



## Designing Karoun 180-unit Residential Complex Based on Social Sustainability Approach

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**Abstract.** Home is a space that human needs at any time. The priorities of needs to shelter in life is the source of to achieve optimal shape of life. In contemporary human society, the needs to social interactions and understanding of people living in the today's apartments are inaccessible, because housing is merely a one-dimensional space and has changed into a sleeping space and lost its soul in terms of social body and human communication with each other. Considering the design of human places in social interaction with others is an issue that can meet the human needs to be sociable. Therefore, sustainability is an approach to be addressed socially. The present study provides the principles of social sustainability in housing according to the beliefs, traditions and values of the human. Using descriptive and analytical models and also models based on understanding the context of the design, social sustainability factors in housing are achieved. In this context, recognition of the specific field of Karoun Ahvaz was done so that human values and the needs to sustainability in housing will be achieved and consequently the factors to design residential spaces for social sustainability and solutions for design in this context are considered, a place away from cultural and social problems by creating a suitable environment and meeting the needs to housing in the context of promoting the common sense to the residential place will be achieved.

**Keywords:** Housing, social sustainability, Ahvaz, place components

### INTRODUCTION

Home is the source and destination of human's daily life. People left homes for social activities and work then come back home after work and business. Homes are places where we come back after experiencing various aspects of the world around. Homes are really important to human so that they can be called the center of the individual's world. Therefore, homes should be able to fulfill the idea of being the center of the individual's world in the inner space and outer perspective. Today, due to the life force, or one-dimensional look and the principle of the economy, a lot of social and cultural and human values are ignored. Human's home are in the residential blocks in the same order as the other building with the same window which is difficult to distinguish them from outside not only for the guests but also for the family members (Sajadi Ghaem Maghami et al, 2010). Based on the cultural attitude, housing is a product in connection with nature, society, ideology, worldview, lifestyle, social and psychological needs and above all the residents's culture, therefore, it is essential that housing construction patterns to be based on Iranian culture, norms and values. In recent years, sustainability is one of the most important issues in all fields, especially in the areas of architecture and urbanism. Sustainability is achieved while creating balances in three economic, environmental and social areas. In the process of sustainable development, social, economic and environmental goals of the community wherever possible are combined together through state policies, taking the necessary measures and support operations (Poortaheri et al, 2009). In the definition of social sustainability, a group of researchers indicated four main groups and determiners: social justice, social cohesion, participation and security. In this concept the components such as equal opportunities with progress for all people, living with cooperation, equal opportunities for all people to play social roles and livelihood security

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and safety of human settlements against natural hazards, are the basis of social sustainability (Behnami Fard & Ghaemi Shad, 2013). Ahvaz is one of the major cities in Iran located in seventh place and with 51 percent of Iran's oil and has the largest mother factories in the country. Large industrial factories, office and industrial buildings of South Oil Company and National Iranian Drilling Company, has turned Ahvaz, into one of the most important industrial centers in Iran which led the immigrants to enter Ahvaz therefore, the city needs a lot of residential complexes. Hence, among different approaches, the approach of social sustainability was selected to be as a factor which respects the residents' culture, social, models and values, and people's belief and traditions and leads to residents' satisfaction, sense of belonging, security, social order and eventually social interactions.

## **METHODOLOGY**

Methodology in this study in the first step of identifying and describing variables such as: housing, social sustainability and human's needs to be sociable were studied and in the second step identifying the research fields of Karun Ahvaz in the fields of the variables of the first step were regarded and in the next step based on the identifying the needed factors, the results and a pattern appropriate to the culture and community of the region to develop the values of social sustainability in housing are achieved.

## **HOUSING AND ITS SOCIAL INDICES**

### ***Human and living needs***

The theoretical framework of this section is based on the needs of Abraham Maslow's theory (1970). The need for a place to live or work is a factor that almost covers Maslow's hierarchy of needs. This requirement has developed during centuries along with other issues, the primary caves to modern skyscrapers (Namazian, 2001). According to Maslow's hierarchy of human needs, hierarchical pyramid is like figure 1-4 which based on the importance begins with physical needs and ends in beauty needs and self-understanding.

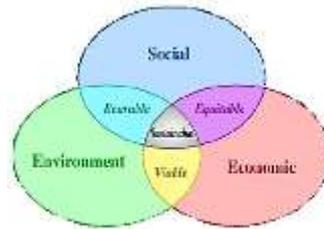
Within the two limits, there are the need for safety, belonging (group, family, identity and participation), respect (from you and others) and the need for self-actualization (free time productivity, active participation in space and understanding it, freedom, ability to selection, creation and education, satisfaction). Maslow's model for need has been used in different scales and science levels. All human behaviors are to meet their needs, so designing houses should be based on meeting the residents' needs and expectations (Nozari, 2004). At first it can be seen that this perspective is near to the modernists' view in which architectures and urbanization are to meet the residents' living needs, but if to reject the theory that all human beings have common needs and to doubt in the sentence by Lokorozieh which homes are the life's machine and to accept that human has specific needs as well as common needs created based on social economic and cultural effects, the importance of identifying the residents' needs in the residential complexes can be more clear and obvious. The definition of need is relative. For example, if in the past the need for settlement with any quality were essential needs, now standard and beautiful housing equipped with facilities and resistant to earthquake and ... is considered to meet the needs. Therefore, fulfilling the needs at higher levels has qualitative nature with less regulation. In the needs such as productivity defined with the free time and free presence in space, and needs such as beautification in which reflects enjoyment and discovery of space, quantity needs are mostly regarded (Nozari, 2004).

### **Sustainable development in line with the needs to the human environment**

The concept of sustainable development means providing solutions to the traditional patterns of physical, economic and social development which could prevent the problems such as spreading injustice, low quality of life, pollution, environmental degradation etc. (Soflaei, 2004). So far there is no general definition of sustainable development. In Brotland commission it can be seen that the development which can fulfill the current needs without losing the capabilities of future generation to meet their needs (Alinejad, 2007). Sustainable development in the context of architecture considers three basic issue of economy (reducing the fuel consumption), environment (environmental pollution), and social aspect (culture and human aspect) as figure 2-4. The goal of sustainable design is to find architectural solutions which provide the coexistence of these three aspects. The two first principles are

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technical and are related to the materials and the method of construction and renewable energy (physical aspect), while the third principle is driven from human, culture and their lifestyle (non-physical aspect) (Raisi, 2007).



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The most important role of architecture in the sustainable process is creating responsive environments and providing the residents' needs. Williamson, based on the concept of ecology with a comprehensive look at the factors affecting the design, examined sustainable architecture in three natural, cultural and technological factors. For him the study of sustainable architecture and cultural image of sustainable architecture is achieved through local cultures, the spirit of the place and the balance between cultural factors produced (Leng, 2009).

### Housing social sustainable

Dr. Pirnia with his specific cultural-social look at the valuable architecture of Iran proposed five principles of helping people, avoiding idleness, praying, self-efficacy and introvert as the five principles of Iranian architecture (Pirnia, 2001). In this section a comparative study of the principles of sustainable architecture is discussed. Of course, some aspects of residential architecture of Iran have different time and place aspect which is outside of the scope of the discussion.

Collective settlements include various types and since the majority of the settlements are collectively today, in this section various types of collective settlements are described. Due to high population density and lack of land to construct buildings and high cost of the land, the trend towards collective settlements is unconsciously increasing. Therefore, different collective settlements are briefly discussed in this section. Residential areas can generally be divided into two types of single and multi-unit. Such multi-unit housing, which is also called collective settlements, is divided into three types including separated houses, houses together, and lined houses.

### Social sustainability

Social sustainability is generally about the relationship between individuals' behavior and built environment or between life opportunities and organizational structures. This is the problem that sustainability issues are seriously neglected. The advantage of being multi-dimensional concept of social sustainability is that it provides a framework to understand the different policies in different contexts. Therefore, the concept of social sustainability completely depends on constrains and political, social, economic, and environmental potentials of a context (Rezvani, 2012). Understanding the social sustainability is possible in different aspects. The first typology is that the social structures and current values as social constrains for human entity should be kept or promoted in order to consider an activity sustainable. Any development against the social values and norms formed is socially called unsustainable. Some aspects of social sustainability in developing countries are as follow:

- Access to facilities and services;
- The size of living space;
- The health of settlements;
- The spirit of community and social interaction;
- A sense of security;
- Satisfaction with neighborhood.

Various indices are presented to measure different aspects of social sustainability which are as follow:

1. Intimacy and social interactions: evaluated by frequent visits of friends and relatives in the neighborhood, meeting / talking / borrowing / knowing some / more / all neighbors agree on the name and here is where neighbors take care of each other and or are close.
2. A sense of pride: evaluated by satisfaction with the neighborhood, with general satisfaction, good looks, and a sense of pride, identity and belonging.
3. Satisfaction with housing, security: evaluated by negative responses to standard questions about the safety of walking alone after dark, serious crime, harassment by children / young people or traffic, and lack of a sense of comfort / security while waiting for public transport.
4. Environment: evaluated by the negative rate of light streets and parks / open space, problems with noisy neighbors, litter / graffiti, lack of parking or volume of traffic.
5. Movement: evaluated by living in a place less than 3 years or movement to another area in near future due to the residential or environmental problems.
6. Participation in collective / group activities.
7. Using facilities / neighborhood services (Rezvani, 2012).

### The research domain

The main area of the research is the architectural design of residential complex. Due to the interdisciplinary approach of the research, the environmental psychology knowledge, involving the way of human interactions and environment, is used. Ahvaz is the place domain of the study and statistical population were selected among the experts, specialists and also people from Ahvaz. To study the territory no specific time is considered but due to the problems in policy making on housing and regarding cultural and human concept and... to explain the principles completely, the findings of the study can be useful. The study area is in Ahvaz region of Kianpars between Eastern 19<sup>th</sup> and 20<sup>th</sup> street overlooking Karun River. The study region is in south west Ahvaz and is close to Karun River, from East to park and coastal road, from North to Pole Sevom Boulevard, from South to Kianpars residential area and from West to the green space and gas station.

### The reasons to select the project site

The properties of the site land and the proximities were the major reasons in selecting the land of the project and the most important ones are mentioned as follows:

1. Locating in a point of city which is economically and in terms of construction prospering.
2. Locating the site in residential use and urban reserve land according to the master and detailed plan of Ahvaz.
3. Proximity to Karun River which has significant impacts on the building in terms of spiritual, environmental, view, and perspective issues.
4. Proximity to coastal road which is the easiest access.
5. Becoming as an index due to locating in crowded part of the city in Kianpars region and proximity to the residential complexes.



Figure 1. The body of the target.

### RESEARCH FINDINGS

When we talk about social sustainability in designing residential complexes, the goal is to design residential complexes that in addition to meeting the residents' various needs, facilitates a life with high quality and comfort. The above definition emphasizes the fact that this group of people has group organization and common interests living in the same place and should be able to reach a high level of healthy, comfort and security, etc. so that the residents' social communications and relationships can

increase. To achieve this goal discipline should be followed in designing to anticipate and solve the questions in this regard from design to implementation. With regard to the issues listed on the Ahwaz region, the optimal direction of locating the buildings on the site is Northeast to Southwest to reduce the surfaces in front of the sunlight. Also it is recommended to deal with sharp sunlight from West and East, awnings and vegetation cover, including trees to be used in the front.

### **Identifying the social sustainability factors on housing based on the region (Ahvaz)**

*First factor: the impact of vitality and dynamism of open and semi-open spaces on designing residential complexes*

The factor of vitality and dynamism of open and semi-open spaces has the greatest impact on the social sustainability of a residential complex from the experts' point of views.

*Second factor: the impact of the social comfort component on designing the residential complex*

Considering the human needs is most important issue in relation to housing. Human beings have multiple needs due to their nature (consist of body and soul) and each of the needs requires specific areas from life and providing proper context to meet them based on their importance have great impact on individuals' health. Providing both the human's material needs (response to body) and spiritual needs (response to spirit) (Naghizadeh, 2000).

*Third factor: the impact of management factor based on human interactions*

In recent decades, many organizations and institutions of planning and management emphasized on developing kind of participatory and planning from bottom to up with an emphasis on neighborhood communities to empower residents in the development functions. The concept of "neighborhood planning oriented" was proposed based on this fact of social look and instead of general look and mental scales considers the dimensions of space-time in local and small scale.

Applying "neighborhood planning oriented" more than anything requires consistency, integrity, participation of residents in a community and strengthening local capacities and areas of common identity among them (Hajipour, 2006).

*Fourth factor: the impact of respecting physical and visual privacy component*

Determining the boundaries of space in which people live is human nature. The space realm can be distinguished in two private and public ways. But the distance between the two spaces is debatable issue. People based on kind of space impose different controls towards the environment. Residents focus on the lack of visibility into the space and privacy of residential units. In this regard, Oscar Newman proposed a defensible theory of space and believed in the design of residential space divided into four public, semi-public, semi-private, and private section (Sabri, 2008).

*Fifth factor: the impact of access to public service component*

The case of making human environment was put in the agenda by contemporary urban planners and designers through increasing the capability of walking and considering pedestrian walking on sidewalks. Communications are achieved face to face in traditional areas and pedestrians moving on sidewalks guarantees civil life in many neighborhoods.

Today, the quality of urban life seriously depends on the nature and quality of transportation systems. With good distribution of urban services such as shopping centers, health and recreation, etc. and increase in the trend to walk in cities by pedestrian we can hope to diminish some of the problems of urban areas such as reducing traffic, air pollution, noise pollution and mental disorders caused by the factors (Sabri, 2008).

*Sixth factor: the impact of social component of health and environmental peace*

With the development of human communities and change in people's way of life and living, the planners' attentions to the quality of space and health of artificial environment increased and the role of design as a tool for shaping the environment and meeting the expectations and needs of the people becomes highly important and the current study confirms the fact. From the perspective of the residents of the complex cleaning the public space (stairs, elevator and parking, etc.) is very important. Acoustic comfort and lack of noise nuisance to residents is at the next stage.

*Seventh factors: the impact of social component on the field and quality of interior space*

To achieve this goal it is necessary to balance the individual's life at the residential complex and they feel safe and comfort. Following a set of rules and a hierarchy of access in designing residential complexes is inevitable. To maintain such a hierarchy, the need for a sense of the interface spaces is needed and the spaces are called joint spaces. The points as the places located between the two fields are important. In these places evolution and getting out of a space with especial features are different from different characteristics (Yahyavi, 2009).

**CONCLUSION**

Based on understanding the field of study and reviewing the literature and providing descriptive analysis social sustainability indices can be achieved in the residential spaces. Accordingly, based on the findings of the research obtained through identifying the field of research, the issue can be addressed that social sustainability is important in the design of residential complex and areas. The physical-social features of housing are different and the needs to develop social sustainability is the fact that each person should have the freedom to choose how to improve the quality of life in the context of sustainable residential spaces for social interaction with other people. Based on the findings of the current research, achieving the following factors towards human residential complexes in promotion of the sustainable social behaviors in the life environments are parts of necessary goals :

- First factor: the impact of vitality and dynamism of open and semi-open spaces on designing residential complexes
- Second factor: the impact of the social comfort component on designing the residential complex
- Third factor: the impact of management factor based on human interactions
- Fourth factor: the impact of respecting physical and visual privacy component
- Fifth factor: the impact of access to public service component
- Sixth factor: the impact of social component of health and environmental peace
- Seventh factors: the impact of social component on the field and quality of interior space

These goals explain the concepts such as designing the human body to attract people, welfare, promoting a person's psychological level, security, access to services, separation of public spaces of residential complexes and providing comfort level in social human relationships living in a place are parts of strategic and applied goals to design human spaces in residential complexes based on social contributions and neighborhood relationship and this issue is very important.

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