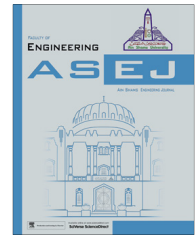




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## ARCHITECTURAL ENGINEERING

# Crime in relation to urban design. Case study: The Greater Cairo Region

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Received 28 October 2014; revised 2 August 2015; accepted 30 August 2015

### KEYWORDS

Crime occurrence;  
Built environment;  
Urban circumstances

**Abstract** Crime is a part of any social system and known to human communities since its origins. It differs from community to another, even within one community it doesn't occur equally in all places and nor by the same way. It is also concentrated in some places more than others, sometimes increases, sometimes decreases, etc. Previous researches have proved that crime rate has significant correlation with different social factors: education levels, poverty rates and lack of social organization, while others have drawn the attention to its relation with the built environment. They proposed that crime occurs in places where both opportunities and criminals are available. The role of this paper is to identify urban circumstances related to crime occurrence within the Greater Cairo Region, and to propose different ways to reduce these crimes. Consecutively, agglomeration's main districts were scrutinized according to social analysis, street-network pattern and land-use.

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## 1. Introduction

This paper evolved from a master thesis “*Crime and urban planning in Egypt*” on the relationship between crime patterns within the Greater Cairo Region and different urban planning

aspects, including both social and physical ones [1]. The objectives were to do the following:

- Increase the awareness of the relationship between urban planning and crime occurrence and how to consider this in planning.
- Investigate urban planning approaches in crime prevention.
- Understand the relationship between crime patterns in Egypt and urban planning aspects.
- Suggest possible urban planning precautions/considerations in order to help in crime prevention commensurate with the Egyptian environment.

The study was bounded in several ways. Firstly, due to the wide scope of the study, it was not possible to conduct the analysis at all of the region's districts; therefore, the main agglomeration districts were selected to be analyzed. Secondly,

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Peer review under responsibility of Ain Shams University.



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<http://dx.doi.org/10.1016/j.asej.2015.08.009>

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Please cite this article in press as: Adel H et al., Crime in relation to urban design. Case study: The Greater Cairo Region, Ain Shams Eng J (2015), <http://dx.doi.org/10.1016/j.asej.2015.08.009>

the study period has been identified by five-years starting from 2004 till 2008 for the following reasons:

- The large number of urban crimes committed during this period.
- Crime statistics are available starting from 2003 till 2008; statistics before that period are difficult to obtain.
- Last census (2006) took place in the middle of the selected period; therefore, the resulting values can be considered as an average of the five years of the study.
- The proximity between the time of preparing the study, and the study period itself; therefore, a true perception can be given to the region during the study period.

Finally, the research studies crimes are only related to geography and linked to specific physical environment, including the following:

- a. Crimes against persons: homicide and attempted murder, assaults including battery with serious injury or death, kidnapping, sexual harassment and rape.
- b. Crimes against property: robbery, arson, housebreaking, shoplifting, rusting and car theft.

## 2. Crime and the built environment

Earlier crime and crime prevention studies started in 1800s as the industrial revolution changed the urban–rural relationship and reshaped the urban structure; this change ultimately caused many social problems. Early sociologists focused on how these social problems led to crime occurrence. It is worth mentioning that this concept continued until the early 1960s. In 1960s, researchers have drawn the attention to the relation between the built environment and crime. Jane Jacob's book "*The Death and Life of Great American Cities*" [2] was the first influential work to suggest that active street life could cut down opportunities for crime. She focused on the role that "eyes on the street" played in maintaining social control. Jacobs' thesis was simple: people, not police, are the guardians of the public space [3]. Her critique corresponded over the physical design of urban America, which emphasized high rise apartment buildings separated by public space without any specific guardianship. Office areas became vacant after supper, which led to a cessation of informal surveillance and to a reduction in the sense of community among residents. According to Jacobs, city streets were unsafe because they were deserted [2]. She frequently cites New York City's Greenwich Village as an example of a vibrant urban community, and how well-used streets were more likely to be safe from serious crime. She found that natural surveillance was essential for the feeling of safety and that could be achieved by increasing the number of people using a particular area through encouraging a diversity of uses and creating opportunities for positive social interactions [2]. The early 1970s saw a surge of studies depending on the previous work of Jane Jacobs. In 1971, Oscar Newman published a paper "Architectural Design for Crime Prevention", and in 1973 he published a book "Defensible Space, Crime Prevention through Urban Design" [4]. He argued that an area is safer when people feel a sense of ownership and responsibility for that part of a community. Newman

studied crime rates in low-income housing projects in New York City. He observed the development of an eleven story, 2740-unit public housing complex, named "Pruitt-Igoe". The Pruitt-Igoe was supposed to be an ideal housing community for low-income families. The idea was to keep the grounds and the first floor free for community activity. Each building was given communal corridors on every third floor to house a laundry, a communal room and a garbage room. The outside areas of each building were also common areas. According to Newman, because all the grounds and common areas were disassociated from the units, residents could not feel the responsibility toward them and they became unsafe. The corridors, lobbies, elevators and stairs were dangerous places to walk, they became covered with graffiti and littered with garbage and human waste, and women had to get together in groups. The project never achieved more than 60% occupancy. The complex failed miserably and was demolished about 10 years later [4]. However, across the street from Pruitt-Igoe was an older, smaller, row-house complex occupied by an identical population called "Carr Square Village". It remained fully occupied and trouble-free throughout the construction, occupancy, and the decline of Pruitt-Igoe. With the social variables constant in the two developments, Newman began to look into what physical factors were different between the two complexes that would allow one complex to thrive while the other had to be torn down. One of the first things Newman looked at was building type. He noticed that:

- In a single-family housing, everybody feels the responsibility for their place. Residents know who belongs to the area; streets and sidewalks are usually only traveled by neighbors, and therefore identifying strangers is possible.
- In walk-ups the number of people sharing the common areas is limited, only 2 families, giving them a sense of responsibility for their place. It is also easy to identify strangers due to the small number of residents.
- In high-rises, residents do not feel responsible for any of the common areas since they are shared with so many others. They can't identify strangers because of the amount of people that use the space.

Newman studied also the social and physical factors that create high crime rates. He found that the percentage of population receiving welfare is shown to be the most important factor, followed by building height which in turn correlates highly with the number of apartments sharing the entry to a building, as it affects the ability of residents to control their environment. In addition, the size of the housing project and the number of other projects in the area, as the larger low income projects surrounded by other low income projects suffer a higher crime rate than small or isolated projects [4]. Thus, Newman found that the safest neighborhoods have the following attributes:

1. Minimized common areas: the larger the number of people who share a communal space, the more difficult it is for people to identify it or to feel they have a right to control or determine the activity taking place within it.
2. Maximized private ownership: private yards were more defensible because the owners could know whether or not someone belonged to their yards.

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