



**AN INVESTIGATION OF IRANIAN APARTMENTS IN TABRIZ  
WITH REFERENCE TO THEIR SPACE AND FUNCTION RELATIONS**

**AMIR MASOUD RAHIGH AGHSAN**

**OCTOBER 2016**

**AN INVESTIGATION OF IRANIAN APARTMENTS IN TABRIZ  
WITH REFERENCE TO THEIR SPACE AND FUNCTION RELATIONS**

**A THESIS SUBMITTED TO  
THE GRADUATE SCHOOL OF NATURAL AND APPLIED  
SCIENCES OF  
ÇANKAYA UNIVERSITY**

**BY  
AMIR MASOUD RAHIGH AGHSAN**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF  
MASTER OF INTERIOR ARCHITECTURE  
IN  
THE DEPARTMENT OF  
INTERIOR ARCHITECTURE**

**OCTOBER 2016**

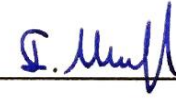
Title of the Thesis: **AN INVESTIGATION OF IRANIAN APARTMENTS IN  
TABRIZ WITH REFERENCE TO THEIR SPACE AND FUNCTION  
RELATIONS**

Submitted by **AMIR MASOUD RAHIGH AGHSAN**

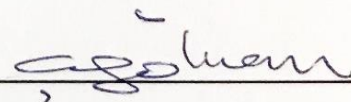
Approval of the Graduate School of Natural and Applied Sciences, Cankaya  
University.

  
\_\_\_\_\_  
Prof. Dr. Halil T. EYYUBOĞLU  
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of  
Master of Science.

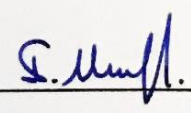
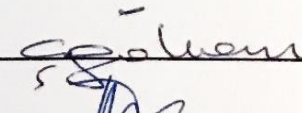
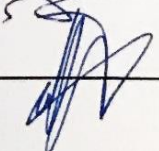
  
\_\_\_\_\_  
Assist. Prof. Dr. İpek MEMİKOĞLU  
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully  
adequate, in scope and quality, as a thesis for the degree of Master of Science.

  
\_\_\_\_\_  
Assist. Prof. Dr. Çiğdem GÖKHAN  
Supervisor

**Examination Date: 14.10.2016**

**Examining Committee Members:**

Assist. Prof. Dr. İpek MEMİKOĞLU	(Çankaya Univ.)	
Assist. Prof. Dr. Çiğdem GÖKHAN	(Çankaya Univ.)	
Assist. Prof. Dr. Nur AYALP	(TOBB ETÜ Univ.)	

## STATEMENT OF NON-PLAGIARISM PAGE

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last Name : AMIR M. RAHIGH AGHSAN

Signature :

Date :

25.11.2016

## ABSTRACT

### AN INVESTIGATION OF IRANIAN APARTMENTS IN TABRIZ WITH REFERENCE TO THEIR SPACE AND FUNCTION RELATIONS

Amir M. Rahigh Aghsan

M.Sc., Department of Interior Architecture

Supervisor: Assist. Prof. Dr. Çiğdem GÖKHAN

October 2016, 73 pages

This research attempts to study different interpretations concerning the life quality of the houses built in three areas of Tabriz, Iran, which was identified the dissatisfaction cause of interior architectural designing at the time of purchase or during the use of house. Studies show that paying attention to the culture and economy of the individuals has direct relation with the issue of satisfaction. In the Ferdous alley of Tabriz we observe more satisfaction than Roshdye town where satisfaction level is more than the Mehr complex of Tabriz. But this isn't an indicator of the resident's satisfaction and a remediable percentage of them would like to have fundamental changes. So it can be said that culture, customs, expectations of house and family economy are main principles of architectural designing. As examined here about the housing in Tabriz, but unfortunately has been less considered main principles of architectural designing. Conducting primary research, prior designing will help more to inhibit the problem to happen.

**Keywords:** Interior Architecture, Design, Habitation, Satisfaction

## ÖZ

# İRAN TEBRİZ EVLERİNİN MEKAN VE İŞLEV İLİŞKİLERİ ÜZERİNE BİR ARAŞTIRMA

RAHIGH AGHSAN, Amir M.

Yüksek Lisans, İç Mimarlık Anabilim Dalı

Tez Yöneticisi: Yrd. Doç. Dr. Çiğdem GÖKHAN

Ekim 2016, 73 sayfa

Bu araştırma İran Tebriz’de üç alanda inşa edilen evlerin yaşam kalitesini incelemek için ilgili ve farklı yorumlar üzerinde çalışıldı. Evi satın alma zamanında yada kullanım sırasında iç mimari tasarımı memnuniyetsizliğinin nedeni teşhis edildi. Çalışmalar bireylerin kültür ve ekonomiye memnuniyeti sorunu ile doğrudan ilişkisi olduğunu göstermektedir. Tebriz’in Ferdous mahallesinde mimari tasarım memnuniyet düzeyi Roshdye mahallesinden fazla ve onlarda Mehr mahallesinden daha fazla tatmin gözlememektedir. Ama bu sakinlerin bir memnuniyeti göstergesi değildir ve bunların bir düzelve bilir yüzdesi köklü değişiklikler istiyorlar. Mimari tasarımı kültür ve ekonomiye odaklanıyor, maalesef iç fiziksel mekanların tasarımı bu ilk ilkeleri daha az kabul edilmiştir. Bu ilk ilkeleri Tebriz, İran'daki olan konut hakkında bu araştırma da incelenmiştir. Öncesinde tasarım yürütülmesi gerçekleşmesi için temel araştırma bu sorunu engellemek de daha fazla yardımcı olacaktır.

**Anahtar Kelimeler:** İç Mimarlık, Apartman Tasarımı, Yerleşim, Kullanıcı Memnuniyeti

## **ACKNOWLEDGMENTS**

I would like to express my gratitude to my supervisor, Assist. Prof. Dr. iğdem Gökhan for the useful comments, remarks and engagement through the learning process of this master thesis. Furthermore, I would like to thank my advisor for introducing me to the topic as well for the support on the way. Also, I like to thank the participants in my survey, who have willingly shared their precious time during the process of interviewing.

Finally, I must express my very profound gratitude to my father and my mother in law and to my wife for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. I will be grateful forever for your love.

## TABLE OF CONTENTS

STATEMENT OF NON PLAGIARISM.....	iii
ABSTRACT.....	iv
ÖZ.....	v
ACKNOWLEDGEMENTS.....	vi
LIST OF FIGURES.....	x
LIST OF TABLES.....	xi

### CHAPTERS:

<b>1. THE RESEARCH OVERVIEW.....</b>	<b>1</b>
<b>1.1. Introduction.....</b>	<b>1</b>
<b>1.2. Statement of Problem.....</b>	<b>2</b>
<b>1.3. Purpose and Research Question.....</b>	<b>3</b>
<b>1.4. Methodology.....</b>	<b>3</b>
<b>2. CURRENT SITUATION AND STUDIES ABOUT MODERN</b>	
<b>APARTMENT LIVING.....</b>	<b>5</b>
<b>2.1. Culture of Living.....</b>	<b>5</b>
<b>2.1.1. Culture of Living in Iran and Iranian Architecture.....</b>	<b>6</b>
<b>2.1.2. The Role of the Culture in Shaping the Houses of Tabriz.....</b>	<b>8</b>
<b>2.1.3. The Role of the Climate in Shaping the Houses of Tabriz.....</b>	<b>8</b>
<b>2.2. The Lifestyle.....</b>	<b>9</b>
<b>2.2.1. How Modernity Enters into Iran.....</b>	<b>9</b>
<b>2.2.2. Modernity and the Lifestyle Change in Iran.....</b>	<b>10</b>
<b>2.3. Architecture Relationship with Lifestyle.....</b>	<b>11</b>
<b>2.3.1. House Life Style of Iranian Family.....</b>	<b>11</b>
<b>2.3.2. The Iranian House.....</b>	<b>12</b>
<b>2.4. The Effect of Traditional Houses on the Current Houses.....</b>	<b>14</b>
<b>2.5. Effect of Physical Space of Living Area on People.....</b>	<b>16</b>
<b>2.6. The Residents Satisfaction Level from their Houses.....</b>	<b>17</b>



2.7. Technology .....	19
<b>3. METHODOLOGY OF RESEARCH .....</b>	<b>20</b>
3.1. Purpose of Research in Tabriz, Iran.....	20
3.2. Reason for choosing Tabriz, Iran.....	20
3.3. Research Areas in Tabriz, Iran.....	21
3.3.1. Ferdous Alley.....	21
3.3.2. Roshdye Town .....	22
3.3.3. Mehr Complex .....	26
3.4. Built Houses .....	27
3.4.1. Built Houses Plan of Ferdous Alley.....	28
3.4.2. Built Houses Plan of Roshdye Town.....	31
3.4.3. Built Houses Plan Mehr Complex .....	33
3.5. Methods of Obtaining Data.....	34
3.5.1. Statistical and Sampling Community.....	34
3.5.2. Preparing the Questionnaire.....	34
<b>4. THE RESEARCH RESULTS.....</b>	<b>37</b>
4.1. Data Analysis .....	37
4.1.1. Gender.....	37
4.1.2. Education .....	37
4.1.3. Ownership .....	39
4.1.4. Changes Made in the Houses by the Residents .....	39
4.2. Ferdous Alley.....	39
4.2.1. Building A of Ferdous Alley.....	39
4.2.2. Building B of Ferdous Alley.....	40
4.2.3. Building C of Ferdous Alley.....	43
4.3. Roshdye Town .....	46
4.3.1. Building A of Roshdye Town .....	46
4.3.2. Building B of Roshdye Town .....	50
4.3.3. Building C of Roshdye Town .....	54
4.4. The Mehr Complex .....	54
4.5. Size space.....	57

<b>4.6. Environmental Factors</b> .....	59
<b>5. CONCLUSION</b> .....	62
<b>REFERENCES</b> .....	R1
<b>A. CURRICULUM VITAE</b> .....	A1



## LIST OF FIGURES

### FIGURES

<b>Figure 1</b>	The objective characteristics of the residential environmental .....	18
<b>Figure 2</b>	Area location in map of Tabriz .....	21
<b>Figure 3</b>	The aerial picture of the Tabriz, Ferdous alley .....	22
<b>Figure 4</b>	The aerial picture of the Tabriz Roshdye town .....	23
<b>Figure 5</b>	The residential context of Roshdye including villas, towers and apartments .....	23
<b>Figure 6</b>	Apartment facades facing the south .....	24
<b>Figure 7</b>	Apartment facades facing the north .....	24
<b>Figure 8</b>	The tallest and the most density tower in Roshdye town .....	25
<b>Figure 9</b>	The facade of apartments in Roshdye town .....	26
<b>Figure 10</b>	The residential context of Mehr complex .....	27
<b>Figure 11</b>	Ferdous alley, the “A” building.....	29
<b>Figure 12</b>	Ferdous alley, the “A” building.....	29
<b>Figure 13</b>	Ferdous alley, the “B” building.....	30
<b>Figure 14</b>	Ferdous alley, the “C” building.....	30
<b>Figure 15</b>	Roshdye town, the “A” building .....	31
<b>Figure 16</b>	Roshdye town, the “B” building .....	32
<b>Figure 17</b>	Roshdye town, the “C” building .....	32
<b>Figure 18</b>	Mehr complex, the “A” building.....	33
<b>Figure 19</b>	Floor plan of “A” building in Ferdous alley .....	40
<b>Figure 20</b>	First floor plan of “B” building in Ferdous alley .....	41
<b>Figure 21</b>	Second floor plan of “B” building in Ferdous alley.....	41
<b>Figure 22</b>	Third floor plan of “B” building in Ferdous alley.....	42
<b>Figure 23</b>	Fourth floor plan of “B” building in Ferdous alley .....	42
<b>Figure 24</b>	Fifth floor plan of “B” building in Ferdous alley.....	43
<b>Figure 25</b>	First floor plan of “C” building in Ferdous alley .....	44
<b>Figure 26</b>	Second floor plan of “C” building in Ferdous alley.....	44

<b>Figure 27</b>	Third floor plan of “C” building in Ferdous alley.....	45
<b>Figure 28</b>	Fourth floor plan of “C” building in Ferdous alley.....	45
<b>Figure 29</b>	Fifth floor plan of “C” building in Ferdous alley.....	46
<b>Figure 30</b>	First floor plan of “A” building in Roshdye town.....	47
<b>Figure 31</b>	Second floor plan of “A” building in Roshdye town .....	48
<b>Figure 32</b>	Third floor plan of “A” building in Roshdye town .....	49
<b>Figure 33</b>	Fourth floor plan of “A” building in Roshdye town .....	50
<b>Figure 34</b>	First floor plan of “B” building in Roshdye town.....	51
<b>Figure 35</b>	Second floor plan of “B” building in Roshdye town .....	51
<b>Figure 36</b>	Third floor plan of “B” building in Roshdye town .....	52
<b>Figure 37</b>	Fourth floor plan of “B” building in Roshdye town.....	53
<b>Figure 38</b>	Fifth floor plan of “B” building in Roshdye town .....	53
<b>Figure 39</b>	First and second floor plans of “C” building in Roshdye town .....	54
<b>Figure 40</b>	First floor plan of “A” building in Mehr complex .....	55
<b>Figure 41</b>	Second floor plan of “A” building in Mehr complex.....	55
<b>Figure 42</b>	Third floor plan of “A” building in Mehr complex.....	56
<b>Figure 43</b>	Fourth floor plan of “A” building in Mehr complex.....	56
<b>Figure 44</b>	Fifth floor plan of “A” building in Mehr complex.....	57

## LIST OF TABLES

### TABLES

<b>Table 1</b>	The statistics of the number of the families and residential units .....	35
<b>Table 2</b>	The first part of the questionnaire .....	35
<b>Table 3</b>	The second part of the questionnaire.....	36
<b>Table 4</b>	Education level in Ferdous alley .....	38
<b>Table 5</b>	Education level in Roshdye town.....	38
<b>Table 6</b>	Education level in Mehr complex .....	39
<b>Table 7</b>	Size space in Ferdous alley .....	58
<b>Table 8</b>	Size space in Roshdye town.....	58
<b>Table 9</b>	Size space in Mehr complex.....	59
<b>Table 10</b>	Ideal residential environment.....	59
<b>Table 11</b>	Satisfied from the spatial relations .....	59
<b>Table 12</b>	Changes made in house plans.....	59
<b>Table 13</b>	Satisfied from the spaces, dimensions and the whole area .....	60
<b>Table 14</b>	Satisfied by the division way of the public and private spaces.....	60
<b>Table 15</b>	Satisfied by the expenses of the changes made.....	60

# 1. THE RESEARCH OVERVIEW

## 1.1. Introduction

Iranian architecture which was first shaped in the plateau of Iran and then in the influential domain of Iranian culture, such as other architectures that are originated in the local culture, has focused on the climate and left valuable structures until the Qajar era. Being homogeneous with the nature and using its permanent energies as light and wind and its main elements as water, soil and plants has been properly focused in the past architecture. For example, one of the qualities of old house in the most, cities of Iran are their big space (Pirnia, 2013). Iranian architecture has reacted to the nature and climate in an architecture way. The physical space comfort has been always paid attention over the time.

Home can be known as a three-dimensional space, which includes a family made of certain people. Since a house size is identified by its equipment access ability, the architecture of residential space and everything is involved in it is sensed and touched by its residents. However, a house cannot be a pure private gathering place because it is widely affected by a series of political, economic and social conditions, which shape a background that should not be ignored. Because the home objectifies the human actions, it includes the features of all aspects of the architecture (Furuyama, 2006).

Tadao Ando identifies the house as following: "Among the surrounding spaces, the house is the most touchable one by human which they are mutually affected by each other every day. The first space in which the human experiences spatial belonging. The whole of five senses permanently go across and adapt to it soon. Having privacy with oneself, spouse, children and the other relatives are possible without other people interference" (Furuyama, 2006).

In 1996 "Habitation"<sup>1</sup> was one of the controversial topics discussed in the last session of UIA entitled as the "Architecture of the societies, today and future" in Barcelona. While comparing between the starting years of the modern approach culture and the experiences, it was understood that the issue of habitation wasn't used in the architecture's terms in the early of the century (UIA Congresses, 1996). This idea is globally stated. In Iran, this point of view "habitation" can be used. Because the problem of housing is evaluated without considering the aspects of life, it is only considered as a need. So in all across the city, the buildings are made based on the western apartment style. When the living places are considered according to this conception and providing houses are done in the free market, the people's demands are not sufficiently met. The research illustrated that the house should be matched with the life style needs including solutions for the changes appeared in the family and flexible designs which express a certain way of life. So, the people living in these houses may add or remove a room or wall and changes interior design to meet their needs (Sohrab, 2015).

In the early of 20th century, Iran was gradually exposed to consumerism and excess consumption. Iran had great confrontation with the western world when the acceptances of the western cultural patterns were emphasized. In the process of cultural westernization, the local culture was ignored having exposed to the western culture and trying to expand the western modern lifestyle that did not have any similarities that the Iranian culture, believes and values of the people were greatly challenged. This thesis focuses on the most important part of life "house" to find the cause of owner changes on the interior physical space at the time of purchase or during the use of the house. Moreover, can help to identify the causes of dissatisfaction of interior architectural designing, focusing on the culture, economy of the spaces, users are of those first principles of designing but unfortunately has been less considered as examined here about the housing in three area of Tabriz.

## **1.2. Statement of Problem**

All physical space changes in the home can be helped to respond to habits, culture and customs expectations of house. This research focuses in a way that the obtained results

---

<sup>1</sup> 'the act of living in a place' or 'a place where someone lives'

can meet the house owner's needs. However, this thesis will help the architect to prevent the dissatisfaction of that problem house users to happen. More in by conducting primary research before designing to architect for inhibit.

### **1.3. Purpose and Research Question**

This thesis is focuses on different interpretations concerning to study the quality and the life of the houses built in three area of Tabriz, Iran, which are only considered quantitatively. The most important question in this quest is identification the cause dissatisfaction of interior architectural designing and changes in the interior physical space at the time of purchase or during use the house to respond to habits, culture and customs expectations of house.

### **1.4. Methodology**

The methodology used in this research is quantitative and qualitative methods. Quantitative case study method includes literature survey and qualitative method as face to face interviews. This research investigates an issue that is guided by theoretical assumption and explains causal explanations of the specific case. The research is performed on the quality and quantity of built houses system in three different areas of Tabriz, Iran. Residents in the three areas are different the habits, size, economically, socially and culturally, which fully described in the following sections (Roshdye town, Ferdous alley, Mehr complex). This will hopefully lead to make generalizations based on a single case study.

Johansson distinguishes between three types of case study practices: the “exploratory”, which focuses on one unit of analysis but with many variables and qualities; the “experimental”, which focuses on one or a few units of analysis and a few isolated variables; and “reductive”, which focuses on many units of analysis and a few variables (Johansson, 2003). “Exploratory” and “Experimental” are two types of case study practices that were used in this thesis research using different cases (units of analysis) of existing residential buildings.

This research investigates an issue that is guided by theoretical assumption and explains causal explanations of the specific cases: Architectural technology, construction material, interior layout of physical spaces, orientation, life requirements and placement. The research is performed based on quality and quantity of built houses



system in three different areas by using different cases (units of analysis) of existing residential buildings in Tabriz, Iran. The experimental case study is uses each of object for analysis and three variable: effect of quality of the built houses on comfortable and usable these new buildings and to evaluate the given changes economically.

The thesis is based on relevant literature related to the research question and consists of official documents, published statistics, written books, scientific articles, statistics and public documents. The thesis is to a large degree based on secondary sources, which includes a risk biases and subjectivity in the materials, although, by using a high level of consistency the research bias is reduced.



## **2. CURRENT SITUATION AND STUDIES ABOUT MODERN APARTMENT LIVING**

### **2.1. Culture of Living**

Culture is the common justified solutions a society to meet any kind of real or unreal need. Culture can be referred to as software and the civilization as the hardware, which includes the culture (Rajaei, 2015). In other words, culture is what the people live with. The culture of its people (Khordad news, 2014). Edward Taylor (1832-1917) defines the culture as a complicated collection of sciences, believes, arts, rules, morality, habits and everything that a person, as a member of his/ her society, learns it. Each region of each country can have different culture. Culture can be transmitted to the next generation by teaching, while genetics are done by inheritance. It can be generally said that: culture is the common way of living, thought and interactions of human inside a society (Tylor, 1871). Culture includes art, literature, science, creation, philosophy and religion (Lucas, 1953). Culture possesses many elements, which are meaningfully current in the society and pass exactly through the self-conscious and unconscious awareness of community.

Our discussion in the thesis is about Iranian culture and architecture and its relation with the Iranian lifestyle we briefly focus on Iranian culture here. In Iranian architecture besides the existence of some features as proportion and beauty of domes and veranda, the quality that worth is more studying is its mathematical logic and mysticism. The Iranian designs, introspection and tendency toward the yard, the garden cavities, vestibule and pergola which surrounds bedchamber has been as a part of Iranian logic since long ago (Pirnia, 2013). Before the Persepolis was made, hundreds of veranda and bedchamber with wooden and stone pillars had been constructed across the world. Nevertheless, for the first time, the pillars of Persepolis were in their longest distance from each other, while in some ancient temples out of Iran (such as Egypt) the distance between pillars was as great as their diameters or even less than it (Pirnia, 2013). The Iranian architect could create the widest carter and

produce various and amusing decorations. For example, two- floor building was made distant from each other as if the grand floor was added later.

In the ancient Iranian architecture advantages is that geometrical homogenous places have been never used in order to cover and by looking at some times in Persian language as arches, vaults and domes it appears that they focused more on some shapes as ellipse and eggs (Pirnia, 2013). Iranian architecture which was first shaped in the plateau of Iran and then in the influential domain of Iranian culture, such as other architectures that are originated in the local culture, has focused one the climate and left valuable structures until the Qajar era. One of the qualities of old house in the most, cities of Iran is their big space. Their architecture style is made of two interior and exterior part. The used colors in decorating the buildings have been effected by the hot and dry climate characteristics the materials used in the buildings, as well as the structural abilities and focusing on the economic affairs and providing the materials from the near places, have exploited the environmental energy in the best way. The arched structures in these buildings indicate the relation between the climate and architecture. Even in the decorated drawings, the sun called as shamseh and the sun cycle can be seen as the most important factor of climate. Being homogeneous with the nature and using its permanent energies as light and wind and its main elements as water, soil and plants has been properly focused in the past architecture. Iranian architecture has reacted to the nature and climate in an architecture way. The space comfort has been always paid attention over the time (Pirnia, 2013).

### **2.1.1. Culture of Living in Iran and Iranian Architecture**

The architecture in Iran has had a history of 6000 years old, and since 5000 B.C, it has been the builder and organizer of humans living space, by studying the post we want space, one thing that has been never related to time and the space of city possesses it. So, the social and architectural attitude was the main factor of unity and homogeneity in the past of Iranian architecture, Because the culture concerns the governing and dynamic principles which encircles the science and wisdom, politeness and tact, no architect has talking deprived of the ancients, inheritance. While talking about tradition, we refer to stable principles rooted in the heaven and to their application over the time (Amini, 1989).

By appearing new technology and new materials designing and structures which has caused problems in applying this type of architecture in the modern buildings. Today,

the information modeling of the buildings as a new approach of parametric three-dimensional model of the building characteristics has provided new opportunities about the application of this kind of architecture in the modern building and decreased designing challenges and its usage.

Iranian architecture has some qualities that have made it more valuable than other countries architecture: the characteristics as proper designing, precise calculations, accurate cover form, using scientific and technical affairs in the buildings, high veranda and Diller's and various decorations which are indicator of Iranian splendid architecture as well as its simplicity. However, in the early of 19th century, new building materials as iron, Portland cement made a great role in the building designing and the previous common methods were put away or reviewed (Pirnia, 2013). These methods were not matched well with the traditional architecture criteria and there needed to new kinds of building and structure designing and many researchers as Nervi (1965) and Viollet-Le-Duc (1990) conducted some research while emphasizing on the importance of structure in the architecture. The last research was of Sandaker (2008) who knows the structure as a part of architecture and not only plays a supportive role but provides special harmony and restrictive structure. In his idea, the main goal of structure is to establish architectural space physically (Sandaker, 2008).

In general, it can be said that Iranian culture means the collection of sciences, beliefs, principles and values that govern the Iranians, social and private lifestyle. Here two points worth noting; first, Iranians (such as other civilizations) have been attempting to improve their cultural foundations and second, it has been affected by foreign ideas and attitudes which have been persuaded and encouraged by some people and by the time they have been removed or transformed into the local culture they had been resplendent among some people. The effect of western thoughts in the Iranian architecture and urban development caused great influence on the Iranian cities identity and distinguished between the characteristics of Iranian city and the established modern cities. The identity of Iranian city was involved in changes, which wiped out everything except a few remaining of old urban spaces that are currently in danger. However, the recent research indicates that a community culture has a direct relation with its people lifestyle, in a way that the lifestyle is known as the determinant factor of a community culture.

### **2.1.2. The Role of the Culture in Shaping the Houses of Tabriz**

Today, the factor of the culture should be considered as important as the climate factor. The culture factor is one of the effective factors on the structure form; in the other words, the culture factor determines the building form. The need to private can be shown in the related spaces, limited to or separate from each other's. According to the tradition and customs, the buildings are mode based upon the interior space or are the so-called introverted and this is not apparently affected by the climate, location or the region, but is resulted by the social and cultural factors, which can be seen in both cities and villages. This combination and structure, which exist in Tabriz, cause a Kind of regions, separation. Therefore, the interior life is separated from the neighbors. The conception of our house privet is also different from the traditional housing pattern. It is usually identified by the culture and has great effect on the house space and form (Rapaport, 1929).

### **2.1.3. The Role of the Climate in Shaping the Houses of Tabriz**

Tabriz is located in northwest of Iran in East Azerbaijan province between Eynali and Sahand mountains in a fertile area in shore of Aji River and Ghuri River. The local area is earthquake-prone and during its history, the city has been devastated and rebuilt several times. Tabriz has a semi-arid climate with regular seasons (Köppen BSk). The annual precipitation is around 380 millimeters (15 in), a good deal of which falls as snow during the winter months and rain in spring and autumn. The city enjoys mild and fine climate in spring, dry and semi-hot in summer, humid and rainy in autumn and snowy cold in winter. The average annual temperature is 12 °C. Cool winds blow from east to west mostly in summer.

Tabriz, with hot and dry summers and very cold winters, is the capital of East-Azerbaijan province in Iran; it is boarding Turkey and Azerbaijan. The city has about 1.5 million inhabitants, and because of the establishment of new industries, it is rapidly growing, and as a result is facing urbanization and in need for more land for new residential development and habitable districts. 45 percent of its 4600-hectare area is allocated for new residential developments. As a result, the city is faced with high consumption rate of fuel and electricity during hot summers and cold winters. The

morphology of the city has been an impetus for high air pollution, and the people comfort and convenience has become a great concern.

The vernacular architecture of Tabriz is one of the best examples of sustainable architecture, which many of its elements and principles are applicable for today's living condition, and could be employed in order to reduce the energy consumption and air pollution. Comparative method and cross-referencing is used. According to the consumption rate of fuel, to draw the design principles from the occupied and existing vernacular architecture (Meteorological Organization, 2015).

## **2.2. The Lifestyle**

Giddens (1991) believes that each lifestyle includes a collection of habits and orientations so contains a kind of unity which, as well as its importance regarding the continuity of the existential security, provides the relation between the secondary options of the existence in inside a somewhat organized from. In the field of cultural studies, the lifestyle refers to the collection of the person's pattern of actions and behaviors, which are directed at the social life meaning and its normal dimensions and indicates the quality of his / her, believes and actions, organization. In other words, the lifestyle refers to the identity and special content of the individuals, social interactions and reactions in a society and is the indicator of a person's intentions, purposes and interpretations in his/ her daily life (Giddens, 1991).

### **2.2.1. How Modernity Enters into Iran**

The development of industry in England and Europe caused wealth improvise. Marketing and supplying the first materials were the vital requirements of the Europe new industry. All of these events caused the colonizer governments to focus on the eastern countries, especially Iran.

The term of influence sphere was made in 1885 in Europe. For example, in the Berlin contract the powerful countries demanded influence right in the weak countries based upon which Eruptions divided Africa between each other from 1879 to 1899. The countries which were not colonized were few that Iran was one of them (Najafi and Haqqani, 2002). In Iran, the first relations with the west were following the economic and commercial relations that were directed at the colonizing and imperial purposes,

but familiarity with Europe. Begat at Fathali shah (king) era after frequent defeat by Russia and it continued until Mashrooteh period. From Mashrooteh (constitution government) upward, the second period, i.e., westernization started that was in its highest point in the first and second Pahlavi king's era.

In Iran although this approach was first directed at absorbing some features of western methods to defend against the west power. Its industrial developments and civilization qualities caused the Iranian governors and kings to be terrified and amazed by them that resulted in the European countries economic and political, influence in Iran under the titles of development. Modernity and reformation this happened in the time of first and second Pahlavi kings. They gradually distributed the modernity principles as emphasizing on hedonism, consumerism, and freedom. The western lifestyle in the society, after providing the opportunities to advertise the western lifestyle in Iran, the rules suitable with that situation were gradually established (Asefi, 1973; Azad, 2001). Although modernity was first accepted in the forms of industry and technology and economic modernization, importing, the belief foundation of modernity was also admitted in the frame of cultural modernity by the different groups in Iran and changed its life atmosphere.

### **2.2.2. Modernity and the Lifestyle Change in Iran**

By taking a glance at the current life styles in Iran society, the modernity effective dimensions can be easily identified in various aspects of social and individual life. In the era of Qajar and Pahlavi kings, one of the important results of modernity has been the expanding of the western lifestyle, which is rooted. However, the increasing development of international communication and the globalization phenomena and having access to different kinds of media and advertising through development of new communicative tools as TVs, internet and virtual world have obviously had great effect on Iranian families, lifestyle since 1980 (Gairdner, 2007). So, modernity can be seen in the structural dimension of Iranian families, because the processes as urbanization and industrialization have replaced the traditional living with the modern one.

### **2.3. Architecture Relationship with Lifestyle**

According to George Michael, the architecture is something beyond the history of form and style; it is actually the achievement of cultural and environmental factors in which the people lifestyle is hidden. Since the architecture is one of the most important signs of civilization and already mentioned, Lifestyle categories includes culture and civilization of human life. The result is that architecture is a component of civilized life style (Groube et al, 2002).

Phillip Jonson says, “we should have the courage of swimming against the water flow” (Memarian, 2008). So architecture has great effect on human’s lifestyle and their relationship and so on the community culture. Because the form and material make the space, the architect should expand his perception from the form regardless considering any morality, history or intellectual systems, each architect should be somewhat a revolutionary person. Imitating old buildings does not involve any risky and challenges (Memarian, 2008).

In the old architecture of Iran, the house architecture was based on special principles and pattern of the scheme. These principles were followed in both the rich and aristocratic houses and the publics the Iranian house was a direct display of cultural and spiritual values and lifestyle. While today the main attention of the people who are involved in providing housing is on quantity factors especially economical ones. One of the important controversial topics is focusing on quality factors especially the cultural and spiritual values, which have been ignored in preparing the plans and architectural designs (Memarian, 2008).

### **2.3.1. Houses Life Style of Iranian Family**

The house is a place where a person dwells, relaxes and takes it as a shelter and his/her privacy. Le Corbusier defines the house as the following: A house is a coverage that establishes a correct relation between the human’s biological phenomena and outside environment. Gaston Bachelard, who is a European theorist of new science, believes that a house is a birthplace that Hierarchy of different functions and operations of dwelling or living in a place inside our existence or he states in another place that each space to be able to dwell in means actually a house. The house is not the only shelter of our present daily life, but it is the bin of our past memories, which pass regularly through our mind.



Marcus Cooper (1986) considers the symbolic conception of house by referring to the experiences and different samples and states that there is a kind of symbiotic relation between oneself and house in human's mind (Marcus and Sarkissian, 1986). Therefore, the home is something beyond the housing. The house is the center of the world for its inhabitants and plays a great role in the neighborhood to establish the place conception. In fact, the home is a small example of the world that we build it through which we shape ourselves (Norberg-Schulz, 1980). Therefore, the organizing principles of the space indicate the general mood of humans as well as the relation between them. As a result, the lifestyle is dependent on the field classification and having a private space. The field classification, the quality, and the place of the quests reception is an indicator of conscious and unconscious attempt to reflect the family collective identity to the others (Tuan, 1977).

### **2.3.2. The Iranian House**

According to the Iranian culture and lifestyle, the Iranian house can be defined based on seven major criteria.

Some cultural definitions: Sphere, privacy, security and private area.

**Definition and distinction of privacy and sphere:** The conception of privacy and sphere is common in our daily life and talking. For example: no place is like our home- no strange person can enter- the restricted field or yard- the number on the house gate- the shopkeepers, gaze on the strangers or respecting a group of a city by another one are just some examples of the conception sphere in our daily life (Altman, 2003). The quality of the sphere is that it can be related to the individuals or groups. In our daily life. We sometimes talk about an individual's sphere such as a bedroom or a group as a family house. A point that is referred in all of the definitions is assaulting and defending from an owner warns or attacks them, although aggressive defense may rarely happen in a person's daily life. Other reactions, which may be shown against assaulting, are discomfort, anger or worry (Altman, 2003).

In this field, some other preventive behaviors, which are used to establish sphere, and defensive behaviors' such as verbal threats, threatening move, ruff and obvious attack can be referred to. The first sphere is usually under the complete supervision of its users for a long time, which plays a vital role in their life. The second sphere is under the individual's ownership for a long time, but other people have access to it, so the

ownership is not exclusive, the third sphere is a public temporary one which is accessible by every one who obeys the social norms and principles (Altman, 2003).

**Private area:** The home is a place of security and family peace, which should not be exposed to the strangers. The other important point is the correct relation between the inside space in a way that the strangers can't have control on them and the family member's privacy should be properly distinguished from each other (Fateh & Dariush, 2010). Therefore, the given privacy inside a suitable house means the inside space security against the strangers, view and it organizes the spaces and proper relations inside the house (Fateh & Dariush, 2010).

**Privacy:** If a human's relation with the world can be divided to four relations with the natural and artificial environments, community and he / she, the privacy inside is one of the quality features of the environment, which can result in proper relationship of an individual with himself/ herself. So, the privacy can be known as a special quality of housing which has its own special meaning due to the individuals need and each action (Fateh& Dariush, 2010).

**Security:** The suitable features of housing architecture should provide different varieties of security for its habitants. This includes security against natural and unnatural disasters, against other commutes, violations, security against the human's actions results, mental and cultural security and other aspects of security (Naghi Zadeh, 2010).

**Peace and comfort:** The comfort of family members is an important quality, which should be greatly noticed in having desired house (Naghi Zadeh, 2010).

**Introspection or in the other word can be said Introvertedness and high respect to other families:** In organizing the different parts of a building and especially in traditional houses, the people beliefs work well. One of the Iranians belief is valuing private life and its respect and their self-esteem, which have caused Iranian architecture to become introverted. The given criterion about a suitable house such as private, privacy and relationship with the nature are among those important tools and methods that can be obtain by focusing on Introspection. This principle is actually

accepted by the historical elements of Iranian architecture which most of the urban and architectural elements have shown and symbolized (Pirnia, 2013).

**Being like to human:** Being humanoid means respecting the proportion between the construction parts with the human's organs and focusing on his/her needs in building. The architecture has always been an art related to the life, which has been focused more in Iran. As the architectural arrangement has been under the control of life, which has always underpinned the architecture's working plan (Pirnia, 2013).

#### **2.4. The Effect of Traditional Houses on the Current Houses**

The house, which is related to some conceptions as security, familiarity, affection and fixation, is a place where the human presence, his/her social relations, culture and customs can be sensed and felt. Its corridors, crypts, sashes and vestibules should be studied and analyzed. The first houses made in Qajar era, which were obeying the pattern of Iranian old houses, possessed interior and exterior parts. Near the Pahlavi era, this pattern lost its importance and completely disappeared in the first Pahlavi King time when the houses accepted extroverted manifestation that is permanently continuing (Hayeri, 2009).

By changing the lifestyle in the last half of the century, the conception of the house and residence has been replaced by the residential units and habitation. The change of lifestyle has covered all aspects. What happened regarding our cities was the replacement instead of repairmen. Matching historical contexts with the new industrial phenomena did not take place on time, so the old houses in the old contexts were replaced by the new manifestations of the urban such as the streets, asphalt and electric posts (Hayeri, 2009).

The form of housing which the people since have noticed long ago is the single family home. In the 19<sup>th</sup> century, this form was mainly made up of one floor and a yard. By increasing the population and entering the different kinds of European houses as two-floor houses with balcony and multi-flat apartments new housing morphology was appeared. The residential are generally smaller now and the culture of apartment living was increased. In general, these changes have resulted in basic differences between

traditional houses and modern residential units. In the following, the obvious differences are summarized (Hayeri, 2009):

**Incompatibility of the location climate with its architecture:** for example, the desert areas of the country can be referred to, that instead of using the materials compatible with the location, those materials are used that result in wasting energy and aren't compatible with the environment.

**Differences between forms and applications:** In the past, most houses had several roles. While they were considered as the family habitat, they were the place of earning money and keeping livestock. However, they have the only role of residence now.

**Changing indoor spaces to open ones (introverted architecture into extroverted one):** By changing the pattern of introversion into extroversion, the cities got new appearance. Using the windows opening to the yard, which was very common in the historical architecture was gradually abrogated and was replaced by short walls and windows opening into the streets in the new architecture.

**Replacing modern element into the structure:** In this regard, using electric posts instead of gas lights which was a developed kind of artificial lighting before using electricity at home, and replacement of video iPhone with the Kobe and having open kitchens instead of traditional ones can be referred to.

**The previous collective life versus the modern individualism:** Changing the extended families into nuclear ones caused individualism culture. In the past, due to the big number of the family, collective life was more common, but after nuclear family, appearing this pattern of life changed and finally individualism replaced the collectivism.

**Losing fixation on the house:** In general, the given points resulted in removing intimacy and fixation on the house and caused it to lose its identity (Hayeri, 2009).

## **2.5. Effect of Physical Space of Living Area on People**

Building a house without any organization is a matter of architectural innuendo. Producing a place with a private identity is of those problems which needs great attention because a lot of unknown houses are being made for many people. So that the Jung's psychology theories refer to the symbolic conception of the house which is rooted in the human's mind and history and says that the designers should notice the effect of the house designing on the human's mental status because he/ she selects the house which is the main supporter of his/ her indoor environment (Marcus, 2006). As the houses and non-house are the major classification of the geographical space, so the spiritual space is divided to self and non-self. The house limits the (interior) and recoils it (exterior). Therefore, the house has two distinctive but most important parts: interior and façade. The house shows how the human considers himself/ herself: the private interior, which is only exposed, to the favorite friends who are invited, and the outer façade, which is observable by anyone (Gaston, 1994).

The spatial relations among the people is a complicated system of tendency to come close, run away, ignore, etc. it means that making an environment including the house by focusing on just the Mathematica environment is undesignable. So that the special designing should improve, the social- mental relations or at least it should not make any disturbances to anybody (Grutter, 2010). The recent research made in England show that the lack of enough space and correct relation between the spaces in the house have significant effect on the family relation (Roberts & Hughes, 2011).

The culture relation with the built environment and behavior. The mutual effect of environment and behavior (EBS)<sup>2</sup> has been the topic of many researches. According to Report, anthropology has great effect on the environmental- behavior relation and the role of the culture as an effective factor on human's behavior is of great importance. The kinds of environmental behavior relation are the shown in the following:

**Environment → Behavior → Environment**

**Environment ↔ Behavior**

(The types of environmental-behavior relation in EBS by Rapaport, 2005)

Therefore, it can be said that the culture has an important role in all of the three diagrams in a way that there is a direct relation between the culture and environment

---

<sup>2</sup> Environment-Behavior Studies

(Rapaport, 2005). Therefore, the environmental perception is alongside with the human's recognition from the environmental and as a result, an interaction between the sensory perception and the recognition appears.

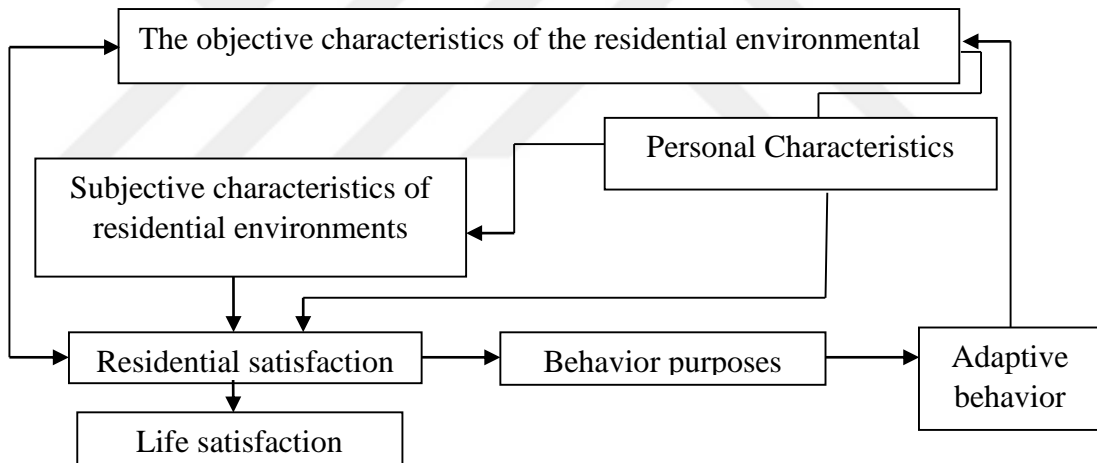
## **2.6. The residents, Satisfaction level from their houses**

The conception of satisfaction, which is defined as dependent on the individual's mental and physical needs satisfying, is derived from the motivation theories in psychology, which includes all aspects and domains of the life. Actually, it refers to a vast field of leanings and utilities, which remove the human's essential or transcendental needs. Most people tend to have those things, which are unable to get. Therefore, they should search these needs from those fields that have less tendency. When we achieve what we have tendency and desire to get it, we feel satisfaction although this satisfaction may cover different range (Ge & Hoka, 2006).

One satisfying aspect of life is satisfaction of the residential environment and as a result, the residential satisfaction. Today, due to the human societies, growth and people life style change, designers and planner have paid much attention on the quality of established spaces and environment in order to provide the resident's satisfaction. Considering the residents view and expectations in designing and producing the spaces increases their sense of belonging to the nature and affects their satisfaction. The residential satisfaction is one of the issues in the residential buildings domain, which has been more studied, because it has been proved that it makes a part of the whole life satisfaction (Ge & Hoka, 2006).

In fact, the life satisfaction is closely dependent on the residential satisfaction. There is a deep relation between the residential environment choice and satisfaction. The residential satisfaction is a natural criterion, which indicates the success in choosing the house. On the contrary, the residential dissatisfaction may be an important reason to change the inside environment of the house (Ge & Hoka, 2006). As said before, by increasing the variety of the personal perception from the life values and methods in the recent years, people preferences, desires and perceptions of the residential environment have been also various. Accordingly, in order to clarify the preferences variety of the urban housing and different demands, understanding and studying the residential environments is necessary (Ge & Hoka, 2006).

The residential satisfaction is considered as a behavior predictor factor and is an important criterion in describing the residents, Life quality. "Amerigo" has provided a conceptual frame in which he attempts in standing the interactions between the individual and his/her residential environment (Amerigo & Aragoes, 1997). This approach shows the study of the dynamic interaction between the person and his/her residential environment and analyzes the various cognitive, emotional and behavioral processes, which happen in the given interaction. Based on this model, the objective characteristics of the residential environment are evaluated by the individual, are changed into subjective characteristic, and are upgraded to a special level of the satisfaction. So, in the Figure 1, the subjective characteristics are affected by the personal characteristics. This phase includes the individual social and population subjective characteristics and also the major pattern of the residential quality and is a mail element in which the individual is compared to his/her real and ideal residential environment.



**Figure 1.** The objective characteristics of the residential environmental (Amerigo & Aragoes, 1997, p. 47-48)

## 2.7. Technology

Identifying and determining the amount of exploiting the technological knowledge by a society is of those important factories in analyzing the given society. Because the technological innovations have more effect on the communities, cultures and social structures, development and material production growth. By studying the history of Iran architecture, we can conclude that its architects were pioneers in using new forms and materials. For example, changing flat or roof forms into domical ones led to the technology of dome come construction and made an innovation in the history (Jaferi et al., 2013).

Across the world, new technological approaches by producing concrete, steel, various building materials and changing structural systems have caused a special form in the architecture. The house has also been affected by each historical period of technology, as today due to the technological development, the relation and division in the public and private sections, day and night and, wet and dry spaces have been closed to each other (Jaferi et al., 2013). Unfortunately, despite the development of science and the ability of construction engineering and technology, none of them has helped the spaces quality improve and the architectural values to be matched with the modern life; as the present architectural spaces have been changed to single- dimensional space without any meaning and with the same qualities. In addition, technology has caused the buildings across the different parts of Iran to be alike despite the existent of cultural, climate and local varieties (Jaferi et al., 2013).

This causes the quality decrease of spares and their lack of pleasance and quality. While studying the Iranian traditional housed, which are based on the local technology, indicates that using local technology can produce different qualities all across the different parts of the house based on their special usage. One of the ways to return the given qualities, which have been ignored, is to refer to those construction techniques and methods, which have focused on details and materials to be suitable, matched together through which a proper quality in the modern hones can be obtained. These qualities have been manifested in the Iranian local architecture, which can be used in designing the present houses (Jaferi et al., 2013).



### **3. RESEARCH AND METHODOLOGY**

#### **3.1. Purpose of Research in Tabriz, Iran**

As was expressed in chapter 2, Iranian architecture has some qualities that have made it more valuable than other countries architecture: the characteristics as proper designing, precise calculations, accurate cover form, using scientific and technical affairs in the buildings, high veranda and various decorations which are indicator of Iranian splendid architecture as well as its simplicity. But by changing the lifestyle in the last half of the century, the conception of the house and residence has been replaced by the residential units and habitation. Because now in Iran the problem of housing is evaluated without considering the aspects of life, it is only considered as a need. So in all across the city, the buildings are made based on the western apartment style. When the living places are considered according to this conception and providing houses are done in the free market, the people's demands are not sufficiently met.

This thesis is focused on different interpretations concerning to study the quality and the life of the houses built in three area of Tabriz, Iran, which are only considered quantitatively. The most important discuss in this quest is identification the cause dissatisfaction of interior architectural designing and changes in the interior physical space at the time of purchase or during use the house to respond to habits, culture and customs expectations of house. Moreover, will help more in conducting primary research before designing to architect for inhibit the dissatisfaction of that problem to happen.

#### **3.2. Reason for Choosing Tabriz, Iran**

As was expressed in chapter 2, The architecture in Iran has had a history of 6000 years old, and since 5000 B.C, it has been the builder and organizer of humans living space. The purpose of understanding the past and learn the basic essence of the architecture is the space, one thing that has been never related to time and the space of city possesses it. So, the social and architectural attitude was the main factor of unity and homogeneity in the past of Iranian architecture, Because the culture concerns the governing and dynamic principles which encircles the science and wisdom, politeness

and tact, no architect has talking deprived of the ancients, inheritance. According to the tradition and customs, the buildings are mode based upon the interior space or are the so-called introverted and this is not apparently affected by the climate, location or the region, but is resulted by the social and cultural factors, which can be seen in both cities and villages. This combination and structure, which exist in Tabriz, cause a kind of regions, separation.

### 3.3. Research Areas in Tabriz

This research was conducted in those areas of Tabriz, Iran, where the residents are economically, socially and culturally different (Ferdous alley, Roshdye town, Mehr complex) are as the following in the Figure 2.

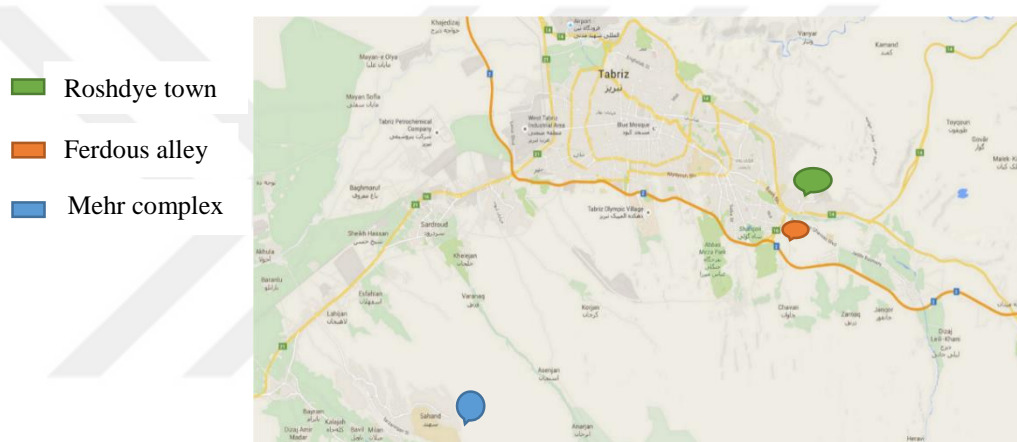


Figure 2. Area location in map of Tabriz (Google Map, 2015)

#### 3.3.1. Ferdous Alley

Ferdous alley, in terms of economic, social and cultural are at a high level. this area is located in the northern side of El Goli Park (Shah Goli Park). This alley has five 10-meter streets and one 18-meter street (see Figure 3).



**Figure 3.** The aerial picture of the Tabriz, Ferdous Alley (Google Map, 2015)

### **3.3.2. Roshdye Town**

Roshdye town, in terms of economic, social and cultural are at an average level. This area is located in the north eastern part of Tabriz which is famous for its modern architecture and beauty (see Figures 4 and 5). The name of this town is got due to a great man caked Mirza Hassan Roshdye who was the pioneer of modern education in Iran. The first owner, founder and executive of this town is the construction company of Baghmisheh which planned the First steps in making the town in a field of 175 hectares in 1983 and started it in 1988.

This company is now involved in construction in this town and is currently working on the second phase of the town called Roshdye 2 in a field of 4v.5 Hectare. Also, the northern area of the town, which has been made flat by the Tehran A.S.P Company, since the Last decade is being changed to the Roshdye recreational touristy place by the Baghmisheh company.



**Figure 4.** The aerial picture of the Tabriz, Roshdye town (Google Map, 2015)

Based on the field studies in the Roshdye town, which is a preplanned town and has a designed plane site, three major types of residential context have been identified as the following.



**Figure 5.** The residential context of Roshdye including villas, towers and apartments

**- Villa house**

In these building, the yard is on one side and the building is on another one, which is followed by the two factors of the Spatial resolution type and the proximity principle. The space is so arranged in these buildings that the yard is located in southwestern and the building is northeaster of the construction, and in some construction the building is a the northwestern and the yard in the southeastern, and in some the constructions the yard is centrally located.

#### - Apartments with 4-8 floors

There are 4-8 flats in each floor of these apartments. The internal space division in each flat, such as the rooms orientation the living room and other spaces is dependent on their front location. In other words, the apartments facing the south exploit the extreme light and heat of sun (Figure 6), but the apartments facing the north get less, and small and fewer opening parts have been used in them (Figure 7). So it can be said that in this type of buildings, the southern front flats exploit the extreme degree of the climate conditions but the other flats lack them. In some buildings, the opening parts like the ones used in the greenhouse are used in the northern part of the building.



**Figure 6.** Apartment facades facing the south



**Figure 7.** Apartment facades facing the north

#### - Towers

The spatial configuration of the towers is nearly like the apartments and there are no differences except the density of the residential units, the height difference and being empty of the towers surrounding due to the related construction regulation.



**Figure 8.** The tallest and the most density tower in Roshdye town

The type of skeleton used in most of the towers is reinforced concrete with the roof that regarding the climate conditions are certain materials for the cooling and heating factors in the cold regions and also are resistant against the earthquake regarding the fact that Tabriz is a place where many earthquakes have occurred, especially the town of Roshdye that is exactly on the Tabriz fault. The materials used on the towers factor are mostly combination of hammer exposed concrete with dark colors (as red and dark gray) that cause more energy absorption and Travertine stone of Azarshahr which has more Lifelong and resistance against the natural factors as excessive cold and heat in the regions with had climate across the world.



**Figure 9.** The facade of apartments in Roshdye town

The heating system used in the towers is the Centre Powerhouse with a steam boiler and the cooling system is made of absorption chillers with air conditioner. Opening parts are mostly two shells which are very suitable in saving the energy (see Figure 8 & Figure 9).

### **3.3.3. Mehr omplex**

The new town of Sahand (see Figure 10) is one of the new cities of eastern Azerbaijan. This town is located in the north western part of Oskou city. Based on a housing and population census conducted in 2011, with, more than 24,704 People, it is the eighteenth crowded city in this province. The goal of establishing this city was to solve the overpopulation problem of Tabriz which was forced widely by the city population. The new city of Sahand was known as the 58th city of eastern Azerbaijan province and the third city of Oskou after opening municipality department and selecting its mayor. Based on the Sahand city mayor in 2014, it has more than 89 thousand people (about 100,000) regarding delivering the Mehr house, and it is estimated that it will have about 150 thousand populations until the end of 2014 by establishing 36,500 units of Mehr housing and delivering 15000 units to the families, and this amount can be raised to 180,000 people if the Mehr complex will be totally delivered. Now, the new city of Sahand was built in four phases. Mehr complex are located in phases 3 and 4. It can be said this area, in terms of economic, social and cultural are at a low level.



**Figure 10.** The residential context of Mehr complex

### **3.4. Built Houses**

In order to study quality of the houses built and system analysis, some properties of the regions being researched are as the following:

#### **A. Some similar properties of the regions being researched:**

- In all of the three areas, the research region was determined based on the unknown people with similar family size and individual's type.
- All of the three areas are similar related to climate and topography.

#### **B. Some different properties of the research areas:**

- In all of the three areas, the people of the regions being researched have different economically, socially and culturally qualities. For example, in Ferdous alley the number of homemakers are more than the other areas. The families are from high income group. In Roshdye town family economy is average and most of them are government employees and private companies, where we can consider them from middle income group. In Mehr buildings, the families are low income group.
- In all of the three areas, the house construction has done by different companies. In Ferdous alley, the private companies do house construction. In Roshdye town, the house construction is done by the house cooperatives. Mehr complex buildings were made by a governmental company called Mehr cooperative.
- The delivery time is different in three areas. In Ferdous alley, the residents cannot determine when the projects should finish. In Roshdye town, the cooperatives have provided different options to the individuals and suggested them to choose one. In



Mehr buildings, the first projects were determined by the Mehr cooperative. Due to the changes made by the government and the delivery, time involves the relationship between the owner and Mehr cooperative.

- In all of the three areas, the users' views are different about the projects. In Ferdous alley, the buyer is considered first. It means that the buyer chooses one of the projects based upon his/her financial ability. In Roshdye town, owning a house is first determined through cooperatives- choosing the project is the second. In Mehr building, this Mehr cooperative makes the decisions.

- Residential areas, which were selected for the research, are different according to the regions. Roshdye town is located around the city near the Pasdaran highway on the north side of Tabriz. Ferdous alley is located inside the city and it is near El Goli Park in the southeastern side of Tabriz. Mehr buildings are located outside the city near the Azarshahr highway in Sahand new town of Tabriz.

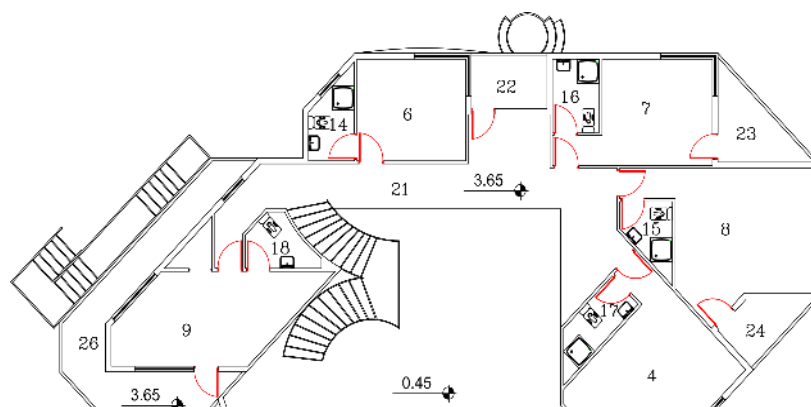
In the following the house plan types from three different regions are explained.

### **Analysis of houses plan examples from three different**

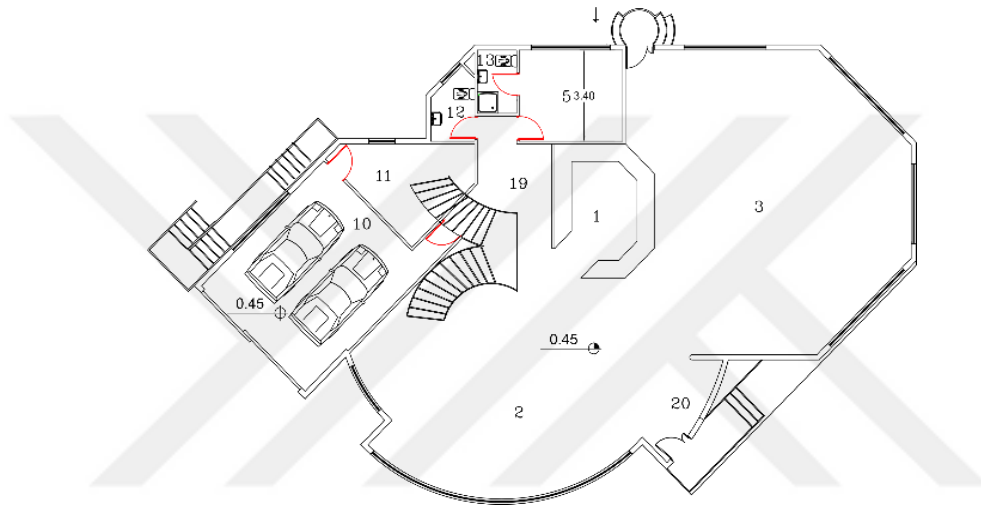
Each of built houses had one object of analysis: Respectively, the “A” building, the “B” building and The “C” building and system in three different areas of Tabriz, Iran for minimum five families. Built houses for program case studies are described in the following sections.

#### **3.4.1. Built Houses Plan of Ferdous Alley**

**Building “A”** (see Figures 11 & 12), in Ferdous alley, is a two-floor house building with steel foundation. It has one duplex house and a total heated area of 430 m<sup>2</sup>. It was constructed in 1995 in Ferdous alley, Tabriz. The plan of the “A” building is below:

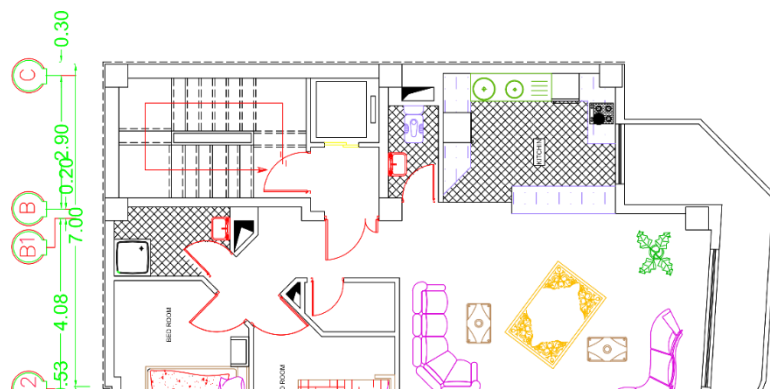


**Figure 11.** Ferdous alley, the “A” building



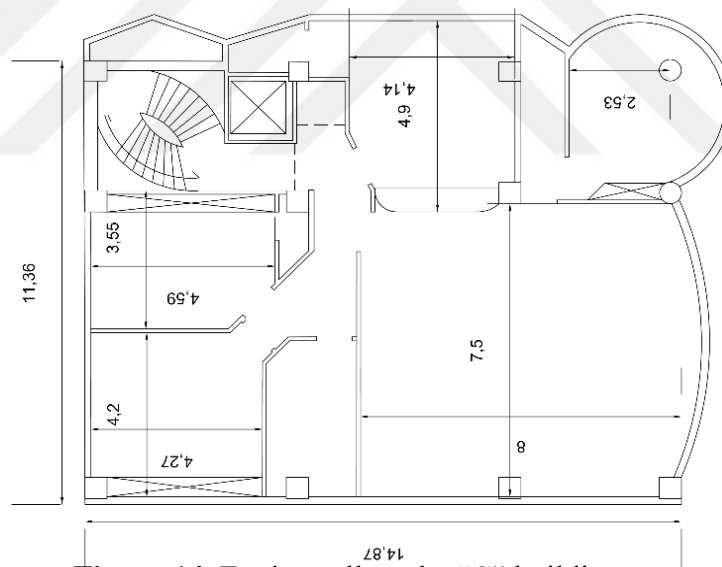
**Figure 12.** Ferdous alley, the “A” building

- **Building “B”** (see Figure 13), in Ferdous alley, is a five-floor apartment building with Concrete foundation. It has 10 apartments and one flat’s area of total heated area “500 m<sup>2</sup>” is 100 m<sup>2</sup>. It was constructed in 2013 in Ferdous alley. The plan of the “B” building is below:



**Figure 13.** Ferdous alley, the “B” building

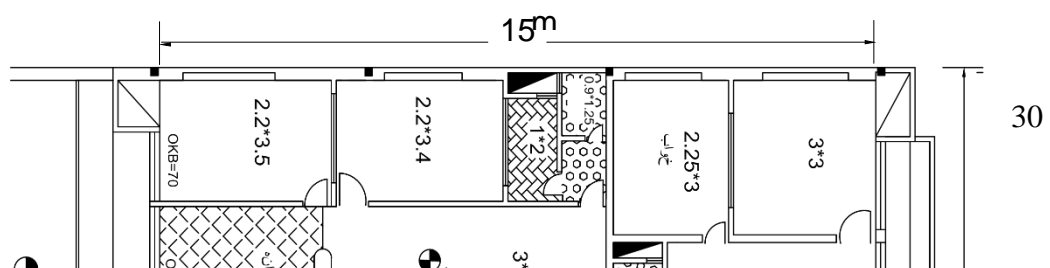
- **Building “C”** (Figure 14), in Ferdous alley, is a five-floor apartment building with Concrete foundation. It has 5 apartments and one flat’s area of total heated area “950 m<sup>2</sup>” is 190 m<sup>2</sup>. It was constructed in 2005 in Ferdous alley. The plan of the “C” building is below:



**Figure 14.** Ferdous alley, the “C” building

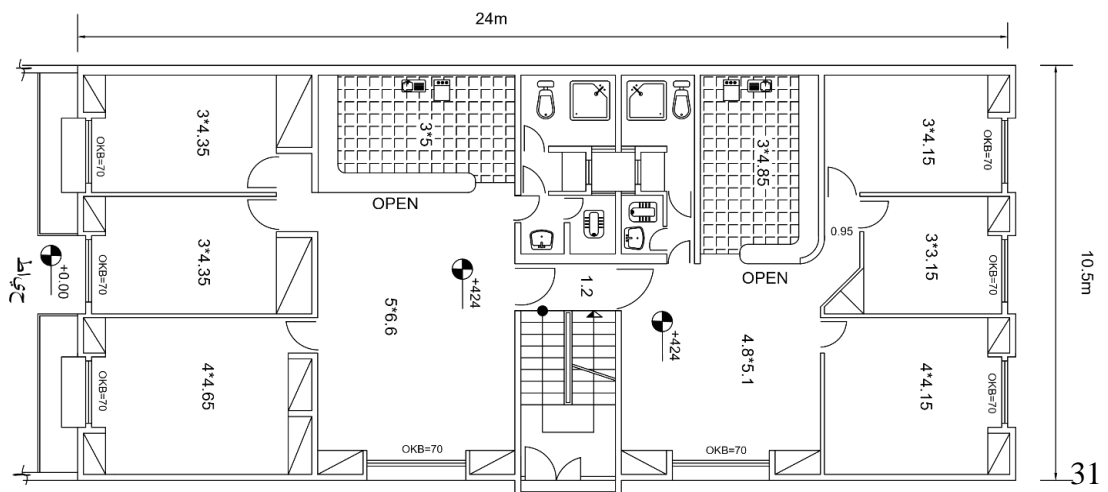
### 3.4.2. Built Houses Plan of Roshdye Town

- **Building “A”** (Figure 15), in Roshdye town, is a four-floor apartment building with Concrete foundation. It has 16 apartments and one flat’s area of total heated area “1341.76 m<sup>2</sup>” is 83 m<sup>2</sup>. It was constructed in 2012 in Roshdye, Tabriz. The plan of the “A” building is below.



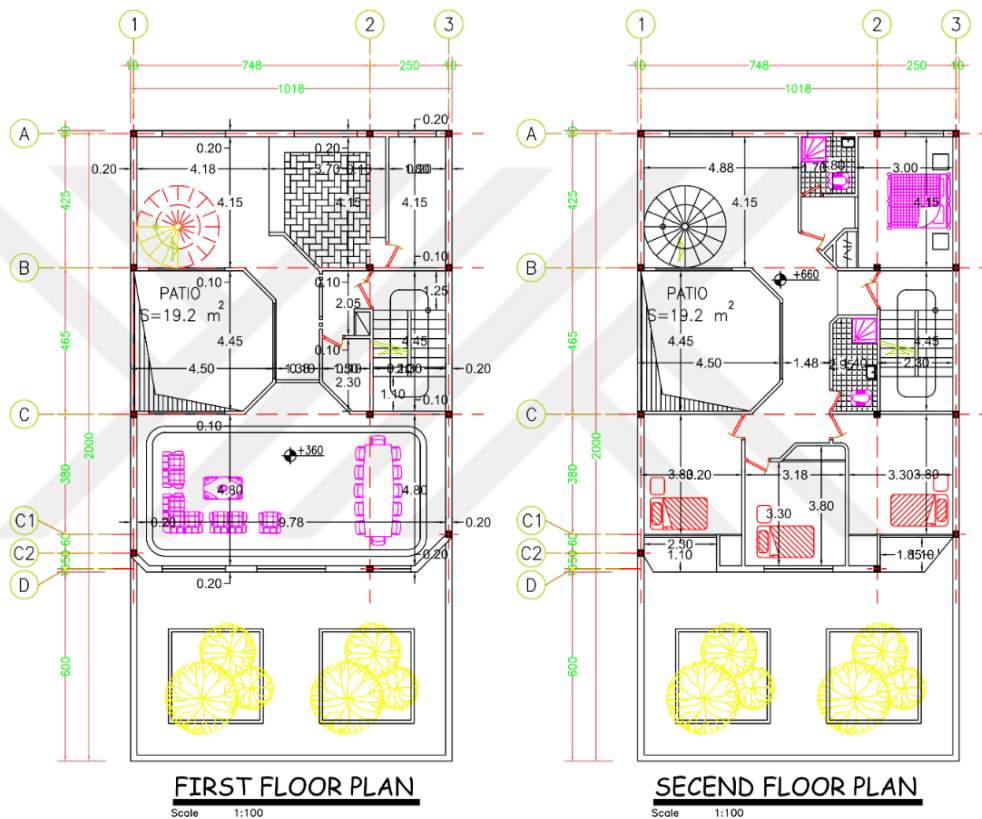
**Figure 15.** Roshdye town, the “A” building

- **Building “B”** (see Figure 16), in Roshdye town, is a five-floor apartment building with Concrete foundation. It has 10 apartments and one flat’s area of total heated area “1200 m<sup>2</sup>” is 110 m<sup>2</sup>. It was constructed in 2000 in Roshdye, Tabriz. The plan of the “B” building is below:



**Figure 16.** Roshdye town, the “B” building

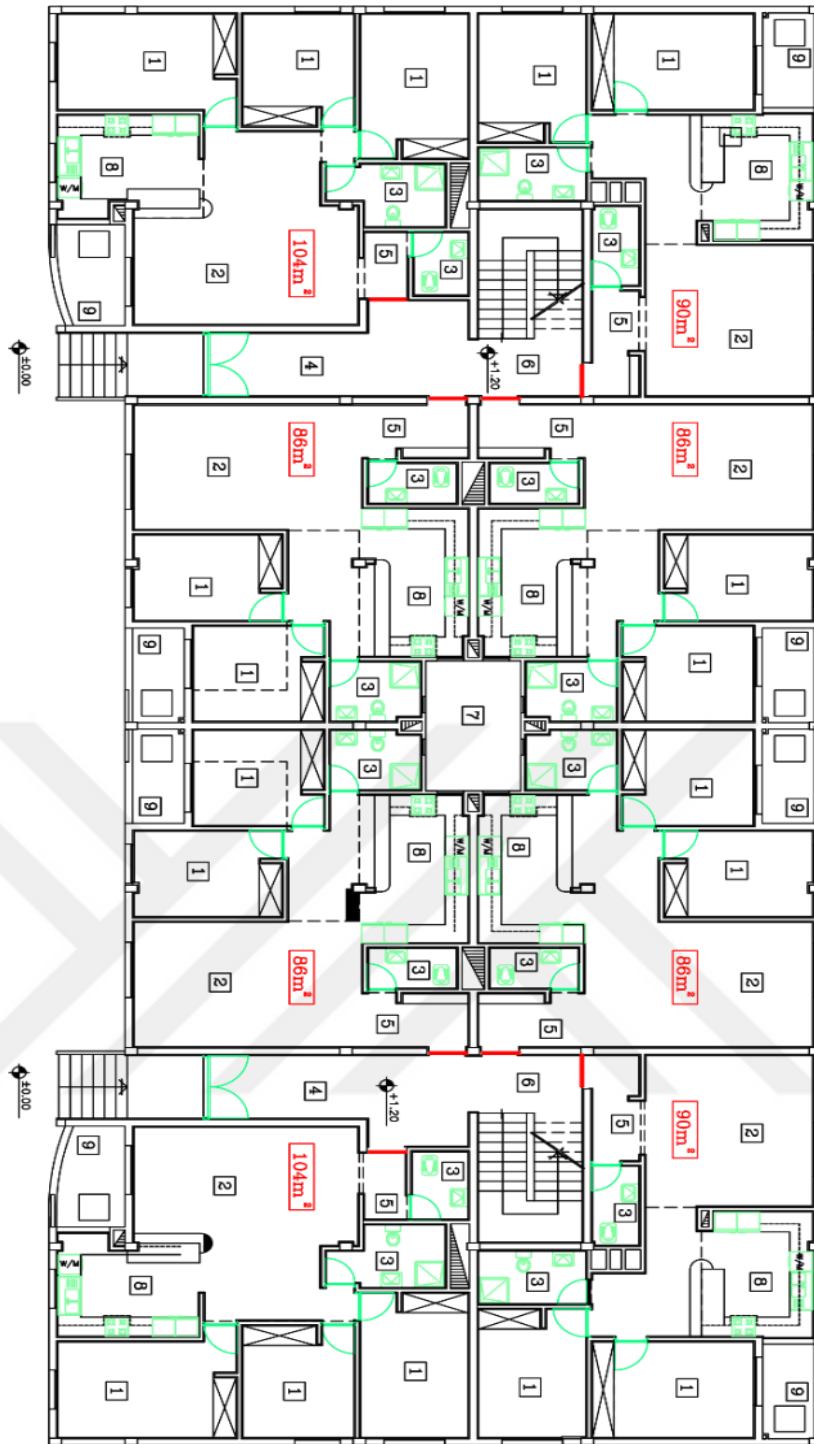
- **Building “C”** (Figure 17), in Roshdye town, is a two-floor house building with Concrete foundation. It has one duplex house and a total heated area of 280 m<sup>2</sup>. It was constructed in 1995 in Roshdye, Tabriz. The plan of the “C” building is below:



**Figure 17.** Roshdye town, the “C” building

### 3.4.3. House Plans of Mehr Complex

- **Building “A”** (Figure 18), in Mehr complex, is a five-floor apartment building with Concrete foundation. It has 40 apartments and 8 flat’s area of total heated area “2982 m<sup>2</sup>” are 90 m<sup>2</sup>, 104 m<sup>2</sup> and 86 m<sup>2</sup>. It was constructed in 2013 in Mehr complex phase 4. The plan of the “A” building is below:



**Figure 18.** Mehr complex, the “A” building

### 3.5. Methods of Obtaining Data

The methods of obtaining data from the regions where the research is conducted:

- A. The prepared questions regarding the changes made in the houses and having face – to – face /qualitative review.
- B. Studying the cause of the changes made in the houses located in the regions of being researched.

- C. Studying the changes in terms of the social- cultural aspects by comparing the housing locations.
- D. Studying the changes in terms of the economical aspect by comparing housing locations.
- E. Studying the changes in terms of the Architectural technology aspect by comparing housing locations.

### 3.5.1. Statistical Analysis and Sampling the Research Community

According to the topic of the research, the statistical community will be made of all modern residential environment. But due to the nature of the research which demand some residential areas in Tabriz. The sampling community is a part of the community which is chosen to provide information about whole of the community. Three residential parts of Ferdous alley, Roshdye town and Mehr houses were chosen as representatives of Whole Tabriz residential centers and in which some building were randomly selected to have precise studying. The statistics of the number of the Families and residential units have been planned as the following table (see Table 1). So the sample community is the number of the units in other words the number of the inhabitant families that are 78 ones. In the following, after Preparing the questionnaire and collecting data through questionnaire and interview, they will be analyzed.

### 3.5.2. Preparing the Questionnaire

To get the given purpose, a questionnaire was planned to evaluate and study the users, satisfaction and tranquility. The first part is made of descriptive questions relate to the respondents (Table 2), interests and information. The second part is composed of multiple choice questions (Table 3).

**Table 1.** The statistics of the number of the families and residential units

Area being studied	Type of building	The no. of the floors	The no. of units	The no. of unit in each floor	The no. of the empty units
Roshdye	A	4	16	4	0
	B	5	10	2	0
	C	2	1	1	0
	A	2	1	1	0

<b>Ferdous alley</b>	B	5	5	5	0
	C	5	5	5	1
<b>Mehr complex</b>	A	5	40	8	16
<b>Total</b>		28	78		

**Table 2.** The first part of the questionnaire

<b>Gender:</b> female <input type="checkbox"/> male <input type="checkbox"/>
<b>Last education degree:</b> illiterate <input type="checkbox"/> diploma <input type="checkbox"/> university education <input type="checkbox"/>
<b>Your House ownership type:</b> leased <input type="checkbox"/> ownership <input type="checkbox"/>
<b>How did you buy it if you are the owner?</b> I bought it from the Mehr cooperative Company <input type="checkbox"/> I bought it from the construction Company <input type="checkbox"/> I bought it from another owner <input type="checkbox"/>
<b>How many people do live in this house?</b> <b>How long have they lived there?</b>
<b>The first designing of the residential environment was done by:</b> Architect <input type="checkbox"/> interior architect <input type="checkbox"/> myself <input type="checkbox"/>
<b>What changes have you made in ? and What changes would you like to make?</b>
<b>Which space inside doesn't have suitable place?</b> Kitchen <input type="checkbox"/> living room <input type="checkbox"/> bedroom <input type="checkbox"/> W.C <input type="checkbox"/>

**Table 3.** The second part of the questionnaire

	questions	Very main	more	average	less	Very less
1	How much does the house you live in satisfy you as an ideal residential environment ?					
2	How much are you satisfied by the spatial relations inside your house ?					



3	How much are you satisfied by the public and private spaces, division and separation inside your residential unit?					
4	How many changes have you made in your house designing ?					
5	How much are you satisfied by the spaces dimensions and the whole area of your unit?					
6	How much are you satisfied by the changed, expenses made in your residential enlivenment ? have they been reasonable economically?					



## 4. THE RESEARCH RESULTS

### 4.1. Data Analysis

The first part of questionnaire, as said before, is related to individual elements. They include: gender, age, education, ownership, family number, residence time, changes that have been made and etc., which have effective role on residents, tranquility in their residential environment. These elements have been evaluated in the first part questions of the questionnaire.

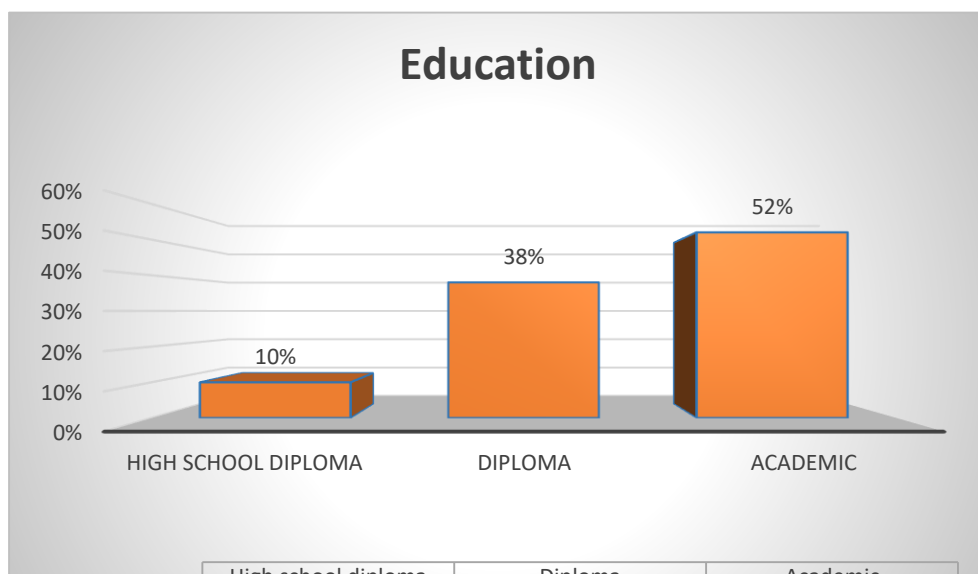
#### 4.1.1. Gender

It should be noted that much percentage of woman what changes to be made in their houses. In the Ferdous alley, 33% of women like to have changes, while in the Mehr complex 89% of women like to have changes. In the Roshdye town 52% of women would like to have changes to be made especially in the kitchen and living room. In the Tabriz Mehr houses like changes to be made especially in the kitchen and living room. As a result, women have less sati's in different regions.

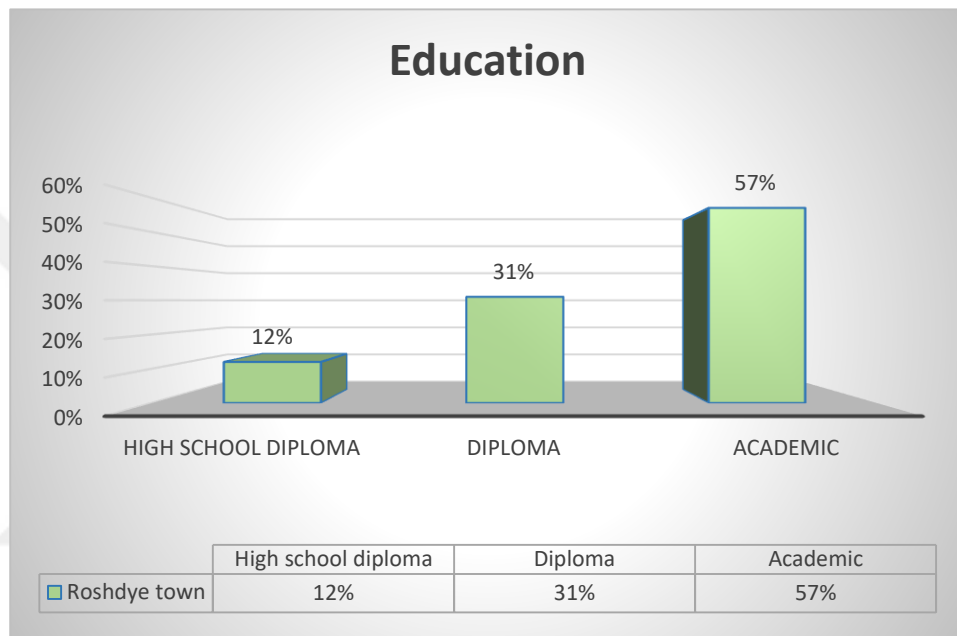
#### 4.1.2. Education

The charts below provide table of education in different regions is given. It can be seen in Tables 4-6.

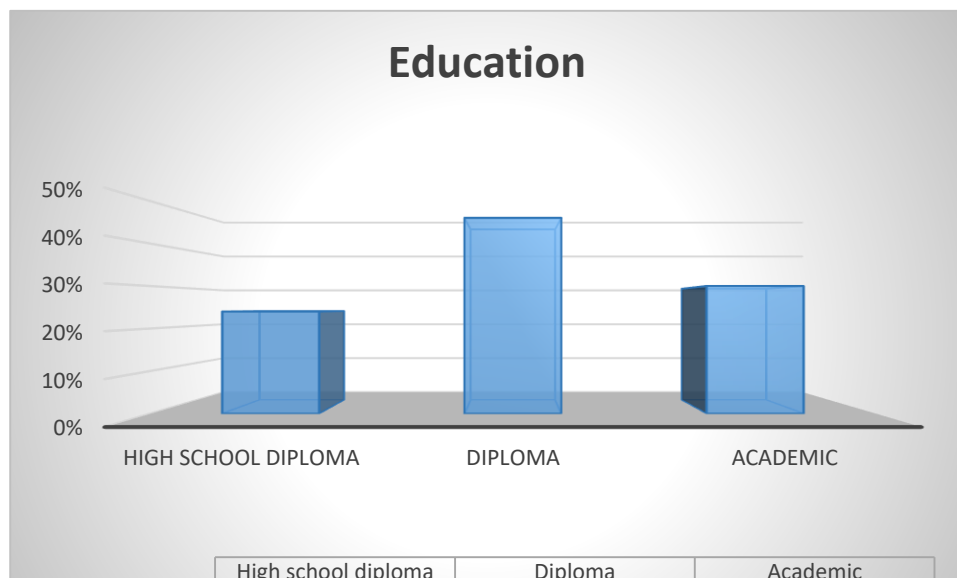
**Table 4.** Education level in Ferdous alley



**Table 5.** Education level in Roshdye town



**Table 6.** Education level in Mehr complex



### 4.1.3. Ownership

The obtained results show that 97% of owners in the Mehr cooperative company while 3 percent have bought it illegally. In Roshdye town, 43% of other property owner and 34% from contraction companies and 23% from The builders. In the Ferdous alley, 54% of the owners have bought from the another owners and 46% from the builders.

### 4.1.4. Changes Made in the Houses by the Residents

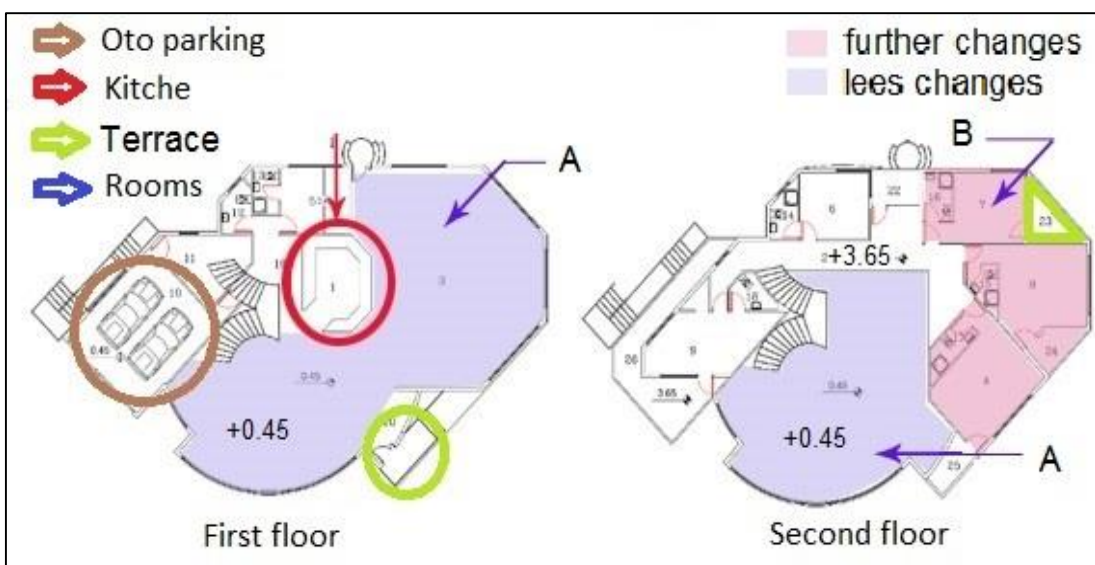
As previously noted, high percentage of women want like to have change in their houses which can be studied psychologically and structurally. The first aspect is beyond our research domain but the structural aspect is of our purposes involved in this research.

## 4.2. Ferdous Alley

By using the data obtained by the questionnaire and the field perception, the changes made by the users have been schematically shown.

### 4.2.1. Building A of Ferdous Alley

As said before, this two-floor building is a duplex unit. Based on the field perceptions the changes made by the residents are as the following in Figure 19.



**Figure 19.** Floor plan of “A” building in Ferdous alley

All changes doing by interior architecture which can be following:

- **Oto parking**      ➡      Change to residential use as parking and storage.
- **Kitchen change** ➡      Cabinet, roof color, wall ceramics, floor stone.
- **Terrace**            ➡      Converted by glass balcony closed space.
- **Rooms**            ➡      Roof color, wall paper, floor laminate parquet.
- **Hall (A).**          ➡      Roof color, wall paper, floor stone.

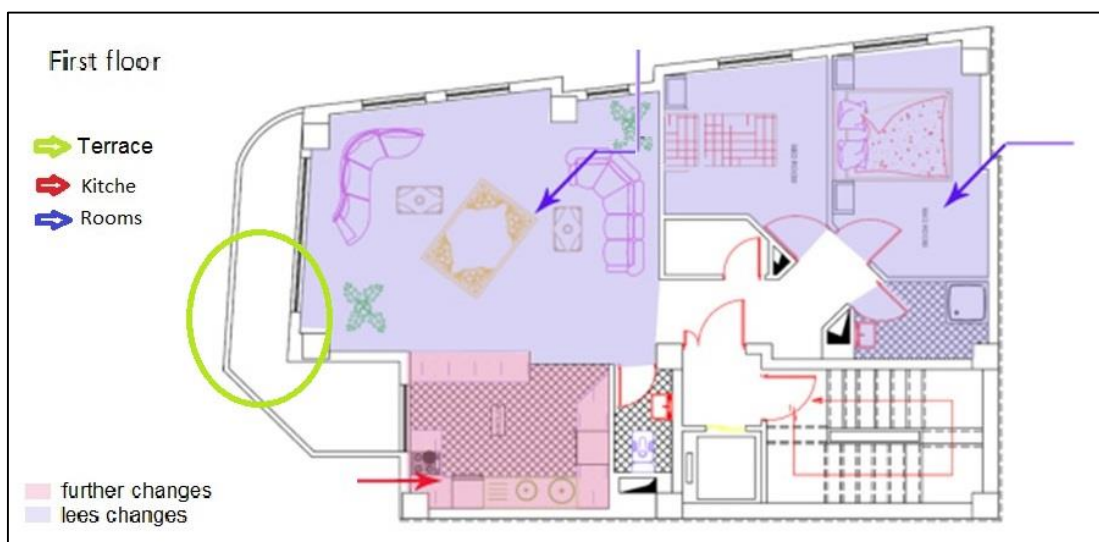
As shown in the Figure 19, in the first and second floors many changes have been made. Parquet and stone flooring has been used in the all rooms. The kitchen system has been changed from an open status into a half-open one. The walls and ceilings of the house has been designed by an interior architect.

#### 4.2.2. Building B of Ferdous Alley

As said before, this building has five floors which each one has one unit. Based on the field perceptions, the changes made by the residents are as the following:

- All families in this building have made changes as the following.

As shown in Figure 20, in the first floor any changes have been made.



**Figure 20.** First floor plan of “B” building in Ferdous alley

- **Kitchen change**   ➡   Cabinet, roof color, wall ceramics, floor stone.
- **Terrace**           ➡   Converted by glass balcony closed space.
- **Rooms**           ➡   Roof color, wall paper, floor laminate parquet.

As shown in Figure 21, in the second floor any changes have been made.



**Figure 21.** Second floor plan of “B” building in Ferdous alley

- **Terrace**           ➡   Converted by glass balcony closed space.
- **Rooms**           ➡   Roof color, wall paper, floor laminate parquet.

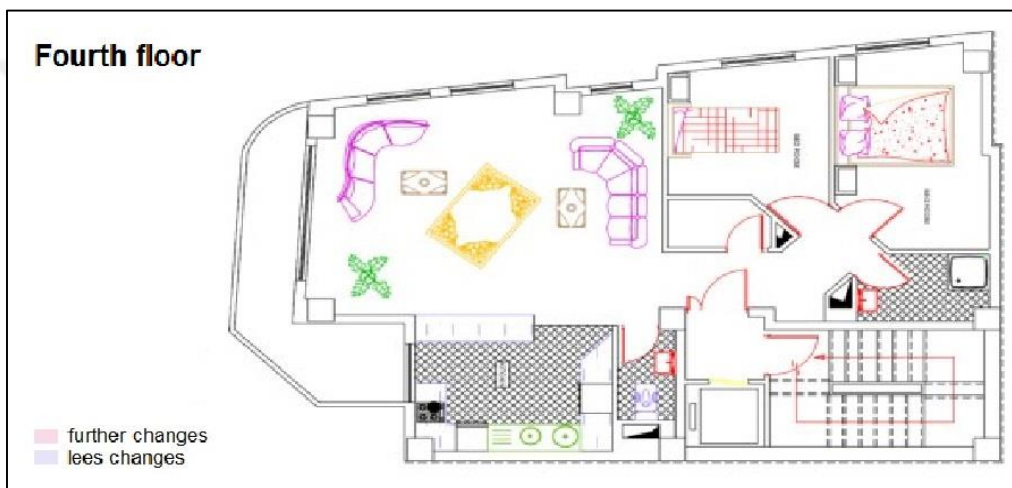
As shown in Figure 22, in the third floor any changes have been made.



**Figure 22.** Third floor plan of “B” building in Ferdous alley

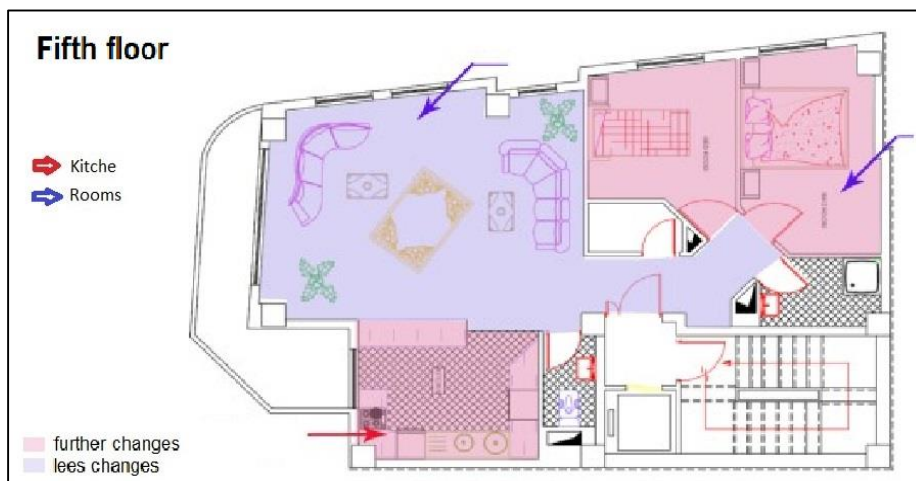
- **Kitchen change**   ➡   Cabinet, roof color, wall ceramics, floor stone.
- **Rooms**           ➡   Roof color, wall paper, floor laminate parquet.

The fourth floor of building B in Ferdous alley was empty of any residents, so it wasn't examined (Figure 23).



**Figure 23.** Fourth floor plan of “B” building in Ferdous alley

As shown in Figure 24, in the fifth floor any changes have been made.



**Figure 24.** Fifth floor plan of “B” building in Ferdous alley

- **Kitchen change** → Cabinet, roof color, wall ceramics, floor stone.
- **Rooms** → Roof color, wall paper, floor laminate parquet.

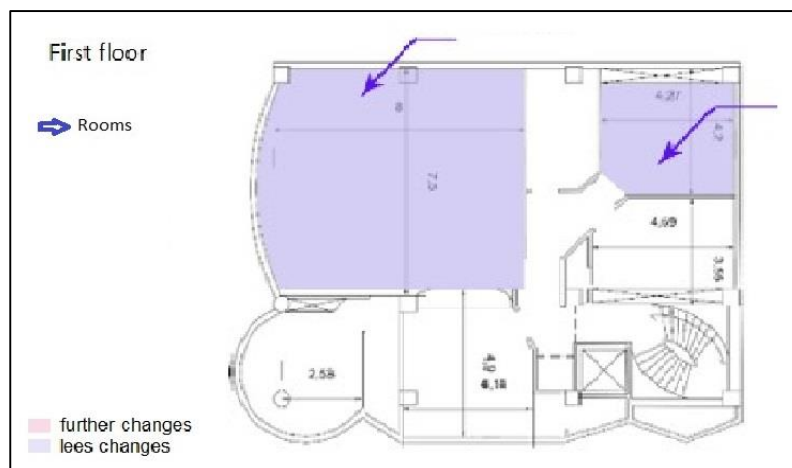
As shown in the figures all above, in this building many changes have been made. Parquet flooring has been used in the rooms. The kitchen system has been changed from an open status into a half-open one. The walls and ceilings of the all parts have been designed by an interior architect.

#### 4.2.3. Building C of Ferdous Alley

As said before, this building has five floors which each one has one unit. Based on the field perceptions, the changes made by the residents are as the following:

- All families in this building have made changes as the following.

As shown in the Figure 25, in the first floor any changes have been made.

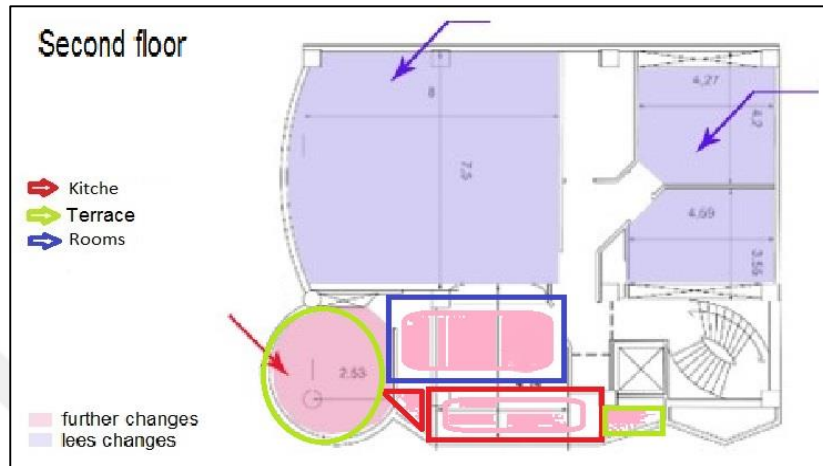




**Figure 25.** First floor plan of “C” building in Ferdous alley

- **Rooms** ➡ Roof color, wall paper, floor laminate parquet.

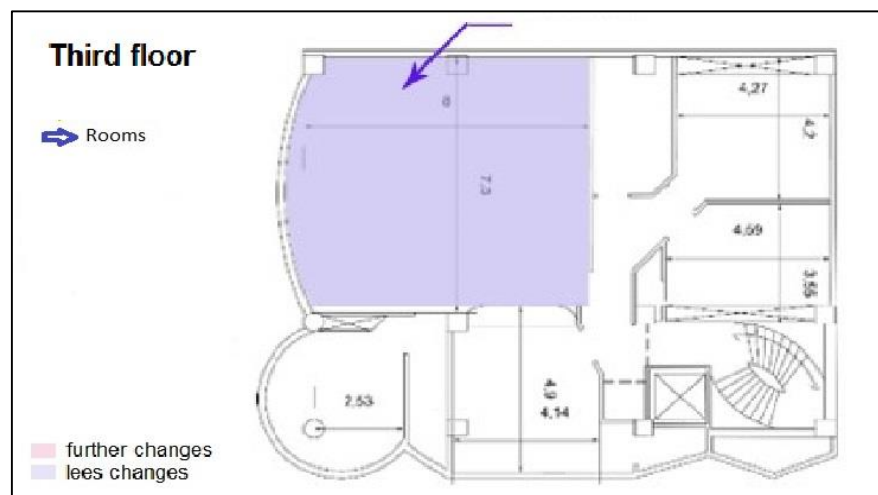
As shown in Figure 26, in the second floor any changes have been made.



**Figure 26.** Second floor plan of “C” building in Ferdous alley

- **Kitchen change** ➡ **1.8<sup>m</sup>\*7.5<sup>m</sup>** physical space changed to kitchen - show by red boundary-, **3.1<sup>m</sup>\* 4.85<sup>m</sup>** physical space from kitchen and W.C added to hall - show by violet boundary-, cabinet, roof color, wall ceramics, floor stone.
- **Terrace** ➡ Changed the room to terrace and converted by glass balcony closed space - show by green boundary-.
- **Rooms** ➡ Roof color, wall paper, floor laminate parquet.

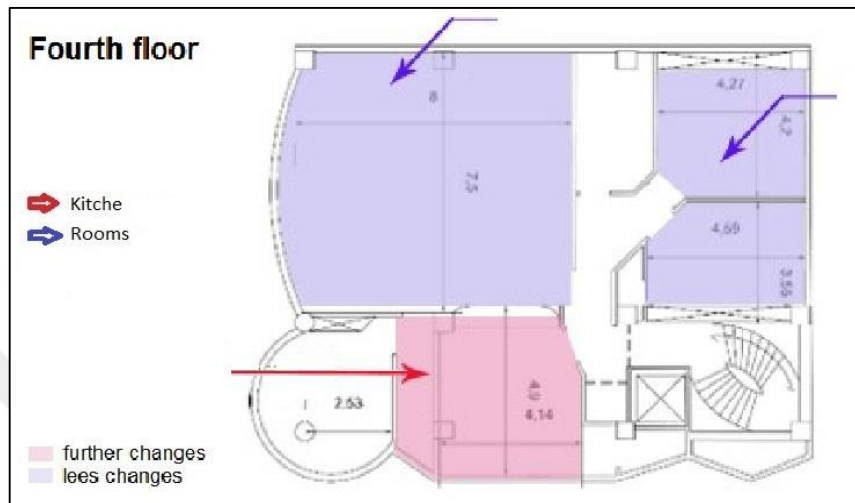
As shown in Figure 27, in the third floor any changes have been made.



**Figure 27.** Third floor plan of “C” building in Ferdous alley

- **Room**                   ➡      Roof color, wall paper, floor laminate parquet.

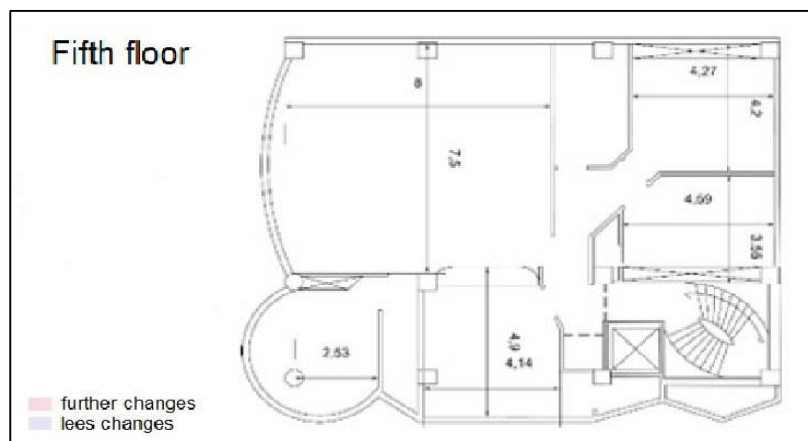
As shown in Figure 28, in the fourth floor any changes have been made.



**Figure 28.** Fourth floor plan of “C” building in Ferdous alley

- **Kitchen change**   ➡      Cabinet, roof color, wall ceramics.
- **Rooms**                   ➡      Roof color, wall paper, floor laminate parquet

As shown in Figure 29, no changes have been made in the fourth floor of building C in the Ferdous alley.



**Figure 29.** Fifth floor plan of “C” building in Ferdous alley

### 4.3. Roshdye Town

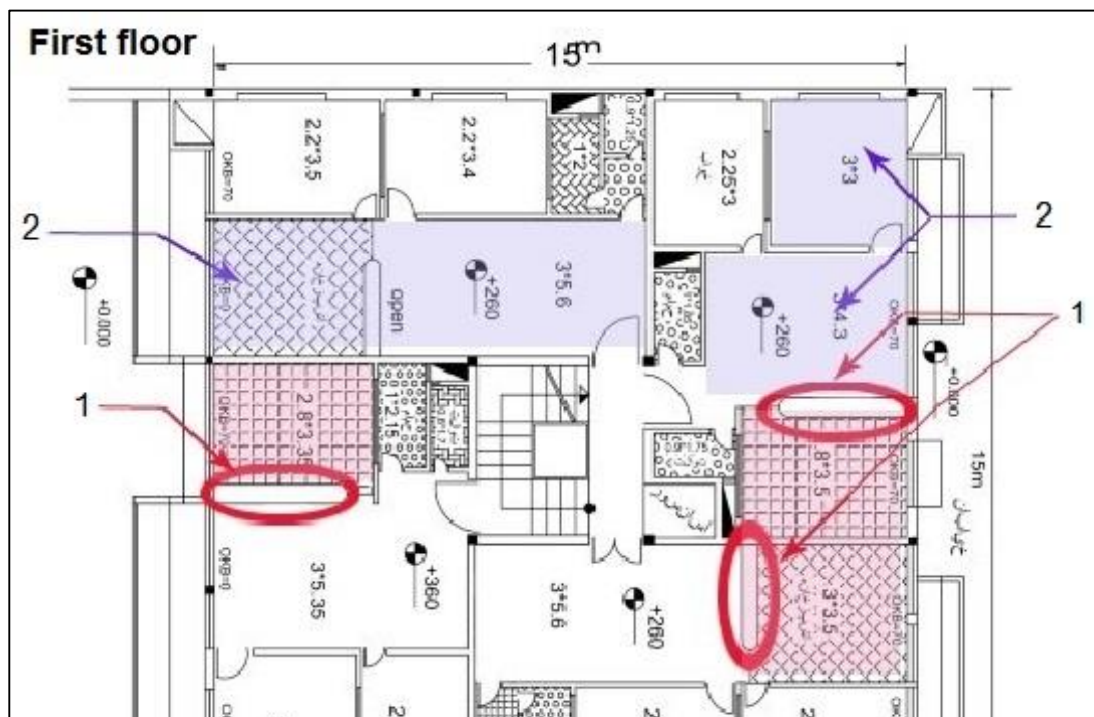
By using the data obtained by the questionnaire and the field perception, the changes made by the users have been schematically shown.

#### 4.3.1. Building A of Roshdye Town

As said before, this building has four-floor apartment building which each floor has four units. Based on the field perceptions, the changes made by the residents are as follow:

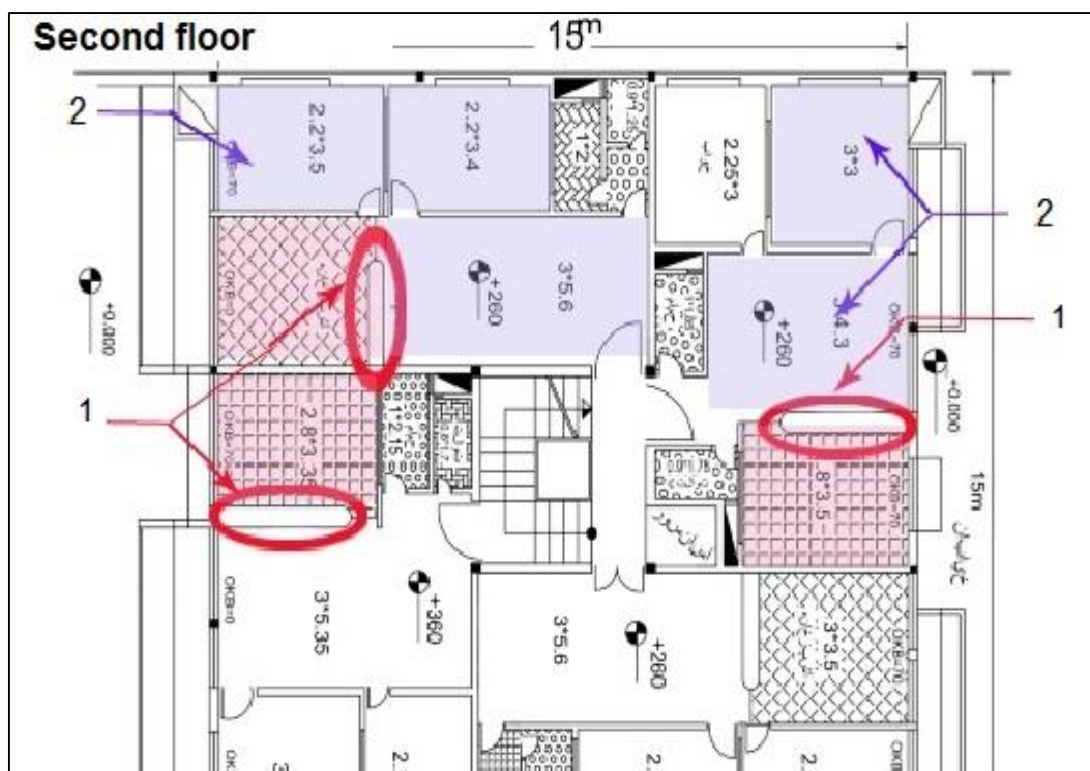
- All four families in the first floor have made changes as the following.

As shown in Figure 30 three units of four exist units in the first floor have seen fundamental changes in the kitchen. The system of the kitchens has been changed from demi-open status to a close one. The changes are seen on the house flooring in all of which wooden floor covering (parquet) have been used.



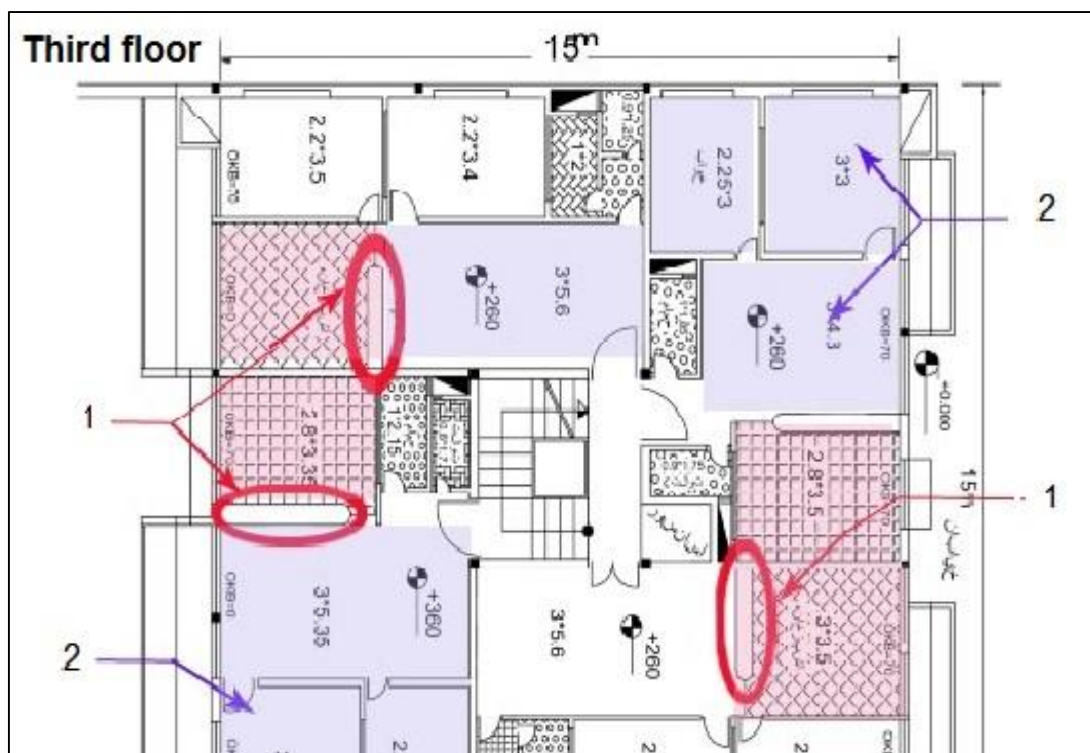
**Figure 30.** First floor plan of “A” building in Roshdye town

- All four families in the second floor have made changes as the following. As show in Figure 31, there units of the four ones in the second floor have seen fundamental changes in the kitchen. The system of the kitchens has been changed from the half-open status to a close one. Changes in the flooring of the houses are observable in all of which wooden floor covering (Parquet) have been used.



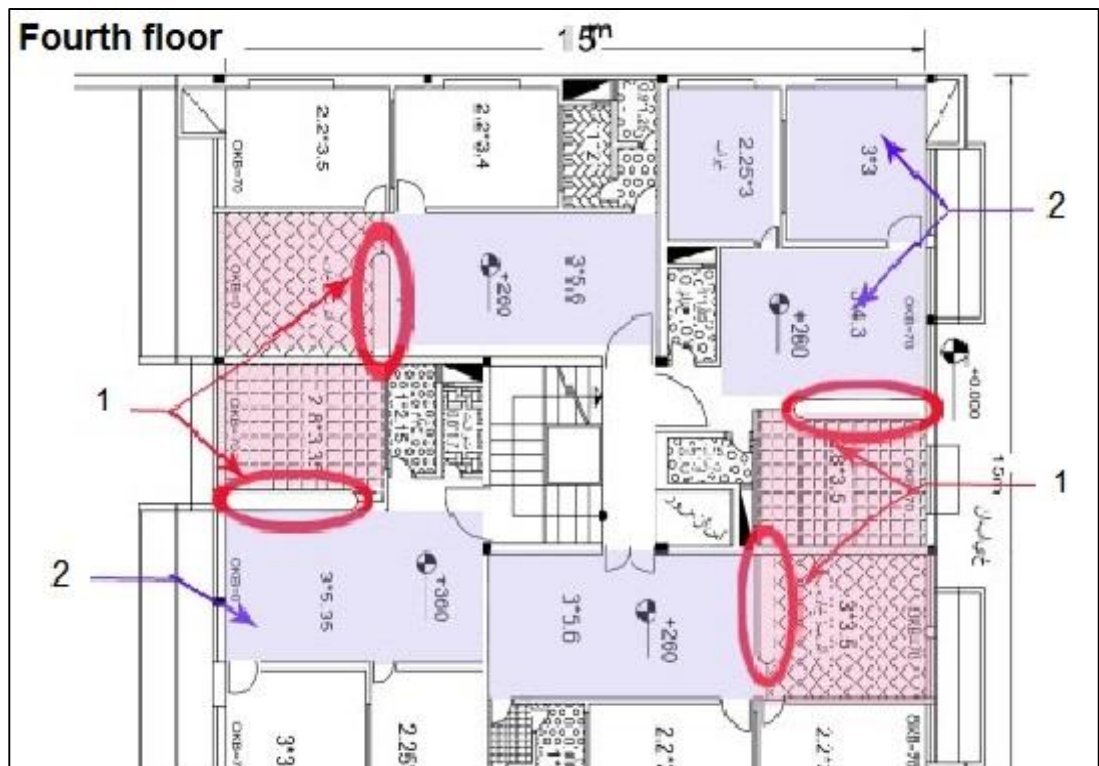
**Figure 31.** Second floor plan of “A” building in Roshdye town

- All four families in the third floor have made changes as the following. As shown in Figure 32, three units of the four ones, in the third floor have seen fundamental changes in the kitchen. The system of the kitchens has been changed from the half-open status to a close one. Changes in the flooring of the houses are observable in all of which wooden floor coverings (parquet) have been used.



**Figure 32.** Third floor plan of “A” building in Roshdye town

- All four families in the fourth floor have made changes as the following. As show in the Figure 33, all four units in the fourth floor have seen fundamental changes in the kitchen. The system of the kitchen has been changed from a half- open status to a close one. The changes in the flooring of the houses are observable in all of which wooden floor coverings (parquet) have been used.



**Figure 33.** Fourth floor plan of “A” building in Roshdye town

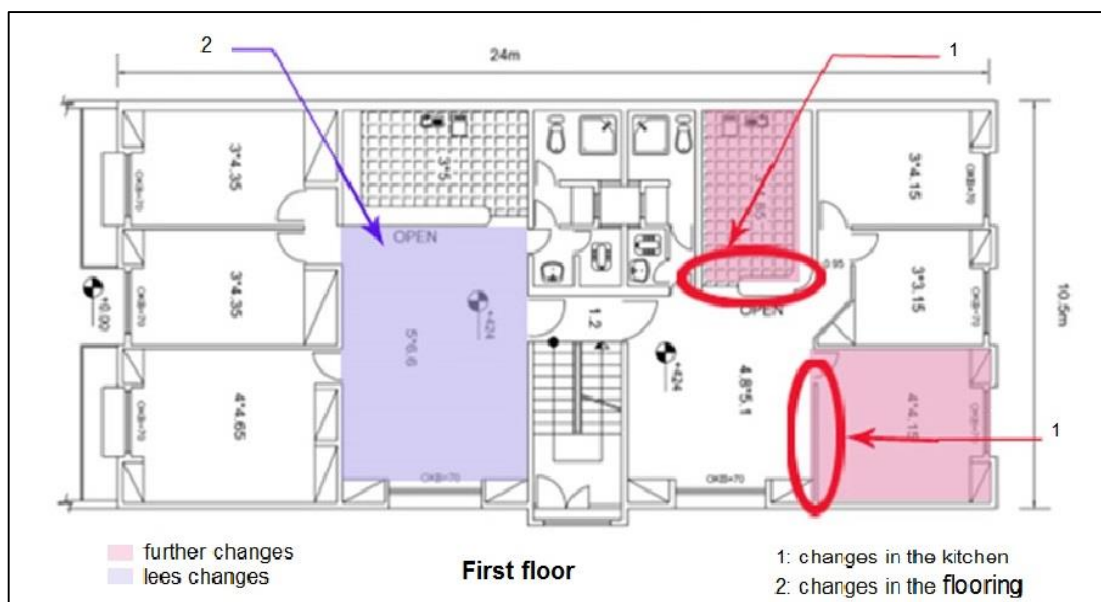
#### 4.3.2. Building B of Roshdye Town

As mentioned before, this building has five floors which each floor has 2 units. Based on the field the changes made by the residents are as the following:

- All two families in the first floor have made changes as the following.

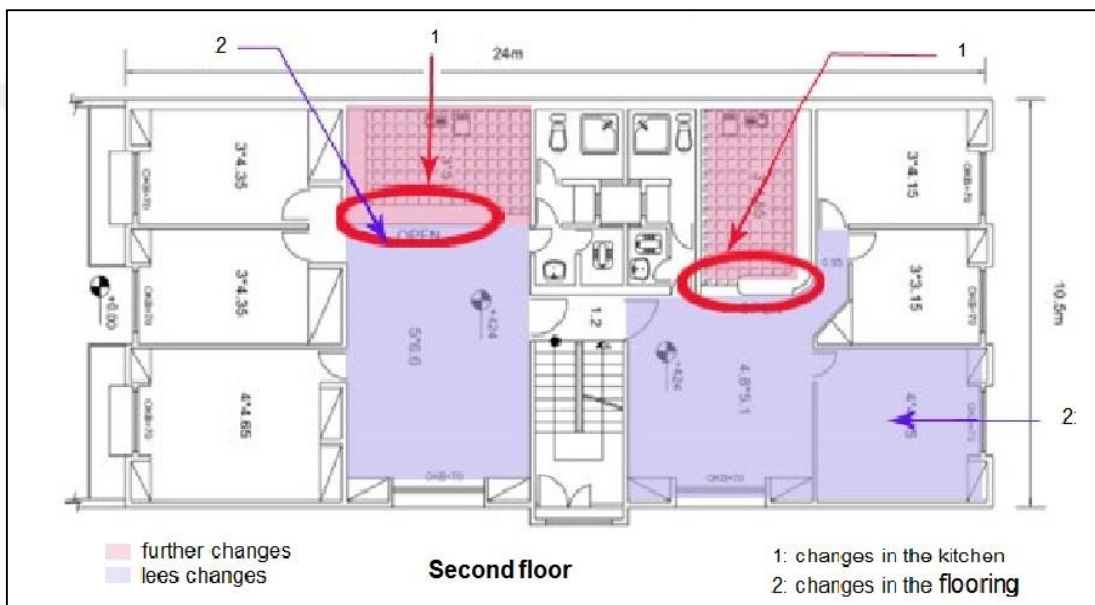
As shown in Figure 34, one of the two units in the first floor has seen fundamental changes in the kitchen. The system of the kitchens in these cases has been changed from a half-open status into a close one.

In the given unit, changes have been made in the living room because it was too small, so one side of one of the bedrooms was removed and mixed with the living room which later become 16 meters. Some changes are observable in the flooring coverings (parquet) have been used.



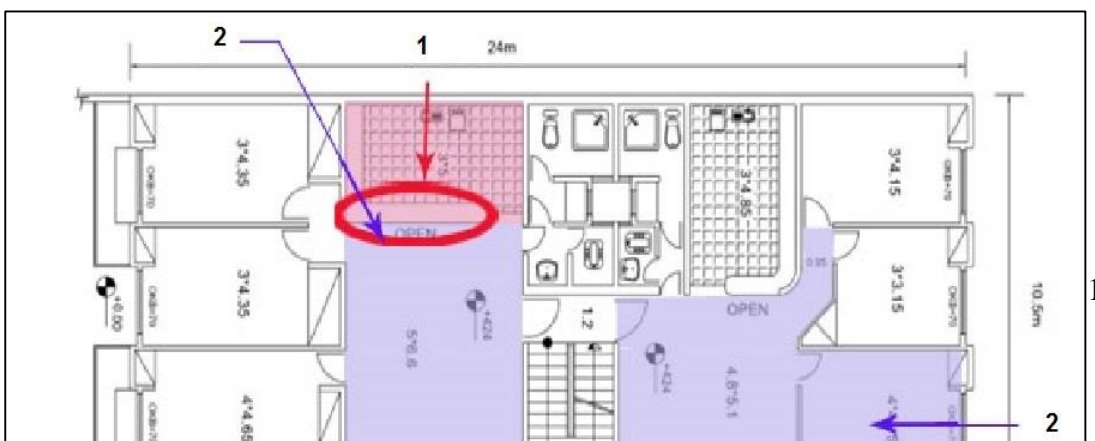
**Figure 34.** First floor plan of “B” building in Roshdye town

- All two families in the second floor have made changes as the following. As shown in Figure 35, both two units in the second floor have seen fundamental changes in the kitchen. The system of the kitchens has been changed from a half-open status into a close one. Some changes are observable in all of which wooden floor coverings (parquet) have been used.



**Figure 35.** Second floor plan of “B” building in Roshdye town

- All two families in the third floor have made changes as the following. As shown in Figure 36, one of the two units in the third floor have seen fundamental changes in the kitchen whose system was system was changed from a half-open status into a close one. Some changes in the flooring of the houses are observable in all of which wooden floor coverings (parquet) have been used.





**Figure 36.** Third floor plan of “B” building in Roshdye town

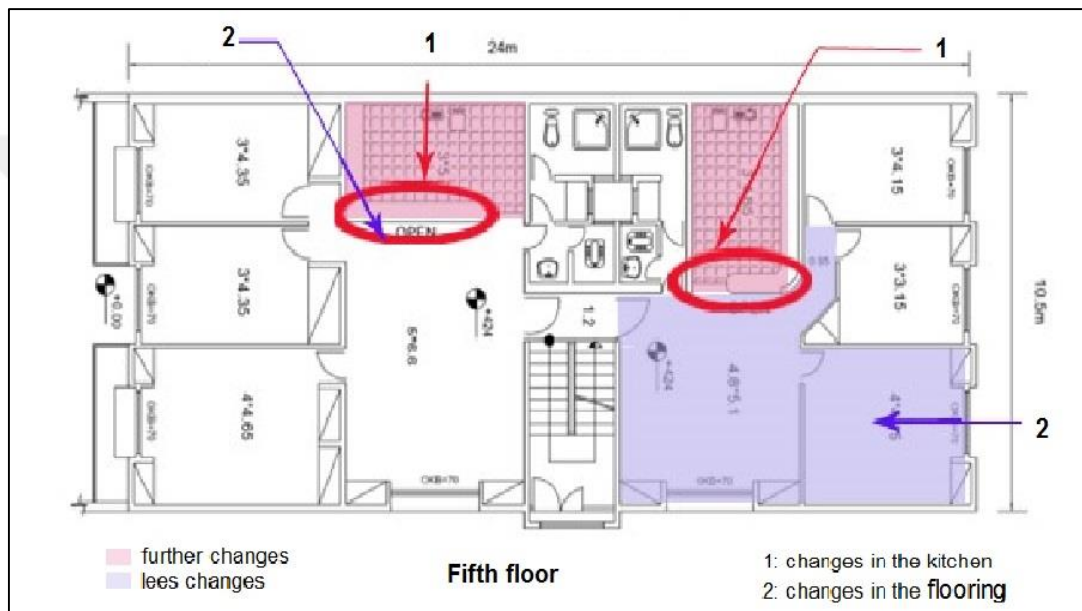
- All two families in the fourth floor have made changes as the following.

As shown in Figure 37, both units in the fourth floor have seen fundamental changes in their kitchen whose system has been changed from a half-open status into a close one. Some changes are observable in the flooring of the houses in all of which wooden floor coverings (parquet) have been used.



**Figure 37.** Fourth floor plan of “B” building in Roshdye town

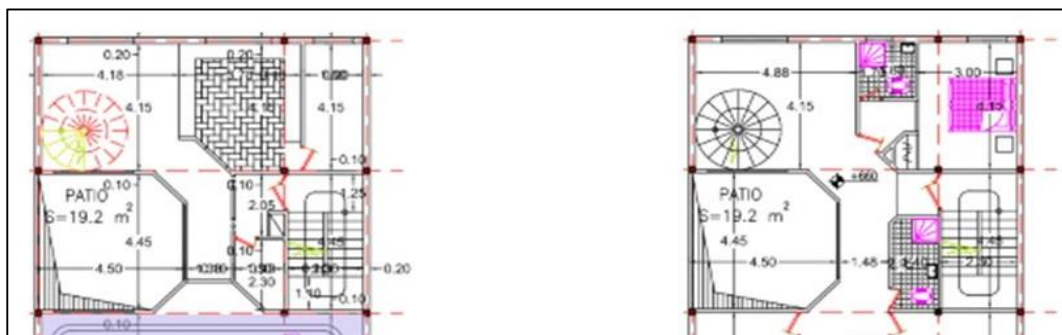
• All two families in the fifth floor have made changes as the following.  
 As shown in Figure 38, both units in the fifth floor have seen fundamental changes in their kitchen whose system has been changed from a half-open status into a close one. Some changes are observable in the flooring of the houses in all of which wooden floor coverings (parquet) have been used.



**Figure 38.** Fifth floor plan of “B” building in Roshdye town

### 4.3.3. Building C of Roshdye Town

As mentioned before, the building has 2 floors and actually is made of one duplex unit. Based on the field perceptions, the changes made by the residents are as the following in Figure 39. In building C, due to the cultural considerations and dividing the private and public spaces and existing cold and hot kitchens separated from the public space, fundamental changes haven't been made. But some changes based on the user's preferences, have been made in the field of joinery.



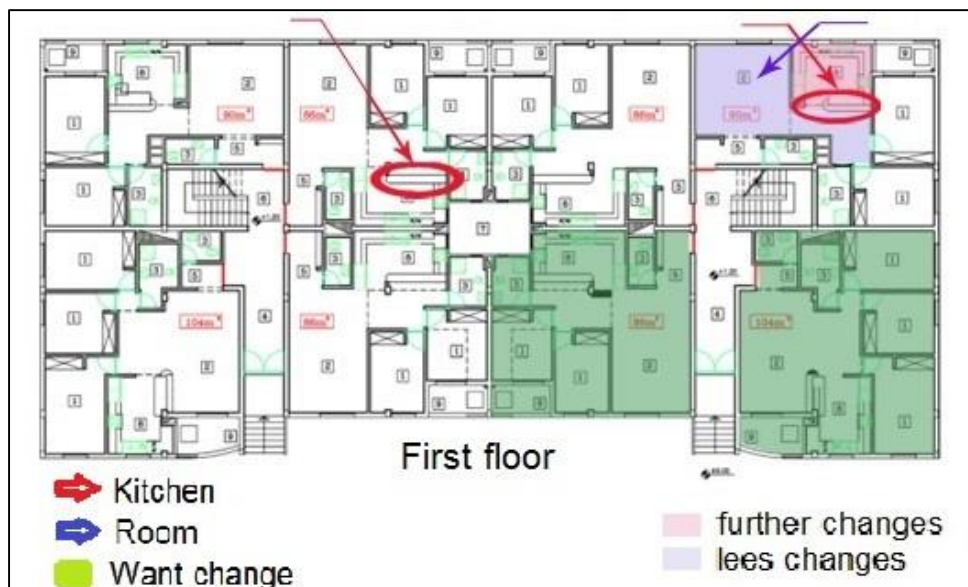
**Figure 39.** First and second floor plans of “C” building in Roshdye town

#### 4.4. The Mehr Complex

As said before, this building has 5 floor each which as 8 units. Based on the field perceptions, the changes made by the residents are as the following:

##### - First floor

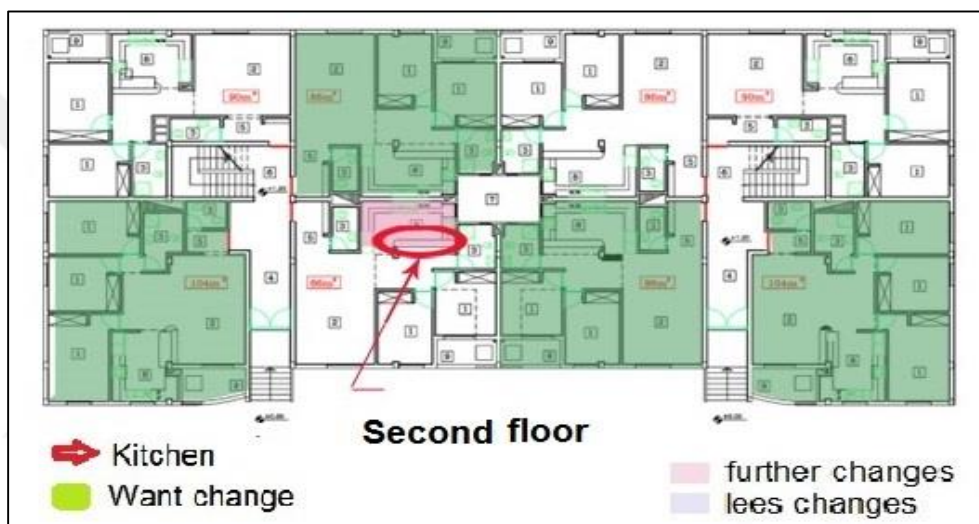
As shown in Figure 40, in the first floor of phase 4 of Tabriz Mehr Complex, no changes have been made in 6 units, and this isn't an indicator of the residents 'Satisfaction but they I can't afford these changes. Two units want to make changes but don't have demanded money. Two units are empty from any residents and two units have made some changes in the flooring of the living room and the kitchen system.



**Figure 40.** First floor plan of “A” building in Mehr complex

**- Second floor**

As shown in Figure 41, on the second floor of phase 4 of Tabriz Mehr housing, there are no changes in seven units whose residents don't have financial ability to make those changes. Four units want to have changes but don't have money. Three units are without any residents but two units have made changes in the system of the kitchens.



**Figure 41.** Second floor plan of “A” building in Mehr complex

**- Third floor**

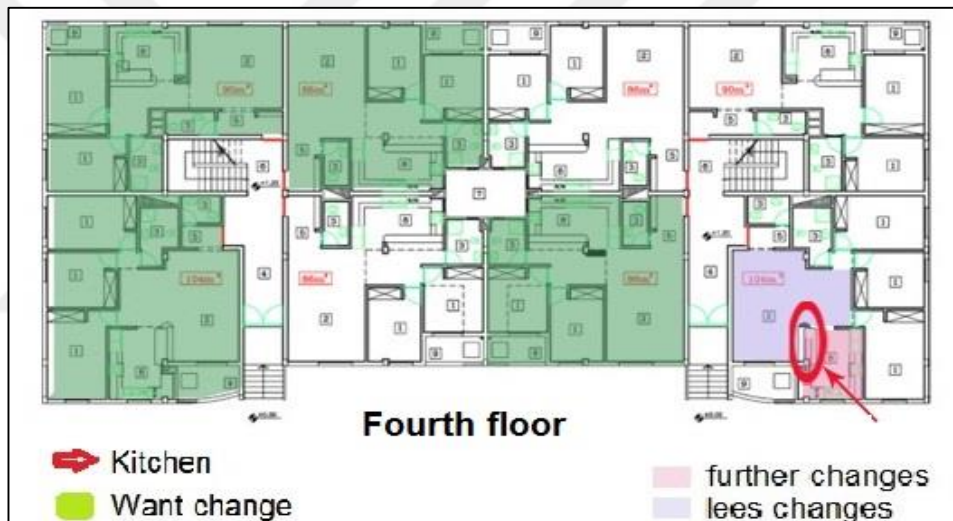
As shown in Figure 42, on the third floor of phase 4 of Tabriz Mehr housing, there are no changes in 8 units which isn't an indicator of the residents 'Satisfaction but their lack of financial ability. Four units want changes but lack any financial ability. Four units don't have any residents.



**Figure 42.** Third floor plan of “A” building in Mehr complex

**- Fourth floor**

As shown in Figure 43, on the fourth floor of phase 4 of Tabriz Mehr housing, there are no changes in seven units which isn't an indicator of the resident's satisfaction but their lack of financial ability. Four units want change but lack financial ability. There units lack any residents and two units have made changes in the kitchen system.



**Figure 43.** Fourth floor plan of “A” building in Mehr complex

**- Fifth floor**

As shown in Figure 44, on the fifth floor of 4 of Tabriz Mehr housing, there are no changes in seven units which isn't an indicator of the resident's satisfaction but their lack of financial ability. Three units want change but lack financial ability. Four units lack any residents some changes have been made in the kitchen system of one unit.



**Figure 44.** Fifth floor plan of “A” building in Mehr complex

In general, Tabriz Mehr housing doesn't have architecturally designing. Lack of cooling system and lack of paying attention on the residents needs has caused their satisfaction level. Also due to the settlement of the poor class, making changes in the houses have been practically impossible.

#### 4.5. Space Size

Based on a survey conducted among the residents about the spaces area, their dissatisfaction rate of the spaces of the kitchens, living room, bedrooms and washrooms are provided in the following Tables 7-9:

**Table 7.** Size space in Ferdous alley

house Spares position	kitchen	Living room	Food room	W.C
First floor of building A in Ferdous alley	1	0	0	0
First floor of building B in Ferdous alley	1	0	0	1
Second floor of building B in Ferdous alley	0	0	1	1
Third floor of building B in Ferdous alley	1	1	0	0
Fourth floor of building B in Ferdous alley	0	0	0	0
First floor of building C in Ferdous alley	1	0	1	0
Second floor of building C in Ferdous alley	0	0	1	0
Third floor of building C in Ferdous alley	1	0	1	0

house Spares position	kitchen	Living room	Food room	W.C
First floor of Mehr complex	4	3	5	2
Second floor of Mehr complex	3	2	3	4
Third floor of Mehr complex	4	3	2	3
Fourth floor of Mehr complex	5	4	4	3
Fifth floor of Mehr complex	3	2	2	2
<b>Total of the dissatisfied families</b>	<b>19</b>	<b>14</b>	<b>16</b>	<b>14</b>
Fourth floor of building C in Ferdous alley	1	1	1	1
Fifth floor of building C in Ferdous alley	0	0	0	0
<b>Total of the dissatisfied families</b>	<b>6</b>	<b>2</b>	<b>5</b>	<b>3</b>

**Table 8.** Size space in Roshdye town

house Spares position	kitchen	Living room	Food room	W.C
First floor of building A in Roshdye town	3	1	2	2
Second floor of building A in Roshdye town	3	2	1	1
Third floor of building A in Roshdye town	4	3	2	2
Fourth floor of building A in Roshdye town	4	2	3	0
First floor of building B in Roshdye town	1	0	1	1
Second floor of building B in Roshdye town	2	1	0	1
Third floor of building B in Roshdye town	1	2	1	0
Fourth floor of building B in Roshdye town	2	0	1	1
Fifth floor of building B in Roshdye town	2	1	0	1
First floor of building C in Roshdye town	0	0	0	1
<b>Total of the dissatisfied families</b>	<b>22</b>	<b>12</b>	<b>11</b>	<b>10</b>

**Table 9.** Size space in Mehr complex

#### 4.6. Environmental Factors

The second part of the questions in the questionnaire are related to the environmental factors. In the following, each answer of questions is individually being studied.

**Table 10.** Ideal residential environment

Answer of question 1	Roshdye town	Mehr complex	Ferdous alley	All of the complex
Average	3.73	1.82	4.31	3.29
Score from 100	74.6%	36.4%	86.2%	65.73%

**Table 11.** Satisfied from the spatial relations

Answer of question 2	Roshdye town	Mehr complex	Ferdous alley	All of the complex
Average	3.72	4.23	1.81	3.25
Score from 100	74.4%	84.6%	36.2%	65.07%

**Table 12.** Changes made in house plans

Answer of question 3	Roshdye town	Mehr complex	Ferdous alley	All of the complex
Average	4.26	3.68	2.12	3.35
Score from 100	85.2%	73.6%	42.4%	67.07%

**Table 13.** Satisfied from the spaces, dimensions and the whole area

Answer of question 4	Roshdye town	Mehr complex	Ferdous alley	All of the complex
Average	3.78	4.16	1.66	3.2
Score from 100	75.6%	83.2%	32.2%	64%

**Table 14.** Satisfied by the division way of the public and private spaces

Answer of question 5	Roshdye town	Mehr complex	Ferdous alley	All of the complex
----------------------	--------------	--------------	---------------	--------------------



<b>Average</b>	3.83	4.18	2.01	3.34
<b>Score from 100</b>	76.6%	83.6%	40.2%	66.8%

**Table 15:** satisfied by the expenses of the changes made

<b>Answer of question 6</b>	<b>Roshdye town</b>	<b>Mehr complex</b>	<b>Ferdous alley</b>	<b>All of the complex</b>
<b>Average</b>	3.69	4.22	1.85	3.25
<b>Score from 100</b>	73.8%	84.4%	37%	65.07%

As the above statistics and numbers show, the residents of Ferdous alley are more satisfied, in the conducted interviews and the field perception, it can be said that the materials used in the houses of the Ferdous alley are more suitable, so the residents have been less obliged to change the used materials and they have been dissatisfied in just fewer cases.

While the residents of Roshdye town house have been less satisfied by the materials have being used. As we saw in the section about changes, there are more changes in the section of flooring. The residents of this region are less satisfied by the heating and cooling installations.

The residents in the Mehr complex have more complaints about the highly expenses of the changes. By referring to the section of the changes, we can notice this fact. The cases which have caused dissatisfaction. Can be referred to as improper floor covering of the spaces (ceramic), using single-glazed windows with low quality materials, lack of suitable heating installation, lack of cooling installation and etc., in general, Mehr housing is cheap and has been preceded for the less-income families, so they should have high qualities to cause them save the expenses.



## **5. CONCLUSION**

In the research place, Ferdous alley, Roshdye town, Mehr houses, based on a survey and interviews with the houses owners, it was identified that the owners house made more changes during their residents. the obtained data show that the residents of each region have made many changes in their houses based on their culture, lifestyle,

facilities and technology and the quality and lifespan of the materials having being used. These changes can be classified according to the following points:

**A.** All of the three regions, the greatest rate of the dissatisfaction rates to the lake lack of the flexibility in the interior architecture match with residents, culture and lifestyle and the applied materials without suitable quality and modern technology, which has caused the families to spend their income on the changes. The Ferdous alley, the residential buildings have meet the resident's desires regarding on ideal environments, the physical relations of the space, the way of the division and separation between the private and public areas and the spaces, dimensions and the whole area of the unit about 86.2%, 84.6%, 83.6% and 83.2%, respectively.

In the Mehr complex, the residential houses have meet the residents, expectations regarding on ideal environments, the physical relation of the spaces, the way of the private and public spaces, division and separation and the spaces, demotions and the whole area of the unit about 36.4%, 36.2%, 40.2% and 33.2%, respectively.

In general, it can beside that the residents of Ferdous alley have more satisfactions, but the residents of the Mehr complex have the least degree of satisfaction. because the materials used in the houses of the Ferdous alley are the kind of suitable one. So the residents don't have to make more changes on the materials due to their high quality and there is dissatisfaction only in few causes. while the residents of Roshdye town are averagely satisfied.

**B.** In all of the three regions, the changes have been made to get the last technologies. lack of the useful use of the materials and the devices during their residence has resulted in changing the materials while contractions - using beautiful and modern materials and tools instead of the previous once has been more favorable. The comfort caused by the technologies used in the materials and tools has pushed the users toward the new things, who want to use them and make changes. it should be noted that a high percentage of the woman want to have more changes in their houses. in the Ferdous alley, 33 percent of the woman want the changes. In the Roshdye town, 52 percent of the women like to have changes especially in their kitchens and living rooms, while 89 percent of women living in the Mehr houses

want changes. So, the woman has less satisfaction of their houses current condition, which is more notable in the Mehr houses. In general, the women share much percentage of the dissatisfaction.

In the Ferdous alley, the changes made in the plan and materials was 73.6% some changes in the Roshdye town was 83.2%, which is of the most changes have been made. The least changes made in the plan and materials was of the Mehr house with 42.4 %. In two regions of the Roshdye town and Mehr house, more changes have been observed in the applied materials. The residents of the Roshdye town want to have more changes in the cooling and heating systems. But the residents of the Mehr houses want to have more changes in their unsuitable floor coverings (ceramic), single - glazed windows with low quality materials, lack of the suitable heating and cooling system.

- C. Whereas construction, poor quality of the used material causes changes after a little time. According to those people with high income and university education live in the Ferdous alley, the construction companies have used high quality materials matched with their culture and lifestyle. So, the residents have been less obliged to change them. They are dissatisfied in just few cases. Regarding the quality of life and the families' income, the residents of Roshdye town are on the average level with high university degrees. This causes the residents to make enough changes when they are dissatisfied. So, this group have met the most changes.

But in the Mehr house, people with low - income and less university education live. Due to the improper materials used in the building which are not suitable with the resident's culture and lifestyle, the project of Tabriz Mehr housing doesn't have suitable architectural designing. Lack of the cooling system and ignoring the residents' needs have caused their dissatisfaction and also because of the poor class of the people residing in this area, making essential changes inside the houses is actually impossible. This causes the residents to have more complaints about the high expenses of the changes.

In general, the Mehr houses have less quality and are cheap, while they should have had high quality because they have been made for the low - income people who should save repairmen expense.

Due to the conducted research, the families who live in the Mehr house are not satisfied by living there. To the question of "how much are u satisfied by the changes expenses made in your residential environment? are the economical affordable?" just 37% of families living in the Mehr houses but 84.4% of the Ferdous people answered positive.

The houses have been made in these three regions are representatives of the current architectural designing understanding of its own time. In the early of this century, Le Corbusier, in his book of "the worth of the architecture", says that "all of the people are equal with similar needs up which these building should be made in order to with them". In this regard, the residential units include differences. Here, the structure of each region has been organized around special functions, so the living rooms has been designed for sitting in, dining rooms for eating, bedrooms for sleeping, bathrooms for getting a bath and kitchens for cooking. It has been ordered to do what and where to do. This professional organizing has exactly decided what to do in each special place. there is no creativity in changing the places and this has limited individual's freedom.

The rooms not only determine what to do there, but also affect our emotions and relations with the other people. If you are in the living room while drinking tea or listening to the music, then you go to bedroom you will feel sleepy. there is a series of different feelings in relation to each room. although classifying the people into different types has caused them to live in same type. The rooms which are functionally separated from each other keep together all of the thought, emotions and relations. while looking from away, notice that the TV and sofa are located in special place of the house. a strange person who enters the house can find the places of everything easily, as though he/she has lived there for a long time. these places are never indicator of the individual's social and culture differences.

This research has shown that those people who moved to Tabriz have lost their own culture in dealing with the other cultures these policy has begun in Iran since the government wanted to establish a new society so followed it as one of these policies.

In general, the suggestions about the living in these type of the houses which have been functionally separated has caused the families living inside them to be away from

each other, too. While the families can exploit the rooms differently by using their creativity, so they should be given the opportunity to show their creativity in order to use a room for different purposes.

In those regions where the research has been conducted, the least reaction of the families to this condition is the changes in the interior architecture or decoration or making the walls shorter, so, it has been tried to establish human and environmental contacts among the places. For example, the wall between the kitchen and living room is one of those cases which the changes have been made on. the wall between the kitchen and living room is removed to have at least eye contact with the people sitting in the living room while the mother is cooking inside the kitchen. these changes have been observed more in the Roshdye town.

In most families, because of the more family members, the living room is used as one of the other rooms (for example bedroom). All of the different actions such as eating, working, ironing and watching TV are done in these rooms. This type of usage from the living room is more observed in the Mehr houses which are small.

Due to the being aware of the type of the usage of each room in each of three regions in advance, the houses, to some extent, have been changed in comparing to their first designing. It can be said that the interior designing, the place of the balcony and other cases are functionally different in the houses across the three regions because there has been long time between their designing and construction. so architecturally a house should meet its residents 'new needs in different conditions.

Finally, the house designing shouldn't just meet the residents' current needs and it shouldn't be considered as a sold and final product, but as a permanent one that can be refined in future. Because the designing should be planned in a way that can be added, cut or changed, and be able to meet the residents' different needs that totally can be classified according to the following points:

- In those societies, social life and urbanization dates back to long age, a stabilized culture can be observed. The architecture of the humans' residential place is based on their culture, lifestyle and perception and also on their residential place geographical features. In general, a house interior architecture displays understanding and believes, which should be considered while designing his/her residential place.

- According to the modern views, building a house using the current technology doesn't represent the suitable characteristics of the house environment, but the comfort should be considered in all of the aspects and the whole spaces and subspaces being matched with the residents' lifestyle.
- The main areas of the interior designing and the conceptions related to the satisfaction, variability in the field of the house has been provided across the research by designing the fixed parts of a building and services spaces, through which a house should provide chances for the changing need inside itself and for its users' interpretation over the time.
- All of the cases being studied in this research as the culture and lifestyle, inside space, interior architecture designing and the materials used to meet the residents' satisfaction from the inside physical space are of great importance as the fixed elements, which earlier paying attention to them in designing provides much satisfaction in the following spaces organizing.

When being different is known as a right, it can cause varieties in the locations. If the house becomes a permanent changeable product, the residents can reflect their own culture by bringing new conceptions into their living place. As a result, the cultural differences can be protected in this modern world. Being satisfied by a person from his/her living place and be able to change is so important that Le Corbusier, in the early of the 20th century, said that: if everybody has a house to live in and be satisfied by it, so there will be no reasons for the human beings to fight with each other.

The information and discussion presented in this research can be used as a background to more research regarding the satisfaction of the house design. Research in the following fields can be further considered:

- This subject can harm the family economy and the country's economy therefore a different research to show the formal policies can be studied.
- Study the effect of psychology on the satisfaction process as life and human satisfaction.
- Estimating the research model in the other materials such as light, size of windows and est. of built houses by the "Exploratory" and "Experimental" technique.





## REFERENCES

- Altman, A. (2003).** *Environment and social behavior (privacy, personal space, territory and crowding)*. (A.R. Nmazian, Trans.). Tehran: Shahid Beheshti University Press.
- Amerigo, M. A. (1997).** A theoretical and methodological approach to the study of residential satisfaction. *Journal of Environmental Psychology*, 17 (1), 47-57.
- Amini, M. R. (1989).** *Background anthropology culture*. Attar
- Asefi, A. (1973).** *Family and upbringing in Iran*. Tehran: National Association of Parent Educators.
- Azad, A.R., & Maleki, T. (2001).** *Sociology Iranian family*. Tehran: Semat.
- Fateh, M., & Dariush, B. (2010).** *Theoretical foundations of architecture: Science and knowledge*. Tehran: Elm Ve Danesh.
- Furuyama, Masao (2006), Tadao Ando.** Taschen
- Gairdner, W. D. (2007).** *The war against the family: A parent speaks out on the political, economic, and social policies that threaten us all*. Canada: BPS Books.
- Gaston, B. (1994).** *The Poetics of Space*. Boston: Beacon Press Books.
- Ge, J., & Hoka, K. (2006).** Research on residential lifestyles in Japanese cities from the viewpoints of residential preference, residential choice and residential satisfaction. *Landscape and Urban Planning*, 78, 165-178.

**Giddens, A. (1991).** *Modernity and self-identity: Self and society in the late modern age.* USA: Stand ford University Press.

**Groube, E. (2002).** *The architecture in the Islamic world.* Tehran: Mola.

**Grutter, J. K. (2010).** *Aesthetics in architecture,* (J. Pakzad and A. Humayun, Trans.). Tehran: Shahid Beheshti University Press. Page 226.

**Hayeri, M. (2009).** *House, culture, nature, the center of architecture research and studies,* Tehran.

**Jaferi, A., & Pour, H. M. (2013).** The role of vernacular technologies in the quality of residential spaces. *Housing and Rural Environment*, 141, 51-68

**Johansson, R. (2003).** Case Study Methodology. Proceeding from *International Conference on Methodologies in Housing Research.* Stockholm.

**Khordad News (2014),** *By President of Iran (Hasan Rohany),* 10/June/2014, Retrieved June 08, 2015 from <http://khordadnews.ir/news/65215>.

**Lucas, H. S. (1953).** *A short history of civilization.* New York: Mc Graw-Hill.

**Marcus, C. C. (2006).** *House as a Mirror of Self: Exploring the Deeper Meaning of Home (2<sup>nd</sup> Ed.).*USA: Nicolas-Hays, Inc.

**Marcus, C., & Sarkissian, W. (1986).** *Housing as if people mattered: Site design guild lines for medium-density family housing.* California: University of California press.

**Memarian, G. (2008).** *Iranian architecture.* Tehran: Soroshedanesh.

**Meteorological Organization of Iran,** Retrieved November 03, 2015 from <http://www.irimo.ir/far/services/climate/793>.

**Naghi Zadeh, Mohammad (2010)**, *The city and Islamic architecture (Objectives and Expressions)*, published by Ney, Esfahan, pages 449-447.

**Najafi, M., & Haqqani, F. (2002)**. *On political developments in Iran*, The Institute for Iranian Contemporary Historical Studies, Tehran.

**Norberg-Schulz, C. (1980)**. *Genius loci: Towards a phenomenology of architecture*. New York: Rizzoli.

**Pirnia, M. K. (2013)**. Familiarity with the Islamic architecture of Iran. In *Urban and suburban buildings*. Tehran: Soroushe Danesh Publications.

**Rajaei, H. (2015)**. *Culture*. Retrieved June 08, 2015 from <http://b2n.ir/89522>.

**Rapaport, A. (2005)**. *Culture, architecture, and design*. Chicago: Locke Science Publishing Co., Inc.

**Rapaport, A. (1929)**. *Anthropology of housing*. Translated from English by Afzaliyan, K. Tehran: artist's profession.

**Roberts-Hughes, R. (2011)**. *The case for space, the size of England's new homes*, London: Royal Institute of British Architects. Retrieved December 05, 2015 from <https://www.architecture.com/Files/RIBAHoldings/PolicyAndInternationalRelations/Policy/Housing/RIBACaseforSpace.pdf>.

**Sandaker, B. N. (2008)**, *On span and space: Exploring structures in architecture*. New York: Routledge, Taylor & Francis Group

**Sohrab, M. (2015)**. "Housing expert and lecturer" EKO NEWS, Iran economic news. Retrieved September 12, 2015 from <http://vista.ir/article/337319>.

**Tylor, E. B. (1871)**. *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Art, and Custom*. Retrieved May 02, 2015 from <https://archive.org/stream/primitivculture01tylouoft#page/n7/mode/2up>.

**Tuan, Y. F. (1977).** *Space and Place*. London: Edward Arnold.

**UIA, (1996).** *UIA Congresses and their Themes, Present and Futures: Architecture in Cities, BARCELONA (Spain), 03 - 06 July 1996*, Retrieved August 15, 2015 from <http://www.uia.archi/en/participer/congres/5754#.ViiTjDZdGMo>.

### **Figure**

Fig. 1. *Source: Amerigo & Aragonés, 1997: 47- 48.*

Fig. 2. *Source: Google Map, 2015.*

Fig. 3. *Source: Google Map, 2015.*

Fig. 4. *Source: Google Map, 2015.*

Fig. 3 *Source: Google Map, 2015.*

Fig. 11-18. *Engineering Organization of East Azerbaijan province.*

## CURRICULUM VITAE

### PERSONAL INFORMATION

Surname, Name: RAHIGH AGHSAN, AMIR.M

Nationality: IRANIAN

Date and Place of Birth: 09/08/1980, TABRIZ

Marital Status: MARRIED

Phone: +90 507 076 6764

email: a.rahigh@gmail.com

### EDUCATION

Degree	Institution	Year of Graduation
MS	Çankaya University, Interior Architecture	2016
BS	Azad University of Ilkhichi, Architecture Teknology	2012
Computer expert	Vocational School of Tabriz	2009
Cartography	Vocational School of Tabriz	2005

### WORK EXPERIENCE

Year	Place	Enrollment
2000-2011	Azarshalaleh Co.	Manager - Architecte
2004 -2011	Nakhle sabze sobhi	Control Chief in building
2011 - 2014	Green palm	Architecte
2014 - 2016	Azarshalaleh Co.	Manager - Architecte

### FOREIGN LANGUAGES

Advanced English, Advanced turkey, Advanced Azari, Advanced Farsi

### HOBBIES

Tennis, scuba diving, movies.