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Research Article

EFFECT OF THE CLIMATE ON THE ARCHITECTURAL FORMATION AND THE NATIVE URBANISM OF THE DRY AND WARM REGION OF IRAN

***Masoud Rezaee[1] and Ezatolah Safarkhani[2]**
[1]Payame Noor University, Ilam Branch, Ilam, Iran
[2]Department of Climatology, Tehran University
**Author for Correspondence*

ABSTRACT
Iran is a country that every corner of it has its own weather. Despite of this diversity every region could adapt itself with the climate factor in a different way from the other regions. Tran has four areas, and the studied region has been located in the dry and warm climate that has hot suns and the desert strong winds so that it is difficult to habitat and be comfortable in it. But, the Iranian genius architectures and artists always create the various spaces and elements, then they have properly adopted themselves with the climatic factors of this region and have exploited them with the best way for the comfort, so that today, the architecture of these regions shines as an honorary document in the architecture history book and the urbanism of Iran. Also, the writers have investigated the conducted field researches and the library studies and have tried to recognize the native urbanism and architecture of the region. And finally the obtained results showed that given the context, orientation of the city and the buildings, path ways formation, the way of harmony and coordination with the climate, native materials and etc, the native urbanism and architecture were in agreement with each other.

Keywords: *Native Architecture, Climate, Urbanism and Architecture, Dry and Warm Region*

INTRODUCTION
The ancient precedence of Iran architecture has created a big series of the standards and the methods of the construction and the native skeletal designing, that have been formed proportional to the living, cultural and geographical variables (Beheshti, 2006) every culture creates its own perspective, one of the most obvious and visible aspects of the ethnic perspective is hidden in its architecture (Mansouri, 2010).
Environment and the building in its context have been among the innovations and the permanent and original hand- made of the human in the culture civilization, and the significance and necessity of the attention to the climatic conditions have been proved in the designing and the construction of all of the buildings especially the buildings that are directly used by the human (residential) (Tavakolimoghadam and Tootounchi, 2011).
The researches that have been conducted in the field of the architecture such as Golani (1995) researches show that the native architecture of the traditional cities of the middle east has permanently coincided with the bioenvironmental characteristics of its territory (Golan, 1995). The native architecture has achieved the most appropriate techniques that their recognition is a solution for achieving appropriate patterns in the spaces of the new architecture (Molai *et al.*, 2011). Also the writers try to explain the field of the research and investigate the effect of the climate on the formation of the dry and warm region of Iran.

Climates
Climate is an Arabic word that has been taken from the Greek word (Clima) and its Persian meaning is Ab va Hava weather (Pourdaihimi, 2010). The effects of the climatic factors on the human phenomena had always been the focus of the attention and the study of the scientists since the ancient times. Bo the Aristotle and Plato believed the deep effects of the climate in all of the activities and the efforts of the human (Shekoui, 2002). The most principal factors of the earth structure is the climate and undoubtedly nature, human and all of the symbols of the life in a wide level are affected by the climatic conditions (AliJani *et al.*, 2006). Some of the researchers believed the effects of the weather the human activities in

the extent that in their view even the appearance and declining of the human primary civilizations are resulted from the weather (climate) conditions (Haidari *et al.*, 2012).

In some of the definition of the climate it has been show that the climate is the important and effective factor on all of the life phenomena and objects in the natural environment (Safaii and Taheri, 2010). That shows the whole situation of the air of a region and is changed less and is acted independent from the time (AliJani *et al.*, 2010) and is among the most effective structural factors of the earth planet (Mohammadi, 2006).

Climatic Divisions in Iran

In most of the world regions, climate is determined by the latitude and the height from the sea level. Iran that is located between 20 and 40 degrees of the north latitude is in the warm region and it is a high plateau in terms of the height that the sum of its levels that their height from the sea level is less than 475m constitutes very little percentage of the level of the country as a whole. Because of the existence of Alborz and Zagros range mountains and the way of their arrangement, the effects of their arrangement, and the effects of the water big area (Caspian Sea and Persian Gulf), is limited to the regions that are very near them. These areas hardly modify the degree of the thermal of the air of the internal parts (Kasmaii, 2005). Temperature, precipitation and shining of the sun are among the main and principal factors in the climatic zoning that determine the role and dispersion of the other climatic elements (AliJan and GHavidel, 2005). In a mountainous country such as Iran, two points aren't completely equal in terms of the climate. But, the best way for the base access for determination of the climatic regions of the country is the very «Koopen» principals that should inevitably be followed (Statistical Yearbook, 1979). Regarding No.1 table, the research field is located in the dry and warm climate.

Table 1: Iran climatic division (Ghobadian, 2005, with the writer emphasis)

	Climate	Climate kind	Affected provinces
1	The southern bound of the Caspian sea	Mild and humid	Gilan, Maandaran, Golestan
2	The northern bound of the Persian Gulf and O'man sea	Warm and humid	Hormozgan- Boushehr, sistan
3	The high and mountainous regions of the plateau	cold	Kordestan, Kermanshah, Ilam
4	Plateau plains	Dry and warm	Yazd, Kerman, Esfahan

Investigation of Iran Dry and Warm Climate

Dry and warm climate forms a big part of Iran plateau. Its range has been extended more in the central parts of country and as a thin strip in western south (the western slopes of Zagros range mountains). It has relatively cold winters and semi dry and warm summers (Etminan *et al.*, 2013). The weather is very dry due to the blowing of the migrant winds that are moving from the western south and the western north towards the equator. These winds are losing more humid when they pass form the big continents. More ever, in the semi equatorial regions that are among the high pressure regions, the air become dry and warm due to moving from the upper parts of the atmosphere to the low (Kasmaii, 1992).

Table 2: Climatic general features of the dry and warm region (Ghobadian, 2008, with the writer emphasis)

	The climatic conditions of the region
1	Dry and warm climate in the summer and the cold (chill) climate in the winter.
2	Very little precipitation
3	Very little air and humid
4	Very little vegetation
5	The great different of the heat degree between the dry and night because of the shortage of the
6	humid
	The winds together with the dust in the desert regions and in the desert margin

Architectural Definition

Architecture is a mix of (want) and (able), (Taghvaii, 2010) that is resulted from the thought and the spirit of the human (Akrami, 2010), and also is a phenomenon based on the thought and also is a mix of the affections and the emotions and the technical knowledge (Kalinz, 1997). In another definition, the architecture is an embodied music, the history mirror, the book of registration of the human works and expressing of the ideas and the values (Falamaki, 1996) that is the arena of the manifestation of the states, ambitions and the beliefs of the humans (Emami, 1997), the arena of the convergence of culture, art and technology (Abolghasemi, 2000), and in deepest meaning, it is the division and creation of the order and harmony in the space and them and the imposition of the human will on them (Fakoohi, 2004). In other words, the architecture give the spatial system to some forms of the imagination, the individual beliefs and the social values with a shape bounded to the construction technology and dependent on the time and place with the language and the expression particular to the architecture (Taghvaii, 2010).

City Definition

«City» word in today Persian and in its common meaning shows a scale of the human residency place, and is the modified shape of Avesta word of (Xsayra) khshtra (Bartholome, 1901). The literal meaning of the city in Dehkhoda dictionary is "Madineh, Balad and a group of the buildings that people live in them» (Majedi *et al.*, 2010). In the Persian language, city has been named "Khesht" that means kingdom (king territory) (Ashraf, 1974). It is obvious that the city characteristics have not been equal in the different periods and in the different regions, and there are some differences in the meaning of the city in every period and fitted with every territory in the history movement. The important problem is to find a meaning of the city that can be applied for the various periods and the different cultural, social and economic regions (Papoly, 2007). Today, various definitions are mentioned for the city that each of them is affected by some pre-assumptions. That Most of them are quantitative ones (Naghizaded, 2006). The most general meaning that has been offered for the city is that it is considered as the place of the settlement of a group of the humans and the place of their activity (Rabani, 2006).

Recognition of the Native Architecture

The first meaning that was given for this architecture phenomenon was "spontaneous architecture" that was invented by "Pagoneh". Here, we don't mean spontaneous as being random but being natural (Alpagonolo, 2005).

Traditionally, this a architecture is applied for the forms that have been shaped based on the needs of the residents of a region and the limitations of the place and the climate (Oktari, 2007). We can say that the native architecture is alter ego with the people and harmonious with the environment (Nazer, 2013) and has direct and strong communicative lines with the groups' culture and their daily life (Goodarzi, 2003). It is usually know as "the architect without architecture" (Amini, 2012) and can be applied to a special place (Bani and Masoud, 2008). The optimized application of Energy and the ecologic exploitation of the kinds of the permanent Energies are among the specifications of this architecture (Nohi, 2005). Using of the environmental possibilities and being harmony with the nature are manifested in the native architecture (Sartipipour, 2009). Usually it has a simple process due to the application of the local technologies and of the native materials, and has simply responded to a part of the performance needs of the habitants (Mohammad, 2012). In a glance to the native architecture, we can regard the formic concepts and more importantly inspire from the application of the positive sides of the comfort (Barzegar and Mofidi, 2010). The native architecture indicators have been show in No.3 table.

Table 3: The factors effective on the shaping of the native architecture (Rafii, 2011, with the writer emphasis)

Macro discussion	Micro discussion
Culture	Beliefs, customs, religion
Nature	Climate and geography
Economy	Living provision and it's kinds
society	Tribal structure and being homogenous and heterogeneous of the society

Effect of the Climatic Factors on the Native Urbanism and Architecture

Among the climatic elements that effect on the study of the urban environments we can say that the role of the sun shining, air temperature, wind, humid, the atmosphere fallings and the pollution are more important (BahramSoltani, 2001; Arbabi *et al.*, 2009). The proper effect of the climatic conditions on the urbanism leads to the creation of ideal conditions in the city (Shaghaghi, 2008). The residency places are also shaped based on the climatic conditions, topography, geology and etc, and among the natural factors, the climate factor has had the most complicated role in the different regions of Iran (Ziari, 2010).

The native architecture experiences in the world arena especially in Iran confirm the from-creating thought of the climatic observation (Tavoosi *et al.*, 2008). Therefore, we can mention the similarity with the climatic factors that are among the main characteristics of the native and traditional urbanism and architecture of Iran (Arabzade *et al.*, 2013). In the dry and warm climate of Iran, the architecture of the building and the cities is one of the most obvious appearances of the effect of the climate on the form-taking and the formation of the city and the buildings (Gorji, 1992) and the climate has an important role in the shape and the contexture of the cities and their architecture structure. And some techniques were applied for the solution of the climatic problems. (Tavasoli, 1974), and among them we can refer to the length and the width of the doors and the windows, thickness of the walls, the shape and the form of the building, the kind of the roof, quality of the material, the height of the buildings that all were coordinated with the native architecture of the region that was derived from the conditions of the natural environment especially the climate factors (Shi'e, 2002). By the broad study of the building of the researched region, we can involve the following total rules in the shaping of the architecture volume finally its kinds that have been given in No.4 table.

Table 4: The native architecture principles for the designing based on the climate (Molania, 2008, with the writer emphasis)

	The total principal of the native architecture of the residential units based on the climatic conditions
1	The minimum area of the openings that are related to the uncontrolled spaces.
2	Using of the density and compacted contextures in the spatial arrangement of the architecture elements.
3	Regarding the hierarchy of the spaces based on their needed cooling and heating system. (winter-sitting and summer-sitting spaces).
4	Organizing and orderliness of the approaching spaces such as the halls, lobbies and etc… for controlling of the air exchange volume.
5	Changing of the dimension of the openings based on the climate in such a way that the outer windows are created in the upper part and the internal windows are made bigger.
6	Using of the region wind by the ventilator.
7	Using of the materials with high thermal capacity.
8	Existence of the semi- open spatial element (similar to veranda) in front of the main space of sitting place.
9	Complicated designing of the room with the decrease of the space approaching outward.
10	Using of the thick and wide walls.

Climatic Effects on the Architecture and Urbanism

The architecture climate is a knowledge that provides the way of using the climatic elements for the principal designing of the building (Safaipour and Taheri, 2010). Attention to the effect of the environmental and climatic factors is not a new discussion (Mahram, 2005). Designing and construction regarding the climatic and natural characteristics and standards in Iran, traditional architecture is backed to hundreds years (Malek and Dargahi, 2010). So, attention to the main purposes of the climatic architecture in every climatic region and the case prediction for realization of these purposes lead to the uniformity of these buildings with the climatic condition and also lead to the economy in the consumption

of Energy and idea notification of the architecture in every climate (Tavoosi *et al.,* 2010). In the climatic architecture view, Determination of the dimensions of the building and it's area, the kind of the walls, the size of the windows all depend on the effects of the climatic conditions of the region (Alijani, 1996).

Also, in the broad discussion, the climatic elements have significant role and effect in the quality of the architecture and urban spaces (Ranjbar *et al.,* 2010) and the way of the construction in the different regions and each of them provide some conditions for the habitation of the people given the environmental characteristics (Shahabi *et al.,* 2010). City and climate are two human-makers and natural system that affect each other closely (Sheikh and Mohammadi, 2010). Climate and the climatic data have big share in the creation of the urban perspective, housing designing and the process of the urban planning (Alijani *et al.,* 2010). If the planning is done based on the indicators of the comfort, architecture and urbanism in harmony with the climate, the conditions remain at the extent of the human comfort in all of the seasons naturally and with the least need to the heating and cooling mechanical system (Abdollahi, 2007).

The Characteristics of the Native Architecture in the Dry and Warm Regions

Although the native architecture has been affected by the changing phenomena during the history, it could preserve its certain identity and showed their talent and style, belief and thought, spirit and emotions and customs and rites (Hagh *et al.,* 2013). In the history, Iran has been introduced as a symbol of the native architecture and urbanism (Habibi *et al.,* 2010), because the traditional and native architecture of Iran historical cities, includes the informative lessons in the different fields related to the architecture and urbanism (Tahbaz *et al.,* 2012).

The native architecture of the cities and villages of this climate has been created as the closed complexes and with a compact structure. By doing so, the least visible surface and sunward is created. Thatch bright color in its turn reflects the sun light. The roofs and the walls have been made thickly in order to prevent from the penetration of the sun inward the building. Also, the existence of veranda is appropriate for the summer, and mostly the windbreak has been created in the building for using of the wind (Messgarian, and Tadvini, 2013). Introversion among the other principals and patterns of the native architecture of the dry and warm regions. The central yard with pool water and some tress can recompense the dryness and very extreme heat of the air due to the vapor of the pool water. The yards that all have been surrounded by the porch spaces in one side, deposit the cold air of the night in themselves and use it in the warm day (Tahbaz, 1996). The total indicators of the architecture of this climate have been given in no.5 table.

Table 5: The total characteristics of the architecture of dry and warm regions of Iran (Kasmai, 2005, with the winter emphasis)

Characteristics of dry and warm native architecture									
The kind of the outer color	Complex contexture	Amount of the using of the natural ventilation	Level and number of the window	The way of the connection of the building to the earth	Placing direction	Roof kind	Plan kind	Materials kind	climate
bright	density	little	little	On the earth(group)	South-to-Eastern south	Arch-dome	compacted	High thermal capacity	Dry and warm

The Urbanism and Architecture Characteristics of the Dry and Warm Climate

The urbanism and architecture characteristics of this region of the country can be investigated in two classes of the Macro (urban) and micro (mono-building architecture) factors, (Soltani, 2013) that are as the following:

Macro Sales (Urbanism) Locating

Bio-complexes are affected by the various factors such as the kind of the earth, dust resistance, productivity, absorbency of the water, vegetation kind, and amount of the access to the water resources

and the climatic characteristics of the region. Because most of the region of Iran are desert ones, and the climatic outward conditions for locating in one place aren't provided the water is brought to the earth by the invention of the aqueduct and the life conditions have been provided in the heart of the dry desert (Bastani, 1988).

Condensed Contexture

The traditional cities of Iran dry and warm regions have mostly been made from a kind of the condensed and conjoined texture, because the climatic comfort and the economy in the consumption of the energy are provided through compression because of the decrease of the constructions levels and the urban contexture exposed to the shining of the sun (Golkar, 2000). The obvious compacted indicator can be defined the ratio or the result of the division of the level exposed to the natural conditions of the building by the covered (infrastructure level of the building) level.

Green Belt

The compacted contexture of the cities of this region of the country had mostly been surrounded by the Green belt composed of the fruit gardens and the agricultural farms. The green space around the cities plays an important role in the protection against the desert winds, dust and dryness of the desert air and is considered among the important factors in the ventilation of the city (Ghafari, 2000).

Organic Order

In the desert cities, the meshing of the ways, division and piecing of the earth and organizing of the full and empty spaces are following two complete different ways. The ways net has been created with an organic order and a hierarchy reconciles on the slope and the direction of the aqueducts water and piecing segmentation of the earth is irregular because of these indirect passage ways, but the buildings have been made with a certain geometric order (Ghafari, 2002). Being mean daring of the allies and the porch passages, can prevent from the bother some winds in one hand in other hand provides the most shadow because of having high deep (Soltani, 2013).

Direction of the City

In the past, a direction was considered for the city regarding the weather, the way of the shining of the sun and direction of the wind blowing (desired wind, storm, windstorm, and etc). For doing so, the Iranian architectures have used the hexagon shape and they have totally considered three directions that are: straight direction, Esfehani direction and Kermani direction (Pirnia, 2006).

Micro Scale (Architecture)

Sun

In this part, the factors that have been influential under the effect of shining the sun on the form and skeleton of the building and the city have been expressed as the following.

The Building (Construction) Orientation

It is among the most important factors in creation of the thermal comfort for the establishment of the building that is determined given two climatic elements of shining the sun and blowing of the wind. (HosseinAbadi *et al.,* 2012) In relation to the shining of the sun, the direction of the building should be in such a way that the most amount of Energy shines on the main facing in the cold times and the least amount of it in the warm times (Kasmai, 1991). The best way of locating the building in this climate towards the sun is in the western- eastern direction, because the southern walls gain the most energy in the winter and can be protected by the shade in the summer. Also the western- eastern walls that acquire a lot of energy in the summer should have a less level (surface) as far as possible. So, it is better that building direction turn towards the east party and the sun of the summer shines directly less on the western surface of the building (Kasmai, 2005). The advantage of this measure is that some part of the western front enjoy of the south light. Of course, by doing so, some part of the northern front also takes the light from the west and the vertical radiation blockers have been used in the northern front in the architecture of this region.

Veranda

Veranda is usually sitting higher than our around and is usually made in the outer part of the residential buildings and is usually a space between the outer yard and the internal closed rooms (Gorji, 2001). The

south side of most of the buildings in this climate has a shade above the window or the deep verandas, for prevention of the arrival of the sun shining and warming of the building in the summer. But, in the winter season that the sun heat is needed, and the sun shining is less, the sun shines inside the building and leads to the increase of the heat degree (Molania *et al.*, 2013).

Roof

The buildings of this climate have been made in the shape of mound, arch or dome and without any skeleton and with the row brick and muddy because of the less precipitation and the shortage of the wood (Shaterian, 2005). Also, the arch and dome cover with short height and unchanging have been made because of the existence of plenty termites (Zomorshidi, 2005). The hemisphere cover of the roofs has a convex and changing level that modifies the radiations of the sun in the different directions and in the different hours of the day by its curve level and therefore reduces the roof temperature (Molania *et al.*, 2013).

Central Yard

In this climate, the spaces are secured from the summer heat and the winter chill and the building is protected from the wind, the sun shining and the severe dust and etc. (Keshtkaran, 2011). In the lands with the different dimensions, the central yard has been designed as if it has a slim and long from in order to provide the needed shadow during the summer days؛ yet, its width should be designed in a size that it can receive the radiations of the sun. in the houses of this climate that have the central yard, the northern part that receives the sun light directly and is always warm, is considered as the winter-stay and the south part that is secured from the direct light of the sun is regarded as the summer-sitting space (Kakanilson, 2010). Among the other characteristics of the yard and central open spaces, is the preservation of the nightly cold air that is heavier than the day warm air. So, the yard can be the best thermal regulator in a different ways (Ayvazian, 1997). Generally, we can say that the creation of such spaces in Iran architecture leads to the creation of the introvert architecture.

Openings

Sunlight is always needed for the creation of the natural light of a building, but since this light finally is turned to the heat, the shining amount should be controlled given the need and the climate (Soltani, 2011). In the dry and warm climate, the natural light has been used through the yard directly and through the roof light-receivers skylights. Number and area of the windows have been decreased in this climate especially in the outer walls towards the passage or the window was installed in the upper part of the wall for the prevention of the penetration of the reflected radiation, and conversely, the windows facing the yard in the south part were increased, and a brick cribriform shield is usually built in front of the windows for the control of the penetration of the desert and dry winds inward the building in the summer and winter (Zomorshidi, 2005).

MATERIALS AND METHODS

Materials

Using of the native materials has been among the six fold principals of Iran architecture. The Iranian architectures tried to acquire their needed building from the nearest places and didn't need the materials from other places and were self- sufficient (Pirnia, 2006). In other words, the Iranian architecture has been founded based on the using of the native and native materials (Khezri, 2009). Using of the native materials with an appropriate thermal capacity given the climate is among the climatic strategies in Iran residential architecture (Zandieh, 2010), and this method has not been ignored in the native architecture of the discussed climatic region.

In this climate, for coping with the exchanging of the heat between the inside and outside of the building, the materials with the maximum heat have been used that have much thickness in order to accumulate the day heat in themselves and give back their heat in the chilled air (Soltanzadeh *et al.*, 2013). The traditional architectures of this climate have used the soil as the mud-brick or stratum for building of the walls and the roofs by the different methods. The great differences of the height degree between the summer and winter and day night and the lack of access to the fuel materials such as wood leads to the

using of the native materials such as the muddy and mud-brick for the balance of the life space (Khakpoor *et al.*, 2013).

Wind Effect

The horizontal moves of the air lead to the removing of the differences related to the temperature, humid and pressure that exist in the horizontal directions, and the air is balanced. So, the wind is an important modifier in the nature (Alizadeh *et al.*, 2005). Also, the regional winds that are considered as the climatic factors effective on the urban ventilation conditions of a region create the differences of the air density because of the difference in the pressure of the atmosphere, irregular distribution of the sun radiation energy and the temperature resulted from it (Givoni, 1998).

Wind is among the important factors of meteorology that is applied in the different building because of the effect of the amount and direction of the wind and the forces resulted from it (Sheikj and Mohammadi, 2010). Prevention from the arrival of the warm and cold winds in the warm and cold months of the year inward the building (Hossein *et al.*, 2012) and also the effectiveness of the amplitude and the way of moving the wind from the from and the shape of the building, (Comuffo, 1998) are among the important factors that should be considered in the designs.

Ventilator

Ventilator is among the historical elements of the Iranian architecture that is considered as an important invention in the native architecture (Mahmoudi, 2011), and is used as an especial phenomenon in the traditional architecture of Iran dry and warm regions, that usually is located in the summer- sitting part of the buildings (Shaterian, 2008). This element that has been designed with the climatic approach takes the air and brings it to the reservoirs and basements, then produces the chilled air and is guided through the ventilator pores inward the rooms.

There was a door for the interruption and connection of the air flow. In the pores and the ventilator channel (Shams, 2009). The place of the location has been determined by the direction of the move of the winds blowing. Usually the ventilators have been made as one-sided, two-sided, three-sided, four-sided, polygon, pipe or two floor (Zomorshidi, 2005) and (Pirnia, 2006). Ventilator aside from its performance shows the personality and the social status of its owner that is recognized through its height and decoration kind (Ghahramani, 1996).

Passageways

In Iran, because of the passageways and the warm regions, the role of the passageways and the open spaces is very important in the regulation of the climatic conditions and is very important for the pedestrians and even the neighboring buildings. Direction of the placing, the proportions and dimensions, the used materials in the walls and being open or being covered of the passage, can create different conditions in terms of the climate (Tahbaz and Jalilian, 2011). A pattern that has been observed in the desert and dry and warm cities of Iran was the passageways that have protected the pedestrians against the heat of the summer. The existence of the indirect passageways and being meandering or being porch of some parts of them, prevent from the penetration of the bothersome winds in one hand and in other hand, have provided the most shadow because of having a high deep (Tahbaz, 1995).

In terms of the portions: the passages that the rate of their height to their width is less than one meter (H/W>1) are considered as the wide or shadow passages and the passages that this ratio in them is more than one (H/W>1) are regarded as the narrow or deep ones (Tahbaz, 1990; Ali-Toudert, 2005). The tall walls besides the passageways have a significant effect on the creation of the shadow, against the sun shining and also the protection of the passageways against the desert winds (Ghobadian, 2005).

Conclusion

The native architecture of Iran different regions has played a big role in the development and the evolution of the architecture and urbanism in uniformity with the climate. The especial dynamism of the traditional cities And buildings of the dry and warm climate is the result of the insight and wisdom of their makers and their proper understanding from what should be and what should not be, they could recognize the climatic conditions of the region properly and began to design and make the certain cities of that region, a thing that today has given its place to a strange word that is named, «modern».

The uniformity of the human-made environment with the natural one has led to the creation of a comfort environment that has provided the most comfort and welfare possibilities with the least hurt to the environment. The native urbanism and architecture of Iran dry and warm region that is shining as a setting in Iran traditional architecture isn't excluded this rule, because they have identified the climate well and have tried to control the bothering climatic factors of the region and with the proper orientations of the city and the architecture spaces towards the sun shining. The proper designing of the passageways for coping with the burning and bothersome winds of the region by the complicated designing and creation of the arch way for shading, installment of the ventilator for exploitation of the region winds and freshening and bringing it to the resting places, creation of the spaces besides the water pool and the central yard and the creation of the other elements and spaces, they wanted to cooperate and uniform with the climatic elements and become the friends of the nature, and they lead to the creation of the certain native architecture of the dry and warm region and also the creation of the comfort space. We should mention that the observance of the climatic issues leads to the durability of the skeleton of the city and the architecture space. Finally, given the submitted materials related to the climatic factors effective on the native urbanism and architecture of the dry and warm climate, some approaches have been offered that regarding and observance of them can prepare the economy in the energy and less usage of the fossilized elements.

Table 6: Techniques and suggestions

	Techniques and suggestions	Explanations
1	Prediction of the shades by using of diagram of the opportunity of the sun to the latitude.	It has been done as the wide walls and two-surface roofs in the native architecture.
2	Appropriate orientation of the building towards the sun.	The native orientation has been done as the south to eastern-south.
3	The plan designing of the buildings is density and compacted and the ratio of the outer surface to the volume.	This characteristic has been observed in the native architecture.
4	Prediction of the shades by using of diagram of the opportunity of the sun to the latitude.	Using of the mendacious roofs under the roof by the way of isolating is suggested.
5	By locating the buildings near each other especially the western and eastern side of the walls.	Compacted urban contexture has been performs in the native architecture.
6	Using of the two-layer windows is suggested for prevention of the penetration of the heat inward the building.	
7	Using of the bright colors in the roofs and the outer body and the dark colors in the internal walls for lowering of the light reflection.	It has been observed by using of the mud-and- straw materials in the native architecture.

REFERENCES

Abdullahi A (2007). The application of climate potentiality in create comfort and accommodation in harmony with the climate of Ravansar, thesis of Master's degree in Regional Studies in Environmental Planning, Sistan and Baluchestan University.

Abolghasem L (2000). *Formation of Islamic Architectural Tradition of Iranian,* Iranian Architecture in Islamic Times (Samt organized) Tehran.

Akrami G (2011). The Secrets of rural architecture, Tehran. *Housing and Rural Environment* **131** 27- 50.

Alijani B (1995). A new approach to climate applications in resource management and development of the country. *Geographical Researches Quarterly Periodical*, Isfahan.
Alijani B and Associates (2010). Evaluation of climate change in relation to urban and regional development in Yazd. *Journal of Research and Planning Urban Planning*, Tehran 41- 58.
Alijani B and Ghavidel-Rahimi Y (2005). Comparison and prediction of annual temperature changes of Tabriz with temperature abnormalities of the Earth by using linear regression and artificial neural network. *Journal of Geography and Development*, Tehran 21- 34.
Alijani B and Kaviani M (2006). *Principles of Meteorological* (Samt publishing) Tehran.
Ali-Toudert F (2005). Dependence of outdoor Thermal Comfort on street design in hot and dry climate, (phd thesis). Freiburg; Freiburg University.
Alizadeh Amin and Associates (2005). *Climate and Climatology*, eighth edition (Ferdowsi University publication) Mashhad.
ALpagonolo A (2005). *Vernacular Architecture*, translated by Sadat officer and Ali Mohammed (Faza scientific and cultural organization) Tehran.
Amini Sh (2012). Resurrecting the lost essence of vernacular architecture according to local and regional patterns, *Regional Conference on Architectural Urbanization, Saqez*.
Arabzade-yazdy SH and Porserajian M (2013). Principles of communication with nature, in sustainable urban development; case example of Yazd. *Collection of Articles in Conference on Sustainable Architecture and Urban Development*, Mahabad.
Arbaby-Sabzewari A *et al.*, (2009). The study of the effect of rainfall on the pollution of Tehran Metropolis. *Physical Geography Quarterly Periodical*, Tehran 15- 30.
Ashraf A (1974). features of the history of urbanization in Tehran, Iran. *Social Sciences Quarterly Periodical*, School of Social Sciences and Cooperative **I**(4) 3- 13.
Ayvazyan Simon (1997). To preserve the value of traditional architecture in Iranian contemporary architecture. *Fine Arts Quarterly Periodical*, Tehran 42-59.
Bahram Soltani K (2001). *The Role of Climate in Study of Urban Environment* (Moje Sabz) Tehran.
Bany-Masoud A (2008). *Post-modernity and Architecture* (Faza Science and cultural Institute) Tehran.
Bartholomae (1901). *Vorgeschichte Der Iranischen Sprachen*, strassbuy.
Barzegar Z and Mofidy Shemirani S (2010). How productivity of the land mass in the vernacular architecture of the world. *Baghe Nazar Journal*, Tehran 13-26.
Bastan Parizy ME (1987). *Iran Cities*, second volume (Jahad Daneshgagi Publications) Tehran.
Beheshti Mohammad (2006). *Identity and an Iranian Engineer* (architect publication) Tehran.
Camuffo Dario (1998). *Microclimate for Cultural Heritage* (Elsevier) New York.
Collins P (1996). *Transformed the Ideals in Modern Architecture*, second edition, translated by HusseinPur H (Ghatre publication) Tehran.
Emami SJ (1996). *Culture and Thought*, Tehran, Ministry of Culture and Islamic Guidance.
Etminan L and Minooei S (2013). Applied principles of vernacular architecture in harmony with the climate is hot and dry climates, collection of articles in Conference on Sustainable Architecture and Urban Development, Bokan.
Fakohy N (2004). *Urban Anthropology* (Ney publication) Tehran.
Falamak MM (1995). *Culture and Architecture* (Sharif University) Tehran.
Ghaffari A (1990). *Zavareh, Institution of Desert Myths* (Cultural Research Bureau Publication) Tehran.
Ghaffari A (2002). The rule of placing of architecture and urbanism form in the establishment of sustainable development (the desert areas of Iran). *Sofe Quarterly Periodical*, Tehran 61- 73.
Ghahremany A (1996). Yazd, Jewel of desert, tourist guide information, Home Office, First Printing, Yazd.
Ghobadiyan V (2005). *Evaluation of Iranian Traditional Buildings* (Tehran University Press) Tehran.
Givoni Baruch (1998). *Climate Considerations in Building and Urban Design*. Van Nostrand reinhold. New York.
Golan G (1995). *Ethics and Urban Design* (New York, John Wiley @ Sons).

Golkar K (2000). Sustainable urban design at desert cities. *Fine Arts Quarterly Periodical*, Tehran 43-52.

Goodarz Soroush IMM (2003). *Village Recognizing*, Hamedan, Hamedan Branch (Islamic Azad University Press).

Gorgy Mahalbany Y (2011). Survey the effect of climate on architecture and tissue of Zavareh. *Housing and Rural Environments Quarterly Periodical*, Tehran 17-32.

Habibi M *et al.*, (2010). *Commentary on Local Urbanism Principles in Relation to Contemporary Urban Theory-a Rural Housing and the Environment Quarterly Periodical*, Tehran 3-22.

Haghpanah M and Associates (2013). Ecology and value of vernacular architecture with sustainable approach. *Collection of Articles in the Conference on Sustainable Architecture and Urban Development, Bokan*.

Heidari M and Associates (2012). Human climate environmental assessment and its role in housing design. *A New Approach in Human Geography Quarterly Periodical*, Tehran 83-101.

Hossein-Abadi S *et al.*, (2012). Climate designed of residential buildings in Sabzevar with emphasis on the construction and building depth. *Geography and Development Quarterly Periodical*, Tehran 103-116.

KakNielsen H (2010). *The Architectural Harmony with the Climate*, translated by Sofalaiy F, Urban Studies Center, Tehran.

Kasmaee M (1990). *Climate and Architecture in Khuzestan - Khorramshahr*, the Department of Housing and Urban Development (Building and Housing Research Center Press) Tehran.

Kasmaee M (1993). *Housing Climatic Classification and Residential Environments* (Building Research Press Center) Tehran.

Kasmaee M (2005). *Climate and Architecture* (building Press Center) Tehran.

Keshtkaran P (2011). Harmonization between climate and avchiteture in vevnacular heritage: a case study in yazd, Iran, International Conference on Green Buildings and Sustainable Cities. *Procedia Engineering* **21** 428 – 438.

Khakpour B and Associates (2013). Survey of Soil and Land features in sustainable architecture of Iran, *Collection of articles in the Conference on Sustainable Architecture and Urban Development, Bokan*.

Khezri Z (2009). Asbad. Manifestation of art and industry, Tehran. *Architectural Letters* (2) 111- 123.

Mahmoudi M and Mofidy SM (2011). Survey of how windward architectural plan influence in reduce the environment temperature. *Environmental Science and Technology Quarterly Periodical*, Tehran 83-91.

Mahram M (2005). Study and design of architecture in harmony with the warm and dry climate. A thesis of master, Architecture department of Tarbiat Modares University.

Majedi H and Associates (2010). *An Essay on Urban Semiotics*, Tehran, Armanshahr 49- 56.

Malek Hosseini A and Dargahy MM (2010). Analysis of features and architectural principles in harmony with the cold climate. *Zagros Landscape Quarterly Periodical*, Borojerd 23-35.

Mansouri SA (2007). Two courses in the Iranian Space Agency, before and after Islam, Tehran. *Baghe Nazar Journal*, Tehran 49- 60.

Mesgarian H and Tadayony M (2013). Survey the effect of climate on the formation and function of traditional architecture, *Collection of Articles in the Conference on Sustainable Architecture and Urban Development, Bokan*.

Mohammadi H (2006). Relationship between climatic factors and air pollution in Tehran with deaths are caused by cardiovascular diseases. *Geographical Research Quarterly Periodical*, Tehran 47-66.

Mohammadzadeh R (2012). Evaluation of the climatic factors of traditional and new housing of Kahnamv village, Ahar. *Geographical are Quarterly Periodical* 1- 15.

Molanaie S (2008). Architecture with look to the sky, Tehran. *Fine Art Magazine* 17- 26.

Molanaie S (2013). Associates, An approach to the use of the climatic vernacular architecture techniques. *Collection of Articles in the Conference on Sustainable Architecture and Urban Development, Bokan*.

Mullaei Shams V and Associates (2012). *Evaluation of Cold Climate and Mountainous Areas of West of Iran with the Approach of Sustainable Architecture, Sustainable Development and Urban Development National Conference, Isfahan*.
Naghizade M (2008). *Islamic Architecture and Urbanism* (Many Publication) Tehran.
Nazer E (2013). Sustainable architecture in educational areas with a focus on indigenous architectural features in warm and dry climate. *Collection of Articles in the Conference on Sustainable Architecture and Urban Development, Bokan*.
Nouhi H (2005). *Reflections on Art and Architecture* (Agah publication) Tehran.
Oktay D (2007). Design with a view to the of residential - Analysis of Northern Cyprus, translated by Hosseini, Sayed Baqir al, Tehran. *Abadi Quarterly Periodical* **55** 20, 23.
Paply Yazdi MH and Snajrdy Rajabi H (2007). *Theory of the Town and Surrounding* (Samt publishing) Tehran.
Pirnia MK, developed by Memarian GhH (2006). *Introduction to Islamic Architecture of Iran*, third edition (Soroush publication) Tehran.
Purdihimy S (2011). *Climate Language for Sustainable Environmental Planning* (martyr Beheshti University Press) Tehran.
Rabbani R (2006). *Urban Sociology* (Samt publishing) Tehran.
Rafiee Z (2011). Nefar developments in domestic architecture in Mazandaran, Tehran. *Baghe Nazar Journal* 55- 64.
Ranjbar E (2010). Creativeness of climate design suit with wind flow in the fabric of the old city of Bushehr. *Baghe Nazar Journal*, Tehran 17-34.
SafaeiPour M and Taheri H (2010). Study of Effect of climatic factors on urban architecture. *Research and Urban Planning Quarterly Periodical*, Marvdasht 103-116.
Sartipipor M (2009). Pathology of rural architecture toward the good residence, Housing Foundation of Islamic Revolution, Tehran.
Shaghaghi SH and Mofidy M (2008). Concerning sustainable development and climatic design of buildings in cold and dry climate (Case study of Tabriz). *Environmental Science and Technology Quarterly Periodical*, Tehran 105-120.
Shams S (2009). Manifestation of architecture art of Iran, traditional lexicology of architecture of Iran, Tehran, Science and knowledge publication- Innovative of Parse University.
Shaterian R (2008). *Climate and Architecture of Iran* (Simaye Danesh publication) Tehran.
Shehaby H and Associates (2010). Evaluation of the role of the climatic elements on the architecture and urbanism of hot and dry regions. *Collection of Articles of the International Congress of Geographers of Muslim World, Zahedan* **1** 11.
Sheikh Bigelow R and Mohammadi J (2010). Analysis of wind climate and precipitation, with emphasis on urban design case study of Isfahan. *Journal of Geography and Environmental Planning*, Tehran 61-82.
Shi E (2002). *Introduction to the Foundations of Urban Planning*, twelfth edition. University of Science and Technology, Tehran, Iran.
Shokoei H (2002). *The Geography Philosophy*, eleventh edition (Gitashenasi Publishing) Tehran.
Soltani Y (2013). The traditional desert architecture - sustainable architecture, *Collection of articles in the Conference on Sustainable Architecture and Urban Development, Mahabad*.
Soltanzade H and Associates (2013). Analysis of Architectural stable patterns in hot and dry areas. *Collection of Articles in the Conference on Sustainable Architecture and Urban Development, Bokan*.
State Statistical Yearbook (1979, 1986). *Statistical Yearbook* (Iran Meteorological Organization Publications) Tehran.
Taghvai V (2010). *To Define the Nature of the Architecture* (Hoviate shahr publication) Tehran 75-86.
Tahbaz M (1990). Comfort in the open spaces and thoroughfares, thesis of a Master of Architecture, School of Architecture martyr Beheshti University Tehran.
Tahbaz M (1995). Principles of a desert architecture. *Sofe Quarterly Periodical*, Tehran 78-89.

Tahbaz M and Associates (2012). The teachings of tracks Climate Architecture in Kashan, Iran. *Architectural Studies Quarterly Periodical*, Tehran, Iran 59-81.
Tahbaz M and Jalilian SH (2011). *The Principles of Architectural Design in Harmony with Ecosystems with Approach to the Architecture of the Mosque in Iran* (martyr Beheshti University Press) Tehran.
Tavakolimoghadam Z and Totonchy S (2012). A comparative study of traditional and new making home in Bukan according to regional climate, Saqez, *A Regional Conference of Architecture and Urbanization, Saqez*.
Tavassoli M (1974). *Architecture of Warm and Dry Climate* (Marvi Publications) Tehran.
Tavosi T and Associates (2008). Climate and Architecture of new schools in Isfahan. *Geography and Development Quarter Periodical*, Zahedan 97-114.
Tavosy T and Abdullahi A (2010). Evaluation of thermal comfort indices and harmony architecture with climate of Ravansar. *Journal of Geography and Program Planning*, Tabriz 125-150.
Zandieh M (2010). Sustainable Development and its Implications in residential architecture of Iran, Tehran. *Journal of Rural Housing and the Environment* 2- 21.
Zemorshydy H (2005). *Iranian Architecture - Building Components with Traditional Materials* (Zomorod Publications) Tehran.
Ziyari K (2010). Adaptive Evaluation of patterns governing on rural settlements and the South and West areas (Khoram Abad and Bandar Abbas), Borojerd. *Zagros Perspective Journal* **2**(3) 79- 91.