

## Designing Residential Houses of Artists in Tehran with Nature-Oriented Architecture

Melike Yarmohammadi, Mina Kabodarahangi

Received 10 October 2017 ; Accepted 12 November 2017 ; Published on 1 December 2017

**Abstract** The family is the first, smallest and yet the most important cell in society. The family describes our first experiences of space perception, a space which should meet our biological needs and also provide the residents with psychological comfort and security. Artists' residential complex has been designed with the purpose of creating a space consistent with artists' needs and also one for their social interactions to reinforce neighborhood concept. Reinforcement of this concept results in providing a proper environment for artists with different needs comparing to other people. Moreover, another purpose of this research is to find solutions and requirements of designing houses for artists. The results of theoretical fundamentals indicate that such criteria and the importance of recognizing them has not been studied precisely so far. A question arises here that how important it is to build such complexes and if it is important, which arrangements shall be considered? It worth to mention that buildings for artists have been built in many regions in the world and this necessity has been considered. It is ideal for the house to be in harmony with the nature surrounding it. A

house is a small part of big world but for the people living in a house, it can be a world. The house accommodates their work, vehicles, clothing, artistic works and sleeping space. Just like anything else, a greenhouse to be built needs a creator. Building a greenhouse supports the health of people living in and in its neighborhood and would make them satisfied. Therefore, the necessity of developing the stability in architecture is apparent here. At the end, it was decided to build a complex composed of 160 units with nature-oriented architecture.

**Keywords** Residential complex, Stability, Nature-oriented, Houses for artists.

### Introduction

Today, it is very hard to make humans pay attention to something beyond everyday life and exit from unchangeable framework of mechanical life and also to lead them into a new but familiar world, the ABC of which is made of nature. This platform is the nature and stability means nothing but making a balance between life and the world. Philosophically, the nature is a bridge between structural reasoning, efficiency, using the best material, functional fitness, color, shape and volume, in a level that human has not yet reached it. Scientifically, nature is interpreted as beautiful and efficient forms [1].

In architecture, the house has been the first and the most important issue in humans progressing, so that the houses compose a big portion of human habitats and significant moments of human life is spent

---

Melike Yarmohammadi  
 Department of Architecture, Karaj Branch, Islamic Azad University, Karaj, Iran

Mina Kabodarahangi\*  
 Department of Architecture, Science and Research Branch, Islamic Azad University, Tehran, Iran  
 e-mail: m-ahangi@srbiau.ac.ir

\*Correspondence



Fig. 1. Area being studied in region 22.

with family. The house is our center of security and peace in the world. Hence, the house in general means identity. A proper house can be a place for peace and refectation and peace is the gift of architecture. Architecture uses every available elements of nature for drawing peace and calm and chooses its multi disciplines from nature. Architecture mixes the soil discipline with water to make hard material from soft ones and to form the body and it makes soft material out of hard ones to recover the sky face in it. Plant mixing with water aims to make a picture of somewhere which once was the humans' place and plant again mixes with air to reach to a whisper which excites the overs. The philosophy of architecture is something that unites these four elements [2].

Peaceful coexistence of humans, architecture and nature is really apparent in traditional architecture of

Iran, and it roots deeply in our culture. In fact, there is a harmonious balance between buildings and natural environment in traditional architecture of Iron, a harmony with nature which it is rare to see in contemporary houses. In Iranian architecture, harmony with nature has always been considered as a climatic design element and now a days it is accepted in framework of global stable architecture as an important principle. The relations between client and designer and constructor which was clear, simple and direct in traditional societies, have become complex in big cities. The separation among client or investor and real consumers in one side and the span of relations between programers, designers and contractors on the other side, cause such complex relations. With such complexities, it is not as easy as past times to determine everyday needs of users and meeting these needs [3].

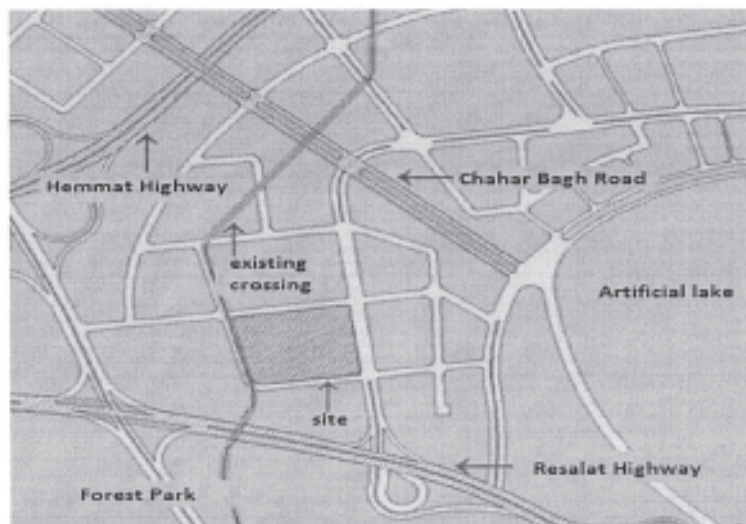


Fig. 2. The specified site and its neighborhood.



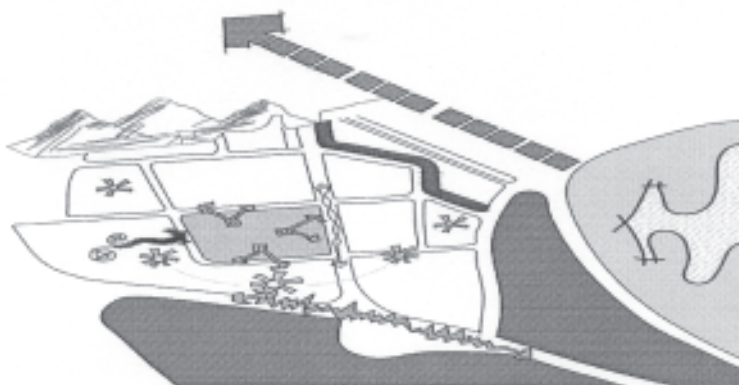
**Fig. 3.** Detailed plan of region 22.

Using people's participations in planning and designing processes, is a solution to perceive the relation between the expected needs and canonical needs. People's participations increases the possibility to adapt the house with users' needs and subsequently increases the general satisfaction from house. In planning and designing traditional houses, the direct relation between architect and user and knowledge about custom life of people, provided such participation [4].

Artists with needs and sprits which may be different from other people, are very unsatisfied with their current houses. They need more to show their selves in life, art and even houses ; and current inflex-

ible houses do not allow it. Moreover, one of their fundamental needs is to communicate with others. So, neighborhood concept is very important when designing houses for artists. The purpose of study is to implement stability principles aiming to become sensitive to environment and finding a deep look to structural elements in residential spaces and also to make the best interaction between human and nature with the help of architecture. This research would review different needs and demands of artists and their requirements in houses [5].

The importance of present study firstly results from the significance of house as a public and general subject which all domains of human knowledge



**Fig. 4.** Review and analysis of site.

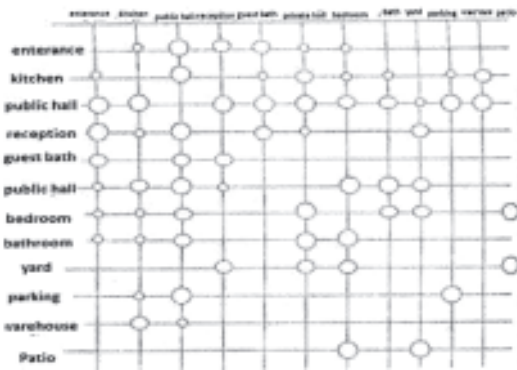


Fig. 5. Proximity of spaces.

are somehow related to it. The house is considered as the first and most important issue in human progressing, because residential spaces compose the main portion of human residents. The purpose of discussing subject is to create a relation between human and nature with the help of architecture to reach the environmental goals. The environmental goals include creating a relationship between architecture of residential houses and the surrounding nature, creating higher environmental quality, paying attention to environment, reaching to structural stability in architecture with the help of climatic stability. Since the issue of building houses for artists is involved with the art and sprits of artists and their needs as residents of residential complex, this subject has been changed into a cultural subject [6].

The results of field studies indicate that, as

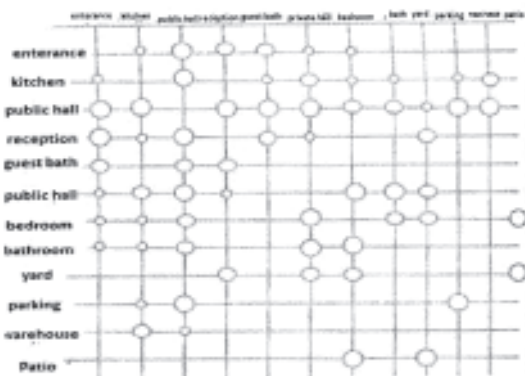


Fig. 6. Spaces adaptation with factors affecting each space.



Fig. 7. Plan concept.

Rapaport says, artists with different cultural needs are more intended to live in the houses specially built for them. Considering the importance of house and

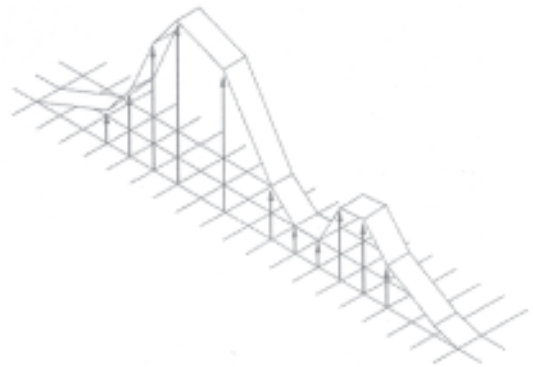


Fig. 8. First step of design process.

the impact of environment on human, the purpose of

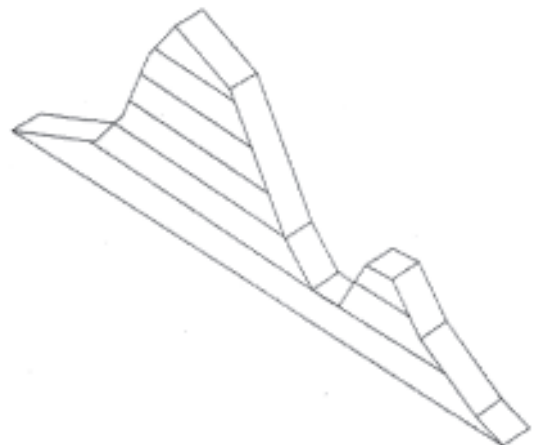
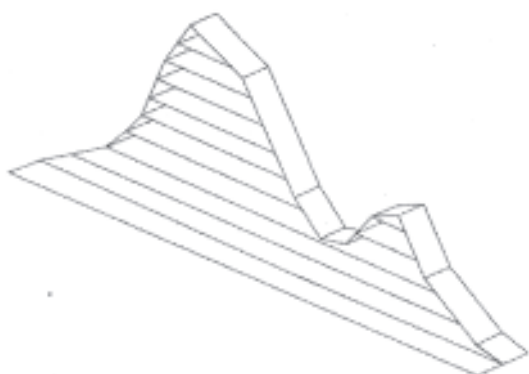


Fig. 9. Second step of design process.



**Fig. 10.** Third step of design process.

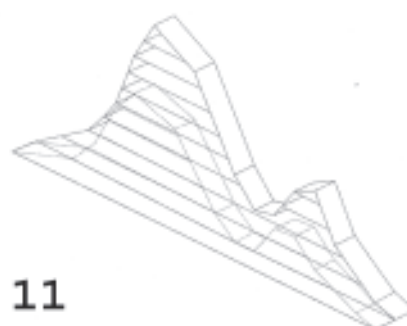
this study is to find solutions and necessities of designing houses for artists with nature-oriented approach. Such criteria and the significance level of recognizing them have not been precisely studied so far and this article tries to pay attention to such criteria and present a proper solution.

### Materials and Methods

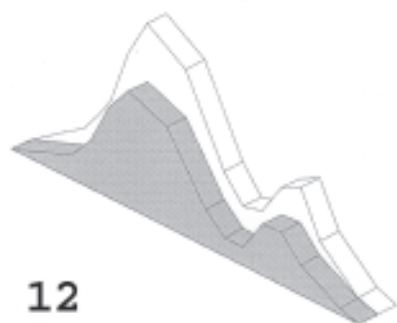
At the first step, available texts and resources relating to recognition of factors and conditions effective

**Table 1.** Occupancy level of considered spaces in complex.

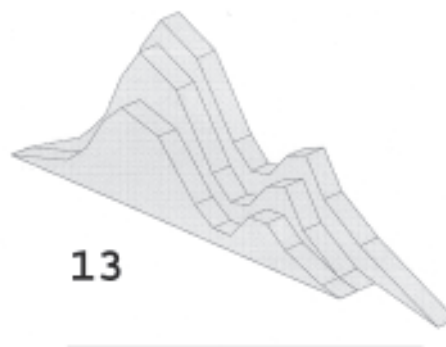
Item	Land area (in square meter)	Percent	
Residential occupancy level	20165	42%	43%
Gallery occupancy level	1174	0.2%	1%
Occupancy level of educational and commercial paces (atelier and class)	3759	0.8%	15%
Occupancy level of open public spaces	7257	59%	59%
Occupancy level of open semi-public spaces	20165	43%	
Occupancy level of vehicle access	2490	0.5%	0.5%
Area of land pieces	42996	100%	100%



**11**



**12**



**13**

**Fig. 11.** Fourth step of design process. **Fig.12.** Fifth step of design process. **Fig. 13.** Sixth step of design process.

for artists and also the different needs and sprits of artists in theoretical principles are reviewed and the required planning is arranged. Finally, site, limitations, opportunities and requirements of comprehensive plan are reviewed based on these studies.

**Table 2.** Results obtained from field studies.

Location and the yard	Exterior design	Interior requirements
Close to gardens and good weather regions	Combination of tradition and modernity	Prediction of working space
Far from main city roads	Simple forms in components and complicated in combination	Reception space
Free from traffic and crowds	Simple, uniform and natural materials	Definition of territories
Reinforcement of public and private limit area and concept of neighborhood	Dark or neutral color like exposed concrete	Flexibility, voluntary isolation
Green spaces and trees	Possibility of experssion in form or facing	Light and view in working space

**Table 3.** Presence of preferred spaces.

1.	Library
2.	Exhibition spaces for art works
3.	A working space in the house
4.	A space for baby sitting
5.	A space to eat
6.	A space for computer
7.	An acustic space for music
8.	Fireplace
9.	A space for home cinema
10.	Playing space

9 times more than urban standards. Region 22 is selected logically and limiting natural and artificial factors such as heights, watercourse in north and east and highway in south have been considered. Moreover, Tehran master plan has relied on Verdabad village, as the western border, in order to preserve the physical body of Tehran and Karaj and also to prevent assimilation of these two cities. In fact, region 22 is placed between Tehran and Karaj.

Site analysis

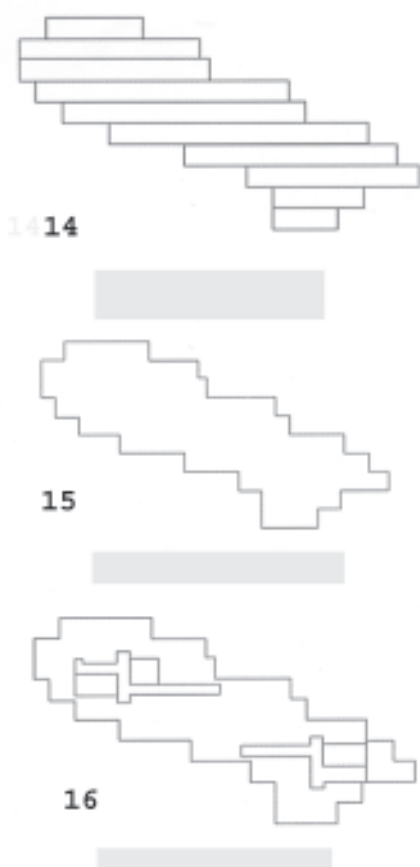
*Site review*

Considering the potential, environmental facilities, diversity of land structure and virginity of newly-built region 22, while other regions of Tehran suffer from density and non-standard architectural identity, this region has always been attractive to city planners and experts. In terms of climatic conditions, region 22 is the best region of Tehran and its green spaces are

The specified site is located in region 22, at the end of west border of Tehran in a location with proper environmental conditions and beside mountains, jungle (Chitgar park) and artificial lake, with a land area of 50,000 square meters. The land is surrounded by Tehran’s west north mountains in north, Chitgar park in south and artificial lake in east. Moreover, the main road to the site is the south side of Resalat highway and in north Chahar Bagh is the main road of

**Table 4.** Results obtained from conclusion of case study.

Case	Working spaces and ateliers in house neighborhood	Cubic volume	Ex-posed structure	Simpli-city of interior spaces	Net material	Color play	Flexi-bility
Houses of architects and artists in swiss Residential house		*	*	*	*	*	*
with dancing studio	*	*	*	*	*	*	*
House of Larry Frick	*	*	*	*	*		
Houses of two artists in Mexico	*	*	*	*	*		
Westbet artists community	*	*					*



**Fig. 14.** Plan of first step. **Fig. 15.** Plan of second step. **Fig. 16.** Plan of third step.

region 22 (Figs. 1–4).

#### Design standards and regulations

##### *Standards for designing residential houses*

- (A) Building single family units (one residential unit), and multi-family (multi residential houses) in the condition that the minimum size of units are 120-150 and 500 square meters, respectively.
- (B) Considering the minimum size of each land piece that is 500 square meters and building at least 4 residential units in each.
- (C) Considering the maximum foundation area size in ground floor (it shall not exceeds 65% of total land area in ground floor).
- (D) Considering the maximum foundation area size



**Fig. 17.** Plan of fourth step.

in floors (it shall not exceeds 80% of total land area).

- (E) Considering coefficient of floors level to total floors level (up to 120% for average density, 220% for high density and 50% for low density, in the condition that open spaces equal to maximum 30% of total land area).
- (F) If apartments are going to be built in these land pieces, the maximum floor numbers would be 3, without need to elevators.
- (G) Each residential unit shall possess one parking space.
- (H) The main room shall be at least 6 square meters and the width to length ratio should be standard.
- (I) The size of kitchen, bathroom and toilet should be a least 4.5 square meters.
- (J) If these building are constructed on pillars and the ground floor is just used for parking and the height does not exceed 2.20 meters, the ground floor is not considered as a floor.
- (K) In case of building underground floor, if the height does not exceed 1.20 meters, it is not considered as a floor.

##### *General principles and relationship between spaces*

*Reaching:* This step mainly include problems resulting from transport networks, lack of required facilities for using public transportation and family communication route between destination and transport networks. In case of residential environments, this step can be reviewed in the form of access from public transport networks to residential houses and vice

**Table 5.** Titles of spaces of a residential unit.

Title	Number	Area (meters)	Total	Description
Living room	1	35	35	If possible, it would be better for guest space to be designed separated from living room in a proper location due to its importance
Kitchen	1	15	15	Easy access to living room and entrance-proper material for cabinets
Dining room	1	15	15	Easy access to kitchen and calm space, sunny with suitable air conditioning
Kid's bedroom	2	12	24	Calm, sunny, with suitable air conditioning
Parent's bedroom	1	20	26	6 square meters for clothing and bathroom
Toilet	1	4	4	Close to guest room-suitable air conditioning
Parking	1	20	20	Can be separated from main building

versa and also transport form between stations of public and private transport vehicles to the entrances.

*Entering:* This step generally includes the performance of communication place inside and outside of environment, which in case of residential environments include path location, yard or parking spaces or inside building spaces.

*Using:* When one enters the building, the step of using the environment starts, which in residential environments include corridors, vertical access to floors through stairs and elevators, entering the residential units, using unit spaces, safety at urgent times, urgent exits and meeting spiritual needs of residents.

### *Placement direction of internal space of residential plan*

Southern spaces (bedroom, dining room, terrace, living room), Eastern spaces (bathroom, sport saloons), West spaces (patio, library, hall, play room), West north spaces (stair way, warehouse), East north spaces (kitchen, toilet, garage, entrance), West south spaces (stair way, warehouse, corridor), A percentage of room should be covered by glass, The best light is in south, north, east and then west, respectively (Figs. 5, 6).

## **Results and Discussion**

### **Physical plan**

Codification of physical plans have been approved considering reviews of case studies, the predicted system in master plan, considering public recreational spaces, needs of artists and finally adjustment of all of them. As indicated in results of field studies, artists need educational spaces, commercial spaces, atelier and theater. Moreover, presence of semi-public spaces is important for discussions.

The desired site is located in region 22 of Tehran. The project site is located in a land area of 50,000 square meters with average density for building 160 residential units with services needed for the predicted complex (Table 1).

Considering the results of field studies and 160 residential units, 45% of units are single bed, 40% two beds and 15% three beds. It is due to low population of artists' families.

Considering the results obtained through review and analysis of available resources about recognition of factors, elements and conditions which are effective in building a suitable house (and which specially meets the needs of artists) were analyzed. In next step, through interviews and questionnaires with artists who are the end users of houses, we found out that they prefer volumes in components and complicated in combination and they like traditional yet modern elements. Moreover, green spaces and nature are very important for them. They like voluntary

isolation, so presence of flexible spaces in different levels seems essential due to specific spirits and diversity seeking characters. Moreover, the presence of exhibitions and stores are important due to needs to consuming materials and scene play (Table 2).

More than 90% of interviewees do artistic works in houses. It indicates the need to working space in houses, which in most of cases was mentioned to be the general dissatisfaction from current houses. Moreover, some points should be mentioned:

- (a) Painters and architects mentioned in their responses that they need big working spaces.
- (b) Most artists believed that presence of book shelves in working space is important.
- (c) Many artists namely in calligraphy and music fields mentioned that there should be calm and cosy spaces separated from other parts of the house.
- (d) Artists due to their economic level, needs the rooms on the number of their family members.
- (e) More people prefer rooms to be in proximity of terrace, living room and bathroom.
- (f) More people prefer the kitchen to be in proximity of living room or hall.
- (g) Artists believe that private living room is necessary
- (h) Most artists prefer living rooms with long windows with views, while others like low light and cosy living rooms.
- (i) People prefer the living room to be in proximity with kitchen and bedrooms.
- (j) Most artists believe that presence of fireplace and TV in living room is necessary.
- (k) They believe that one or two parking spaces are sufficient.
- (l) They also mentions the need for warehouse in parking and inside the building space.

- (m) They mentioned the presence of garden-like green spaces as one of the most important elements.
- (n) Moreover, swimming pool, coffee shop, sport space, shopping space and also multi-functional saloons in complex were important for artists.
- (o) They believed that it is essential for the complex to have a space for selling their art works (Tables 3–5).

#### Description of design process and presentation of proposal

Considering the desired site which is located in a place with suitable environmental conditions and in a mountainous nature with jungle (Chitgar park) and artificial lake and also by considering research approach which is nature-oriented, a concept is proposed for this complex is in the shape of mountains. Since humans and specially artists have good relations with nature (based on results obtained from field studies) and nature plays a special role in their lives, it was decided that total site elements encompass each other just like green strings (Figs. 7–17).

#### References

1. Ansari Mojtaba (2013) Quality of formation of human relationship with artificial environment. Miras Farhangi Publ, pp 26.
2. Bahraini Seyyed Hossein (2015) Analysis of urban spaces. Univ Tehran Publ, pp 26–39.
3. Abolghasemi Latif (2007) Norms of Iran's architecture formation. Amir Publ, pp 18.
4. Rezazade Raziye (2010) Conceptual-behavioral crisis in urban spaces. Municipality J 5 : 17.
5. Shoari Najad Ali Akbar (2010) Culture and behavioral sciences in architecture. Amir Kabir Publ, pp 37–43.
6. Lang John (2008) Creation of architectural theories. Translated by: Alireza Eynifar, Univ Tehran Publ, pp 58–64.