The Effect of Natural Light in Design of Residential Spaces in Traditional and Contemporary Tabriz Homes

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Abstract: Use natural lighting or daylight great relationship with the building architecture. This article analyzes influences natural light on the formation and organization of functional spaces traditional and contemporary home in Iran based on the comparative differences in the expression using natural light in recent decades, which houses monuments contemporary and traditional houses has been considered. In this regard, try to answer the study main question if natural light in the layout of spaces, traditional houses and today's performance is affected. Early definition of features natural light and traditional houses and today is expressed and then communicate these issues in case studies were evaluated in Tabriz houses. A study indicates general layout and the composition of home environments, value and size of the space be the amount of light in the valuation in terms of traditional culture and climate at home more observed, in the event that our architecture today Distinction be less important the criteria. This article with descriptive ways, historical, analytical and library studies and field surveys to collect the information.

Key words: natural light, functional spaces, traditional houses, housing Today, Tabriz

1. Introduction

We can't see space in the absolute darkness, but light is not only a physical necessity but also an important psychological value of human life (Grewther, 1386). In addition to the practical application of light is the symbolic value (Abdi, 1390). Light also has numerous concepts in different areas of scientific and religious. For example "the light from the point of view of Islamic scalars such as Ibn Arabi " knows the light is code of exist that though the colored glass of various colors reflected on the mirror (Balkhari,1384). Najm Al-Din Kubra " refers to the phenomenon of colors and light color and believes that light in level of solid and material is weaker than light in higher" .(Bemanyan, Ali Nasab, 1390) Sohrevardi "lights different divided : 1) Single light, 2) Intention, light 3) Twilight, 4) Dark board and 5) Limbo, like object and indemnity object that hides and reveals the lights ")(Ibrahim, 1383). Light definition from the point of view of physics "light is a narrow strimp porrect specter that instigate sight cell and cause of seeing."(Ghashghaii, 1389) and Mark Planks idea is "perception feeing light of both objective and subjective phenomenon splits ")(Falamaki, 1381). Light from architectural thinkers point of view such as Louis Kahn who says "all nature is light and light introduce phenomenon means for viewing objects."(Jor Bozie,1387) Le Corbusier says " architecture is artistic ,detailed ,and dazzling game under the light ")(Le Corbusier,1969). Now debate about light and especially neural light can mean more than lighting and using the correct pattern of light in architectural space possible (Lal sea,1389). In such a way the day lighting on the completion of the design (Karln,James,1388). In the architectural of Iran, due to the changes in previous years, old houses that they are part of native architecture of each city, are at the risk of destruction. While they can measure and study designer to achieve housing model Iranians, guide (Memarian, Sijani,1389). Understand the use of natural light in the different way to design a space that can stone architecture today

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(Zainal Zadeh, Jodaei, 1390). In debate of how to use the natural light in the houses, by studying traditional houses can be seen that how old houses hierarchy of space has always been considered the use of aural light (Purdyhami, 1379). In these houses deal with words like Roson and Grille door and windows and Sash etc. all of these elements underscore the importance of light in architectural space (Memarian, 1389). Today housing is contrast to the traditional single dwelling house more functional and serves as a shelter . (Goudarzi,Morsali,1390) Due to changes made in the form of today's housing division organs (Shaghaghi, Mofidi, 1387). In today's housing residents are accustomed to artificial light and less natural light to the process (Parsi, 1387). This is a modern architectural design pattern of natural light is neglected.

So the changes have been made with questions such as which differences are in view of space in modern and traditional houses on the light there. How to use natural light in traditional and today's houses Arises this study aimed to answer these questions, the analysis and comparison of traditional and contemporary house has been in Tabriz. Tabriz traditional houses numerous old and new housing in the content of recent decades is capable of direction due to the cold weather, climate, and mountainous must observe the principle of special climate.

2. Light and Natural Light

Light in Dehkhoda's dictionary means lighting, enamel, blaze and quality can know it with eyesight (Dehkhoda, 1348). In Amid's dictionary means lighting , sun lighting, LED lighting (Amid, 1362).Light is the first condition for any kind of visual perception, one of most important psychological value of light in all areas of human life. Light is he practical use of symbolic value. Sun light is the most available, appropriate and effective energy source. For designers to use saving light energy turned on in the building (Purdyhami, 1379). The best design for houses is using natural light in space. Natural light can be considered on the basis of qualitative difference. Depending change on the amount of natural light during the year. The whether and the mount of air pollution etc (Aryanezhad, 1392).

2.1. Light in architecture

Light is an architectural tool, in addition to other architectural tool worth (Lal sea,1390), such as house in addition to increasing behavior and improve the health and well-being (Zainal Zadeh, Jodaei, 1390). Lighting is on the completion of the design of buildings, by exploiting the natural light turn the house on, and this process including following activities: -Building status -choosing fenestration for finding the right amount of light into the building -overshadow, facade and fenestration the intense radiation and unnecessary light - add items overshadow such as curtains and canopy to control the lighting. Therefore, we can assume that the design is not possible without natural light.

2.2. Natural light in traditional houses architecture

Traditional houses in Iranian architecture, has especial features and unique that mixed climate and religious and has specifications such as nice design, detailed calculation, right cover forms , long porches etc, is based on simple principles such as introspection (Abdoli, Naseri, 1391). Iranian architects have recognized the importance of light.

2.3. How to order functional spaces , traditional houses

Yard in old houses was most important section of house to exploited favorable light, creating an atmosphere with trees and pond water the angles of house prayer direction. In most traditional houses , north-south axis of the main building and best situation for attracting the sunlight (Kateb, 1388).

2.4. Light elements of traditional house ingredients

In this debate space of traditional houses have been studied in the treatment of light, details in the hierarchy is as following :1) Entrance and vestibule : guidance and controller of the light from outside into inside (Gorgani,1375). 2)Corridor : interface between yard and porch. 3)Yard: the open part of the house, and the openers opens of this space. 4)Rooms: in old houses, a large tend to see nature and natural light into space , so most of rooms opens to the Serra (Memarian, 1389). 5)Porch: as the most important room in the house of the other areas is key porch is located on the south side. 6)Kitchen: usually at the end of the house were built
TABLE I: Examples of traditional houses in Tabriz

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Hedayat Talebi's house</th>
<th>Etezami's house</th>
<th>Hamid's house</th>
<th>Nemati Zadeh's house</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First floor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of light</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualitative structure</td>
<td>The building has two courtyards North and South. Vestibule and entrance is located in the southern part. The yard is connected to ground. Predominantly located on the top floor and pool house.</td>
<td>The building has a courtyard with a basement, ground floor, and the first floor has two rooms. Courtyard by starts in the middle of the building is connected to the home on both sides of the narrow rooms of straw and mud.</td>
<td>This building belongs to the Qajar period. Consists of three main yard and a back yard. The main entrance to the building is first connected to the main courtyard, The building including rooms and basin.</td>
<td>This building was built in Qajar period. It has two floors connected by a vestibule and entrance to the yard. The ground floor consists of main entrance and vestibule.</td>
</tr>
</tbody>
</table>

TABLE II: bright elements of traditional houses in Tabriz

<table>
<thead>
<tr>
<th>Row</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plan forms</td>
<td>Introverted, and has yard, west-east stretch, compact cube</td>
</tr>
<tr>
<td>2</td>
<td>The opening of the bright</td>
<td>Bright ceiling, sash, color glass, porch</td>
</tr>
<tr>
<td>3</td>
<td>Bright's number</td>
<td>Commensurate with the value of the space, and the exponential space</td>
</tr>
<tr>
<td>4</td>
<td>Bright's location</td>
<td>In the main spaces such as rooms and living room front the yard, used ceiling light in kitchen and vestibule</td>
</tr>
<tr>
<td>5</td>
<td>Architecture features the use of instant light</td>
<td>Create a spirit of adherence to the location and climate in any space and create a navigation hierarchy in shaping space</td>
</tr>
</tbody>
</table>

2.5. **Natural light in contemporary residential architecture**

Suddenly in the last three decades, especially construction of residential buildings have been major changes. Design of residential areas o the neglect of the spiritual demands cause. So that the architectural identity is forgotten. Architecture and construction doses used today are extremely glass caused to make clear world. Building less can be one of the natural light and the architecture of the soul and body as far as Ayvazian believes "light in traditional architecture is cause of focus in modern architecture in cause of scattering (Ayvazian, 1383).

2.6. **The use of natural light in the components of today's houses**

The species can be said of contemporary space agency houses indoor areas are divided into three groups, including breaking spaces, including entrance, living room, dining room and separate spaces including kitchen, rooms, bathrooms and outdoor spaces including terraces, balconies and patio divided (Haeri, 1388). 1) Living room: by studied living room, one of the main areas is desirable and contemporary houses, and mostly located
in the southern part of the house, compared to other parts of house has larger windows. 2) Rooms: nowadays room size is smaller and perch of objects of house makes room unbreathable (Zarghami, 1390) Rooms in the houses are lighting from outdoor space such as alley or street. 3) Outdoor and green: in many cases remaining open areas and green spaces were built residential waste (Zarghami, 1389), in buildings that doors open toward the yard if it is residential finds importance. 4) balcony, terrace, patio: in modern houses balcony and terrace on the upper of development of a vision and natural light for indoor areas in the north and south sides of the house provides cantemporary.

**TABLE III: models of decade 60 and 70 in Tabriz**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Decade 60</th>
<th>Decade 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>Quality structure</td>
<td>1) Adhere to the pattern of previous decades in the houses of the 60s. 2) According to the old model with new model. 3) Yard and the backyard of the house can be seen. 4) Lack of direct vision of the living or dining room and kitchen Home. 5) Private residential apartment buildings and the gradual formation.</td>
<td>1) Reduce the role of backyard in in the houses of the 70s remain the main yard without Backyard. 2) Direct view of the kitchen to reception. 3) Residential buildings for personal and non-apartment. 4) Apartment pattern boom of the late 70.</td>
</tr>
</tbody>
</table>

**TABLE IV: models of decade 80 in Tabriz**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Decade 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td><img src="image3" alt="Image" /></td>
</tr>
<tr>
<td>View</td>
<td><img src="image4" alt="Image" /></td>
</tr>
</tbody>
</table>
| Qualitative structure | - Implementation plans Brigade  
- Become a yard space to public space for neighbors  
- the target is the physical layout of the space.  
- Despite the diversity in the interior  
- Lack of attention to the climate and culture of residents  
- Implementation of the same standard in different parts |
| Guide         | ![Image](image5) |
### 3. Conclusion

Providing natural light and the most effective and most important factors in the formation and organization of house space and residential buildings, the natural light in addition to impact and what the studies show, traditional Iranian architectures and design to provide comfort for users based on their culture and climate, can't only in terms of physical strength traditional works described traditional architecture for creation of the soul is at the house space and light is as a symbol of the vitality of any space states.

For every space, natural light intensity appropriate and varied forms such as sash windows and ceiling light is suitable with its structure is designed to accommodate exponential. But what is clear today indifferent architectural concept of light design. More attention to the design of the body and the body has no understanding of the meaning and spirit. What natural light in the house today is as window frames made of its products. So it should be raised in traditional buildings design features natural light and space-based organization that used in contemporary homes.

### 4. References


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