Sustainable Culture Analyses in Architectural Construction of Iranian Traditional Buildings

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Abstract: - The house is a model of universe in a small scale, its form is not only affected by physical forces or any other single factor but also is the result of different socio-cultural elements so the shape of the house can vary under the effect of secondary forces or factors through the influence of climate on architecture and construction methods of the building, local, accessible materials and native flexible technologies. Besides considering five principles of Iranian architecture including: interior oriented (maintaining privacy), popularity, self-sufficiency, avoiding the waste and structures, the construction culture of Iranian traditional houses has had a very complicated but at the same time simple and rational mutual relationship with culture and architecture which is similar to sustainability principles of contemporary architecture. It can be seen in the order of exterior and interior spaces such as porch, court-yard, three-door and five-door room. Besides preserving originality and social cultural identity of people in the past, this mutual relationship was considered as a sustainable factor of cultural development in line with ordinary people’s culture (folklore), which has been discussed thoroughly and analytically in this article.

Key-Words: - Culture, Architecture, Sustainability, House, Construction

1 Introduction
Everybody grows in a society and his needs would be fulfilled in that society which shapes the culture of social interactions in small scales. The place contains building, city, region, interregional and national lands. Family as the smallest and the most stable element of the society has its own sanctity and rarely shakes and changes so that it has the greatest impact on construction culture and is mutually influenced by Islamic architecture as well.

2 Socio-Cultural Factor
Form of the house is the outcome of both socio-cultural factors as the first element and ecological and technical factors as secondary elements. This means that the differences in cultural values lead to varieties in the form of house. The socio-cultural forces affect many aspects of our lives including clothing, life style and interior architecture.

Religion as powerful stimuli has the potential to have a fundamental impact on the form of the house and guide them into certain forms. Religion has provided a distinguished picture of the universe and the builders tried to reflect it in their buildings. The categorization of construction culture shapes based on the factors such as: Human’s primary needs such as sleep, food, marriage, need to private and public spaces, social interactions, family structure, Patriarchal, female dominance and cultural issues of non-defensible areas [1].

Local constructions contain organic complexes and discovering other productive factors and hidden patterns beyond the space forms was their main concern which forms the cultural boarders. In traditional crowded families, father is responsible for the economy, family regulations and education and due to the size of families the size of houses were bigger as well, here were normally more than one or two rooms. It should be mentioned that house is a part of settlement. Culture and attitude are affected by the reality of ending energy and resources and consequences of natural environment destruction. In general architecture indicates life style of a period, in other words sustainable architecture is originated from sustainable societies.
Before starting the discussion about types of house and its elements we investigate matters related to house which are climate, sun radiation, wind direction, location and type of land.

3 Effects of Social Behaviors on Architecture

Social behaviors are affected by cultural, political, social, religious and economic aspects. Related to influence of the mentioned aspects on architecture there is an interactional relationship between architecture and social behavior (see figure3) [2].

4 Type of Houses

More developed houses are including interior, exterior, cargo nets, yard and garden, different types of rooms (three-door and five-door) Hall, Tehrani, corridors and other spaces. The elements are designed in three systems of big, small and tiny scales (Peymoon). In houses with large scales (Peymoon) the combination of spaces are as following:

Two corridors from the porch were connected, one to the interior and the other to the exterior spaces. Guest room and yard were in the exterior space and in the interior, three door rooms, Tehrani, hall and Talar, bathroom and kitchen were located around the yard.

5 Ecological Features of Iranian Traditional Houses:

Ecological features of Iranian traditional houses which are tightly related to people’s culture and life are including:

a) Constructing deep and shadowy yards in the center of the building
b) Locating pool and garden in the yard
c) Mixing and connecting living spaces with and outdoor spaces and locating doors and windows towards the central yard
d) Giving importance to the porch, veranda and semi open spaces in the house which often turned to be the most important spaces of the house.

e) Constructing different types of wind towers, sunshades and locating doors and windows in the depth of walls.
f) Using basement and its cold atmosphere
g) Using arcuate and domical forms in ceilings
h) Constructing thick pillars and ceilings
i) Using local materials (brick and mud)
j) Dividing living spaces into two parts, summer part back to kibble (Mecca) and winter part towards kibble (Mecca).

Dividing service spaces from living spaces is one of the features of these houses; this division turns the whole service spaces such as kitchens, hygienic spaces, stores and stalls in the eastern and western sides of the house to be concealed from the eyes in order to preserve the comfort of their lives [4].
6 The System and Culture of Construction of Iranian Houses

The elements of more developed houses in which private and public life are meticulously separated from each other are interior, exterior, cargo net, yard and its gardens, corridor, Hashti …and all of these elements are arranged according to scales (Peymoon).

6.1 Peymoon

In designing system of Iranian houses three types of Peymoon are used. The combination of spaces in these three Peymoons is as follow:

6.1.1 Big Peymoon

There were two corridors from the Hashti (porch) of the house, one of them ended to the interior space while the other one ended to the exterior space. In the exterior space Sofrekhanehs, guest room and yard, and in the interior space three door rooms, hall, bathroom and kitchen are located.

The form of the yard in a house with big Peymoon was calculated by the golden proportion. The study of mutual relationship between different spaces of this type of houses is very interesting [5].

6.1.2 Small Peymoon

House with small Peymoon was cheap and easy; its yard was constructed by using golden proportions. Its form is something like the house with big Peymoon, there were a two door a three door and a five door room in its centre.

6.1.3. Tiny (sub) Peymoon (scale)

In this system, the house was small; they normally had two to three houses and interior and exterior spaces as well. This has taken one step forward to develop a more private space which is introduced as social hierarchy or social performance.

6.2 Sustainable Direction according to Culture of Architecture in Traditional Constructions

6.2.1 The Northern part

Northern part is the best part of the interior space as the central open air yard in the middle of the building which has a porch with a big space that can turn to a bigger space if connected to surrounding spaces. Usually there are corridors in sides of these spaces which can be reached through the yard. Kitchen is located in a corner of this yard which is often in the north-east or west side and in a spot which is close to the guest room.

6.2.2 The Western Part

Rooms are located in the western part of the Miansara which are two doors, three doors- three door rooms were bedrooms- five and seven doors. Totally, the size of the room in these spaces depends on the number of doors and scale (Peymoon). If three door and Peymoon are small the room is small but if they are big the room is big as well. And accordingly micro social culture of that house shapes based on the architecture. The room which is seven doors has a big facade and its height and surface are big as well so they are matched with big Peymoon and three doors are matched with small Peymoons. A two floor three door with small Peymoon equals a five door with large Peymoon.

6.2.3 The Eastern Part

The eastern front is not favorable due to receiving western sunshine and does not have the main living space, in developed hoses in this spot, on the right side of Miansara (traditional yard), they build a construction in which the porch is in the middle and corridors are on two sides which lead to upstairs through the stairs. This space is usually in summer from morning till noon.

6.3 Elements and Construction of Iranian House

In Iranian houses, rooms are built in the form of three-door, five-door, hall etc. and each one has its own features. One of the Iranians’ favorites is to create a visual connection between rooms and outdoor space. Even now wideness, largeness and free vision are among Iranians favorite characteristics. In most places three-door rooms were preferred but in other cities, because of climatic conditions, had a one door room with a big door.

6.3.1. Three-door room: In this space, bedroom has been designed in a complete humanistic scale, the proper light depth, and avoiding the waste (as one of
the 5 principles of Iranian architecture) and accessible through the opposite corridor.

6.3.2 Five-door rooms: It has been used as a place for gatherings which functions as a living room and is designed with principals of golden proportion. There were two corridors in two sides of the five-door rooms. There was a slight niche upper than floor level called Shahneshin which was a place for important guests and older members of the family.

6.3.3 The Entrance: The entrance area in Iran’s traditional architecture is very important and is not only considered as a contact area but also has socio-cultural functions. In line with the inviting nature and attraction of entrance area, mostly a courtyard in front of chamber is built at the back of entrance arc so that it could find a common space with alley or square.

6.3.4 Hashti: Hashti is located after entrance, and is connected to the outdoor space of the house as outer space of the house. Most of the time, this space was located right after the entrance area, and dividing entrance area into two or more direction was one of its function. This space and twisted corridors ended to interior and exterior yards could block the strangers’ sights of the sanctum space of the family privacy. Making pauses, space division and an area for waiting are of the interesting functions of this element. Hashtis’ covers are so varied and have very beautiful designs. Out of Hashti in Dargah (entrance) area, Saku (step) or a hospitality platform for (a short rest and then continuing the trip) passengers which itself indicates the culture of respect to human in Iranian traditional architecture [6].

6.3.5 Dalan (Corridor): It is the simplest component of the entrance area and its main function is to connect two places to each other, and sometimes with changing the length and direction of the path privacy (Mahramiat) matters could be solved. The lengths of the corridors (Dalan) were varied. Dalan as an architectural space is so that can be recognized as a moving space from the Spatial and perceptual perspectives.

6.3.6 Yard or Miansara: yard unifies elements of the house; it is connector of spaces in order to provide a green and enjoyable atmosphere and functions as an artificial ventilator for passing proper winds, an important element in organizing different spaces, a calm and comfortable place for a family.

6.3.7 Backyard: this space with its Subsidiary functions and services has a great effect on providing light and assisted ventilation for lateral spaces, on the other hand different other service areas of the house are opened into this space.

6.3.8 Narenjestan: A very small yard that its citrus, fruits and plants can be protected against the winter cold.

6.3.9 Gowdal-Baghche (Sunken garden): Green space designed around the central pool which is built with low level of difference in height towards the yard, and besides cultural and visual functions plays an important role in the natural ventilation of three and five door rooms by using evaporative cooling method.

6.3.10 Birouni (Exterior): a small yard in the form of square or rectangle with a pool in its middle which was used for hosting strangers and non-relative, special guests.

6.3.11 Andarooni (Interior): this yard is bigger than Birouni and its size largely depends on surrounding rooms and most importantly providing privacy for people who live in the house according to Iranian outdoor architecture.

6.3.12 Room: According to organization of all spaces and dividing them into summer and winter spaces, different rooms have formed. Some factors indicates the rooms function the number of gates, type of guests including door and windows their position towards the yard and entrance and the type of type of Peymoon (scale) system of the house: big, small or tiny Peymoon [7]. Here the functions of different types of space which are used in traditional houses are introduced.

6.3.13 Peymoon (scale) System of the House
It is divided into 3 orders: Big, small and tiny Peymoon. Here the functions of different types of space which are used in traditional houses are introduced:

 a) Talar (Hall): It is a large building which is towards the sun in winter side and back to the sun in summer side. The proportion of the middle and lateral spaces are considered as well.

 b) Ivan: Ivan is a platform, a smaller space than Talar which is usually located in front of the room. It has a ceiling but is an open space without door or window.
c) Shahneshin: It is a part of room which is built like Ivan but has no door to the yard and is a bit higher than the floor level. Usually Shahneshin is located in five door room. Shahneshin was a place for important guests or the lord of the house.

d) Wind Tower: It is built next to Talar to guide the wind into this space.

e) Tanabi: It is built in houses with large Peymoon (scale) in a cross shape next to the wind tower, in fact it is the space between Talar and Badgir (wind tower) which was used for sleeping and taking rest [8].

7 Geometry and Architecture
Geometrical orders can be seen in all parts of the house which indicates the function of each space regarding their importance and relation to each other and other spaces besides exhibiting the general structure of the plan.

![Figure: Plan of Laris’ house in arid (hot and dry) climate](Image)

1) Entrance, 2) Vestibule, 3) Three-Door Room, 4) Five-Door Room, 5) Veranda, 6) Connection Corridor, 7) Room under Windcatcher, 8) Store, 9) Facility Providing Yard, 10) Court Yard, 11) Foreal Garden

8 Conclusion
Rich socio-cultural interactions, hospitality, privacy and its levels, ecological and architectural considerations, social and cultural systems were highly considered in Iranian traditional culture. In contemporary age especially between 1990 and 2000, a big change happened in formation of Iranian houses due to economic situation. Due to high demand for house from one side and bad economic conditions of families from other side a large number of 50 to 60 m apartments were built. These small houses was not a proper place for families with three or four members so these people started to change their behavior towards guests, and gradually hospitality lost its importance.

The result of using international methods of architecture in eastern countries was destruction of local architectural culture; therefore it is better to pay more attention to the creative thoughts based on local architecture and obtain sustainability lessons from Iranian traditional culture through the time in building new houses and correcting the construction patterns in Iranian culture of architecture instead of blind imitation of non-native, international styles.

References: