Formulation of vernacular-oriented model in the city of Kerman

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Abstract: Residential architecture design has always been one of the hardest and most complex types for architects. Because so many factors have been constantly befallen them, and they have been facing with a serious challenge. Recognition and respect to human needs are appeared in housing project more than any other one. Several human behaviors at home, the way of relationship between the member of a family and the despondence to their multiple needs is a difficult matter and has a certain complexity. In addition to all these issues, social issues arising from placing different families together with different cultures should also be added. These limitations liken residential projects largely together and offer similar solutions to solve these problems.

Key words: Vernacular-oriented; Kerman; Residential architecture

1. Introduction

Throughout the history of human life paying attention, pay attention to the innate needs of human and trying to eliminate them has always been of particular interest. The most basic of these natural tendencies and seeking shelter in a place and its aftermath was trying to build a shelter consistent with the inborn needs and environmental expectations of their beneficiaries. This principle has been effective in an endogenous process in the formation of housing, so that this type of thinking and its reflection have always a special impact on shaping the culture and traditions of people by the increase in population and the change of the needs of individuals. In this regard, the natural environment will always offer possibilities and opportunities to man, and men choose some of these natural possibilities and opportunities to provide seeking shelter in a place and to meet their natural needs based on the patterns depended on the indigenous culture, and they transform the natural environment according to the consistency with their own human needs.

1.2. Discussing the subject

Designing of residential complex and or housing building with the approach to local architecture is the main objective of this thesis considering the problems and weaknesses in the designs of the city throughout. The cases made us choose this project consist of:
• There will always be the need of society for housing as the part of life inseparable due to the fact that such a need is constantly there.

• Selecting it as the final design because of its use in the future and trying to learn more to design a residential complex.
• Low-intensity areas of public communication.
• Creating social spaces caused increasing the residents' social interact and putting the concept of peace in action.
• Installing landscape in the whole area to have a further connection with the nature.
• Creating housing units with balcony and combining them considerably in division of units acceptable to make a sense of ownership to the house in the residents of each one.
• Using the courtyard and landscapes to meet the needs of residents and enjoying most of it due to the climate of Kerman.
• Making privacy in different parts of the site by creating filters.
• Separating the entrance for the roadway and sidewalk to make a privacy and comfort for the residents.

1.3. Literature review

Heidegger believes that the way and the manner in which we humans *are* on the earth, is dwelling. In his article "Building Dwelling Thinking" he uses the old German word "Bauen which means building" to open a broad stretch of concepts and old implications anew and explain the food of being and interpret dwelling as to be with things; as he also discusses about the dwelling of human nature in his own reality in the being and time. He insists in his speech that the dwelling requirement is thinking and poetry. He assumes that dwelling is the most basic character of being in keeping with which mortals exist. At the end of the article he has mentioned: nowadays everyone talks about the housing

shortage, however, nobody think of the real plight of dwelling. Man's homelessness is in this that nobody thinks of the real disaster of dwelling as the disaster. Heidegger's answer to the question of what solution you have; he replies: "Mortals bring dwelling to the fullness of its nature, and this provided that they build out of dwelling and think thanks to dwelling."

Al-Farabi raises this matter that houses have a complete effect on the behavior of its inhabitants. He refers to a unique matter of discussion. He does not represent architecture and construction of house as the only sign of kind of thought, but he believes that house has a direct effect on one's behavior and it has the role of education. In the chapter twenty-third of his book "Fuṣūl Muntaziʻah" he writes: Some houses create various dispositions in their owners such as houses of leather and hair that have been provided in the deserts.

In 1964, Bernard Rudofsky held an exhibition along with a book of the same name. According to some, this event was like a point of "architecture without architects" and as a landmark in the West to start paying serious attention to the vernacular architecture and the beginning of a lot of research in this field.

Wood House in the introduction of his book has mentioned a fairly accurate description of searches and studies done in the vernacular architecture before and after 1960. (Ibid, 1980, P.4-5)

Turning the community of Iranian back off the Islamic and Iranian values to the modern and Western values has been described in detailed in the book by Banani "The Modernization of Iran". He explains that how various aspects of the country such as the economy, education, law and justice system, military and administrative structure have been changed from their own traditional methods to the Western patterns. (Ibid 1961)

Ṣāniyī, in an article titled "What happened to the traditional Iranian architecture" (Tehranī, 1368), himself about Iran architecture, and Dībā (1371) in his work "the study of Iran architecture in the culture and history" are those who have considered the influence of the Western architecture in Iranian's and studied and discussed the change of traditional and original patterns of Iranian architecture to modern and contemporary architecture.

Pīrnīyā (1371) and Kīyānī (1368) are among those who have provided valuable information on Iran architecture in the Islamic period; Qizilbāsh and Abu-ḍīyāʻ (1364) has also mentioned the traditional patterns of the house. Sulṭānzādih (1371) has considered some details and elements of architecture such as entrances and traditional windows as well.

2. Research objectives

2.1. General objectives

- The improvement of housing based on cultural and social conditions of the contemporary audience.
- The optimization of the minimum housing design.

- Landscape plant installation in the whole area and more connection with nature.
- The division of housing units from each other to make a feeling of ownership in the residents of each house.

2.2. Specific objectives

- Presentation of a model for a local housing complex compatible with the climatic model and culture of the region.
- The design of a vernacular-oriented residential complex in contemporary architecture with an emphasis on indigenous concepts.
- The creation of spaces to increase social contact of the residents and put the concept of peace in action.
- Using the courtyard and landscape to meet the needs of residents and enjoying most of it due to the climate of Kerman.
- Making privacy in different parts of the site by creating filters.

2.3. Assumptions:

1- There is a connection between housing factors compatible with climatic and patterns of vernacular architecture.
2- It can be possible to formulate a model for the residential complex in the contemporary time based on cultural and climatic factors of ecology-oriented housing.

2.4. Research questions:

1) How is the impact of climatic and cultural conditions on the vernacular-oriented architecture in the housing of Kerman?
2) What are the cultural and climatic factors affecting vernacular housing of Kerman?
3) How could it be possible to achieve the climatic and cultural factors affecting the contemporary housing via the recognition of indigenous architectural patterns?
4) How could it be feasible to review can the ecology-oriented architecture features of Kerman?

3. Method

The data are gathered based on the survey research in which a particular group (in this study, residents of three areas of Kerman) will be asked to answer some specific questions. The method of this study involves the stages of data collection and analysis, providing research tools, measuring variables, statistical population, analysis means and sampling based on descriptive-analytical method and their deduction described in order as the following:

3.1. Data collection and analysis

In the present study, data collection has been conducted in two parts of library and field studies. Library studies done to explain the concept of a residential complex compatible with vernacular architecture through written sources including online resources, books, articles related to and like that, and also to review the design of the desired historical houses, national regulations and design criteria, indices of building ventilation systems, environmental and geographical studies of Kerman Province and also architectural indices of historical houses of Kerman.

In the field studies the data were conducted by the methods of observation, interview and questionnaire to review quantitatively the pattern of local housing. Field surveys consisted of two parts. In the first part, the geographical-environmental situation of Kerman and the examples of native houses (such as the house of Doctor Bākhudā, Shāhrukh Khān, Movaḥedi, Rostam Farrukhzād, Tavakulī Bank, etc.) in the old area of Kerman are investigated. The second part is based on the use of the vernacular architecture factors of the old area of Kerman led to a new design as a residential complex by the approach of vernacular architecture in the new area of Kerman in the context of exploitation of services in the area of the site.

3.2. Research tools

Stage 1 which is a library research. Tools for data analysis are inferential tables and the tools of listing the concepts to analyze the meaning of vernacular architecture and explain the cultural and climatic indicators, and they are used to recognize the pattern of contemporary vernacular housing.

Stage 2 which is the field type. Recognition of pattern of houses in physical and space is subjected to study via analytical tables and analysis instruments in form and space.

Stage 3 which is the field kind. The needs and demands of today's residents are recognized by using analytical tools (Spss software) and also statistical charts and tables, and its relation to the contemporary vernacular architecture model is also analyzed.

3.3. Variables

In Hypothesis 1: The independent variable of the architecture is the former vernacular housing that data measuring can be concluded through direct observation, because vernacular architecture can be observed and recorded by the presence of people in different places, and it can be formulated through tables, and the dependent variable pattern of vernacular architecture is identified with the field observation. In this regard, the pattern of vernacular architecture is a key component in the definition of housing compatible with the climate of Kerman.

In Hypothesis 2: The dependent variable is the contemporary vernacular housing that for the preservation of its values as a social center needs consistent and definite principles. In this regard, the cultural features and characteristics of contemporary audiences were reviewed and studied to provide the relationship between symbols and expressions of identity and the construction of housing on the basis of recognition of vernacular housing in space and physical factors and backgrounds for a model for contemporary housing compatible with vernacular architecture.

"The questions of the questionnaire are designed for validation."

3.4. Statistical population

In the present study, statistical population involved three groups to assess the study of the forms of housing pattern compatible with contemporary vernacular architecture according to the needs and culture of the residents of the region. The first group covered the residents in the old area of Kerman and the second group included the residents in the middle areas of Kerman, and the third group involved the residents in the new area of Kerman.

3.5. Sampling procedure

The target of statistical population in the study is that the contemporary residents aged over 30 will be determined. The size of the statistical sample assigned to the experimental method is 30 persons that are subjected to examine through random sampling in order to identify the needs, demands and culture of contemporary residents.

4. The findings

4.1. Analysis questions

As it is clear, the most votes is for those who are not interested in living in the old areas, while the majority are interested in using a designer of traditional houses in their own ideal accommodation.

Most of those who have answered the questions prefer living in one of the neighborhoods of the city center, so that they can access to the utilities more convenient despite the bustle.

Most people preferred living in a traditional house and making changes in some parts only according to their needs (Table 1).

The most pleasant feeling in traditional houses is the peace which is in the old area, and the majority liked and approved making intimacy which was one of the principles of the manufacturer of traditional houses (Table 2).

If you were given a land in a historical area to build a house, how much would be your attention about the following cases?

Table 1: living in traditional houses

living in traditional houses			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	If you were given an old house but in good condition, which option would you prefer to choose?
Selling the house and buying a new one but smaller	4	13.3%	
Settling there and using as it is	5	16.7%	
Tearing it down and reconstructing a new one	8	26.7%	
Settling there and making some changes in some parts	13	43.3%	
Total	30	100%	

Table 2: Making intimacy at the house

Making intimacy at the house			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	How much is it important to you to make intimacy while designing the house
So much	10	33.3%	
A lot	10	33.3%	
No special comment	6	20%	
Low	4	13.3%	
Very low	0	0%	
Total	30	100%	

In this section, the respondents were given an opportunity to imagine if they were given a land in a historical area, to what extent they would prefer the following cases in their design; Accordingly, it was found that there is not a great desire to create a building exactly consistent with the old area and as far as possible try to make the historic sense of the area in their own house by applying an element or a common element that were in older houses.

According to respondents, it will be ineffective if there is some contrast in the building with its surrounding area. Furthermore in some cases even respondents tend to build a different building but acceptable and compatible with the area; although, as it is supposed there is not a great desire to construct a unique and creative building there.

If you want to make a decision for every single part and factor effective on the design of the building (which was mentioned in the following table), how much of similarity would you like that these components have to the components of historic buildings in the area?

Table 3: Consistent with the area

Consistent with the area			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	a building exactly like of the area (Attached to and consistent with the area)
In any way	1	3.3%	
Ineffective	6	20%	
Somewhat	16	53.3%	
much	7	23.3%	
Total	30	100%	

Table 4: Matches with the area

Matches with the area			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	a building matches with the area (An element, a common trait with which you are familiar)
In any way	2	6.7%	
Ineffective	7	23.3%	
Somewhat	13	43.3%	
much	8	26.7%	
Total	30	100%	

Table 5: The least contrast with the area

The least contrast with the area			The chart of the respondence of the residents in the area (%) A building that has the least contrast with the surroundings of its area. (Having the least contrast with the surroundings)
Options	The number of Votes	Percent	
In any way	4	13.3%	
Ineffective	10	33.3%	
Somewhat	10	33.3%	
much	6	20%	
Total	30	100%	

Table 6: Different from the area

Different from the area			The chart of the respondence of the residents in the area (%) A building different from the area but it is acceptable for you. (it is acceptable and pleasant for you)
Options	The number of Votes	Percent	
In any way	3	10%	
Ineffective	8	26.7%	
Somewhat	13	43.3%	
much	6	20%	
Total	30	100%	

Table 7: Novel with the area

Novel with the area			The chart of the respondence of the residents in the area (%) A novel and new building in the area (a unique and creative building)
Options	The number of Votes	Percent	
In any way	10	33.3%	
Ineffective	3	10%	
Somewhat	5	16.7%	
much	12	40%	
Total	30	100%	

Unlike question 7 the qualitative part of the building was mentioned more in question 8. The respondents were given the opportunity to imagine their favorite house without any limitation and answer the following questions by comparing it with a traditional one.

Regarding to this part, it became clear that from the overall size of the building the majority agreed with the size of the traditional houses, and they chose the houses whose format is "something like a central courtyard".

Relatively high altitude and making a space at the entrance are the other items that were approved by the respondents, however we received two very different views about the locating of the courtyard in the center of the building; half of the responses were completely agreed and the other half were completely opposed to it. Most prefer using the traditional materials and the type of structure is somehow similar to the past.

The case highly welcomed by the respondents was planting trees, plants and installing a pond of water in the building, and most prefer locating their buildings along the streets if possible, yet the entrance has a recession.

Based on the responses, it was found that the maximum amount of interest of individuals about house spaces paid to the living room, and they prefer spending more time in this space and get together more in there; and there were questions that they would be able us to acquaint more with the moods of respondents.

Table 8: The overall size of the building

The overall size of the building			The chart of the respondence of the residents in the area (%) The overall size of the building
Options	The number of Votes	Percent	
In any way	1	3.3%	
Ineffective	4	13.3%	
Somewhat	13	43.3%	
much	12	40%	
Total	30	100%	

Table 9: The overall form of the building

The overall form of the building			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	The overall form of the building
In any way	3	10%	
Ineffective	3	10%	
Somewhat	15	50%	
much	9	30%	
Total	30	100%	

Table 10: Building height

Building height			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Building height
In any way	5	16.7%	
Ineffective	5	16.7%	
Somewhat	16	53.3%	
much	4	13.3%	
Total	30	100%	
Create space for entry			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Create space for entry (vestibule)
In any way	4	13.3%	
Ineffective	2	6.7%	
Somewhat	12	40%	
much	12	40%	
Total	30	100%	

Table 11: Courtyard in the center and buildings around

Courtyard in the center and buildings around			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Courtyard in the center and buildings around
In any way	6	20%	
Ineffective	4	13.3%	
Somewhat	7	23.3%	
much	13	43.3%	
Total	30	100%	
much	7	23.3%	
Total	30	100%	

Table 12: Materials used

Materials used			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Materials used
In any way	3	10%	
Ineffective	6	20%	
Somewhat	14	46.7%	
much	7	23.3%	
Total	30	100%	
Type of structure			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Type of structure (Brick, resembling a brick, metal, etc.)
In any way	3	10%	
Ineffective	6	20%	
Somewhat	13	43.3%	
much	8	26.7%	
Total	30	100%	

Table 13: Using trees and plants

Using trees and plants			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Using trees and plants
In any way	1	3.3%	
Ineffective	0	0%	
Somewhat	8	26.7%	
much	21	70%	
Total	30	100%	

Table 14: Parallel to the street

Parallel to the street			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Parallel to the street
In any way	8	26.7%	
Ineffective	5	16.7%	
Somewhat	11	36.7%	
much	6	20%	
Total	30	100%	

By Table 16 revealed that the space of living room more than the others has dual or multiple usages in the mind of respondents.

Table 15: multiple usages

multiple usages			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	What spaces of your house do have dual or multiple usages?
Terrace	5	16.7%	
living room	10	33.3%	
Drawing	11	36.7%	
Bedroom	4	13.3%	
Total	30	100%	

Based on responses the terrace has been chosen as the playground for children. Also according to the analysis the living room is used as a place of sleeping more than the other rooms. Perhaps because of the solitude and tranquility in the bedroom the majority of respondents know it a suitable space to perform religious rites.

The next section of the questionnaire was paid attention to the design and placement of spaces, and as a result, it was found that the majority prefer to use the bath and toilet separately with separate basin. Open kitchen design is also used, and the only case that respondents emphasized was the lack of visibility from the guest part toward the kitchen.

It also became clear that the people preferred having a separate space to put the dining table.

Table 17: Dining room

Dining room			The chart of the respondence of the residents in the area (%)
Options	The number of Votes	Percent	Dining room space
Space for dining table	14	46.7%	
Dining table in the kitchen	6	20%	
Spreading a spread in the living room	7	23.3%	
Spreading a spread in the kitchen	3	10%	
	30	100%	

According to Table 18 individuals prefer having personal sleeping space.

People tend to create an inlet completely covered and closed that allows them to have a short chat.

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Table 18: Bedroom

Bedroom			The chart of the respondence of the residents in the area (%) Bedrooms
Options	The number of Votes	Percent	
Sleeping in the bed	9	30%	
Sleeping on the floor	6	20%	
Common room	0	0%	
Private room	15	50%	
Total	30	100%	

In the next section of the questionnaire based on responses it was determined that according to the expectation of the individuals the courtyard as their point of view means a place of family's getting together; and if there is a possibility of water entering the yard , it will be welcomed.

Most respondents prefer having the design of the living room and dining room independently. Table 6.

Table 19: The living and drawing space

The living and drawing space			The chart of the respondence of the residents in the area (%) Do you wish to merge the living room with the drawing one?
Options	The number of Votes	Percent	
So much	7	23.3%	
A lot	9	30%	
No special comment	4	13.3%	
Low	6	20%	
Very low	4	13.3%	
Total	30	100%	

According votes obtained was found that respondents tend to bring nature into their residential environment.

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