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Houses' Physical Features based on Temperament Indicators

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Abstract

Physical & mental needs of human being in vary climates can be different, based on their human temperaments. In this categorization six architecture indexes are analysed. This comparative study revealed that houses of peoples with wet temperament are more transparent & fluid. Wet temperament has led to decrease the manifestation of water. While houses of dry-tempered peoples are too ornamented because of their tendency to activities need attention; wet-tempered ones, because of their peace of mind & simple characteristics, have plain houses. Material used in houses with hot temperaments, absorb heat, yet for wet temperaments wet-absorbent materials are more appropriate.

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Keywords: Vernacular housing; climate; temperament; traditional medicine

1. Introduction

God has designated the house as the place of comfort and calmness. It is up to architecture to construct its physical features in a way to provide this goal. Since humans differ physically and mentally, appropriate housing is differently defined in their views. An understanding of individual differences and the impact of their different views regarding the houses paves the way for the family's adequate growth. This research attempts to obtain some principles to be employed in modern house construction by recognizing this temperament's classification and investigating the physical features of houses tailored to suit the four temperaments.

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2. Literature review

There have been little studies carried out regarding the direct relation between temperament and architecture. Since temperament deals with both spiritual and the physical aspects of humanity, the background to this research can be traced back into two different areas. Dehghani Tafti has studied the effects of climate on temper and its impacts on an artificial area. He believes there are different behaviours in those climates. This research addresses the personality traits of individuals with various temperaments; however, there has been no discussion over the responsive anatomic indicators to these behavioural differences at home. Mostly, the researches about the architecture and spiritualties have been interdisciplinary. July Beck studied the significance of home and its relationship with human characteristics. Stewart Chapin has dealt with the influence of the home on human psyche considering several variables such as brightness, privacy, etc. Claude Pineau defined comfort depending on each individual's idea of comfort which this also relies on the human's satisfaction with factors like brightness, privacy, colors, etc. Of course there have been plenty of researches on the relationship between home and the physical aspects associated with this relationship. These researches similar to Ghobadiyan's research are in line with the human climatic comfort. Since human beings are attached to their homes from all physical and spiritual aspects, this research aims to compare the spiritual and physical differences of human beings in terms of their temperaments with the architectural indicators answering the requirements of every received temperament by studying Iranian traditional homes.

3. Methods

The proposed hypothesis was that the traditional houses have met the needs of their residents' temperaments, and differences in physical features of the houses are rooted in the residents' temperamental differences. Exploring topics related to temperaments can be followed by an argumentative procedure. By doing so, first we try to identify the four temperaments. Different approaches could be adopted to expand the scope of the previous researches and find a relation between the issue at hand and architectural studies. Although it was possible to do the research based on proven methods, historical structuralism studies was employed so as to enhance the precision of the study. by using Delphi method in traditional medicine society ,some indexes have found , After studying the indexes in documents and understanding each group's houses, while comparing physical features of houses, the significant amount of these differences were then discussed.

4. Investigating the houses' differences in each group of the four temperaments

To choose houses belonging to each group the researcher referred to traditional houses in different climatic conditions throughout Iran while considering the Ibn Sina's view , teh temperament suits each nation based on their living place's climate and environment. (Ibn Sina, 1930) With respect to Kasmaee's climate and architecture book and after checking the moisture level and the average temperature of the Iranian cities and also considering the architecture's originality, Yazd was selected for hot & dry climate, Bushehr was selected for hot & wet climate, Tabriz was chosen for cold & dry climate and the city of Masuleh was selected for cold & wet climate. Six listed features which achieved from Delphi method were observed. Then the proposed hypothesis was analysed using arguments and studying comparatively the traditional houses' temperamental characteristics and their indicators.

5. Theoretical foundations of temperament

Temperament is the final quality and is the result of interaction between conflicting qualities of elements. Whenever a force or element interacts with another element, the end product is similar to all constituting elements, which is called new quality of temperament. (IbnSina, 1930)Each person has their own temperament. Moderate Temperament in which the four elements are equal does not exist. So people can be hotter, colder, drier or wetter than what is the moderate. According to Iranian traditional medicine, temperament is a general quality which totally covers mental and body dimensions of humans. Ibn Sina talks about the mental and physical characteristics of each temperament in his book called "Ghanon"

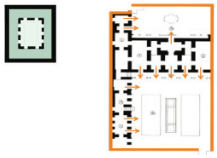
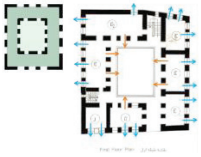
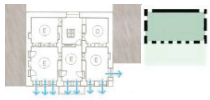
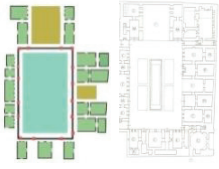
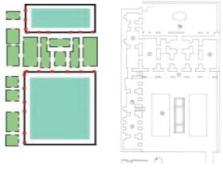
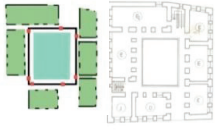
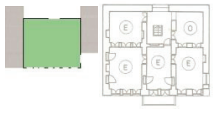
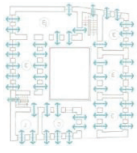
Table 1. Four temperaments and somatic properties , disposition properties and behaviour appearance Retrieved from Ghanon.

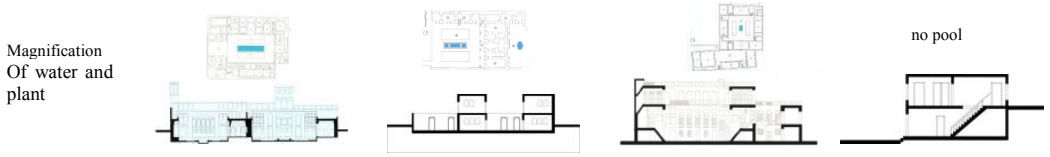
Temperament	somatic properties	disposition properties	Behavior appearance
Hot and wet Existential origin (air)	high body temperature, Sleepy, boil, skin's color trend to red , nosebleed	extroverted, sociality, peace of mind, slow, poor concentration, existential	trend to fluidity & large spaces because of air origin , not trend to be near wetness
Cold and wet Existential origin (water)	fat body, Skin color trend to white, low body temperature, low body hair	relax, calm, daft talking ,sleepy, weak memory, Patient, cool	not sensitive in privacy because of relax, personality, not trend to be near wetness
Hot and dry Existential origin (fire)	thin, skin color trend to yellow, thirsty, continuously, high body temperature	Energetic, rigor, nervous, active, agile, strong memory, sensitive	trend to Time-consuming and laborious, works , trend to be near wetness
Cold and dry Existential origin (soil)	skin color trend to black, thin low body temperature	Introverted, pessimist, depressed , trend to closed and dark spaces	trend to single work , trend to be in closed and dark spaces

6. Comparative phenomenological studies of houses in the four climates based on significant indicators

First the houses belonging to the four climates were selected so as to recognize the houses in those areas and then after studying the documents, the most physical and qualitative differences were compared. The significance of these indicators will be discussed at a later stage, based on temperament studies. Six listed features in the houses of four climates were examined. There are some differences in houses in terms of decoration which are seen both in the extent of decoration and their quality. The difference among Iranian houses in terms of introspection and extroversion is clearly visible. Some of them are introverted and the windows only open to the private yards. Other houses are extroverted due to numerous windows opening to the public space, despite the existence of the central private yard. Some others are extremely extroverted. The materials used have been canvas and one of the most striking differences is the materials used. Having good fluidity is considered as one of the desirable features belonging to traditional Iranian architecture. Some cities possess fluid infrastructure in which the city arrangement is in a way that the alleys penetrate the interior structure of the neighbours with numerous doors and extended porches making the houses strong visual communicators in urban area. In some other houses located in other cities, there is no integrated and massive interior space, despite the existence of the big infrastructure and visual motion is limited due to space division. In some houses, the ceiling height reaches up to four meters in order to make the area look more massive and in some others the ceiling height is as low as possible. It appears the concepts of transparency and fluidity are closely related. Good visual clarity causes the appropriate visual motion and therefore, fluidity. Iranian traditional houses are transparent in terms of how introvert and extrovert they are in proportion to the street or the central yard. Some houses do not show a transparency compared to the alleys' public space. Others (interior space) display great extent of transparency both towards the yard and the exterior public spaces. The features of water and plant are different in various climates. Some of the houses possess pools with big dimensions. In these houses, water and plant are of utmost importance. In others, there is no pool or there exists one with small dimensions in the yard, because of geographic location and exposure to the wet environment. Dealing with plants is different with respect to the vegetation and the area's needs.

Table 2. Scrutiny of six indexes in four selected cities.

Index	Hot and dry (Yazd)	Cold and dry (Tabriz)	Hot and wet (Bushehr)	Cold and wet (Masuleh)
Decorating	Highly decorated with Abstract pattern and Various designs	Highly decorated with time consuming abstract pattern and various designs appearance	Simple and bright framework low and naive decorated	Simple , bright colors framework, Bright and smooth interior body
Introversion And Extraversion	Introversion houses with central courtyard without windows to public space	Introversion houses with courtyard without windows to public space	houses with central courtyard and windows and porches to public spaces	extraversion houses with several windows to public spaces
Materials	brick, adobe , clay	stone ,adobe ,brick ,wood	brick, wood ,straw	wood ,brick, dried plant
fluidity	windows from three or two directions ,Segregated spaces , low fluidity	windows from three or two or one directions with low width, segregated spaces, little high ceiling, very low fluidity	windows from three or four directions with high width ,large spaces ,high height ceiling up to four meters , high fluidity	fluidity and movement in the overall structure of city strong Visual communication in the spaces, high fluidity
Transparency	the body of houses are Transparence to interior Spaces and Opaque to the Public spaces	The body of houses is Transparence to center yard with minimum width and Opaque to the Public spaces.	the body of houses are transparence to center yard and public spaces	the maximum body of houses are transparence
Manifestation Of water and plant	architecture cut down to use ground moisture, large pools , watering place, Arboriculture & Floriculture	small pool, Arboriculture in yard architecture cut down about 2 m to use ground moisture	Architecture builds in high level to keep away moisture. Small pool , low Arboriculture for ghosting	wide covered porches for protecting from Rain rich Arboriculture
Decorating				
Introversion And Extraversion				 Number of windows are limited because of compression of houses in site
fluidity				 Number of windows are limited because of compression of houses in site
Transparency				 Number of windows are limited because of compression of houses in site



7. Investigating the significant physical differences among houses based on temperamental indexes of humans

Iranian traditional houses are different in terms of six studied characteristics. One of the important factors involved in this can be various conditions of climate. It seems traditional houses have satisfied human's needs. Since the residents in each climate have different mental and physical conditions and that according to Iran's traditional medicine doctrine, this classification of humans is called "temperament", as such, it is necessary to compare the temperamental characteristics and human's four-dimension difference with the physical differences of traditional residential areas belonging to each group.

7.1. Decorating

Due to differences in the size, color and abstraction in decorating traditional houses throughout Iran, it seems that these differences stem from residents' temperaments. Being proactive, meticulous and having good memory as the trait of hot and dry people lead them to success in decorative arts. This talent is manifested in their houses. Because of living in difficult climate conditions, the arid weather has turned them into creative residents and hence, we can observe creativity of abstract decorative arts in their works. Because of most of the people in dry and cold lands have temperament like their climates, they are Introvert and stringent, considering their tendency towards closed spaces and individual arts they are successful in arts which require personal space. In general we can say that the arid areas origin of the decorative arts and industries requiring high precision and patience. Noghrekar have indicated the immense power of imagination in dry temperament in contrast with the decrease in the use of mental imagination in wet conditions. In their view, it is natural to observe some kind of abstraction and imaginative intellectual and conceptual symbolism in fields of art in an arid. (Noghrekar et al, 2012) People with hot and wet temperaments due to poor concentration, slowness and peace of mind do not show tendency to focus on careers that are laborious and require high concentration. So, decorative arts have not developed in these cities and the houses located in this area, including the Bushehr, have basically simple and clear structure, with little ornamentation and complexity. People with cold and wet temperaments, due to their weakness of memory and taking everything easy, showed no interest in arts with high precision and special delicacy. The group also has simple, coherent and undecorated houses with bright and happy colors. Gruter said considers the cultural, social and personal influences important when defining the colors. (Gruter, 1987) A research has been done in relation with the appropriate color spectrum suitable for the four main elements of nature, including weather (hot & wet), soil (cold & dry), water (cold & wet) and fire (hot & dry). The results show that the element of water covers a wide range of colors compared to the other. (Yung, 2005) The color of clothes worn by Iranian tribes speaks volumes of this. In the north of Iran, the color of the clothes tribes is more varied and exciting, and that belonging to the tribes living in central region and southern Iran looks lighter and simpler. (Ziapur, 1378) In general, given the mental characteristics of the people living in wet cities, its residents are simple and low- decorated, explicit and with no complexity, having bright & cheerful colors.

7.2. Introversion

Differences in introverted houses are rooted in personality and temperaments. In arid cities such as Tabriz & Yazd, houses are introverted. This dry temperament leads to sensitivity and strictness. It seems that dry-tempered people tend to live in absolutely introverted houses due to their high sensitivity to the issues, including respecting private and public precincts. In these houses, even a small door does not open a direct connection between the

interior space and the outer public space. Memarian argues that introversion, from the moral and theological perspective, means being reserved, showing tendency toward inner feelings and exposing those feelings before adopts its architectural senses.(Memarian,1994) because of being introverted and asocial is the property of cold & dry people, the disposition towards introverted architecture is in harmony with their personal traits. Based on the ideas of philosophers such as Ibn Sina & Suhrawardi, stiffness strengthens the memory and imagination, and this feature enhances an introverted character; on the contrary, moisture with the feature of water transmission means plasticity and transformation, thus enhancing the extroversion. (Noghrekar, et al. 2012) Residents living in hot and wet areas, due to social and genial nature and optimism, do not show strict sensitivity. As can be seen, it seems that the most inhabitants of Bushehr possess hot and wet temperaments and their traditional houses, despite following from the pattern of central yard, are still considered semi-extroverted and numerous doors connect the in and out areas. Residents living in cold and wet cities take everything easy due to their wet temperament. Apparently, those are not as strict and meticulous as those with dry temperament when it comes to privacy. Thus, it can be observed that the private spaces of houses open to the public places. An example is the city of Masuleh with cold and wet climate in which the dwellers have agreed upon serving their houses' roof as a public alley which bespeaks of the high level of patience as well as their relaxed manners.

7.3. Materials used

It seems that temperamental characteristics of humans and climatic conditions of living areas are connected with the materials used in the construction of residential homes. For example, a hot- tempered person is trying to achieve inner balance, in spite of ingrained fire element. The absorption of the environment's heat by the brick during the day will balance the temperature and then gives it off gradually during the night, making the pleasant cold weather. It seems that the use of such materials in traditional houses in Yazd is in line with the temperamental needs of the region. The coldness of cold and dry lands causes the necessity of using materials with high thermal capacity. In such a case, the heat inside a house is not transmitted outside. People with cold temperament require the surrounding heat so as to reach the thermal equilibrium. In the body of traditional buildings located in cool and dry cities, materials with high thermal capacity is used such as stone. Wet temperament reaches equilibrium if it is accompanied by the damp absorbent material. The traditional houses of the slum areas in the city of Bushehr are made of reed and straw. In others, wood is used in the construction of body and ceiling; nonetheless, there is not adequate amount of wood in the region due to weak vegetation. The use of wood in moist climate of northern Iran is clearly seen. In Masouleh's cold and wet climates, due to the high moisture absorption qualities, wood is one of the main materials used in the construction. Dried plant is employed in the walls of the houses as moisture insulation. Clay, stone and materials with high thermal capacity are used in the body to preserve the building's internal heat and hence, make the residents' cold temperament reach equilibrium.

7.4. Fluidity

Since fluidity is different in traditional houses, it seems that in terms of architecture the tendency towards fluidity as a space indicator is connected with mental and behavioral features of humans. For example, people with cold & dry temperament are introverted and are interested in enclosed spaces. Therefore, it appears that the architecture of the houses in this group may not be inclined to fluid architecture. Interior of a house is divided into small spaces and the ceiling is as low as possible. The interior is in connection with other spaces through limited and narrow opening. In overall, fluidity in these houses is less compared to that of other. People with hot & dry temperament, due to the dry temperament and emphasis on strict observance of precincts and fencing, have decreased the fluidity of the houses. Among the 4 elements of air, water, fire and soil, air belongs to hot & wet temperament. It is the world's most liquid element. This feature makes them look for more massive and unconfined spaces and they are not able to tolerate the enclosed environment. For example, houses in Bushehr, as the houses located in hot & wet climates, are not divided into smaller spaces to the extent possible and the height of ceiling is up to 4 meters. The interior spaces are connected with outer space and adjacent rooms with big and numerous openings. There is a tendency toward movement and fluidity in architecture in cold and wet temperament, due to the dominance of the fluid element, i.e. water and a wetter temperament compared to the people with a dry temperament. This fluidity and motion can be

seen in overall structure of Masuleh city and the penetration of paths into the context of houses and a city -wide visual communication. All in all, it seems that fluidity and visual communication in wet cities is higher than that of in dry cities. Noghrekar and Associates believe , based on philosophical principles ,moisture creates flexible, free and fluid temperament because of water's innate characteristics and on the contrary, dry temperament (cold or hot) is fixed, stable and of low mobility. (Noghrekar et al, 2012)

7.5. Transparency

Iranian houses are various in terms of transparency. Some of them possess a great deal of extended openings on each side of the walls and in others, there are only a few openings and their width is diminished as far as possible. With respect to temperamental features, it can be observed that in general, people with wet temperament install more transparent walls in their houses, due to their wet temperament and by taking everything easy. Transparency is more distinct among those with hot and wet temperament due to the hotness of temperament and sociability along with excessive optimism. For instance, in the houses located in Bushehr, we can see rooms which have four openings in four directions. In dry houses the exterior body is with no penetration, because of the greater sensitivity in designing the house. The interior walls are the only transparent ones which open to private yard. In the houses with cold and dry temperament, the width of openings which open to private yard is restricted as far as possible and possess less degree of transparency due to the disposition to construct snug and quiet houses.

7.6. Encountering moisture and plants

With respect to the differences in the degree of tendency of traditional houses towards moisture and water features throughout Iran, the researcher embarked on discovering the roots of these differences among residents' temperament. It appears that people with dry temperament prefer to be adjacent to moisture and water features so as to reach the equilibrium and people with wet temperament avoid this. Plants' features sometimes smooth and moisten the environment and sometimes cast shadows and prevent the exposure to the heat and are then employed to satisfy people's temperamental needs. In spite of the houses with dry temperament built in the depth of the ground in order to be adjacent to water features, in Iran's traditional cities with wet climate houses are constructed on platforms and in height so as to avoid moisture. There is no pool in these houses or is of small size if any.

8. Conclusion

After comparing human's mental and physical status in the form of four temperamental groups and the physical features observed in the houses belonging to them, it became obvious that traditional houses were designed in a way to correspond to their inhabitants' temperamental characteristics. Since the principles of this research are based on human's mental and physical indicators, and given the effective factors such as cultural, economy, etc. conditions, the procedures and also the derived results are not fixed and final. Considering the subtle border distinguishing the four temperaments, the exact division of temperaments seems complicated in some cases and requires high precision and pre-study. Nonetheless, considering the temperamental information derived from books of traditional medicine and corresponding the physical approaches adopted in Iran's traditional houses to their residents' temperamental needs, it can be said that the current results are extendable to a certain degree. Familiarity with these principles will help architects take human's differences into account when designing architectural spaces, particularly, the houses. With respect to fast development in architecture and the rapid changes in the tendencies and also human's mental and physical needs, it can be stated that it is vital for architects to make themselves familiar with temperamental principles, including mental and physical conditions of the space users, in an effort to observe the principles of anthropology. The results of current research can serve as human oriented principles, affecting the worldwide architectural styles, as the basis of the derived principles (belonging to this study) are grounded on human's mental and physical conditions.

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