BUILDINGS

How Crime Prevention Through Environmental Design (CPTED) Principles Shape Security Strategies

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Is your facility vulnerable to vehicle-borne attacks? Bollards help keep cars at a distance. Courtesy of Mikalai Kachanovich/Shutterstock.

The answers to what could have happened had the November 2021 Liverpool terrorist attack been successful are not something anyone enjoys pondering. However, as security professionals, we must review and learn from these types of events. The incident is, unfortunately, just one of the many that security professionals are being asked to address and mitigate. In the past year, we have seen civil disturbances, looting and attacks on government buildings. These events result in property damage, and sometimes even injuries or deaths.

So, what should you be doing to prevent or mitigate these events at your institution?

It starts with a risk assessment and asking questions such as:

- What are the risks to your facility or building from outside influences?
- What kinds of attacks are possible and probable?
- What is the impact and what can be done to mitigate that?
- Security measures will be different for government, iconic buildings and retail or office buildings. What is your specific risk?

Many security mitigation strategies can be found in Crime Prevention Through Environmental Design (CPTED) principles. CPTED originates in the early 1960s, shaped by Jane Jacobs and her book *The Death and Life of Great American Cities*, who described the idea more as a concept rather than a term. This concept is aimed at using the physical environment as an advantage to reduce crime, reduce the fear of crime and improve the quality of life for those using a space.

The actual development of this concept into the term CPTED occurred during the 1970s and was coined by Professor C. Ray Jeffery in his book *Crime Prevention Through Environmental Design*. This was further expanded upon in architect Oscar Newman's book *Defensible Space*. In these writings, the original concept linked how physical space could limit or maximize the potential for criminal activity, create psychological motivations to commit a crime and conceptualize the amount of risk taken on by a potential criminal.

Key Principles of CPTED

The basis of understanding CPTED is focuses around three key principles: Natural Access Control, Natural Video Surveillance and Territorial Reinforcement. Maintenance and Activity Support can also be included as supporting principles to the concept, as well.

Natural Access Control is the ability to control access to a space and delineate the space as public or private. It also looks at the movement of people and placement of people within a space. The implementation of this can be done through the employment of doors, landscaping, lighting, fencing and gate entries.

Natural Surveillance emphasizes the opportunity to maximize visibility of a space and identify those who would be considered as a normal user versus an abnormal user. Typically, this is achieved through the use of windows, strategized lighting and planned landscaping to create an open environment.

Territorial Reinforcement influences a space or environment and creates a sense of ownership of that space for normal users, while further deterring and defending against the abnormal users or potential criminals of that space.

In order to appropriately apply these key principles to a space or physical environment, a survey is required to clearly understand the designation and use of the space, how is the space defined and how the design currently supports these principles.

Assessing Risk and Implementing Proven Security Measures

Security measures can be organized into one of three categories: Architectural, Operational or Technological. CPTED measures fall into one or more of these categories. For this discussion, we will focus on some of the architectural security measures.

If you ask a security professional to design your building, you are likely to get a monolithic concrete building with no windows and one door surrounded by a moat. That is probably why no security consultant or designer has ever designed a building for any client. Security designers understand that designs must balance many factors into the architectural features of any building, security measures being one of those.

For example, if your risk assessment indicates that your building could be the target of a vehicle-borne explosive attack, for example, then distance and hardening measures should be utilized, which incorporate all three concepts (Natural Access Control, Natural Surveillance and Territorial Reinforcement).

The impact of an explosive is minimized by distance. The further away from the building, the less the impact. This is typically called a standoff distance. The Department of Defense in its Unified Facilities Criteria for building construction defines standoff distance as "a distance maintained between a building or portion thereof and the potential location for an explosive detonation."

If your building can be a target for well-financed terrorists, the explosive may be larger and thus, the distance should be greater. A suitcase or backpack can typically carry 50 pounds of explosive. A truck can carry upwards of 40,000 pounds. There are guidelines that address the appropriate distances based upon the expected risk.

Achieving these standoff distances can utilize natural barriers, trees and landscape, or a facility may need to install bollards that can stop the expected type of vehicle. If you cannot achieve the desired distances, then the building will need to be hardened to prevent progressive collapse of the structure. Unified Facilities Criteria (UFC) UFC 4-010-01 DoD Minimum Antiterrorism Standards for Building is recommended as a guideline for this kind of protection.

If your building is at risk for civil unrest, then delay and deter riot-proofing are important concepts to incorporate. Your glazing and doors are the most vulnerable points, so consider the installation of pull-down metal shutters. (This is not an attractive measure but is effective.) There are security glazing materials on the market with security film applied to the existing windows, which is the least expensive option.

Technology is rapidly improving in this area and there are many reports that some materials have resisted repeated attacks by criminals using bats and bricks. However, riot protection glazing is not always ballistic resistance. Refer to UL 752 Protection for Bullet Resistant Glass Products for measure needed to protect against everything from handguns to AK-47-type weapons.

With incidents of all types on the rise, proper security and safety measures require a risk assessment and proper planning. Security professionals should conduct assessments frequently, as the environment frequently changes. It is a whole new world out there, and security should be included in every facility design. Seek assistance from your trusted security advisor.

About the Author:

Telgian Engineering & Consulting, LLC (TEC) Senior Security Project Manager Lauris Freidenfelds has 40+ years of security industry experience, which includes extensive knowledge of operational security, technology and emergency management programs. As a former director of security and emergency preparedness for a major metropolitan healthcare system, he has direct experience with emergency management personnel and operations in a healthcare setting. His expertise includes planning and organizing, as well as directing security programs and activities.