

# Vernacular Architecture Values

(Humid and Moderate Climate in Iran)

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**ABSTRACT:** Vernacular architecture has always had appropriate answer in conformity with the environment and climate. This paper has considered values of Iran vernacular urbanization and architecture in humid and moderate climate looking through sustainability and sustainable development concepts. Gorgan city has been studied using laboratory studies and available sources and relying on the content analysis and values hidden in the vernacular architecture in humid and moderate region of Golestan Province. Effects of weather on urban structure, landscape and views have been analyzed and considered in this regard in order to provide designers with some strategies for their future designs.

**Keywords:** Humid and Moderate Climate, Sustainable Development, Vernacular Architecture.

## INTRODUCTION

After energy crisis in the 20<sup>th</sup> century by the 50's and modern architecture's failure in meeting people's life needs especially regarding environment, climate, history, customs, and culture, we have been observing movements toward issues disregarded in modern architecture and urban planning. It is about 4 decades that issues regarding "Unsustainable residential systems and environment" have been criticized and analyzed throughout international societies and among countries heads as the most serious challenge of qualitative and quantitative development of the present and future generations in the present and coming century. This debate differently interferes with different scientific and practical backgrounds and also necessity of paying attention to "sustainable development" is defined as the most prominent target and direction in most professional domains of designing. Urban morphology has the most effect on creating a sustainable environment considering that environmental pollution, wasting energy and destruction of residential systems are all resulted from unsustainable planning. In this paper, first started with an abstract definition of the key words used in the article, we consider an example of Iranian vernacular architecture which embraces worthwhile lessons of experiences of environment-human relation organization.

## MATERIALS AND METHODS

Raw data were collected via interpretation and descriptive methods and relying on available deeds and documents and field studies and then valuable aspects of using nature in architecture within humid and moderate climate were deduced from analyzing the text content-here architecture works and urban texture are considered as text.

## Literature Review

Sustainable Development is defined as a smart and sagacious method of qualitative development of life and a different attitude and way of thinking. Three targets should be considered concurrently in this type of development: first, it should result in promotion of public life, second, it should cause environmental improvement, and third, it should result in economical progress. In fact, sustainable development is a movement toward accomplishment of all works properly and appropriately, so that it could provide the present and future generations with high quality of life (Mofidi Shemirani, 2006).

Herman Daily, one of founders of new field of "Ecological Economics", believes in lack of increase in obtainments as characteristic of real development and proposes more efficiency and improvement instead of becoming or getting more and more.

Residential complexes should be directed so that all energy resources available in the nature could be safe against disturbance and this issue should be observed in all levels of planning and urban planning.

Development which meets the needs of present without compromising the ability of future generation to meet their own needs is called sustainable development (World Commission, 1978,8).

Commitment against supervision on human's destiny  
Understanding relation of social, environmental, economical and political systems;

Carrying responsibility against all organisms and their forms of living;

Carrying responsibility against human's activities and wishes;  
Holding people's and societies' rights in great esteem;

Paying attention to finite resources and limitations;

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Long term and complete assessment of costs and benefits for future generations;

Limitation in understanding the present time regarding requirements of future generations;

Today's architecture, contrary to possibility of using modern technological achievements, shows no appropriate transaction with the environment and nature in most cases.

Vernacular architecture in each region, as a result of mass wisdom and experience, shows features of sustainable architecture and environmental transaction.

Therefore here are some basic questions:

How has vernacular architecture got this transaction?

Which strategies among vernacular architecture strategies of entering into transaction with the environment are useful and adaptable to the present architectural conditions?

In most cases vernacular architecture has had sustainability features: environmental sustainability, social sustainability, economical sustainability

Environmental sustainability is based on applying environmental capabilities in architecture which resulted in appropriate transaction between architecture and the environment via making physical and mental qualities benefiting from natural characteristics like light, wind, water and plants.

Vernacular architecture has been based on sustainability (before being called by this name). This type of architecture has never caused damage to the nature in exchange for its obtainments from the nature (Williams, 2007, 14).

The main challenge of sustainability is that environmental conditions need to be considered. Environmental sustainable planning is kind of getting close to an environment that maximizes conditions of enjoying internal features of environmental conditions and at the same time minimizes undesired conditions of this construction. Buildings, from the stage of planning and method of meeting requirements, should have favorable response to environmental conditions and situation and at the same time keep confronting with nature in minimum (Bani Masoud, 2007).

Sustainable urban Design

The procedure of making a sustainable environment based on urban Design is susceptible to the environment.

Ecological sustainability;

Social sustainability;

Reconciliation and transaction between technology and bio-ecosystem;

Targets of sustainable development:

Meeting basic requirements,

Improvement of quality of life

Better management of residential systems

are mentioned as the main targets of sustainable development.

Considering nature of the development, the following 5 targets are defined toward getting concepts of sustainable development:

Satisfying human's basic needs at present and in future via qualitative growth

Improvement of quality of life for all social strata

More proper protection and management of residential systems and providing safer and more prosperous future

Paying attention to habitats of organism and ecosystem

Supplying intellectual tools and facilities and technology for required growth

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Principles of sustainable development:

The following 4 strategies and principles should be observed to achieve sustainable development (Mofidi Shemirani, 2006):

Applying and making renewable resources' consumption sustainable

Optimization and auditing use of non-renewable resources and keeping consumption of natural resources to a minimum so that the consumption is less than their natural production

Minimizing production of wastes and pollution which are absorbable on the local and world scale

Satisfying basic needs of human and society and creating a healthy environment for future generations

The 6 principles of Charles Jamckes about sustainable architecture and urban planning are as follows:

Saving Energy: Building should be constructed so that its need to fossil fuels is kept to a minimum

Coordinating with climate: Buildings should be planned so that there is coordination between them and climate and energy resources of the place of construction

Reducing use of new resources of materials: Buildings should be planned so that use of new resources is minimized as much as possible and they could be used as new resources of construction of new buildings by the end of their life

Satisfying residents' requirements: Sustainable architecture puts its special emphasis on meeting mental and physical requirements of inhabitants.

Coordinating with the site: The building should be placed on the earth mildly and harmonize with the environment.

Integrity: All principles of sustainable architecture should materialize in an integral procedure and result in a healthy environment

Nature: Nature is of that sort of words which has a lot of meanings and applications. For example in Moein Persian Dictionary, nature means the essence which is the basis of people's creation, temperament, mood, the four elements, what is explicit and definite out of mind and a subject which is alive and living. In this paper, nature is mentioned as the world out of human's mind and its evidences like sky, earth and everything within which from water, wind, soil, and fire to animals and plants.

### Gorgan

Gorgan is center of Golestan Province and located at north of Iran. It is limited to Agh Ghala City from the north, to Kordkooy and Torkman Cities from the west, to Aliabad Katool from the east and Shahkoooh highlands and Semnan Province from the south. Astarabad dialect is the main language of Gorgan's people and its present demography is composed of plenty of diversity and locals, Fars, Turkmen, Sadat, Baluch, Sistani, Deilam, Mazani, Sabzevari, Kashmari, Shahroodi, and Bastami tribes. This city has a

very long historical background and some works going back to 6000 years ago are discovered in its ancient hills. By 2037, this name was called by Astarbad or Astarabad and then changed to Gorgan. There is humid and moderate climate in this region.

Gorgan has a historical texture and consists of different neighborhoods with 12 neighborhood centers. However nowadays this texture is surrounded by new urban texture and passing unpleasant days, enjoys a wise system of passages and access networks, adjacency of buildings, and spatial diversity. Also there are still worthwhile vernacular and traditional architectural works within the texture on the basis of which we can judge about architectural features of this city. Most of these samples go back to Qajar and Pahlavi eras and sometime some works of Safavid's and Seljuk's eras are seen among them. Historical texture of Gorgan like other historical cities underwent fragmentation by construction of streets and new urban spaces in solar decades of 1310 and the first Pahlavi era.

In fact Gorgan nature is mixed of nature of south border of Mazandaran Sea and north of Alborz mountains chain, an attractive and generous nature which enjoys a lot of attractions because of a lot of rain and diversity of roughness, highlands, and some other environmental properties and embraces elegant environmental diversity in contrary to arid deserts of Iran. Undoubtedly the most important effect of such nature, from emotional aspect and regardless of climatologic issues, is drawing human's attention toward exterior environment and extraversion. Some principles of Gorgan's architecture and urban planning are deduced as follows:

Extraversion:

However, from apparent aspect, there is no significant goods to be supplied for building in exterior environment of desert and central regions of Iran and for this reason beside social and functionalistic reasons, all attention of architecture is drawn toward interior and a full-scale introversion is formed, here although most of the same social and functionalistic reasons are applied to introversion, exterior of building is beautiful and attractive as well, introversion is mixed with extraversion and a compound model is created because of affluence of the environment. Even in most of times of year ordinary life of people happens in open and semi-open environment.

Effect of humidity on architecture and urban planning:

Considering high-rain and humid climate of Gorgan, in case water comes as one of the following 3 forms, it can cause damage to building and shortens its life:

Descending humidity;

Ascending humidity;

Saturated humidity in the air;

Vernacular architecture of Gorgan is ready for these 3 combats and however it is along with ditching one member of the nature's family, these items are obvious evidences of naturalism and its companionship by all means.

Descending humidity: Descending humidity is mostly seen as rain and less often as snow and hail in this region in most of the times of year. Vernacular architecture of Gorgan completely follows human's natural behavior in order to get rid of damages imposed by this form of water: Building's body is protected against precipitations especially curved rain by extending ceilings slops from exterior walls and making tuft, applying appropriate materials like backed clay and

covering roofs by the clays and sloping the roof down which immediately directs water down like human who uses umbrella under the rain.

#### Ascending Humidity

This area has wet soils because of its heavy precipitation and its humidity can ascend from lower layers of earth to upper layers and buildings and make them moistened and worn out. In vernacular architecture of Gorgan it is tried to keep the building's body less in touch with the earth as much as possible to control this undesired effects of nature and reduce this susceptibility. Heightening ground floor from natural surface of earth, by making stone pillars, and also using woods in making rooms' floor empty are some methods in this regard. In rural architecture of this area sometimes building is completely constructed on stone or wooden pillars. Saturated humidity in the air:

There is high relative humidity in this region and this form of water makes harsh environmental conditions and it is hard to comfort in this area especially in warm season. In conformity of Vernacular architecture of Gorgan with this condition, urban texture is formed as discrete and buildings' plan is open and expanded in appropriate direction. Also monolayer architecture, high expansion relief of walls and a lot of openings significantly help to air circulation in the interior spaces and as a result improve environmental conditions.

Air circulation:

Air and its circulation, as mentioned above, play an important role in regulation of environmental conditions because of sweltering climate of Gorgan. Explanations of saturated humidity in the air can be presented here as well. In fact qualities of vernacular architecture of Gorgan including direction toward suitable wind, uncompressed texture and plan of building, abundance of openings, and turning closed into semi-open spaces cause air current and improve the condition.

Applying local materials in architecture and constructions:

Using different plant products especially wood in construction of traditional buildings of Gorgan might be considered as another symbol of companionship of nature. However nowadays using natural jungles wood is not advisable because of causing damage to the environment and also because of increase in construction and population, in the past the least damage were imposed on the nature because of people's nature-oriented thoughts and planting sapling in the place of cut tree and plants' facilities were used properly as wood, cane, straw mat, and even hay and materials added to mortar. Soil in this architecture has 2 roles, first as bed and place of establishment of building and second as raw materials of masonry materials like mud brick, brick, thatch, and backed clay. It is worthy to note that it is clear that these properties are not characteristics of vernacular architecture of this region but they are general features and soil has stronger and more meaningful presence at desert regions of Iran.

## CONCLUSION

Nature, according to what presented here and more evidences than that, is mixed and companion with vernacular architecture of this region and study of life in the buildings in the past tells the same story as well.

Human who is part of nature used to take the most benefit from natural facilities in his environmentally compatible

buildings and was imposed to the least damages and had enjoyed more humane life. This process doesn't necessarily pass philosophical arduous journey and you can recognize the presence of nature in this architecture as simple as hearing stream water or seeing a sour orange tree or smelling orange blossoms.

If the target is human's concrete and abstract perfection, any development should be based on principles of sustainability because on one hand, considering principle of resources finiteness, our method and rate of using nature should be proportionate to its ability and rate of regeneration and on the other hand, considering principle of environmental capacity, type and rate of producing wastes and pollution should be coordinated with ability of ecosystems in absorption and digestion.

Procedures like deforestation, desertification, decrease in marine resources, extinction of wildlife species, increase of greenhouse gases, and depletion of the ozone layer are alarms of more harvest than store and more excretion than absorption. Therefore observing principles of sustainable development is not a luxurious choice but a vital necessity.

Minimizing human's comfort by providing: daily light absorption, pleasant scenery, air high quality, appropriate acoustic insulator, appropriate control of temperature, desired control of humidity, qualitative effective cares and security predictions, human appropriate controls;

Efficient planning to: appropriate motion and flow of space consumers, providing researchable security, easy conformity and changeability, ability of satisfying requirements of consumers, interlocking structure with installments;

Design for change by: simple and modular design so that it could adapt to development and needs growth;

Minimizing usable spaces by: diminishing gardens area in the building, diminishing air canals space, maximizing interlock of structure with installments, removing necessity of pseudo-ceiling in the building;

Minimizing cost of construction by: diminishing spaces of installations and engine house, diminishing complexity of space and service elements, coordination of structure and service elements, using efficient structure;

Decreasing cost of building's maintenance by: using stable materials and equipment, simple and reliable environmental control systems, available maintenance and repairs;

Protection and improvement of natural values by: mixing with wildlife and animals, paying attention to green and water conditions, gathering rain water and recycling fresh water, effective recycling of wastewater and using it;

Appropriate transaction between architecture and site: in old texture of Gorgan based on climatic and environmental conditions and showing one of principles of sustainability;

Appropriate transaction between architecture and natural environment: (climate, landscape, earth);

Appropriate transaction between architecture and artificial environment: (neighborhood, texture emptiness and fullness, texture expansions, site edges);

Making compressed texture and optimized use of land: and bringing architecture and climate into harmony at the same time especially benefiting from draught considering its importance to remove humidity in this climate;

Creating an appropriate climatic extrovert or full and empty architecture in a compressed texture and view control (because of coordination of architecture and artificial environment);

Strategies of creating architectural spaces in floors (for climatic reasons at first) and using these strategies in the present architecture.

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