Creating Sustainable Safety in Urban Residential Neighbourhoods through Architectural Design

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Abstract

Although the Police and the Criminal justice system are regarded as key contributors to the fight against crimes in urban residential neighbourhoods, recent thinking is that the complexity of the phenomena requires a wider approach. One of the newer approaches being propagated is sustainable urban neighbourhood safety through effective architectural planning and design. This approach argues that designers and developers should think of crime prevention as an integral part of the design processes that shape new developments. It has been projected that 10-15% of crimes have environmental design and management components. Increasingly, it is being acknowledged that why, where and how crime and violence take place should be of interest to the process of architectural planning and design. This paper discusses how crime prevention considerations can be built into the processes that shape the physical structure and arrangement of group of buildings, landscapes, as well as other physical developments within urban residential neighbourhood spaces. The paper explores how design practices associated with different components of urban neighbourhood can facilitate or reduce the factors that contribute to crime or violence.

Key words: architectural design, design, crime prevention, neighbourhood safety, violence.

1. Introduction

There is increasing interest worldwide in trying to make sure that the process of developing residential neighbourhoods in urban areas does not offer opportunities to commit crimes in future. Crime and violence are fundamental threats to sustainable security and safety in urban residential neighbourhoods. The low emphasis on integration of crime prevention strategies within comprehensive architectural planning and design practices has been cited as a factor in facilitating opportunities for crimes in urban residential neighbourhoods (UN-Habitat, 2007). Problems can arise if buildings are not properly designed toconsider crime reduction measures in the early stages. It has been estimated that ten to fifteen per cent of crimes have environmental design and management

security is considered at the design stage, risks and fear usually associated with crime will be significantly reduced. In other words, attempts to manipulate the physical environment during the design process so as to reduce the opportunity for crime are potentially very useful elements in the fight against crime and violence. In the United States, for example, people with Architectural background such as Elizabeth Wood, Jane Jacobs and Oscar Newman popularized the use of the environment as a defence mechanism (Mayer and Qhobela, 1998).

It is therefore important and desirable that designers should think from the outset about how people can occupy and use the buildings and spaces safely, while at the same time, thinking about how criminals may abuse the facilities being created. The essence is to ensure that basic design thinking considers the

possibility of reducing criminal misuse of buildings and spaces being created from first principles.

The aim of this paper is to examine how architectural design can be used as a helpful tool in the prevention of crime within residential neighbourhoods. The objective is to extend the awareness of how security considerations can be applied to residential buildings at the early stages of architectural design. It will further examine different ways architectural design solutions can be applied as a means to reduce crime.

2.   Basic Elements of Crime

The probability of a specific crime occurring usually depends on the interaction of four sets of elements or characteristics. These are:

The existence of a law prohibiting the act

The presence of an offender

The presence of a victim or potential target

The environment wherein the crime is likely to be committed (i.e. a place)

Potential offenders can be identified on the basis of biological deviations, heredity, and hyperactivity and learning problems. They can also be identified using psychological tools that focus on individual mal-adaptation, ineffective moral development and the feelings of guilt of the offender.

The victim or target is appreciated through the influence that the environment has on human behaviour.

The crime environment consists of the physical location, the people and the activities in an area that might deter or encourage the offender in his actions.

2.1   Neighbourhood Crime

In the context of this paper, a neighbourhood is regarded as the scale at which communal standards of conduct are first formed. The neighbourhood provides an opportunity for primary interaction and co-operation among human beings. The problem of crime and violence in urban neighbourhoods is generally seen as a serious challenge globally. Safe neighbourhoods are desired because it provides an interface between the home and the city. Although the efforts of the Police and the Criminal justice system in fighting against these anti-social phenomena are noteworthy, recent thinking is that their complexity requires a wider approach. For a city to be peaceful, defence against crime should commence at the neighbourhood level. The typical household dwelling and its surroundings constitute an important locus of threats to security and safety. They are equally seen as locations where many forms of crime and violence take place, (for example burglary and robbery). For this reason, the works of architects through their manipulation of the physical environment has the potential either to reduce the opportunity for crime to occur, or to create such opportunities. The architect therefore has a duty to ensure that crime prevention perspectives are among the first issues to be addressed in shaping new residential neighbourhoods particularly in urban settings. If adequate care is not taken in this regard, the experience of crime during occupancy can be a major factor in public satisfaction with the neighbourhoods. In addition, neighbourhood developments that encourage high levels of criminal activity put policing services under pressure, which by extension is a public cost.

3   Types of Neighbourhood

3.1   Open Neighbourhood

This takes the form of a traditional open plan residential layout without any formal control at the access points. Moreover, no fences are erected to act as control.

3.2   Gated Communities

Areas classified as gated communities are characterized by privatized public spaces, restricted access and perimeter fences to exclude non-residential. (Blakely & Snyder, 1997;

Burke, 2001). According to Burke (2001) gated communities can be regarded as residential estates that are completely separated from the surrounding community and are wholly private entities, with private streets, private parks, and private facilities. The management of gated communities is usually entrusted to the developer or community association.

3.3 Security Villages

This is used to describe areas which are designed by private developers. They are physically walled off. A security gate with a guard is used to control access. The internal roads within the development are regarded as private. The management and facility maintenance are handled by a private outfit.

3.4 Enclosed Neighbourhood

Landman (2000) describes an enclosed neighbourhood as one that already exists, but which now utilizes the means of gates or bumps across existing roads to achieve access control.

4 Crime Incidence in Residential Neighbourhoods

The physical layout of a neighbourhood is a significant factor in promoting or preventing crime. Social characteristics are also relevant when addressing the problem of neighbourhood crime. Such social aspects include: poverty, broken families, unemployment, social heterogeneity and percentage of young population.

5 Concept of Situational Crime

In this concept, crime is interpreted to be area-related and site-specific. Emphasis is on the physical and environmental conditions that generate crime and fear of crime. The concept addresses the relationship between design and crime. This is perhaps why architectural design should form part of the comprehensive approach to problems associated with situational crime. In this approach, focus is on recognition of safety issues and the search for design responses that should be adopted in the planning and development of residential projects within neighbourhoods.

Attempts to achieve crime prevention through architectural planning and design show that a physical environment could be developed to discourage crime through a combination of security hardware, psychology and design; Clarke & Cornish (1986) applied the rational choice model to relate burglary action to architectural design by examining some questions that a burglar might ask: which house offers the best target? Do the neighbours watch out for one another? How hard will it be to gain entrance? What sorts of goods are inside the house? These are situational factors that might predispose people towards crime.

As previously mentioned, for a crime to take place, four things have to come together: a law, an offender, a victim or target, and a place. Moreover, there should be no one watching this target. The fourth element (place) is greatly influenced by architectural design, land usage, traffic patterns and street design. The fifth element (no one watching) can also be influenced by architectural design. In fact, the routine activity approach to crime prevention says that if one of the above five factors is absent or is removed, there will be no crime.

Architectural design is universally acknowledged as a tool to modify the built environment. This attribute can be utilized to reduce opportunities for situational crime.

6 Architectural Design Considerations for Crime Prevention

It is difficult to stipulate a single set of design guidelines to cover every situation associated with crime. The idea of crime prevention through design began in 1961 following Jane Jacob's work in her book "The Death and Life of Great American Cities".

Situational prevention aims to change the physical and environmental conditions through improved planning and architectural design.

Any action that reduces delinquency, violence and insecurity by tackling the causes can be described as crime prevention measure (Eversole, Routh, & Ridgeway 2004). The focus here is on primary crime prevention model, otherwise known as the mechanical approach.

According to Jeffery (1976) the model deals with methods employed to deny the opportunity for a criminal to commit a crime. It involves creating barriers or obstacles between the criminal and the target. The method also includes using natural strategies to increase the perception of surveillance and access control in order to deter a potential offender (Crowe, 1991). In this context, designers should develop strategies to address the following challenges:

6.1 Burglary

The challenges here are to discourage the selection of a house as a target for burglary attack, and to provide protection, for the rear of the house since a great deal of burglary takes place through the back access of a house.

6.2 Car Crime

A strategy for providing a safe place to park cars - The challenge here is to create parking within protected boundaries.

6.3 Theft around the Home and Criminal Damage

A key issue is the relationship between open spaces likely to be used by children or youths and the frontages of houses.

7 Recommended Design Guidelines

7.1 Site Location and Access

The growing tendency among contemporary urban dwellers is to exhibit preference for enclosed neighbourhoods and security villages. It is therefore necessary to look at the local environment, preferably involving people who use it or will use it.

The accessibility of a location can be affected by such factors as road patterns, road conditions, ingress/egress, traffic flow, visibility and barriers. The factors are all interrelated and may not be easily measured. However, weighted measures can be assigned to each of these factors for any particular site.

7.2 Site Visit and Appraisal

A site visit is necessary and will provide opportunities for interviews with local residents and other relevant persons within the neighbourhood.

Graphic and photographic surveys of the site during the day and night might also be useful. The interviews can be extended to include neighbourhood police officers and focus groups. This approach can reveal statistical data about local demographics, mobility patterns, etc.
Site visit and appraisal can be used to determine the activity generators within the area. These are features that tend to create local activity such as playgrounds, benches, picnic areas, kiosks, etc. Such activity generators could be used to prevent or reduce crime.

Another advantage of site visit and appraisal is that it helps to reveal what is generally referred to as movement predictors. These are predictable or unchangeable routes or paths that offer few choices to pedestrians, e.g. pedestrian bridges.

Furthermore, site visit and appraisal help an architectural designer to discover hot-spots. Hot-spots can include areas of high car theft or sites of pick pocketing. Considerations must be given to the proximity of such location and how to provide for public safety at the proposed development.

7.2 Defensible Space

It was Oscar Newman that established direct link between design changes and crime reduction (Newman, 1972; 1976; 1981; 1996). Newman developed the concept of defensible space, which advocated that environmental design can be used to nourish a latent feeling of

territoriality among residents, which might in turn stimulate them to confront criminals and criminal conducts within their community. His concept places emphasis upon buildings and architecture. His analysis was based on the relation between specific design features and crime.

7.3. Territoriality

The basis for territoriality lies in the need to develop physical design, which can encourage users to create a sphere of influence or a sense of territorial control. At the same time, if potential offenders perceive this control, they will be discouraged. (Newman, 1972; 1976; 1981; 1996). Rationalized that territoriality is the subdivision of a residential environment into zones to which adjacent/neighbouring residents can easily develop a sense of ownership.

Territoriality is defined by features that distinguish public, semi-private and private spaces. This can be achieved through the use of landscape plantings, pavement design and fences, which create boundaries without jeopardizing natural surveillance.

7.4 Natural Surveillance (informal)

Informal surveillance is also referred to as natural surveillance. This involves the casual observation of people and public spaces as people engage in their daily actualities, by passers by or residents during their normal day-to-day activities (Newman, 1972; 1976; 1981; 1996).

The concept of natural surveillance is aimed at discouraging criminal activity by ensuring that public spaces are easily observable. It is considered to be an ideal form for crime prevention because it enables residents to see an offender.

Perhaps more importantly it makes the offenders to think that they will be seen.
Designing to improve natural or informal surveillance can be facilitated by:

The way doors and windows are located to overlook public spaces and gardens, especially windows of activity rooms (e.g. kitchen).

The design and location of sidewalks and pathways, that is, open and inviting to pedestrians.

Unobstructed views and sightlines into parking areas.

Open design concepts (e.g. that do not create hidden spaces).

Front porches and activity areas in front of buildings should encourage visual link with the street.

Natural surveillance can be improved through appropriate use of functional spaces.

The design should also encourage natural surveillance from surrounding buildings and land uses. A building should also be designed to support natural surveillance of adjoining buildings and adjacent open spaces.

Sharp (blind) corners especially on pathways, stairwells or corridors, entrances, toilets, etc should be avoided. They provide excellent hiding places for criminals. Where these cannot be avoided, windows and improved lighting should be provided.

The use of landscaping materials, which could serve as screens or barriers to impede views of pathways should also be avoided.

Care must, however be taken that privacy code is not violated in an attempt to provide for natural surveillance.

7.5 Formal Surveillance

Formal surveillance techniques include physical features that maximize the visibility of people. It also includes the use of hidden cameras. Most importantly the design should provide opportunities for surveillance by the police or

other security personnel within the neighbourhood.

Formal surveillance is desirable in areas that are vulnerable such as elevators and interior corridors.

7.6 Image

Every building should be integrated into the wider public realm. The building and its environment should be able to create a sort of picture in the minds of passer-by.

It the image formed is negative, the building and its residents can be victimized and treated according to this negative image (Newman 1972). On the other hand, a positive image will engender a sense of pride and ownership (Gardner, 1995).

7.7 Access Control

As a design strategy, access control is aimed at minimizing the opportunity for crime through measures such as fences and gates, electronic booms at the entrance of parking lots, security guards, etc. Access control is a logical extension of the concept of territoriality in the sense that it discourages access to crime targets by creating perception of risk to offenders. Movement of people and vehicles into particular spaces are regulated.

7.8 Target Hardening

This method discourages crime through fortification of physical security. Design measures used for target hardening are aimed at either deterring the potential offender or acting as impenetrable barriers. Target hardening may also be regarded as the physical strengthening of buildings to reduce the attractiveness or vulnerability of potential targets.

Materials and fixtures, which might encourage crime, should be avoided especially on the exterior.

7.9 Entrapment

Entrapment spot and blind corners provide opportunities for perpetrators of crime to hide and/or commit crime.

Entrapment spots are small, confined areas that are adjacent to or near a well-travelled route, and are shielded on three sides by some barrier.

Entrapment spots provide opportunities for intimidation, threat or assault.

Examples of entrapment barriers are: Lifts, storerooms, Hidden recesses in corridors, isolated reception or reference areas, typically low traffic areas fencing along irregular shaped pathways, recessed entrance, gap in tall shrubbery.

It is therefore imperative that the design should avoid creating spaces that make users vulnerable to attack; or places that make it possible for potential offenders to hide. Consideration should be extended to high-risk users such as women, older people and people with disabilities.

Designers should utilize barrier materials that are visually permeable. Reflective surfaces should be used at corners to improve visibility. The design of buildings can contribute to public safety by reducing opportunities for entrapment and fostering natural surveillance.

Special attention should be paid as follows:
Hidden recesses in corridors should be eliminated.

Wheelchair ramps should be open and transparent.

Quadrangles and courtyards should be design to avoid entrapment areas.

All unnecessary corners, planters, walls and fences, which could produce entrancement spot, shall be eliminated.

Pathways that compel users to go through entrapment areas should be avoided. Paths

should be designed to allow users different means of movement and escape.

8   Conclusion

Manifestation of crime is the result of interactions among the three elements of physical location, the people (i.e. offender and victim) and the activities in an area that might deter or encourage the criminal action. This paper explored the relationship between architectural design as a key factor in the built environment, and criminal behaviour with a view to addressing security problems in urban residential neighbourhoods. Architectural design as used here involves the design of buildings, groups of buildings, spaces and landscapes in order to create sustainable residential neighbourhoods in urban areas. The intention was to draw the attention of design professionals, property owners, and the public to incidence of crime and design strategies in residential districts.

The strategy is to use design as a tool to discourage the offender from carrying out the criminal acts, due to perceived risk of being caught.

The paper is consistent with the concept of defensible space and explores the theory that the proper design and effective use of the built environment can reduce crime, reduce the fear of crime and improve the quality of life of neighbourhood residents.

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