

Crime Prevention Through Environmental Design (CPTED) Theory and Praxis

A Bird's Eye View on Theories, Practices, and Future Directions

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PREFACE

About this White Paper

This White Paper is the result of a collaborative project between three organizations with a shared mission: advancing the knowledge, practice, and future development of Crime Prevention Through Environmental Design (CPTED).

The *International CPTED Association (ICA)* promotes the use of CPTED globally and supports local organizations, practitioners and communities that utilize CPTED principles to create safer communities and environments.

Stichting Veilig Ontwerp en Beheer (SVOB) as one of the ICA chapters is the Dutch platform for CPTED knowledge development, certification, and policy integration, with a strong focus on safe and inclusive urban design, - planning and - management.

The Dutch CPTED Research Group – part of Inholland University of Applied Sciences – contributes academic expertise, research-based insights, and knowledge dissemination on CPTED within the Netherlands and internationally.

This publication reflects a unique collaboration between international CPTED expertise, Dutch/European practice-based experience, and applied academic research. It is intended as an open and accessible resource for practitioners, policymakers, researchers, and educators who work on the design and management of safe, secure, sustainable, and socially inclusive environments.

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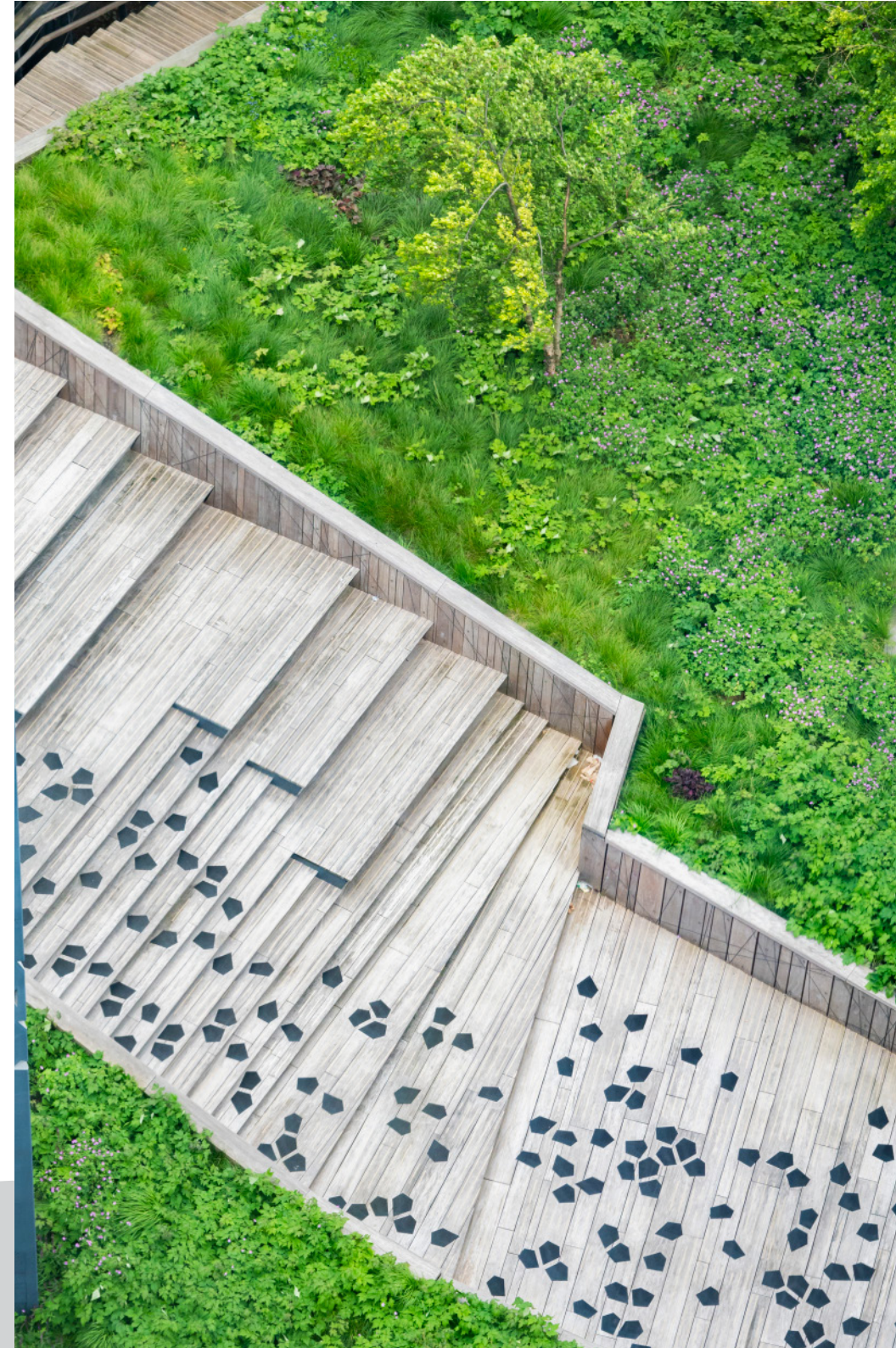
This white paper brings together global thinking with practical insights from the Dutch and wider European context.

To support clarity and consistency in written English, *Artificial Intelligence (AI)* tools — including language models — have been used to improve grammar, structure, and readability of the text, under the editorial responsibility of the authors.

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CONTENTS

Chapter 1: What is CPTED?	1
Chapter 2: From Fortifications to Frameworks – The Evolution and Theories of CPTED	2
<i>Foundational Thinkers in CPTED: A Chronological Overview</i>	2
<i>Theoretical foundations of CPTED</i>	3
<i>CPTED Now: Evolution and contemporary applications</i>	4
<i>Innovations and contemporary challenges in CPTED</i>	6
Chapter 3: CPTED Practical Principles – Three Generations	7
<i>First Generation CPTED: Creating SAFE Environments</i>	7
<i>Second Generation CPTED: ACTS to Strengthen Community Bonds</i>	9
<i>Third Generation CPTED: STEP Toward Lasting and Sustainable Neighbourhoods</i>	11
Chapter 4: International Praxis	11
Chapter 5: Conclusion and Practical Application	22
References	24



CHAPTER 1

What is CPTED?

Crime Prevention Through Environmental Design (CPTED)¹ is founded on the principle that thoughtfully designed environments can play a decisive role in reducing crime, increasing the perception of safety, and improving the overall quality of life in urban settings. At its original core, CPTED focuses on structuring environments – physical, social and organizational environments – in ways that naturally deter criminal behaviour while simultaneously stimulating positive social interaction. It is not merely about reducing opportunities for crime but about designing spaces that invite engagement, foster trust, and encourage residents to take ownership of their surroundings. Safety, in this sense, becomes a by-product of liveable, vibrant, and resilient urban communities aimed at enhancing the quality of life.

CPTED principles are operationalized through a set of evidence-based design guidelines that address themes such as natural surveillance, access control, territorial reinforcement, and environmental management. These principles are increasingly integrated into planning policies, area development programs, and public space design standards — both nationally and internationally.

CPTED and Standards: From Practice to Policy

CPTED has evolved into an internationally recognized framework, supported by professional standards, certification systems, and expert networks. *The International CPTED Association (ICA)* plays a key role in developing knowledge, training professionals, and promoting international standards for CPTED application. Their globally recognized CPTED Certification Programs, work of the ICA Standardization Committee and the formulation of CPTED guidelines provide an essential foundation for consistent and high-quality implementation of CPTED principles.

In the Dutch context, ICA Chapter *Stichting Veilig Ontwerp en Beheer (SVOB)* fulfills a similar role, tailored to local needs and policy frameworks. As a knowledge platform and certification body, SVOB supports professionals, municipalities, and developers in applying CPTED in practice. By linking design principles to concrete performance requirements and integrating CPTED into guidelines for safe and liveable area development, SVOB contributes to embedding CPTED in Dutch policy and practice.

In addition, *the Dutch CPTED Research Group* — part of Inholland University of Applied Sciences — plays a central role in the research, development, and innovation of CPTED knowledge in the Netherlands. This research group operates in close collaboration with SVOB and international partners, translating scientific insights into practice-based tools, education, and policy recommendations. Their work strengthens the scientific foundation of CPTED and ensures its ongoing evolution in response to societal and spatial challenges.

CPTED as a Social-Physical Design Philosophy for Sustainable and Inclusive Cities

This White Paper is an edited adaptation of the earlier Dutch-language publication *Nieuw Handboek Veilig Ontwerp en Beheer* (López & Van Soomeren, 2024), written from the perspective of SVOB and the *Dutch CPTED Research Group* and drawing on national and international expertise to provide insight into the development and application of CPTED in Europe and worldwide. It aligns with the broader mission of SVOB and Inholland's research efforts to promote safe, resilient, and socially inclusive environments through evidence-based design, planning, and management.

CPTED is no longer just about crime prevention — it has become a comprehensive design philosophy. One that positions safety as an integral part of sustainable urban development, social cohesion, and community well-being.

¹ CPTED is known around the world under various names, such as Designing Out Crime (DOC), Design Against Crime (DAC), Security by Design or Secured by Design (SbD), Defensible Space, and Crime Prevention through Urban Design and Planning (CP-UDSP). In compliance with the European standard CEN/EN 14383-1:2025, we use the term CPTED throughout this document.



CHAPTER 2

From Fortifications to Frameworks – The Evolution and Theories of CPTED

The idea that thoughtfully designed environments can play a decisive role in reducing crime is not new — it is deeply rooted in human history. For centuries, architecture and urban design have been used as tools for safety and social control — from the walled cities of antiquity to the fortified castles of medieval Europe. These historical examples illustrate how built environments were not only protective on the outside but also expressions of authority, social organisation and even social cohesion from the inside.

However, CPTED as it is applied today marks a shift from defensive, exclusionary architecture to open, inclusive, and preventive design strategies. Modern CPTED does not seek to isolate communities or create barriers between people but aims to foster safe, accessible, open, inclusive environments — fully integrated within democratic societies and contemporary urban development frameworks. Rather than building walls to exclude outside threats, CPTED invites inclusion – prioritizing accessibility, visibility, and communal ownership to create safer, more liveable environments. CPTED does not concentrate solely on reducing risks, although this remains part of its remit, but focuses primarily on creating opportunities that strengthen positive use of space and enhance overall quality of life.

Reimagining Safety: The CPTED Paradigm

CPTED is grounded in the belief that design and environment influence human behaviour, including crime. Its principles are operationalized through practical interventions that support natural surveillance, enhance territoriality, foster social interaction, and reduce fear of crime. These principles aim not only to prevent crime, but to elevate perceptions of safety—two closely linked goals that shape the quality of urban life.

To fully understand CPTED’s development, we must explore both its intellectual origins and the theoretical lenses that shaped its core. This chapter does both, beginning with the foundational thinkers who defined CPTED and concluding with the criminological theories that underpin its application.

Foundational Thinkers in CPTED: A Chronological Overview

The Sociological Roots	
	1. The Chicago School (1930s) Criminologists Clifford Shaw and Henry McKay pioneered research into the environmental causes of crime focused on (young) offenders in marginalized urban areas. Their concept of <i>social disorganization</i> explained how weak social structures and institutions fostered crime—a critical early link between place and offending.
Early Contributions from Environmental Psychology and	
	Alongside the sociological tradition, early research in <i>behavioural science</i> , <i>anthropology</i> , and <i>environmental psychology</i> made important contributions to CPTED’s development — particularly regarding the concept of <i>territoriality</i> . Anthropologist Robert Ardrey (<i>The Territorial Imperative</i> , 1966) and sociologist Edward T. Hall (<i>The Hidden Dimension</i> , 1966) explored how humans’ structure, perceive, and defend personal and communal space — known as <i>proxemics</i> . Urban planner Kevin Lynch (<i>The Image of the City</i> , 1960) introduced concepts like <i>legibility</i> , <i>wayfinding</i> , and <i>environmental imageability</i> — influencing later CPTED principles focused on spatial clarity and territorial reinforcement. These authors were explicitly cited by Oscar Newman in his <i>Defensible Space</i> theory, providing research depth to early CPTED thinking about human-space interaction and territorial behaviour.
The Urbanists and Designers	
	2. Jane Jacobs (1960s) In <i>The Death and Life of Great American Cities</i> , Jacobs argued for the importance of street-level interaction. Her now-famous idea of “eyes on the street” promoted mixed land use and vibrant public life as essential to informal social control.
	3. Oscar Newman (1970s–1980s) Newman’s <i>Defensible Space</i> theory proposed that design elements—like building orientation and entry control—can empower residents to supervise and claim their space. Newman later expanded this perspective in <i>Community of Interest</i> , where he emphasised how architectural form can strengthen territoriality, ownership and social cohesion.
Formalizing CPTED	
	4. C. Ray Jeffery (1971) Jeffery coined the term <i>CPTED</i> in his seminal book. Influenced by behavioural science and systems theory, he framed CPTED as a scientific approach to environmental crime prevention. His work marks the formal birth of the field.
Broadening the Toolkit	
	5. Ronald V. Clarke and Pat Mayhew (1980s) Key developers of <i>Situational Crime Prevention</i> , Clarke and Mayhew emphasized reducing criminal opportunities through environmental manipulation. Clarke’s taxonomy of techniques—initially 12, later expanded to 16—has become integral to CPTED planning.
	6. Patricia and Paul Brantingham (1980s) Their <i>Crime Pattern Theory</i> illustrated how offenders operate along familiar paths and predictable routines. Their work enabled CPTED to integrate spatial-temporal patterns into predictive and place-based interventions.
The Great Simplifier	
	7. Timothy Crowe (1990s–2010s) In his influential book <i>Crime Prevention Through Environmental Design</i> (1991), Timothy Crowe integrated many of the theories mentioned above and translated them into a highly practical CPTED handbook. His approach, especially in the early editions, leans strongly towards physical design solutions and offers an extensive catalogue of strategies, applications, and examples for practitioners. The third revised edition (2013) introduces more nuance and acknowledges a broader range of social and managerial dimensions, yet Crowe’s work remains best known as a comprehensive and accessible guide to the primarily physical side of CPTED.
Social Dimensions and Beyond	
	8. Gregory Saville and Gerry Cleveland (1990s) By proposing <i>Second Generation CPTED</i> , they stressed again the importance of community-building elements like social cohesion and collective efficacy. Their work marked a shift from physical design alone back to the inclusion of social design and management.
	9. Mateja Mihnjac and Gregory Saville (2010s–2020s) Building on earlier phases, these authors developed <i>Third Generation CPTED</i> , linking CPTED to sustainability, governance, and public health. Their integrative model promotes long-term resilience, positioning CPTED as a pillar in broader urban development and health strategies.

CHAPTER 2

Theoretical foundations of CPTED

The evolution of Crime Prevention Through Environmental Design (CPTED) as a distinct field is deeply rooted in criminological theory. These theoretical frameworks not only explain the situational and environmental conditions under which crime is more likely to occur but also shape the principles that underpin effective design strategies. Central to most of these theories is an emphasis on offender decision-making and behaviour within specific spatial and social contexts. Below are seven influential criminological theories that have significantly informed the development and application of CPTED:

Opportunity Theory posits that crime emerges when situational conditions provide suitable opportunities. In essence, “opportunity makes the thief” (Felson and Clarke, 1998) and therefore it is essential to “Think Crime!” (Cozens, 2014). A potential offender is more likely to commit a crime when the setting appears conducive—low risk, high reward, and minimal effort. CPTED interventions grounded in this theory aim to reduce such opportunities by modifying the built environment to make crime less attractive or feasible.

Rational Choice Theory builds on the assumption that offenders engage in a cost-benefit analysis—albeit sometimes limited or biased—before acting (Cornish & Clarke, 1986). Within CPTED, this translates into design strategies that aim to increase the perceived risks (e.g., through visibility or surveillance) and reduce the perceived benefits (e.g., by removing

Routine Activity Theory. Developed by Cohen and Felson (1977), this theory identifies three conditions necessary for a crime to occur: a motivated offender, a suitable target, and the absence of a capable guardian. Often visualized as the *Crime Triangle*, this framework has become foundational in situational crime prevention, including CPTED. Through environmental design measures – such as improved lighting, sightlines, and territorial reinforcement – CPTED seeks to introduce ‘guardianship’ whether in the form of active monitoring or passive observation. However, despite its popularity, Routine Activity Theory remains contested in terms of empirical validation, particularly regarding its predictive capacity in diverse socio-spatial contexts.

Crime Pattern Theory suggests that criminal behaviour follows recognizable spatial patterns, often occurring along the routine pathways of offenders—between their homes, workplaces, and leisure activities (Brantingham & Brantingham, 1981). This perspective helps CPTED practitioners identify and target ‘nodes,’ ‘paths,’ and ‘edges’—key spatial elements that structure urban movement. Strategies such as altering access routes or redesigning poorly surveilled connectors can disrupt these patterns. Geographic profiling, used in predictive policing, exemplifies this theory in action by mapping likely offender movements and targeting interventions accordingly.

Broken Windows Theory. Articulated by Wilson and Kelling (1982), this theory argues that visible signs of disorder—such as vandalism, litter, or neglected buildings—signal a lack of social control and invite further crime and antisocial behaviour. CPTED strategies that emphasize maintenance, rapid repair, and the cultivation of orderly environments are rooted in this theory. While widely adopted in policy circles, the theory has also faced criticism for potentially overemphasizing aesthetic order at the expense of addressing underlying structural inequalities (Guillén & Brotat, 2023).

Natural Movement Theory. Linked to the *Space Syntax* framework, this theory focuses on how spatial configurations influence pedestrian movement and social interaction. It suggests that natural movement patterns—those that emerge without coercion—can foster ‘eyes on the street’ and unplanned social encounters (Hillier & Hanson, 1984). CPTED applications of this theory aim to design environments that channel movement through active, visible, and socially legitimate spaces, thereby enhancing natural surveillance and collective guardianship.

Collective Efficacy Theory. Introduced by Sampson and colleagues (1997), this theory underscores the role of mutual trust, social cohesion, and shared expectations for informal social control. In CPTED, fostering collective efficacy involves designing public spaces that encourage community ownership and engagement. When residents feel a sense of control and responsibility for their environment, they are more likely to intervene in situations of disorder and to participate in neighbourhood watch or stewardship initiatives. This social dimension amplifies the physical strategies of CPTED, creating a more holistic and resilient crime prevention approach.

Together, these theories provide a multi-layered conceptual basis for CPTED. They clarify not only how crime arises in specific settings but also how the built environment—and the social behaviour it fosters—can be leveraged to prevent crime. As CPTED evolves, the integration of these theoretical insights enables practitioners to move toward proactive, evidence-informed strategies that enhance both safety and urban liveability.

CPTED Now: Evolution and contemporary applications

Over the years, CPTED has undergone significant evolution, with new generations of the concept introduced to address changing urban challenges and scientific insights (Armitage & Ekblom, 2019). This section of the chapter explores the contemporary development of CPTED, from the first to the third generation, focusing on the shift toward greater liveability and sustainability.

First Generation (1G CPTED):

The first generation of CPTED primarily focused on the *design and use of the physical environment* to reduce crime. Core principles such as natural surveillance, territorial reinforcement, and access control aimed to discourage criminal activities by increasing the perceived risks for offenders. These strategies were largely reactive, addressing specific safety issues through the creation of physical barriers and the definition of clear boundaries, with a strong emphasis on security.

A simplification of the more socially driven founding ideas was later presented by Tim Crowe (1991) in his influential book, albeit from a distinctly physical and technical perspective. His interpretation helped solidify CPTED's practical uptake but also narrowed its scope by emphasizing environmental design over broader social dynamics.

Second Generation (2G CPTED):

As a reaction to the rather hardboiled security approach that almost kidnapped – mainly Anglo-Saxon - CPTED first generation approach the Second Generation CPTED places again a strong emphasis on strengthening social cohesion and fostering positive interaction within communities. It introduced principles such as “*cohesion through design*” and “*engagement*”, aimed at enhancing a neighbourhood's resilience against social disorder and crime. The concept of neighbourhood liveability became a central focus, linking safety not only to the physical environment but also to the quality of social relationships and community capacity (Saville & Cleveland, 1997).

In Europe, this approach is reflected in standardization activities by CEN, which began in the late 1990s, and in European projects such as the COST Action *Crime Prevention through Urban Design and Planning* (2012–2018) and the Horizon 2020 *Cutting Crime Impact* project (2018–2022). In the Netherlands, it is embedded in the *National Program for Liveability and Safety* (*Nationaal Programma Leefbaarheid en Veiligheid*), while internationally, the *SafeGrowth®* method has been implemented in neighbourhoods across North America, New Zealand, Australia, and Europe.



Third Generation (3G CPTED):

The latest development in CPTED, the third generation, expands its focus to sustainability and the broader context of human security (Mihinjac & Saville, 2019). This generation integrates environmentally friendly design principles and emphasizes the need for a holistic approach that considers ecological, social (including socio-psychological), and economic aspects of living environments. The idea is that safety arises not only from crime reduction but also from creating sustainable and liveable communities that promote the well-being and (mental) health of all residents.

The evolution of CPTED shows how different ideas—social, physical, and managerial—have come together into a fully integrated approach. This new direction not only combines these perspectives but also adds a strong focus on sustainability. The result is a broader view that connects safety, security, and liveability in meaningful ways.

Third-Generation CPTED moves beyond the rigid split between “social” and “physical” approaches that shaped First- and Second-Generation CPTED, particularly in the United States. This divide—between physical/technical and social/human factors—had already been criticized by philosopher Bruno Latour in 1994 (Van Soomeren et al, 2022 p. 40). Latour’s example is that of the gunman: a man (social/human) and a gun (physical/technical) together form a new third entity—the gunman. It is neither people nor guns that kill, but the gunman does kill. A similar idea goes for CPTED: a lock on a door does not prevent burglary by itself. It takes a resident who is willing and able to use the lock. One step further into 2nd generation CPTED we might say: it takes a resident who steps outside the door to participate in street life and community activities.

Thus the physical environments we design and use carry social and cultural meaning. In fact, our cities, towns, and neighbourhoods are not just backgrounds for social life—they are part of social life. As Latour would put it: “they are us.”



Innovations and contemporary challenges in CPTED

Beyond the generational developments of CPTED, which increasingly recognize liveability and sustainability as crucial components of safe communities, significant methodological innovations have emerged:

Space Syntax:

A spatial addition to CPTED practice is the integration of Space Syntax analyses. This method uses complex algorithms to analyse movement and visibility patterns in urban environments, helping planners and designers better understand how urban interventions can influence crime (Hillier & Hanson, 1984; Hillier, 2007; Van Nes & Yamu, 2021). By optimizing natural movement flows and sightlines in an area, Space Syntax contributes to creating safe and accessible environments while also enhancing economic sustainability and opportunities for social interaction.

Crime and Place (CAP):

Guided by the work of criminologist David Weisburd (2015; 2018), the “Crime and Place” theory focuses on micro-geographic locations to better understand crime patterns. This approach highlights how small, specific locations, such as street segments or individual addresses, can have unique criminogenic characteristics. By zooming in on these “hotspots,” CAP researchers and policymakers can implement more targeted and tailored prevention strategies, resulting in more efficient and sustainable crime prevention. The key concept here is “focus”—addressing hotspots, hot times, hot victims, and repeat offenders effectively.

Behavioural Sciences and Environmental Psychology:

Insights from behavioural sciences and environmental psychology are increasingly applied in CPTED to better understand the decision-making processes of criminals, troublemakers, and ordinary citizens (Saraiva, 2022). These disciplines assist in designing environments that promote socially desirable behaviour and discourage undesirable actions. By adjusting physical spaces to include subtle behavioural cues—such as clear markings, adequate lighting, and sightlines that encourage natural surveillance—reactions that enhance safety and social order are reinforced. Techniques like nudging are also employed, where – sometimes symbolical - small architectural or design adjustments subconsciously guide individuals toward safer behaviours without limiting their freedom of choice.

Technological Advances in CPTED:

Recent developments in CPTED include a range of advanced technologies that further refine approaches to urban safety. Biometric technologies, such as galvanic skin response (GSR) sensors and heart rate monitors, are used to measure physiological reactions indicative of stress or fear in urban environments. Eye-tracking technology helps researchers understand how visual elements in the environment capture or distract attention, which is critical for designing safer public spaces. Additionally, data science and artificial intelligence are playing an increasingly significant role in predicting crime patterns and implementing effective prevention strategies. Techniques like geographic profiling and predictive policing use complex algorithms to identify future crime hotspots and plan interventions to reduce crime before it occurs. However, while these tools and methods enhance CPTED, caution is necessary. Particularly with artificial intelligence, vigilance is required to avoid biases in algorithms, which can lead to discrimination or racial profiling. This was evident in predictive policing applications in the Netherlands and Germany ([CCI Project - Cutting Crime Impact](#)), where flawed algorithms caused significant problems.

The modern developments within CPTED illustrate how the field has adapted and evolved to address the complexity of contemporary urban challenges. By integrating advanced analytical methods, technologies, and a broader understanding of safety, CPTED remains a crucial part of urban development and crime prevention strategies. This approach combines traditional physical and design-based tactics with biometric technologies, data science, and insights from behavioural sciences and environmental psychology. Such a holistic perspective ensures that CPTED continues to innovate and effectively promote safe, liveable, and sustainable communities.

CHAPTER 3

CPTED Practical Principles – Three Generations

The core principles of the three generations of Crime Prevention Through Environmental Design (CPTED) are effectively captured by three memorable acronyms: *SAFE* for the first generation, *ACTS* for the second, and *STEP* for the third. Together, they represent a comprehensive framework for designing safe, inclusive, and resilient environments.

These principles are highly adaptable and can be applied across multiple stages and contexts. They serve as practical guidelines for setting performance requirements in construction briefs, informing design strategies during the planning phase, establishing criteria for assessing new or existing plans, and shaping management approaches for the maintenance and improvement of built environments.

The three acronyms can be remembered by the following catchphrase:

CPTED lays the foundation for a SAFE environment, ACTS to knit stronger social bonds, and paves a pivotal STEP towards lasting, secure, safe, and environmentally conscious neighbourhoods.

First Generation CPTED: Creating SAFE Environments

The principles of the first generation of CPTED are captured by the acronym *SAFE*, comprising Surveillance, Accessibility, Functionality, and Environment & Engagement.

Surveillance

Aspects: 1.) Social Presence, 2.) Strategic Lighting, 3.) Unobstructed Sightlines

Natural Surveillance revolves around the principle of *visibility* — the ability to see and to be seen within the built environment. This concept is shaped by three interrelated factors: environmental design, strategic lighting, and the presence of people — often referred to as ‘*eyes on the street*’. The active presence of residents, passersby, or users of adjacent buildings provides continuous social supervision, creating informal guardianship that deters crime throughout the day and night.

In contemporary CPTED practice, surveillance strategies are sometimes distinguished into three levels: *natural surveillance* (environmental design, lighting), *mechanical surveillance* (sensing, CCTV, security technology), and *organized surveillance* (formal patrols by security staff or police). While this chapter focuses on natural surveillance in line with Oscar Newman’s original Defensible Space approach, it is important to note that the different levels of surveillance can complement each other within broader safety strategies. Terminology may vary, and related concepts such as informal, semi-formal, and formal control are often used interchangeably or alongside².

Strategic lighting is essential in supporting visibility, especially during evening and nighttime hours. Well-designed and correctly placed lighting ensures that public spaces, streets, and pedestrian routes are illuminated and clearly identifiable. In addition to enhancing visibility, lighting contributes substantially to the perceived safety and comfort of those using the space.

Finally, *unobstructed sightlines* are critical to effective natural surveillance. Clear visual access across public areas prevents concealment and reduces the likelihood of crime in secluded locations. Thoughtful environmental design eliminates blind spots and visual barriers, fostering openness and transparency throughout the space.

The overarching goal is to create environments where visibility and informal social control are not incidental but embedded in the spatial design. In doing so, natural surveillance becomes a key element in promoting security, accessibility, and a welcoming public realm.

Accessibility

Aspects: 1.) Optimal Entry/Exit Design, 2.) Efficient Emergency Egress, 3.) Selective Access Control

Accessibility is a fundamental principle in the design and management of the built environment, ensuring that spaces are both functional and secure. The primary objective is to provide unhindered access for intended users while simultaneously discouraging or preventing access for those for whom the space is not intended.

This dimension of accessibility is shaped above all by thoughtful urban and architectural planning and design. *Optimal entry and exit design* ensure that routes into and out of a space are clearly identifiable, easily navigable, and intuitively aligned with patterns of legitimate use. Entry points should be located and configured in ways that promote convenience for authorized users while minimizing the potential for misuse or unauthorized entry.

Equally critical is the provision of *efficient emergency egress*. Well-planned and clearly marked escape routes enable safe, rapid evacuation in emergency situations, thereby fulfilling essential safety and risk management requirements.

Selective access control complements these measures by regulating movement through the strategic placement of physical elements such as fences, gates, bollards, or landscape features. Access control is often categorized into three levels: *natural* (through spatial layout), *mechanical* (through technology), and *organized* (through personnel). Regardless of classification, the key remains that access control should support permeability for legitimate users while discreetly guiding or restricting others.

Ultimately, accessibility within CPTED is about achieving balance; facilitating ease of movement for rightful users, ensuring safety through well-designed escape routes, and regulating access where needed, while upholding the principle that public space should remain accessible to all.

Functionality

Aspects: 1.) Defined Function, 2.) Established Boundaries, 3.) Efficient Routing

Functionality within the built environment is closely connected to the principle of Territorial Reinforcement. Clear spatial definition and visible boundaries — created through landscaping, fencing, signage, or other design elements — foster a distinct sense of ownership, responsibility, and accountability among users and managers.

Central to this approach is the principle that the function of every space should be immediately recognizable at a glance, along with a clear understanding of who is responsible for it—whether it's, for example, a semi-public terrace or an open-access sidewalk. Environments where it is evident that each area is owned, used, and maintained by someone help reduce ambiguity and promote attentiveness to behaviour and maintenance.

Defined *boundaries* also support legibility and orientation. They assist users in understanding the spatial structure, navigating the environment, and recognizing appropriate use. Thoughtful spatial design ensures that the purpose of each area is self-evident, reinforced both by layout and visual cues.

Equally important is *efficient routing*. Logical pathways, supported by intuitive wayfinding and orientation points, facilitate smooth navigation and enhance the sense of safety and comfort for users. A clear spatial structure reduces confusion, supports natural surveillance, supports escape options in case of emergency, and prevents undesirable behaviour linked to spatial ambiguity.

In both design and management, the objective is to create environments where function, boundaries, and routing are explicitly communicated and embedded in the spatial logic. This strengthens territoriality, clarifies expectations, and fosters a shared sense of ownership — all essential conditions for maintaining safe, orderly, and user-friendly environments.

Environment & Engagement

Aspects: 1.) Aesthetic Resilience, 2.) Proactive Maintenance, 3.) Functional Diversity

Environment & Engagement is a critical dimension in fostering safety and security, emphasizing the importance of a well-designed, attractive, and actively used public realm. This approach builds on principles of Maintenance, Activity Support, and Site or Target Hardening, ensuring that spaces are simultaneously welcoming, visually attractive, and resilient.

Aesthetic resilience plays a central role. Spaces should not only be visually appealing but also designed to withstand intensive use and resist vandalism. This involves selecting durable materials and construction methods that balance aesthetics with functionality. While features such as reinforced doors, security cameras, or anti-climbing measures might fall under Access Control, they equally contribute to the environment's capacity to endure wear and tear and mitigate damage. The key challenge lies in integrating these elements discreetly, ensuring safety is enhanced without creating a hostile or fortress-like atmosphere.

Equally vital is *proactive maintenance*. Regular cleaning, timely repairs, and thoughtful redesigns demonstrate visible care for the environment, reinforcing both safety and aesthetic quality. Well-maintained spaces foster positive perceptions among users, enhancing their sense of comfort, attachment, and belonging.

Functional diversity is essential for promoting broad and inclusive use. Spaces dominated by a single user group can lead to nuisance or territorial behaviour, whereas offering diverse functions attracts a variety of users throughout the day. For example, a park that combines play areas for children with quiet zones for adults creates a multifunctional setting that encourages wider engagement and natural supervision.

By providing a mix of uses — from recreational facilities and seating areas to shops and meeting points — environments evolve into vibrant, dynamic places where people not only feel safe but enjoy spending time. This variety stimulates interaction, strengthens community ties, and supports a continuous, active presence in the space, contributing to both security, safety and liveability.

CPTED Practical Principles – Three Generations

Second Generation CPTED: ACTS to Strengthen Community Bonds

The principles of the second generation of CPTED are summarized by the acronym ACTS, referring to Access and Connectivity, Community Culture, Threshold Capacity, and Social Cohesion.

Access and Connectivity

Aspects: 1.) External Relations, 2.) Resource Accessibility, 3.) Integrative Connections

In Second Generation CPTED, Access & Connectivity extends far beyond the physical layout of streets and pathways. It focuses on fostering well-connected, inclusive environments where neighbourhoods are actively linked to broader networks — socially, institutionally, and spatially. Drawing from sociologist Robert D. Putnam's distinction between *bonding* and *bridging* social capital, First Generation CPTED aligns primarily with bonding — the strong ties among people who are alike and within close-knit groups. In contrast, Second Generation CPTED introduces and prioritizes bridging — the connections between individuals and groups from different socio-economic, cultural, or ethnic backgrounds (Putnam, 2001). Strengthening these connections with people of a different culture and socio-economic status is essential to prevent isolation and to enhance a community's engagement with its surrounding resources, and governance structures. This points to the value of mixed neighbourhoods that respect people's natural preference for bonding with similar others, while ensuring opportunities for bridging, ideally arranged in a balanced, chessboard-like pattern where residents have familiar neighbours yet share the wider neighbourhood with people of different cultural and socio-economic backgrounds.

A key element is cultivating *external relations*. This involves maintaining regular contact with local institutions and government, building partnerships with neighboring communities, and engaging with media to share community achievements and initiatives. These outward-oriented efforts help prevent social isolation and foster a culture of openness, collaboration, and shared problem-solving.

Equally important is *resource accessibility*. Empowering communities to access external resources enhances their capacity for development and self-reliance. A vibrant local press — including neighbourhood newspapers and community apps — serves as an early indicator of this capacity. These platforms function as the “canary in the coal mine”: when they disappear, so too may the means for civic engagement and collective voice. Concrete strategies that support resource accessibility include providing grant-writing assistance, establishing digital hubs for neighbourhood collaboration, and creating mechanisms for co-design in local planning. These align with the principles of advocacy planning, a concept introduced by Paul and Linda Stone Davidoff, which promotes inclusive, participatory planning processes that help underrepresented groups organize and fund their own “counterforce” to dominant development agendas (Davidoff, 1965). *Advocacy planning* empowers communities not just to react, but to proactively shape their urban futures.

Finally, *integrative connections* focus on strengthening both physical and social linkages. This includes developing shared mobility infrastructure like bicycle paths, public transport access, and car-sharing systems that connect neighbourhoods internally and externally. At the social level, community activities and events are essential to foster interaction between diverse demographic groups, promoting cohesion and mutual engagement. Together, these elements build resilient, connected, and outward-looking neighbourhoods that thrive within a broader urban fabric.

Community Culture

Aspects: 1.) Cultural Diversity, 2.) Celebration of Community, 3.) Place Making

In CPTED, *Community Culture* refers to the cultivation of a shared identity and sense of belonging that goes beyond the physical environment. It reinforces social cohesion through the recognition and celebration of cultural diversity, the creation of meaningful local traditions, and the co-shaping of places that carry emotional and symbolic value.

A central element is the acknowledgment of both tangible and intangible heritage. This includes not only buildings, monuments, and public spaces, but also local customs, languages, and stories. Such heritage connects communities to broader themes like democracy and human rights. In this regard, the *Faro Convention* (Council of Europe, 2005) is especially relevant. It emphasizes that cultural heritage is not only about objects and places, but also about the meanings, uses, and values that people attach to them. The convention promotes a human-centered approach, recognizing communities as essential actors in defining and preserving their cultural heritage ([Council of Europe, Faro Convention](#)).

Community culture is supported through organizing cultural activities and events — such as neighbourhood festivals, music performances, and local celebrations — that bring residents together and strengthen social bonds. These initiatives support interaction, belonging, and pride within the community, transforming public spaces into shared places of meaning and connection.

Storytelling and artistic expression play an essential role in this process. Public art installations, murals, or statues that reference local history, significant events, or well-known community figures contribute to a visible and shared sense of identity. These elements help to anchor the present community in its local history while fostering a future-oriented sense of belonging.

Community Culture also directly supports First Generation CPTED principles such as ownership, territoriality, and natural surveillance. When residents identify strongly with their neighbourhood, they are more likely to take responsibility for its care, to intervene in undesirable situations, and to maintain a positive and welcoming living environment.

Ultimately, Community Culture creates dynamic, inclusive, and vibrant neighbourhoods where residents feel at home, connected to one another, and committed to sustaining a safe, liveable and socially rich environment.

Threshold Capacity

Aspects: 1.) Social Stabilizers, 2.) Tipping Point

While Access and Connectivity in CPTED emphasizes the socio-economic and cultural mix of people, *Threshold Capacity* focuses on maintaining a balanced mix of land uses and social functions. This balance is essential to ensure community stability, vitality, and diversity over time. It extends beyond physical design considerations, incorporating social stabilizers that create meaningful and functional connections between different user groups and activities.

An important strategy involves integrating complementary land uses that stimulate interaction and foster social cohesion. For example, combining daycare centers with senior housing encourages intergenerational engagement, while community vegetable gardens provide shared spaces for cooperation, contributing to local social networks. Additionally, the presence of street performers or entertainers not only animates public space but also enhances natural surveillance — reinforcing principles from First Generation CPTED.

Managing the *tipping point* of land use is another critical element. This involves monitoring and regulating the intensity and occupation of spaces to prevent conditions that might foster crime, anti-social behaviour and incivilities. High vacancy rates in retail areas, residential blocks, or entertainment zones can erode community safety and signal neglect. Proactively addressing these issues is essential to prevent locations from deteriorating into crime-prone environments.

Threshold Capacity aims to foster diverse, human-scale land use densities — balancing lively community spaces with the prevention of overcrowding or over-commercialization. In line with Jane Jacobs' vision, a rich mix of uses ensures that neighbourhoods remain active, adaptable, and socially resilient. Residents should have access to varied activities — from parks and gardens to shops and entertainment — enhancing quality of life while safeguarding against land use patterns that could undermine safety and social cohesion.

CPTED Practical Principles – Three Generations

Social Cohesion

Aspects: 1.) Social Glue, 2.) Positive Self-esteem

Social Cohesion is a cornerstone of Second Generation CPTED, focusing on strengthening interpersonal relationships and collective responsibility within neighbourhoods. It promotes collaboration, mutual support, and a shared commitment to maintaining a safe and pleasant living environment.

At the heart of Social Cohesion lies the concept of *social glue* — the informal ties and networks that bind residents together. This is fostered through community-building activities, shared responsibilities, and collaborative projects that bring people into contact and stimulate trust and reciprocity.

Equally important is the cultivation of *positive self-esteem* among individual community members. Strengthening residents' confidence, conflict resolution skills, and capacity for participation enhances not only their personal development but also their willingness to engage in collective efforts for neighbourhood safety and vitality and quality of life.

This dual approach — connecting people while empowering individuals — reinforces both social integration and active citizenship. Recent empirical research, particularly Robert Sampson's work on *collective efficacy*, underlines the importance of Social Cohesion for crime prevention. While Social Cohesion focuses on building interpersonal networks and trust, Collective Efficacy extends this by emphasizing residents' shared willingness to intervene for the common good.

Together, these concepts form a vital social foundation for CPTED strategies — creating resilient communities where both social bonds and individual capacities are mobilized to foster safety, solidarity, and local stewardship. However, it is important to acknowledge that many elements of Second and Third Generation CPTED — including concepts like community culture, threshold capacity, and resource accessibility — remain loosely defined and partially overlapping. Their practical application often lacks precision, and they are still open to further operationalization and empirical testing. This presents both a challenge and an opportunity for the international CPTED-community to refine these concepts and enhance their value for evidence-based urban safety strategies.

Third Generation CPTED: STEP Toward Lasting and Sustainable Neighbourhoods

The principles of the third generation CPTED are reflected in the acronym STEP: Social Sustainability, Thriving Economic Sustainability, Environmental Sustainability, and Public Health.

Social Sustainability

Aspects: 1.) Community-Based Governance, 2.) Places for Interaction and Collaboration

Social Sustainability within Third Generation CPTED focuses on creating inclusive, participatory, and socially connected environments, where residents are empowered to shape and manage their own living conditions. It is centered on strengthening community bonds while fostering local responsibility, collective decision-making, and proactive engagement in neighbourhood development.

A key component is the establishment of *community-based governance*. This involves creating transparent and accountable structures that enable residents and local businesses like shop owners to participate in local decision-making processes. Such governance models promote a sense of belonging, ownership, and shared responsibility, encouraging residents to collaboratively address local challenges and engage in the management of their environment. An example is the Business Investment Zone (BIZ)³. A defined area (such as a shopping street, entertainment square or nightlife area) where entrepreneurs jointly invest in the quality of their business environment. For example, by tackling deterioration, cleaning activities, introducing friendly hosts for service and security or installing festive lighting during the weekend and holidays (Galetzka et al., 2021). In The Netherlands the municipality sets a levy for this, which all entrepreneurs in the BIZ have to pay. The Business Investment Zone approach is enshrined in a law that was enacted in a national law passed by parliament in 2015, and this law ensures that 'free riders' are outsmarted. If 60% of all entrepreneurs support a decision all have to follow and have to invest.

Equally essential is the creation of *places for interaction and collaboration*. Urban design plays a vital role in facilitating social engagement by providing pedestrian-friendly infrastructure, communal meeting areas, and public spaces that naturally encourage interaction between residents. The presence of a local community center serves as a crucial hub — not only as a venue for neighbourhood events but also as a platform for democratic processes, consultation, and collaborative decision-making.

Social Sustainability within CPTED thus integrates participatory urban design with grassroots community development. It promotes environments where social interaction, collaboration, and co-governance are embedded in the physical and social fabric of the neighbourhood, strengthening social cohesion, resilience, and long-term safety through active resident involvement.

Thriving Economic Sustainability

Aspects: 1.) Local Economic Investment, 2.) Business Incubation and Job Creation

Thriving Economic Sustainability focuses on fostering a resilient, self-sustaining local economy that not only contributes to crime prevention but also strengthens social cohesion and community engagement. This principle enhances both the safety and the vitality of neighbourhoods by supporting economic activity that is closely tied to local identity and ownership.

In line with First Generation CPTED, a thriving local economy reinforces principles such as natural surveillance and territorial reinforcement. Active commercial areas, successful local businesses, and vibrant public spaces generate continuous pedestrian (and biking) traffic, increasing visibility in public areas while fostering a sense of ownership, pride, and attentiveness among residents.

Simultaneously, Thriving Economic Sustainability aligns with Second Generation CPTED by promoting social cohesion and active community participation. Economic initiatives such as local partnerships, cooperative business models, and neighbourhood redevelopment projects serve as platforms for collaboration, building stronger social ties and mutual investment in the community's future.

Central to this principle are strategies of *local economic investment and business incubation with job creation*. Supporting local entrepreneurship, facilitating access to resources for small and starting businesses, and stimulating employment opportunities within the community not only contribute to crime reduction but also foster economic resilience and social capital.

A notable example of this approach can be found in several European cities with the introduction of a dedicated policy for business incubators and coops. Under this policy, subsidized and renovated buildings are made available to artists and craftspeople as affordable studio and workspace rentals, with the explicit goal of strengthening neighbourhood vibrancy and liveability.

Ultimately, Thriving Economic Sustainability creates neighbourhoods that are not only safer through increased activity and community presence but also socially and economically robust — places where residents are engaged, businesses are embedded within the community, and local development supports long-term safety, liveability, and prosperity.

Creative hubs as generators for social and economic sustainability

Creative hubs (often called incubators, maker spaces) are subsidised or otherwise affordable workspaces in renovated buildings where artists, craftspeople and small creative entrepreneurs co-locate (Konaté et al., 2025). What makes them different from “just renting studios” is that they are intentionally organised. A hub typically has an operator or cooperative structure that selects tenants, sets shared rules, maintains the building, and programmes activities that connect the site to the neighbourhood. In other words, a creative hub is both an economic platform and a form of community-based place management (City of Amsterdam, 2016).

This is why creative hubs fit naturally within Third Generation CPTED as a practical bridge between social sustainability and thriving economic sustainability. On the social side, hubs provide a stable “place for interaction and collaboration”. Shared workshops, communal areas, exhibitions and courses create low-threshold opportunities for residents, makers and local businesses to meet, collaborate and learn. When governance is transparent and participatory, for example through tenant councils or cooperative management, the hub becomes a real example of community-based governance: users have a voice, responsibilities are shared, and stewardship becomes visible in everyday routines. That supports belonging, informal control and collective capacity to respond to emerging problems. On the economic side, creative hubs directly support local economic investment and business incubation. Affordable space reduces entry barriers for start-ups and micro-enterprises, allowing experimentation, gradual growth and job creation without being pushed out by market rents. Because creative work often spills into public-facing activity, such as pop-up retail, workshops or small-scale production, hubs can generate steady daytime use and add “legitimate reasons to be there”. This strengthens classic CPTED mechanisms as well: more eyes on the street, clearer territorial signals, and a healthier mix of uses that reduces vacancy and the disorder that often follows.

The key lesson is that creative hubs function as safety infrastructure. They build local identity and governance while incubating livelihoods, creating neighbourhoods that are socially connected and economically resilient, and therefore better able to sustain long-term safety and liveability.

Environmental Sustainability

Aspects: 1.) Urban Greening and Improving Biodiversity, 2.) Placemaking in Underutilized Spaces

Environmental Sustainability within Third Generation CPTED focuses on transforming urban environments into greener, more biodiverse, and ecologically resilient places that contribute to both safety and quality of life. This approach integrates ecological principles with urban planning and design, creating environments that are not only visually attractive but also functionally sustainable.

A central strategy is *urban greening*, which goes beyond mere beautification. It involves integrating a diverse range of plant species, creating green corridors, and establishing urban gardens that serve as habitats for local flora and fauna. Such biodiversity enhances the ecological value of cities while delivering important environmental benefits, including improved air quality, water retention, and reduced urban heat islands. Additionally, green spaces foster calm, safe environments that reduce stress and support residents' well-being. Several cities have taken this further by creating urban food forests. Saskatoon in Canada and Utrecht in the Netherlands, for example, have introduced edible landscapes in selected parks, incorporating fruit trees, berry bushes, and other productive plant species to enhance both ecological and social value.

Equally important is *placemaking in underutilized spaces*. This strategy revitalizes vacant lots, neglected areas, and abandoned sites by converting them into active, community-oriented spaces. Through interventions such as community gardens, recreational areas, or outdoor art installations, these formerly neglected spaces are transformed into vibrant hubs of activity. This not only deters crime by eliminating physical disorder but also strengthens social ties and fosters a shared sense of ownership and care for the environment.

Public Health

Aspects: 1.) Development of Health-Enhancing Public Spaces, 2) Access to Nutritious Foods

Public Health in CPTED emphasizes designing environments that support both physical and mental well-being as integral elements of safe and liveable communities. This approach recognizes that public health and safety are deeply interconnected, and that promoting healthy lifestyles contributes to crime prevention and social resilience.

Crucial concepts here are 'urban density' (the number of people/houses per km²) and walkability (or bikeability). These concepts are interrelated. Endless low density urban sprawl makes residents car dependent and kills walkability as well as public transport. Strangely enough, it was also the modernists of the CIAM movement (Congrès Internationaux d'Architecture Moderne with architects like Le Corbusier and Van Eesteren) who, in reaction to the extremely densely built slums of the big cities, advocated high-rise buildings in a sea of green, and thus neighbourhoods characterized by very low density: "*High buildings, set far apart from one another, must free the ground for broad verdant areas. Indeed, they will have to be situated at sufficiently great distances from one another, or else their height, far from being an improvement of the existing malaise, will actually worsen it.*" (CIAM 29, as cited in Van Soomeren et al., 2016, p. 225). Hence, for urban planning low density is the real villain of the piece! Low density often results in deserted public spaces, car dependency and the loss of easy connections by healthy walking/biking. Furthermore, low density usually consumes territory in an unsustainable manner.⁴

At the neighbourhood level a key component is *the development of health-enhancing public spaces*. This includes creating and maintaining parks, walking and cycling paths, community gardens, and other recreational spaces that encourage outdoor activity, exercise, and social interaction. Such environments not only promote physical health but also reduce fear of crime through increased presence and natural surveillance.

Another vital aspect is ensuring *access to nutritious foods*, particularly in areas where healthy food options are limited. Supporting local food infrastructure — such as grocery stores offering a wide range of healthy products, restaurants with nutritious menus, community gardens, and local farmers' markets — plays a crucial role in improving community well-being. These initiatives foster healthier lifestyles, strengthen social networks, and contribute to food security at the neighbourhood level.

Together, Environmental and Public Health Sustainability reflect the expanded scope of Third Generation CPTED — integrating ecological resilience, healthy living, and inclusive design into crime prevention strategies, while fostering vibrant, safe, and health-supportive urban environments.

⁴ See also Alice Coleman's book *Utopia on Trial* (1985) that presents evidence to establish links between social malaise — from litter and vandalism to children in care — and the design and lay out of these modernists' estates.



CHAPTER 4

International Praxis

Police Label Safe Housing - PKVW (the Netherlands)

Since 1994, the Dutch Police Label Safe Housing (PKVW) has shown how a clear, auditable “secure-by-design” standard can reduce burglary risk and lower fear of crime, but only if it is maintained and updated. The label provides separate checklists for new-build and existing housing stock as well as safe environments ([See: https://politiekeurmerk.nl/documenten](https://politiekeurmerk.nl/documenten)). PKVW sets requirements that go beyond minimum building regulation, including certified door and window security, security for sheds and storage, public lighting and lighting at the dwelling and in rear alleys, and stronger access control in residential blocks but also requirements for communal spaces (Nauta et al., 2018). In the first decades of the PKVW about 10% of the national housing stock was certified but the scheme somehow lost momentum in the last decade.

Evidence for impact is strongest on burglary. DSP-groep applied a standardised measurement approach to police burglary data in four Dutch police regions (2003), comparing certified and non-certified housing stock. Nationally, the victimisation risk for attempted or completed burglary was 0.60% in PKVW homes versus 1.54% in non-certified homes. For completed burglary it was 0.14% versus 0.63%, which equals 1.4 completed burglaries per 1,000 certified homes compared with 6.3 per 1,000 non-certified homes (Nauta, 2004). The study is observational and limited to four regions.

Neighbourhood-level outcomes were explored in a complementary survey study (2010) comparing matched post-2000 new-build neighbourhoods that were fully PKVW-certified with comparable non-PKVW new-build areas. Residents in PKVW areas reported slightly higher perceived safety (83% versus 79% feeling very or fairly safe; 72% versus 67% in the evening) and fewer attempted burglaries (1.8% versus 3.4% over 12 months). At the same time, theft from cars in the neighbourhood was higher in PKVW areas (4.0% versus 2.7%). The study also reports stronger social cohesion and less nuisance and disorder in PKVW neighbourhoods (López et al., 2010).

From a CPTED perspective, PKVW is best seen as a programme whose emphasis has shifted over time. In its current form, it aligns most strongly with First Generation CPTED because it operationalises opportunity reduction through certified target hardening, access control, lighting and surveillance cues, and basic maintenance requirements. In its early years, however, the label was broader and included requirements that also connected to Second Generation CPTED, with more attention to collective management, shared responsibility, and the social functioning of residential space, and even to Third Generation ambitions by positioning safety as part of wider liveability and long-term neighbourhood quality. Over time, elements of that broader package were reduced and the standard became more tightly focused on the most measurable and auditable physical requirements, effectively shifting the centre of gravity back toward First Generation CPTED.

Reconstructing a feared pedestrian link – a female friendly example from Donostia-San Sebastián (Spain)

Closing an enclosed tunnel and replacing it with an open footbridge appears to have made a daily route feel safer for many women, even though night-time fear did not disappear (Jau-regui et al. 2025). In Donostia-San Sebastián, women and local residents repeatedly identified a pedestrian underpass beneath the main train station, providing underground access to the central bus station, as a risky point. The tunnel was closed and pedestrians were redirected to an elevated footbridge over the rail tracks, built by the state rail infrastructure administration (ADIF). The redesign therefore replaced an enclosed, low-visibility space where users could feel trapped with a more open route intended to improve visibility and reduce fear of crime.

The study was designed explicitly around women's safety. It is a CPTED-informed before/after learning case (descriptive rather than causal) that focuses on women's perceptions, avoidance strategies, and the environmental cues that shape fear. Researchers surveyed 100 adult women using the route (50 before; 50 after). They also audited the site in both day and night conditions using the Safe Urban Environment (SUE) tool (58 items) across three subzones, rated by two independent observers with high agreement (Cohen's kappa 0.727–1). Two participatory safety walks with 11 women added lived-experience detail and helped interpret what "feels unsafe" in practice.

Reported unsafety among women dropped from 63.9% in the tunnel to 36.1% after reconstruction. Observation data suggest plausible drivers: social disorder fell sharply (relative change –63.65%) and security elements increased (52.37%, including police presence and CCTV). However, maintenance worsened (–43.33%) and physical disorder increased (50%). In the safety walks, women still described moments of unsafety in both stages, with the strongest concerns at night when low activity and insufficient lighting amplified perceived risk, especially at entrances and transition points.

The Donostia-San Sebastián intervention addresses First Generation CPTED by replacing an enclosed underpass with an open footbridge to reduce entrapment risk, improve sightlines, and support safer routing, reinforced by CCTV and police presence; its impact depends on night-time lighting and upkeep. Second Generation benefits rely on activation so the route feels like a legitimate shared link, not a marginal space. Third Generation success requires sustained management, inclusion, and resilient footfall over time.

NV Zeedijk – Property-led CPTED in Amsterdam (the Netherlands)

The Zeedijk area – the oldest medieval part of downtown Amsterdam - is a strong example of how social safety can improve when a high-risk street is approached as a long-term place-management project rather than a one-off design upgrade. In the 1980s, the Zeedijk was widely associated with drug dealing, nuisance, and street crime. NV Zeedijk - a public limited company that invests in local real estate - was established in 1985 to stabilise the area by taking strategic control over properties, renovating them, and actively steering which types of businesses and uses return to the street.

The intervention is implemented through a property-led strategy with strong operational follow-through. NV Zeedijk acquires and renovates buildings and then uses tenant selection, leasing conditions, and intensive day-to-day management to shape a safer and more liveable street environment. The model emphasises intensive management and social control in collaboration with residents, entrepreneurs, and city partners. In CPTED terms, this strengthens territorial reinforcement (clear responsibility and stewardship), activity support (a more balanced and legitimate land-use mix), and image management (maintenance and rapid response to disorder cues), with downstream effects on natural surveillance and informal control.

Evaluation of the strategy shows that this approach is successful in several ways (De Graaf et al., 2025). The biggest drug problems, particularly with heroin, largely disappeared from the streets, although there was a minimal displacement to other parts of the city. With the drug problems gone – at one point, the street was truly a no-go area where even the police hardly ever intervened – many of the crime problems also disappeared, new shops and restaurants began to flourish again, and visitors returned. Areas with a higher concentration of NV Zeedijk properties show increased residential property values, indicating improved attractiveness and perceived liveability. In addition, NV Zeedijk buildings host a significantly lower share of functions associated with nuisance and limited societal value, while surrounding streets also show a reduced presence of such functions. For crime and nuisance, the authors draw on police portal data (2012–2024) at neighbourhood level. They find that the NV Zeedijk focus area shows clearly lower volumes of recorded crime and nuisance reports than comparable high-pressure areas. NV Zeedijk's real estate approach, with its strong social focus, requires major investments, with the benefits often only returning to NV Zeedijk, the municipality of Amsterdam and the local community decades later.

Seen through the three-generation CPTED framework, NV Zeedijk can be described as an intervention that operationalises SAFE, ACTS and STEP in one long-running street strategy. First Generation (SAFE) is delivered through hands-on control of the physical setting: ownership enables selective “access” to the street economy via tenancing, clear functionality through a deliberate mix of legitimate uses, and strong environment and engagement through renovation, maintenance and rapid responses to disorder cues, all of which support natural surveillance and informal control. Second Generation (ACTS) is embedded in how the street is socially stabilised: continuous coordination with public partners and local actors improves access and connectivity, builds community culture and pride, and manages threshold capacity by preventing a tipping point toward nuisance-driven land uses; over time this strengthens social cohesion between residents and entrepreneurs. Third Generation (STEP) is expressed in the long horizon: sustained local investment and business stewardship support thriving economic sustainability, while the governance model and everyday collaboration create social sustainability, making safety a durable outcome of liveability and resilience rather than a short-term “security fix”.

Improving parks – an example from Bogotá (Colombia)

Between 2016 and 2019, Bogotá implemented a large-scale programme to improve safety in and around public parks by upgrading park lighting and building multi-purpose synthetic sports fields (Ramírez Castillo, 2019). The interventions targeted parks that were perceived as unsafe and, in some locations, increasingly used for drug-related activity and nuisance. In practical terms, the city renewed lighting and street furniture in more than 1,200 parks and constructed over 100 synthetic fields across dozens of parks, aiming to increase legitimate use and strengthen informal guardianship.

The evaluation combined digital maps of park boundaries with administrative intervention records and police crime data (SIEDCO). Using a multi-period difference-in-differences design with fixed effects, the study compared changes in crime around treated parks with changes around non-treated parks, before and after implementation. Effects were estimated across three distance bands around parks (0–79 m; 79–140 m; 140–200 m) to test whether benefits remained local, or whether crime displaced to nearby areas.

Results indicate substantial reductions in several crime categories around upgraded parks. Lighting interventions were associated with decreases in personal injuries (about 22%), theft from persons (about 55%), theft from commerce (about 54%), residential burglary (about 29%), and total recorded incidents (about 43%) in the closest zone. Synthetic sports fields showed even larger reductions in theft from persons (about 88%), theft from commerce (about 92%), residential burglary (about 51%), and total incidents (about 68%). Importantly, the analysis found no evidence of short-distance displacement; instead, it reported diffusion of benefits, with measurable reductions also appearing in zones further away from the parks. From a CPTED perspective, the Bogotá programme is a clear First Generation example: strategic lighting directly strengthens Surveillance, while improved park design, maintenance and clearer recreational function support Functionality and Environment & Engagement by increasing legitimate activity and “eyes on the street” around parks.

From a CPTED perspective, the Bogotá programme is anchored in First Generation CPTED. Strategic lighting strengthens Surveillance (visibility and “eyes on the street”); the renewed layout and clearer movement patterns support Accessibility (legible entry, exit, and use); the sports fields and upgraded furniture sharpen Functionality by making intended use obvious; and the emphasis on upkeep and active recreational use contributes to Environment & Engagement through maintenance, comfort, and continuous legitimate activity. At the same time, the scale of the programme creates enabling conditions that Second and Third Generation CPTED can build on, for example by supporting community use and cohesion around shared spaces, and by strengthening health-oriented daily activity. Those broader social and public-health outcomes are conceptually relevant, but the evaluation evidence reported here primarily tests the First Generation, situational mechanisms linked to crime reduction.

Cardiff night-time economy CPTED programme, Wales (UK)

Cardiff's city-centre night-time economy attracts exceptionally high weekend footfall. Evaluations of the local licensing environment estimate that more than 40,000 people may be present on a typical weekend night. This concentration of visitors, alcohol consumption, and late-night mobility historically generated recurrent risks of violence, injury, and perceived disorder within a compact network of streets and licensed premises.

In response, Cardiff introduced an integrated night-time economy programme that combined situational crime prevention and CPTED-informed place management with a strong governance and data backbone. Operational measures focused on reducing known risk factors for aggression. These included improved street lighting and intensive night-time cleansing to address disorder cues, active management of crowd movement and access during peak hours, and visible guardianship through initiatives such as Street Pastors. On major event nights, taxi-rank marshals were deployed to manage dispersal phases more safely and reduce conflict. A key harm-reduction element was the Cardiff Alcohol Treatment Centre, a nurse-led triage and "place of safety" that diverted severely intoxicated individuals away from emergency departments and reduced vulnerability and disorder in public space (Moore, Sivarajasingam, & Heikkinen, 2013).

What distinguishes Cardiff as an evidence-based case is the systematic use of the so-called Cardiff Model of anonymised injury data sharing. Emergency department data on violence-related injuries, including time and location, were routinely shared with police and local government. This allowed prevention resources to be targeted at micro-hotspots and specific risk moments. A quasi-experimental evaluation comparing Cardiff with fourteen "most similar" UK cities found that violence-related hospital admissions declined significantly in Cardiff relative to comparison cities, alongside a relative reduction in police-recorded woundings (Florence, Shepherd, Brennan, & Simon, 2011). A subsequent economic evaluation reported substantial net social benefits associated with the approach (Florence, Shepherd, Brennan, & Simon, 2014).

Viewed through a CPTED lens, the programme integrates CPTED Generation 1, 2 and 3 in a balanced way. At First Generation level, it strengthened SAFE principles through lighting, surveillance, managed accessibility, and proactive image management. Second Generation CPTED is reflected in the way access and connectivity to transport, and enforcement partners were organised; shared norms and standards were developed across venues and agencies; threshold capacity was actively managed to prevent cumulative risk; and social cohesion was reinforced through routine multi-agency coordination. Third Generation is most visible in the public-health-led governance model, where continuous data feedback supported learning, adaptation, and long-term resilience.



Bijlmermeer a district-scale renewal (Amsterdam, the Netherlands)

By the late 1980s and early 1990s, the Bijlmermeer had become a Dutch symbol of how modernist high-rise planning can unintentionally concentrate safety risks. Large parts of the neighbourhood consisted of semi-public spaces such as galleries, lifts, internal walkways, communal storage spaces and parking structures, while elevated roads and underpasses created dark, low-visibility “in-between” areas. Vacancy rose to an estimated 20–25% at its peak, and crime risks including burglary, robbery and sexual harassment were substantially higher than Amsterdam averages, with hotspots both inside buildings and in poorly visible public spaces (Van Soomeren et al., 2016).

The renewal programme combined large-scale physical restructuring with social renewal and intensive place management. A pivotal intervention was the demolition of approximately 6,500 of the original 13,000 high-rise dwellings, replaced largely by low-rise housing in a more conventional street layout and with a more mixed tenure structure. Remaining high-rise blocks were renovated, internal walkways and galleries were removed, and ground-floor storage areas were converted into dwellings. Large parking garages, widely seen as crime generators, were demolished or repurposed, while elevated primary roads were brought down to ground level, eliminating many of the feared tunnels and viaduct spaces that had undermined visibility and informal control.

Alongside physical change, management and guardianship were strengthened. The Veilig Beheer Bijlmermeer programme introduced flat wardens from 1993 onwards, providing everyday supervision in residential blocks, addressing vandalism and disorder in semi-public areas, and improving reassurance. An early evaluation found that 35% of residents in buildings with flat wardens felt safer than a year earlier, compared with 9% in comparable buildings without wardens, indicating a measurable short-term effect on perceived safety (DSP-groep, 1996).

Evidence on outcomes is strongest at trend level rather than through strict causal attribution, given the area-wide and multi-component nature of the intervention. Nevertheless, monitoring data consistently point to substantial improvements. Between 1999 and 2009, reported crime declined – compared to Amsterdam – by around 40%, with recorded property crime roughly halving over the same period. Fear of crime also decreased markedly, even though some gaps with Amsterdam averages persisted (DSP-groep, 1997-2010; Van Soomeren et al., 2016).

From a CPTED perspective, the Bijlmermeer renewal represents an integrated application of all CPTED Generations. First Generation CPTED is evident in improved surveillance, clearer accessibility and routing, more legible functionality, and stronger environment and engagement through renovation and image management. Second Generation emerges through improved access and connectivity to the wider city, efforts to rebuild community culture and identity, rebalancing threshold capacity via tenure and land-use mix, and strengthening social cohesion through resident involvement and place management. Third Generation is reflected in long-term governance and monitoring structures, shared responsibility among institutions and residents, and sustained reductions in environments associated with violence risk, linking neighbourhood safety to broader social sustainability and public health goals.

Greening vacant lots – Philadelphia LandCare (USA)

Philadelphia's post-industrial neighbourhoods contained thousands of vacant lots that had gradually become symbols of abandonment. Often strewn with waste and overgrown, these parcels created micro-settings that facilitated concealment, illegal dumping, drug activity, crime and violence, while also reinforcing residents' perceptions of neglect and insecurity. The Philadelphia LandCare programme emerged in response to this condition, led by the Pennsylvania Horticultural Society in close partnership with the City of Philadelphia. Its central ambition was deceptively modest: to stabilise neighbourhoods by systematically transforming neglected land into visibly cared-for green space, using an approach that could be replicated at city scale.

The intervention itself is deliberately simple and low-cost. Vacant lots are cleared of debris and vegetation, the soil is levelled, and grass is planted, often using rapid hydroseeding techniques. A small number of trees may be added to create a park-like character. Each lot is enclosed with a low wooden fence that signals care and ownership while remaining visually open and easy to access. Crucially, the programme includes routine maintenance, such as mowing and waste removal, because the safety effect depends on sustained image quality rather than one-off clean-ups (Garvin et al., 2013; Branas et al., 2018).

What distinguishes Philadelphia LandCare as a CPTED case is the exceptional strength of its empirical evidence. A large cluster randomised controlled trial assigned hundreds of vacant lots to immediate greening or to a control condition. Over a follow-up period of more than three years, researchers combined police-recorded crime data with resident surveys. The results showed significant reductions in perceived crime, vandalism, and fear among residents living near treated lots, alongside increased outdoor use and social activity. In the most disadvantaged neighbourhoods, the intervention was also associated with statistically significant reductions in recorded crime, including gun violence, burglary, and nuisance offences (Branas et al., 2018). A related trial demonstrated improvements in self-reported mental health among nearby residents, particularly in low-income areas (South et al., 2018).

From a CPTED perspective, LandCare illustrates the combined value of all three generations. At the level of First CPTED Generation, the programme strengthens SAFE principles by improving surveillance through open sightlines and legitimate presence, clarifying accessibility and functionality, and reinforcing environment and engagement through consistent maintenance and aesthetic resilience. Second Generation is reflected in the way greening reduces stigma, supports community culture, and removes concentrated disorder points that risk pushing blocks beyond critical thresholds, while encouraging everyday social cohesion and informal guardianship. Third Generation CPTED is evident in the programme's broader orientation: urban greening supports environmental sustainability, measured reductions in violence and stress link directly to public health, and long-term stewardship arrangements embed social sustainability.

CHAPTER 5

Conclusion and Practical Application

This White Paper has traced the evolution of CPTED from its origins to a comprehensive framework that integrates social cohesion, sustainability, and community resilience. What began as a reactive approach to crime prevention has matured into a proactive design philosophy that addresses the complex dynamics of contemporary urban environments. The three generations of CPTED reflect this development, each expanding the scope of practice: from the SAFE principles of surveillance, accessibility, functionality, and environment & engagement; to the ACTS principles strengthening community bonds through access and connectivity, community culture, threshold capacity, and social cohesion; to the STEP principles, which fully embeds social, economic, environmental, and public health considerations into urban design and management.

At the heart of this evolution lies the growing understanding that safety is not a stand-alone goal, but a by-product of inclusive, vibrant, and sustainable communities. CPTED today demands early integration in planning processes, genuine engagement with diverse stakeholders, and an interdisciplinary collaboration that bridges the worlds of urban planning, criminology, social science, and technology. The future of CPTED requires more than good design; it requires governance models that empower local communities, economic strategies that support local entrepreneurship and ownership, and ecological interventions that create healthier and more resilient environments. In short: CPTED has become a social, technical/physical and managerial/governance endeavour.

Yet CPTED also faces important challenges. While the first generation of CPTED principles could largely be measured through direct observation of physical space — assessing sightlines, access points, lighting, and territorial markers — the principles of second and third generation CPTED present a more complex task. Concepts such as social cohesion, collective efficacy, community governance, local economic resilience, or social sustainability are inherently more difficult to observe and quantify in a straightforward manner. This calls for the development of new tools, methodologies, and indicators that can capture these less tangible dimensions of safety and liveability. Measuring trust, participation, social networks, or local stewardship requires innovative approaches that combine qualitative insights with new forms of data collection and analysis.

This shifts the focus from content – which we have addressed by name in this White Paper – to the process of working with all stakeholders and end users in an area to find the best solutions to perceived problems and opportunities. *“Process refers to the question: how to follow an effective and efficient procedure in which stakeholders should choose the most effective and feasible strategies and measures to prevent and reduce the crime problems as defined by the stakeholders and residents/users (the end users).”* (CEN/TS 14383-2: 2022, p. 10). Fortunately, after much trial and error, this process is now enshrined in official standards such as the 2022 European Standard CEN/TS 14383-2⁵ and the CPTED methodology (Saville & Rau, 2023). In essence, it is always a democratically legitimized process in which the problems and opportunities in an area are explored and stimulated together with all interested parties (stakeholders and end-users). The well-known plan-do-check-act circle as an innovative human centered design process (Davey & Wootton, 2017).⁶ As such a plan is based on the cooperation of all parties involved and their democratically set goals, its execution and implementation can be properly evaluated afterwards, and lessons can be learned about what works and what does not. These standardized CPTED processes are at least as important as the content of CPTED. If the content represents the ingredients in the kitchen, then the process reflects the quality of the cooks and the skill with which they prepare the meal. After all, even the best ingredients can't deliver a good result without capable hands and a sound method. Perhaps a topic worth exploring?

⁵We also refer here to the aforementioned European standards in the CEN 14383 series (including CEN/EN 14383-1:2025 with more than 80 crucial definitions of CPTED terms in English, German and French) and the international CPTED standards of ISO (22341:2021).

⁶See also <https://www.engage2innovate.eu/project-overview/>

Conclusion and Practical Application

Even when following a smooth and well-standardized process, CPTED's ambition to strive for an evidence-based practice faces two fundamental tensions. First, in many projects, stakeholders tend to prioritize visible, tangible interventions — such as new lighting, CCTV, or physical redesign — over the evaluation of their actual effects. Second, urban design and planning is undeniably a slow-moving field. It can take decades from the initial concept to final implementation, meaning that results are neither immediately visible nor easily verifiable.

Nevertheless, there is still a pressing need for research that examines which interventions work, under what conditions, and for whom. It is crucial to recognize that there is no silver bullet or universal solution. CPTED's future depends on shifting the focus from isolated interventions to the underlying principles that guide them, as well as to the social, organizational/managerial, and political contexts that shape their implementation and impact. Understanding why an intervention works, in a specific place and time, and what can be done to improve or adapt it, is at the heart of advancing CPTED as a learning, reflexive, and context-sensitive practice. Socioeconomic inequalities and spatial segregation require practitioners to remain vigilant in ensuring that CPTED interventions do not reinforce exclusion but instead promote equity and social integration. The task ahead is to maintain CPTED's adaptive capacity: to remain critical, reflective, and innovative in addressing the layered realities of urban safety.

Looking ahead, new technologies such as artificial intelligence are opening up unprecedented opportunities for CPTED practice. In Europe, the Dutch chapter of the ICA — Stichting Veilig Ontwerp en Beheer (SVOB) — participates in cutting-edge projects that use AI to link the physical built environment to broader goals such as social liveability and safety in vulnerable neighbourhoods. One such initiative is supported by the European Urban Initiative and involves the development of a pioneering “Social Digital Twin” in the Dutch city of Heerlen. Unlike existing physical digital twins, this innovation is the first in Europe to integrate social and safety-related data into a virtual model of the neighbourhood. By combining data from urban design, social safety, and neighbourhood management, the Social Digital Twin allows for smarter, faster, and more targeted responses to issues of liveability and safety. AI — in combination with professional language tools such as GPT — becomes a kind of “deep tech colleague” to those already working in the field, including community members. The system enables users to interact with neighbourhood-level data, ask complex questions, and receive tailored analyses and recommendations (Saville, 2026). In this way, CPTED enters a new phase: one where its principles are enhanced, rather than replaced, by digital intelligence.

CPTED has proven itself to be more than a method; it is a continuously evolving way of thinking about cities, communities, and shared spaces. It is a call to design not only for safety but for life in its fullest sense — a life where people feel connected, valued, and empowered to shape their environments together. This White Paper offers a foundation for future action: a shared language, a critical history, and a practical framework for practitioners, policymakers, educators, and researchers who recognize that creating safe environments is inseparable from creating good places to live. The work of CPTED is far from finished. But its future lies precisely in its openness to change, its commitment to inclusion, and its capacity to adapt to the challenges and possibilities of a rapidly transforming world.

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CPTED Research Group - Inholland University of Applied Sciences

Safe cities, smartly designed

The CPTED research group is part of the BFL Knowledge Centre of Inholland University of Applied Sciences. We develop practical knowledge and innovative solutions to make urban environments safer, more attractive and more inclusive. By combining scientific insights with a hands-on approach, we support policymakers and professionals on complex issues of public safety, liveability and urban development.

Our mission

We believe in safe cities that invite positive behaviour and pleasant interactions from design. By putting preventive design principles such as CPTED (Crime Prevention Through Environmental Design) at the core, we enhance not only safety but also the experience and quality of urban spaces.

What we offer

We conduct practice-oriented research, provide strategic advice, and guide the implementation of safety measures. We also provide training and share knowledge, both nationally and internationally.

Our approach

We strongly believe in co-creation and local cooperation. Therefore, we work closely with municipalities, safety regions, housing associations, police, civil society organisations and resident groups. Through this broad cooperation, we realise support, practical applicability and sustainable impact.

Want to know more or get acquainted?

Feel free to contact us for an introductory meeting, advice or to discuss cooperation opportunities. We would love to think with you about keeping our cities and neighbourhoods safe and attractive!

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