

An Architectural Approach to Formation and Evolution of Residential Complexes in Iran

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ABSTRACT

With increasing population in urban centers all over the world along with increased attention to economic considerations, the need to high-density housing systems has become a central issue to most urban design or renewal programs in the late 20th century. Therefore, residential complex has rapidly developed into one of the most important building types in urban and metropolitan areas especially in developing countries. Like other developing countries, Iran is also a victim of unexpected and unplanned increase in urban population contributing to housing challenges especially among the increasing young or newly-married couples. Besides, in the past few decades, Iran has encountered rapid transformation from a traditional society into a modern and technocrat society and from extended family system to separated family structures in which the housing of the young families becomes more delicate and problematic. Therefore, the inclination towards residential complexes or high-rise housing projects seems not only inevitable but also leads to major socio-cultural conflicts and necessitates fundamental transformations in urban lifestyle. In this paper, the intention is to introduce and analyze diverse factors which have led to formation of residential complexes in Iran with a characterization of early prototypes, namely Ekbatan residential complex in Tehran.

KEYWORDS: Architecture, Housing, Modern, Residential Complex, Iran.

INTRODUCTION

Early in the 20th century, a drastic change in architecture took place in many developing countries, as the traditional architectural style was replaced by the contemporary or so-called modern style. This change occurred so rapidly that it represented replacement rather than adaptation. Thus, local architectural forms, which had responded to the physical and cultural requirements of the people for thousands of years, were neglected completely (Behsh, 1993; Mirmoghtadaee, 2009). The new or modern architecture is frequently perceived as the true manifestation of industrialization and internationalism, which eradicates local and vernacular traditions, transforming the globe into a uniform urban structure. It is often forgotten and even totally ignored that architectural traditions of each region are rich in content, given that they have reached the right and perfect harmony with the necessities of life, the natural environment, material resources and ideas on the utilization of built space. During the mentioned transition from traditional styles to contemporary one, transformation of residential buildings was much more obvious all over the world. In Iran too, transformation of residential buildings during industrialization phenomenon led to complete demise of almost all architectural, social and cultural traditions which had contributed to evolution of traditional patterns of residential space.

After industrialization process, development and urbanization in Iran led to gradual replacement of individual houses by residential multifamily complexes and apartments. These new dwellings were largely designed by foreign construction companies or Iranian architects educated abroad, with minimum knowledge and attention of Iranian's living traditions and lifestyles. In the first comprehensive plan of Tehran, which was prepared with the assistance of French companies, it was explained that one storey houses are the consequence of poor construction techniques, and central courtyards are the reflection of old social conventions, and women's freedom will eliminate the need for introverted areas and will add to the prevalence of apartment living. Balconies will substitute courtyards, and elevators will increase the number of building stories (Farmanfarmaian and Gruen, 1968; Mirmoghtadaee, 2009).

The new type of multi-family dwelling called residential complex which was the most dominant result of mentioned changes, not only led to elimination of all residential traditions of Iranian society but also introduced new patterns of urban lifestyle. From an architectural point of view, most of the early residential complexes built in

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Iran were influenced by western patterns of life and architecture and therefore, had many common characteristics which are analyzed in this paper.

RESEARCH METHODOLOGY

This study is mainly composed of documentary data survey and aims to identify some of the realities regarding the formation and evolution of multi unit housing or so-called residential complexes in social, economic and cultural contexts. An example of early residential complexes of Iran, Ekbatan in Tehran, which can be considered as a prototype, has been surveyed and analyzed in detail. The author has chosen Ekbatan residential complex due to its age, unique design and relative success as a housing project located in capital.

Modernistic Approach to Housing

Since the 19th century, western architects have tried to integrate different professional concepts and theories, hoping to create a new form of architecture that meets the needs of the time and people's values. Le Corbusier is a good example of this phenomenon. Basing his designs on an analogy between machinery and housing, Le Corbusier pioneered hyper-rational designs that continue to be very influential today, proving the feasibility of his concepts (Hsu and Shih, 2006).

In fact, precedence of multi unit residential building typology, like much of modern architecture, can be traced back to Le Corbusier. The precedent for large multi unit dwellings was set at Le Corbusier's "Unite d'Habitation" in Marseilles (1947-1952), which was one of the century's most influential buildings which would later be mirrored across America for apartment style housing. The giant, twelve-story apartment block for 1,600 people is the late modern counterpart of the mass housing schemes of the 1920s, similarly built to alleviate a severe postwar housing shortage. Its influence on subsequent developments in city planning is clear - notably on post-war reconstruction in Europe and public housing in the United States (Bouliane, 2010).

For Le Corbusier, the production of housing was similar to the production of automobiles. According to him, the house was "a machine for living" (Le Corbusier, 1923/1997: 226). He also reexamined the technical problem of production and streamlined construction procedures, creating easy-to-assemble structures that could be completed quickly using efficient tools and non-professional workers, allowing the builder to create more houses faster (Hsu and Shih, 2006). He adopted a mechanical analogy with the intention of making housing design and production more accurate and efficient for mass production. In other words, Le Corbusier's goal was not solely to create a new housing type, but rather to create a new method of housing design, one which transformed the housing type into a prototype used in industrial production (Moneo, 1978). His influence on subsequent developments in city planning is clear - notably on post-war reconstruction in Europe and public housing in the United States. Jumping thirty odd years ahead to Chicago, the devastation of the modular building typology is evident as you leave the downtown core of the city (Bouliane, 2010).

Formation and Evolution of Modern House in Iran

Historically, relationships of Iran with European societies in the 19th century gave a new appearance to the domestic activities of the country in political, cultural and economic respects and made Iran a country different from both its own past and other countries of the region. On the other hand, arrival of military technology, industry sets, new trade and banking systems, modern knowledge and science, establishment of some new institutions such as universities and schools, new ways of training and education, communication, publication, photography, social and cultural events such as social movement in Qajar era and later constitutional revolution in 1905 and finally Islamic Revolution in 1979 were all effective in the development of the new age in Iran. This new era has been defined by social scientists and intellectuals as modern era. Each one of the above-mentioned elements had different role in changing the Iranian traditional world to new, developing or so-called modern world (Azadarmaki, 2005).

Then, since the beginning of the 20th century, Iran witnessed great social, economic, and cultural changes that have influenced different aspects of Iranian life. In this process, architecture, as the physical embodiment of social life, has changed to a great extent. Contemporary houses began to be constructed in Iran around 1961 (Haeri, 1997; Soltanzadeh, 2005; Mirmoghtadaee, 2009). Due to the mentioned changes, the period from the last years of the Qajar dynasty to the beginning of 1961 has been called the transitional period. In the transitional period, neighborhoods lost their mixed use social and economic functions and changed to strictly residential districts. Land parcels were reduced in size and shaped more geometrically, mostly in rectangular forms. The rectangular lots influenced the spatial characteristics of the houses. As the lots became narrower, the built area had to be located in the northern and southern parts of the land, with the courtyard in the middle. When the house faced south-which was the case in most examples-the northern part, facing the sun, was the main two-storey residential area, with the

ground floor allocated to living areas and the first floor to guest rooms. The other section usually had one storey above ground and one below. The kitchen and service areas were located in the basement, below ground level (Soltanzadeh, 2005; Mirmoghtadaee, 2009).

This process, which occurred in the design of some structures from 1953 to 1963, is now applied to almost all buildings. During this period numerous governmental and commercial buildings were also erected and many residences were built without consideration for local characteristics or climatic conditions, in Tehran and in other cities like Tabriz, Yazd, Mashhad and Kashan (Diba and Dehbashi, 2008). In the contemporary period, traditional houses were largely abandoned while apartment buildings became more prevalent. In the new type of residence, each household had smaller living areas and a shared courtyard (as opposed to the individual courtyard of traditional houses), which belongs to all families living in an apartment building. New building regulation, which allows buildings to cover 60% of the land and left 40% for open space, had a great effect on the spatial organization of houses as well as on urban design. The central courtyard is now located in the front and multi-storied apartment buildings or residential complexes have become the dominant type of preferred housing (Soltanzadeh, 2005; Mirmoghtadaee, 2009).

This process of transformation has been illustrated as a schematic drawing by Madanipour (1998) as shown in figure 1 which indicates 3 steps of transformation of house in Iran. As it is obvious in the drawing, the traditional form of dwelling had an inward-looking pattern with a courtyard as the focal point. The second pattern shows the transition period and the third one exemplifies modern residential towers now common in most of residential complexes in Iran. At the time being, almost all residential constructions in major cities of Iran follow the third pattern with minor differences due to site limitations, economic considerations or in some cases personal preferences of developer.

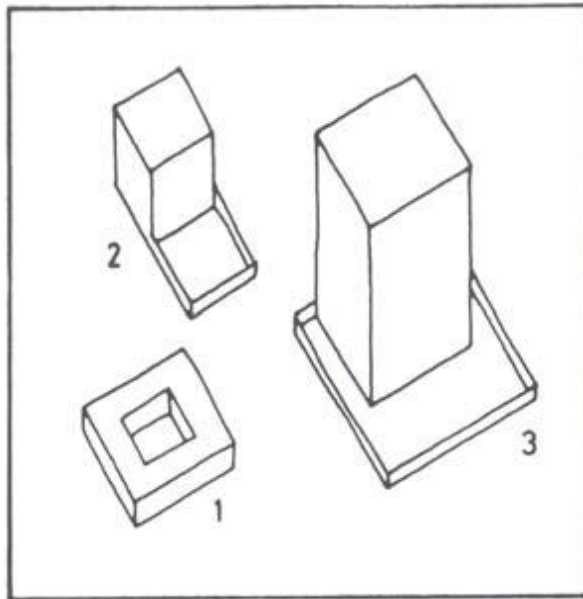


Fig. 1. (Madanipour, 1998)

Residential Complexes in Iran, Ekbatan Residential Complex

As mentioned in previous sections of paper, early examples of residential complex in Iran were built in Tehran and other big cities such as Tabriz, Mashhad and Isfahan. Most of these complexes were designed and constructed by foreign companies for accommodation of their staff. Later the second group of residential complexes was constructed for accommodation of Iranian citizens. To achieve the required floor area, density, modularity and individuality within this new typology the economy, materiality and method of construction became of the foremost importance and had to be thought throughout the design process of these residential complexes. Beside other achievements of that time, new advances in pre-cast concrete construction over the past decades had further paved the way for these parameters to be achieved.

The technology of prefabrication had become applicable to housing projects since the 1970's making pre-cast modules and forms available for an abundance of uses, which was adopted for construction of mass-housing projects all over the globe. In Iran too, most of the early residential complexes were constructed utilizing precast

and prefabricated elements. Among early and dominant examples of second group of complexes, Ekbatan residential complex is introduced and analyzed in this section of paper.

Ekbatan is one of the oldest residential complexes of Iran designed and constructed as a large scale urban project aiming at provision of modern multi-family apartment buildings in western part of Tehran. It is now one of the largest and well-known residential complexes in Tehran and is considered as one of Tehran's known and prestigious urban neighborhoods. Like other early prototypes of multi-family residential buildings, it has been designed by a minimalistic approach.

Simplicity of form, lack of ornamentation, continuous and linear windows, rectangular compositions and defined residential units are all major architectural characteristics of Ekbatan residential complex. Its construction started in 1975 in 3 phases containing 15,500 residential units with total floor area of 2,208,570 square meters.



Fig. 2 and 3, Ekbatan residential Complex, Tehran

Ekbatan was, and still is considered a great achievement in modern residential typology in Iran, although it has several negative characters. Its plan contains and compresses diverse types of separate units in a building into the compact yet sufficient form of the building type and achieves the desired density. What results, though, are diverse residential units but poor lighting into the central corridor and the depths of the larger units themselves, and poor proportions of width and length in some units. In spite of preplanned diversity, the spaces of the building are categorized as repetitious. This repetitive typology does facilitate variance in plan to accommodate several different unit types and respond to different personal requirements. Ekbatan is considered a relatively successful example of early residential complexes in Iran. From an architectural point of view, it is also a forerunner in introduction of minimalistic aspects of modernity to Iran.



Fig. 4 and 5, Ekbatan residential Complex, Tehran

DISCUSSION

Modernization in Iran has led to many social, cultural, and physical transformations. However, these changes concentrated on the physical or external aspects of life, leaving unchanged cultural norms and values that constitute living habits. New apartment buildings, which are the most commonly used residential pattern in big

cities, are completely different from older traditional houses. Contemporary dwellings are much smaller than the traditional ones; thus, semi-public and private spaces could not be separated physically. However, Iranians are still following traditional rules of *biruni* and *andaruni*: guest rooms are decorated with beautiful Persian rugs and other ornaments to accept guests respectfully, while private areas, hidden from sight even with a separating door, are very simple. New apartment houses are extroverted and have windows opening to the streets. However, as Iranians are accustomed to hiding their living spaces from the view of outsiders, windows are always covered with thick curtains. Similarly, balconies are used as storage spaces or combined with the adjacent interior rooms. Modern facilities played a great role in changing living habits. For example, the use of electrical cooking equipment and ready-made meals has become more common. Therefore, the kitchen is now losing its traditional importance and becoming a place for warming foods and washing dishes. Women are more active in social and economic activities, and spend less time on housework and taking care of children. Facilities such as nursery schools and ready-made food simplify their lives and facilitate a more active social life (Mirmoghtadaee, 2009).

Lack of privacy can be considered as one of most dominant and obvious results of transformation of house in Iran. Privacy and a hierarchical approach to it both in outdoor and indoor areas of a dwelling had been very important for designers of traditional houses in Iran.

According to Madanipoor (2003), houses can be seen as distinctive spaces in which individuals come together in intimate relationship, claiming the control of these spaces for privacy and comfort. These individuals, even though small in number, form an interpersonal forum that is less private than their own private worlds, creating a combination of private, semi private, and at time even semi public spaces , therefore the relationship between them takes various forms and subsequently, the space they use for these relationship takes various degrees of privacy. In the light of the above, recent architectural thought has also been preoccupied with privacy and private space. Nevertheless, the various studies and approaches concerning privacy have often included the contrast between the term and another entity; that of public space. Their consideration as two opposite worlds has resulted in polarization and analogous consequences for the design process (Shabani et al, 2011). In most of residential complexes all over the world, privacy has been diminished to the minimum. This issue has led to some cultural problems in Iran. The physical, social, economic as well as cultural conditions of a life in residential complexes of Iran, in the midst of what is called modern life, have led to both positive and negative consequences revealing strengths and weaknesses of these complexes. Table 1 contains some of major positive and negative characteristics of Ekbatan residential complex. Most of these positive and negative aspects can be generalized to almost all residential complexes which have been constructed in major cities of Iran.

TABLE I
STRENGTHS AND WEAKNESSES OF EKBATAN RESIDENTIAL COMPLEX

Strengths	Weaknesses
Diversity of size and layout of units from an architectural point of view	Insufficient residential space per capita in medium and small-sized units
Provision of necessary urban infrastructures and services	Insufficient natural lighting in some parts of blocks including corridors and indoor parking areas
Adjacency to airport, terminal, freeway network and urban circulation facilities	Equal spatial hierarchy for different units regardless of social, cultural and economic level and requirements of occupants
Provision of enough open spaces for vehicular circulation and parking	Lack of private, enclosed or even predefined yards for private activities of households
Visual integrity of masses and forms, and high harmony of geometrical composition of blocks	Lack of privacy for family members in outdoor spaces
Recognition of the complex as a known and distinct urban neighborhood in Tehran	Uniformity and simplicity of Facades as well as interior spaces
Acceptable per capita of open and green space	Incompatibility to climatic characteristics of the region
Existence of commercial, recreational and educational facilities inside the complex	Lack of visual relations to traditional and historic patterns of architecture
Open view from units to the surrounding area	
Continuous windows allowing for penetration of natural light to residential areas	

Conclusion

The importance of housing needs no emphasis; it is one of our primary needs of life (Rao, 2001: 7; Sheykhi, 2007). Overall, quality-planned housing can create conditions which are hygienic and environmentally conducive for healthy growth of human civilization. On the contrary, unsuitable housing can lead to unlawful and unhealthy environment. Thus, there is need to create healthy housing atmosphere, whether permanent or temporary

(Sheykhi, 2007). The provision of affordable housing for low and middle-income families has been at the forefront of national development strategies and plans in almost all developing countries since the early 1950's. In working towards achievement of this goal, various policy options, housing strategies, programs and projects have been developed and the mass housing typology or high-rise housing approach has evolved, gained popularity and even changed throughout the decades. The multi unit building typology, developed over the 20th century, especially in countries like Iran, was supposed to serve two goals, first to resolve the question of achieving higher density in a residential building and second, to be economical. But, on the other hand, the architecture and aesthetics of such buildings came into question in cities of Iran which are made up of a variety of building types, urban design schemes and mixed-use programs.

To be able to build at such a high density in cities of Iran, with recognizable architectural patterns and unique lifestyle from socio-cultural viewpoints, a new approach towards planning and design of residential complexes will be necessary. Therefore, by using a planning, design and assembly typology which can benefit from its higher density and modularity, both in its ease of design and construction, and from the availability for diversity and the opportunity for individualized spaces for private life, will create a new way of multi unit living in an increasingly harmonized urban conditions of metropolitan centers in Iran.

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