Crime prevention through environmental design in residential developments in Tehran

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1 ABSTRACT

Security is an essential factor in residential communities, without security any residential community will not form and there will be no more meaning for it. Residential complexes which face with various crimes or there is a fear of being victim by various crimes in them will be damage or won't work well.

Actually creating security without attending police and guards in them especially in large residential complexes is impossible; but we can use some other factors such as participation of residences and suitable urban design to decrease the need of attending of police and guards for creating security and peace.

In my metropolitan, Tehran, there is a high density in residential communities and in result highrise buildings with a large numbers of residential units have been created.

This problem causes to create some districts that their residences don't know each other and the concept of "neighborhood" has no meaning in them.

Besides ,there are many spaces in residential communities which are indefensible and the security of residences will be in danger.

Lack of separation of "stranger" and "familiar" in residential communities and especially in residential complexes causes to increase the crimes and lack of security for people especially for vulnerable people such as children, women and elderly.

In this article I will try that after surveying various residential complexes and categories them, I will present some suitable methods to avoid crimes.

In the other words, residences themselves can be able to create defensible spaces in their residential environment.

Residential land use is a major land use in a city, creating a sustainable and safe for citizens in their residential environments is a very essential factor in creating a livable, healthy and prosperous city.

2 CPTED IN RESIDENTIAL AREAS

Every day we live with crimes and unfortunately it becomes a fact in our life. Crimes can be ranged from a simple vandalism to greater crimes such as rubbery and murdering and even global terrorism.

In relation with this term the rules usually haven't any attention to prevention and restriction but they often have some rules for arresting and punishment. These criteria that can't be applied before the crime occurred.

Giving attention to this proverb "preventing is always better than curing" can lead us to some guidelines that can be impose in the phase of designing by this techniques a potential offender will feel the risk of being "noticeable" and "identified" and then he will be disappointed.

So the essential question is that how we could design an environment that people feel risk to do illegal activities and in versus encourage doing logical activities.

The other question is that how we can introduce the quality of life in a residential area and how we can improve it to create a livable, healthy and prosperous city.

For this we will try to survey this term in three scales: 1- neighborhood 2- residential complex 3- residential unit

2.1 What's the neighborhood

Neighborhood is a geographically localised community within a larger city, town or suburb. Neighbourhoods are often social communities with considerable face-to-face interaction among members.

2.1.1 Neighbourhoods in the Past: Preindustrial Cities

In the words of the urban scholar Lewis Mumford, "Neighbourhoods, in some primitive, inchoate fashion exist wherever human beings congregate, in permanent family dwellings; and many of the functions of the

city tend to be distributed naturally—that is, without any theoretical preoccupation or political direction—into neighbourhoods."

The sociology of modern neighbourhoods

- Neighbourhoods have several advantages as areas for policy analysis as well as an arena for social action:

- Neighbourhoods are common, and perhaps close to universal, since most people in urbanised areas would probably consider themselves to be living in one.

- Neighbourhoods are convenient, and always accessible, since you are already in your neighbourhood when you walk out your door.

- Successful neighbourhood action frequently requires little specialised technical skill, and often little or no money. Action may call for an investment of time, but material costs are often low.

- With neighbourhood action, compared to activity on larger scales, results are more likely to be visible and quickly forthcoming. The streets are cleaner; the crosswalk is painted; the trees are planted; the festival draws a crowd.

- Visible and swift results are indicators of success; and since success is reinforcing, the probability of subsequent neighbourhood action is increased.

- Because neighbourhood action usually involves others, such actions create or strengthen connections and relationships with other neighbours, leading in turn to a variety of potentially positive effects, often hard to predict.

- Over and above these community advantages, neighbourhood activity may simply be enjoyable and fun for those taking part.

- But in addition to these benefits, considerable research indicates that strong and cohesive neighbourhoods and communities are linked –quite possibly causally linked – to decreases in crime, better outcomes for children, and improved physical and mental health. The social support that a strong neighbourhood may provide can serve as a buffer against various forms of adversity.

3 THE RELATION BETWEEN THE DESIGN OF NEIGHBORHOOD AND CRIMES

Various people have some theories about the relation of the design of neighborhood and crimes. Jane Jacob and Oscar Newman are two of the most famous of them . Oscar Newman presents the „defensible space „ theories to create ownership feeling for residences of a neighborhood and Jane Jacob defends the theory of attending the residences specially children in urban spaces for long time and different activities.

Here are short explanation of this:

3.1 The relation between urban design and crimes as Newman theories:

Oscar Newman is an architect and urban designer whose books and theories in urban designing , public houses and pereventing crime are so famous.

Newsman says when there are some public spaces in highrise buildings such as public spaces and open spaces , the residences can't feel any reponsibility for their security and maintenance of them and these spaces will be vulnerable. The surveys show that two factors are the most important factors. The physical factors include the size of family and the number of families sharing common entrances.

Two social factors include the rate of income of the family and the ratio of teenagers to adult. So as changing the social structure of residence is impossible, the only possibility to modification is physical improve, it means changing in project size and the number of apartments that are sharing in a common entries.

The size of project is a measure to concentrate of families, Newman reached to this result that the more concentration, the more insulation of residences from the whole of community. The size of residential complex has a direct relationship with the amount of crimes in it. A large project create a continuous area that even a gang of drug sellers can polluted all of the common areas. The rate of sharing in entries of buildings, elevators and common stairs is an important factor. More people who are sharing in common areas, the more difficulties will be appeared. The main problem is in recognizing residences from offenders

and there are more difficulties for residences to corporate with the rest of residence on the care and control of these areas.

The size of building has some effects on the behavior of residence as follows:

- using shared spaces in residential complex
- social interaction with neighbors
- sense of control over the interior and exterior public area of their development

The results of this surveys shows that the size of buildings has a great effect on the fear of crimes and on the community instability.

Newman defends from creating the sense of ownership for these spaces by dividing and allocating them to people to use and control them like private areas.

3.2 The relation between urban design and crimes as Jane Jacob

One of the offenders of theory of the natural surveillance is Jane Jacob that in her book "the life and the death of American cities" states that to reach a safe and health life in communities, the relation between neighbors and users of public areas is a fundamental factor and so the urban space should create this possibility.

It should be said that Jacob emphasizes on designing urban spaces and social patterns.

Jacob believes that in a neighborhood for caring and surveillance from street we need some "eyes", the eyes of whom that she calls them "natural owner of street". The buildings that are near the street should be faced toward it. These building shouldn't turn back to the street and shouldn't present their blind facades to them.

The walkway should be used continuously; this is the only possibility to increase the number of eyes in the street and to attract the look of whom that are attending in buildings , nobody don't like to look on an empty street and in versus many people like to make them busy by looking on a crowd street in a day.

Jane Jacob by her theory presents some walkways with 10 to 12 meters width for adapting various things such as planting, children activities, passing the people, and general life for adults.

3.3 CPTED and social police :

CPTED and social police can be as a part of comprehensive strategies to prevent crimes.

In the ways of preventing crimes and social police the main emphazise in it is on the solving problem than preventing crimes, such as close cooperation between police and residence in reducing crime and fear of crime. Because these principles emphasizes on systematic analyzing of crimes in a special place, this fact directly support social police with creating strategies for preventing crimes than solve special problems. Police, citizens and government has a great role in preventing crimes by making policy for preventing crimes and urban designing:

Police interfacing and his contact with neighborhood can be included both walking and grouped working to enforce the sence of safety of citizens and solviong the problem of neighborhood that are sharing in crime or fear of it.

Residence can be cooperated with each other to improve the apearance of community and prevent from crimes.

The government can use building codes and inspector forces to increase the safety of environment and district.

3.4 Surveillance on neighborhood :

The first step to prevent crimes begins by removing criminal activities from neighborhood and then with developing neighborhood relationship can prevent from crimes.

Crime prevention through environmental design will cause by removing the opportunities of occurring the crimes ,so we can create "target hardening". These ways includes:

- increasing the ability of looking and lighting

- landscaping with access control

- the possibility of interfacing the neighbors with each other by organized relationships

- creating outdoor activities for young and adult people

4   CPTED IN RESIDENTIAL COMPLEXES

Introduction:

A residential complex means a place that includes some residential units with a special arrangement. We can categorize residential complexes in several types that each of them has some negative and positive points.

The surveys show that two physical factors and two social factors are effective in most of crimes.

Two physical factors include the size of project and the number of families who are sharing in common spaces in a building.

Two social factors are the percentage of low-income families and the ratio of teenagers to adults.

How much the size of project or concentration of family is getting lager the residences will feel more irresponsibility about their environment, this irresponsibility will reach to the other services such as police, refuse collection , education and so on.

The more residences who are sharing in a common place, the more difficulties to distinguish residences from offenders then there are more problems to control these spaces.

4.1 The recommendations for safety design in residential complexes

Generally most of the safety strategies that can be applied in these complexes such as high fences and gates with electronic eye may have negative effect instead of positive effect on residences.

With applying these ways in the complexes we can create a safe environment without using usual devices. For instance, designing street with using gateways, squares, speed signs and other devices which reduce the speed of traffic and by making public spaces visible we will say to offenders to think again before doing a crime.

Implementation of these policies is simple and inexpensive and in compare with doors and gateways, they have a positive effect on residences.

We can categorize safety design recommendation for residential complexes as follows:

Natural access control:

- the access should be limited (without complete segregation of complex with adjacent complexes)

- the design of streets should reduce traffic.

- The pavements, planting and architectural design should take away visitors from private spaces.

- The walkways should lead pedestrian traffic well and don't be hidden

Natural surveillance:

- The landscaping shouldn't create blind or hide points

- Open green spaces and recreation spaces should be visible from adjacent houses

- We should use special lighting for streets and for pedestrian to light high traffic walkways.

Enforcing territories :

- The lots , streets and houses should be designed to increase the contacts between neighbors

- The entrances should be emphasized by using different material , variation in facades of street, architectural design , and landscaping

- Residences should be leaded by the signs of streets clearly; the numbers on the signs should have 15 cm height and should be lit very well.

- The ownership of boundaries should be indicated with column and fences and gateways and planting to lead pedestrian.

- All of the parking should be identified well.

5 CPTED IN RESIDENTIAL UNIT:

Introduction:

The residential unit is the last scale for our surveying. In this section a residential unit means a single family unit to multifamily less than ten families.

5.1 The suitability of type of building with the style of life of groups:

Generally high-rise buildings are not suitable for low-income family with children but this conclusion isn't true that high-rise buildings aren't suitable to live.

For example, elderly even low- income ones can live very well in high-rise buildings.

Elderly don't like climbing stairs but they welcome to elevators. Retired people often live far away their children and their old neighbors become a vast family for them. With pressing a button they can reach to hundred families in a high-rise building.

If we design the ground floor of high-rise building for elderly as a recreational and shared place, we can create a safety station in the entrance of building that can be managed by some volunteer from elderly.

If there is a problem they can aware police with pressing a button.

Of course it should be said that applying such things needs some special guideline and notes that follow local codes and social characters of that place.

6 SAFETY GUIDELINES FOR SINGLE FAMILY OR MULTI-FAMILY BUILDINGS

Multi-family buildings have the same problems of single family buildings, although these problems will increase with more residences, in multi- family houses we face with more common spaces: local corridors, elevators and parking.

By giving attention to this note "safety is in numbers", so existing a limit number of neighbors who feel responsibility about each other there isn't any reason that a multi- family building couldn't be a safe place to live.

Safety guidelines for a residential single family unit or multi-family unit are these:

6.1 Natural control access:

- The fence of balcony should never be built by opaque and solid material and its height shouldn't be more than 1 meter
- The entrance of parking lots should be indicated with landscaping or architectural design or have guard
- The dead spaces should be closed with fence or gateway
- Common entrances of the buildings should have some locks that could be locked automatically
- The corridors should be lit well
- Elevators and stair should be placed in center
- The access to building shouldn't be more than two points

6.2 Natural surveillance:

- The exterior doors should be visible from the street or by neighbors
- All of door that open to outdoor spaces should be lit well
- Every side of building should have window
- Parking should be allocated to the adjacent unit and should be marked with the number of the apartment
- A keeper for parking should be indentified

- Parking should be visible from windows and doors

- Recreational spaces should be visible from most of windows and doors

- The bushes shouldn't have more than 1/1 meter height

- The buildings should be located in a manner that the windows and doors of one unit can be seen by other units

- The stairs should be lit well and outdoor sense should be seen , it shouldn't be surrounded by solid walls

6.3 Enforcing territories:

- The boundary of ownership should be identified with landscaping or column and fences

- Bushes and fences should be short to be able to see the street

- Entrances of building should be indicated with architectural elements , lighting or landscaping

- The handhold of the door should be 90 cm lower from the glass of door

- All of buildings and residential units should be indicated clearly with the number of street (the min height should be 12 cm) and should be lit well in night

- The common entrances should have windows and the lock should control by residences

- The post box should be near residence

6.4 THE CASE STUDY: SAHRE-ZIBA BOULEVARD IN TEHRAN CITY

Sahre-ziba Boulevard located in the west of Tehran is a residential district with about 600 residential units that was built about 50 years ago.

The houses of this area are some blocks with four levels which are located around a boulevard whose name is Shahre-ziba Boulevard.

Aerial photogragh of Share-Ziba region

According to the interview that had been done with the residences of this district the majority of residences claimed from its old situation and its disordering. Unsafety and gathering of strangers for crime activities such as drug selling were some other complaint that they pointed.

General view of buildings in Share-Ziba residential complex

Because of a large school that was located in the end of this complex, the entrance of strangers and making a large crowd while closing up the school was the other cases to claim.

The main reason of creating unsafety in this district is the possibility of entering the strangers to this residential complex which causes that familiar people can't be distinguished from strangers as well as tall trees which obstacle view permit offenders to hide in many places of this area.

Undifiened spaces around the buildings

The solution for this problem is surrounding this area and creating limited access for residences or by facilitating the open spaces between blocks and creating the possibilities for presenting of children and elderly in this area create a very effective natural surveillance for that complex.

Adequate lighting and specially lighting the hidden places will be an effective factor to threaten the offender from doing crime as well.

Meanwhile providing a local shopping center along with other facilities such as a coffee shop and so on will increase natural surveillance as well.

In this area private spaces have been arranged in front of houses as some courtyards with transparent fences. We can add some semi-private spaces for this area that people feel responsibility for maintaining plant and grass and other services of these areas and don't release these areas.

Building with its front courtyard

7 CONCLUSION

The ways of preventing crimes through environmental design have a long way to reach environmental safety. Of course these principles can't keep a community safe lonely. These ways can recognize problematic places and reduce their difficulties, such as distinguishing a blind lane, bad lighting in parking and crowd entrances.

Fortunately implementing these ways create a sense of safety and relaxation along with responsibility for neighbors which is the greatest tool to prevent crimes.

At the end it should be repeated that the final aim of all of these strategies is promoting the qiuality of life in city and creating a livable, healthy and prosperous city.

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