

ORIGINAL RESEARCH PAPER

Explanation of Urban Form Management in order to Residential Open Space Impact

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ABSTRACT: Residential open space is considered an opportunity to have more relationship with nature and a place for social interactions. Upward to the limitation of internal space in residential units and its relation to exterior space, traversing up and recognizing the current land of open spaces will result in designing the residential open spaces more consciously in the hereafter. Open spaces between residential buildings are placed in daily life where residents have relations with nature and spend their leisure time. In current conditions, the houses built in urban cores such as Tehran are not capable to supply most of the Iranian life needs. Considering the decrease of per capita level of residential floor area, if residential open space can supply the individual and societal requirements of residents in various ages, it can be possible to transfer most of the life activities of the interior space to open spaces of complexes and to correct the life shortcomings in residential units with low areas around. In Expanding residential complex scale and their open spaces, residential open space scale goes beyond the household; it found a scale such as local and urban open space, however exploring in urban form and manage how masses shape could produce the wholeness of urban spaces is too important.

Keywords: Residential open space, residential buildings, interior space, complex scale, urban form

RUNNING TITLE: Urban Form Management in Residential Open Space

INTRODUCTION

Public space is a joint area that people do functional activities and perform festivals which connect community members to each other, either routine activities or cyclical festivals, a scene in which the collective life is shown, space in which individuals are share with strangers, people who are not their relatives, friends or colleagues, a space for religion, trade, and sport and also a space for peaceful coexistence and impersonal meetings that express collective life, urban culture and everyday issues and also it affects them (Madani Pour, 1996). Open space makes the foundation and the structure of

space with establishing relations between various activities. According to Halprin, quoted by (Pakzad, 2007), open spaces are elements that give exceptional quality and personality to the metropolis. He split up these spaces into two categories: Public open space and private living place. He saw the open space as factors that include historical and urban forms; He also looked at them "Arteries of the Community Body," that pump health for the city and its citizenry.

In current conditions, the houses built in urban cores such as Tehran are not capable to supply most of the Iranian life needs. Considering the decrease of per capita level of residential floor area, if res-

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idential open space can supply the individual and societal requirements of residents in various ages, it can be possible to transfer most of the life activities of the interior space to open spaces of complexes and to correct the life shortcomings in residential units with low areas around. Hence, brushing up and paying extra attention to design interior space of residential complexes as a joint courtyard is necessary in more residential complexes. Main design principles in contemporary time of urbanity are much important for designers make better decisions to lead public realms being more useful and have identity. This issue means how we can create a sense of place to attach people in spaces especially in border of public space and private one.

MATERIALS AND METHODS

The purpose of open places

In Expanding residential complex scale and their open spaces, residential open space scale goes beyond the household; it found a scale such as local and urban open space. In most instances, some divisions of open spaces are publicly accessible for other occupants of the city; therefore, studying its specifications needs to examine the clear place in local and urban scale. The urban center is like a parasite composed of numerous full and empties and changes their shapes based on the situations and are factors to draw masses. The metropolis is a topographic point for meeting and social interaction, and urban spaces as Social life scenes are areas for meeting people, despite all their disputes. The concept of urban place is set in relation to the concept of social membership; it intends that the city should provide an opportunity for its users to assemble and select with its spaces (Pakzad, 2007).

Open space as a supplementary for green space results in reduction of human and constructional density. These places offer opportunities for creative growth, social interaction and conflict; applications such as establishing communication, relaxation and recreation are very efficient in cutting down pollution and improving the surroundings. Residential open spaces are somehow crystallization of collective life, nature” (Nozari, 2004). “These spaces provide an opportunity for meeting and social interactions” (Waxman, 2004). Jacobs (2006) as a forerunner has noted the importance of public space in creating suc-

cessful residential neighborhoods, and public and private life. Public space that Jacobs states is a place to visit, but a particular call which is not sincere and not anonymous. He opposed particular type of call named “togetherness”. He thinks that if people find something in common, they should obtain many more affairs in common (Mirgholami, 2006). According to (Jacobs, 2006), if a public space creates only a heartfelt or anonymous relationship, it will be unable to create an informal and an impersonal relationship motivating collective life. Subsequently, many planners used the Jacobs’s ideas with the slogan “If you create a space, people will arrive”; yet, they were unaware that collective life affects space formation.

As a consequence, a strong notion such as defensible space, (Newman, 1996), which was prompted by the Observer eyes on the street of Jacobs, makes a place for repelling than a place for communication. Public space of William White has apparently drawn from a middle-class male and specific position. A relationship which represents the best marriages and all real friendships. A relationship in which people sing about the ultimate significance of their lives (Mirgholami, 2006). According to Jay Bowen (2010), gardens have concrete effects, on social relationships in urban centers.

In the script entitled “Public Space”, Carr and Francis (1992) considered the following three characteristics as essential ones for any successful public open space: “accountability”, “public-oriented” and “meaningfulness”. Responsive spaces are spaces designed and constructed to fit the users’ needs. Basic needs which people are asking for open space are comfort and quiet. Open spaces are places for mental and physical body processes such as working, gardening and a blank space for meeting other people and nature. In public places, people experience an ownership sense and there is no boundary for the presence and use of space for them. Meaningful locations allow people to create a nexus between the location and themselves, and are in intercourse to their societal and physical placement. (Gell, 2010) considers the quality demands of public spaces in protecting (against traffic, accidents, crime, violence and bad weather conditions), comfort (some facilities for walking, sticking out, sitting, seeing, talking and listening, playing games and doing bodily functions) and pleasure (scale, some facilities for enjoying of appropriate climatic conditions, quality of aesthetics

and experience of a positive sense). Regardless of building placement, function of open space includes environmental issues such as accessing to sunlight and natural breathing as well as cultural and societal qualities. Open space results in toning up and grounding of social relations in the neighborhood and supplying of residential textures connection (Nozari, 2004). This space is a supplementary space for green space and is very significant in terms of cutting down human and constructional density.

Residential open spaces

The presence of the courtyard as a residential open space is changed as residential units are changed in modern architecture. Receiving a specific courtyard is not possible for many households and its dignity has changed to public open space in the region. The way of forming a residential texture in current cities is in such a way that all spaces are private or publicly organized, and intermediate space has gone. The structure of the courtyard in Iranian house can be studied from two directions/aspects. In terms of functionality, the courtyard is a blank space for getting close to the nature, for furnishing light and comfort of interior space as well as a topographic point to establish social activities. In terms of natural philosophy, the courtyard is located in the center of introverted houses, and the house structure is determined based on courtyard location. It offers the possibility of incorporating the interior spaces and courtyard, expanding the functions of the house and spaces in certain places. Two functional and physical attacks are identified as follows:

Functional structure:

“The courtyard of each home is a contemplation of its inhabitants’ culture” (Girling and Helphand, 1994). The courtyard of an Iranian home is symbolic of nature; water, tree, flower and birds are the main elements of its landscaping. In a detailed article that West (1957), writer and wife of the British Consul at Iran in the late 13th century, composed around the Iranian gardens, she considered the tendency of Iranian masses to possess a quiet corner and a green oasis with regular and precise geometric form in the vast dominion of this nation as a psychological disposition to overlook the surrounding natural lands. In accession to its aesthetic aspect, being near to plants affects the inhabitants’ spiritual

matters in terms of psychologically (Kaplan, 1984). The courtyard is the beginning and the most accessible space for close relations of people with nature; it also supplies the direct contact with plants and water for people during the daylight. In Iranian architecture, when people are in interior space, the nature is connected to their everyday life through observing nature from a window. Direct relationship between interior spaces and courtyard make the extension of everyday activities possible. In houses with a yard, many uses of interior spaces such as sleeping, feeding and entertaining move to the courtyard in some seasons. The courtyard is a space for children’s activities at all times of the twelvemonth.

Physical structure

The space is organized based on courtyard in introverted houses. Designing a house is taken up from the yard, and closed and covered spaces are placed around it. “Courtyard was used to build a relationship between residents and nature on the unitary hand, and between residents and social club on the other hired man “(Haeri, 2009)”. In extroverted houses, the house privacy is determined by courtyard boundary.

Main spaces of a household had a direct relation with courtyard and sometimes threw their names like three-door and five-door according to their relationship with the grand. Northern and southern major predominantly spaces are situated along the symmetry axis of the yard; windows which get down to the underside of the window makes it possible to view the courtyard completely.

The carnal knowledge of interior spaces with courtyard is in such a way that interior spaces can be blended with a courtyard in necessary cases and its spatial structure expands. The principal frontage of the building is toward the courtyard and a landscape is projected for all distances in front of the thousand. Sunlit spaces and a blank space to live in summer are respectively located in northern and southern sides of the yard. The seats which are not so useable are located along the easterly side of the household because of disturbing light (Fig. 1).

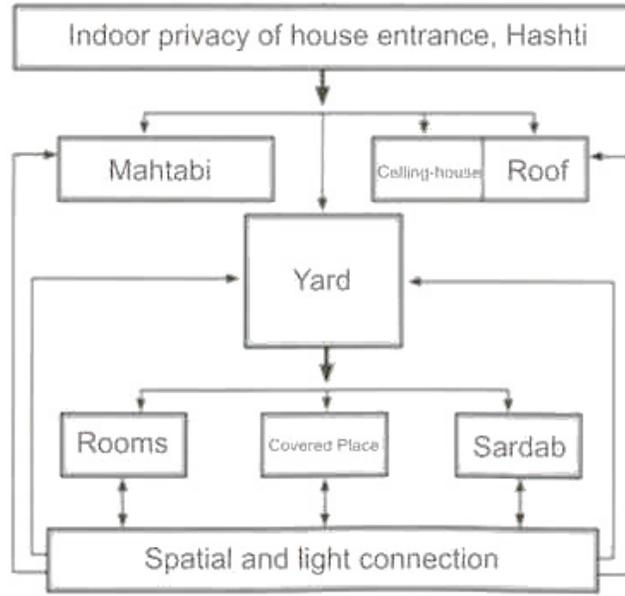


Fig. 1: The location of spaces in Iranian traditional houses (Haeri, 2009)

Country yards' fronts that made by building and covered spaces at all.

In those parts that there is no building, wall plays an active role in defining yard. Its stature is in such a fashion that creates the sense of Includeness in the court and it is decorated by Taegu and arcs designs and colors. The floor of the courtyard was always lower than street level and entrance corridor never entered into the house directly (Haeri, 2009). Entrance hall and entrance corridor, connect the inside and exterior components to each other.

In the bulk of modern houses, the courtyard is located on one side and the building is located on the other side along a piece of possessive land and two

models of northern and southern yards are dominated on it. Southern yards are situated between the building and neighboring buildings, and have more inclusive and less and the mien of a car is normally not possible there. Northern courtyard is divided from the main passage with a wall and has more Supervision... From the front and surrounding sides. In this placement, a parking space or a space for car traffic/passing to the parking place is definitely considered; therefore, the share of green space is concentrated. Modern cities are the answer of such view that building can construct only at the conclusion of the country or near the passageway; and just 60 % of the estate area can be made (Fig. 2)

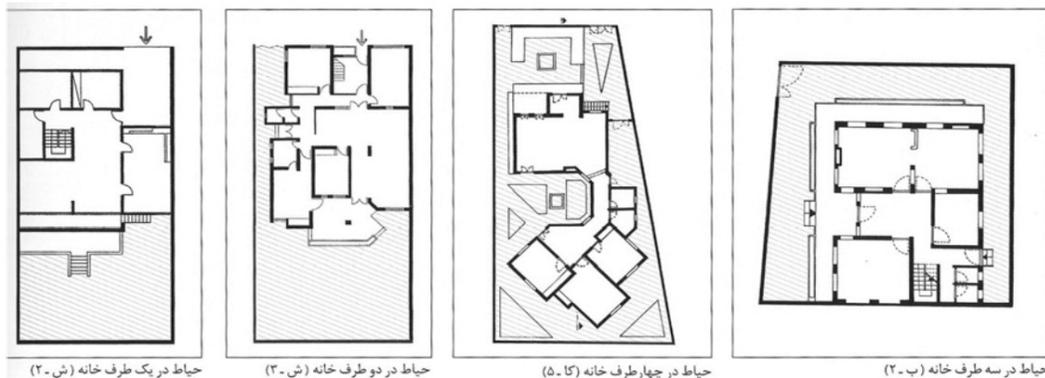


Fig. 2: Typology of various courtyards in modern houses (Haeri, 2009)

Typology of residential open spaces

Since the start of the twentieth century, two opposite views of Le Corbusier residential units and neighborhood or local unit proposed by Clarence Perry were suggested for a neighborhood unit which had significant structural and social effects on formation of a neighborhood and design of residential complexes

Le Corbusier designed a residential complex named Marseille which included 330 residential units on 17 floors in a vast green environment with shop, kindergartens and other public facilities (Eini Far, 2007). This 17-floor residential complex is an independent neighborhood, which can meet its users' demands.

Clarence Perry defined a model in the stratum of "neighborhood unit" as a location that includes an elementary school, a small park or a playground, small shops and a combination of buildings, streets and public services with strong access. Implementation of this project was in a flat form which was common along the map and its three-dimensions are

neglected (Lang, 2005). This example was mostly used in the preparation of new residential neighborhoods in urban centers of the universe since the 1930's it also was considered the basis of "New Urbanism".

The primary dispute between these two models is arrangement way, and the level of candid and tight space next to each other that each one is the basis of different residential types. Contempt of the ordinary people's imagination, increasing the floors has not necessarily resulted in a population increase. Arrangement of a fixed number of residential units in a same land leads to the formation of voluminous different qualities and residential open space. Increasing the top leads to increase open space per capita and to decrease residents' private space (Bid-dulph, 2007).

Other measures such as companionship of full and empty space and spaces with courtyard are classified based on courtyard occasion in the form of me-shaped, L-shaped, U-shaped, T-shaped, H-shaped, Z-shaped, square and linear (Kambi, 2003) (Fig. 3).

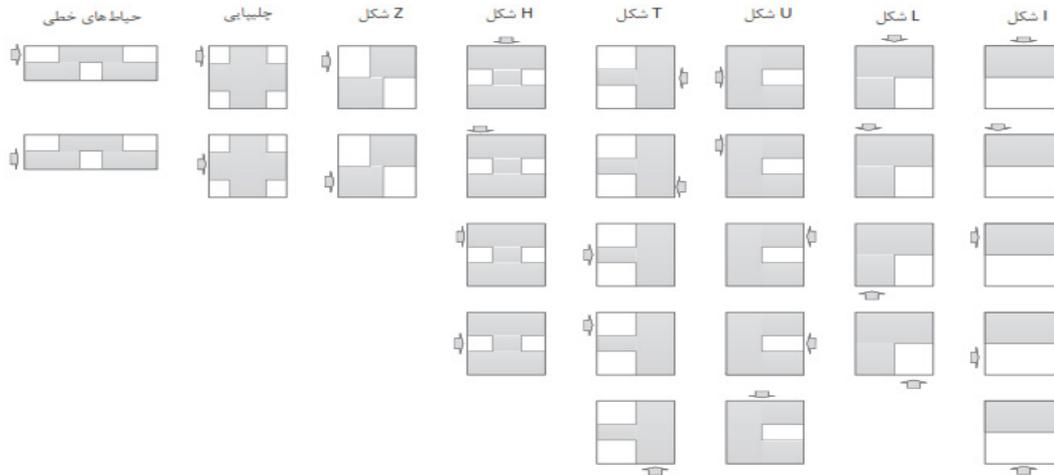


Fig. 3: Typology of houses with courtyard based on courtyard position (Kambi, 2003)

In the Bible entitled "Courtyard houses: A housing typology" German researchers, (Pfeifer and Gunter, 2008), divided houses into the following groups: houses with central gardens, L-shaped houses, terrace houses and atrium houses. Typology of inter part of the mansion is done based on access way or the relation of interior space. Typology of high residential complexes consists of several stops; it is

founded on the typology of accessibility type and the relationship of inner spaces as well as the arrangement way, and exposed and close fellowship. The predominant characters of these complexes are environmental arrangement, individual blocks, row blocks and mixed composition of other blocks (Bid-dulph, 2007).

Central arrangement is established along the precepts of traditional homes with central court in Iran. In this case, the main facade of the blocks is toward the public passage and the private space is situated behind the pulley. Arranging blocks around a central core results in the formation of private open space which can be jointly used for all units are divided into small private parts. In single arrangement, high residential blocks are separately placed next to each other. In this case, the probability of ventilation and natural skylight is more than the other types and open space is drawn with a different character. The row type is the simplest answer to set the cubes. Setting up these blocks relates to climatic considerations or Urbanism criteria of the area (Eini Far and Ghazi Zadeh, 2010).

RESULTS AND DISCUSSION

Appraisal of residential open space

Open space includes concrete and abstract sections. Routes, communicative public spaces, pavements, gardens and green spaces in neighborhood, bridges, and constructions that surround the body of open space are concrete and structural image that the addressees have relatively the same ability to understand them and they are also perceived using five senses. Some other significant factor in open spaces is human and his presence in space that creates a major function in space quality (Pakzad, 2007). Therefore (Schultz, 1966), believes that form and content of structure of architecture should be simultaneously considered for its comprehensive analysis. Although, designing relates to functional and spatial aspects of the environment, it is not separable from its usage. Derived from separation of city planners, its constituent parts can be the following factors: activity, phase and space”.

Functional Features

In all the presented definitions, natural action is conceived an integral portion of the open space structure; in this study, furthermore, it will be considered the main basis for understanding the structure of residential open space. Action is the cardinal aspect of each natural and man-made location. Although it is difficult to predict how to use the space, a lot of studies have been conducted on how to use the neighborhood home. (Hester,1984) divides the

route of using neighborhood space into two parts based on activity: 1. Activities depended on interior space 2. Activities depended on recreational services. Behaviors depended on house form a large part of the behavioral patterns(Gell, 1987). divides activities that take place in residential open spaces into three groups:

Functional-Essential activities:

Such as daily shopping, going to school, and so on which are more related to walk. Recreational-Selective activities: those related to the structural conditions of the environment; these activities come about if people tend and if the appropriate conditions of time and place present such as exiting out to acquire some refreshing air, playing, walking, and so forth

Social activities: The realization of social activity, structural condition sprethe environmental spaces and setting up social interaction. These activities include greeting, talking, arguing and other collective activities. According to Gell, selective activities happen in states with higher quality. Essential activities remain stable in, and social activities are the results of quality and duration of happening of the preceding activities(Carr, 1992). extracted the sub-activities placed in each group of Gell’s classification in western culture. In his survey, traffic, transportation and car repair are functional and essential activities; roaming, sitting, sleeping, playing and gardening are selective activities; talking and looking are social activities. It is clear that according this table must be justified according to Iranian culture (Table 1).

Carr (1992)	Gell (1987)
Transportation Passage Car Repair	Emergency functional
Seating Sleeping Play Garding	Selection Activi- ties
Speaking Looking	Social Activities

Table 1: Current activities in residential open space

Diversity is one of the supplies for vitality and dynamism in a post; at the low scale, designing an attractive city which is appropriate to the activities and pull people in big scale, society, ethnic and environmental factors affect the vitality. On the other hand, (Lynch,1997) examined the vitality in large scale and considers five factors of meaning, relevance, accessibility, monitoring and control, efficiency and fairness. He only focuses on the comfort aspect of vitality and believes that the following three main characteristics are joint among all humans for vitality: human survival, having safety, and establishing structural compatibility between him and living environment. Some factors such as societal and cultural issues are pushed aside in his classification. Paumier, quoting (Khashtoo and Rezvani Navid, 2010), considers position, size, planning and location design as factors affecting the vitality. Successful public spaces with person attendance. Accordingly, if designers want a crowded space, they should design in such a way that their addresses expect. The process of designing a neighborhood need to depict a balance between public and individual needs. It is important to experience the usual needs. Since personal characteristics and needs determine the neighborhood space, revealing the unparalleled needs of a neighborhood unit is the key to a right purpose.

Spatial features

Physical environment should be explored from different people’s perspective. Human, according to his nature, pays more attention to the visual and spatial qualities of the surrounding environment (Kaplan, 1984). When residents talk about their physical environment, they pay more attention to features of landscape design than house style or appearance, height, color and building facades. A good landscape, wide vision, proper maintenance is closely associated with the good visual view. Thus, a good landscape can lead to establishing a confident relationship with the residential environment (Marcus and Sarkissian, 1986). Structural attractiveness of the surrounding environment can be an important factor in residence selection. In late years, environmental, psychological researchers in the area of visual perception area have focus. Ed on the balance environmental, psychological discipline / cohesion and diversity / complexity (Kweon, 2010). Kaplan and Stephathe relationship red con-

sistency, complexity, legibility and secretly as the main criteria to assess the landscape. According to table 5-2 solidarity and complexity are two elements that are promptly comprehend at the inaugural instant, but an assessment of the environment based on the readability and its point of secretly requires greater identification and environment inference. On the other hand, solidarity and legibility are comprehended by humans, but complexity requires exploration and attention to the environment. (Kaplan, 1989) (Table 2).

	Perception	Explore
Direct	Harmony	Complexity
Conclusion	Readability	Cryptic

Table 2: Landscaping Evaluation Matrix (Kaplan, 1982)

One of the most outstanding researchers in the area of natural landscape assessments is (Tveit, 2006). from Department of Landscape Architecture and Spatial Planning, Norwegian University of Life Sciences. Based on studying the literature available in the area of landscape assessment, he regards the criteria of stewardship and nature-oriented in addition to two measures of solidarity and legibility in terms of beauty. On the other side, considering the semi-public nature of clear space and its direct relationship with the residents’ lives, privacy is one of the primary characteristics of residential open spaces. Established on the mentioned models, assessment criteria of residential open space come with four factors: A – Solidarity B - readability C - nature-oriented and D – Privacy, because the integration of these factors bears on people’s perception of residential open space. Moreover, management and maintenance are identified next to spatial elements to evaluate the open position.

Solidarity

Solidarity can be studied from structure, action and social dimensions in residential open space. In structuralism view, structural solidarity has been studied in foundation dimension Foundation forms framework of each place and includes a lot of nodes, cars, roads and signs that weaves them together. The concept of spatial solidarity connected with valuable; solidarity structures provides an

equitable distribution of facilities and equal chances for occupiers.

Solidarity is a reflection of the available landscape which can be accomplished through repetition of context models, color, and compatibility with the surroundings and landscape. Harmony, unity, readability are the resolutions of solidarity and increased environmental understanding through readability and disciplinary (Kaplan, 1984). Visual solidarity is the consequence of the absence of anarchy and chaos (Fry *et al.*, 2009). The solidarity of the whole complex is more visible in person than the solidarity of the constituents individually. On the other hand, the solidarity depends on available parts and the relationship between them (Tveit *et al.*, 2006). The proper relationship between the diverse roles of complex with each other and design area is one of the other achievements of the composite.

Solidarity is interpreted as mixed concepts such solidarity and homogeneity, social similarities, solidarity and structural homogeneity in adaptation to the concept of companionship and place; it indicates the connections and similarities in two areas, residential area and place. The concepts of solidarity and homogeneity have an inverse relationship; it means the more the community and body become close to homogeneity (similarity and repetition), the more their solidarity level reduces, and vice versa, the more the community and body vary, the more the combination possibility between components to constitute a coherent whole will be more outstanding. Based on sustainable development perspective, components solidarity in each band is considered necessary conditions for its growth and continuity, and it contains diversity and unity in components in residential countries.

Turbulence is the opposite characteristic of solidarity and it is the consequence of absence of foundation, specific structure and diffuse components.

Legibility

Legible space is a space that is well read and recalled. This place is easily organized using specific ingredients; therefore, finding the road is done easily in. Sign and zoning elements contribute to the legibility of the environment (Lynch, 2004). offers several features to assure readability:

Distinction or clarity of background includes clearness of limits, spatial position, simplicity of form, being close to geometric shapes and clearness of

components; continuity means continuity of urban landscape and presence of rhythm; and dominance of one component over other components relative to the size or the intensity of its use in such a way that get a primary role in a set of factors; joint resolution, diversity, increase the visibility range; awareness of movement, qualities such as items that result in slopes or curves or penetration of shapes in each other and become the landscape changes observable for supervisor; names and meanings. He considers that none of these elements alone or by themselves cause the environment legible; in other words, they must be in combination.

Nature-oriented

In universal, open residential space can be split up into gray (urban) and green space. Green spaces include gardens and plantations, a place that children can play, sports areas, green edges and green fields. Green edges make green corridors to link the diverse elements of residential complex tissue.

The presence of nature is not only necessary, but also is essential for inhabitants' satisfaction. Surveys which were conducted in Illinois University showed that the natural urban environment had a direct relationship with improvement of neighbors' relation, reduction of violence and increase of satisfaction from the home.

Research results of (Sullivan *et al.*, 2004) about the upshot of the nature, proximity of urban neighborhood space, indicates that the average of 90 % of people uses green space more than space and the average of 83% of person's tend to participate in social activities in green space against the space; This ratio in adult females is higher than humans. There is no substantial divergence between the green areas and using outdoor open spaces among young individuals, although the number of their compartment in the green space is 40% more than urban space. The results of Ph.D. The thesis of Tilt, (Jenna, 2007) at the University of Washington about the neighborhood green space suggest that a neighborhood green space includes covered routes with plants and induce a positive effect on number and period of walking among neighbors. Moreover, mature trees increase the full point of walking among neighbors through making visual attractions.

Privacy

The presence of sequence system in establishment of spaces, occurrence of activities, movements is one of the rules of Iranian architecture. The presence of hierarchy in the architecture is prominently connected with the concept of privacy in Iranian culture. Privacy creates spaces with different parts and divides them into public, semi-public, private and semi-secret sections. These countries are clearly differentiated from each other; in macro-scale, they create an inside or outside parts and various courts with different multiple entries separated from each other; in micro scale, they prevent from accessing or direct vision through making semi-defined elements such as curtain, netted walls, colored or opaque glass.

The concept of privacy, irrespective of its cultural context in the Islamic societies, is seen in all civilizations. If humans are surrounded by invisible bubbles, they limit the distance of their presence with others founded on these bubbles. (Edward Hall , 2000), based on the other classification, insists that a person feels towards each other in a determined time is a defining factor in using of this distance and each distance should be understood as a range of space and territory. Privacy is a very complex concept and its reason is different for various masses. For more or less people, privacy is a plaza where they could be alone without the intervention of others; for others, it signifies a home where nobody can view them (Zeisel, 1984).

In Urbanism, (Chermaif and Alexander, 1996), in an overall classification, have classified the hierarchy of urban spaces into urban public spaces, semi-urban public spaces, public spaces which are specific for a group, private spaces which are specific for a group, family private spaces and individual's private spaces. The important thing is hierarchy and internal cohesion of the areas that should be preserved and the hierarchy between them is created under the effect of mutual relations. Based on this classification, privacy in open spaces of an Iranian house has changed from private family space to the private spaces of a particular group. According to this, concept of privacy in residential open space refers to a place in where people use the space without the interference of the others.

Features of management and maintenance

The primary thought of maintenance is originated from users' considerations in management and environment concern and is associated with the discipline (Tveit *et al.*, 2006). Space maintenance has three dimensions: visual, ecological and safety. Its visual dimension relates to space care which leads to create a sense of discipline and organizing. Ecological dimension is affected by open green space part. Since life of plant in urban space depends on being protected continuously, the need to maintain open space becomes more tangible. Safety dimension of care relates to space conservation and sustainability.

Maintenance

Passed on the importance of the presence of public places, health, safety, environment is some important publications that should be concerned before occurring of the event and also inappropriate effects and to supply the users' needs from open spaces and perfectly all of residences must be taken in the preparation process and public presentation and management.

Making a field of study in complex appearance and also the relationship of the inhabitants with each other reduces tensions and differences caused by undisciplined; is also resulting in psychological comfort, secure relationships and being satisfied from neighbors.

Safety

Maintaining space gives strangers the impression that somebody worries about this construction. Agreeing to the broken windows theory which was mentioned in chapter 1, in the ownership section, when there is a sensation that no one cares about a complex, it is possible that the probability of committing a crime increase. As a termination, the sense of safety decreases.

Establishing social interaction and a sensation of safety is a reciprocal relationship. People do not tend to establish a relationship in case of unsafely; on the other hand, those who have more social interaction feel more secure.

Different surveys have demonstrated that the probability of committing a crime in men victimization rates is relatively more than women, while women

fears of crime three times as much as men. Mostly, adult males possess a more confident opinion about the guard of their surroundings than women. Fear of committing a crime and come down a victim changes the behaviors in urban public spaces and these effects is greater among women and other vulnerable economic and societal groups. These effects limit their movement and result in the reduction of

social, economic, cultural opportunities, particularly at nights. The effects of international studies of Dallago, Loerza confirm this question. Thus, in general, there is a lineal relationship between social interactions and safety sense in complexes or residential collections; this relationship shapes the character of urban spaces (Fig. 4).

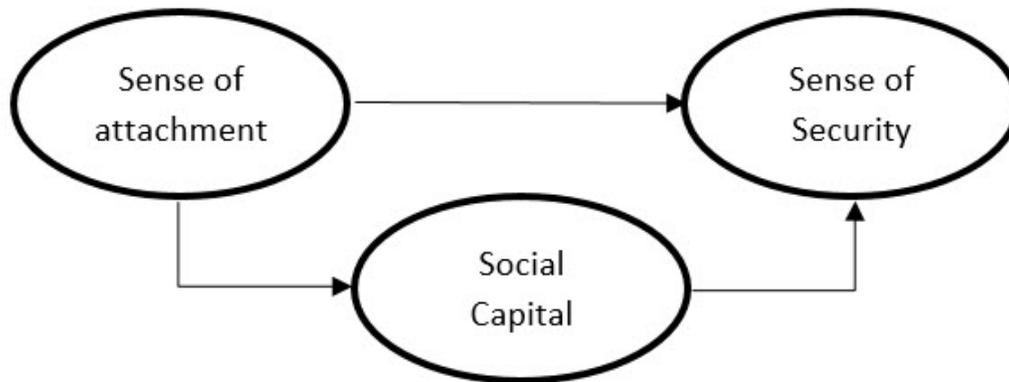


Fig. 4: The relationship between sense of attachment and safety (Dallago *et al*, 2009)

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this manuscript.

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