

The Concept of Sustainable Dwelling Epitomized in the Courtyards of Iranian Houses: A Case Study of Houses in Kashan in the Qajar Period

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Abstract: Sustainable dwelling is a mental concept, yet it should meet the physical and emotional requirements of humans for living. Therefore, only those sites in which human needs are satisfied can be regarded as sustainable dwelling. Iranian traditional houses with their genuine characteristics are still something to be desired. In these houses the courtyard is the heart of the structure and at the same time it is counted as its organizing principle. Hence, understanding the function of the courtyard leads us to an understanding of the purpose of the whole building. This paper argues that the traditional Iranian courtyards are a materialization of the concept of sustainable dwelling. Moreover, the writer contends that probing into the courtyard for the concept of sustainable dwelling has the added advantage of shedding light on a solution to palliate life conditions in contemporary modern houses of Iran. To this aim the courtyards of three famous houses in Kashan, Iran during the Qajar dynasty, namely Borujerdiha house, Tabataba'i house and Saleh house are examined as the closest historical examples to our modern world. This study the writer aims to provide a local definition for the concept of sustainable dwelling and second to suggest a practical solution by which to reach an ideal state of life in the contemporary world.

Key words: Sustainable dwelling, courtyard, borujerdiha house, tabataba'i house, Saleh house

INTRODUCTION

A courtyard is the most substantial open space of a house. Apart from the courtyard, there exists a variety of minor open spaces in Iranian houses. These open spaces can be on the ground level as the courtyard or be found anywhere else in the house on an ascending scale. A bit more elevated than the courtyard is a platform which is used in Spring and Summer nights. There is also a vestibule which is an open space corridor that leads to the upper spaces of the house. And just below the roof, there is a terrace and finally there is the roof. The courtyard is however, the most important open space of the house. In very large houses, the courtyard is comprised of two parts; an interior yard and an exterior yard. Some other houses added four other different yards to the structure regarding the function the house served: stable yard, servant's yard, eunuch's yard and the orangery (Vahid, 2000). As a result, in traditional Iranian houses the courtyard has been in the center of all events, so different yards were added to the major space when need would arise. Moreover, Iranian architecture is characterized with its preoccupation with segmentation and building up spatial networks which explains the practice of multiplying the major open space of the houses.

The centrality of the courtyard finds a literal meaning in warm and dry regions of Iran where the courtyard is enclosed with the buildings, endowing the buildings with a specific structure. In general, a courtyard is used variously in Iranian houses. Some of the uses to which the courtyard is put are as follows:

- The yard as the ownership of a sanctum
- The yard as the unifying element of the house
- The yard as the intersection of different spaces in the house
- The yard as a space for bringing both nature and comfort into the house
- The yard as a proper means of ventilation in the house
- The yard as the central element in the structure of the house which organizes other spaces in the house
- The yard as a secure and innocuous space for the whole family

So, understanding the role of the courtyard in traditional Iranian houses is the very first step in grasping the concept of house and apprehending the idea of sustainable dwelling. In this regard, Kashan is being studied because after the 1192 earthquake, it was thoroughly re-erected and therefore its architectural features are closer to a modern form.

Space organization for the purpose of human use can be studied as one method of giving expression to certain sets of cultural norms. Understanding how space is managed also helps with realizing how people overcome technical difficulties in acts of building structures what artistic sensibilities they hold and what they regard as aesthetically worthy or what their religious orientations are (UNESCO, 1997). The people who settled in the newly built houses in Kashan after the earthquake were Muslims. Subsequently, in order to realize their idea of dwelling we have to seek the same notion in Islam itself. This study studies the concept of sustainable dwelling as materialized in traditional Iranian houses of Kashan and gets help from the same examples to restate a definition of sustainable dwelling. In this commuting back and forth between the definition and the materialization, the writer hopes to reach a definition of sustainable dwelling that would be compatible with modern Iranian life style.

Human desire for dwelling comes out of his needs for peace and security. Hence, to reach a definition of sustainable dwelling, it is best to start with a definition of peace. And since human beings enjoy a spiritual/psychic life alongside their physical existence, dwelling and peace should be defined in terms of both aspects. While physical comfort depends on proper living conditions which are liable to the locality, psycho-spiritual comfort of an individual is subject to the metaphysical attributes of the locality. These two aspects are not separable, since physical discomfort can lead to psychological discomposure, yet for the ease of study the researcher enquires into the two subjects autonomously. In this study physical aspect is restricted to "all those suitable conditions as clarified through practical human experiences" and psycho/spiritual aspect since the subjects under study are Iranian Muslims is defined based on "Islamic notions of proper life style and historical experiences of Iranians".

Literature review: Iranian scholars are more or less unfamiliar with the concept of sustainable dwelling. Mahmud Amir Yar Ahmadi recently translated Christian Norberg-Schulz's seminal work on this concept, the concept of dwelling: on the way to figurative architecture, into Farsi. Under its influence, Behzad Vosugh and Azadeh Pashutani Zadeh collaborated on a paper titled "The Concept of Dwelling in the Quranic Verses and Tradition" which was published in the journal of housing and rural environment. This study, however, deals with the concept of dwelling on the scale of the city.

Although, sustainable dwelling is an under studied concept in Iran, traditional houses of Kashan have enjoyed great attention. Among them, Abdulkarim Pirnia

and Gholamhossein Memarian have studied the significance of the courtyard as an element of traditional houses in a paper. Nonetheless, the courtyard has also remained a forgotten issue, except in a book by Naebi titled life in the yard which scrutinizes the role of natural and environmental features as a contributing factor to the structure of the courtyards. Most articles inspecting the courtyard also converge on the question of climate or employ a semiotic approach to study an element of the yard. "Analyzing climatic architecture in Kashan", by Yusef Gorji Mahlbani published in Armanshahr and "Re-evaluating the role of water in traditional Iranian houses" by Atefeh Tufan, published in Bagh-e Nazar are cases in point. Sharareh Ghanavizhian also in her MA thesis titled, "The Relation of Building Structure to Life Style in Traditional Iranian Houses (Taking the Two Approaches of Space Design and Phenomenology, a Case Study of Houses in Yazd)" has studied a similar issue in traditional houses of Yazd. The present study, however, intends to provide a definition for sustainable dwelling and through examples (Iranian courtyards) reach a redefinition of the concept as well. The method of study in this study is descriptive analytical and it relies on library research methods in tandem with field research. To this aim the writer tries to provide answers to the following questions: first, how does an Iranian understand the concept of dwelling? And second, how is the concept of dwelling epitomized in a house?

MATERIALS AND METHODS

The meaning of sustainable dwelling

The transcendent aspect of sustainable dwelling: To understand what sustainable dwelling means to the Muslim residents of the houses under study, we have to have recourse to Islamic notions of residence and dwelling place. Nasr, a Muslim scholar, states that the transcendent aspect of space (or its quality) is bound with divine presence in the world, yet they are not the same in their features. A transcendental space can evolve in certain locations on earth when they are associated with religious rituals. For instance, a large part of the Ka'bah to the pulpit and its surrounding garden as well as all those spaces which are highly respected are transcendental spaces in 2001. Architecture is also the practice of turning a physical space into a transcendent one, by employing geometric potentials, decorations and metaphoric and symbolic uses of light, shadow, water and adobe and in this way to expose the scientific/divine reality of a structure to the on lookers (Fereshteh and Pour, 2002) (Fig. 1 and 2).

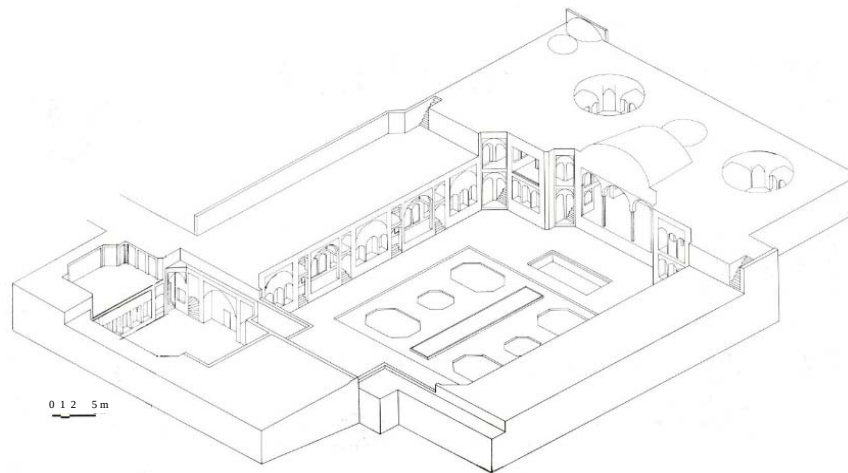


Fig. 1: Perspective of Tabatabae'i house-source Iran cultural heritage and tourism organization

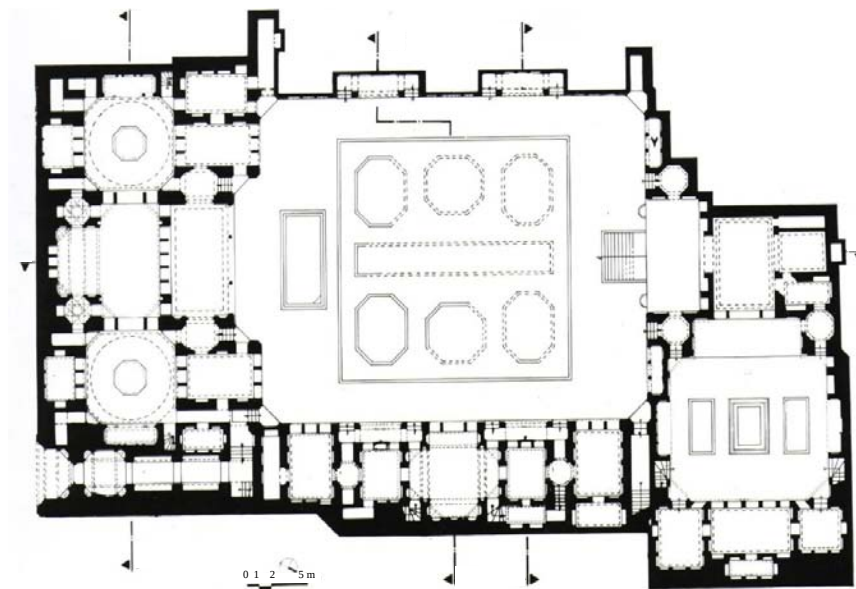


Fig. 2: Plan of Tabatabae'i house-source Iran cultural heritage and tourism organization

The most credible source of knowledge in Islam is the Quran. Therefore, it is the very first source to look for the concept of sustainable dwelling. In Quran, there are various references to the dwelling place as *beit*, *diyar*, *dar*, *maskan*, *bonyan marsus* (Tabatabaei, 505), *Gasr*, *Alimad*, *Imarat* (At-Tuba 19; Ar-Rum 19) *Arush*, *Bana* (An-Nahl 26; As-Saffat 95) *Madinah* (Al-A'raf 123) and *Gariyah*, (Behzad and Pashutanizadeh, 2011). The concept of dwelling in the Quran has got physical and transcendental aspects which determine a set of standards and values to build, maintain and give meaning to the structures (Behzad and Pashutanizadeh, 2011). In Quran,

God announces the reason for creation as worshipping the Almighty (I have not created jinn and mankind except to serve Me (Az-Zariyat 56). In the Quran, the nature and the animals are all signs of God which should make humans think (An-Nahl 11-3, 69; Yunus 24; Ar-Ra'd 3; Al-Kahf 17; Al-Jathiya 4-5, 13). So the very first Quranic standard for a dwelling place is the existence of natural elements in the house to remind people of the existence of God.

Another Quranic characteristic for a dwelling place is comfort (and it is God who has appointed a place of rest for you of your houses (An-Nahl 80). In the house, man is peace to woman and woman is peace to man (Hossein,

2002). The harmony that exists between parents coheres the children. In the Quran, silence and stability are also a source of peace both physical and transcendental. As stated by Tabatabai, “sleep brings peace and refurbishes the body” in 2002.

The third characteristic to be discovered in Quran for a dwelling place is safety (and when we appointed the House to be a place of visitation for the people and a sanctuary (Al-Bagarah, 125). God announces in his holy book that the safest place is God’s House Ka’bah. Feeling safe and peaceful are two dependent qualities and it is this dependence that gave impetus to the Islamic culture of gheyr-Mahram or forbidden women; “when there is a bond to or towards somebody, it means amity grows there and heart settles in peace and ‘Istiyal’ is an action in which you announce your entrance into house as respect for the gheyr-mahram (women forbidden to you or non-mahram) by saying Ya-Allah (Hussein, 2002). Imam Ali also describes this situation in letter 25 of Nahjul Balagha: “once you reach a countryside, settle by the water and avoid entering people’s houses then approach them with dignity and tranquility”. The Quran also emphasizes the importance of Mahram cultural norm as an attribute of the human nature (O believers, enter not the houses of the Prophet, except leave is given you for a meal, without watching for its hour. But when you are invited, then enter (Al-Ahzab, 53) and expects this religious standard to be observed in building houses (There is no fault in you that you enter houses uninhabited wherein enjoyment is for you. God knows what you reveal and what you hide (An-Nur, 29).

Furthermore, some other lesser instructions regarding an Islamic life style have been influential on the form and structure of dwelling places. For instance in narration 128 of Nahjul Balagha Imam Ali says: “avoid the cold when it begins but embrace it as it approaches its end so it does with your body what it does to the leaves of the tree: it burns them at its inception and makes them sprout at its demise”. This narration apart from providing instructions to seek sobriety, gives some pieces of advice on how to treat nature and adopt a proper life style. Moreover, the images of paradise in Quran have exerted considerable influence over courtyards and small gardens in houses. Iranian traditional houses materialize the depiction of paradise in Quran where there are brooks running underneath trees besides palaces (Al-Tuba 77; Al-A’raf 43; Saba 15).

Somatic sustainable dwelling: The body achieves tranquility in a sustainable dwelling when natural ingredients of the space such as its temperature, moist,

airstream and light are ideal. In other words when all the climatic factors are observed, physique is soothed.

A courtyard as an ecosystem and an organism, can be regarded as being comprised of the natural and the artificial. The natural consists in soil, water, sky, plants and humans and the artificial entails frameworks and architectural substances. The central element in this organism is the human being and the harmonious relation of these elements with one another determines the wellbeing of the human factor. In short, climate stratagems in a structure organize the whole system and in this case it is the courtyard that is responsible to administer the ideal state of life for the human residents of the house.

Climate architecture has got two major goals: first, to prevent heat loss during the cold seasons and absorb sunlight and heat from Southern windows. Second, to obstruct sunlight by producing shades and dispelling heat (Donald and Labs, 1983).

Taking into consideration the climatic features of Kashan like warmth, moist and airstream, besides the structural bioclimatic chart of its houses, the following results would ensue: in January, February and December using electric heating devices is a necessity. In March and November no such device is needed. In April and October the weather is perfect and human beings are at ease without any devices. In June and September an air-conditioner is essential. In July moist should also be artificially added to the atmosphere. In August, buildings that adhere to a climatic design scheme enjoy a pleasant condition. In warmer months of the year, like January it is better to halt air encroachment from outside, since the airstream is very hot and will deteriorate the bioclimatic conditions (Mahlabani *et al.*, 2011).

Generally, it is possible to control climatic conditions in a house in Kashan during the warmer months of the year by using heavy building materials; however, in Summer months air-conditioners are indispensable (*ibid*). Consequently, climatic strategies to improve living conditions in traditional house of Kashan are as follows: intensifying moist and airstream artificially and obstructing sunlight in warm months and augmenting sun-heat in colder months.

Now that a scheme is developed which elucidates what somatic and psychic/spiritual conditions are optimal for a sustainable dwelling place, it is time to try to see how the cases under study coincide with this framework and its psychic/somatic standards. As a result, in what follows the courtyard is studied in relation to the psychic/spiritual aspect of sustainable dwelling in three parts: “Orientation and Structure”, “Practical Minor Elements” and “Spatial Ideas and Decorations”.

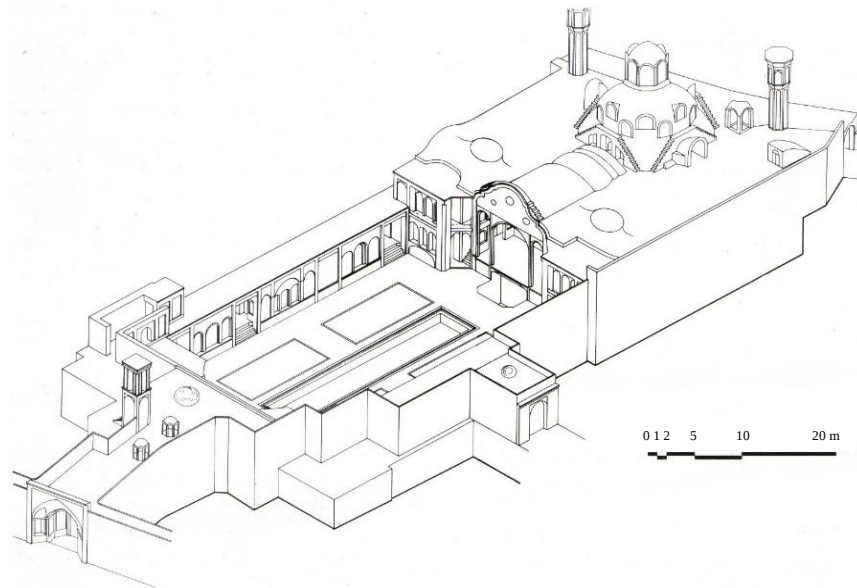


Fig. 3: Perspective of Borujerdiha house-source Iran cultural heritage and tourism organization

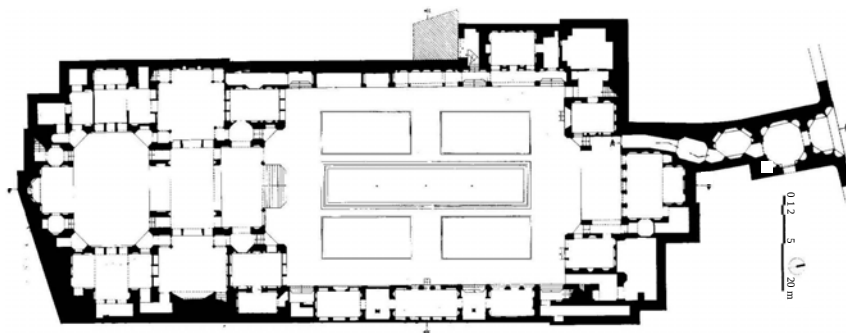


Fig. 4: Plan of Borujerdiha house-source Iran cultural heritage and tourism organization

Materialization of the concept of sustainable dwelling in courtyards

Orientation and structure: In traditional houses, observing religious beliefs and standards has always been a rule. For example, houses in arid regions are oriented towards Mecca (unless the wind is an obstacle). Unity and centrality are also from the features of an ideal locality as Ka'bah is a spiritual center and unites other localities with a shared identity. Mosques perform this duty in Islamic cities and countries, respectively. A mosque receive their local value from being representatives of Ka'bah. This kind of architectural orientation, therefore, means God is everywhere with man (Behzad and Pashutanizadeh, 2011). This orientation guides the structure of biological spaces, determining where Summer rooms and Winter rooms are to be located. This orientation has also the added duty of protecting the residents from sizzling heat and gusts of blistering wind

(Asadpour, 2006). In the three houses to be studied in this paper, orientation is 15° askew of the North/South orbit while the orientation of the city itself is towards the Ka'bah which is located in Mecca. As is evident, this orientation entails both a psychic and spiritual aspect in the desire and proclivity towards God and a somatic concern by abiding by the climatic standards. This is the epitome of a life style which synthesizes the psychic/spiritual and the somatic and is fervently recommended in Islam (Behzad and Pashutanizadeh, 2011) (Fig. 3 and 4).

Disregarding depressions and protrusions which provide the houses with structural variety, all the three houses are rectangular in shape with development alongside the longer axis of the rectangle and the coordinates of the diagonals in the three houses are as follows: in Tabataba'i House: $4/5$; in Saleh House, $5/8$ and in Borujerdiha House $4/4.5$. Borujerdiha house, hence is

closer to the ideal coordinate of 2/3 but if the open spaces of the houses dispersed round the courtyard are taken into account, all the coordinates approach the 2/3 standard.

The rectangular shape of these houses endows the residents with a sense of stability and harmony and as Christian Norberg-Schulz states, "if we think of the verb to dwell in a wide and essential sense, then it denotes the way in which humans fulfill their wandering from birth to death on earth under the sky" (1993). So, the ultimate function of a dwelling is to settle laboring human beings into stability and comfort. Accordingly, it is the reward for man's endeavors in the day. The rectangular shape forbids single curves and junctions to evolve which figuratively emphasizes the priority of the familial and communal over the individual and the solitary. By placing mother and father in the center of this community, mental comfort of the family members is also maintained. The courtyard is placed at the center of organizing system of the building in a way that "almost all the enclosed spaces are in contact with the courtyard through roofed corridors. On each side of the yard, horizontal and vertical spaces evolve into a multifarious network of spaces with different altitudes suitable for a variety of personal or communal activities" (Mohammadreza, 2010). This intricate spatial network widens in three dimensions, setting the courtyard in the center of the universe. This structure moves from earth to heaven in an upward movement in such a way as to allow "open spaces to initiate from the yard and take shaped on different altitudes towards the sky. A bit more elevated than the courtyard is a platform which is used in spring and Summer nights. There is also a vestibule which is an open space corridor that leads to the upper spaces of the house. And just below the roof, there is a terrace and finally there is the roof" (Mohammadreza, 2010). The courtyard, hence, centralizes the whole structure and the water in the yard reflects the sky, purifying life on earth. Open, semi closed and entirely closed spaces in traditional Iranian houses effect silence, rest, praying, imagination and contemplation, directing man towards a pilgrimage of the inner world and of the divine (Darab and Amiraldalan, 2000).

As Norberg-Schulz makes clear, the existential spaces are the main organizing center. Human life has always depended on a center on which his significant actions take place. And the center is where all horizontal movements intersect and is the universal central axis where the earth and the sky unite in 1993. In this sense, a courtyard is a symbolic Ka'bah, located in the center of the world created by man to remind him of the world created by God.

RESULTS AND DISCUSSION

Minor and practical elements: Pirnia has rightly reiterated the fact that avoiding prodigality has always been a characteristic feature of Iranian architecture. He mentions that in building a structure, Iranians "endeavored not to be impracticable and eschewed extravagance" in 2012. This is also an Islamic precept (Al-Muminun 3-10). As a result no element of the courtyard is extra and all the features like the garden, the pool, the flooring and the portico have simultaneously a somatic as well as a spiritual function.

The courtyard in Tabataba'i house has got a number of abscissa axis that join the Summer and Winter rooms to each other. The central axis in the shape of a rectangular pool joins another pool on the width of the yard across the Summer rooms. Along the pool on the abscissa axis of the yard there are six pentagonal gardens bridging the Summer rooms to the Winter rooms. The abscissa pool and the six gardens are located on a unanimous frame of flooring. In Borujerdiha house the abscissa pool supported with four gardens unites the two sides of the house. In the Saleh house the same organizing rule exists as it does in Borujerdiha house but the gardens are pentagonal (Fig. 5 and 6).

Since, water in Iranian houses is always drinkable, it is a symbol of "Truth 'subjectivised' that is Gnosis" (Lings, 1968). Yet, also much before Islam water was holy and 'Nahid' was regarded as the water angel (Mohammadjafar, 2007). The Zoroastrians purified and consecrated their holy lands which were often in the shape of a rectangle, by demarcating the four corners of it with a special incantation and spreading of water (Hadi, 2002). The Quran also puts emphasis on the significance of water; water initiates life and the Throne of God is on water (Hud 7). The water that pours from the skies is also a source of bounty and of profit to man (Ar-Ra'd 17). Water also purifies people when they seek the presence of God the Almighty. Ablution is a necessity for Muslims who want to enter a holy place. Lings interprets ablution as desiring to become one with the wave of God's mercy and to be washed back to the shore of his heavenly abode (1968). In this way, the water in the pool in courtyards reduces heat and enhances humidity but above that it symbolizes the desire for purification of the soul. This water also symbolizes the current of heavenly water that sets in motion life on earth and purifies people externally and becomes "a fitting symbol for the purification of hearts" (Schimmel, 1994); hence, the life-giving water of Muslim culture. Water in the courtyards joins the earth and the sky and reflects the sky and the architectural environment. As a result, looking into the water, one can

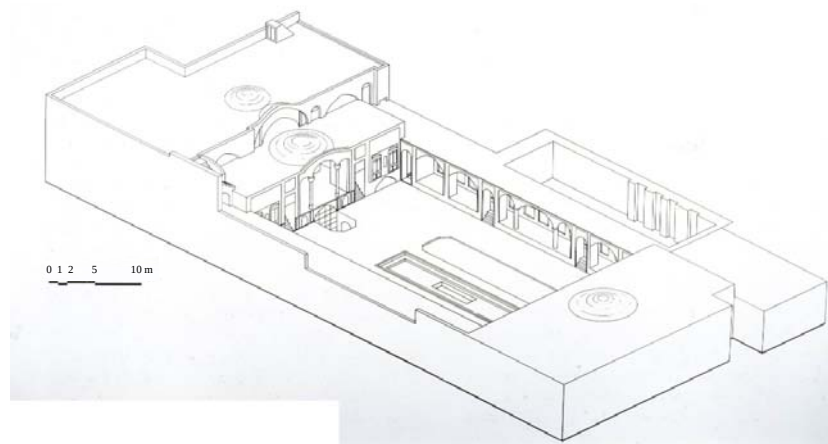


Fig. 5: Perspective of Saleh house-source Iran cultural heritage and tourism organization

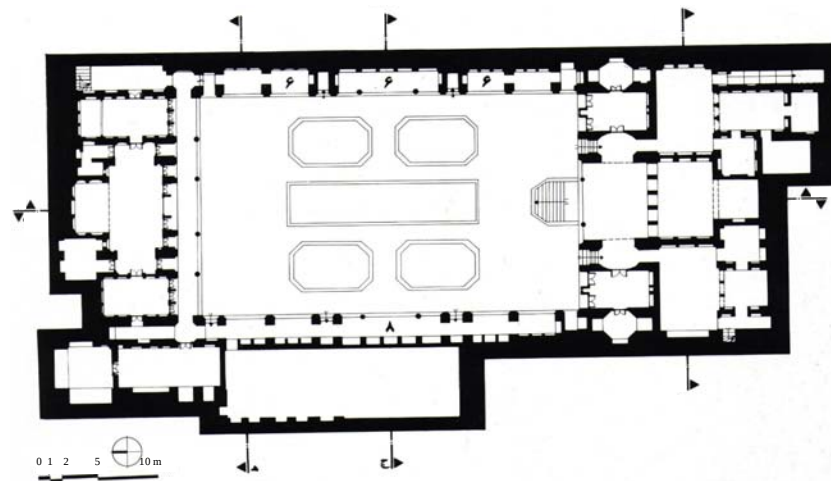


Fig. 6: Plan of Saleh house-source Iran cultural heritage and tourism organization

see not just the scene standing before you but the whole circumference and the sky. And since the water pool in the yard is enclosed with buildings from all sides, looking into the water from each angle provides a reflection of the buildings alongside the sky and so a combination of the natural and the artificial is provided. And this green water in the pool pimpled with gold fish is a decorative fixity in traditional Iranian courtyards.

The geometrical shape of the pool is significant, too. It is a rectangular extended on the South/North axis towards Ka'bah, symbolizing the move towards the straight path and in the direction of human perfection. The location of the pool in the center of the yard pinpoints the centrality of water to life and by reflecting the blue of the sky, it mirrors the existence (Hadi, 2002).

Given that water both purifies and endows with life (it is a life-giving force) Iranians have always been seeking a source of water flow. A pool is fed with the flowing waters of brooks and rivulets, providing these people with what they desired. The water in these pools was not potable and the residents of the houses only used the water reservoir in the pools "for watering the garden and laying the dust on the paths and terraces" (Wilber, 1962). Watering the plants and the yard in the afternoons which was observed like a rite every day in the past, reduced heat and moistened the atmosphere (Sanar, 1996).

The gardens with their trees have a significant role in providing shades and enhancing moisture in the air. They also foster temperature balance by absorbing sun heat. God refers to towns as Tayib (good land) when they are

decorated with gardens and trees (Saba 15) and refers to a garden adjoining a place of residence, a true profit. And indeed gardens are the symbol of God's paradise (Maryam 61-63; Ar-Ra'd 23; At-Tauba 72). For the reason that gardens and water were paradisiacal, all traditional Iranian houses, however meager they were, enjoyed a pool of water and some trees (Moghadas, 1984). Ardalan and Bakhtiari in their interpretation conclude that the water in the houses synthesizes the horizontal causes of human creation with its vertical causes leading to the perfection by Ardalan and Bakhtiar (1973). A Muslim's house with the garden and the water pool in the center as paradise in miniature (Vincent *et al.*, 2006).

Spatial ideas and decorations: It includes the facades and empty spaces on all four sides and the relationship of the spaces to the yard and to each other so collected and organized that they read as a meaningful whole, contributing to the concept of sustainable dwelling. Spatial ideas encompass all the minor and major goals and organizations such as the spatial orientation of elements, the shape of spaces and all the details added to these spaces.

Spatial organization: The Summer yard in Borujerdiha house is located on the Southern part of the house and it intersects with Summer chamber and the eardrums without any stable or portable walls making possible the connection. The space is so open and extended that one can detect the depth of the Summer chamber from the yard. On the two side of the chamber there are doors that directly face the yard. Winter chamber is located on the Northern side of the yard, joining it through a veranda. However, the Winter chamber's Bazsho are directly attached to the yard so that the slight wintery sunshine would penetrate the depth of the Winter chamber easily. There are some semi-open spaces on the west side of the yard with direct access to the open space. These semi-open spaces have no real function and just form small yards in a chain. On the east side of the courtyard there are some spaces and rooms as service area which have a wide view of the yard and indirect access to it through some Bazsho. In Saleh house there are similarities to Borujerdiha house. The Summer rooms are in the South and Winter rooms in the North of the yard and a similarly wide Southern facade and the same connection among inner spaces and rooms with the yard do exist in Saleh house as well. However, in Saleh house there are semi-open spaces resembling yards on the east and west side of the courtyard having direct access to it. In Tabataba'i house the same structure appears with the Summer rooms in the North and Winter rooms in the east

and similar relations between inner and outer spaces very much like Borujerdiha house. There are some differences as well. The small open spaces in the east side of the house are bigger and serve a function. The Summer room also is not as wide as the same room in Saleh house or Borujerdiha house and some Bazsho intermit their access to the courtyard. Yet, on the second floor open spaces on the sides are quite wide and have a far-reaching view of mall back yards.

Facade on all four sides: In Borujerdiha house the Southern facade is the most elaborate. The air traps in Summer rooms and the Khishkhanha on the entrance vault are an answer to the necessity of air stream in these houses. The paintings on the walls are often arabesque and abstract. However, images of Samovar, birds and lions is detectable. North facade includes panjdari (the largest room in the house with five windows connecting it to another open space) and blind arcade and other decorative elements, encompassing a range of abstract and concrete imagery concomitantly. North facade is also well decorated not as elaborate as the Southern facade and the air trap in the Summer room is its significant element, since the air trap leads to a space just on the back of the audience. The Eastern facade is much simpler and on a lower scale and it contains the frameworks for Bazsho HA and the entrances to the eastern inner rooms. Images on this wall are visible but with less a colorful hue than the other two walls. The Western facade in only a collection of blind arcades which is more or less a reflection of the eastern facade. Saleh house has much simpler decorations than Borujerdiha house. The decorations in Saleh house is limited to the column heads and trelliswork on Bazsho HA or colorful glasses. In Saleh house, however, all the decorations are abstract. In Tabataba'i house, the Northern and Eastern facades are more elaborate and unlike Borujerdiha house the decorations are entirely abstract.

Ascendance and height: The Southern facade is always higher than the rest and the Northern wall is the second high facade of the house. This means Summer rooms are located on a higher scale and the Winter rooms are on a lower scale than the Summer rooms. Eastern and western facades are of the same height and the lowest in scale. All the three houses under study follow the same organizational principle.

Because the spaces around the house have a tinge of individual whim about it, the organizational principle of the house do not become a fixity, yet there is always an order governing the structure. And although each space

may serve diverse functions, yet its relation with other spaces of the house and with the structure in its totality is completely known and well-defined. Organizing space has always been a major function of the courtyard. And therefore regarding the impact of sunshine on each side of the house, spaces have been aptly allocated to Summer or Winter rooms (Gholamhossein, 1996). As a result each space of the house has a clear function in the whole structure and has access to the yard. All the paths, the stairs, the rooms and the cellars have access to the yard. In this way, the courtyard serves as a delightful view for all the inner spaces of the house. This organizational principle, however is not solely affected by the climatic factors. Psycho/spiritual yearnings of the inhabitants also play a role in this arrangement method. The desert dwellers who all have an experience of dust devils, know that their houses should be locked to the outside, except for the entrance (Gholamhossein, 1996).

The facades on all four sides of these houses are almost simple with abstract paintings of nature and plants. The materials used for the facades are the same as the material used in the construction of the buildings which is adobe and clay.

Obviously for the reason that adobe and clay show the highest resistance to scorching Summer heat of Kashan. They are also the best choice for the dry chill of Winters in the city where people have to warm their houses quickly and efficiently. Moreover, adobe can be handled effortlessly. From a technical point of view, adobe turns into a sturdy coherent mass when it dries up. Brick is not a proper insulation in the hot weather of Kashan. Especially when it is mixed with chuck and dust: High temperature and direct sunshine deforms brick and chuck (Gholamhossein, 1996).

The simplicity of decorations along with local availability of the materials used in the construction of the buildings satisfies the dweller's physical and spiritual needs. Abstract paintings on the walls represents the desire to rise above the physical and the material and to cling to the immaterial and the divine, a notion that is linked to the idea of detaching oneself from the earth and moving towards the divine on the move to human perfection. "Images, drawings and colors in a building imply hidden meanings which the observer discovers by getting exposed to them and through intuition. So, the images are words, carrying meaning. And the architect is a poet who harmonizes his words and creates exquisite meanings. In other words geometrical quantities carry a semantic load (Vahid, 2000). Moreover, the light Southern facade which draws the observer to a world of purity and of heavenly perfection is juxtaposed to a heavy Northern facade and the descending facades of East and West, hence guiding the onlookers upwards towards the throne

of God. All this architectural niceties is to bring the divine down to earth and make it palpable for the residents. So by taking care of materials available to us, people show respect to things. This respect follows a heartily attachment to the things as well and only then people truly dwell in a house (Norberg-Schulz, 2010). And as Norberg-Schulz makes clear, by stating "in the house man becomes familiar with the world in its immediacy; there he does not have to choose a path and find a goal, in the house and next to the house the world is simply given" (ibid, 89), traditional Iranian architecture makes a universe of the house, making meaning present by eradicating the need for finding a goal and a direction towards it. All paths lead to the center, the courtyard and that center is the whole cosmos itself. Accordingly, paths do not diverge and directions are unanimous in the house, all towards fulfillment.

Islam has teachings regarding the height of the buildings as well. People are advised not to elevate their houses so much that the neighbors are deprived of breezes (Abulghasim, 1983). Allameh Majlesi also mentions that in Islamic tradition elevated houses are regarded as the dwelling place of the jins and the Satan (Allameh, 1995). This religious guidance has checked the height of buildings so that they do not exceed a human scale. The most elevated facade of the house is the Southern part which metaphorically represents the Ka'bah and is a reminiscent of a mosque as well.

CONCLUSION

Sustainable dwelling entails the concomitant fulfillment of somatic and spiritual needs of humans. Physical needs of humans depend on climatic and material conditions and are more or less the same for all humans. The spiritual aspect differs according to the individuals concerned and their cultural context. Hence, a Muslim's physical comfort is furnished when his historical experiences and his religious teachings are concerned concomitantly. Accordingly Islam considers the following as leading to human comfort: safety; peace; stability and silence for contemplation; private and communal life with the family; cohabitation with nature and water; utilizing local facilities; observing other people's rights. These qualities can be detected in all the minor features of a house like the centrality of a pool of water in the courtyard surrounded with little gardens, orientation of the house in the direction of Ka'bah, abstract decorations, low height of the buildings, location of different rooms according to the climatic factors and direct access of all the inner spaces of the house to the greatest open space which is the courtyard all to guarantee human salvation and perfection.

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