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Design of a Residential Complex in the City of Amol with the Native Architectural Approach of Mazandaran Province

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Abstract

The indigenous architecture of each region is entirely compatible with the region's climate, culture, economy, and environment. Indigenous architecture in Mazandaran province has considered all the conditions of comfort and culture of the people and has provided workable solutions to problems. Today, it is not possible to follow only indigenous architecture. Due to population growth and rising land prices in a few years

Recently, we can no longer design and implement houses like the native houses of Mazandaran. In addition, traditional architecture belongs to another time, and only our cultural support, mere imitation of it, will not have the desired result at this time. Therefore, the subject of this research is first to know the native architecture of this region and then design based on it. In this research, the library and field studies method has been used, and the design has been done based on the analyses of previous researchers.

The selected site is located in the middle of a residential area that does not pay attention to local architecture and does not have much quality by blindly imitating the plans of a shape. Due to this problem and the increase of the urban population in the region, this project intends to respond to these issues. The primary purpose of this study is to introduce the native architecture of the province and design a residential complex (villa) based on the concepts of the traditional architecture of Mazandaran in a new way. Along with this goal, sub-goals such as reviving the forgotten native architecture, improving the quality of housing and meeting the needs of the people for housing are considered.

1. Introduction

Today, in the international community, a significant effort is being made to reduce energy consumption and the use of renewable energy, and the need for this effort is not hidden. Fossil is

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supplied and even the construction sector, which accounts for about 41% of the country's energy consumption, provides 98.8% of its energy consumption from fossil fuels [1]. This is while the potential for energy savings in the construction sector, especially housing, on the one hand, due to the favourable climate, the background of local architecture and on the other hand achieving the desired result with less investment in Iran is very high, this necessitates a review of architectural principles. Factors that are effective in increasing efficiency and optimizing energy consumption in the building are 1- Design:) Form and body design - Site and area design - Plan and interior design (2- Equipment:) Materials - Facilities (3- Management:) Studies show that these factors increase the regular energy consumption by up to ten times. The improper architectural design of the building can increase up to two and a half times the usual energy consumption if the electrical and mechanical installations Add to it the amount of consumption increases up to 5 times the typical consumption. The share of residents in this field also doubles, so we decided to use building design to save energy consumption [2].

Statement of the problem

The fact is that sometimes we do not believe that the essence of everything lies in our past; The past that we may need to look at to look for architectural originality and sustainable elements. It is not a secret to anyone that our native architecture has unique features. While paying attention to the aesthetic, cultural-social needs with its different natural, ecological and ... capacities, it is also compatible with its context. This architecture is not only. It has reduced the quality of its environment and improved its nature. The concept of sustainable architecture refers to the same thing: "A design approach that reduces the consumption of non-renewable resources and optimizes the consumption of renewable resources, stating that what we need to survive can be obtained from the environment." [3].

For years, there has been talk of preserving, reviving and reviving the values of the past. All observers agree that maintaining social and cultural values is the cause of national identity. But on the other hand, recognizing and refining the importance of the past and choosing the best of them and adapting them to the time and place conditions in a way that is in line with the needs of today's society is also an issue that must be considered [4].

The status of architecture begins with recognizing the factors that make it up, including understanding the culture, History, History of materials in the environment, etc. Indigenous architecture in the formation of human settlements is a subject with a history as high as human History. It has made its habitat with materials in its immediate environment and is compatible with the current climate. In the present age, advanced facilities, technology and their reflections on life have caused the industrialization of the present age in front of us. Therefore, a solution must be provided to restore the soul of our buildings and cities. We can effectively help revive local architecture by participating and informing the people to give our towns and facilities [5].

From this range, architecture, which is one of the essential value elements of any nation, has a significant share and Ghor, in this sense in the field of architecture, is left to the architects of this era. In this regard, the esteemed professors Mohammad Karim Pirnia and Seyyed Hadi Mirmiran always express their lives to recognize Iranian and Islamic architecture and reflect it to the young generations somehow involved in this issue [6].

Paying attention to the importance of tourism and its direct relationship with economic development is an issue that has been considered all over the world today. Considering the existing potentials in the country and the lack of recreational, welfare and service spaces, it is necessary to give more value to this critical issue. To create a stable and suitable environment for human life, the architecture of Mazandaran, Iran, has achieved principles and methods that not only do not impose destruction and waste on the environment; Rather, it also plays a role as a factor in the perfection of

matter. Examination of the physical design features of Mazandaran architecture and materials and executive methods shows that in architectural design, in addition to using environmental potentials, pollution and environmental degradation have been prevented and is a clear example of sustainable architecture [7].

This project seeks to understand the principles and repetitive values governing the native architecture of Mazandaran as sustainable architecture and extract its reproducible features to achieve the goals of sustainable architecture is one of its goals. By understanding the applicability of the values extracted from this type of sustainable architecture, it is possible to achieve a kind of architecture that works as well as the previous architecture and meets human needs. Based on three main aspects of sustainable architecture, economic sustainability took place. Principles that can be generalized to contemporary architecture today are expressed in main rules and sub-rules and have been considered repeatable values of native architecture.

Therefore, to appreciate and respect the efforts of several master's treatizes and respect the original Iranian and Islamic culture and art, every Iranian feels responsible and strives to revive Islamic and Iranian values in any field. In architectural designs, as much as possible, apply the basic principles of Iranian and traditional architecture and, while combining them with new technology, maintain the nature of their existential philosophy [8].

Over many years and centuries, Had. Before the emergence of new technology and building materials in all parts of the country and any form and quality, traditional and indigenous architecture was considered a horizontal and identical architecture with unique technical materials and methods. This type of indigenous construction was very appropriate, timely, valuable, logical, and sometimes glorious and still has the same value and credibility as an honourable architecture with a human scale. The analysis of Iranian architecture shows that despite the multiplicity, diversity and complexity of buildings, principles, concepts, and patterns have been used in different ways over time. And the new ideas and practices have been based on an intelligent and skilful architectural activity. By accepting this, the same principles, concepts, and patterns can be addressed in today's Iranian architecture, and they can be developed and promoted during creative activity [9].

By examining and analyzing the patterns of Iranian architectural history and the primary constituent elements, it is concluded that these elements and patterns. They present the general concept of a pattern or element in architecture with an abstract dignity and a mental image and carry emotional memory burden. However, each was created in a certain period of the architectural history of this land. Still, with a continuous presence in later periods, evolution and They have been refined and have a time-independent identity [10].

Looking at other architectural styles and schools, the exploded architecture of the movement (Modernism) without identity and historical past, and cultural roots are not able to respond to the cultural beliefs of this region and also the unstructured and deconstructive species of deconstructivists (Deconstruction) for A society committed to traditions. Cultural heritage is incomprehensible because the original architectural art of our country has never been associated with the aggression of the rebellious generation of the present century and has maintained its sobriety and weight of expression) [11].

Therefore, it is necessary that the architects of this era, by recognizing, refining and using the merits of other schools and architectural styles and integrating them with their own culture (not imitative), revive the Iranian architecture that has always been considered and at this time, Has manifested the architecture after the second Pahlavi (the era of the revolution of the Islamic Republic), which is one of the goals of the law of engineering system and building control. It is hoped that raising this issue will be

an incentive for other architects to continue the discussion and the logical and evolutionary continuation of the precious History of our past architecture and suitable for today's architecture [12].

Today, designers, engineers, and masters of this art have realized that past architecture is a good model for preserving and using a region's natural energy and architectural values . West, East) and non-use of raw power, air blinds, solar energy, climate-specific materials, etc.

In this project, we try to eliminate all the defects seen in architecture today (building elongation, air blinds, use of sunlight, suitable materials in the facade, etc.).

Necessity and importance of research

In recent years, due to the growing population of cities and the need to create housing and the resulting problems, and given the undeniable role of modern science and technology in all areas, governments have decided to accelerate housing construction. And also to create more durability and security of houses to use new technologies in construction. On the other hand, it seems that among the existing barriers to the preservation of historical monuments, which act as an essential part of the culture of a region, the right way to preserve the native architecture along with technology in the construction of historical monuments is under construction, not Support not only the native architecture but also the conditions for the long-term sustainability of this building.

With the increasing population, the need of urban communities to build housing increases and the human relationship with the affected landscape, as a slight growth, the quality decreases, as the design of residential complexes to improve the factors affecting residents' satisfaction and strengthening Concepts of the family (social interactions) are critical, for this purpose, using the design method of staining collections and appropriate spatial connections, using the characteristics of the History of architecture and local architecture in Mazandaran province to breathe life into the spirit of architecture. The purpose of this study is to study and recognize the features of the native architecture of Amol for knowledge in the design of residential complexes in this city).

The residential complex in Amol city can be studied with local architecture according to the need of Amol cultural context for survival and significant differences in urban welfare between old cores and renovated stations. Given the current housing and energy consumption problems, analysis and understanding of the indigenous architectural features of each region can provide a source of helpful information for appropriate and optimal design. Because indigenous architecture is formed in the long run and based on local conditions, a large part of it focuses on residential textures. To achieve this goal, in this article, the evolution of the shape of Amol houses from the past to the present will be examined based on environmental, climatic and cultural considerations.

Research purposes

The aim is to study indigenous architecture and sustainable architecture principles and apply these two categories in contemporary designs. First, we define sustainable architecture by expressing the model-spatial features of native architecture. Then, we can reach a significant result in modern architecture by putting together all the goals and principles.

1- The construction of a residential complex with the knowledge of the rules and regulations governing this space is based on the native architecture of Mazandaran. Using the concepts of traditional architecture, architectural interactions of the past and present architecture to achieve social freedom that reconstructs the pictures of family and society in the history in the current time and organizing the family as components of humanity in a macro form, which The overall goal will include the following objectives for the collection:

Democracy: the use of human scale and avoidance of futility, vainglory, and useless adornment. Simplicity on the outside, complexity on the inside (light transparency)

Self-sufficiency: taking advantage of local facilities and materials and what the architects (canvas) have said and avoiding dependence and need.

- Simon: or the dimensions and criteria that have ensured the fit of the body of the building in terms of accuracy, stability and beauty.

Introversion: This principle, especially in residential houses that have always been of interest to the people of this land and have been happy that four walls are optional.

Angle and need: Avoid using large sizes that have wasted materials and increased costs.

If we are aware of the possibilities of the environment in which we are, we can prevent them from being harmed. 2- Understanding the building design environment should be such that it is possible to use the capabilities of the environment and local energy sources. Understanding the environment also determines the design steps, including the orientation to the sun and how the building is located on the site and maintaining the surrounding environment and access to the vehicle and pedestrian system. The shape and location of the building and the interior spaces can improve the comfort inside the building.

Communication with the nature of the building, whether it is inside the urban environment, in a more natural environment, connecting it with nature gives the designed environment a new spirit and a return to wildlife—Free Wikipedia encyclopedia site.

3. The extreme attention to economic aspects and less attention to other parts of the architecture, such as the culture of people of different regions, different needs and tastes and desires of humans, natural and climatic characteristics of different areas, and caused that modern architecture can well meet to be the desires of the people and to satisfy them. Therefore, in the early 1960s, due to the growth and expansion of modern architecture, it became impossible to survive after the emergence of deficiencies and weaknesses. In 1960-65, many architects, especially in the United States, asked: Why should architecture reach such a point? In response to this question, some to the end of separation of vernacular architecture and away from the values and principles that govern it turned. It would reach the conditions of his time effective knew we return to vernacular architecture and as a source Valuable for teaching lessons, and inspiring solutions to solve problems, paid close attention to scientific research. New trends emerging among architects interested in indigenous architecture encompassed a wide range of different backgrounds. At this time, indigenous architecture as a valuable resource for lessons and learning, and inspiration for solutions to the problems encountered in the field of architecture, is well known. This attitude has emerged in Western countries and, subsequently, developing countries and Islamic countries. The effects of this wave also reached our country, Iran, and after the Islamic Revolution, with the emergence of more favourable conditions for society, it became more and more intense.

Research questions:

1 How can a practical and moral design in today's advanced society be achieved by examining indigenous architecture and the principles of sustainable architecture and applying these two categories in designing a residential complex?

Sub-question:

1- How can we make the most of the environment and nature in designing a building and cause minor damage?

2. How can modern and advanced life today not respond to the human needs in building a living space, and designers are looking for past and indigenous architecture to meet the needs of the people?

2. Research background and theoretical foundations of research

Each building should be designed based on the residents' climatic, cultural, social, and historical contexts and physical conditions. With a unique socio-cultural view, Dr Pirnia introduced the five principles of populism, self-sufficiency, avoidance of futility, greed and introversion as the principles of Iranian architecture, which are all three aspects of sustainable architecture (socio-cultural sustainability, environmental, economic sustainability).

With the historical experience and collective wisdom of the architects of previous generations, the Iranian architect looks at the heating and cooling methods of the building comprehensively and comprehensively and avoids any extravagance and extravagance. Based on these documents, everyone believes that Iran's past architecture was a "sustainable architecture" in its time domain. In traditional Iranian architecture, the building, based on its geographical location, deals with the external environment to make the best indoor comfort possible without using complex, energy-intensive and polluting devices. In other words, our forefathers were well aware of the laws and systems of passive solar systems and used them consistently - to achieve eternal stability in the building. But so far, none of these elements has been thoroughly and scientifically studied, and their relationship with each other has not been presented in the form of written knowledge [13].

Housing is the essential element of the city in "sustainable development", which is considered the crucial aspect of sustainability. In addition to the environment, housing development affects the economy, culture and social issues, while increasing urbanization and growing demand for housing often draws the attention of officials to meet the housing needs of citizens. Still, the main problem in sustainable housing development is. The needs of the next generation are simultaneously meeting the current housing needs of the people of the society. In such a way that providing housing today with the minor change in the natural environment will allow the next generation to provide a suitable living space for themselves in an optimal way. Since housing is an essential and essential component of the urban area and a crucial part of sustainable urban development, in this regard, achieving sustainable housing is a critical step for sustainable urban development. Sustainable housing can be defined as: A type of housing that meets the current generation's needs based on the efficiency of natural energy resources and at the same time creates an attractive and safe environment while paying attention to ecological, cultural and economic issues, sustainable housing. In another definition, sustainable housing has minor incompatibility and contradiction with the natural environment and can be helpful in the broader area with the region and the world. [14].

3. Research Methods

This research is a descriptive-analytical type of applied research according to its nature, subject and objectives. The information required for this research is collected in both documentary (library) and field forms.

In the first step of identifying the components of culture, climate, home, environment, and other related options, library studies are done comprehensively, and the materials are collected and categorized. In the second step, the components affecting the figure Rural housing acquisition in Mazandaran province of Amal city has been studied, and each of them is examined. Its statistical population is the villages of several Amal villages.

Because field observation of each of the villages of this city is not possible, according to the information available in writing in the Housing Foundation of Mazandaran Province from the subject under study, the sample community should be selected in such a way that comprehensiveness,

Reliability, clarity, speed and economy can be generalized and the resulting observations and definitions and interpretations can be accelerated to the entire statistical community.

Data collection method

Both field and library methods will be used.

• Field method: Because the purpose of this study is to study the native architecture of the region, so the study on it is a field study and will be done through the face-to-face perception of the building.

• Library method: It has been done as a library to collect and use written documents from sources and books.

4. Position, limits and extent

Mazandaran province, with an area of 23,756 square kilometres, is located between a minimum of 50 degrees 34 minutes and a maximum of 54 degrees 10 minutes east longitude of the Greenwich meridian and at least 35 degrees 47 minutes and a maximum of 36 degrees 35 minutes north latitude of the equator in northern Iran.

Mazandaran province is connected to the Caspian Sea from the north, Golestan province from the east, Semnan, Tehran and Qazvin provinces from the south, and Gilan province from the west. Mazandaran province is the centre of Sari city in northern Iran and on the southern shores of the Caspian Sea.

The most populous city of Mazandaran province is Babol city, and the centre of the section is Sari city. Damavand Peak is the highest mountain in Iran and the tallest volcano in Asia and the Middle East in Mazandaran in the city of Amol. This province is one of the most populous regions of Iran in terms of population density. Mazandaran has an area equivalent to 1.46% of Iran.

Climate profile

1. According to the Hansen classification, this province is located in a warm temperate orbit.

2. According to the Temoenatenus Index, this province is very temperate and super-temperate. (Moderation coefficient means to get the distance or proximity of a region to the peaceful area.

3. According to the De Martounne classification, the western regions of Mazandaran are very humid, the central areas in Mazandaran are moist, the eastern areas of Mazandaran are the Mediterranean, and the mountainous regions Mazandaran are semi-humid.

4. According to Dr Karimi's classification, the western and central regions have a humid climate with hot summers and slightly cold winters, the eastern areas are semi-humid with warm summers and relatively cold winters, and the mountainous regions in Mazandaran have a humid climate with mild summers and freezing winters. Be.

Various factors such as the direction of the Alborz mountain range, altitude, proximity to the Caspian Sea and humid westerly and cold north winds have caused a variety of climates in this province. This diversity caused many differences in the natural landscapes of agricultural products and the shape of buildings, etc.

According to the prevailing conditions in this area, the climate can be divided into three categories:

Caspian temperate and humid climate

The western and central plains of the province, which are limited to the northern foothills of Alborz, have a temperate Caspian climate. Annual rainfall is 1027 mm, and the seasonal distribution of rain is

proportional, and the dry period is short. In the eastern part of this area, the rainfall is less than in the west.

Moderate mountainous climate

With the gradual increase of altitude from plain lands to the northern slopes of the Alborz highlands and the Caspian Sea, there are remarkable changes in the province's climate. So that in the altitude strip approximately 1500 to 3000 meters from west to east, there is a temperate mountainous climate with cold, icy and long winters. Summer is mild and short. The main features of this area are the reduction of annual rainfall and air temperature. Some of the precipitation in these areas is snow and has accumulated on the ground until the beginning of the warm period.

Cold mountainous climate

In the peaks of the high mountains of the northern slopes of the Alborz at altitudes above 3000 meters, the temperature drops sharply and creates long frosts (180 days a year) and therefore has cold and long winters and short and cool summers. In this area, precipitation is often in the form of snow. Thus, in individual peaks such as Alam Kooh and Damavand, conditions have been provided for the formation of mountain glaciers and the endless accumulation of snow.

The particular geographical position of Mazandaran province as one of the coastal provinces of the Caspian Sea has caused it to benefit from the climatic effects of neighbours such as the vast land of Siberia, the Mediterranean Sea and the Caspian Sea and the central plateau of Iran throughout the year. During different seasons of the year, several air masses enter the province, the most important of which are as follows.

A) The cold period of the year

• Continental polar air mass enters the province by expanding the Siberian high-pressure system on the country's northeast. This air mass is cold and dry, and bypassing over the Caspian Sea while absorbing moisture and heat, it becomes unstable and causes significant rainfall, especially in autumn in the province. The intensity of this rain is more than other parts of the section due to the long path of air mass on the sea in the west of the province.

• Modified polar sea air mass of Atlantic origin enters the eastern Mediterranean Sea through the Black Sea through southern Eastern Europe and then enters Iran from the northwest through Turkey.

• Arctic air mass of continental origin of Scandinavian origin, which, after crossing Europe and losing moisture, regains moisture from the Black Sea and enters the northern strip of the country through Turkey.

B) The warm period of the year

• Modified low sea mass of Azores origin (an island in the Atlantic Ocean) that enters the country's north after crossing the Mediterranean Sea and southern Europe, and sometimes through North Africa and Saudi Arabia, south and central parts of Iran. Invades and penetrates to the north.

The fronts of this air mass gain moisture from this sea when it reaches the Caspian Sea and causes rain on its southern coasts. In addition, at the peak of hot days, when the subtropical jet moves to the north of the Caspian Sea, the continental tropical air mass that forms in central Iran and is very hot and dry also affects the country's north.

Investigation and analysis of wind flow

The wind flow of the region is influenced by local factors (the presence of sea and land) that follow the process of the sea and land system. At the macro scale, the entry of air masses and large pressure fields are the leading cause of winds. Studies show that westerly and northwesterly winds prevail and

vice versa at most times of the year, and usually, the strongest winds blow for this reason. Typically, 51 to 70% of the time, the weather is calm, and the south, southeast and southwest currents have a low intensity and frequency, and in general, winds that blow from the land to the sea are rare and with low frequency. And is accompanied by a weak intensity. At many times of the year, winds blow from the northwest, west and northeast. (Meteorological Organization of Mazandaran Province)

Introduction of Amol city

Amol is one of the central cities of Mazandaran province, which is limited to Mahmudabad from the north, to Babol from the east, to Damavand and Tehran from the south, and Noor from the west. The city of Amol is located at 52 degrees and 21 minutes east longitude and 26 degrees and 25 minutes north latitude. Its altitude is 76 meters above sea level, and the Haraz River passes through it. The city consists of two parts, mountainous and plain, with the mountain forming the southern part and the northern part of the city.

According to recent research, it had become clear that Kayneh (Amard) or (Amardan) who migrated to the land of Tapurestan (Tabarestan) before the Tapuri (Tapuri), lived in the same area (Amol), which is more prone and more famous than other parts of Tabarestan. Amol stands for Amard, which has become Amol due to its many uses. Hamdollah Mostofi attributes the construction of the city of Amol to Tahmourth, a pioneering king, and Ibn Khordad writes: From the time of Fereydoun to the time of Bahram, Amol was the capital of the inhabited world. There are many articles about the origin of the city of Amol in various books and sources, but not all of them can be mentioned in this brief.

The population of Amol city in the 2016 census is equal to 401,639 people, of which 202,502 are men, and 199,137 are women. Also, in this census, the number of households in Amol city was equal to 133,034 homes. The area of Amol city is equal to 3075 square kilometres.

5. Equations

Weather in Amol city

Amol city in terms of climate; It is a temperate and humid climate. The environment of Amol city is the highest temperature in summers to 36 degrees above zero, and the lowest temperature in winters is -1 degrees Celsius below zero. The average annual rainfall of Amol city is 750 mm.

The presence of the Alborz Mountains in the south of the Caspian Sea in the north of the city of Amol has caused the ascent of wetlands on the steep slopes of the coastal mountains and caused the air to cool to dew point or below, causing cloud systems and subsequent There has been heavy rainfall in this area. The forest vegetation of this beautiful area creates pristine and beautiful landscapes. The rarest trees can be found in the forests of Mazandaran province, especially near the city of Amol. There are medicinal aspects in the area.

Site location

To adapt to the project goals, which is the cultural manifestation in the architectural space of this region, as well as the touch of life with the housing typology of the desired areas by the residents in such an atmosphere and familiarity with the culture and customs of the people of this region. The architecture of this area has, we decided to choose the desired site in Amol, which still has a cultural and indigenous structure. It has several attractions such as gardens, agricultural land, park and green space. Another reason for choosing this site was to be pristine and create an atmosphere away from the worries of urban life that are the goals. The site is located in Amol city on residential land.

The site has access to the following address:

Mazandaran-Amol-Talib Amoli Street-in front of Bar Square next to Janbaran Air Bridge

Elements around the site

The context of the region contains cultural potentials. To make optimal use of this space, it is necessary to provide these manifestations and manifestations of the culture of these spaces and related buildings located in them by accurately identifying and allocating following the needs of today.

A) Amol Fire Temple: The shrine of Al-Rasool Amol belongs to the Sassanid period and is located in Amol, the lower part of the bazaar, in the old city (Awam Koi), and this work was registered on May 26, 1975. The neighbourhood of "Pa'in Bazaar", which is the same area as the old city of Amol, has taken refuge in a treasured relic of the Iranian ancestors of the Sassanid era. The life of this building has been attributed to the ninth century. Due to its unique features, it is one of the notable ancient buildings because it has a considerable size compared to other towers of that century. The most critical point in the architecture of this tower is the use of bricks with different dimensions and heights; In way that while the pieces of bricks are uneven, the dome has been carefully removed and has brought the shape of the tower to the forefront so much that many experts have avoided reconstructing it. Because this building has a unique geometry, this brick building has an expensive door in the middle. It has been purified for the fragrant body of Shams Al-Rasool, Mohammad Ibn Mahmoud Amoli, who is mentioned in the memoirs of doctors and scientists as Kamel Shamsuddin. Mohammad bin Mahmoud Amoli is named.

B) The tomb of Nasser al-Haqq Amol: The holy tomb of Hassan bin Ali al-Nasser al-Haq is a place of pilgrimage for Shiites of the four Imams around the world, especially the Zaydis of Yemen. This work was registered on January 6, 2013. The tomb of Nasser al-Haq is a quadrangular building filled with four earrings from the exterior of the quadrangle, and an octagonal dome has been built on top of it. The upper part of the body has Mogharnas decorations. According to historical texts, its original building has been destroyed, and the current building was built in the ninth century AH by the sons of Mir Qavamuddin Marashi. This building, which was severely damaged over time, was renovated by the cultural heritage of Mazandaran.

Climate analysis of the site

Considering the climatic conditions, it can be concluded that in the area of the site, considering that it is located on the main street from the east front, and also in the north and south fronts due to the low height of the neighbouring buildings and side streets, it can be said. It has no shading in four directions and is subject to the following parameters:

1. Northwest winds that are rainy, north and northeast winds that are dry and cold and bring snow and rain, and west winds that are continuous and light rain with sloping rain that affect the site and the building. Puts.

2. Annual local winds, which is the same as the sea breeze, which is northeast, southwest, can be used to soften the interior spaces, and therefore buildings in the north of the country are located more and better north-south for natural blinds.

3. The geographical boundaries of the site, which represent the sunrise and sunset, indicate the different directions of the site and the impact of climatic conditions during the year.

4. Moisture flow in all seasons, especially summer, which comes to an end.

5. Suitable light for the southern front

Design formation process

How is the structure formed?

The pre-product planning process is a series of activities that can be summarized into the following categories:

A) Accepting the situation (stating the initial intentions to deal with the problem)

B) Analysis (review of the content of the problem)

C) Definition (determining the primary nature of the problem, setting the main goals in dealing with the problem)

D) Solution

E) Selection (comparing possible solutions and measuring them based on objectives)

In a general view of site planning, it has several divisions in its theoretical foundations, each of which can be divided into several branches. The axial and multiple divisions of this planning are as follows:

- Spatial principles and principles in pre-design and planning
- Spatial structure and ideas in planning
- Replacement of cultural-indigenous factors in site design
- Physical structure of planning

The prerequisite for this option is the physical structure of the planning. What drives the biological system of planning in a particular direction is the basis and principles of spatial structure. In other words, the design's spatial structure is considered a compliment and an element that creates sufficient conditions in the design option.

Paying attention to one of these two factors and eliminating the other in design will cause the design to become one-dimensional and uniaxial. Today, many existing designs are only the result of mere analysis, and the design is far from its artistic concept. And many others have observed and accepted the first form, but due to lack of sufficient knowledge and underestimation of the analysis, they have remained unusable and abandoned.

Formation of structure and ideas

During the design process, whether architectural design or landscape, there are numerous limitations for the designer, each of which will lead to a kind of creativity in the innovation to identify the designer. Dealing with these limitations puts the designer in a unique framework of definitions, which can be understood in a broader view. Sometimes, the patterns on the site have the most potent influence on the final design, sometimes nature is prioritized as the primary human intention, and sometimes artistic thinking is at the top and never (just the right way).) Does not exist. In the previous sections of this article, an attempt has been made to study the characteristics of the region and the nature of the Amol site and to define and explain the concept of local architectural design principles and patterns that can be designed in it. Available to be paid.

The role of ideas in design

Le Corbusier describes the five stages of achieving an idea as follows:

(Looking, observing, seeing, imagining, and inventing)

I am looking: means trying to gather information. Information that is significantly visual in architecture and mainly obtained from observing the environmental conditions of the project.

Observing: means curiosity and paying more attention to issues that seem important to the designer. For this reason, there is a kind of critical attitude at work.

Seeing: means recognizing and recognizing the problem of architecture or understanding the laws affecting the design work among the needs, goals, limitations, location and time conditions of the project.

Imagination: refers to the production of an idea in its most primitive form, when an idea about a project reaches the designer's mind, which, because it has not found architectural meaning or has not been translated into the desired language, is expressed using existing elements. It is imagined to create an architectural idea with known characteristics.

Invent: It is an architectural idea not necessarily for taste reasons but necessarily new. If it is accepted that the concept is a step forward, we must receive that it is a step into an unknown land.

Architecture is also constantly coming up with new ideas to value nature and the artificial environment. As always, geographical discoveries, scientific discoveries or inventions are accompanied by going to the unknown. As always, dialogue and proposing a solution is complementary, not a solution that becomes a weakness and has a parasitic fate. As Heidegger puts it: The bridge is not just a means of connecting the two sides of the river, but "the bridge gathers the earth around the river as a landscape.".

The role of ideas in the design of Amol native residential complex

Ideas are design materials. Refining and combining micro-ideas for a coherent structure in architecture in its specific sense, making an idea more important than building a building. While the architecture of the past dealt with the integration, adaptation and completion of specific spatial ideas whose objective forms and examples, such as porches and porches, courtyards and five doors, already existed; Today's architecture pays more attention to the essence of architecture, form, space, light and colour than ever before. Architectural design in this situation begins with abstract ideas and then leads to creating the objective area of life. Therefore, it is necessary to pay attention to the region's local architecture and cultural factors and consider today's design factors in this regard. It should be noted that the use of indigenous cultural patterns along with innovation. Since the collection's design will be based on local and cultural design patterns; Therefore, using the practical factors in design, influential factors in Amol culture and considering the native architectural factors of Amol can be regarded as the main foundations of the project.

Principles and basics of project design

Due to the awareness of the complexity and proper placement of quality spaces on the site due to having residential areas and the existence of restrooms and daily use rooms, it is necessary to study and plan principles for all different spaces such as residential spaces before designing. Rest, service spaces, etc., should be done with complete and comprehensive knowledge and awareness, according to the type of uses and the existing rules and standards, the first step of the design.

One of the issues in designing the site space was privacy in the culture houses, which is the primary factor in the design and formation of the project.

First sight:

In the first site identification and detailed analysis of site positions. The identification steps are:

1. Know the location of the site and its neighbours.

2. Determining the surface area at all points and its ratio to the adjacent street elevation code.

3. Check the various inputs to the site and rank them.

4. Climatic study of the site and determination of the types of prevailing winds that determine the appropriate volumetric conditions.

5. Location of masses, spaces and uses in the site and land.

6. Full accuracy for sunlight and practical use of its energy.

7. Orientation and placement of spaces according to climate issues and their different perspectives.

Design specifications

The process of idea formation

According to what was discussed in the previous chapters, according to the comparison made about the collective residential spaces in Iran, the observance of indigenous-cultural principles and criteria in today's architecture is less observed, and these patterns have been completely abandoned. Due to the determination of the principles of indigenous architecture and cultural factors in previous seasons, design ideas will be based on these principles.

General design ideas

After studying and identifying the site wholly and accurately, the following results were obtained from the site review:

1. Create interconnected spaces with easy access to the design

2. Create appropriate access to site design

3. Relative diversity of spaces and paths

4. Wind guidance and control on-site

5. Controlling and directing natural light into open and closed spaces

6. Design of site uses following the climate of the region

7. Designing residential spaces with a suitable distance from each other in the tradition of creating more privacy and comfort

8. Separation of residential and service space due to privacy

9. Creating green space between villas to establish social interaction

Features of the indigenous building coliform

Due to the weather conditions in the region, the form of buildings and building materials is such that it must be able to withstand the two factors of heavy rainfall and high humidity, which are introduced below these characteristics.

1. The formation of the building is extroverted

2. Groundwater removal (due to the high level of groundwater in this area and the air's high humidity due to its weight compared to dry air in the basement accumulates and makes it difficult to breathe, and everything Can rot underground).

3. The ground floor is above ground level and usually in the form of a porcelain chair (to prevent moisture from penetrating through the ground to the ground floor)

4. Try to place the highest level of the building towards the sea so that the sea breeze to the shore and the beach to the sea can be better used.

5. Due to the humid air, the buildings try to have an open, comprehensive and scattered plan or west and east elongation. The shape of their project is geometrically long and narrow, and the building's surface is geometrically long and narrow is facing the maximum airflow.

6. Creating the most blinds and natural ventilation and having maximum shade are the most critical factors that the residents of this area want to be in peace and comfort with the help of these factors.

7. Due to particular climatic conditions in temperate and humid climates, windows and shutters are usually placed in all building directions. The best use of airflow can be made in different directions. (This issue is of particular importance to achieve comfort within the building).

5. How to get to the main idea

According to the above and the studies conducted, the main idea has obtained the following results.

Final design ideas

- Creating privacy between spaces and uses
- Creating and redefining new uses that have more capability and flexibility in more time, such as defining multipurpose spaces in green space for social interaction (study or conversation)
- Creating public and private paths and spaces
- Take the paths out of a state of width and uniformity to create open and closed courses for a variety of spaces
- Creating space diversity in outdoor, semi-open and closed outdoor design
- Use of materials suitable for the climate according to the characteristics of the space
- Creating openings on two opposite sides to create air blinds
- Utilizing green space with a suitable distance from the building
- Building materials used are light and thin materials
- The building materials used have a minimum heat capacity
- Having maximum shade
- Create windows in the north-south-east direction of the building
- Use open plan in design
- The use of sloping roofs in the design
- Use of the porch in design
- Using the idea of local architecture in the design of the villa

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