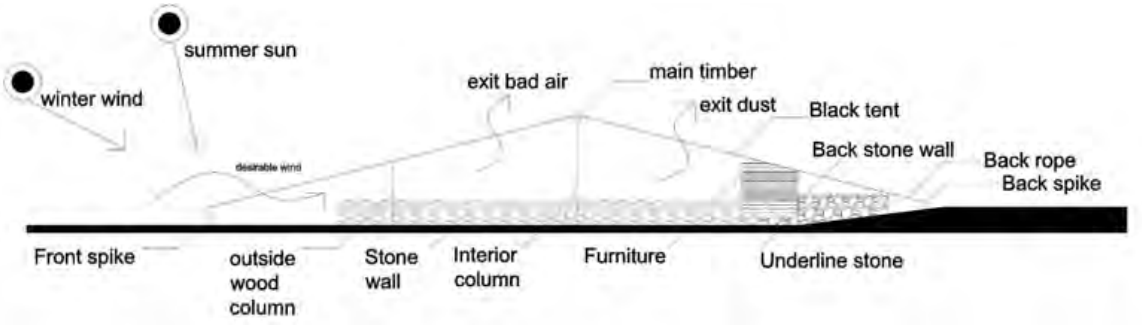

Fig. 20: cross-section of the black tent

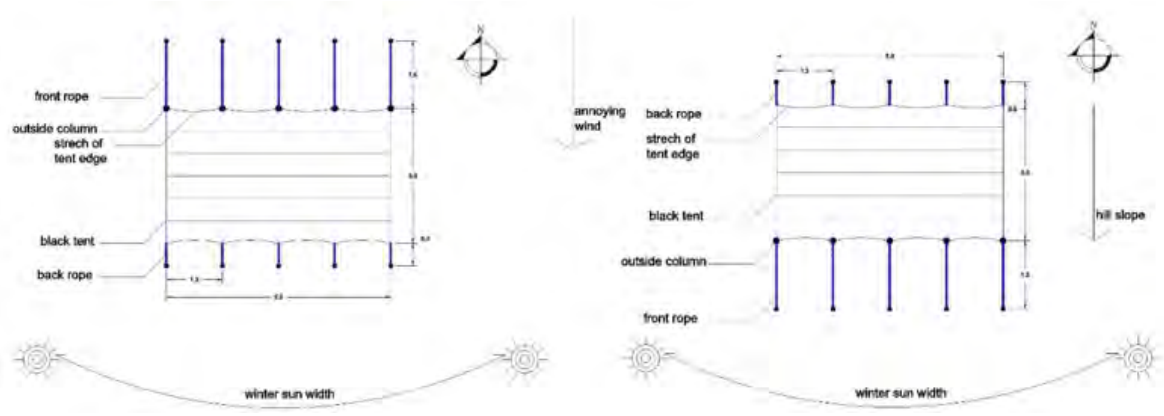

Fig. 21: Orientation of a black tent considering climate condition

The black tent can be considered a settlement for four seasons consistent with seasonal variations in the tribal life conditions (Digard, 2008). There is no considerable difference in the black tent architecture in different seasons (Fig. 20).

The Orientation of a Black Tent

The location and direction of the tent, livestock enclosure, poultry cage, the location of the fire are determined according to the direction of the sunlight, the inclination and material of the ground, the proximity to a water source, the intensity of the wind in different seasons, and the proximity to the pasture. The tent's location varies in the winter and summer quarters, depending on the air temperature and the prevailing wind. In the winter, the tent entrance faces the sun to keep the heat inside the tent almost constant until sunset, and the opposite holds for summer (Fig. 21).

Passive Cooling and Heating Systems

Natural ventilation is an efficient passive cooling method (Masoumi et al., 2016). The indoor temperature and humidity control process by intentionally introducing outdoor air into an indoor space is called air ventilation (Mohammadshahi et al., 2016). The shaded section over the entrances during the summer cools the interior space. They created shadows and coolness of the morning air, allowing air to follow the tent, causing hot air exit. In the material storage area inside the tent, the floor is covered by flat stone to prevent humidity influence. Handmade carpets and rugs constitute the tent coverage.

Human comfort expresses satisfaction with the surrounding environment (Bayoumi, 2017). The properties of goat hair applied in fabricating the black tent make it water-resistant and flexible against temperature. When the air is sunny and warm, the hair loses its moisture, and the pores of the tent open. Air flows from the bottom towards the top of the tent when the hot air enters, causing ventilation.

RESULTS AND DISCUSSION

In tribal life, nomads adapt themselves to the environment, and their behavior is adjusted through natural factors surrounding them. Thus, their houses are made from the most accessible and practical material and have a simple portable temporary architecture form to meet their seasonal displacements. The arrangement of the spaces is multi-functional special utility at different times. This flexibility occurs in the plan and the form, and they try to gain the most through the list. Another important characteristic of the black tent is its similarity to the Iranian architectural principles. Considering local material and form, the black tent has a context-oriented architecture that adapts itself well to its surroundings. Even living elements in Bakhtiari tribes and handicraft designs are inspired by nature. According to the obtained results, the architecture of the Bakhtiari nomads is compatible with their livelihood and the climatic conditions of the region. During the past centuries, the concept and formation of this structure have faced mineral changes.

This type of structure is resistant to natural and atmospheric factors and is based on the social and cultural needs of the tribal family. This indicates that construction with local materials concerning the environmental and cultural conditions can be responsive to the architecture of that region. The key issue is that the living in the black tent is gradually fading, architecture is forgotten, and the nomads prefer to become permanent residence, though they know the none tent structures cannot meet their needs. Recognizing the temporary architecture of

the Bakhtiari tribes, one of the oldest lifestyles, would assist the contemporary architects to follow the concept of an environmentally friendly structure.

CONCLUSION

The finding of this field research article is brief that the Bakhtiari black tents have preserved their structure for centuries because of their ability to respond to residence needs.

Principles in black tent structure were observed, including flexibility, sustainability, portability, being natural friendly and climate responsible, consider to vernacular lifestyle causes it be responsible as comfort home for the residences. The black tent setup started with selecting the proper site by considering route access, safety, and overview on pastures. They can be joined in facilitating bigger space upon need on the given territory. The inner esthetics consist of Bakhtiari tribe women handicrafts that create beautiful interior decoration where it is proper space assignment for household functions at the tent corners. All applying building materials in the tent structure are natural, which causes the structure kind of eco-friendly vernacular architecture. Restoring to the knowledge in climate gained by experience effectively erecting such structures that cause climate comfort in each season of the year for residences.

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