DRAFT INTERNATIONAL STANDARD
ISO/DIS 22341

ISO/TC **292**

Secretariat: **SIS**

Voting begins on:
2020-03-13

Voting terminates on:
2020-06-05

Security and resilience — Protective security — Guidelines for crime prevention through environmental design

ICS: 13.310; 03.100.01

This document is circulated as received from the committee secretariat.

Reference number
ISO/DIS 22341:2020(E)

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Foreword

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This document was prepared by Technical Committee ISO/TC 292, *Security and resilience*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is intended to promote a common understanding of crime prevention through environmental design (CPTED) and the fields of security, crime, and other risks, and their preventive measures through environmental design and management.

CPTED concepts have been used since the 1970s and CPTED-style security measures can be traced to early human settlements. The term CPTED was first introduced in 1971 by C. Ray Jeffery. CPTED concepts originated from criminology and crime opportunity theories and studies. Since then, it has been included as part of many other crime prevention strategies that are utilized today. These include, but are not limited to, defensible space, broken windows theory, routine activity theory, rational choice, situational crime prevention, and crime free housing.

CPTED has an increasingly sound theoretical foundation based on firm evidence of significant crime and fear reduction gained from a series of formal and rigorous evaluations in the field of environmental psychology, criminology and crime science. When well-planned and wisely implemented, CPTED improves community safety and industrial security in a cost-effective manner.

Figure 1 illustrates the framework of CPTED for crime prevention and security.
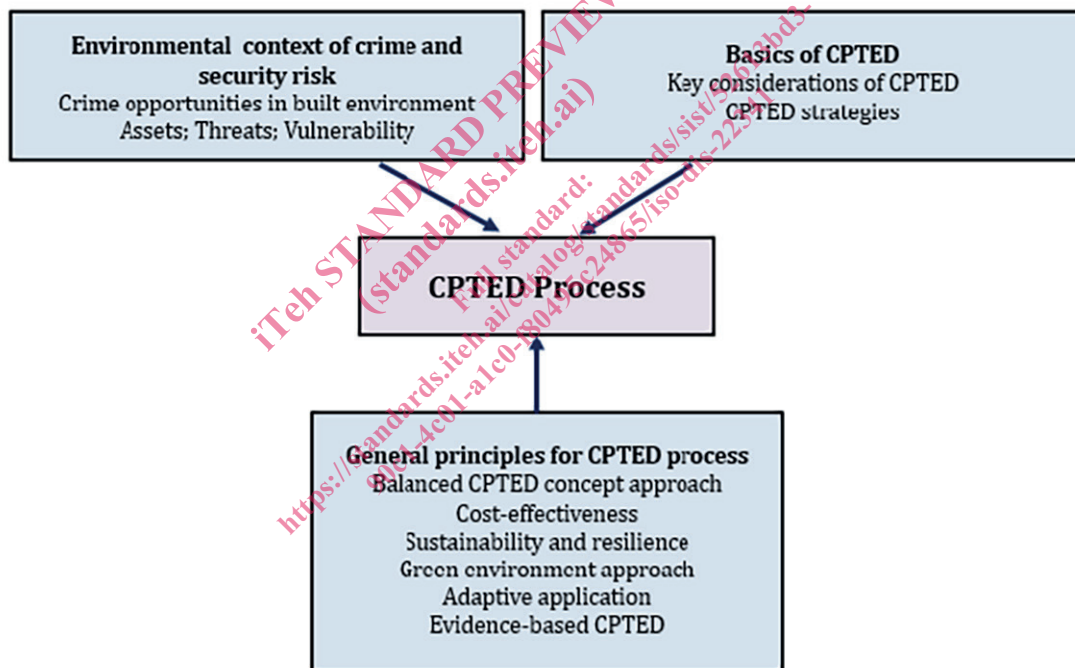
Figure 1 — Framework of CPTED for crime prevention and security

This document starts with understanding the environmental context of crime and security risk factors, causes of vulnerabilities and risk levels. This is followed by the basics of CPTED through historical background, four key considerations of CPTED (places generating crime, types and causes of the risk, CPTED stakeholders and countermeasures), and CPTED strategies. Better understanding of the risk and CPTED considerations leads to a better selection of tailored countermeasures. The process of CPTED begins with the establishment of an Oversight Body, performance target settings and organizing a Project Team, risk assessment and risk treatment, evaluation of treatment, corrective actions, and feedback to the initial stage of CPTED for continual improvement. It is followed by the fundamental principles for CPTED process, such as balanced conceptual approach, cost-effectiveness, sustainability and resilience, green environment (ecological) approach, adaptive application, and an evidence-based approach.

Security and resilience — Protective security — Guidelines for crime prevention through environmental design

1 Scope

This document provides guidelines to organizations for establishing the basic elements, strategies and processes for reducing crime and fear of crime at a new or existing built environment. It recommends the establishment of countermeasures and actions to treat crime and security risks in an effective and efficient manner by leveraging environmental design.

Within this document, the term "security" is used in a broad manner to include all crime, safety, and security-specific applications, so it is applicable to public and private organizations, regardless of type, size, or nature.

While this document will provide general examples of implementation strategies and best practices, it is not intended to provide an exhaustive listing of detailed design, architectural or physical security CPTED implementation strategies or restrict the potential applications to only those examples provided in this standard.

2 Normative references

The following document is referred to in the text in such a way that some or all of its content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22300, *Security and resilience — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22300 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
Crime Prevention Through Environmental Design (CPTED)
process for analysing and assessing crime and security risks to guide development, urban design, site management and the use of the built environment in order to reduce crime and the fear of crime, and to promote and improve public health, quality of life, and sustainability

Note 1 to entry: to entry Environmental design refers to the applied arts and sciences dealing with creating the human-designed environment.

3.2
Capable guardianship
willingness to supervise, detect, and take action to prevent or discourage the occurrence of crime

4   Understanding environmental context of crime and security risk

There are numerous ways of defining the elements of risk.

NOTE 1   ISO Guide 72 defines risk as the effect of uncertainty on objectives.

In a security context and in this standard, risk is composed of three elements: assets, threats and vulnerabilities. Crime and security risks are based upon the value of the asset in relation to the threats and vulnerabilities associated with it. This approach can be viewed as an operational implementation of ISO 31000 with a specific focus on crime and security risks. Threats and vulnerabilities influence the likelihood dimension, and assets influence the consequences of a risk.

Assets can be the current state of the physical built environment and items of financial value. Assets can also be intangible with soft values.

Threats are the potential offenders or hazards and should be addressed by identifying the nature of the threat. By focusing on the most likely scenarios addressed as a narrative, describing the subject of the scenario, who, as descriptions of the offenders, where, as place of the offence, and how, describing what means used.

Vulnerabilities are the opportunities for negative effects and the lack of maturity related to the effectiveness of the associated countermeasures.

The crime and security risks are greater when a motivated offender and suitable target come together in time and place, without appropriate countermeasures present.

To mitigate the opportunity for a crime to occur, the conventional approach is to remove one or more of the factors expressed in the crime and security risk triangle in Figure 2. Crime events require the three minimal factors to converge in time and space.
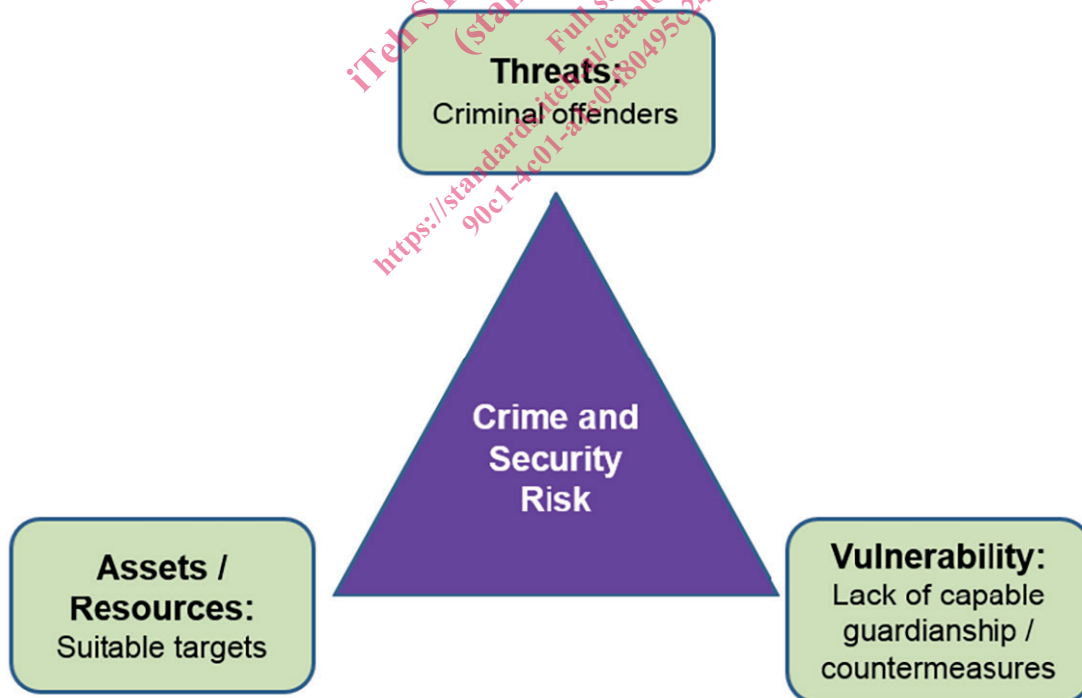

Figure 2 — The crime and security risk triangle for crime opportunities in the built environment

5 Basics of CPTED

5.1 Key considerations of CPTED

The organization should:

— base its crime prevention and security strategies on understanding crime opportunities; and

— identify the following four considerations at the beginning stage of a project:

— Where: the exact location and the type of area.

— What: the crime problems occurring in the area now or in the future.

— Who: the stakeholders involved in the area.

— How: the treatment of crime and security risks (e.g. countermeasures) in an effective and efficient manner.

NOTE 1   Annex A provides additional information on the key considerations of CPTED.

5.2 CPTED strategies

5.2.1 General

The organization should:

— understand that there are two different CPTED concepts, such as physical CPTED (or 1st Generation CPTED) concept and social CPTED (or 2nd Generation CPTED) concept.

— consider physical CPTED strategies as well as social CPTED strategies.

The organization should consider the six strategies for physical CPTED:

— natural surveillance;

— natural access control;

— territorial reinforcement;

— image and management / maintenance;

— activity support;

— site hardening / target hardening.

The organization should consider the four strategies for social CPTED:

— social cohesion;

— social connectivity;

— community culture;

— threshold capacity.

NOTE 1   Annex B provides additional information about physical and social CPTED concepts and strategies.

The organization should consider three stages in order to use the physical and social CPTED strategies – planning, design, site and social management.

Environmental planning and design stages are most relevant for proposed new areas and neighbourhoods. Management stages are more relevant in existing areas. Planning and design

adaptations are relevant in existing areas to a certain degree, but the feasible adaptations are modest and small in existing areas compared to the designs for new areas.

The organization should:

— implement the CPTED strategies in order to coordinate its actions and measures;

— consider local context, cultural tradition and past experience for the actions and measures;

— select the measures in anticipation of their expected effectiveness in certain types of environments and against the prevailing types of crime.

5.2.2 CPTED strategies for planning stage

The organization should:

— choose the scale, function and blending of functions to provide an incentive for livability, social control, involvement and sense of ownership for CPTED strategies in the planning stage;

— implement planning stage strategies to prevent the existing urban environment from being harmed. In case of an emerging threat such as vehicle bomb threat flexibly adopt this strategy;

— create strategies for the conditions for the formation of social networks and making a new development part of the existing surrounding urban environment as much as possible;

— minimize isolated places and avoid blind/entrapment spots of buildings and planting which have low visibility from nearby.

The organization should:

— consider the social structure, such as socio-economic and demographic characters of a site in order to reflect its specific context;

— enhance the vitality of public space for the site by considering active land use, density and (human) scale;

— consider properly connected street segments and integrated land uses (rather than disconnected and segregated pattern);

— consider cautious ecological placement of green spaces and parks for an area;

— consider cautious placement of lighting and, if necessary, security cameras for an area;

— consider anti-terrorism building and landscape planning for particular target sites;

— consider the security and crime prevention of the construction site against attacks (e.g. the misuse of land and building for grouping of offenders, drug trafficking or stolen goods, prostitution, theft of tools, material and building machines, trucks, etc.) during the CPTED planning stage as construction development often last a few years until building completion.

NOTE 1   Table 1 provides additional and detailed information with examples on CPTED strategies for the planning stage.

5.2.3 CPTED strategies for design stage

The organization should:

— evaluate the external and internal situational context of CPTED-related risks and

— understand what factors significantly influence the risk and the effectiveness of countermeasures.

Evaluating the external situational context of the risk includes:

— the social and cultural, political, legal, regulatory, financial, technological, economic, natural and competitive environment, whether international, national, regional or local;

— key drivers and trends having impact on the objectives of the organization; and

— relationships with, and the perceptions and values of, external stakeholders.

Evaluating the internal situational context of the risk includes:

— governance, organizational structure, roles, responsibilities and accountabilities;

— policies, objectives, and the strategies in place to achieve them;

— capabilities, understood in terms of resources and knowledge (e.g. capital, time, people, processes, systems and technologies);

— relationships with, and the perceptions and values of, internal stakeholders;

— the organization's culture; and

— standards, guidelines and models adopted by the internal stakeholders.

The organization should aim at creating the conditions for social control, natural surveillance, a sense of ownership and pride in an area for the design stage CPTED strategies.

The organization should integrate the CPTED design strategies as part of the planning and design phase.

The organization should:

— enhance visibility of streets and buildings by proper building, landscape and lighting design;

— enhance access control of a site through gates, fences and walls, or entry/exit barriers tested and certified by relevant security performance standards;

— harden soft target sites/buildings (in addition to traditionally hardened sites) through security equipment certified by relevant security performance standards;

— consider territoriality of a site by clear demarcation between public space, semi-public space, semi-private space and private space to create buffer zones and to enhance sense of ownership;

— consider attractiveness/esthetics of a site in order to create positive area image and active land use by attractive public art and lighting;

— consider clear signage with proper color scheme and legibility.

— consider robustness of street furniture in order to resist vandalism attacks and to facilitate maintenance.

NOTE 1   Table 1 provides additional and detailed information with examples on CPTED strategies for design stage.

5.2.4   CPTED strategies for site and social management stage

The organization should:

— manage target areas by professional surveillance and maintenance;

— implement the management strategies and support and encourage the natural surveillance and sense of ownership by residents and visitors and not discourage residents from performing this task;

— assume a certain level of self-regulation, which can be elevated to a higher level with professional support for the management strategy; and