

## Identifying Non-material Factors Determining the Shape of the House

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### Abstract

Home and housing has long been the main concern of people from different countries. Human beings first of all needed a shelter in order to survive and be safe from accidents, damage, natural disasters, heat and cold, and later this shelter was modified and changed it to a place to perform life activities, responds to individual and social needs, excellence of character, education, learn and discover talents, entering the field of construction work and developing community. Lack of appropriate housing will lead to more homelessness, waste of human capital and increased social damage and backwardness of society will follow. So, addressing the problem of housing and homes is very important and in this matter this article has used descriptive study from case study area and by reading and reviewing comments about homes and also by studying houses in areas with different climates and similar climates, to assess the determinants of house shapes.

**Keywords:** House; Human; Culture; Climate; Materials; Technology

### Introduction

Humans need a shelter that brings a sense of security in order to survive and be safe against accidents, damages, natural disasters, cold and heat. In fact, all humans try to do in their whole life is to cover their basic needs and proper housing is one of the goals [1]. In the next stage, another function of a home is to find a place to perform life activities, responding to individual and social needs. The first core of responding to the vital needs of life alongside parents and family canon, is under house roof. People, in order to do economic and social activities at the community level in family area and in safe and sound place to get to excellence in character, learning and discovering their talents and then enter work activities in the field of production, growth and development of society [2]. Home and housing has long been one of the main concerns of different people and as research shows, humans for thousands of years before Christ (Paleolithic era) found that caves are a good place to live, away from the clutches of wild animals and escaping harsh conditions such as torrential rain, earthquakes, fire spreads and lightning. It was in this cave life almost several millennium BC that humans became familiarized with painting and carving the rocks and caves of their place and painted pictures from animals and their hunting scenes in hope of catching more hunt. Long after that (about eight millennium BC) by the end of Neolithic era and beginning of new era "Paleolithic", cavemen, on the one hand because of population growth and on the other hand due to lack of food resources and limited living spaces, left the caves eventually and went to plains and rivers. In their first act and according to their experience from living in the caves, they started building shelters and refuge in order to begin a new social life, so they made their first houses very small and modest and only as a simple shelter. These ancient houses were built according to peoples' needs at the time and with basic amenities available to them. With the built-up of these small and cave-like houses which seemed enough for living requirements at that time, eventually the core of social life and following that with expansion of villages and more human population, large rural and urban centers (city governments) were formed. The most important issue in construction of these big cities was first to build a shelter for residents and then making centers and public, religious and state places. So we can conclude that the first and most important structures built by human from architectural point of view are considered dwelling [3]. Lack of appropriate housing will lead to more homelessness, waste of human capital and increased social

damage and backwardness of society will follow. Standard and proper housing is one of the most important indicators for determining proper life and now more than a billion people on earth lack adequate shelter. This issue has an impact of the quality of life and individual and social dimensions of a society, ranging from marginalization, poverty, unemployment, crime, malnutrition and ... in general problem of housing is tied to all aspects of individual and social life [4]. Therefore addressing this issue is important from several aspects. In this study, we decided to study the issue of housing and the factors affecting its formation.

### Definition of House from Famous Architectures View

#### Heidegger

**Dwelling from Heidegger point of view:** It's a process in which human begins changes "the place of being" into a home and coordinate with four main sources of thinking, meaning god, himself, sky and earth. In other words, dwelling in his idea is not a roof to use as a shade or a few square meters of land, and it has a wider concept. In fact, making a meaningful link between human and the environment in being considers. In this approach, home has an ordinance which has to be achieved with earth and sky. (Norberg Schulz, 1387: 9). Heidegger is the critic of modern architecture and the original settlement in his idea is the result of connection these four key elements of the world. In his idea it is the essence of residence, living on earth and under sky, protecting them and getting their secret and not exploiting them with the use of technology, and this is happening today [5].

#### Adolf ralph

House in its deep meaning is a sense of belonging to a special place

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and everything else in comparison with the concepts of place have little importance, house is the starting point to take over the world [5].

### Christian Norberg-Schulz

Home is a fixed point which changes an assumed environment to a place of residence. A house poses as an architectural sculpture in the environment, establishes our identity and gives us security. In the end, when entering the house we feel comfort. Home is an inner concept for mankind. It separates his private world from social relations of the outside space. We find things in house to watch over and respect. We bring them from outside and live alongside them because they make a part of our life. Schultz believes essentially home bring us inside, so the essence of house is in its interior design. In the city we are still outside and we are on the edge. When we open our door to each other, we do this with free will, we inside the world inside, instead of going out and seeing it [6].

### Amos rapoport

Housing is an institution which has been created in line with a series of complex purposes and is not merely a structure. Since building a house is a cultural phenomenon, the shape of the house and organization and its spatial order, is strongly influenced by the cultural environment which the house belongs to. That is why in the prehistoric age, housing was nothing more than a basic shelter and almost from the beginning housing was much more than a concept of functional material to be consumed. In other words, the purpose and role of housing was to create one social unit space [7].

### Tadao ando

Through the area around us, house is the most immediately associated space with human, affects him and get effected on a daily bases. It is the first space a person experiences the sense of space. The five senses are set constant and get accustomed in a short time. House in the only place that immediate first experiences shape in them in isolation and in accumulation. Being alone with one self, wife and children and others, all happen without aggression. We can consider house as a three-dimensional space which includes a certain number of people. Since the scale of house is limited to the extent that human hands can reach everything, the architecture of residential space and everything mixed with that, will contact human skin. But house cannot be a private meeting place because in a large extent is under the influence of political, economic and social background that form them. Since the house in the objectivity of the dense human activity, it encompasses all aspects of architecture [8].

### Gaston bechlar

People need house in order to provide shelter and express their feelings about a living space. In addition, house provides a familiar environment in which people live comfortably. People want to have a territory that is just for them. It is ideal that the house will be coordinated with the surrounding nature or artificial nature around it. People want their homes to be economically advantageous, intact materials used in them, have a good and solid combination and can hold the components, without the need for additional troops for their durability or having high costs. In addition, they want their homes to be consistent with their activities, be up to date and comply with their dreams. Home is a tiny fraction of a huge world, but for the people living in it, home can be their whole world. The house encompass their garment, car, working space, a collection of art and a space to sleep and rest. In his famous book "poetics of space" he says: Human being first

is put into house before world. The house is a place which encompass daily life. Home is a birth place which carves the hierarchy of different function of reside or living in our soul. In another section he says: any place that we can reside in, will have the concept of home. House is not our only refugees of our day and night, we open and close our memories in it [8].

Professor Pirnia believes home is where the residents don't feel upset, inside the house is where women and children are living in and should not feel tired. Home is the first space in which human sense the belonging. Total senses permanently cross this space and in a short time will get accustomed to that. Home is the only place in which first experiences happen in isolation and in accumulation without any middleperson.

### Influential Factors in Shaping Home

In order to study factors influencing on the shape of the house and understand the impact of each, determining each one is important. So, in order to understand the impact of each, we examined differences and similarities in different buildings and the results are as follows:

#### Physical factors

There is no doubt that physical factors are one the most influential elements in effecting the formation of buildings, especially houses. Considering climate and weather location of the residential space has a direct impact on choosing the form of the house. One of the most important functions of a house it to provide the need of shelter for human. Man has always tried to protect himself again climate changes, therefore building appropriate houses according to living climate is inevitable. Although today improved techniques and building materials have influenced the physical factors to some degree, it has failed to remove it from the list of factors influencing buildings form. Illustrative examples from past to present of architecting houses according to climate conditions can be named. Houses with steep roof in rainy climates, houses with sunshades and thick walls in cold climate, houses with domed roofs in the scorching deserts, etc... are all forms that have been chosen to cope better with the nature. But the main question is whether adaptation to climate is inevitable or we can find contrary examples? By examining houses in different areas and offering examples we can answer that building houses is not a normal action nor universal. In Southeast Asia, South America and Australia we encounter tribes which do not have houses, for example Ona tribe, despite living in a country with cold climate, they simply used a carminative as a shelter. While the existence of cone-shaped and adorned buildings show their mastery in techniques of construction, on the other hand, the variety of house shapes in similar climates and similar shapes in different climates shows that maybe physical factors are not as influential on the shape of the buildings as we thought. Sometimes, the shape of living and living method may cause deformation in the building, while climate change hasn't caused this. Till the time Bakhtiari tribe in Iran used to live with the style of immigration and did herd shipping they used black tents, but after residing in one place and beginning of farming in that previous place, they started making rural houses with breaks. Even a major political change can affect the shape of buildings. A look at the villa houses survived from before the Islamic revolution in Iran shows this effect as well. Most of these villas have a wooden or metal fenced yard or garden, while after the Islamic revolution in Iran fences have been replaced by high walls with tin or timber fences and barriers so inside the garden will not be seen. However, the residents of these homes were muslim before the revolution and the changes is a political effect. Studying

house forms in first communities and rural communities has shown that not only physical factors are inevitable but also in some instances factors such as religious beliefs, power, social status and ... have caused irrational shapes in coping with climate. One example is Japanese houses. House shutters are not so disproportionate to the cold northern weather of Japan. On the other hand, in the example of Japan, we see that strong houses of northern indigenous people has been affected by the Japanese conquerors and been replaced by the shutters, so we can conclude that immigrants bring their own cultural patterns with themselves. Another factor that underline incompatible solutions with the climate is religious beliefs. For example, Cambodian belief about the sinister of growing tree roots under the house has caused them not to build houses in tree shades. Sometimes a person is motivated to show their economic power and social superiority with irregular shapes in their homes that do not fit with the climate. In general, it should be noted that the traditional architecture of the region is largely consistent with the climate of that region. But the only determinant of the shape of the house, is not conformity with weather, but there are several factors affecting the shape of the building which we will mention below [9].

### Building and construction technology

Over thousands of years human has used materials such as stone, clay, wood, straw and ... to build houses. Though archaeological findings show that sometimes the materials needed for buildings and especially ceremonial and ritual buildings, has been transmitted from distant lands, in most cases the available materials have been used. Familiarity with materials and how to use them to make a proper house is essential. But can we say that the shape of the building is solely based on the materials used? The shape of the building is the result of a gradual process of human skills in using improved materials and construction techniques. Findings of the anthropologists and researchers indicate that, technology, construction methods and materials are known as "agents of change" and not determining the shape. For example in China despite the popularity of clay and one technique, it is possible that the roof of village houses be different due to believing in the phenomenon of Feng Shui. The relation of materials with the using techniques is very important. How to use same materials can vary enormously. The determining factor is culture. That's why the shape of Iranian desert mud houses is different from Poelbo of native Americans. It has been seen that in one culture, the ritual monuments are different from normal houses, while often the same materials and even techniques have been used. For example, the use of glue and construction of dome has been common in Iran, especially the central areas, but we cannot consider domes of adobe houses and domes of mosques in Iran the same. On the one hand changes in materials may not lead to significant changes in the shape of the buildings, for example in Greek Island of San Torne, despite the replacement of concrete with stone, houses have not changed [10].

### Site and location

The meaning of site and location is the place of building. Location can be considered according to geography and topography of the place or the purpose of building is adjacent to other buildings in a bio complex. In this matter we also cannot only consider ecologic algebra and claim that the shape of the building is chosen according to its location in city of village. Also it is an important issue but has never been enough alone to justify various forms of buildings. Lands with similar characteristics can form productive shapes for different houses and similar shapes can be built in very different sites. For example, Native Americans in south west of California, when they moved from

beaches to mountains, despite dramatic differences in two nature, they didn't change the shape of their homes. In general, the normal position of a building is not a decisive factor for the shape of it, however, some forms can arise in certain sites, which means sometimes site make realization of some forms impossible. For example, we cannot make a floating house where there is no water. In some cases, nature gives human a special position and cause certain forms of buildings, such as rock slopes of Kandovan in Iran. But position in the concept of location of a building in the biological complex is often in line with hierarchy and a cultural influence, and not physics. Organizing space in the social system is a cultural matter and is independent from the site. For example, although in cities building houses near cemeteries or in bad neighborhoods is avoided, but this matter will not necessarily affect the shape of the building [11].

### Defense

Defense is one the social components which effect on the form of the buildings, fences, hedges, high walls and ... are all to prevent others from entering the buildings and sometimes even camouflage from the sight of others, and have shaped the buildings. House is specially a building which must provide the maximum security and also a sense of security. It seems that organizing a space based on defense element needs special attention toward life style and especially the way of living and human's beliefs. Because defense concept receive its meaning from them. In other words, these factors determine what it proper for defense. Masai warriors homes were built around paying attention to animals and not defense. In Bakhtiari way of living also black tent for living people is not used for defense but the assembly point of herd is important, which is afoot with all hedges near the black tents so they have maximum care and protection. In societies that crops have more value over livestock, houses are organized in a way that they can protect food warehouse better. Even family traditions can also be important in the house in terms of defense. The fact that family formation is based upon single wife or multiple wife is also effective in the formation of the house. Yet other examples can be mentioned in which the importance of defense in determining the shape of the house is not an important matter. We can find tribes that lived in one country and with one common culture, but the shape of their houses are different. For example, on the riverside of Lake Marakeh Boo in Venezuela, there are two distinct housing. Houses build on the pilot on the water with maximum protection against invasion of humans and animals and houses built on a short pilot on the land. While accessing the first kind is only possible with the use of boat or bridge, entering to latter kind is possible by a short ladder or stairs which is not protected against the onslaught of invaders. Finally, these example are all indicative of the fact that: "defense factor has never justified the shape of the houses or buildings" [12].

### Economy

There are numerous examples that show economy is one of the most important determining factors in shaping the buildings, and is one of the most notable of them. But some evidence shows that human has made houses according to the way of living and economic affordability of himself. But there were also evidence that brings the shape of the building out of monopoly of the economy and questions its unconditional effect. Similar economic approach can create different space agencies. For example, although most of the nomadic herdsmen used cottage style portable homes or with temporary use, pastoral nomadic Indians of Pacific North West build wooden and very heavy and bulky homes. The house of village farmers were built with

the centrality of storage, but this matter has never led to the adoption of a common shape between all farmers. As villagers of northern Italy and France, although have the same mod of subsistence farming – herding and have similarities in terms of climate and cultural elements, they have different styles in organizing the forms of farming space. And they are both different from the layout used in Switzerland farming. The result that comes from these examples show that “people with similar economic systems can have the same value systems and different worldviews, and since house is a manifestation or expression of philosophy of life or worldview, then economic system will not have a decisive effect on the shape of houses”. The relation between economy and spatial organizational is not necessarily rational. It often happens that after entering a city or village we immediately see the luxury and huge buildings, which represents the wealth of their owners. But after a while we know that they do not enjoy such immense wealth. The point is that luxury building is a symbol of prestige, or social capital of the owner and not necessarily economic capital of him. With a look at the list of the tallest buildings in the world, we find that most of these towers require spending very high fees, they are made in developing countries and not developed ones [13].

## Religion

The most significant non-physical form of coercion is commitment to religious beliefs. The most extreme view about the role of religion on the facet of home is that they consider home as a temple and a place for praying. These views consider house as an organization of space in to two section of sacred and non-sacred. The house separates the inner space from outer, the itself from another and provides a safe shelter for recourse to supernatural forces. Such theories have tried to consider everything in the house as a religious factor. Maybe with a more deliberate look we can consider religion as an important factor in shaping a whole collection, the general look a city and... In expressing the importance of religion and its relation to house, many examples can be raised. The sanctity of the home is seen in different cultures. Usually entering the house is associated with some sort of rite of initiation. There are many ceremonies to ward off the evil spirits from the privacy of home in different cultures. The shape of the house and its placement is determined in accordance with religious beliefs. Preferred homes in front of Mecca among muslims and observing the cosmic directions in the homes of Trano tribe in Madagascar are all examples of the relationship between religion and home.

All we said earlier indicate the importance of spatial organizational according to religion. But can be claim that the only factor is shaping home is religious? Citing the example of the role of religion as the only factor shaping the spatial divisions will undermine the shape of the house. For example house fences are solely used for the purpose of separating the sanctuary profane space from the outside space but can also be used as a defense function. The adobe houses in Yazd in Iran are separated from the alley with a high wall. It may seem that the teaching of Islam has caused this kind of architecture, but there are other reasons as well. High walls in addition to creating defensive barriers has climate justification. Because it makes the Kavir sun in Yazd produce more shadow. Finally the deterministic view must be abandoned. We know there is a reality, this fact is that house just like all other cultural products has symbolic value. Therefore, in determining the factors affecting the shape of the house, examining the material factors in religion as an immaterial impact on the religion has been considered. Religion as a form of expression is more possibility-oriented and not decisive, as well as material factors previously discussed [13].

## Cultural-social factors

With a quick look at houses in different areas around the world this question arises that why in one special climate place, we have different shapes or forms? For example, in Greece there are both houses with yard and without yard. In South America which is the origin of courtyard houses, why these houses are seen? Is there climate has been the determinant factor? With searching areas in the world such as Southeast Asia, South America and Australia, we see that some tribes are homeless in the sense of our thinking. Some of these tribes have shown that they have the ability to build shed and cone building, but they do not live under shelters, rather they have a protective device like spoiler which acts as a shelter for them. Although in these places climate is so that the need to shelter is being felt, but they prefer to live in a place different from common shelters around the world. Conversely, where the climate does not put pressure on its residents, the diversity in building different shelters is seen. The examples of this kind of situation is seen in Oceania. So the existence of these non-climate and non-structural shapes which are seen all the time, shows us this truth that in middle of this forces and other factors flowing which must be considered, there are other forces such as religious belief, rituals, class characteristics which all fall in three category of social and cultural factors. The motivation behind raising theory of immaterial factors affecting on the formation of architectural environment, social and cultural conditions go back to the 60s and 70s. The equality of science with absolute empiricism that started seriously in the seventeenth century, gave their own special products in the eighteenth and nineteenth [14]. Materialists also use this view to get enough interest in support of the socio-political theories. According to Marxist orientation, economy is the infrastructure of everything in a society and analyzing them is only possible through a scientific process. From this view, building and everything man-made has been shaped according to economic conditions. Provincials also consider climate conditions an important factor in shaping a building. Rappaport which is a culture-oriented theorist toward materialist view of architecture believes that a building represents a complex interaction of numerous factors and their reactions. He believes that in shaping a building first determining factors of immaterial play their role and other factors (such as climate, technology, site, etc.) are in second place. Some researchers believe that the shape of a building is not the result of physical factors or any other single cause, but it's a result of extensive socio-cultural factors. According to these researchers, the shape of a building is changeable by the climate, the methods of construction (structural) and available materials and technology, but they cannot be called the basic forces. They believe that differences in cultural values, causes diversity in the shape of a house. Socio-cultural forces have effect on much behaviour in human life: dreams, dressing, study, lifestyle, interior design, type of eating food and ... they can also be under the influence of these main forces. Given the breath and diversity of socio-cultural factors and forces affecting the shape of the building, we can name a number of these factors in this field [15]:

- The need for public and private spaces
- Social interactions
- Family structure and traditions governing them.

## Result

Socio-cultural attitudes has opened new horizons for the researchers in architecture area and has brought out architectural topics from its material aspects. According to studies, we can divide the factors effecting on construction of a building

into two categories of immaterial factors and material factors[15]. Accordingly, the climate, technology and materials and position are considered in the material class. So, shape of a building is the result of mixing complex and numerous factors and their reactions and actually choosing one factor will limit the matter and not seen other factors and will not yield a right conclusion [14]. So according to studies in this book we have denied some theories that consider the main causality in factors such as climate and technology as the main factor in shaping buildings. Studies has led to denying the climate determination theory and showed that there are other forces which must be considered. These forces include religious beliefs, rituals, features of social classes, culture and traditions of a community, the society and family which are all non-climate factors [15,16].

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