

EFFECTIVE PHYSICAL SECURITY

FIFTH EDITION

PHYSICAL SECURITY STANDARDS REGULATIONS AND GUIDELINES DOORS SOCIAL
COMPLIANCE INTRODUCTION TO VULNERABILITY
TECHNOLOGY SYSTEMS INFRASTRUCTURE STANDARDS REGULATIONS AND GUIDELINES DOORS SOCIAL
PLANNING SECURITY AND WORKING WITH ARCHITECTS IT INFRASTRUCTURE PROTECTION PLANNING HD CAM
INVESTIGATION STRATEGIES IP VIDEO AND DIGITAL VIDEO
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REGULATIONS GUIDELINES
COUNTERMEASURES AND
IT AND PLANNING FOR SECURITY ADVANC
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Lawrence J. Fennelly



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FIFTH EDITION

LAWRENCE J. FENNELLY



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Dedication

It is with great happiness that we dedicate this book to our two very special daughters-in-law, Annmarie Carr Fennelly and Janet Mansfield Fennelly. Both of these strong women are working mothers, have three beautiful children each, and are wonderful Mothers, Wives, and our Daughters.

Larry and Annmarie Fennelly

Foreword

A manager designs and develops security, physical security, safety and investigative programs. Louis A. Tyska, CPP

This book is your road map to decoding and developing an effective security strategy beginning with the design build phase and addressing everything in between including life safety issues. Larry Fennelly and Marianna Perry have the knowledge and experience to see these complicated and ever-changing security challenges from a unique and multifaceted viewpoint. They both share their insight with the reader and that is why every security practitioner needs to read this book. Most security books focus on one topic, i.e., Risk Analysis or Security Surveillance Systems (CCTV) and access control and biometrics. I love this text because it has so much material in it that we need to address our everyday problems.

The baby boomers are retiring and the millennium generation is taking over. The face of security is also changing. Research is being done to advance the security profession to provide the highest level of protection while at the same time, increasing the bottom-line profitability of the organization. College courses are changing. Going forward, the combination of business as a major field of study and security or information technology as a minor is becoming the new norm. This change is being implemented to prepare security professionals to properly protect corporate assets.

The new “buzz words” from 2015 to 2020 will be the following:

1. What kind of “skill set” does the candidate/officer have?
2. What “certifications and specializations” does the candidate/officer have?
3. Both “physical security and informational security” will be merging with the move toward certifications.
4. “Career pathways” will be used by way of “internships.”
5. Your “certifications” will be the bar for testing qualifications.
6. Education for a career in security is being “redesigned.” Are you ready?
7. The holistic approach is preferred over independent components or “silos” as a logical approach to security systems.
8. 5.0 Megapixel cameras on phones and monitors with full (or true) HDTV—1080 are standard.

Do not be left behind! Plan for the future now!

The top crime threat problems according to recent reports are (1) cyber/communications security, (2) workplace violence, (3) business continuity, (4) insider threat, and (5) property crime.

We mention this because if you are going to be addressing crime problems you first need to know what they are. To make recommendations and solve problems, you first have to make sure that you have correctly identified the issue.

If a security assessment is not completed to determine the root causes of a security issue or vulnerability, the security practitioner may simply keep putting policies or procedures in place that address the symptoms and countermeasures of a problem and not the actual problem itself. This will be a frustrating (and sometimes costly) situation that can be avoided if, before any action is taken, an assessment is completed by a knowledgeable security professional to accurately identify security vulnerabilities. This will ensure that the true issues and concerns are being addressed, not just the *symptoms*.

The most demanding problem for managers and supervisors within a protection department is the physical security devices under his/her control. The supervisor's role should be to assist in enabling the manager to provide a level of support within the organization. Supervisors must take responsibility for corporate regulations, moral and ethical tone as well as providing the required level of security and customer service required.

Managers work with budgets and other resources (equipment, uniforms, technology, software, etc.) to ensure that the protective mission is achieved. Managers oversee processes (procedures) that accomplish organizational goals and objectives. Staff functions without a supervisory span of control over line employees may be performed by managers. Training, technical support, auditing, etc., are staff functions. A manager coordinates activities rather than supervises them. Turnover and job rotation can create overall improvement and a challenge. Staying current on industry trends and events by reviewing news sources, trade publications, and webinars and sources such as ASIS International and others.

Active shooter/active assailant's incidents, stabbings, and random unthinkable acts of violence are happening in our workplaces and on our televisions everyday. We cannot escape

these mindless crimes and thefts that impact every segment of the security management operation. "Security Matters" now more than ever! Trying to decide which security concepts are right for your organization is a daunting full-time task. However, I suggest that you start off with a professional security assessment, so you can identify your security needs.

This book is your road map to decoding and developing an effective security strategy beginning with the design build phase and addressing everything in between including life safety issues. The authors have the knowledge and experience to see these complicated and ever-changing security challenges from a unique and multifaceted viewpoint. They both share their insight with the reader and that is why every security practitioner needs to read this book. Most security books focus on one topic, i.e., Risk Analysis or Security Surveillance Systems (CCTV) and access control. I love this text because it has so much material in it that we need to address our everyday problems.

Today's security books are more and more complicated and technical. We, as practitioners must stay ahead of the curve, to keep up. Books like this, and those of Thomas Norman, CPP, David Paterson, CPP, Sandi Davis (Women in Security), James F. Broder, CPP, Michael Fagel PhD, and Dr Jennifer Hestermann are security professionals and future educators along with Larry Fennelly and Marianna Perry. Writing a book listing 150 things...etc., is not an easy task. I commend these authors and those that I mentioned, for their vision and dedication that will keep us ahead of the curve.

Linda Watson, MA, CPP, CSC, CHS-V
Whirlaway Group LLC

Preface

We completed this book in about 6 months. Normally, this undertaking would take 18 months. We know that it is hard to believe, but it is true. We both know that the faster we could complete this book, get it published and into the hands of those who are responsible for those practitioners in security, then possibly the information will get out there and be of further help to our profession. This is basically a very hard book to finish. The first 35 are easy the next 35 are ok, then it gets harder and harder. We went through two drafts and then after having a strong handle on it, we keep adding and adding to the various pieces. A perfect example is the section on body cameras, I saw a report that was negative, then I found another report that was positive, so we add a piece I felt this was the best part of the book, because it was getting better and better.

Physical security is a big topic, cybercrimes and cyberterrorism, workplace violence, emergency management, and IT security issues will continue to be the top issues going forward.

Regulations and Compliances and security standards for your corporation will continue to be developed and aid in the improvement of your security assessment. Follow CPTED principles and security best practices and master plan development. After you have done so, call your local media to promote your accomplishments. Let the bad guys know that you take crime prevention and effective security at *your* school serious!

Times have changed and you must change as well, I was reading a deposition recently and the security manager said quote "We have been doing it this way for 30 years." Of course, you have that is why a man died and your being sued.

Social media need to be monitored and included in your assessment process.

We are concerned because we know that many of you do not have good security and do not have adequate security in place to protect your assets. We are not advocating that you make your corporate or place of work a fortress into a cold, uninviting fortress. Instead, we want you to have not only a safe environment but also has effective security in place to address vulnerabilities and have continuous assessments to improve the process.

Enterprise risk management (ERM): (1) It looks at a holistic approach to ERM, which breaks down silos between physical and technological security and provides comprehensive risk management solutions. Eugene Ferraro recently said, (2) "We owe it not only to this country, but also to the free world, to think further ahead about future threats and what the solutions look like. And if we can reach consensus around these solutions, we will be in a better position to build them."

We wish to sincerely thank all of our contributors who made this book possible. We truly believe that compiling the knowledge of many security professionals is a more comprehensive approach to addressing the issue of physical security. We thank you for your professionalism as well as your contributions to our profession.

**Lawrence J. Fennelly
and Marianna A. Perry, CPP**

¹Enterprise Security Risks and Workplace Competencies, ASIS, University of Phoenix & Apollo Education Group, 2016.

²Ibid.

Contents

Foreword ix

Preface xi

1. Encompassing Effective CPTED Solutions in 2017 and Beyond: Concepts and Strategies 1

LAWRENCE J. FENNELLY AND MARIANNA A. PERRY

2. Introduction to Vulnerability Assessment 23

MARY LYNN GARCIA

3. Influence of Physical Design 55

MARIANNA A. PERRY

4. Approaches to Physical Security 67

RICHARD GIGLIOTTI AND RONALD JASON

5. Security Lighting 85

JOSEPH NELSON, PHILIP P. PURPURA, LAWRENCE J. FENNELLY, GERARD HONEY AND JAMES F. BRODER

6. Electronics Elements: A Detailed Discussion 95

THOMAS L. NORMAN

7. Use of Locks in Physical Crime Prevention 139

JAMES M. EDGAR, WILLIAM D. MCINERNEY, EUGENE D. FINNERAN AND JOHN E. HUNTER

8. Internal Threats and Countermeasures 181

PHILIP P. PURPURA

9. External Threats and Countermeasures 219

PHILIP P. PURPURA

10. Biometrics in the Criminal Justice System and Society Today 249

DR. THOMAS J. RZEMYK

11. Access Control Systems and Identification Badges 255

DR. JOSHUA SINAI

12. Chain-Link Fence Standards 265

CHAIN-LINK FENCE MANUFACTURERS INSTITUTE

13. Doors, Door Frames, and Signage 273

LAWRENCE J. FENNELLY AND MARIANNA A. PERRY

14. Glass and Windows 279

LAWRENCE J. FENNELLY AND MARIANNA A. PERRY

15. The Legalization of Marijuana and the Security Industry 285

MARIANNA A. PERRY AND LAWRENCE J. FENNELLY

16. Designing Security and Working With Architects 291

LAWRENCE J. FENNELLY AND RON HURLEY

17. Standards, Regulations, and Guidelines Compliance and Your Security Program, Including Global Resources 301

RODERICK DRAPER

-
- | | |
|---|--|
| 18. Information Technology Systems
Infrastructure 311
THOMAS NORMAN | 22. Fire Development and Behavior 391
INGE SEBYAN BLACK |
| 19. Security Officers and Equipment
Monitoring 343
CRAIG MCQUATE | 23. Alarms Intrusion Detection Systems 401
FRANK DAVIES |
| 20. Video Technology Overview 347
HERMAN KRUEGLE | Appendix 1: Glossary of Terms 421
Index 431 |
| 21. Understanding Layers of Protection
Analysis 387
MARK BEAUDRY | |

Encompassing Effective CPTED Solutions in 2017 and Beyond: Concepts and Strategies

Lawrence J. Fennelly, CPOI, CSSI, CHS-III, CSSP-1,
Marianna A. Perry, MS, CPP, CSSP-1

Deterrence's, CPTED Design, Policies and Procedures, Training Programs and Security Awareness Programs. Thomas L Norman, CPP, PSP, CSC 2016.

INTRODUCTION

We are delighted to be a part of the series of white papers for School Dangers.Org. It is appropriate to say a few words about Tim Crowe and Crime Prevention through Environmental Design (CPTED), before you read our paper.

Tim Crowe wrote *Crime Prevention Through Environmental Design* (1991) based on a security assessment that he conducted for a school district in Florida. Tim's book (which was updated and modernized by Lawrence Fennelly in 2013) was and is still considered a primary resource for crime prevention practitioners in the security industry to help them better understand the relationship between design and human behavior. CPTED is a proactive approach to

manipulate the physical environment and bring about the desired behavior of reduced criminal activity as well as reduced fear of crime. Tim Crowe and Larry Fennelly lectured for Rick Draper in Australia on the concepts of CPTED.

Tim Crowe's comprehensive set of guidelines were developed with one goal in mind—to reduce opportunities for crime in the built environment. His work is the “gold standard” for security practitioners and others who implement CPTED concepts as a crime prevention tool. Crowe's work is frequently used as a training tool for law enforcement, town planners, and architects. These guidelines have been used in hundreds of training sessions and cited in numerous publications.

Tim Crowe was a professor at the National Crime Prevention Institute (NCPI) at the University of Louisville in Louisville, Kentucky. Marianna Perry is the former Director of NCPI and together both she and Tim have presented training sessions on CPTED.

We included this information because we want you to understand the origination of Tim Crowe's work on CPTED.

ENVIRONMENT

The conceptual thrust of a CPTED program is that the physical environment can be manipulated to produce behavioral effects that will reduce the incidence and fear of crime, thereby improving the quality of life. These behavioral effects can be accomplished by reducing the propensity of the physical environment to support criminal behavior. Environmental design, as used in a CPTED program, is rooted in the design of the human–environment relationship. It embodies several concepts. The term *environment* includes the people and their physical and social surroundings. However, as a matter of practical necessity, the environment defined for demonstration purposes is that which has recognizable territorial and system limits.

The term *design* includes physical, social, management, and law enforcement directives that seek to affect positively human behavior as people interact with their environment.

Thus, the CPTED program seeks to prevent certain specified crimes (and the fear attendant on them) within a specifically defined environment by manipulating variables that are closely related to the environment itself.

The program does not purport to develop crime prevention solutions in a broad universe of human behavior but rather solutions limited to variables that can be manipulated and evaluated in the specified human/environment relationship. CPTED involves design of physical space in the context of the needs of legitimate users of the space (physical, social, and psychological needs), the normal and expected (or intended) use of the space (the activity or absence of activity planned for the space), and the predictable behavior of both legitimate users and offenders. Therefore, in

the CPTED approach, a design is proper if it recognizes the designated use of the space, defines the crime problem incidental to and the solution compatible with the designated use, and incorporates the crime prevention strategies that enhance (or at least do not impair) the effective use of the space. CPTED draws not only on physical and urban design but also on contemporary thinking in behavioral and social science, law enforcement, and community organization.

SPACE

The continuum of space within a residential complex (that is, a property consisting of one or more buildings containing dwelling units and associated grounds or, more broadly, a neighborhood consisting primarily of residential uses) may be divided into four categories:

- **Public.** Space that, whatever its legal status, is perceived by all members of a residential area or neighborhood as belonging to the public as a whole, which a stranger has as much perceived right to use as a resident.
- **Semipublic.** Space accessible to all members of the public without passing through a locked or guarded barrier. There is thought to be an implied license for use by the public, and strangers will rarely be challenged. This is generally associated with multifamily housing.
- **Semiprivate.** Space restricted for use by residents, guests, and service people on legitimate assignments. In multifamily housing, this is usually secured by protection officers (or doormen), locks, or other forms of physical barriers. Strangers can be expected to be challenged as potential trespassers.
- **Private.** Space restricted for use by residents of a single dwelling unit, their invited guests, and service people, with access

generally controlled by locks and other physical barriers. Unauthorized use is always challenged when the opportunity for challenge presents itself.

TARGET HARDENING

The emphasis on design and use deviates from the traditional target-hardening approach to crime prevention. Traditional target hardening focuses predominantly on denying access to a crime target through physical or artificial barrier techniques (such as locks, alarms, fences, and gates). Target hardening often leads to constraints on use, access, and enjoyment of the hardened environment. Moreover, the traditional approach tends to overlook opportunities for natural access control and surveillance. The term *natural* refers to deriving access control and surveillance results as a by-product of the normal and routine use of the environment. It is possible to adapt normal and natural uses of the environment to accomplish the effects of artificial or mechanical hardening and surveillance. Nevertheless, CPTED employs pure target-hardening strategies either to test their effectiveness as compared with natural strategies or when they appear to be justified as not unduly impairing the effective use of the environment.

As an example, a design strategy of improved street lighting must be planned, efficient, and evaluated in terms of the behavior it promotes or deters and the use impact of the lighted (and related) areas in terms of all users of the area (offenders, victims, other permanent, or casual users). Any strategies related to the lighting strategy (e.g., block-watch or neighborhood watch, 911 emergency service, police patrol) must be evaluated in the same regard. This reflects the comprehensiveness of the CPTED design approach in focusing on both the proper design and effective use of the physical environment. Additionally, the concept of proper design and effective use emphasizes the designed relationship among

strategies to ensure that the desired results are achieved. It has been observed that improved street lighting alone (a design strategy) is ineffective against crime without the conscious and active support of citizens (in reporting what they see) and of police (in responding and conducting surveillance). CPTED involves the effort to integrate design, citizen and community action, and law enforcement strategies to accomplish surveillance consistent with the design and use of the environment.

CPTED Strategies

There are three overlapping strategies in CPTED (as shown in Fig. 1.1):

1. Natural access control
2. Natural surveillance
3. Territorial reinforcement

Access control and surveillance have been the primary design concepts of physical design programs. At the outset of the CPTED program, access control and surveillance systems—preexisting as conspicuous concepts in the field of CPTED—received major attention. Access control and surveillance are not mutually exclusive classifications since certain

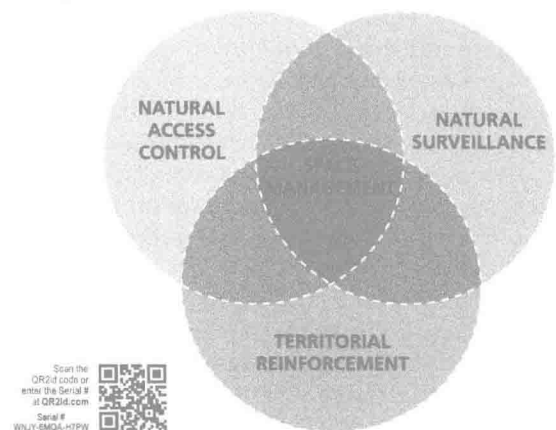


FIGURE 1.1 Overlapping strategies in CPTED.

strategies achieve both, and strategies in one classification typically are mutually supportive of the other. However, the operational thrust of each is distinctly different, and the differences must be recognized in performing analysis, research, design, implementation, and evaluation.

Access control is a design concept directed primarily at decreasing crime opportunity. Access control strategies are typically classified as organized (e.g., security officers), mechanical (e.g., locks, lighting, and alarms), and natural (e.g., spatial definition). The primary thrust of an access control strategy is to deny access to a crime target and to create a perception of risk in offenders. Surveillance is a design concept directed primarily at keeping intruders under observation. Therefore, the primary thrust of a surveillance strategy is to facilitate observation, although it may have the effect of an access control strategy by effectively keeping intruders out because of an increased perception of risk. Surveillance strategies are typically classified as organized (e.g., police patrol), mechanical (e.g., lighting, locks, and alarms), and natural (e.g., windows).

Photos 1.1–1.3 reflect good natural surveillance.

Traditionally, access control and surveillance, as design concepts (Fig. 1.2), have emphasized mechanical or organized crime prevention techniques while overlooking, minimizing, or ignoring attitudes, motivation, and use of the physical environment. More recent approaches to physical design of environments have shifted the emphasis to natural crime prevention techniques, attempting to use natural opportunities presented by the environment for crime prevention. This shift in emphasis led to the concept of territoriality.

The concept of territoriality (elaborated most fully to date in the public housing environment) suggests that physical design can contribute to a sense of territoriality. That is, physical design can create or extend a sphere of influence so that users develop a sense of proprietorship—a sense

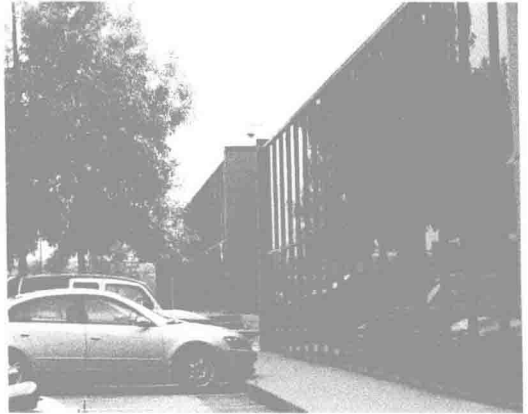


PHOTO 1.1



PHOTO 1.2



PHOTO 1.3

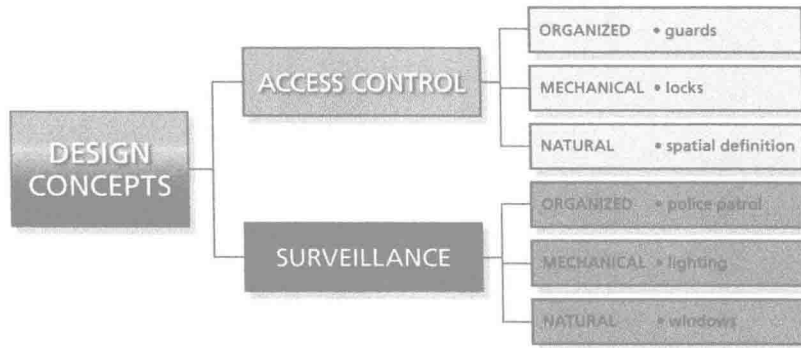


FIGURE 1.2 Typical access control and surveillance concepts as well as classifications.

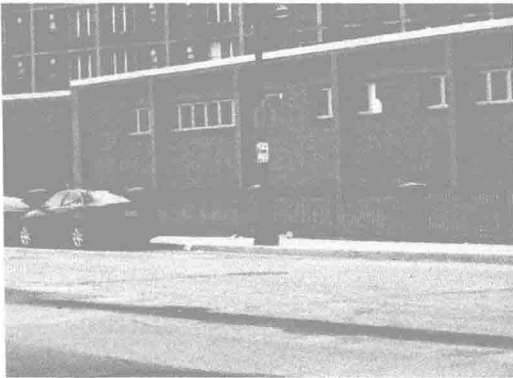


PHOTO 1.4 Reflects physical design based on territoriality.

of territorial influence—and potential offenders perceive that territorial influence (Photo 1.4).

At the same time, it was recognized that natural access control and surveillance contributed to a sense of territoriality, making it effective for crime prevention. Natural access control and surveillance will promote more responsiveness by users in protecting their territory (e.g., more security awareness, reporting, and reacting) and promote greater perception of risk by offenders.

Maintenance

Finally, care and maintenance allow for the continued use of a space for its intended

purpose, as well as contributing to territorial reinforcement. Deterioration and blight indicate less concern and control by the intended users of a site and indicate a greater tolerance of disorder. Proper maintenance protects the public health, safety, and welfare in all existing structures, residential and nonresidential, and on all existing premises by establishing minimum standards, best practices, as well as a master plan. Maintenance is the responsibility of the facilities manager, owners, and occupants.

Furthermore, the effort to achieve a balance between design for crime prevention and design for effective use of environments contributed to the shift in focus from organized and mechanical strategies per se to natural strategies. This was because natural strategies exploited the opportunities of the given environment both to naturally and routinely facilitate access control and surveillance and to reinforce positive behavior in the use of the environment. The concept reflects a preference, where feasible, to reinforce existing or new activities, or to otherwise reinforce the behavior of environment users so that crime prevention flows naturally and routinely from the activity being promoted.

The conceptual shift from organized and mechanical to natural strategies has

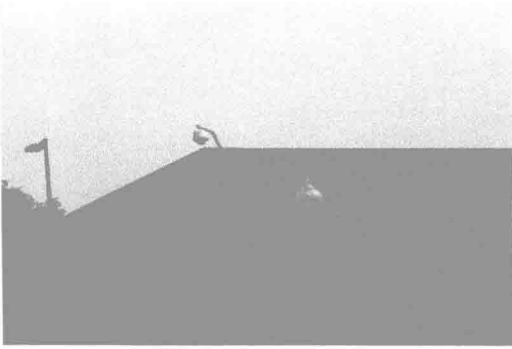


PHOTO 1.5 Reflects mechanical layout of mounted camera with street light and roof lighting.



PHOTO 1.6 Can you see the man hiding in the bushes?

oriented the CPTED program to develop plans that emphasize natural access control and surveillance and territorial reinforcement (Photo 1.5).

Although conceptually distinct, it is important to realize that these strategy categories tend to overlap in practice. It is perhaps most useful to think of territorial reinforcement as the umbrella concept, comprising all natural surveillance principles, which in turn comprises all access control principles. It is not practical to think of territorial reinforcement, natural surveillance, and access control as independent strategies because, for example, access control operates to denote transitional zones, not necessarily impenetrable barriers. If these symbolic or psychological barriers are to succeed in controlling access by demarcating specific spaces for specific individuals, potential offenders must perceive that unwarranted intrusion will elicit protective territorial responses from those who have legitimate access. Similarly, natural surveillance operates to increase the likelihood that intrusion will be observed by individuals who care but are not officially responsible for regulating the use and treatment of spaces. If people observe inappropriate behavior but do nothing about it, then the most carefully planned natural surveillance tactics are useless in terms of stopping crime and vandalism (Photo 1.6).

The Three-D Approach¹

For CPTED to be a success, it must be understandable and practical for the normal users of the space. That is, the normal residents of a neighborhood and the people who work in buildings or commercial areas must be able to use these concepts. Why? Because these people know more about what is going on in that environment and they have a vested interest (their own well-being) in ensuring that their immediate environment operates properly. The technologist or specialist, who may be a traffic engineer, city planner, architect, or security specialist, should not be allowed to shoulder the responsibility alone for safety and security. The specialist needs to follow the dictates of the users of the space because he/she can often be swayed by misperceptions or by the conflicting demands of his professional competition.

The Three-D approach to space assessment provides a simple guide for the layperson to use in determining the appropriateness of how his/her space is designed and used. The Three-D concept is based on the three functions or dimensions of human space:

1. All human space has some designated purpose.

¹ Crowe TD, Fennelly LJ. Crime prevention through environmental design. 3rd ed. Elsevier Publishers; 2013.

2. All human space has social, cultural, legal, or physical definitions that prescribe the desired and acceptable behaviors.
3. All human space is designed to support and control the desired behaviors.

By using the Three Ds as a guide, space may be evaluated by asking the following types of questions.

Designation

- What is the designated purpose of this space?
- What was it originally intended to be used for?
- How well does the space support its current use and its intended use? Is there conflict?

Definition

- How is the space defined?
- Is it clear who owns it?
- Where are its borders?
- Are there social or cultural definitions that affect how that space is used?
- Are the legal or administrative rules clearly set out and reinforced in policy?
- Are there signs?
- Is there conflict or confusion between the designated purpose and definition?

Design

- How well does the physical design support the intended function?
- How well does the physical design support the definition of the desired or accepted behaviors?
- Does the physical design conflict with or impede the productive use of the space or the proper functioning of the intended human activity?
- Is there confusion or conflict in the manner in which the physical design is intended to control behavior?

The three CPTED strategies of territorial reinforcement, natural access control, and natural surveillance are inherent in the Three-D concept.

Does the space clearly belong to someone or some group? Is the intended use clearly defined? Does the physical design match the intended use? Does the design provide the means for normal users to naturally control the activities, to control access, and to provide surveillance? Once a basic self-assessment has been conducted, the Three Ds may then be turned around as a simple means of guiding decisions about what to do with human space. The proper functions have to be matched with space that can support them—with space that can effectively support territorial identity, natural access control, and surveillance and intended behaviors have to be indisputable and be reinforced in social, cultural, legal, and administrative terms or norms. The design has to ensure that the intended activity can function well and it has to directly support the control of behavior.

Examples of Strategies in Action

There are hundreds of examples of CPTED strategies in practice today. In each example, there is a mixture of the three CPTED strategies that is appropriate to the setting and to the particular security or crime problem. Some of the examples were created in the direct application of CPTED concepts. Others were borrowed from real-life situations. The common thread is the primary emphasis on naturalness—simply doing things that you already have to do but doing them a little better.

Some examples of CPTED strategy activities are:

- Providing clear border definition of controlled space;
- Providing clearly marked transitional zones that indicate movement from public to semipublic to private space;
- Relocating gathering areas to locations with natural surveillance and access control, or to locations away from the view of would-be offenders;

- Placing safe activities in unsafe locations to bring along the natural surveillance of these activities to increase the perception of safety for normal users and risk for offenders;
- Placing unsafe activities in safe spots to overcome the vulnerability of these activities with the natural surveillance and access control of the safe area;
- Redesignating the use of space to provide natural barriers to conflicting activities;
- Improving the scheduling of space to allow for effective use and appropriate critical intensity;
- Redesigning space to increase the perception or reality of natural surveillance;
- Overcoming distance and isolation through improved communication and design efficiencies.

Use of Information

It goes without saying that all important decisions should be based on good information. Especially where the design and use of the physical environment is at stake, it is imperative that at least five basic types of information be collected and used. Unless a rational basis is used to make informed decisions, the same mistakes that generated the original problem will continue to be made.

The five basic types of information needed for good CPTED planning are crime analysis information, demographic information, land use information, observations, and resident or user interviews. This information does not have to be sophisticated. It exists in a fundamental form in every community or location. Moreover, unless it can be presented in its most basic form, it is of little value. For instance, very little can be done with a statistical measure that says burglaries are up by 5%. Much more can be done with a crime map that shows a clustering of burglaries in a specific block.

Even more can be done when one finds that the burglar used an alleyway as his/her approach to a series of related offenses because it afforded a good cover for his vehicle.

The other bits of information that are needed should be available in simple, usable formats.

Following is a simple guide to each type of information:

- *Crime analysis.* This type of information is available in every police department; it is obtained by plotting offenses on a wall map and organizing the information on crime reports for the major purpose of identifying patterns of criminal activity. There are two basic types of patterns: geographic and similar offense.
- *Demographic.* This is information that describes the nature of the population for a given city, district, or neighborhood. It is available through city planning departments or the city manager's or mayor's office. Another source of this type of information is the Census Bureau and the city and county data books that may be found in most public libraries.
- *Land use.* City planning departments, zoning boards, traffic engineering councils, and local councils of government have information and maps that describe and depict the physical allocations and uses of land. Simple wall maps with colored sections showing residential areas, commercial areas, industrial areas, parks, schools, and traffic flows can be of immeasurable assistance in understanding the physical setting. Natural boundaries and neighborhoods are easier to visualize on such maps, especially in relation to land use and pedestrian and traffic flows.
- *Observations.* It is very helpful to conduct either formal or informal visual reviews of physical space to get first-hand knowledge of how, when, and by whom that space is used and where problems may arise.
- Environmental cues are the key to normal user and offender behavior.
- Observations may include pedestrian/vehicle counts, on- and off-street parking, maintenance of yards and fences, the degree of proprietary behaviors prohibited by residents and/or users, the presence of either controlling or avoidance behaviors,