

Exploring the settlement system and the form of architecture and civil engineering in old contexture and its effect on sustainable urbanization (A case study of Dezful City)

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Abstract: In modern architecture, to reach full achievement in urbanization and build an ideal city for citizens needs considering the fundamentals of sustainable development. The theory of sustainable development and consequently sustainable architecture is one of the most controversial discussions in modern architecture. Each construction should make a link to the environment that is located in. The challenge here is the kind of the link. In this analytical study, that is a case study of Dezful city and uses library research, we tried to discuss the issue based on the literature. To build a sustainable environment and sustainable development suited for men habitation, so many problems are involved among which energy consumption in building complexes for heating and cooling, goods maintenance etc, needs more revision regarding designing, executing and programming the places and the forms of the architecture. Subterranean and croft pit are good cases in old cities, which were used for cooling, heating and maintaining food in Iranian cities. In this study, the researcher introduces values and qualities of the framework used in Dezful old architecture that are applicable for sustainable design. Dezful's old architecture managed to be compatible with the harsh weather using certain strategies that knowing them helps us to reach suitable patterns for sustainable development in new architecture sites.

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1 - Introduction

Sustainable architecture is a subset of sustainable design and sustainable development that can take into account one of the most important contemporary and Logical actions are against the problems of the industrial age.

This article will cover a few issues:

- A) There are several issues facing the sustainable development of urban
- B) high energy consumption, especially in city centers for the collection of private construction and maintenance of heating and cooling products and ...

Another issue to be examined is the ability to reduce the energy consumption characteristics of underground spaces And the balance of them and improve their environmental And benefit from lower levels of functionality to meet the needs and respond to the demands of the city and its centers And This paper is focused on the use and benefits of existing homes in the city of Dezful Shuadan.

2- Materials and Methods

Descriptive and analytical is methods in this article. This is the descriptive research method. Tools for data collection are library research, field research, and it is the overall pattern of Internet-based research process of extracting the contents of the texts and experiences. After study predicted, will be analyzed and the results have been trying to use the processing

and analysis of data and findings in the field of Library Studies, Principles and strategies to achieve results in terms of climate - physical, sustainable design.

3 - Sustainable Development

"Sustainability" is the balance between development and environment. Sustainable development is a concept that will require changes in infrastructure. Social justice, economic, cultural heritage preservation, environmental protection, community health, fulfillment of needs, the next generation, all of the concepts that will form the basis for sustainable development. Meaning to concepts such as human development, use of resources, the environment and cultural framework of a society's technological advances. It must be equipped on the identification and development of the Cultural Foundation (Mahmoud Ahmadinejad, 1375, 25).

Stability can be four aspects: sustainability of natural resources, political stability, social stability and economic sustainability are considered in this paper, the stability of the natural resources.

In fact, sustainable development does not focus solely on environmental aspects, but also pay attention to the social and economic aspects. Confluence of social and economic sustainable development and the environment. However, these days many politicians and environmental activists seeking to achieve sustainable development, But

some environmental activists do not have the option to save the environment And they believe the trend is not a good use of resources in all subjects, and the term "sustainable development" And can be used as an alternative to the term " sustainable development" to be associated with this concept in mind, that is to generate new resources.

In response to the question "What is a sustainable city" can be applied to the definition of a sustainable city that allows all its citizens to meet their needs and increase their welfare. Be damaged or compromised without the nature of current or future lives.

Fundamental goals of urban development activities in each community, including the quantity and quality of human life. So achieve sustainable urban development with the following objectives and principles shall be considered:

1) Relationship with nature 2) security 3) security 4) awareness 5) the unity and Holistic.

One of the problems we've faced in recent decades the city has been infested cities to nature and the environment. Relationship is reciprocal and mutual relationship between the city and the nature; the cities have a huge impact on the natural environment and are influenced by it. Provide fertile ground where the soil and water resources, flora and fauna. It is expected that by 2030 more than half the world's population will live in cities. This unprecedented concentration may cause environmental damage, pollution of air, water and soil erosion and sewage waste in the city.

4 - Security role in sustainable development

Security is a word meaning freedom from danger, threat, vulnerability, anxiety, fear, worry, or tranquility, comfort and confidence. Two way securities are. Trust is in no danger and no longer

requires the safety and guaranteed benefits and value of the business opportunity. Sustainable urban development is broad and refers to many aspects.

Inevitable interdependence between security and development. Safety grounds and bed Economic, social and environmental impact is of these elements. The traditional approach focuses on security, crime and delinquency in urban city unilaterally or effects.

5 - Sustainable Architecture "Architecture is identical to the environment"

Term sustainability, is used to describe the motion depends on understanding the architectural design environment, which may cause confusion and clutter in an architectural design, or conversely, to organize space and vitality to give back to it. The general interpretation of sustainability, architectural design represents an approach that minimizes the use of natural resources in longer taking them. Is consistent focus on maintaining resources to maintain the environment, we need to show the sustainability of natural resources without wasting the resources our and use of resources as they need it.

5-1 - The following features built deep in the earth and space

Temperatures in the lower crust of the earth is about 800 ° C and decreases with increasing per every hundred meters, three degrees temperature of approximately And the surface temperature of the earth's crust is very cool and pretty. Shell can connect to it with your body temperature too hot or cold objects than this value is achieved without changing the temperature of the earth's crust. Part of the earth's crust that we're building on that, it can affect the upper surface to the air temperature. So let's make it hot or cold, its influence will be more or less depending on depth.

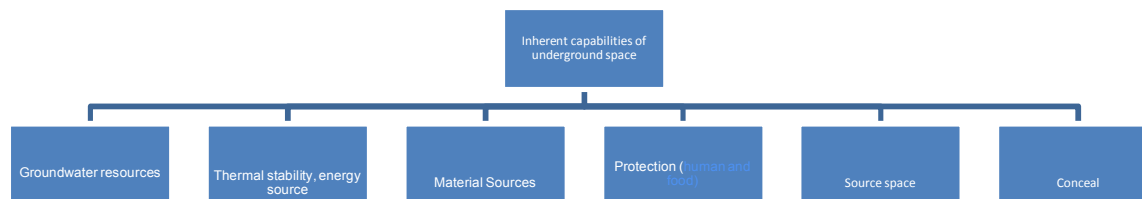


Figure (1): the inherent capabilities of underground space

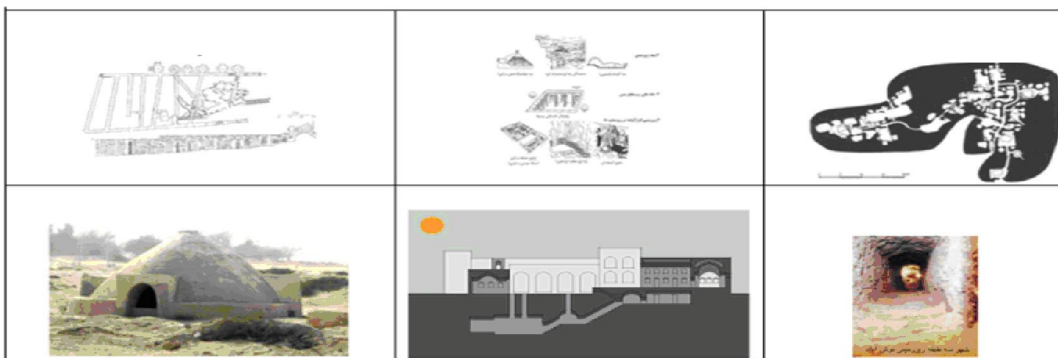


Figure (2): the underground spaces (global and Iranian)

5-2 - Physical form, texture

Iranians have a special link with the ancient water and soil and This series of obscene nature and value of the Iranian ritual pollution and waste to these two factors (Kiani, 1376) Branch of the humid climate is caused to compress old and Be considered and building cities and climate considerations, New research has shown that there are significant relationships between the concepts of sustainable urban "density and compactness." Because It is used to provide climate comfort and energy savings in buildings and urban fabric with reduced levels of solar radiation through the compression of (Golkar, 86,1380)There are factors in the formation of cool old Dezful Dez River and And the necessity of its use within the context of the need to empty houses as far away as possible to the wind flow around the building, Introspection and having a common housing in neighborhoods with the highest use of air flow, Urban segregation has separated into blocks, each of a few units. Blocks surrounded by streets are narrow and the walls rises above the limits usually have two or three floors to the maximum air inlet. On the other hand, this kind of form, texture, provides great shade for the buildings on the street is good too.

5-3 - Urban Landscape

Organic tissue that makes up the old Branch was formed in rivers and there is a different orientation, which makes this feature in its net figures, out of uniform size and there is a variety of light and shade structures on the body. There is usually one or two-storey buildings and high-rise buildings can not be seen in this context.

These areas include vegetated with trees, palms and mesquite are more compatible with the hot and humid climate and a tree to show off in public spaces within the tissue or adjacent residential buildings usually. Masonry buildings are made of brick and mud often. Soil solid color on the bottom layer and blue sky with green trees. The colors are pure and good sense prevailed in this city, and that creates a different texture than the modern viewer and urban

environments can be considered as a set of interconnected places and various ways to navigate through a network of peers (Shirazi, 112, 1374).

5-4 - Climate

Dezful is a city located in the area of climate characteristics, different from many cities in Iran, But like most old cities heavily influenced by the climate issues And has maintained perfect harmony with the region's climate. Climatic factors such as the intensity and direction of the sun, heat, weather and favorable wind direction and Natural and topographical factors have an important role in the formation and stability of complex old Dezful, Due to the high temperatures in some parts of the region, replacing the old river has no impact on the river's role as a moderating temperatures.

In other words, the river winds through the city and go to work like an urban system. Notes from context and places it in the direction of the wind direction as well have tried to be consistent in all dimensions of climate system Architecture.

Since it was not possible cope with the intense heat of the Earth has responded to this problem in the system tray Shuadan home atmosphere. Create Shuadan which are important elements of Dezful in depth 10 to 15 meters above the ground provides a natural environment, people need to chill and suitable for living and rest during the hottest hours of the day as well. Shuadan is a good example of sustainable development and sustainable architecture is discussed briefly to introduce the element of architecture in Dezful.

6- Shuadan

The root of the word "Shuadan" there are different opinions. "Shuadan word is" the root "Shutapuata." The word which came to the oldest texts related to underground spaces Pahlavi language is meant to be a partner in the trench coat. Some commentators have taken it as well as the composition "Night + Fallen", but can be relied on for most of the first root (Bina, 56, 1387). Professor Pirnia believed that "in the local dialect desert region

of Yazd, is the colloquial word "night" means below or beneath. So the night or be combined with Extension site can be don justify Shuadan basement space. "The article Shuadan - yard writers (Mr. Mustafa Robubi and Farangis Rahimieh) have pointed to another point: "In search of the same name by word Shuadan eat on the word Shooshtari" Shuneh "who say the language Shushtar water cooled the north wind blowing ... And perhaps due to the coolness that is said to be synonymous Shuadan "(Robubi, 200,1376). Dezful city's geographical position and its position in the Zagros Mountains and the plains of Khuzestan and exposure Dez ,It is caused due to the specific features of the climate (hot and humid) placed under the climatic conditions of the desert and the Persian Gulf If the properties of water and air, heat is the most effective factor in shaping the architecture.

6-1 - spatial systems and structural components of Shuadan

Input Shuadan have an entry in the relatively broad width of 2/1 to 8/1 meter in many cases, in one part of the yard and placed the sample in a patio adjacent to the yard, and is without and have been using for the turret around.

Steps: connecting the elements of the building Shuadan the beginning, the beginning and the end are Shuadan floor. Due to the number of stairs and has a large land position in the heart Shuadan number is 40 and the slope of the stairs modern stairs.

Apron: The main element Shuadan space with a square plan. Although it has been implemented in such a polygon. Main place of work and life in that Courtyard Shuadan spatial layout of the main components of Unity and are connected to other spaces in the ancillary and Shuadan was the big difference with other parts of the surface distinguish it from other spaces.

Kat: Kat refers to rooms that are connected to the main courtyard Shuadan. The jackets, are more private spaces are separated Shuadan sometimes with a different level from other levels. Per Shuadan vary depending on the location and extent of the coat. Shuadan bound to find a way of Dez River to River wall. The coat has gone into this space cozy and Dez River also.

Tal: Tals are channels or tunnels or narrow networks that provide the connection between the adjacent Shuadan And have created an underground network access in the heart of the city and is transmitted through the channel of the river cool Shvadan too.

Valves or Désirée: To establish proper ventilation and lighting is used Shuadan relative interior diameter of about one meter from the vertical channel that connects the house to Shuadan space. This is due to move cool air into the interior of the house Shuadan. In some instances, have been linked to the alley and Désirée Street or yard. The Branch "Sara C." refers to the part of the Shuadan (Safai, 94, 1388).

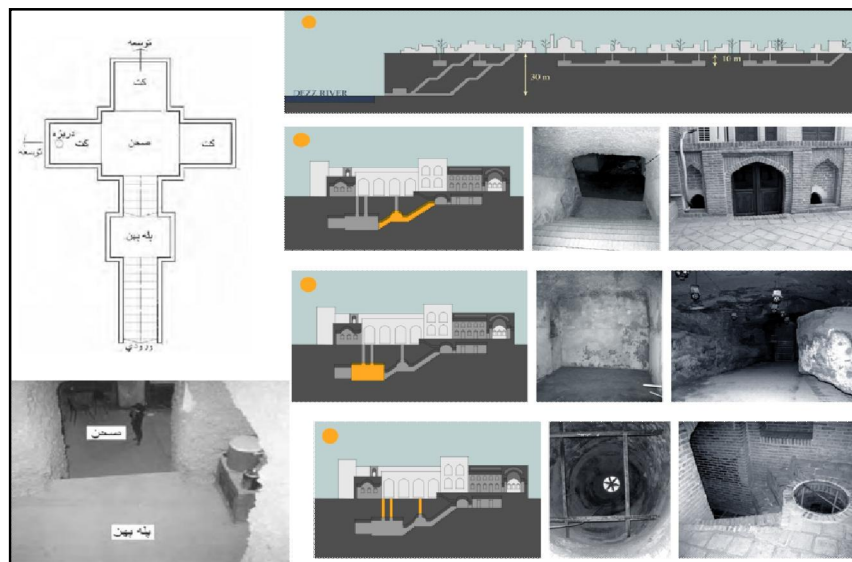


Figure (3): the spatial and structural components of Shuadan

6-2 - Analysis Shuadan climate and how energy uses in the cryogenic field

Climate was warm outside and the thermal comfort is the most effective climatic factors. On this basis, two

approaches have been proposed in order to achieve thermal comfort conditions in the architecture:

1 - To prevent heat gain by reducing the heat absorbed from the sun and reduce the thermal conductivity and reduce the direct influence of hot air and cooling energy to the ground.

2 - Increase the heat dissipation by using proper ventilation and air flow.

7 - Alleys and passageways

Telnet is the old Dezful formed with organic and hierarchical order that the influence of temperature, humidity, wind direction, terrain, social and economic characteristics of the property. The old road is formed so that it has the right and the prevailing winds And have been drawn up to push wind into the streets into rivers and Inspired by the development of Western-style urban form of the later Qajar period in Dezful and Crucified with old and several streets in the Pahlavi era, we are witnessing the rapid development of the expense of the old city (Moqaddasian, 112, 1374).

The old Dezful, there's rarely a cul-de-sac and surrounded by a block of alleys to be worthy of the highest levels in the air. Provide streets wide and winding down the awning, the areas with the necessary conditions for blind air pass in the summer. Streets within the following climatic factors are limited to the upper end of the field in the end. The context is the difference between full and empty spaces and facilitates the flow of air pressure in the air. Constraints are met, hierarchy, and social space in its neighborhood units has contributed to social stability in the city.

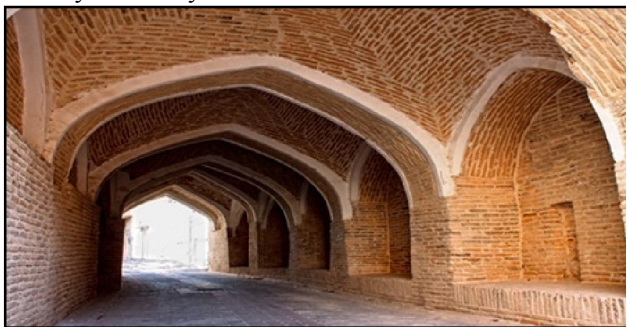


Figure (4): caravan awning - the historical tissue of Dezful

8 - Spatial organization of residential buildings

Branch is located in the traditional context bedroom house and land package located in the front entrance of the house, but it is different than the entrenchment measures to deal with climate space. The case was settled in the summer and winter predominantly used to create spaces to the front of the northern areas (north-west - north-east) in the summer of doors and windows to minimize heat

penetration is reduced as low as possible. Dezful is more suitable climate exposure in the northern part of the courtyard in order to remain safe from the sun, Behind the sun during the hottest hours, applying thick mud and brick walls, a large underground cool, dense tissue, such as the environment for life (Eight Paradise 35,1372).

I used the area to the south side (south-west - south-east) in the winter and Styles Depending on the size and proportions of the space.

It is important to deal with the heat of summer and the north side of the building if the space is opening in the space But if the southern side has come down very little and in some cases, only indirect light(Via a porch etc).

Avon has height to two storeys and sees where they are on the second floor rooms adjacent to it (in the passageway of housing is the traditional).In traditional houses, are divided into two parts, inside and outside the home:

Located inside and outside at the same level of input, Sometimes through an intermediate space (half space - hallway), are related to or are like inside and outside, in two separate, In this case, it is located outside the higher classes. Has taken place between living spaces and service spaces and living spaces are used in different seasons and living spaces and entrance through the courtyard. Yard has been linking and connecting different spaces housing units. Inside and outside of the dominant role of such courtyard.

Vestibule

The architecture of the house, they are usually compared with the porch dome skylight on the roof and the walls they are released by placement of a window. The transition from the streets to the house is a porch that has a similar shape with four arched and the dome is effective in changing the quality of the human spirit lives much of the social life within the home environment.

Use bricks along the alleys and corners (listen blade - Mogharnas) Sharp corners to cut the brick streets are very diverse movement that is special beauty. Rows of brick are also calculated with graceful movements. (Listen blade) is created by sunlight at different times of the day to this beautiful corner brick shades.

9 - Conclusion

- The approach is a very important development in the field of architecture and urbanism, particularly in energy efficiency and reform, planning, design and construction of public and private spaces.

- It is necessary to balance the temperature of the earth's natural ability to protect and maintain the

desired effect and suitability for human life and successful track records in the world.

- Shuadan location intelligent technology applied in the soil and it has been a secret to the survival of this heritage to this day. Hot and semi-humid climates coordinate space Dezful, how to utilize energy, land and air movement in the space, all of the examples is a self sustainable architecture.

- Vernacular architecture Dezful has been difficult to adapt to climate solutions that are very well known to the criteria for sustainable development patterns in the new architecture. The guidelines are: use of non-fossil fuels and clean and renewable energy, organic growth and sound design, site and climate in order to respect and preserve the environment and save energy in the construction and maintenance of ecological materials such as bricks made, Clay soil and etc.

- Due to the energy required to maintain and set conditions properly designed full and empty spaces at the micro and macro scale and orientation of the building. Architecture is discussed as a model for us today. Architecture Dezful Has on the physical and psychological needs of people in local Architectural Branch of particular importance.

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