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Impact of Environmental Design in Interception of Crime

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ABSTRACT: Crime has become one among the most important issues in cities round the world. This issue has given rise to varied issues in terms of worry of crime and has become a significant disturbance for residents in urban areas. Crimes like devastation, terrorism, burglary, shoplifting, employee theft, assault, and espionage endanger lives and threaten the built environment. This has subsequently led to the need for crime prevention action to be taken. Architectural and urban designs that take into account safety from crime, and security against criminal damage or terrorism is what termed as security designs, which mainly focuses on the specific element of security and crime prevention that relates to the physical opportunity for victimization, damage and harm. By improving environmental design, it can be prevented to some extent. This paper includes the outline of ways like, crime prevention through environmental design (CPTED), defensible space, and building security. This paper also includes about the creating of safe cities, safe work environments, and safe places to live and play. The main aim of this paper is to know how the crime prevention methods could be linked more closely to developments in architecture and design. This approach to a security design recognizes the intended use of space in building and is totally different from traditional security practice, which focuses on denying access to a crime target with barrier techniques.

INTRODUCTION

These days, crime, workplace abuse, defense, and terrorism are all the rage. Is this the end of the world? Is it just for the sake of sensationalism that these newspaper articles and TV reports are being released, or are the alleged threats real? Vandalism, terrorism, robbery, shoplifting, employee stealing, attack, and spying are all crimes that exist and pose a danger to the built environment. Despite this, security and safety as a design consideration are often underfunded and undeserved. From programming to schematic design creation, construction document planning, bidding and final construction, the architect should understand the need for attention in the design and construction phases. Safety principles, architectural features, and security technology must now be incorporated and merged into a balanced holistic approach by the urban planner.

After the terrorist attacks of September 11, 2001, the security and urban design fields have been faced with new challenges in designing, redesigning, retrofitting and renovating buildings as well as operating them to ensure the health, protection, and wellbeing of residents, tourists, and the general public. As crime concerns rise each year, architects are being called upon to resolve security issues by integrating security into all building types design and construction. The most reliable and tested approach to achieving the objective of balancing protection with design decisions is known as the CPTED (crime prevention through environmental design) environmental design model or the defensible spaces.

The primary goal of this research is to determine how architecture and CPTED can be related for better growth. In addition, to think about how to update and upgrade these principles in everyday life. By incorporating and merging security principles with architectural elements and security technologies, these CPTED concepts will create a balanced holistic solution.

Evolution of the concept: -

A instructor came up with the idea after seeing Pruitt – Igoe. A newly built 2740 – unit public housing high rise, fall apart. The project was hailed as the new enlightenment after it was conceived by one of the country's most eminent architects. It was planned in line with Le Corbusier's planning principles and the international congress of modern architects. Even if the population density was not high, inhabitants were elevated into the air in 11 – story buildings in order to keep the grounds and first floor open for community events, and a "river of trees" was to flow underneath the buildings. Each building had a communal room as well as a garbage room with a garbage chute. The areas were found to be dangerous. To get their children to school and go shopping, women had to form groups. The area was demolished about ten years it was built, and it served as a forerunner. Rolling through Pruitt – Igoe reminded of the heyday of widespread crime and vandalism.

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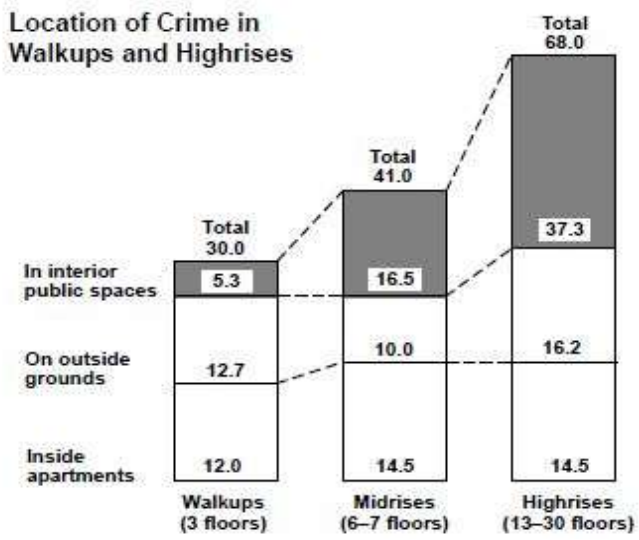

Fig. 1 – Graph showing the relationship between the increase in crime and increased building height and that crime is mostly located within public areas

There was this contrast being evoked, namely, the difference between the interior of the apartment, which people would find as clean, safe, and well – kept, though modestly furnished, and the public spaces outside, where the river of trees quickly became a sewer of glass and garbage. Graffiti – covered halls, elevators, and stairwells became hazardous walking areas, polluted with trash and human waste. Residents retained certain areas that were specifically identified as their own landings, according to the findings.

Fig. 2 – Before and After demolishing the Pruitt - Igoe

CPTED and Defensible Space: -

The CPTED and Defensible space design have largely been carried out without the benefit of a systematic process or evaluation, as required by the scientific method. The physical environment has a huge effect on crime, crime fear, and quality of life. The connection between the physical environment and crime has become more apparent in recent decades as people use more locks, window bars, cameras, and alarm systems. While these tools can play an important role in crime prevention, they are not the only solution. A comprehensive crime reduction plan is needed for success. A method known as CPTED, or crime prevention through environmental design.

As delivered by the national crime prevention institute,

"CPTED is a crime prevention philosophy based on the theory that the proper design and effective use of the built environment can lead to a reduction in the fear of crime as well as an improvement in the quality of life." *(Crime Prevention Association, p. 02, North Carolina)*

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The definition of "defensible space" underpins CPTED's effectiveness. This definition implies that all space in the human world is defendable, and that anyone should take responsibility for it and act to protect it from non – legitimate, criminal, or unintended use. The main aim of the CPTED is to make any place unsafe for illegal activity while also making them safe and welcoming for business legitimate citizens.

Since they make the basic design decisions about circulation, entry, building materials, fenestration, and many other features that can help or thwart overall security goals, architects and designers can make the most contribution to achieving a project's security objectives. Three key players are required for the construction process to be successful. The first is the architect, who creates the blueprints for the building on behalf of the owner. The second is the owner, who commissions the structure and usually oversees it after it is completed. The regulatory government plats the third position.

If protection is viewed as one of several design specifications, then its implementation and costs would be no more burdensome to project owners than fire safety features or landscaping requirements. The basic principle of crime prevention through environmental design (CPTED) is that proper design and good use of the built environment will reduce crime and fear of crime, thereby improving the quality of life. The environmental design approach to security considers the space's designated or repurposed use, resulting in a security or CPTED solution that is appropriate for that use. Good protection architecture improves the efficient use of the space while also preventing crime and future terrorist actions. The emphasis of the CPTED design is on space design and use, which differs from the conventional goal hardening approach to crime prevention.

The future and long – term priorities for the effective incorporation of CPTED into the architecture should be to use the scientific method and to use a risk – assessment model. It's time to "GET SMART" about the future of CPTED and security architecture:

1. Specific goals of what crimes are to be reduced and experience outcome.
2. Measurable and replicable goals and results in the form of POEs (post occupancy evaluation).
3. Achievable goals and results by clearly defined action steps.
4. Realistic goals that are well grounded and have a scientific basis.
5. Timed goals for a logical sequence, and ordering of action steps.

One of four overlapping methods is used to incorporate CPTED in the group. Each tactic uses a slightly different approach to send a strong message to offenders that they are being watched and that their actions are not welcome.

The four strategies are as follows: -

1. Natural surveillance –
   It Is the arrangement of physical features, events, and people in a room such that the opportunity to see what is going on in that space is maximized. This is often assumed to be the only technique, but it accounts for only a quarter of all effective effort. A parking garage with massive panoramic windows overlooking a major street is an example of natural surveillance. This allows pedestrians and motorists who can see into the parking lot and observe illegal activity. The strategy works because criminals will not commit crimes in areas where they feel exposed to observers. In the event a crime does occur, there is a greater chance that it will be witnessed and reported.
2. Territorial reinforcement –
   Buildings, walls, signs, pavements, and other structures are used to convey ownership or clearly demarcate the transition from public to private space. For example, a small decorative iron fence can be placed around a front yard. The fence separates the public roadway and sidewalk from the front yard and makes a clear statement that non – legitimate users are not welcome in the yard. This strategy works because it suggests there is someone present who has responsibility for the space and may observe criminal activity.
3. Access control –
   Entrances, exits, fences, landscaping, locks, and other barriers are used to physically guide people entering and going from a space. For example, walkway bollards may be placed near the entrance of a park to prevent vehicle entry but allow pedestrian entry. This strategy works because it creates a barrier against improper vehicle movement into the park. In the event vehicles do enter the park, the presence of the bollards makes the inappropriate behavior clear to citizens passing by and they can modify police.
   A component of access control is called target hardening. This refers to: -
   - Deadbolt locks

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- Window locks
- Sliding glass door locks
- Alarms

4. Maintenance –
   The upkeep of an area demonstrates that someone cares and is watching. For example, a business may be regularly painted to maintain a clean appearance. This strategy works because of what is known as the broken window theory. According to this theory, people will mistreat a neglected room, while a well – maintained space will receive proper care. Owing to resident's expectations of duty and care in communities, this approach has a direct effect on the fear of crime in a city.

Role of the architect: -

To integrate security programme details into efficient room and circulation planning; to provide clear sightlines for surveillance and planned access controls at entrances and exits; and to provide clear sightlines for surveillance and planned access controls at entrances and exits. To create architecture that uses design elements to closely coordinate secrecy and restricted areas; to create architecture that uses design elements to closely coordinate secrecy and restricted areas; to create architecture that uses design elements to closely coordinate secrecy and restricted areas of security technology and personnel.

Natural access control, monitoring, and territorial reinforcement techniques may all benefit from the architect's input. Architects face three challenges when it comes to security design: -

1. Determining requirements: -
   Early in the project's programming and problem description level, security requirements must be decided. The design team should examine how the room or building can be used for its intended purpose.
2. Knowing the technology: -
   Keeping up with rapid advancements in protection device technology is a challenge. Today, several projects, including routine ones, may include security system specialists as members of the team.
3. Understanding architectural implications: -
   Security and life – safety concerns, as well as other project specifications, must be incorporated into designs in a dynamic and often contradictory manner. The security objectives of identification, pause, and reaction to unexpected or criminal situations, as well as the prevention of those situations in the first place, require space, work, and people to be prepared.

RESULTS

CPTED's environmental modifications are based on a multidisciplinary theoretical perspective from the social and physical sciences. Newman's work in defensible space and Crowe's first – generation CPTED work have paved the way for the next generation of CPTED, which combines behavioral psychology and sociology of human behavior with architectural modifications needed to make a safe environment.

Despite the fact that situational crime prevention and CPTED have different theoretical foundations, they can be used together and even complement one another. CPTED and situational crime prevention specially POP and SARA model and community – oriented policing, are useful resources for security directors and law enforcement.

Since it does not address the root causes of violence, environmental design would never be able to fully eradicate it. It's possible that architectural security architecture is only responsible for relocating crime hotspots. Environmental control, on the other hand, goes a long way towards improving people's feelings regarding their workplace, not to mention explaining he cost – effectiveness of including building security in the design and construction process.

Many security risks necessitate effective access control. In the following places, access control can be a strong consideration:

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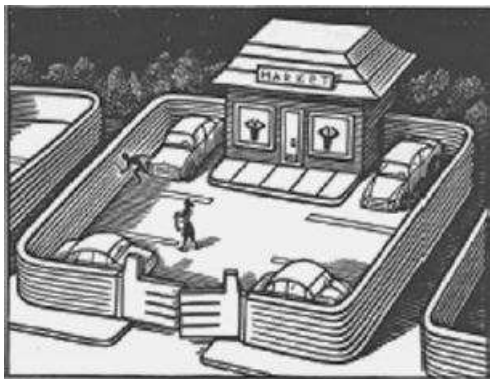

Fig. 3 – security layering and territorial boundaries are like a pair of protective arms around a property.

- All entrances and exits to the site and building
- Internal access points in restricted or controlled areas
- Environmental and building features used to gain access (trees, ledges, skylights, balconies, windows, tunnels)
- Security screening devices (guard stations, surveillance, identification equipment)

CONCLUSION

Security and CPTED must be considered from the beginning of the planning and design process. When protection is ignored, people are injured or killed, buildings and property are destroyed, and the human toll and retrofit costs are high. Why has the design community been so adamant about incorporating security and CPTED into the project's several layers? Cost and discomfort are the main factors. The claims about costs and discomfort are no longer true. It is naïve to assume that securing the site, the house, or the interior properties is pointless, or that there will be no significant repercussions for failing to do so. The exciting aspect of constructing healthy buildings and facilities is that is benefits the building's occupants' health, protection and welfare, its property, and strengthens the sense of community.

Since it does not address the root causes of crime: wealth, power, and class struggles, the use of CPTED in the architectural process will never be able to completely eradicate crime. Criminals may be routed to other, more insecure areas as a result of architectural security design. It's still easier to renovate a home than it is to find work for teenagers. Design may build an atmosphere conducive to legitimate human law – abiding behavior, but it won't be able to do so if the community's social structure is broken. Integrating protection and life safety functions into architecture dramatically increases the potential for a safer and more cost – effective work and living environment.

We will prevent the fear and potential for a great deal of crime and increase the quality of life by learning and developing the scientific method of CPTED.

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