

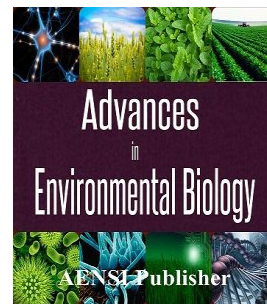


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Concepts of Physical Design and Crime: A Preliminary Study into Exploration of Factors Influencing Building Security Cost

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ABSTRACT

The escalation in criminal activities within and at victim's residences has forced residents to seek greater security of life and property; this necessarily involves increased expenditure of the building project. This study involves a preliminary review of security measures applicable to crime against life and property. Therefore, three important concepts of security were linked to physical design of buildings. The concepts includes: defensible space, crime prevention through environmental design, and situational crime prevention. These concepts will provide information necessary to support this research and further gives directions into the exploration of cost-influencing factors of building security. In order to achieve the set objective, mixed methods sequential exploratory research approach will be employed with the use of phenomenological design for qualitative phase and descriptive statistics analysis for quantitative phase. Hence, this study will help in establishing a framework of factors influencing building security cost within the built environment, which could serve as useful tools for measuring building security cost in urban environment.

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INTRODUCTION

The growth in urban crime has become a major problem facing most developing countries [1]. Some of the Africa cities such as Cape Town, Durban, Johannesburg in South Africa, Lagos in Nigeria, and Nairobi in Kenya, accounted for a sizeable proportion of their nation's crime [2]. Burglary is highly reported in most African urban areas [3], with victimization rates of above 8 per cent of the population. Although a non-violent crime, burglary is a serious offence in most Africa countries. Burglary tends to be partly motivated by poverty, even though material possessions are fewer. Serious crime has grown to nearly epidemic proportions in Nigeria, particularly in urbanized areas characterized by rapid growth and change, by stark economic inequality and deprivation, by social disorganization, and by inadequate government service and law enforcement capabilities [4]. Building security is acquiring greater importance against this backdrop of rise in criminal activities. However, it has become a problem that the empirical relationships between physical characteristics of buildings and costs of maintaining security in buildings are yet to be derived, notwithstanding the proliferation of documented incidences of burglary, breaking and entering, armed robbery and terrorism, to mention but a few. Thus, little or no research has been carried out on building security. The increase in criminal activities within and at victim's residences has forced residents to seek greater security of life and property; this necessarily involves increased expenditure of the building project. Therefore, there is a need to establish a framework of factors influencing the cost of building security within the built environment, which could serve as useful tools for measuring building security cost in urban environment.

Literature:

The security of lives and properties in human settlement is of great importance to the socio-economic, health and general wellbeing of people worldwide. Adequate security brings about safety and ensures social, economic and political order which enables the city to function well and which allows the citizen to prosper, [5]. Delice [6], see crime as devastating social problem, facing every society. Thus, urban security is an issue of

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global importance which concerns both the government and the stake holders across the globe. However, incidences of burglary left two type damages: loss of possessions and fear of crime on its victims. About 146,238 reported cases of burglary was an evidenced from Turkish National Police Headquarter in year 2006, while more than 2 million burglary were confirmed committed in United State in the year 2009 [6].

Physical design and crime:

Three important concepts address the ways the physical design of a building affects crime and other security issues. The concepts includes: defensible space, crime prevention through environmental design, and situational crime prevention.

1. Defensible space:

The first concept focus on “defensible space” a term coined by [7] after analyzing features of residential high rises in New York. The crime rate for buildings studied increased in proportion to the number of storey in residential blocks.

2. Crime prevention through environmental design (CPTED):

The second concept is “CPTED”. Sarel Lavy and Manish K. Dixit [8], stated that crime prevention through environmental design (CPTED) is an approach employed to provide protection to buildings and facilities and is centred on the concept of deterring crime and reducing fear of crime by thoughtful architecture and effective site design. However, the inclusion of environmental features to ensure security of building through CPTED had been linked to important aspects of construction and sustainability [9]. However, most CPTED experts applied variations on the following basic strategies from different angles [10]. Below are the highlights of strategies applied by various experts.

Territoriality: This involves the use of design to encourage proprietary behaviour among citizens, while at the same time creating an environment where the perceived probability of citizens’ intervention is high.

Access Control: This involves using design approaches for restricting intruders by means barriers or perimeter fence with a minimum access to adequately control the entry and exit of persons to and from a particular space.

Surveillance: This requires a design that provides a clear and unobtrusive view over critical areas through natural view, security devices and a capable guardian to monitor the operation of the security equipment.

Image: This is concerning overall aesthetics integrity of a space which should be establish and maintain so as to send a signals to criminals that the space is worthy of respect.

Management and maintenance: This involves regular cleaning and clearing of any obstructive objects that could impede visibility, with regular maintenance of building, it surrounding and it components.

Community involvement: This requires community cooperation and support for discouraging criminals or terrorism activities through CPTED principle.

Adjacent land use/adjacent building: This is concerning the surrounding land uses and type or level of structural development within the vicinity, where the quality and type may have negative effects on the security of the property.

CPTED’s protection strategy uses three distinctive lines of defence concept in reflecting the aforementioned principles. This includes:

- i. The first line of defence focuses on the perimeter of the sites, which provides the first protective layer for the building and inhabitant against any form of criminal activities.
- ii. The second line of defence covers the building perimeter external wall and the roofs, including all the external openings in the wall.
- iii. The third line of defence refers to the inner areas of the building, the interior form the third layer of protection.

3. Situational crime prevention:

The third concept is “situational crime prevention”, developed by British criminologists Clarke and Mayhew [11]this focuses on modifying environmental factors to make crime more difficult.

However, the increasing importance of infrastructure security has demanded for studies of crime against private individual. The security concern of the private individuals are expressed through the provision of built-in security components that are meant to fortify the building against the criminals attacks in their houses Anifowose and Oke [12]. This was confirmed by Vollaard and van Ours [3] in which every individual are taking precautionary measures in order to prevent or denied the criminals from getting access into their buildings. Smith and Bryant [13] through their study revealed the influence the design implication of interagency security committee (ISC) requirements is having on the security cost though the scope of their study was limited to protection against threats from blast. Thus, an investigation into building security design in other area of criminal activities such as burglary, breaking and entering etc., and its influences on cost of protection are yet to be determined.

Methodology:

The study will use mixed methods sequential exploratory research. This is a two phase mixed methods research design. Its two phase approach makes its applicability simple and straightforward to describe and report. According to Creswell [14], sequential exploratory design is not only useful to the researcher who wants to explore a phenomenon, but also for those that wants to expand on the qualitative findings. The tool is highly superior to other strategies when a researcher is building up a new instrument. One of the greatest advantage of this design is that it enables researcher to generate and verify theory in the same study [15]. In addition, phenomenological research design will be used for collecting and analyzing the data in the qualitative phase, while quantitative phase is descriptive in nature through a step by step hypothetical deductive. However, the security concern of the private individuals is expressed through the provision of built-in security components that are meant to fortify the building against the criminals' attacks in their houses. Therefore, this research design will unearth the cost-influencing factors of building security.

Conclusion:

The increase in criminal activities within and at victim's residences has forced residents to seek greater security of life and property; this necessarily involves increased expenditure of the building project. This study examined the three important concepts of physical design namely: defensible space, crime prevention through environmental design, and situational crime prevention, which addresses the ways the physical design of a building affects crime and other security issues. Also, the influence the design implication of ISC requirements is having on the security cost was confirmed by [13] though limited to protection against threats from blast. Therefore, there is a need to establish a framework of factors influencing the building security cost within the built environment, through a mixed method sequential exploratory research design; which could serve as useful tools for measuring building security cost in urban environment.

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