

Analyzing the Strategic and Fundamental Characteristics of Architecture and the Barriers of Social Housing Design in Contemporary IRAN

Reza Mirzaei

Department of Architecture, Birjand Branch, Islamic Azad University, Birjand, Iran

Abstract: Social Housing is one of the most demanding objects in IRAN. One of the most important quality factors of it is having basic and identity architecture. Therefore this article tries to analyze the basic characteristics which effects on Social Housing architecture in IRAN, and also analyze the structural barriers in its way. Making a general plan for Social Housing needs complete knowledge and deep analysis of the wide area of this topic and also the factors which effect on it. Meanwhile, the characteristic of Social housing is the key of planning and it is considered as the most sensitive parts of planning. With serious analysis and research in this field, we can significantly improve the effectiveness of social housing. Complexity of different dimension of social housing and the number of characteristics, which is useful in analyzing and decision in the process of social, hosing, force us to categorize them in the economic, social or basic class. Of Course some of them can have two or multi tasks.

Key words: Social Housing , Strategic Norms , Social Interaction, Sustainable Neighborhoods.

INTRODUCTION

A framework for the evaluation of sustainability of the Social Housing program in developing countries is presented in this paper; also we specifically focus on Social Housing in Iran which up to now, had not reached a good result, and most of its Social Housing are not acceptable. The Social Housing and dwelling are the same phenomena which roots in culture, time and place. (Figure 1)

In developing countries, there is the gap between theory and application of the concept of sustainability which motivate to solving practical problems in the production and consumption of social housing. Also, the dearth of multi-dimensional evaluation framework for assessing the long term environmental, technological, economic, social and cultural consequences of public housing programs is partly responsible for this development.

Based on the construct of sustainable development and housing as a social program, an integrated analysis and evaluation framework are presented here. Hypothetically, there is a direct link between the outcomes and sustainability of Social housing programs; also there are parameters such as adoption of housing and neighborhood environment quality, housing affordability; quality of life, evidence of preservation of cultural heritage and technical feasibility which used for assessing key dimensions of sustainability of public housing schemes. Although, The effectiveness of the framework lies more on the use of subjective than objective parameters; and it addresses the limitations of environmentally biased evaluation frameworks for sustainable housing.



Fig. 1: common view of Iranian social houses in mashhad

If there is a balance struck between a range of factors, the design of the social housing will be successful. Factors such as accessibility, security, safety, privacy, community interaction, availability of appropriate services and the provision of adequate space should be given due weight. One of the fundamental importance in this social house is the needs and reasonable expectations of its residents. For example, a typical family required

to meet the needs of infants, young children, adults and older people, and this need should be considered in social housing either separately or in combination.

For meeting such demands, The design should be sufficiently flexible and adaptable.; therefore, It is necessary to plan and design the scheme within a defined time period and to ensure that it can be constructed within acceptable time and cost parameters. The achievement of a successful outcome presents an important architectural challenge and the success of any housing project depends on the quality of planning and design input and how this is followed through in practice, at the construction stage. In planning of social housing, particular account should be considered such as objectives of government policy on sustainability, including issues such as energy efficiency, environmental protection, access for people with disabilities, meeting varied needs of occupants through their lifetime, durability and continued performance of buildings and the need to make optimal use of infrastructure and avoid unsustainable urban sprawl. Promoting standards in the design and construction will encourage better use of building land and optimal utilization of services and infrastructure in the social housing, and also it will ensure that residents of new housing schemes enjoy the benefits of living conditions in a healthy, accessible and visually attractive environment; and providing homes and communities that may be easily managed and maintained. Social Housing in Iran is not a new topic; it's a complicated equation which has many linked factors. In designing process, Architecture should consider all of these factors and measure their outcomes. The most important structural factors which dependent to designing in Iran, are as follows: Environmental and technological dimensions which include:

Quality of Housing Environment; Quality of Neighborhood Environment; Housing Density/Building Type; Architectural solution to energy consumption issues (e.g. ventilation, lighting, building morphology); Type of building/ construction materials; Construction techniques; Landscaping Elements; Locational appropriateness to reduce dependency on cars; Storm water discharge system; Waste management system; Main sources of power and water supply; Open Spaces and Green areas; Compactness of housing development for optimization and conservation of land; and Noise Level.

Economic Dimension which includes:

Housing affordability ; Job creation in the form of home based enterprise; Tenure options; Suitability of housing acquisition process; Cost of living within the neighborhood; and Adaptability of housing units for future needs.

Social Dimension which includes:

Access to social infrastructure; Social networks capable of generating social capital; Provision of recreational/ sporting facilities; Security and safety issues; Housing near to the places of work and worship; Level of social mix in the housing environment; Quality of internal spaces of housing units; Privacy in dwelling units; and Contribution of public housing to the aesthetics of urban landscape and morphology.

Cultural Dimension which includes:

Architectural design of housing in relation to cultural values of residents; Suitability of housing to occupants' natural way of life; and Reflection of the unique historical and cultural characteristics of an area and its residents in the design and development of housing.

MATERIAL AND METHODS

Strategic Norms in Evaluation of Architecture in Iran's Social Housing:

A Social House will be suitable; if the following norms are considered:

Norm Number 1: environment:

The social and environment should be appropriate to the needs of the people who lived in social housing. The size and the type of social housing should support sound social, environment and economic sustainability policy objectives for the area; also promote the development of appropriately integrated play and recreation.

Norm Number 2: Spaces:

The space of social housing should have a pleasant living environment. The design should be appropriate to its context, so that the development will enhance the neighborhood and respect its cultural heritage.

Norm Number 3: Access:

All residents, including people with impaired mobility, should easily access and can move as freely as possible within and through the building. Also it should adapt to the changing needs of residents during their lifetime. Generally, All the services of the building should be available for every resident.

Norm Number 4: Secure, Safe and Healthy:

The building's environment should be safe, secure and healthy for the residents. Pedestrians and cyclists can move within and through the area safely. The area which children play should be safe and secure; and also people who did not live in the building, can not easily walk inside the building.

Many design decisions can have safety or security implications. Some of those decisions includes means of escape in the case of fire, fire alarms, and limitation of fire spread; the installation and location of heat producing appliances and associated flues and storage tanks; and the design of stairs, ramps and guards. The health and safety of people involved in the construction and maintenance of social Housing are one of the most important topics in the design of social House. Designers should consider 'safety in use' requirements for apartments in social housing so minimize the risks of accidents in the home. They also should remember the physical needs of children and the infirm. Attention to security can reduce the risk of stealings and burglaries. The designer should focus on security issues depends on the nature and location of the social housing and the degree of vulnerability of the prospective residents. The decisions of designers on security measures do not adversely affect the safety of the residents; for example they should not limit the means of escape in the case of fire or other emergency. Here we suggest some tips about security in social houses. The layout of the social house should prevent unauthorized access from public areas to back gardens; the designers should use a form of building which give it more security. Terraced houses; secure side access to the garden with full height gates; avoiding sharing passageways are some ways of increasing security. If this is not possible, the designer should sure that access points are adequately secured and public areas are overlooked; locating external features, such as drainpipes or low roofs, in a way that does not facilitate easy access to upper floor windows; ensuring that all external doors and windows are adequately fixed and that the windows from bedrooms can be easily opened from the inside. The construction of all new social housing must include a means of escape, window sizes, alarm system and limitation of fire spread. Gas and solid fuel cookers and fires should be located to minimize the risk of accidental fires. If there are any Oil storage tanks, there should be places in a safe location. For the construction of stairways, ladders, ramps and guards should care that the doors and opening sections of windows do not create hazards for users of passageways and circulation routes; floors which can get wet should have non-slip finishes; stairs and corridors have adequate lighting. Light fittings and fire alarms should located so that there is safe and convenient access for changing bulbs or for testing. Particular care should be taken in locating such fittings in the vicinity of the stairs, to avoid risk of falls; and external routes to clotheslines, bin storage and fuel store are free from steps, have a reasonable slope and are adequately illuminated. One of the points which should consider is that Windows should be easily accessible for opening and cleaning, and Particular attention should be paid to staircase and bathroom windows in this regard. Windows at second floor and above should be capable of being cleaned safely from inside the building or from balconies. Opening sections, other than small ventilation lights, should be provided with suitable safety restrictor mechanisms, which allow limited opening for ventilation purposes with positive action or significant pressure required to open the sections to the fullest extent. This is to deter opening by small children and to minimize the risk of the window inadvertently swinging open, while allowing the window to be readily opened in an emergency conditions such as fire. The kitchen should be designed to provide safe working situation; For example the location of doors should not interfere with the working area; the cooker position should be located away from doors, storage space should be within easy reach with sufficient room for door opening. The last point is about electricity, heating and gas services. Light switches should be easily accessible and provide adequate lighting, without excessive shading. Gas installations should comply with the standard. Also heating and gas service must be according to legal requirements and be safe and secure.

Norm Number 5: Affordability:

The costs to build, manage and maintain of the building should be reasonable.

Norm Number 6: Durable:

The key elements of construction should have a service life in the order of sixty years without the need for abnormal repair or replacement works; also the best available construction techniques and material should be used.

Norm Number 7: Efficient Resource:

Land, infrastructure and energy should be used efficiently. The location of social housing should be suitable for transportation of residents. Site topography should be considered in design and orientation of social housing; therefore, the negative effects of wind will control and the benefits of sunlight will improve. Natural source of energy should be considered and used in the construction, maintenance and management of the social housing.

Norm Number 8: Social Housing Economics:

Based on micro economic theory, there is an economic relationship between consumers and producers in the market which governed by demand and supply fundamentals. Under condition of perfect competition and complete information, and also in the absence of barriers for market participation, prices are determined. In reality, households want to maximize their utility to their budget constraints; meanwhile producers want to maximize their profits by mixing land, labor and capital with available technology. Under this condition, consumers and producers can interact in the market. There is an equilibrium supply, quantity, demands and price which showed in figure 2.

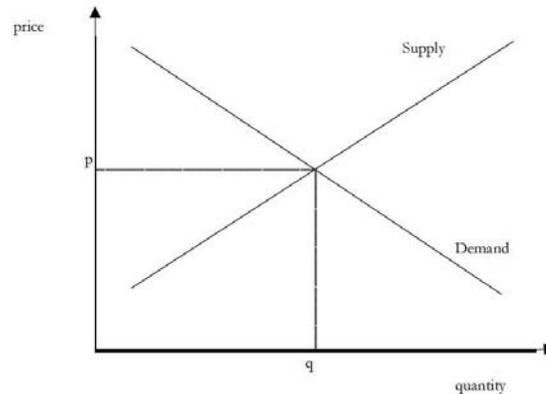
**Fig. 2:**

Figure 2 shows the pricing of many products in the market; but land and housing price cannot match perfectly with this model. It assumed that their price determined by competitive market conditions. There are specific conditions about housing; first a house is expensive to build; second, a house has long lifetime which last for 50 or 75; third, the location of the house is fixed and cannot be moved, and finally there is a transaction cost for it. So land and housing prices cannot be determined under conditions that demand and supply are equal.

Norm Number 9: Privacy and Social Interaction:

Human Being need to have privacy and personal space, which affect perception of convenience and quality of the environment. Although, the way of expressing this need differs from one person to another and from one society to another. There are different definitions of privacy which have one characteristic in common that is the ability of one person to control audio-visual and olfactory interaction with other people. In other words, there is a close relationship between privacy and social interactions. Based on Rapoport (1977) definition, Privacy is the ability to control social interaction and being able to choose the desired rate of social interaction. So privacy will not synonyms of solitary. In other words, the human's need of territory is a need to manage the link between self and others. So territory is not only place to provide privacy, but is a place to stabilize social contacts. If the social needs of people are in balance with the sense of independence which provided by privacy, the interaction will be easier. It's not clear that the spaces are public or private, and it control the social interaction or it decrease it. The house provides a physical privacy which is the the prerequisite for social behaviors. One way to achieve privacy is to omit contacting with others while another way is to control spatial territory. If the spatial territory of residents in the social housing with joint ownership has clear boundaries, then the rate of social interaction among neighbors is higher than when privacy is achieved through avoidance of contact with others. So in social housing, architecture should divide the building into private or public area. So when you enter your apartment, you actually enter into private areas.

Analyzing the basic characteristic of Sustainable Neighborhoods in designing process of social Housing:

A place which people want to live, is a place which Efficiently uses of land, and had high quality urban design and effective integration in the provision of physical and social infrastructure such as public transport, schools, amenities and other facilities.

Energy efficient and high quality urban development; accessibility via public transport networks and also meeting the needs of the pedestrian and cyclist; provision of a good range of amenities and services within easy; and safe walking distance of homes are Additional characteristics of sustainable neighborhoods. For Creating sustainable neighborhoods, the Development Plan process is a key instrument in putting the policies in place. A location, character and setting of the area within which a proposed project will sit, is called context, which includes the forms of existing settlements, buildings and spaces and the ecology and archaeology of the area and the circulation routes that pass through the area. The process of designing in context should create a high quality

social house in which people can live happy. For achieving this goal, architecture should assess the characteristics of the neighborhood to strengthen local identity and reinforce existing local community. Also they should make full use of any of the site's natural characteristics which can create a more sustainable development; and integrate the development with the surrounding built environment, and also using the correct materials, forms and landscape elements. Their design also should be matched with existing street lines and existing urban structures. Pattern, structure or arrangement of streets, buildings, open space and landscape which make up urban areas called an urban framework. There is the interrelationship between all of these elements. For improving the quality of residential developments, there should be an appropriate mix of buildings, green spaces and street scape. The basis for detailed design of the various constituent elements has been provided by the Urban Framework. It creates a coherent structure, which can form the basis for the design of individual developments proposed for an area.

The following elements form part of this framework, and should be considered by designers at initial concept development stages.

First: Public Open Space And Landscape Design:

Different types of open space should be considered in relation to the context of the scheme surroundings and the function of the space required. Also the quality of design, and long time management and maintenance of it, should be considered.

Second: Diversity and Mixing Uses:

A Full range of local services and facilities, such as commercial, educational, health, religious and civic uses are necessary for successful communities. Safe and comfortable access routes should connected residential areas. An appropriate balance between social, private, Affordable, voluntary and special needs housing regardless of the size of the scheme should be provided in mixed tenure schemes

Third: Movement Framework:

The movement framework concerns the structural aspects of the movement, and focusing on street and footpath networks which facilitate proposed densities, uses and activities and the it enhance security and the impact of any new development.

Four: Density:

For making best use of local services and public transport infrastructure, and also for achieving sustainable residenable densities, designers should analyze the area and neighborhood.

The Details:

For creating the character of streets, places, neighborhoods and squares of social housing, we need a detailed design of urban space which had attention to the building line and three-dimensional building mass. Designers should avoid of negative leftover spaces that have no character or positive function should be avoided. The following aspects should be considered in Social Housing design.

Open space should have distinct boundaries, through the positioning of adjacent buildings, walls, fencing, trees and hedges; also it should have a clear function, character and shape. Social Housing and its area should be deigned totality. It will be a success; if it has a the positive contribution that it makes to the public realm. It can be done by facing the street and helping to make sure that all adjacent space is used properly. Also it will improve the safety and security of the building, which are important considerations in any urban development. Careful design can assist in enhancing a sense of well being of the residents of an area and in making places more user friendly, easy to understand and secure. It can also help to create a shared sense of confidence in the use of streets and facilities.

The size of social House is another important topic, which should be considered during its design. In terms of energy efficiency and adaptability, relationship with the surrounding urban structure; and contribution to neighboring public space and streets spaces are very important. Also by careful attention to the structure of a space and the elements, residents can have a comfortable, accessible and stimulating public realm that encourages social interaction.

Site selection and analyzing the proposal is very necessary during the implementation of the project. Remember that focusing on good quality is very necessary during the project lifetime.

Analyzing the Designing of Social Housing process in Iran:

The primary design Goal should be to create a visually attractive Social Housing which will provide appropriate accommodation and good quality living environments for prospective occupants. Social Housing should be suited to the needs of its residents, and over its full lifetime with regard of maintenance , have reasonable levels of cost in use. The designer should consider the particular needs and preferences of the future

residents and answer their need by particular design. Direct consultation with future residents is preferable, but not always possible. The designer may need to rely on the guidance of the housing authority and other public service agencies.

Products, materials and methods of construction used in the construction of Social Housing must be the best as possible. The key elements of the building should have a service life in the order of 60 years, during which period no excessive expenditure should be required for operation, maintenance or repair. Materials such as timber used in construction should be obtained from sustainable managed sources.

There are some important points which should be considered: access to, circulation within and use of the Social House; an adequate level of amenities, such as kitchen facilities, storage areas, sanitary and bathroom facilities, space and water heating, electrical and other services; accommodating the range of diverse activities; economic, social and environmental sustainability; the safety and security of the occupants; compliance with the requirements of the Building Regulations; and represent value for money and require a reasonable level of maintenance costs in use.

Social Units And Common Impact Factors In Designing:

Apartments should be designed to have good quality, permanent and sustainable living accommodation. The architecture should not suppose that apartment living is a transient phase in the life of people who will eventually move to a house. There are some factors which should be considered during the the design of individual apartments which we introduce them here.

There are different social Housing which has a different apartment in size and type. But in all of them designer should attention to the size and number of rooms; also the adequate daylight and cross ventilation should be considered. Kitchen area should be placed in a way that have enough natural lighting during the day. If there are shared entrances, designers should try to reduce the impact of long term management and maintenance. Also the The number of apartments which used one entrance, should be kept to the minimum. Common stairs should be designed in accordance with the number of apartments in Social Housing; also it should be suitable for people with disabilities.

The arrangements of apartments should be considered and also the management of communal services and facilities should consider. If the building has not a lift, space of it should be considered for the future installation of such a lift. External private space, such as a balcony or patio, should build in such a way to make best use of available views and sunlight and be adequate in size to accommodate a small table and a number of chairs. It also should have minimized overlooking from adjoining balconies. Also the bedrooms should be placed in quieter places of the building and be apart from the noisy living area. The last but not the less is the adequate storage, which is very important for social housing. This storage should be big enough to put some unnecessary material or fuel containers, and also be safe and convenient access to external common storage areas. The designer should consider that the residents have included very young or very old people; and their needs should be considered. In other words, designers should not consider the immediate needs of the prospective residents but also their changing needs over the life of the Social Housing. So the house design should provide flexibility in use, accessibility and adaptability. Also the designer should make sure that the social house can meet the changing needs of its residents, includes needs associated with moderate mobility difficulties and the normal frailty associated with old age. So an old resident who wants to live alone, will not force to remodel it. Plans of floor should be comforted, convenient and safe for residents of the Social House. The design of the room should be matched with the main activities which likely to be carried out in that room. Related room should be near each other, for example dining room should be near the kitchen. And noisy place should be separated from the study or relaxation areas. The layout of the Social House should be designed to make effective use of natural daylight and sunlight, as far as practicable. Apartments in Social house should be oriented so that all main rooms get direct sunlight at some time during the day.

Size and shape of windows should be designed to allow good daylight penetration; also minimize obstruction of day lighting to nearby windows by protruding extensions or outbuildings. In other words, The size, shape and location of windows should be designed to obtain optimal benefit from available views, with due regard for the need for privacy. Most residents want to have a view to the street from a habitable area. Window locations should facilitate supervision of small children at play in private external space and also allow surveillance of the immediate surroundings of the social Housing. Living room window sills should normally be below the eye level of persons who seated .

Use of of individual rooms and spaces are determined Space requirements and room sizes. Adequate floor areas and room sizes are important considerations, but do not necessarily create good quality living spaces. Living room and bedroom spaces should be well proportioned, in terms of floor shapes and ceiling heights, so as to provide a good quality living environment for the residents. Space should be adequate to accommodate appropriate furniture and equipment in each room while allowing free circulation within that area. In general, there are some characteristic which changes a room to a good quality living space; which includes: the normal range of rooms, the typical arrangement of furniture for each room; a space which is appropriate to the related

activities; space for family gatherings, including occasional visitors; working area and storage facilities appropriate to the related activities; door swings which do not interfere with other doors, and the location of heating radiators and other service fittings in a way that does not limit the arrangement of furniture within a room.

Social Housing types are defined with regards of the number of bedrooms, the number of intended residents and the number of storeys. The adequate area for a single bedroom should be at least 7.1m² and that of a double bedroom at least 11.4m². The area of the main bedroom should be at least 13m² in a social House designed to accommodate three or more persons. The recommended minimum unobstructed living room widths are 3.3 meters for one bedroom, 3.6 meters for two bedroom and 3.8 meters for the three bedroom. The minimum room widths for double bedrooms are 2.8 meters and 2.1 meters for single bedrooms. Floor areas of social housing designed for older people, disabled people and others with special needs. In general, Its design should include different needs of its residents.

Behavior needs in Social Housing:

Architecture for designing of social housing, try to consider human needs. They try to build a house which meets those needs. In another way, some behavior is getting involved with these needs; so the knowledge about human's need are considerably important for architectures.

For making the basis of architecture and design framework, we need a model of Human's need which describe the complexity of human behavior. By this method, the psychological and physical needs are described. Physical needs can be met by considering them in standards and norms of the building. But about psychological needs, the designer should have a psychological model of human's need for her/his activities. Analyzing and research is done in the field of environmental psychology and theories of architecture. The capability of Abraham Maslow model in City architecture is confirmed. In designing social houses, we should consider all levels of Maslow pyramid. This field is very wide and the discussion about it is beyond this paper; so we only focus on second level, which is divided into Resource security and Health security which is necessary for making a model of psychological needs. The figure 3 shows the Maslow pyramid.

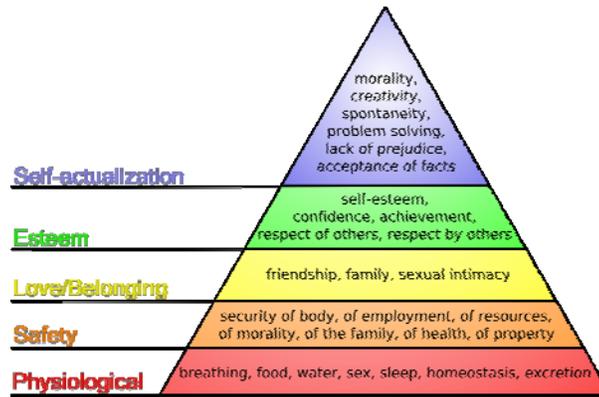


Fig. 3: pyramid of needs

A stable social housing is built for improving human's behaviors and social and psychological needs. The success of social housing is depending on achieving these goals. Also its very important that the designer distinguish and predicted what activity are necessary; so it can bring on in the design and space of future social housing.

Technological Factors In Building A Social House:

During the past few decades, many developments and evolution of alternative building technology options are created. Typical examples include modified earth building technologies such as techniques of soil stabilization, water resistant mud plaster, techniques of preventing contact of earth-based construction of rain, and stabilized soil-cement blocks. Dr. Fathy (1973), consider such technologies as responsive to the urban poor and their environment as these technologies depend on labor intensive methods and allow societies direct participation and control and are affordable.

Reducing the volume of expensive materials needed for masonry wall construction components, including various forms of the cavity and perforated masonry is one of the goals of this developments. For Example, extruded burnt clay blocks, hollow concrete blocks, random voids by aeration, gas concrete made with the help of aluminium powder, or no-fines concrete, as well as large masonry units, interlocking and self-aligning masonry units and prefabricated masonry, to make them more affordable while improving the technical

performance such as thermal and energy efficiency and the rate of construction. In other words, reducing cost by designing is very important during making of social Housing. Alternative material which is cheaper than proposed material, can reduce the cost of building and make it more affordable. Also, Architecture can improve the production of building materials and equipment on a small scale and closer to construction sites. Typical examples include the widely used equipment for the manufacture of fiber-cement roofing sheets. Also, the use of plastics in building construction and the development of advanced composite materials are also good examples. Plastics are considered inexpensive and perform well as a building material. Plastics are used in door and window frames, as roofing sheets, and as a waterproofing and insulating materials.

The methods for production and use of these building technologies in the Social Housing is very important. Remember that people's needs and requirements are different and subjective, and there are no frameworks or methodologies that can be used to assess the response of such technologies in Social House. It is great to reconsider building technologies that can improve people's life from a General point of view. This will enhance understanding the potential such technologies have and how to empower the social houses to make their own contribution to the process of improving their housing conditions.

In General, The building construction industry can be targeted to significantly reduce environmental loading on planet earth; also the technology adopted can be used to address social and economic needs of the target society.

Sustainability and Social Housing Design:

There are several endemic social problems including, just to mention the few, crime, health, education, housing, poverty and poor physical infrastructure base. Also Housing is one of the very few social programs that result in the production of a commodity that has multifaceted influence of the Social, economic, cultural and environmental components of the society. In fact, housing is generally known to be the basic need for shelter and has a profound impact on the quality of life, health, safety, security, welfare as well as productivity of human beings. It also plays an essential role in the physical and economic development, environmental sustainability, natural disaster mitigation and employment generation as well as wealth creation. It all shows that housing has significant influence on all aspects of human life at home, work or recreation. Generally, Social Housing is aimed to improve poor housing conditions and thus contribute to enhancing people's standard of living and the general quality of the physical environment. Social housing as one of the social intervention programs designed, planned, organized and implemented to ameliorate a social problem or improve on social condition; and also can assist in achieving some economic and social Goals.

Therefore It is not surprising that a number of social housing are introduced globally on a yearly basis. Social programs can address identified needs; and are also based on goals, objectives, outcomes and impacts and has an underpinning assumption that identified needs will be met through such programs. Social housing programs are generally based on a set of assumptions and beliefs that the housing need of targeted population would be met and their socioeconomic status and physical living conditions will improve. The multi faceted components and impact of Social housing suggests that the issue of sustainability is central to its production and consumption; and thus can contribute considerably to sustainable development.

The early and standard definition of sustainable development by the World Commission of Environment and Development (the Brundtland Commission) in 1987 shows that sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This definition is widely accepted for sustainable development; it also highlights three fundamental components including: environmental protection, economic growth, and social equity.

Sustainable development wants to deliver built environment which improves quality of life, satisfaction, flexibility and has the potential to cater for user changes in the future; and also provides and supports desirable natural and social environments that maximize the efficient use of resources. It shows that the final goal of sustainable development is to protect, improve and sustain the quality of life and the environment in such a way that meeting the needs of present residents will not compromise or jeopardize the prospects of succeeding residents in meeting their own needs.

We can conclude that sustainable development is an all encompassing construct, covering a large part of the human's way of life, livelihood and continuity in the surface of the planet earth. It Derived from the definition of sustainable development is the concept of sustainability. This word which literally means the ability to be maintained, has been used by several authors in different contexts to the extent that it has become a highly important field.

Sustainability is inherently complex, normative, subjective and ambiguous. Also there it has environmental roots. The environmental sustainability implies a concern for social equity between generations and has economic and cultural implications with respect to future generations. In other words, the concept of sustainability focus on long term than short term impacts of human production and consumption activities on the planet earth.

Chovav and Weinstein (1997) proposed five levels of program sustainability to include the full continuation of the program, partial continuation, implementation of the program in another locale, implementation of the program in a modified form, and full cessation of the program. They identified survival, continuation, maintenance, institutionalization, incorporation and integration as the different terms used in defining program sustainability. In relation to social housing, Architecture should mainly focus on environmental aspects. Also, Apart from environmental issues, other aspects of sustainable housing has not been properly researched. Also we should be very careful about this concept, and should not consider sustainability as a goal for Social housing or urban program; because many bad programs are sustainable. Of course, sustainability has become a valuable issue in developing Social housing projects for obvious reasons. The first one is that given the multi-faceted nature of housing, the environmental, economic, social, and cultural dimensions of sustainability. The second is the important role of social housing in enhancing global and local sustainability and environmental protection.

Generally we can say that A sustainable House is a shelter which is healthy, safe, affordable and secure, within a neighborhood with provision for piped water, sanitation, drainage, transport, health care, education and child development. Also a home which protected from environmental dangers, including chemical pollution. Also it will meet the needs of its residents. This implies a more equitable distribution of income between people and, in most, within people.

The Social housing should be sustainable, and must be economically viable, socially acceptable, technically feasible and environmentally compatible. Also some vital characteristics of sustainable housing include: sustainable land use planning, resisting scattered settlements, housing development closer to employment and public transport, higher residential densities, sustainable construction and high standards of energy efficiency in Social housing.

Social Housing availability, affordability and quality, access to green areas, and a high quality residential environment are other factors which are important. Also the sustainable social housing is achieved when housing is delivered on time, cost is less as possible in both short and long times, and also has high quality, good indoor environment, durable, cheap to maintain, and user friendly. Social Housing quality and affordability were key areas of sustainable housing provision in the country; because the poor housing quality and high cost of housing are the two key challenges in housing provision in Iran. Generally, Social housing is a social program designed and implemented to meet social, economic, environmental needs of people, and thus there is a strong relationship between housing and sustainable development. Also, sustainability is an important factor for assessing the long term impacts of public housing schemes on socioeconomic development and environmental protection in a country. Finally, housing programs meet the needs of the present generation without compromising the chances of future generations to meet their needs. Also, sustainability of public housing programs is viewed as the long-term economic viability, social acceptability, technical feasibility and environmental compatibility of such programs that ensure their continuity.

Social housing schemes are a social programs which have been evaluated on the basis of their effectiveness in providing adequate, satisfactory and affordable housing that improve the economic status of residents. The evaluation of social housing schemes is consistent with their intents and purposes, particularly, in improving the quality of life and neighborhood environment. A combination of subjective and objective factors associated with end users' personal experience, cultural values, attributes, perceptions, aspirations, goals and needs and also generally defined and acceptable objective standards have been engaged in the evaluation of housing schemes.

All research tries to focus on short or medium results of social housing; but we should also think of long term outcomes and advancing our knowledge of the long term consequences of public housing programs in our country. Of course, the assessment of the sustainability of housing was not an easy task, and the indicators to use require consistent, reliable and regularly available data.

Despite increasing attention is being given to tools to assist in decision-making to support sustainable development initiatives, but most of the existing tools for the assessment of and making decisions on sustainability have a strong environmental focus. Most research on sustainable housing mainly focuses on environmental aspects, in other words, assessment tool incorporating social, economic, environmental, cultural dimensions of sustainability are desirable.

Sustainability frameworks are mainly preoccupied with environmental issues. One of the major barriers to effective sustainability is the choice of criteria; this is probably due to the environmental origin of the concept sustainable development. The effective sustainability framework should consider a wide range of criteria including:

1. Social sustainability which includes healthy internal environment, safety, provision of social amenity, provision of recreation amenity and accessibility to jobs and amenities.
2. Economic sustainability which includes cost efficiency over time, affordability, job creations and local economy.
3. Environmental sustainability which includes energy efficiency, water conservation, reduction of greenhouse gas, waste management, material efficiency, pollution prevention, optimization and conservation of

land, protection and enhancement of biodiversity, reduction of dependency on cars and using public transportation.

4. Cultural sustainability which includes designing housing that preserves, respects, and recognizes the unique historical and cultural characteristics of an area and its residents.

Indicators which describing the impacts of building materials, architectural design, construction solutions and structural design and economic factors , environmental impact and socio-cultural impact; can assess the sustainability of social housing programs.

Generally speaking, knowledge of social housing and sustainable development are beyond the boundaries of many disciplines, and it will affect all aspects of human life. A framework for evaluating the sustainability of Social housing should be multidisciplinary and address specific issues related to the long term social, economic, environmental technological and cultural consequences of such programs. Social housing is identified as a social program consisting of Goals, results and impacts; also sustainability has social, economic, environmental and cultural dimensions, which influence the provision and consumption of social housing vice versa. The image of the evaluation of sustainability of social housing programs is like a multi-faceted cyclic process involving the assessment of the long term consequences of social housing schemes in the country; also there are specific reference to the economic viability, sociocultural acceptability, technical feasibility and environmental compatibility of public housing programs.

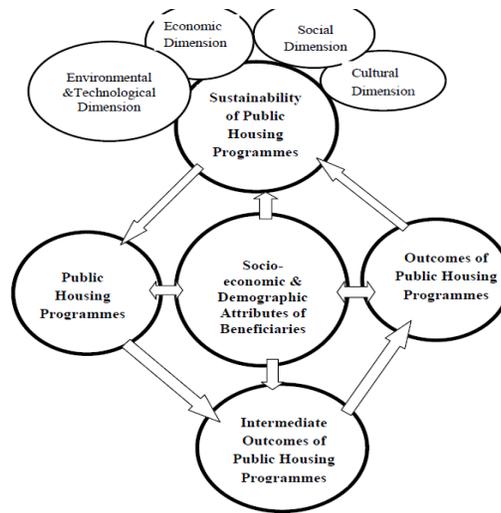


Fig. 4:

Figure 4 shows five key components of the framework, which includes: public housing programs, intermediate and final outcomes of the programs, socioeconomic and demographic attributes of beneficiaries and also the sustainability of public housing programs. The environmental and technological, economic, social and cultural dimensions are considered for assessment of sustainability. Also it shows that public housing programs comprising housing policies, program goal and objectives, , housing needs and preferences of target residents, institutional framework and delivery strategies and also intervening factors which includes economic, political, technological, and are designed based on the socioeconomic and demographic attributes which includes age, sex, marital status, education, income, employment sector, household size. The framework also shows that housing programs as social programs have goals and intermediate outcomes such as social housing units, housing services, neighborhood facilities and housing management services. Also, these intermediate results are the final results of the programs which are also referred to the impacts of public housing programs and comprise housing and neighborhood environment quality, housing affordability, housing satisfaction and quality of life of residents.

This figure (4) shows a direct relationship between the sustainability and final outcomes of public housing programs. In other words, evaluation of the sustainability of houses' programs can be based on the final results of such programs; and also there is a direct relationship between socioeconomic and demographic attributes of residents, the intermediate and final results and sustainability of housing programs. The notion of public housing programs is designed based on the attributes of target residents, and that the intermediate and final results and sustainability of housing programs can be evaluated based on the perception of residents of such programs; Also the framework suggests an indirect relationship between the intermediate results and sustainability of social housing programs. This is also based on the assumption that the intermediate results cannot directly influence of sustainability of such programs.

Analyzing the Main Preventive Factors in Improving the Quality of Social Housing:

Although, in the last decades, many efforts are done to solve the problems of social housing; but still there are many constraints which hinder progress of social housing developments in Iran, especially for low income and other vulnerable groups.

Here we listed some of these constraints; but remember that it is very limited and all constraints aren't mentioned in this list.

Lack of effective implementation strategies is one of the constraints. This is the first and most important step in the challenge of adequate shelter for all. Promoting an effective facility is the key to overcoming this constraint. Most strategies have adopted enabling shelter strategies and initiated actions to support the actors in the housing delivery process. However There is extensive space for improvement.

The second one is Poor promotion of security of tenure which is a prerequisite for sustainable improvement of housing and environmental conditions. Squatter settlements upgrading projects need to be done to address tenure issues to prevent or reduce evictions. Regularization schemes in order to provide incentives for families to invest in their homes and communities is very necessary. Promoting the security of tenure can also support better functioning of rental existing housing stock and improve the quality of living in these settlements.

The third one is an inadequate supply of affordable land particularly for low-income housing which is perhaps the most important barriers in achieving the goal of shelter for all people. The first step in formulating and implementing a strategy on land is proper records and registration of land. Scarcity of land leads to increase land prices, overcrowding of existing neighborhoods, illegal invasion of vacant land and growth of squatter settlements. This can only be reversed by providing adequate and affordable land for low-income housing. In order to increase the supply of urban land, the financial and technical capabilities of the municipalities must be strengthened. It is also important to create a situation that would facilitate the growth of private land development agencies. Governments should formulate a regulatory framework ensuring that such private sector land developers will serve all different income groups.

Number four is improving Infrastructure and services. Financing and facilitating infrastructure to meet basic needs of many urban societies have been difficult. This is, in most cases, due to the high standards that make the provision of infrastructure very expensive. Too often, infrastructure services are unnecessarily subsidized and frequently the subsidies are wrongly directed. It's not possible to provide infrastructure to the growing number of urban communities, individual households, community groups and informal enterprises have increasingly taken over this task.

Number five is the Promotion of housing finance mechanisms. Financing of housing mostly comes through informal sources of credit. This is a result of national policies that are not successful in encouraging domestic savings and the development of domestic financial institutions and instruments. Lacking collateral, the guarantee of regular and recorded income, lower income groups depend completely on informal credit sources, which are expensive and mostly short term.

Number six is Utilization of local building materials and technologies. Building materials often constitute the single largest input to housing construction. It is estimated that the cost of building materials alone can take up to 70 percent of a standard low income formal housing unit. Despite the fact that they are abundant natural resources, the need for building materials production depend largely on imported building materials and technologies.

Number seven Support for small-size construction activities. Measures in this context include formulation of more realistic planning and building standards, which simplify the administrative procedures to obtain permits and licenses. Developing credit mechanisms for small construction entrepreneurs; promoting cooperative arrangements to operate and particularly acquire construction equipment; provision of training and advisory assistance; facilitating participation of smaller firms in larger public sector contracts are other examples of such support measures.

Number eight is adjusting standards for building and land subdivision. Standards for building and land subdivisions do not consider affordability issues and have a general nature in many countries. This standard should be matched with affordability criteria. Standard subdivisions are often based on the regulations of the pre independence periods prescribing large plots and burning building next to plot constraints. This outcome in large plot sizes and high infrastructure prices. Building standards are also high urgency and encouraging needy groups to get involved in informal building activities.

Number nine is Promotion of community participation and self-help. Policies and practices of provision of ready housing units to the most needy households have failed almost everywhere. This approach is simply not sustainable and cannot reach the scale. In other words, the poor have shown that they can effectively participate in the housing process provided which they are involved. Most rural migrants bring with them a self help tradition that could be used for the construction of Social House. Self-help and community participation however does not develop by itself.

Number ten is the initiation of experimental pilot projects which will be very useful. These approaches can involve housing cooperatives and may be centered on projects. Experimental projects with new standards for

subdivision and building materials with semi serviced and non serviced plots can also be initiated. Such experiments can facilitate the learning process for up scaling.

Conclusions:

It is very difficult to Determine an accurate strategy in designing and planning procedure of social housing in Iran. As we said in this paper, this problem is very complicated and have different answers; which up to now, none of them was accepted. Analyzing different model shows that in the forming process of Social Housing Architecture, the Kolb model (1984) is one of the most consistent and effective models. (See figure 5)

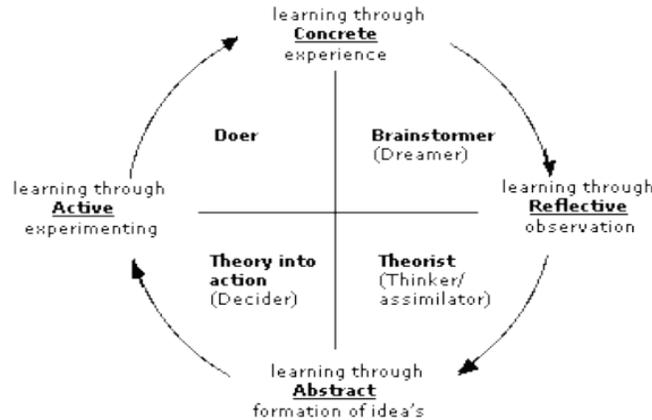


Fig. 5:

A comparison between two design disciplines of Social housing with their own knowledge, language, and tradition will create misunderstandings. We understand that to avoid this, our approach needs much more experimental and conceptual grounding. We need to discuss about three arguments for future developments.

1. Open plan as a practice is not only relevant for the early design stages, but in the process of detailing, searching, and concertizing solutions as a whole. Different kinds of inspirational goals are needed for different works.

2. Although, a complicated feature of a collaborative approach to systems design , openness should be seen as a more general linked strategy for bringing multiple commitments, object worlds, and trajectories all together.

3. The notion of working with variable has to be searched for both design disciplines, using different examples with different complexity.

It is very obvious that social housing in Iran highly depends on Structural and economical technologies which had more effective than other factors that mentioned in this paper. On one hand, the more traditional technologies should be developed with the aim of achieving more standardized and flexible solutions within the framework of sustainable business models. On the other hand, while maintaining their competitive presence in the market, the environmental and socioeconomic performance of the more industrial solutions needs to be improved. Moreover, it is important to remember that the indicator system is not perfect and the assessment process should be further developed aiming to reduce subjectivity and biased inputs. Having such a different range of top ranking technologies shows that there is enough technological variety available against the challenges related to the varying local conditions of sustainable affordable social housing projects.

This variable also indicates the feasibility of mixing technologies to reduce affordable social housing demand. Also, it shows that the most sustainable solutions for affordable social housing projects are the solutions which maximize the potential of available construction materials and techniques. To show the possibility of applying these technologies, it is necessary to develop studies that consider area factors in depth. In addition, practical applications of these technologies will emphasis the advantage and disadvantage of each one. Further steps will help to validate the selected indicator and identify new ones, and simultaneously improving the reliability of the database. Others complement and dependent factors in designing process of social housing are as follow.

1. Attention to rules of beauty such as symmetry, balance and proportions.
2. Attention to large scale and small scale in architecture design; which includes:
 - A. Smaller scale order which establishes by pair contrasting factors, and exist in balanced visual tension.
 - B. Large scale order which happen in every factor linked to every other one in a way to reduce the entropy.

Basic elements, like elementary physical components, should be simple, which means that their fundamental units are simple in shape, which can be triangles, squares, and their combinations. The basic units

are being together by a short range force; and Geometry is the only way to do this which interlocking units with opposite features. The smallest units occur in opposite pairs. When these pairs of units repeat, leading to alternation rather than simple repetition.

The contrast concept repeat on different scales, thus avoiding detail from filling all the space. An area of detail will need to opposite with a plainer area, and the two areas combine to form an opposite pair. In the same way, roughly built areas are necessary to complement those areas which built with a very fine finish.

Arranging of the basic units into highly symmetric composition are called Large scale ordering. As in crystallization, the General entropy is lowered by raising the local symmetries. Therefore, The smaller scales are characterized by a high degree of symmetry, which is not required of the large scales. Also, the order is achieved by having units on a common grid, taking the cue from crystal lattices. Continuity of patterns across structural transitions raises the degree of connectivity. In the absence of a physical force between areas, visual similarity connects two design elements through common colors, shapes, and sizes. Global harmony represents the opposite effect of local contrast.

Connections may be misinterpreted as impurities and eliminated; so focusing on purity can destroy the connection process. Therefore, defects are useful and essential; just as in a doped crystal, where impurities improve the structure.

REFERENCES

Altman, I.a., & M. Gauvain, 1981. *A Cross-Cultural and Dialectical Analysis of Homes*. New York: Academic Press.

Architecture and Planning Research, 8: 133-146.

Ayata, S. & A.G. Ayata, 1996. House: type, resilience and usage-House, neighbourhood and city culture, *House Research Index*, 2(1): 55-73.

Behsh, M.B., 1993. *Towards Housing in Harmony with Place*. Sweden: Lund Institute of Technology, Lund University.

Guiliani, M.V., 1991. *Towards an analysis of mental representations of attachment to the home*.

Haeri, M., 1997. *Designing the contemporary house and the architectural principles of traditional houses*. *Abadi, Quarterly Journal of Architecture and Urbanism*, 6(23).

Hedayat Nejad, M., 1996. *Psycho-cultural Hygiene of Apartment Living*. Ministry of Housing and Urbanism.

Jabareen, Y., 2005. *Culture and Housing Preferences in a Developing City*. *Environment and Behavior*, 37.

Mirzaei, R., 2011. *Forgotten Situation of Architecture In Iranian Social Housing*. *Journal Journal of AmericanScience*2011;7(12):735-741].(ISSN:1545-1003). <http://www.americanscience.org>

Mixed Use in Urban Centres: Guidelines for Mixed Use Development, Department of Urban Affairs and Planning, 2000.

Soltanzadeh, H., 2005. *From house to apartment*. *Architecture and Culture Quarterly*, 7(23)