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SHOUSHTAR NEW TOWN: A SAMPLE OF SUSTAINABILITY IN IRANIAN CONTEMPORARY ARCHITECTURE

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Abstract

Sustainable architecture could be defined as the creation of buildings for which only renewable resources are consumed throughout the process of design, construction and operation .there are different aspects which could be considerable in sustainability such as environmental and social factors. It could be said that the first traceable concepts of sustainability in Iranian contemporary architecture are visible in some buildings in 1960's, whereas a couple of young architects would try to find solutions for climatic and social issues and moving toward a sustainable architecture. (Iran is one of the unique countries which have the widest variety of climates and ethnic groups, hence architectural solutions differ from one region to another in this country).In this paper, the architecture of Shoushtar new town, which is an example of avant-garde contemporary architecture in Iran, is studied according to its caring about climatic and social factors and the

amount of success it has had in creating sustainable architecture .the research is qualitative which examines in-depth analysis on the case study (Shoushtar new town) to better understand different aspects of the architecture .

Keywords

Sustainable Architecture, Shoushtar New Town, Social Sustainability

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1. Introduction

The city of Shoushtar is located in southwest of Iran in Khuzestan province, whereas a couple of thousand- years- old civilization there exist. In this province, different ethnic groups from around Iran have mixed together in urban areas. The oldest main residential colonies in Khuzestan are in flats especially alongside the rivers (not mountains). Among these places, Shoushtar has had content for dwelling a larger number of populations (Jalilian, 2013).

There is a hot and almost dry to semi humid climate in this region. The temperature in some months (often from 15th May to 15th September) exceeds over 40°c which is not easily tolerable. Hence architects are forced to design their buildings according to climatic factors (Kasmai, 2006).

Table 1: *The annual average temperature and moisture in Shoushtar*

The average moisture(٪)			The average temperature(˚C)			Months
Daily Average	12½ PM	6½ AM	Daily average	Maximum average	Minimum Average	
67.5	53	82.5	11.6	5.7	17.5	January
66	49.5	82.5	13.4	7.4	19.5	February
55	37	73	17.5	10.6	24.3	March
47	31.5	62.5	22.2	15.2	29.3	April
28.5	17	40	39.3	21.2	40.4	May
16.5	9	24	34.2	24.9	43.5	June
18.5	10.5	26.5	36.2	26.8	45.5	July
20.5	14	27	35.7	26.5	44.9	August

19.5	**12**	**27**	**31.6**	**21.8**	**41.4**	**September**
30	**20**	**40**	**25.9**	**16.7**	**35.1**	**October**
54	**39**	**69**	**18.8**	**11.3**	**26.3**	**November**
61.7	**43.5**	**80**	**13**	**6.8**	**19.2**	**December**

The system of housing and especially vernacular architecture in this city, has always been well-known because of the maximum effort of architects for making houses in harmony with surrounding environment .It is considerable that previous studies are generally descriptive and don't focus on issues related to sustainability , but in this paper different methods for making a sustainable architecture are studied and analysied due to their efficiency .The research is basically a qualitative research which has been concentrated on analysing a case study: Shoushtar new town . This project is the winner of the Agakhan Award for Architecture and exhibited extensively in the western architectural communities. The result of this research would lead to finding some answers about the question of sustainability in the architecture of the region.

2. Results and Discussion

2.1 A Developing Vernacular Architecture

A developing vernacular architecture is one that uses the characteristics of vernacular architecture to achieve better spaces and broader development objectives for current constructions. It uses and develops local cultural and material resources .it is small-scale, technologically and organizationally simple, and inexpensive. its planning and construction can be controlled by local communities and implemented by these and by local builders. It expresses the values and needs of the local, especially poorer communities and demonstrates continuity with change: remaining rooted in the past and the local, while incorporating the new and the external to meet contemporary needs (Jalilian, 2013) .The items issued,could be seen less and more in Shoushtar new town which is one of the most significant samples of contemporary architecture in Iran. It has been designed by Iranian well-known postmodern architect "Kamran Diba".

What really makes this complex unique is its attitude towards nature which is the soul of Shoushtar vernacular architecture. Brick walls, grilled facades and parapets, narrow pathways,

special kinds of colonnades and … are some of considerable elements of Shoushtar vernacular architecture.

Spaces like pathways and courtyards have a vital importance in "Shoushtar new town ". It is clear that central courtyards are used in traditional architecture of Shoushtar widely. The general form of the buildings in Shoushtar new town is based on a central courtyard too. A courtyard is an outdoor space that has buildings, rooms or building elements around enough of its perimeter to give the space clear definition, the courtyard building consists of its outdoor space together with the built elements that surround it. Courtyard buildings often have an inward focus rather than a primary orientation to the external street or public space (Thomas, 2006) .The type of courtyard used in Shoushtar is significantly different from familiar samples located in oasis cities (like Yazd & Isfahan) (Rahimieh&Roboobi,1989) . Courtyards in Shoushtar new town are much smaller in width and length and too narrow. Besides the height of surrounding walls in the 2-story buildings show them even tighter. (The architect deliberately designs this sort of building, to create comfortable shaded space at courtyards especially in summers). This provides a noticeable increase in the amount of shadows on different facades and especially inside the court on the other hand one of the considerable aspects in designing Shoushtar new town houses is that there is a trial to reduce the surface of outer walls which are exposed to open-air. This could be achieved by using a compact spatial composition with two-story buildings which always shade on narrow streets (Jalilian, 2013).

As Dibasaid: "...the whole concept is an appropriate response to the hot-humid climate of low-lying Shoushtar, which has little water to divert from agriculture. Generally narrow pedestrian streets offer continuous shade. Greenery is limited to a few highly visible and manageable public areas along the spine and to private courtyards in virtually all units...these courtyards could be used as an open-to-sky room. Also roof terraces were moderately screene to provide privacy, as it is customary to sleep on the roofs, where one can enjoy the cool breeze of the night“(Salamati, 2001).

Figure 1: *A view to "suoushtar new town"*

2.2 The Type of Material

"Brick" is regarded as the most common material in Shoushtar new town. It is used not only in the structure of buildings (as portal walls) but also in facades and details (Rahimieh & Roboobi, 1989).

Burnt-clay bricks are perhaps the earliest example of manufactured building material .by molding clay into standard-sized bricks and firing them at around 1150˚c sintering and partial verification take place, permanently changing the properties of the clay. The load bearing and weather resisting characteristics of good quality bricks enable local builders to produce long-life structures at less cost than was possible using materials like stone (Oliver, 2004).

Cave and cliff dwellings provide natural shelter from temperature extremes. Massive buildings are often designed in imitation, with blank walls, shuttered openings, courtyards and narrow streets to baffle dusty winds. Heavy construction materials using earth, brick or other masonry can mediate and delay the substantial thermal flux. Walls need to be a minimum of 25cm thick to provide an 8 hour thermal lag, but 50cm walls and thicker are more common. So, it could be said that materials in Shoushtar new town are in complete harmony with the

environment and respond in the best way to climatic factors.

2.3 Social Sustainability

A definition of social sustainability in architecture is essential to the broader conversation about sustainability in the architecture of Shoushtar new town .many experts believe that without understanding and prioritizing social sustainability, buildings, no matter how environmentally sustainable, are not truly sustainable. So, social sustainable architecture could be defined as: "Architecture enhances social sustainability by providing built opportunities for balance and connectivity.

Socially sustainable architecture fosters 1) balance between the individual and the collective and between the present and the future; and 2) connections between individuals within the building and between occupants and the surrounding community "(Edmonds, 2009).

Shoushtar new town could be regarded as a social sustainable architecture .it provides safety and equity, as two important factors. There is a great interaction between people and built environment in this town. Besides there are a lot of multifunctional and flexible spaces in Shoushtar new town. It is a town for workers and employees of the Karoun agro-industry located across the river from the historic town of Shushtar. The major design feature is a multi-faceted central east-west pedestrian boulevard. This consists of many gardens, paved squares, covered and shaded resting places, arcades, bazaars, fountains, and occasional use of Persian mosaic tile work, so a worker has a lot of choices after work and there are a lot of activies for a live town. The neighborhoods are designed to encourage movement in the direction of this pedestrian boulevard. Major public activities, such as schools, bazaars, and a variety of community affairs occur along this spine enhancing its prominence.

The streets were designed not primarily for a corridor like function, but to generate and maintain a life of their own. The automobile is segregated from internal community life and all parking areas are concentrated collectively at strategic points. Totally it could be said that there is a great interaction between the people and the environment in Shoushtar new town, hence it could be regarded as one of the best samples of social sustainability in Iranian contemporary architecture.

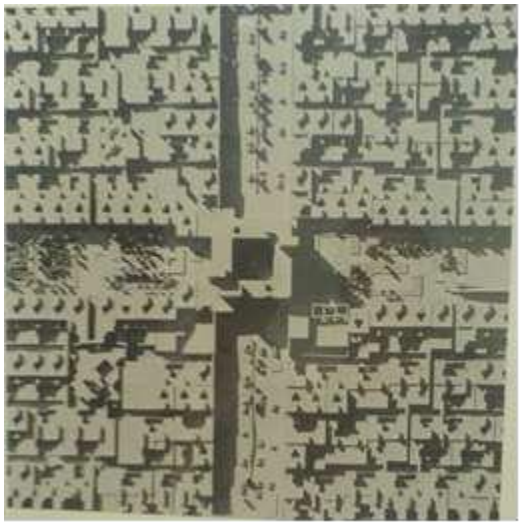

Figure 2: *Top view of "Suoushtar new town"*

3. Conclusion

Shoushtar new town is a sample of both environmental and social sustainability in Iranian contemporary architecture. The architecture has been shaped with a sort of harmony between nature, people and built environment. In this town, besides cultural and social elements which would be involved in design, the architects have always done their best to confront with difficult climatic factors (especially high temperature). This has been embedded in their architectural solutions such as type of plan, designing specific details and spaces, caring about building materials and some other factors.

On the other hand the design of Shoushtar new town apparently include the social factor, meaning it aims to create an environment which is "warm", "alive" and "friendly" considering public needs, creating spaces which provide safety and equity as two important factors of satisfication are some solutions for creating a social sustainable architecture. The high rate of life satisfication in the area proves this. Shoushtar new town as a sustainable model could be an appropriate sample for future constructions in the region.

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REFERENCES

Ahari, Z., & Amini Jaded,S. (1994). The building pattern for houses in Khuzestan houses.The Research Centre of Building Publication. Tehran.

Edmonds .S. (2009). Social sustainability in architecture. University of New South Wales. Sydney.

Fleming, J. (1998). The Penguin dictionary of architecture and landscape architecture, Bath press. Bath.

Jalilian.M, (2013). The specific look to environmental design in vernacular residential architecture of Shoushtar. Indian journal of scientific research.No4(2). PP 195-198.

Kasmai, M.(2006).Climate and architecture .Khak Publ. Co., Tehran.

Khaleghi, A.(2007). Iranian house, Niloofar publ. Co., Tehran.

Oliver, P.(2004). Encyclopedia of vernacular architecture of the world, volume 1: theories and principles.University press, Cambridge.

Rahimieh, F., &Roboobi,M.(1989). A view to Iranian vernacular housing.Elmi-farhangi publ., Tehran.

Saedi,J.(2009). Dic. of Architecture & Urbanism, Ministry of Housing & Urban Design publ. Co., Tehran.

Salamati, A. (2001).Urban housing design in Iran in response to socio-cultural and environmental conditions.Iran ministry of housing & urban design publ. co. Tehran.

Thomas, R. (2006). Sustainable urban design, an environmental approach, span press. New York.