ASSESSMENT OF CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED) ON HUMAN INTERACTIONS, WITH SOCIAL STABILITY AND SECURITY APPROACH IN RESIDENTIAL COMPLEXES

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Abstract. Today, with an increase in urbanization and the expansion of the cities, the social problems such as security of citizens in urban areas should be emphasized more than before. Undoubtedly, creating a safe environment and away from crime is a measure of satisfaction is man-made spaces. One of the goals of the architectural structures is preserving safety and comfort which is achieved through the development of physical security. In this regard, residential complexes, due to lack of attention and loss of sense of belonging, can provide the basis for social damage. Accordingly, it is possible to provide the architecture of people's presence and social activities in safe and secure environments by designing man-made environments. What is called as security in residential complex as an objective and subjective understanding is the result of physical, social and performance of environmental structure. Thus, if there should be an increase in this respect, the existing criteria and standards for designing of the building should be considered. One of the strategies to increase physical security and crime prevention is through CPTED which is, nowadays, one of the most efficient ways of reducing opportunities for crime by using physical security in the areas of construction. research method is descriptive-analytical and library study tool was used to collect information. Finally, after studying the extent of security of environmental designing solutions using approach CPTED, ways to improve the quality of residential complexes in order to increase safety will be presented.

Keywords: (CPTED) approach to environmental design, man-made environment, social stability, security, residential complexes

INTRODUCTION

From the beginning of human history, man has always been trying to provide their own security because security forms one of the most essential human needs. This issue can be important to the extent that one of the main reasons for forming governments is the need to provide security for the people (Karami and Nasseri, 2013: 2).

Today, urban security is one of the important scientific, technical, and administrative functionality discussions that is now discussed as a matter of knowledge beyond knowledge and a meta-looking and prospective looking society in the context of urban sociology, law, geography, science, law enforcement and other security, and has a direct connection to urban management (Kargar, 2004: 18). It can be said that, security is of the indicators of quality of life in cities. Social damage can be regarded as the most important consequences of insecurity (Tabibian and Kamali, 2013: 2).

Since residential areas of cities are the bases for creation of urban anomalies, studying the qualitative and quantitative aspects of security, either from physical or social and functional space in each building complex is considered to be essential. One of the approaches to create security in urban environments is CPTED approach which is a multidisciplinary approach and defined as the idea of crime prevention through environmental design. The main idea of
CPTED is that the physical environment plays an important role in crime. Thus, the theory is based on the assumption that suitable design and use of the built environment and the surrounding environment can improve the quality of life through the prevention of crime and reduces the fear of crime (Atlas, 1999: 11).

Regarding the significance of this study, we can say that residential complex can be paid attention to reduce or avoid potential crimes. And, importantly, the role of environmental designers and architects in prevention of crime through their designing has not explained well and some of the designers may be unfamiliar with this concept. It is on this bases that the architect should pay attention to the issue that in the process of replacing the space, whether in city or in plan of building scale in mind that the design of the space, stop designing in a way that reduces the possibility of allowing public scrutiny or the access to the crime-prone areas.

**Research Objectives**

Identifying and implementing the principles and criteria for environmental design (CPTED) in the design of residential spaces, to enhance security and safety is the main objective of this research. And besides it reducing the rise of crime platform and taking a step in social stability and providing design strategies to achieve it, in order to allow citizens to interact without fear in complexes, can be cited as other targets.

**RESEARCH METHODOLOGY**

This research method is descriptive; and tools for data collection is a library-based research, and the analysis was done using the correlation and the relationship between feeling safe and environmental design.

**Literature review**

The beginning of offering ideas about increasing security in the areas of construction with respect to environmental design can be seen in America from late 60th decade onwards. As a result of activities of people like Jacobes with his book "The Death and Life of Great American Cities," Angel with the book "Crime Prevention Through Urban Design", Oscar Neumann with book "Defensible Space Principal ", and book of "Crime Prevention Thorough Environmental Design" this issue was introduced (Mahmoudi Janaky and Qourchy Beigi, 2009: 349). In 1969 for the first time, theories called CPTED was proposed by C.R. Jeffrey, and in 1973 another modification was introduced by Oscar Newman as "defensible space". Since the mid-eighties with the formation of environmental criminology theories and theories such as the "broken windows" crime prevention through environmental design theoretical basis became more powerful. The “Broken windows” theory was proposed in 1982 by Wilson and Klingon. According to this theory, maintenance and protection of property, such as monitoring, entry controls and domain orientation were added to CPTED theory (Mahmoudi Janaky and Qourchy Beigi, 2009: 350). Roheh and Greenberg in 1984, carried some studies in urban areas. They studied the relationship between crime and various access of neighborhoods and concluded that the design and proper planning of the built environment reduce the access to neighborhood units. From the 1990s onwards due to seeing the results of this approach in increasing safety and reducing crime, many studies have been done in this area (Parou et al., 2013: 3). Newman divides factor increasing crime in residential neighborhoods into three categories of alienation, lack of supervision and the availability of escape routes (Newman, 1973). In this relation, the results of seventy urban design programs in forty cities in the United States by Michael Worth South (Southworth, 1989: 371) can be noted, and also designed quality studies which use "content analysis", where seventy-three different scales of urban development programs conducted in England by John Panther and Matthew Carmona can be noted (Carmona & Punter, 2002). A summary of the views of scholars in the field of security is given in Table 1.
## Table 1. History of urban thinkers ideas about security (Source: authors).

<table>
<thead>
<tr>
<th>Year</th>
<th>Thinker</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1833</td>
<td>Gary, known as the father of criminal statistics</td>
<td>Created a new field in criminal statistics as Cutilism. He believes that offenses committed in the community are like mathematical functions related to economic and social changes of time and space.</td>
</tr>
<tr>
<td>1890s</td>
<td>Enrico Ferri</td>
<td>He believes crime happens as a result of complex factors and strong human nature and the geographical environment (Police, 2009: 76)</td>
</tr>
<tr>
<td>1890s</td>
<td>Louis Mumford on human civilization and an era of car</td>
<td>Emphasis on urban space capabilities in building peace and security, discipline and cooperation, strengthening emotions with symbolic beauty for human potential and gives a human face to Civilization (Shuai, 2005: 357)</td>
</tr>
<tr>
<td>1920s</td>
<td>Chicago school (school of urban ecology)</td>
<td>The formation of the theoretical background of urban crime issues for the first time happened in the school of urban crimes with regard to economic, social and physical characteristics of the urban environment and its impact on the region's causing offense (Shokouhi, 2006: 127)</td>
</tr>
<tr>
<td>1960s</td>
<td>Jane Jacobs, author of &quot;The Death and Life of American cities&quot;</td>
<td>Emphasized the need for civilization streets in the city, separation and identification of public and private places Diversity of use and mixing them in the city Effective and preventing use of pedestrians in urban areas to reduce the likelihood of crime Praising lively and attractive sidewalks to increase the number of eyes on the street Social monitoring on the street due to the presence of nearby buildings to street (Shuai, 1384: 357)</td>
</tr>
<tr>
<td>1960s</td>
<td>Kevin Lynch is the author of &quot;face of the city&quot;</td>
<td>Emphasized the two concepts of readability and signs in urban areas and their role in understanding and creating a clear image of the city (mental image of majority) feeling security and safety of citizens and increasing the sense of belonging (Lynch, 2002: 9-30)</td>
</tr>
<tr>
<td>1970s</td>
<td>Elizabeth Wood &quot;social aspects of residential in urban development&quot;</td>
<td>Referring to the relationship between mass and physical environment</td>
</tr>
<tr>
<td>1970s</td>
<td>Jeffrey Ray, author of &quot;prevention of urban crime, environmental design&quot;</td>
<td>Developing the theory of criminology and crime prevention by environmental design</td>
</tr>
<tr>
<td>1970s</td>
<td>Elizabeth Wood &quot;Raising the quality of life for residents.&quot; &quot;Enhance the beauty of residential environment&quot;</td>
<td>Improvement of building facades in residents idea Creating public spaces and thus enhancing the monitoring of residents Proper designing to eliminate the spaces hidden from the eyes of residents</td>
</tr>
<tr>
<td>1970s</td>
<td>Oscar Newman's theory with clear space in the residential complexes &quot;in front of strangers to get to be protected from crime,&quot; people are willing to report and deal with offenses and</td>
<td>Defensible space theory 1) Domain orientation: praise and protection of borders and an increased sense of belonging and ownership in residents 2) Natural surveillance: increased visibility and use of buildings 3) Image: appropriate landscaping to eliminate inconsistencies and irregularities in the physical appearance, followed by a decrease in crime 4) land use: planning and designing uses and encouraging citizens to</td>
</tr>
</tbody>
</table>
penalties (Newman, 2008: 42) participate in public spaces

Klingon George and Wilson's "broken windows theory provider"
The apparent environmental chaos, abandoned buildings, strong words written on walls, cracked walls and or gathering of homeless people in the neighborhood are of the most important factor in reducing monitoring and social control and increasing criminal acts in the area. (Abbaszadeh, 2008: 45)

Following that, studies by two researchers named Brantingham and Patrishya for Research in Home Office England (1981) was performed and then view of "opportunity" for the prevention and control of crime was provided by Ch.N. Mi. Hugh, Clark (1984) (Gibson, Wilson, 1999: 23)

The United Nations Development of concepts such as social welfare and quality of life of the United Nations and emphasis on social security in this regard (Mahdavizadeh, 2003: 350)
The emphasis on public participation and public and private sector organizations in the prevention of crime in urban areas (Imani Jajarmi, 2009)

Taylor and Harol Introducing the principles of environmental design "in a new era of criminology, circumstances surrounding a crime have a greater impact than the offender" (Khalidi, 2009: 9)

Crow team is responsible for the global education programs to prevent crime through environmental design in the world CPTED (Rafian, 2008)
CPTED strategies acceptance among the international community in 2004 and agree on legislation to implement its goals (Farash Khiyabani, Amoui, 2013: 3)
Establishing international association called ICA in 2004 to promote the idea of creating a secure environment and improving quality of life through environmental design (WWW.Cpted.Co.Za)

Principles and theoretical concepts

Residential complexes

Understanding the definitions of residential complexes and analyzing their related issues is very important. Urban residential can generally be divided into two patterns of single-family and apartment. Apartments can be divided into two main groups in which conventional or short buildings up to 8-storey are called short, and higher than that are called tall or towers. Residential complexes can also be considered as a number of building blocks that can include various residential types (single-family, apartment short and tall). In these complexes, blocks of flats are placed on a plot of land on the basis of pre-thought design, from other characteristics of residential complexes their realm and area and their separation from the surrounding urban context can be noted, which can, in some cases, be specified as a physical-social island (Eini Far, 2005: 31).

CPTED in residential complexes

A residential complex refers to a number of residential places with specific order. We can classify residential complexes to different types each of which have some positive and negative points. Polls show that both physical and social elements are effective in many crimes. Two physical factors include the size of the project and the number of families that are in public places indoors. Two social factors are relatively low-income households and young adults. Lack of responsibility for their environment will be felt more in project or focus of family to residents. This lack of responsibility also takes place for other services such as police, social rejection, education and so on. Most residents are those who are in public places. Most of the problems are in identifying offenders and residents in control of these spaces (Mikail Zadeh, and Vaziri, 2013: 3).
Security

Larousse dictionary defines security as “trust, calmness of spirit. Thinking on whose basis risk, fear, terror and loss get senseless and and means lack danger (Sumpf, 1973: 222). The importance of security is to a degree that in Quran repeatedly it is mentioned and is the defined as the highest blessing after bread and water, and it is one of the duties of governments. Security is of the most basic human issues, especially in urban communities. The concept of security is as old as human which is driven from word secure. Safe in essence means, peace of mind and peace of soul and the loss of fear (Kargar, 2004: 35). First philosophical and political discussions on security can be seen in the works of Plato and Aristotle, they know justice as the main factor for the realization of the security. Contemporary theorists such as Thomas Hobbes, John Locke, Montesquieu and others have attached special importance to security (Karami, Naseri, 2013: 4).

Security in residential space

One of the most important factors affecting the quality of the environment is the issue of security. Insecurity in the environment affects all human activities and even in some cases leads to social disruption of daily activities. Creating security in public and semi-public spaces of residential complexes has some advantages of which improved quality of life, increased citizen satisfaction and encouraged social classes to attend these places, increased social interaction and collaboration in the neighborhood and ultimately reduced the crime can be pointed out (Nejabati, 2000). Size and distance between buildings (mass and space) and their combination, as well as the form and dimensions of space and environment affects deviant and criminal behavior. Pourdeihimi sees user incorporation and the presence of people within the open spaces as factors in reducing crime and increasing security (Pourdeihimi, 2008: 32). People's presence in public space and public support for social activities besides having psychological impact on people, increases human monitoring on space and reduces the risk of crime. Newman believes that the design of buildings and open spaces between them should be such that limit public access, and residents need to feel ownership of this space and know themselves as responsible for the supervision and care (Newman, 1972). With the right combination of mass and space and preventing the creation of blind spaces, pedestrians, citizens and residents monitoring can be also used to enhance the security of space (Pour Jafar, 2008: 16).

Security and environment body

Among the topics that are strongly emphasized in this context is the issue of determining the scope or territory orientation (Jacobs, 1961; Newman, 1973; Hillier, 1988; Crow, 1999). Determining territory in CPTED strategies means transition from public space to private space in which means presence of a stranger needs a reason. The concept is also raised in theory of Jacobs (1961) and Newman (1973). Jacobs insists on the distinction between public and private space (Jacobs, 2008: 137). By expanding this view, a more precise definition of the concept was given leading to definition of hierarchy of space (Newman, 1973). In the view, a quadripartite hierarchy is offered for physical spaces:

- General area: for everyone and the possibility of presence
- Half public area: for limited number of places for everyone
- Semi-private area: exclusive use of a number of community-based people
- Private area: only used by residents at that unit (Lang, 2011: 174)

Security and social environment

In social security dimension, many topics are discussed, among which social features of residents of space can be noted (Newman, 1973). Research project of Oscar Newman (1973) about public residential in New York City is of great studies that aims to identify and develop
guidelines related to these spaces (Grout, 2009: 213). He, in studying social and demographic characteristics of users, referred to various social and economic factors, specific racial and ethnic groups, and social income of residents and communities such as beggars and population, population density and ownership of space (Newman, 2008: 30). He also studied the impact of the type of building in formation of this kind of behavior and control of the streets of nearby residents (Newman, 2008: 32). In addition, in examining the relationship between social security and the environment, other issues such as monitoring, surveillance and community participation etc can be referred to (Jacobs, 1961; Newman, 1973; Wilson, 1982; Taylor and Hall, 1983). Newman (1973) pays special attention to discussion of social participation. In his view, in creation of defensible space participation of residents should be emphasized. Defensible space principles emphasize self-help and participation of people, thus it is not susceptible to decrease of government support, and has feature to gather people with different income levels and races, in a relationship of mutual profit, and makes it possible for low-income individuals in a society to become familiar with the flow of life and how to improve the surroundings and their behavior (Newman, 1387: 23).

**Security and space performance**

In relation to the relationship between security and the environment, criticism to functional separation model zoning and land can be posed especially in the modern cities (Jacobs, 1961). Jacobs in his theory calls land zoning security and human perspectives for cities catastrophic (Shuai, 2007: 78). In his opinion, there is a great focus on the space performance before the visual environment and the use of different land uses and activities in the buildings are of the issues involved in the security of environment. In his view, three factors play a role in the creation of being energetic:

- Clear distinction between private and public spaces
- Permanent visual care of the streets and public spaces through the windows and terraces
- Streets, especially sidewalks of the streets must be used constantly. For this purpose, there must be absorbent applications, on the ground floor (Jacobs, 2008: 36).

**Definitions and Concepts of CPTED**

CPTED theory is based on the claim that by proper design and effective use of environment crime can be prevented and the in addition to improving the quality of life it can overcome the fear of crime (Crowe, 2006: 46). In this method, crime prevention means prediction, recognition and assessment of risk of crime, and starting taking actions to remove or reduce crime. CPTED goes a step beyond and by proper environment designing seeks to increase security in urban areas for development of community (City of Virginia Beach municipal center, 2000). This theory, has based its focus on the built environment and believes that if the environment is designed in a way to be able to improve the monitoring of the residents, increases the feeling of belonging of people to their territory and makes a positive image of the space that will reduce opportunities for crime (Cozen & et.al, 2007: 328). The World Bank also believes that this designing approach, creates the possibility that the citizens be key representatives securing the participation of the community in crime prevention and reduction (Poyner, 1983: 5). This theory has six principals, which are seen in figure (1):
Assessment Of Crime Prevention Through Environmental Design (Cpted) On Human Interactions, With Social Stability And Security Approach In Residential Complexes

A) Domain orientation: encouraging citizens to more use of the space and increase their ownership, in a way that the person guilty understands it and reduce the vulnerability of the environment against crime (Reza Zadeh and Khabir, 2010: 43) . Newman defined sense of territory as a sense of belonging and the extent of involvement of local residents in their lives, and stresses that the more this feeling gets, the less likely it is commit crimes (Pakzad, 2007: 256).

B) Surveillance: In this type of monitoring, the residents regularly and randomly monitor public and semi-public places and identify strangers in place (Gibson, 2008: 73). Newman's concept of natural surveillance means, the ability of residents to see their territory, meaning the ability of space physique to provide opportunities for monitoring its space in a way that the more observation observers have over space, the possibility of committing crimes gets low and the possibility of seeing crimes increases (Pakzad, 2007: 256)

C) Access control: it is an idea of designing to reduce the opportunity for crime, and it is used to prevent the risk of crime suspects or disturbing factors of the neighborhoods (Reza Zadeh, Khabir, 2010: 43). Thus, this principle is used to reduce the potential for crime in the area.

D) Making the target of the crime difficult: targets and objects that are targeted for destruction or theft are designed to be resistant against crime and the destruction or theft (Mahmodi Janaky and Ghouchi Beygi, 2009: 352)

E) Supporting the activities: people's activities in hours of day and night should be an opportunity to increase natural surveillance. This means that people and residents' presence is increased in the area, as it will enhance the supervision and informal social control. Encouraging people to do some activities in public spaces, prevents crime.

F) Maintenance and management: Management and maintenance of roads, physical space and equipment are of important issue in crime prevention, because the existence of bad effects of defacing in an environment makes it seem unsafe (Ahmadi et al., 2013: 7).

CPTED approach targets

The objectives of this approach can be summarized as providing enhanced security to reduce crime in the city, which means to prevent or reduce crime is, and through this showing impenetrability of made places physically using impenetrability walls, double glazed windows and security. The approach benefits from such measures to reduce and prevent crime in city, so as to reduce the crime potential in urban areas (Bemaniaan, Mahmoudinejad, 2009: 23).
Benefits of using CPTED approach

Crime prevention through environmental design has the following advantages such as:
• Reducing the potential of crime in urban areas
• Improving the quality of life
• Increasing citizen satisfaction
• Encouraging the participation of various social classes
• Increasing economic and social activities
• Increasing neighborhood level of cooperation and collaboration.

Fields of applying CPTED approach

Overall, crimes are divided into three areas of physical, social and performance as in Figure (1) which emphasize the ability of city, from physical, control and prevention perspectives, in prevention of criminal behavior.

1) In physical sphere prevention of crimes in the physical environment is studied through rules and standards.
2) In social sphere prevention of crimes through civil actions based on psychology of environment is paid attention to.
3) In performance sphere prevention of crimes through the right combination of activities in the physical environment is emphasized.

Variables of the study

In this section, based on the aggregate number of views introduced, a number of criteria and indicators are discussed. Accordingly, it can be stated that the issue of security is considered from different aspects. In this section, reception and integration of Newman (1973) comments which are extended ideas of Jacobs - and Jacobs (1961) for more comprehensive design to develop indicators have been used. Accordingly, physical, social and performance dimensions can be offered as the main criteria that most issues of security are expressed in them. These theories, according to sample of the study which is a redesign of residential complex, have greater compliance with the particular status of this project. Figure 2 indicates the measures and criteria of effective implementation of (CPTED) approach to create security in the designing residential space in three areas of physical, social, and performance are referred to.

Physical parameters (location) influencing man-made space security

People through social-cultural relationships give importance and function to space and from and organizing space in its turn leads to a change in these relations. Thus, construction and design of man-made spaces has affected the process of social life, and should have efficiency both physically and mentally to the citizens (Salingaros, 1999). Given attention to the physical
indicators and considering a combination of different types of areas entirely leads to better communication with the environment and more responsible monitoring. For example: the form and size of the space and attention to the symbols and signs, from the perspective of experts, are of different parts of the detector elements of the inhabited space, and so people, especially strangers and newcomers to the environment will feel safe by communicating with them.

**Social indicators (mental) affecting the security of man-made spaces**

Environment plays an important role in the incidence of social disorders. Environmental features in a space are among the factors that help the growth of social disorders. The discontent of the citizens of their living environment can cause different reactions. Therefore, before application of designing ideas to solve this problem the culture of use of users of the space should be upgraded (Reza Zadeh, 2005: 6). In terms of approach to the sociology of security, security cannot be studied as a situation without relation to its social base, but security should be considered differently not an independent variable but as a dependent variable which is meaningful according to its context. In other words, social security cannot be understood without social perspective (Eftekhari, 2001: 20).

**Population density**

The relationship between the population and security in a traditional way certain has been linear, and population increase provides the safety of the individual, society, family and country. A population is the cause of security that is literate, moral, cultured and is dutiful. Modern cities, due to the concentration of population and abundance of cars, have gradually separated from indicators of peace and security within urban space. In line with increase of urban population, the crime rate goes up too (Shokui, 2006: 32).

**Functional-performance variables**

Maintenance and protection are regarded as the most important factors in creating successful spaces, leading to increased comfort and better access that has a strong role. The right combination of activities in spaces, according to their performance, can be effective in the security of space for the user. Lack of proper positioning of the various activities together, sometimes in conflict with each other, can cause confusion and lead to dysfunction (Latifi and Mousavi, 2011: 7)

**Findings of the study**

A region can be the base for activities in different social context when it can identify and remove the causes of insecurity and pollution. Security gets meaningful when the three levels of large, middle and small play their inhibiting role well (Ahmadi et al., 2013: 10). Thus, it is important to know the factors that cause insecurity. According to what was said, factors contributing to insecurity in residential complexes can be divided as Table 2.
Table 2. Factors affecting the insecurity of residential complexes (Source: authors)

<table>
<thead>
<tr>
<th>Security Dimension</th>
<th>Variable</th>
<th>Factors Affecting the insecurity</th>
</tr>
</thead>
</table>
| Objective Security | Space    | Size: - Concentration and high mobility of the population in the days leads to overcrowding and thus will lead to crime  
- The deserted streets and closed at night may increase crime. |
|                     |          | Type: - Existence of obscure corners and U-shaped spaces in residential complexes |
|                     | Framework | Visual and symbolic pollution: - The lack of street lighting at night  
- Full and empty spaces inappropriate links  
- Locating and poor designing of urban furniture  
- Disturbance caused by billboards  
- Lack of traffic signs and signals |
|                     |          | Environmental pollution: - Lack of health centers |
|                     |          | Access and permeability: - Interference of mounted and dismounted  
- The existence of narrow tracks |
|                     | Mass     | Residential Safety: - Lack of strength of the building in facing disaster  
- The use of weak and volatile materials against atmospheric precipitation and physical exhaustion |
|                     |          | Quality of residential: - Demolished buildings by the residential complex |
|                     | Performance | The presence acceptance of Space: - The lack of physical facilities and some of the functions are of the main obstacles in the environment presence  
- Lack of adequate public spaces  
- Abandoned and desolate land and spaces without function |
|                     |          | Type of activity: Lack of activities to strengthen the public sphere, active monitoring and care of residents and users of the space |
| Subjective Feeling  | Social meaning | Gender and age groups: - Neglecting the needs of young families with young children in the designing space. |
|                     | Need     | Social groups: - Failure to take into account the needs and constraints of low-income residents in the design of the floor space.  
- Lack of a sense of space belonging  
- Negative mental image residents in residential complexes |

Providing design principles based on CPTED principles and indicators of security analysis

Indicators of security analysis in residential areas based on the principles of CPTED are shown in the following table (3)
**Table 3.** Designing based on CPTED principles and parameters of security analysis in the residential space.

<table>
<thead>
<tr>
<th>CPTED</th>
<th>Designing principles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance</strong></td>
<td>Good physical condition to see clearly and without hiding spots</td>
</tr>
<tr>
<td></td>
<td>Using visible plants</td>
</tr>
<tr>
<td></td>
<td>Creating trails with appropriate of light in the night</td>
</tr>
<tr>
<td></td>
<td>- Avoiding blind spots and undefensible spaces in residential complexes</td>
</tr>
<tr>
<td></td>
<td>- Locating recreational and green areas in the center of a residential neighborhood which can be visible from homes nearby.</td>
</tr>
<tr>
<td></td>
<td>- Creating visual cues in key areas and appropriate-scale harbor (incoming communities, of the historical buildings)</td>
</tr>
<tr>
<td></td>
<td>- Designing and emphasizing on visible spots in building and strengthening their definition in the mind of people</td>
</tr>
<tr>
<td></td>
<td>- Placing phone kiosks and newsagents or mobile kiosks in crime-prone areas</td>
</tr>
<tr>
<td></td>
<td>- Increased visibility for parking space in the design of buildings and residential complex</td>
</tr>
<tr>
<td></td>
<td>- Creating green spaces for increasing the accumulation of out-of-home residents</td>
</tr>
<tr>
<td><strong>Controlling access</strong></td>
<td>Using transparent walls and not rigid walls and separators</td>
</tr>
<tr>
<td></td>
<td>Removing the places which make committing crime easy</td>
</tr>
<tr>
<td></td>
<td>Predicting detectable and identified ways</td>
</tr>
</tbody>
</table>
Awareness to the people of exit and entry places

- Defining penetrable spots as entrance gate of the building
- Restricting access without a complete halt between a set of adjacent residential areas
- The use of signs that identify the street address and telephone number and is the best means of navigating at night.
- Designing recreational and tourism places that are easily accessible on foot.
- Adequate lighting of the gates, entries and access systems to residential areas
- Preventing the traffic in residential neighborhoods by employing and use of special designs such as using special flooring

Making the target of the crime difficult

- Sirens, lock protection, getting hidden fills of the gate and control entries and exit, etc.
- The use of more resistant materials in reinforcing objects that are vulnerable.

Local strength

- Defined and clear limits

Management and maintenance

- Management of the impossibility to use space secretly
- The use of urban furniture resistant to physical damage
- Protection of plants, lawns, pruning the trees and grass to create a healthy and attractive environment
- Landscaping based on enhancing visibility and public scrutiny criteria

CONCLUSION

Sense of security is of human-environmental factors that can play an important role in people's satisfaction of the space in which they live. The security of natural and man-made spaces in various aspects of physical, social and performance, jointly, with objective indicators of the physical and subjective characteristics of the beneficiaries and the inhabitants of the environment. In fact, higher security of environment means more satisfied residents and beneficiaries. Security of environment is an issue that should be considered in the built environment. In this context, environmental design theory CPTED can play an important role in preventing crime. But heeding CPTED environmental standards is not enough to improve the safety of residents. It seems that CPTED, in the form of a comprehensive program of prevention alongside the community attraction of space, the sense of belonging of its residents, the existence of high-neighborly relations in the residential complex and other environmental and psychological factors that have significant impact on the sense of security and can play an important role in crime prevention. The results show that some physical parameters including secluded and abandoned spaces between the buildings, lack of connection between mass and space, out of sight spaces and dark with sharp corners are also effective in reducing residential complexes security. Performance of the environment can have a determining role in increasing presence, and social responsibility and thus in increasing the security of space. In this context, designers through employing an appropriate definition of the physical, social and man-made spaces have an important role in shaping and regulating security, especially in residential complexes.
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In this study, it was tried to offer an effective model to improve the security of residential complexes by investigating physical, social, performance and man-made spaces affective in creating feeling secure which is given in table (4), and using it creates the possibility of formation of a safe environment by reducing the capacity of committing crime in different spaces.

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