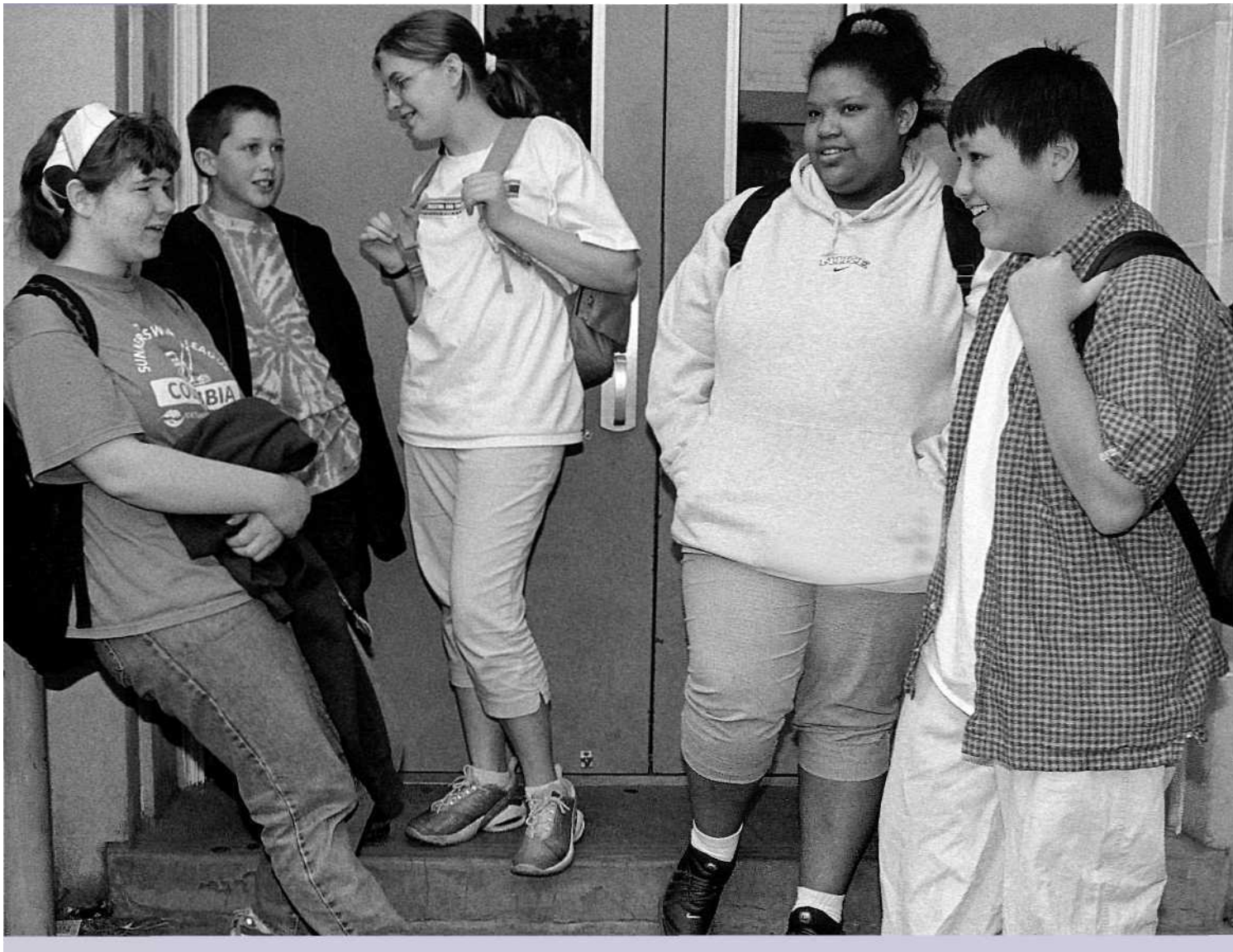
GUIDE 4

Ensuring Quality School Facilities and Security Technologies



This project was supported by Award No. 1999-JN-FX-K001 awarded by the Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice, and Safe and Drug-Free Schools Program, U.S. Department of Education. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of any agency or department of the U.S. government.

GUIDE 4

Ensuring Quality School Facilities and Security Technologies

By Tod Schneider

September 2002

NORTHWEST REGIONAL
EDUCATIONAL LABORATORY

CONTENTS

FOREWORD

School safety requires a broad-based effort by the entire community, including educators, students, parents, law enforcement agencies, businesses, and faith-based organizations, among others. By adopting a comprehensive approach to addressing school safety focusing on prevention, intervention, and response, schools can increase the safety and security of students.

To assist schools in their safety efforts, the Northwest Regional Educational Laboratory (NWREL) has developed a series of eight guidebooks intended to build a foundation of information that will assist schools and school districts in developing safe learning environments. NWREL has identified several components that, when effectively addressed, provide schools with the foundation and building blocks needed to ensure a safe learning environment. These technical assistance guides, written in collaboration with leading national experts, will provide local school districts with information and resources that support comprehensive safe school planning efforts.

One objective of the guides is to foster a sense of community and connection among schools and those organizations and agencies that work together to enhance and sustain safe learning environments. Another objective is to increase awareness of current themes and concerns in the area of safe schools.

Each guide provides administrators and classroom practitioners with a glimpse of how fellow educators are addressing issues, overcoming obstacles, and attaining success in key areas of school safety. These guidebooks will assist educators in obtaining current, reliable, and useful information on topics that should be considered as they develop safe school strategies and positive learning environments.

Each of the guidebooks should be viewed as one component of a school's overall effort to create a safer learning environment. As emphasized in *Threat Assessment in Schools: A Guide to Managing Threatening Situations and to Creating Safe School Climates,* a joint publication of the U.S. Secret Service and the U.S. Department of Education, creating cultures and climates of safety is essential to the prevention of violence in school. Each guidebook contains this message as a fundamental concept.

Under No Child Left Behind, the education law signed in January 2002, violence prevention programs must meet specified principles of effectiveness and be grounded in scientifically based research that provides evidence that the program to be used will reduce violence and illegal drug use. Building on the concept in No Child Left Behind—that all children need a safe environment in which to learn and achieve—these guides explain the importance of selecting research-based programs and strategies. The guides also outline a sample of methods on how to address and solve issues schools may encounter in their efforts to create and enhance safe learning environments.

Guide 1: Creating Schoolwide Prevention and Intervention Strategies, by Jeffrey Sprague and Hill Walker, is intended to put the issue of schoolwide violence prevention in context for educators and outline an approach for choosing and creating effective prevention programs. The guide covers the following topics:

- Why schoolwide prevention strategies are critical
- Characteristics of a safe school
- Four sources of vulnerability to school violence
- How to plan for strategies that meet school safety needs
- Five effective response strategies
- Useful Web and print resources

Guide 2: School Policies and Legal Issues Supporting Safe Schools, by Kirk Bailey, is a practical guide to the development and implementation of school policies that support safe schools. Section 1 provides an overview of guiding principles to keep in mind when developing policies at the district level to prevent violence. Section 2 addresses specific policy and legal components that relate to such topics as discipline and due process, threats of violence, suspension and expulsion, zero tolerance, and dress codes. Checklists are included to ensure that schools attend to due process when developing policies for suspensions or expulsions, search and seizure, or general liability issues.

Guide 3: Implementing Ongoing Staff Development To Enhance Safe Schools, by Steve Kimberling and Cyril Wantland, discusses the role of staff development within the context of school safety. The guide addresses how staff development should be an integral part of the educational planning process and discusses what its relationship is to safety-related outcomes and overall student achievement.

Guide 4: Ensuring Quality School Facilities and Security Technologies, by Tod Schneider, is intended to help educators and other members of the community understand the relationship between school safety and school facilities, including technology. The guide covers the following topics:

- Crime Prevention Through Environmental Design (CPTED)
- Planning To Address CPTED: Key Questions To Ask
- Security Technology: An Overview
- Safety Audits and Security Surveys

Guide 5: Fostering School-Law Enforcement Partnerships, by Anne Atkinson is a practical guide to the development and implementation of partnerships between schools and law enforcement agencies. Section 1 provides an overview of community policing and its relationship to school effectiveness. Section 2 focuses on developing the school-law enforcement partnership from an interagency perspective. Section 3 focuses on steps for implementing school-law enforcement partnerships in schools. Also included are descriptions of the roles of law enforcement in schools with examples of many strategies used to make schools safer and more effective.

Guide 6: Instituting School-Based Links With Mental Health and Social Service Agencies, by David Osher and Sandra Keenan, discusses how schools can improve their capacity to serve all students by linking with mental health and social service agencies. Agency staff members can contribute to individual and schoolwide assessment, planning, implementation, and evaluation. Agency resources can enhance schools' capacity to provide universal, early, and intensive interventions. Links with agency resources can also align school and agency services.

Guide 7: Fostering School, Family, and Community Involvement, by Howard Adelman and Linda Taylor, provides an overview of the nature and scope of collaboration, explores barriers to effectively working together, and discusses the processes of establishing and sustaining the work. It also reviews the state of the art of collaboration around the country, the importance of data, and some issues related to sharing information.

Guide 8: Acquiring and Utilizing Resources To Enhance and Sustain a Safe Learning Environment, by Mary Grenz Jalloh and Kathleen Schmalz, provides practical information on a spectrum of resources that concerned individuals and organizations can use in the quest to create safe schools. It draws on published research and also includes interviews with experts working on school safety issues at the state and local levels. Major topics covered include:

- What are resources?
- What role do resources play in safe school planning?
- Identifying and accessing resources
- Appendix of online and print resources

—Northwest Regional Educational Laboratory

INTRODUCTION

Schools are generally safe environments for children. Yet, while chronic, potentially lethal school violence poses an ongoing threat in only a handful of economically depressed urban centers, most of the high-profile school shootings of the 1990s occurred in schools and communities that did not match that profile. This conundrum contributes to an understandably heightened level of anxiety We cannot effectively predict where school violence might happen next.

The most important steps a school can take in preventing crime involve the affective rather than the physical environment. These include promoting a positive school climate and culture, teaching and modeling prosocial behaviors, and providing effective intervention when antisocial behaviors occur or when individual students demonstrate a propensity for violence. In addition, schoolwide prevention and intervention strategies can mitigate threats. Each of these considerations is addressed in other guidebooks in this series.

The physical environment of the school also plays a critical role in keeping students safe. The structure should provide an inviting environment in which children can be protected from threats and learning can take place. Researchers are continuing to study the role that a facility's physical environment plays in school safety. Meanwhile, educators and parents agree on the importance of providing a safe school environment. Children who feel safe are receptive to learning.

How do schools ensure a safe physical environment? Every school must consider different weaknesses and strengths. Of all school-related homicides reported for 1992-1994, only about one in three occurred inside a school building. The remaining two-thirds were equally divided between outdoor locations on campus and locations off site (Kachur et al., 1996). The high-profile school shootings that have taken place in more recent years, however—including Columbine (Colorado) and Thurston (Oregon)—have occurred inside school buildings.

Decisions about whether to remodel or rebuild a school are complex, and must take into account a variety of logistical, economic, and political factors. In some cases, minor improvements are all that can be done to address safety concerns. In other cases, communities are willing to shoulder bond measures to build the best possible school, from the ground up.

In either case, and along the continuum of compromises in between, many improvements can be made to enhance school safety. New security-oriented design measures are often crisis-driven. Highly visible, superficial "solutions" may fail to correspond to the problems that need to be addressed. A comprehensive examination of site weaknesses must occur before an effective "solution" can be put in place. That examination can draw on a number of approaches, including user surveys and safety audits, which can vary considerably in length and complexity. As long as the perspective is broad enough to encompass all aspects of the school, the results should be useful.

What This Guide Includes

This guidebook is intended to help educators and other members of the community understand the relationship between school safety and school facilities, including technology. It will cover the following topics:

- Crime Prevention Through Environmental Design (CPTED)
- Planning To Address CPTED: Key Questions To Ask
- Security Technology: An Overview
- Safety Audits and Security Surveys

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

Many U.S. schools are falling apart. Age has caught up with them. Maintenance has often been deferred to a point of diminishing returns. Building deficiencies have become glaring over time, highlighted by concerns over lead paint, asbestos, frayed wiring, decrepit plumbing, ergonomics, inaccessibility, antiquated fire suppression systems, energy inefficiency, and technological obsolescence. The General Accounting Office has reported that one-third of U.S. schools need extensive repairs and puts the price tag to bring them into good condition at more than $112 billion (U.S. General Accounting Office, 1995).

But public alarm about those problems can be dwarfed by the fear of school violence. The school shootings of recent years have underscored the extraordinary vulnerability inherent in the design of most schools.

Although schools come in many shapes and sizes, two types of school architecture are common: fortress and sprawl. Fortresses are usually solitary structures, a bit reminiscent of medieval castles and particularly common among school buildings constructed during the first half of the 1900s. Sprawl designs became more common in the 1960s in one of two ways: by design, as communities found the campus-style approach, with a number of buildings spread over a site, to be aesthetically pleasing; or by default, as add-ons to existing schools often involved "temporary" buildings, scattered onsite wherever they could be conveniently placed. Neither design was particularly concerned with security issues.

Fortresses are, at first glance, easier to secure. Students are either inside or outside, and once inside they theoretically can rely on the security of a controlled environment. Sprawling campuses are much more difficult to monitor, as students are constantly traveling between buildings, exposed to potential threats on the outside.

In fact, both designs fall short when it comes to safety. Containing students inside the school is no panacea: Up to one-third of school violence routinely occurs indoors. In addition, up to 70 percent of school-related violence occurs outside, half of that on campus and the rest elsewhere in the community. Neither design does a good job of taking these statistics into account.

There is no simple solution to school safety. Every campus has a unique mix of architecture, community characteristics, and funding considerations. Cost factors always loom large, and serious maintenance costs must be addressed as well. Simple fixes relying on gross security measures—ranging from metal detectors to armed guards—receive mixed reviews not only in terms of cost and effectiveness in promoting safety, but also in terms of their impact on school atmosphere. CPTED—Crime Prevention Through Environmental Design—takes a broader approach.

What Is CPTED?

CPTED is the broad study and design of environments to encourage desirable behavior, heighten functionality, and decrease antisocial behavior. Although the field is gradually expanding to encompass affective, psychological, and sociological environmental design—known as "second generation" CPTED—its traditional focus has emphasized physical design.

Historical Overview

CPTED has emerged as a field during the past 40 years. Jane Jacobs's *The Death and Life of Great American Cities* (1961) was a giant early step in the direction of conscious environmental planning for public spaces. C. Ray Jeffery's *Crime Prevention Through Environmental Design* was published in 1971. Oscar Newman's *Defensible Space* followed in 1972. The "broken windows" theory, put forth by James Q. Wilson and George L. Kelling in 1982, pointed out the impact that visible deterioration and neglect in neighborhoods have on human behavior.

Many criminologists, sociologists, architects, and planners have developed the field further. Canadian academicians Pat Brantingham and Paul Brantingham, and consultants Greg Saville and Paul Wong, made significant contributions from the 1980s on, while British criminologists Patricia Mayhewand Ronald Clark worked on "situational crime prevention." Criminologist Tim Crowe's 1991 book, *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts,* became a standard textbook in the field. Stan Carter and Sherry Carter have carried the CPTED banner in Florida, while Professors Gerda Wekerle and Carolyn Whitzman have furthered the cause in Toronto, notably applying it to both urban design and women's safety. Greg Saville went on to found the International CPTED Association (ICA) in 1996, which now serves more than 400 practitioners in 35 countries around the world. Saville's work with the Center for Advanced Public Safety Research at the University of New Haven, Connecticut, along with Australia-based educator Gerard Cleveland, have expanded conventional CPTED to include a "second generation" CPTED approach incorporating affective issues.

Basic Concepts

CPTED is built on three considerations: natural surveillance, natural access control, and territoriality.

Natural surveillance is the capacity to see what's occurring without having to take special measures to do so. Clear direct views, such as those provided by windows, provide natural surveillance. An adult presence does the same, with a notable impact on behavior.

If responding to a call for help or a loud noise requires opening a solid door or stepping around a blind corner, natural surveillance is missing, and the response maybe too little, too late. We see the aftermath, but we don't know what initially occurred. If lighting is inadequate, we have even less hope of determining what happened.

Natural access control is the capacity to limit who can gain entry to a facility, and how. A school with dozens of unsecured exterior doors cannot hope to control comings and goings. Intruders have free rein, and schools must rely on other security measures. Without access control, a much greater emphasis must be placed on surveillance, territoriality, school climate, and security staffing in order to compensate.

Territoriality is the capacity to establish authority over an environment, making a statement about who is in charge, who belongs, and who is an outsider. Graffiti is one way gangs establish territoriality; schools can take it back with vigilant maintenance. Signs directing visitors to the office or spelling out rules reinforce territoriality and influence behavior. School uniforms make it easy to identify intruders at a glance.

PLANNING TO ADDRESS CPTED: KEY QUESTIONS TO ASK

Although the fine details of safe school planning can become overwhelmingly complex, an excellent framework can be built from answers to the eight key questions listed below. Each question will be addressed in greater detail in the following pages, including suggestions for solutions.

Key Questions

1. What risks and opportunities do students encounter between home and school?
2. What risks and opportunities are posed in areas directly adjoining school property?
3. Can office staff observe approaching visitors before they reach the school entry?
4. Do staff members have the physical ability to stop visitors from entering?
5. How well can people see what's going on inside the school?
6. Do staff members have immediate lockdown capability in classrooms and other locations?
7. Is the overall school climate prosocial?
8. Are there identifiable or predictable trouble spots or high-risk locations?

1. What risks and opportunities do students encounter between home and school?

Regardless of school climate and architecture, if students must traverse uncontrolled traffic, crime scenes, toxic exposure, or isolating territory in order to reach school, they are put at risk. In 1999,4 percent of students surveyed feared being attacked while traveling to and from school—down from 7 percent in 1995 (Kaufman et al., 2001). Even when they reach relatively safe schools, students may experience high states of anxiety that can compromise their ability to learn.

If students walk to school, what is that experience like? Do they dread a daily shakedown at the hands of local bullies? Are they crossing gang territory? Do they risk being drawn into using alcohol or other drugs, or lured into prostitution? Do sex offenders live along their route to school, and are they able to ascertain when individual children appear isolated and vulnerable?

What physical risks does the environment pose? Abandoned or derelict buildings, along with dark alleys, provide easy locations into which pedophiles and other criminals can lure children. Heavy traffic can pose a threat to pedestrians and bicyclists. Industrial facilities can expose children to toxic substances.

What messages are conveyed along this route? How are people portrayed in posters, billboards, graffiti, and advertisements? Do these messages contradict the world view promoted at school? Are children likely to live by prosocial values only in specific settings, such as at home, in school, or even in a particular class?

Solutions: Providing students with a safe route to school can reduce their fears considerably, having a tremendous impact on school attendance and performance, along with safety. Depending on staffing priorities, police officers maybe able to focus on these routes during specified times. Not only does this improve route safety, but it also provides an opportunity for officers to establish positive relationships with children under nontraumatic circumstances, laying the groundwork for community policing programs. Emergency call buttons or standard pay phones should be accessible, at a height suitable for children or wheelchair users along the way. Organizing a neighborhood clean-up can reduce physical risks and build a support network at the same time. Graffiti can be painted over, and offensive advertising can be discouraged through organized social and political pressure. Neighbors along the route to school, equipped with cell phones or radios, can be recruited to serve as crossing guards or monitors. Drawing friendly neighbors onto the sidewalks makes the environment considerably safer—offenders prefer to approach their victims away from potential witnesses and allies.

Businesses and residents can work with the police in establishing safe havens along the route, into which children can retreat if they feel threatened, and where help is readily available. Programs such as Block Home and Safe Place fill this role. Police background checks should be integrated into the program to build confidence and screen out unsafe participants.

"Walking school buses" can be organized, in which children and adults coordinate traveling in groups to and from school, providing security through numbers. Neighbors who step forward in the name of school safety also may be willing to participate in other activities to support the school, such as voting for bond measures, attending school performances and athletic events, or volunteering their time as classroom aides or guest speakers. Businesses may serve as sites for community-service projects or field trips, internships, or after-school jobs.

2. What risks and opportunities are posed in areas directly adjoining school property?

The concerns posed along the route to school are at least as significant in the areas directly adjacent to the school. These are the areas where students commonly are found engaged in behaviors forbidden on campus, making them doubly vulnerable to criminal enticements. An offender looking for child victims can predict accessibility at these locations.

Students can alienate neighbors by using their front yards as ashtrays, picking fights in front of their businesses, or monopolizing parking spaces. Inadequate parking on campus can lead to traffic jams and overload nearby streets. If residents cannot park at their own homes, and if customers cannot park at local businesses, this will probably lead to resentment, driving a wedge between the school and its neighbors.

Drug dealing or alcohol outlets anywhere near a school increase the likelihood of antisocial behavior fueled by substance abuse, either by students or against students. Industrial facilities may expose students to hazardous substances, which could have devastating effects on brain development, general health, and the corresponding ability to learn.

Solutions: Most cities, backed by federal law, place restrictions on drugs, weapons, and other illegal activities within a specific radius of school property. Communities may have laws in place restricting paroled sex offenders from living near schools or children. Look into how aggressively these restrictions are enforced in your community.

Be good neighbors. Attend to conflicts, and help involved parties design solutions. Ignoring a problem because it is technically off campus is not productive in the long run. If parking on campus is inadequate, make some changes. Restrict parking to residents with required stickers, or limit it to only two hours in commercial zones. Use playing fields at the school for overflow parking. Encourage student carpooling or mass transit use with incentives, such as assigned parking spots or discounted bus passes.

Changes in fencing and landscaping can open areas that are hidden from view. For example, solid wood fencing can be replaced with wrought iron; overgrown hedges can be trimmed. School windows can be cleared of obstructions, allowing the staff to observe behavior on the street. Store windows can also be cleared, allowing passers-by to observe crimes in progress and respond appropriately, such as by calling police. Students might be recruited to clean up problem areas, build fences, or paint over graffiti. This may discourage immediate problems while building long-term goodwill. This positive interaction can build a shared sense of belonging, leading to mutual assistance when either students or neighbors are in need of help.

Neighbors are positioned to serve as critical eyes and ears for a school, before and after hours. No security service can compete in terms of providing a continual presence, as well as in commitment to the neighborhood. Neighbors are more likely to spot vandals in the act than are police or private security. Enlisting these neighbors as allies is well worth it. Provide them with phone numbers for contacting the school administration. In some cases, it maybe appropriate to entice them to help by providing binoculars, cell phones, or radios. Empower selected neighbors as quasi-official school caretakers or allies. Reward them for calling in crimes in progress. This is a cost-effective alternative to paid security.

Carefully assess the potential of neighboring facilities to serve as potential command posts and evacuation sites in emergencies. Make arrangements now, to ensure that sites are already in place should emergencies occur. Map out various routes between the school and these sites, based on the type and location of crises. Coordinate with police and emergency services personnel in choosing these locations. Staging sites will be needed for police, students, medics, and the media, as well as for family members responding to news coverage during a crisis.

If the evacuation route and site are predictable, these also must be examined for security weaknesses; plans should include a scouting party, immediately preceding a major evacuation, to check for suspicious packages or individuals along the evacuation route.

In addition, a number of communities have had excellent results with additional efforts to utilize law enforcement officers to target the neighborhoods around each school for intensive traffic enforcement and enforcement of life code sections. When added to other items mentioned above, this can result in dramatic improvement in the perceived and actual level of safety. Such efforts have been especially effective in areas of high drug and gang activity. State-mandated school safety zones can also assist officers in this regard. Similarly, enforcement of school safety zone statutes and ordinances relating to loitering in a school zone have shown marked results in reducing problems. Another useful practice is for school officials to enact and enforce policies that regulate student misconduct in these zones.

Some communities have had success in having law enforcement officers contact the owners of rental property where criminal activity is being encountered near schools. Many landlords will evict tenants due to concern that their property will be seized if drug arrests are made. In other instances, parents who do not know that large numbers of children are gathering at their residence while they are at work will authorize officers to remove the problem element from their property. In extreme cases, a court-ordered eviction may be necessary.

Police checkpoints to check for license and insurance verification for motorists have also proven to be an effective tool to reduce cruising, which can delay students, faculty, and parents trying to make their way to and from school.

3. Can office staff observe approaching visitors before they reach the school entry?

Main office staff and administrators are the most important players when it comes to school safety. The office is the screening tool for most schools, expected to evaluate and direct visitors, bar undesirables, placate the disgruntled, and generally solve problems.

Most offices are poorly sited to fulfill these roles. If offices are hidden deep within the school, they are poorly positioned to guard against unwelcome visitors. Even if offices are located near exterior doorways, the school may have many alternative access points; intruders maybe able to gain entry through secondary doors or even through windows. Fencing, landscaping, outbuildings, posters on windows, and poor lighting can also undermine surveillance from the office outward.

School layout and signage can exacerbate the problem. Frequently these signs lack maps, arrows, or other directions, and the office location is unclear. Visitors may be instructed to check in at the office, but with inadequate guidance this can be an invitation for a visitor to prowl the halls while ostensibly looking for a destination. Even if the office is located near the main entry, it may lack appropriately located windows, eliminating natural surveillance. The assumption that school staff members can deal with a threat that suddenly appears at the front desk is unrealistic.

Solution: See solutions discussion for question 4.

4. Do staff members have the physical ability to stop visitors from entering?

Even if staff members can see intruders approaching, can they do anything in response? Only half of all public schools even claim to control access, and whether they are successful or not is not evident (Kaufman et al., 1999). Are the doors locked as a matter of course, once school starts? How quickly and easily can staff lock all entries? Once an intruder is inside the building and approaching or entering the main office, is the situation better or worse? Can staff members protect themselves as well as the student body?

Solutions: Assess the school office location based on the following criteria, starting with the least desirable, and progressively improving through seven levels of office design and location:

- The least-useful location is for an office to be hidden deep within the building. It is not adjacent to any exterior doorway, let alone the main entry, and there may be many alternative points of access to the school as well. Office staff lack natural surveillance out of the office. They cannot see people approaching the building, nor can they see people in the halls, and they cannot control access.
- Slightly better placement will bring the office to a location that can be easily found, with its doorway flush with a main hallway. It is still distant from the main entry, and provides no opportunity for natural surveillance outside the building. There may be a window facing into the hallway, providing a small opportunity to view people passing by, but staff are not in a position to anticipate or control them.
- Design the office to protrude into the hall. This allows staff to look up and down the hallway, assuming window design and internal layout accommodate this.
- Position the office somewhere along the perimeter of the school, allowing natural surveillance to the outside. On the inside, the office should protrude into a main hallway, allowing natural surveillance up and down at least the main hallway, and perhaps secondary hallways as well. This still establishes no access control over visitors.
- Place the office directly adjacent to the main entry, protruding into the hallway and to the outside of the school. Visitors who approach the main entry are easily seen, and must pass close by to enter the school. Staff have good visibility outside the main entry area and down the main hallway. Unfortunately, secondary entrances still undermine the ability of the main office to observe or control unwanted visitors.
- By securing all secondary entries, effectively making them alarmed emergency exits, schools can force all visitors to use the main entry. Only at this level of secure design do staff members have adequate natural surveillance over visitors, assuming windows are properly placed and internal layout is accommodating. Electronic controls governing the front door would provide a significant opportunity for access control. Staff would be empowered to enact a lockdown with the touch of a button.
- At the highest level of security an entry vestibule is added, adjacent to the main office. Natural surveillance is abundant in most directions. When visitors enter the entry vestibule they physically cannot proceed further until cleared by the office. In a high-security environment, this might include electronic screening for weapons. There might be a pass-through window for suspicious packages as well. Only when staff are satisfied do they press a release button, allowing the visitor to enter the facility. Office staff, in this scenario, are protected behind bullet-resistant glass.

5. How well can people see what's going on inside the school?

Blind corners, "dead walls," alcoves, and stairwells provide "cover," or hidden areas, for inappropriate behavior. These are predictable locations for misbehavior because they are out from under the eyes of the authorities. If 90 percent of the school design incorporates natural surveillance, the remaining 10 percent will be prime territory for drug use, bullying, harassment, and other illicit activities. Some areas are easily observed when empty but become difficult to watch during times of peak use—the "transitional" times before and after classes, when most conflicts occur.

Solutions: Provide direct, natural surveillance. Staff should be able to look up and see the source of a noise or observe activity. If this is not the case, the installation of windows or convex mirrors is the next-best option. Windows can provide natural surveillance while mirrors provide a secondary view. If neither of these is an option, surveillance cameras (discussed on Page 17) or patrols by staff or volunteers are the remaining possibilities.

In many cases, natural surveillance is blocked by posters, notices, or artwork on windows. Removing these obstacles can make a difference. See-through backpacks, open or screened lockers, and clothing restrictions are also options that can increase visibility. Finally, crowds can act as a visual screen, hiding activity in an otherwise open area. Mirrors, cameras, or observation posts that provide a view over the heads of students can address this concern. Scheduling also can be planned with the goal of limiting crowds in the hallways or other gathering places.

6. Do staff members have immediate lockdown capability in classrooms and other locations?

Wherever staff and students are situated during a crisis, predictable questions arise: How do we call for help, make ourselves safe, protect students, and resolve the situation? Every location on campus may have to serve as a haven during a crisis. Unfortunately, most would be very difficult to lock down on a moment's notice, and only some have reliable intercoms, telephones, or other communication devices readily available.

Classrooms and many other areas have outward-opening doors, designed to meet fire and building code exit requirements. If the door is standing open during an emergency, a teacher will have to reach into the hallway—which could be the scene of the crime—to pull the door closed. Even worse, she may have to insert a key on the outside in order to lock the door. That means she will have to step into the hallway, extract a key ring, find the correct key, and insert it into the lock. If she is in distress her physiology will go through changes, as her blood rushes to her major muscle groups for fight-or-flight preparation. As a result, she will lose some or all of her fine motor skills. The latter are required to manipulate a key and insert it into a lock. If this is the only means of securing the door, there's a risk of failure.

Alternately, entrapment is also a risk in any classroom or office. If an intruder blocks the classroom door, students will need a secondary escape route.

Solutions: Every schoolroom should be considered as a potential safe haven. It should be possible to lock the door during a crisis without entering a danger zone. Building and fire codes require an outward-opening door if room capacity goes beyond a specified number of occupants. If the room serves a small group, it may be possible to install an inward-opening door. This would be advantageous in circumstances where occupants want to close the door without first stepping into the hallway. Teachers should be expected to keep the key on their person while on duty.

Each room should have a reliable communication device in it, usually an intercom or telephone. The system needs to have the capacity for conference calling, so that many classrooms can be on line with the office simultaneously during a crisis. The office should have the ability to tell everyone, immediately, to lock down, relocate, or evacuate. Many times, schools will have working equipment in some rooms, but not in others. Gymnasiums, playgrounds, parking lots, and bathrooms are frequently left disconnected from the public address system.

Ideally, if a 911 call is placed from a classroom, an enhanced 911 system will identify the location. Unfortunately, when calls come from multi-line systems, this is often not an option; the emergency dispatcher only knows that the call came from somewhere in the school. Alarm systems often have similar weaknesses, identifying only an address or a large zone. Check with your local emergency services or alarm dispatcher to determine the limitations of your system.

Each room should be examined to determine where best to take cover. Generally, the thicker and denser the material, the better a shield it provides. If walls are all paper thin, piled furniture may have to serve as a barricade. If planning new construction, thicker materials up to the six-foot point in height should be used to provide shielding in walls. Windows can be reinforced with security film, but this can be prohibitively expensive at $4 to $5 per square foot. Thicker glass is generally safer, but even bullet-resistant glass—at $100 per square foot—has its limits. Wire-mesh embedded in glass is not recommended. Students have suffered severe injuries when they have accidentally put hands through this type of glass, usually inset into a door.

Each location in the school will provide unique opportunities and challenges as safe havens. Hallways are sometimes too vulnerable to internal threats, in which case students will be better off retreating to a more enclosable space. Libraries can serve well only if securable, with thick furniture and piles of books offering protection. Gymnasiums rarely have communication devices in them or quick means by which to secure doors.

Finally, escape routes also must be considered. An emergency exit door, or in some cases windows, should offer alternative means of escape in a crisis.

7. Is the overall school climate prosocial?

The dangers inherent in an antisocial school climate far outweigh the benefits of a prosocial physical environment. In the extreme, this resembles nothing more than a passable jail. Building the perfect facility will be of little value if even one disturbed student's anger is allowed to fester unchecked.

Solutions: Establish an overall prosocial behavior management plan for the school, such as the Effective Behavior Support program. Adopt a behavioral curriculum, such the Seattle Committee for Children's Second Step program. Have a clear flowchart of preventive actions, crisis intervention, and remediation steps that staff can easily follow. If the same concepts are taught to all staff and students, they are more likely to be accepted and followed. If all staff members know their responsibilities when misbehavior arises, problems are less likely to fall through the cracks or escalate into larger crises. Negative graffiti, posters, or other messages should be removed.

8. Are there identifiable or predictable trouble spots or high-risk locations?

By 1995,9 percent of all students and up to 15 percent of minority urban students reported "they avoided one or more places in school," and feared being attacked at school or on the way to and from home (Kaufman et al., 1999). One study placed 38 percent of on-campus homicides in parking lots or at school bus stops, 30 percent in stairwells or hallways, 23 percent elsewhere on the grounds, 21 percent in classrooms or offices, 11 percent in entry areas, 9 percent in breezeways or center courts, 6 percent in bathrooms, and 5 percent in cafeterias (Kachur et al., 1996). Other research varies in this breakdown, but the overall spread of risky locations holds true. As such, each of these locations merits individual attention.

Parking lots and bus stops: Unsupervised congestion and conflict commonly occur in parking lots and at bus stop areas, especially during peak times. Cars provide convenient, hidden areas in which students can engage in illicit behavior undetected any time of day. Closed car doors muffle sound, and activity in one car can be hard to spot, hidden in a sea of other vehicles. Bus pick-up areas, particularly after school, pose some risks. Students anxious to escape after school jostle with each other for limited space. Normal traffic-related conflict among buses, cars, bicycles, and pedestrians compounds the potential for violence.

As the demand for parking exceeds available space, new parking areas will surface, officially or unofficially. Berkeley High School, for example, has extended parking onto the school tennis courts. When these kinds of expansion occur, the pedestrian flow may shift to a secondary entrance. If the administration ignores this new reality, the office can become dysfunctional as a gatekeeper. If, on the other hand, the secondary entrance remains locked and students are forced to walk a considerable distance to the main entrance, they may be at risk of victimization along the way.

Solutions: Using traffic cones, gates, or other devices, restrict parking to a compact, easy-to-patrol area. Investigate any vehicles that circumvent this restriction. Require highly visible registration stickers for all students' vehicles, and keep records of license plate and vehicle descriptions, to make identification easier. Enclose parking lots with fencing, to restrict access by offenders. At the same time, leave escape routes for pedestrians, to avoid entrapment by predators.

Another possibility is to use assigned parking spots for students and staff when feasible. This makes a trespasser's vehicle stand out. CPTED principles call for avoiding the use of "dead" walls adjacent to parking lots and using windows to increase supervision. In addition, the direction in which cars are parked can be designed to enhance natural surveillance.

If parking shifts to a new location, converting a secondary entrance into a new "main" entrance by default, install a "front office" at that location. This can replace the original office, or augment it during peak hours. Another option is to place another type of service at that location, such as the library, using the librarian as a gatekeeper. A responsible adult on site should be able to act as a witness, deter blatant misbehavior, or call for help in an emergency.

When all else fails, video surveillance and human patrolling can be added. For immense parking lots, emergency call buttons may be wise investments, too. School buses are not infrequently the site of conflicts. In those cases, video cameras in the buses and radios or cell phones for drivers would be important. Identifying numbers on bus rooftops will make them easier to identify from the air, in the unlikely event of a hijacking. Bus-tracking electronic devices are currently in the research stage.

Hallways: Hallways suffer from a population explosion every 45 minutes. Within a small window of time, most of the student body is competing for space. Hallway locker doors and locker owners create obstacles for the pedestrian traffic flow, as does social interaction. Staff generally avoid hallways during these brief rush hours, and when they are present lack natural surveillance beyond the students closest at hand. A commotion at the far end of the hall is completely camouflaged by the chaos blocking the view. Overcrowding, combined with petty conflicts, can lead to violence.

Solutions: Wider spaces and otherwise unoccupied niches often act as social gathering spots. By selectively building these spaces out of the traffic flow, some of the congestion can be reduced. Lockers can be spread at a greater distance from each other, reducing conflict between neighboring locker users. Lockers can be moved to separate locker bays, but as with any isolated spot, if there is no natural surveillance over this area it is at risk of becoming a trouble spot. A compromise design effectively widens the hallway periodically, bringing the lockers out of the traffic flow without isolating them entirely from view. Where second stories exist, use them to provide natural surveillance for staff. Place staff break rooms at appropriate locations to at least give the impression of surveillance—mirrored windows can leave students guessing as to whether they can be seen. Convex mirrors placed high improve surveillance over crowds and around corners. Where the architecture fails to enhance surveillance, cameras or human patrolling maybe additional options to consider.

Schools officials should try to avoid situations where line of sight is inadvertently blocked by vending machines or other large items. In many schools, classroom doors swing outward, due to fire code considerations. This can also block line of sight and thus natural surveillance by teachers. Some schools have had success by instructing teachers to open these doors flush to the wall so that doors don't block line of sight. In some cases, wall lockers may need to be removed to allow doors to open fully.

Stairwells: Stairwells, like hallways, may suffer from intermittent congestion, alternating with long periods of isolation. In either case, there is the added risk that comes with climbing and descending. Stairwells are often hidden from view; fire doors may seal them off entirely. In between rush hours, stairwells can provide hidden areas, and fire doors can muffle sound. Stairs may be "travel predictors," which offenders can rely on to place a victim in their path at a certain time.

Solutions: The more open the stairway design, the better. Wherever solid walls are blocking surveillance, look for ways to install openings or windows. Exterior, isolated fire stairwells can be made safer by the extensive use of glass for exterior walls. Short of these measures, mirrors, cameras, and patrolling are additional options.

Grounds: Only 24 percent of U.S. schools claim to control access to school grounds (Kaufman et al., 1999). Outdoor areas are extremely difficult to control. Especially if designed for multipurpose use, territoriality is often vague—anyone who wants to is welcome to come play. Unfortunately, this can lead to visits from undesirables who put students at risk. If schools serve double duty as community centers and unofficial skateboard parks, nobody really knows who is in charge anymore. Landscaping and outbuildings can hide illicit activity; while outdoor shelters can become magnets for people with no better place to go. Playing field bathrooms are frequently problematic, serving as illicit meeting places or predictable locations for cornering prey.

Solutions: Wrought-iron fencing is the territorial-marker and access control device of choice. It provides strong access control, is extremely resistant to vandalism, and lacks enough surface space to attract much graffiti. Although it costs considerably more than mesh fencing, it is a good long-term investment that enhances school image and climate, and leaves natural surveillance intact, while defining and controlling official entry points.

The use of written warnings by law enforcement officials to ban certain people from school property has also been effective. Officers can ban known drug dealers or gang members, as well as students who have been suspended from school. Arrests of those who violate these warnings may deter potential troublemakers from loitering on campus.

Heighten area definition to enhance territoriality. Invite students, service clubs, and area residents to develop paths, swing sets, gardens, sandboxes, slides, wetlands, natural meadows, tennis courts, and amphitheaters, as well as traditional soccer or baseball fields. Student, neighbor, or service group participation can give community members a sense of ownership in the school. If they subsequently see problems occurring on the site, they will be more likely to call authorities.

Amenities should be factored into grounds development. Driveways and service roads will be needed, but can attract unwelcome users if not controlled with gates, barricades, and/or speed bumps. Large crowds for soccer tournaments generate parking overflow, litter, and sanitation problems. They will need bathrooms, drinking water, and shelter. Benches or bleachers should also be considered. See-through bleachers can improve natural surveillance. Unfortunately, amenities can also serve as magnets for undesirable trespassers, and can be vulnerable to vandals. Boost natural surveillance of vulnerable amenities with nonglare lighting and clear sight lines for neighbors.

An in-residence caretaker is a good option to consider—trade mobile home housing for an overnight presence. Caretakers can be carefully screened with police background checks, and usual school ground restrictions against alcohol, drugs, and weapons would apply. If vandalism is extensive, an on-site caretaker maybe more economical than other options, such as paid security. Free or low-cost on-site housing maybe attractive to new or retired teachers on tight budgets. Video cameras and paid security represent two further possibilities.

Entry areas: Entry areas are travel predictors and gathering spots. Offenders targeting particular students know they can find them in entry areas at predictable times. If security measures focus on visitors only after they enter the building, violence is more likely to occur before visitors enter the school's locus of control. In this way, improved internal security can directly raise the external level of risk. Pedestrian traffic jams at a security checkpoint create a mass of unprotected potential victims, lingering outdoors. Student conflicts inside school may manage to contain themselves only until parties exit the front doors. Snipers and drive-by shooters can anticipate easy prey before or after school, when crowds provide targets outside the main doors.

Solutions: Upgrade front office design to provide natural surveillance over the exterior entry area as well as the interior foyer and hallway, as discussed earlier. Reconsider any security measures that create vulnerable gathering spots. If tight security at the entry point is required, consider staggering attendance times for each grade, thinning the crowd. Provide an adult presence wherever students congregate, and provide communication devices. Provide shelter for students waiting for rides, buses, or entry, with low walls or stanchions that can be used for protection. At the same time, take care to maintain natural lines of sight—don't build walls that eliminate natural surveillance. Install speed bumps or other traffic control devices to slow traffic near the main entry.

Breezeways: Sprawling campuses often connect buildings with breezeways for a variety of reasons. They're cheaper than enclosed hallways, avoid building code restrictions on building sizes, and in some cases are considered an aesthetic feature. Regardless of motive, breezeways are unprotected travel predictors. They may be underlit as well, and lack natural surveillance. Even during rush hours, particularly in bad weather, staff members don't linger there. If surveillance cameras are used, bright daylight outside tunnel-like breezeways may backlight subjects, making useful pictures difficult to obtain.

Solutions: Working in cooperation with building codes, look for ways to enclose breezeways and connect buildings, shifting from a sprawling campus to more of a fortress design. At the same time, keep natural surveillance as strong as possible by using windows rather than solid walls. Seal off all secondary entry points, such as breezeway entries, with fire doors. The doors should close and lock automatically. Staff should have keys or proximity cards, and doors can be staffed while open between classes.

Bathrooms: Bathrooms have a reputation as unsafe locations, where illicit activity and bullying are common. Many students avoid using school bathrooms altogether for this reason. Bathrooms are frequently located in isolated corners of buildings, away from natural surveillance. Occasionally they are also near secondary entries, providing opportunities for unobserved trespassers and easy exits. Double door entries muffle typical bathroom noises, but they also muffle cries for help, sounds of assaults, acts of destruction, and the drift of cigarette smoke. Toilet stalls provide even greater privacy, and are often covered with graffiti.

Solutions: Bathrooms should be installed adjacent to supervised areas, within direct line of sight of school staff. Maze entries (with walls for privacy but no closing doors) should replace double-door entries, for a few reasons: Alarming sounds are more apt to be noticed from outside; escaping predators is much easier; offenders cannot count on the sound of the outer door opening to warn them when an authority figure is entering; cigarette smoke is no longer masked; and as an added benefit, fewer unsanitized hands have to share the same door knob or plate. Regular maintenance is essential. Take back ownership of toilet stalls by painting over graffiti, and even consider replacing it with prosocial messages. Anticipate the prosocial messages being vandalized regularly. Replace them relentlessly.

Many schools have had problems with several students gathering in one stall to smoke, or sell or use drugs. When officials approach the area, students typically flush any evidence. Using magnetic latches on stall doors can help prevent this type of problem by making it harder for students to avoid detection. In addition, some schools avoid the use of drop ceilings, which can be used to hide contraband. Vandalism-resistant materials can be used for stall partitions. Most important, adequate supervision of school bathrooms is always required, no matter how thoughtful the design.

If smoking in bathrooms is an overwhelming problem, consider high-sensitivity smoke or flame detectors. These devices can set off alarms or silently send messages to office staff.

Cafeterias: Cafeterias are predictable gathering spots. As a result, they can serve as easy destination points for intruders bent on destruction. This was the case with Springfield, Oregon's, Thurston High School shootings in 1998. Combined weaknesses in that campus layout included "dead" walls blocking surveillance to the north, an unsupervised parking lot, access to a dark breezeway, and an insecure cafeteria entry. Images picked up on videotape, capturing Kip Kinkel walking across the parking lot, wearing a bulky trench coat, failed to convey any critical information, such as the suspended student's identity or what was under his coat. Victims were shot in the breezeway as well as in the cafeteria.

Another concern is intentional food contamination. There have been instances where students have contaminated food in accessible areas (such as poisoning a salsa bar).

Solutions: The greater the accessibility, the more vigilance is required. This applies to all locations, including cafeterias. Escape routes are critical, as are communication devices to call for help. If screening occurs at some distance from the cafeteria, there is less likelihood of an offender reaching this destination undetected. A locked or supervised breezeway might have deterred Kip Kinkel from his chosen route. Other group gathering spaces, including gymnasiums and theaters, have similar vulnerabilities.

To deter intentional food contamination, schools can position open food service areas and beverage dispensers near cash registers and teachers' tables to increase natural surveillance. Security cameras in these areas can add additional deterrence.

SECURITY TECHNOLOGY: AN OVERVIEW

A school's physical structure should inherently provide adequate natural surveillance, natural access control, and territoriality to minimize the need for technological fixes. Unfortunately, this ideal structure rarely exists; improvements are usually necessary. These may take the form of short-term fixes, major architectural remodeling, extra staffing, and/or electronic technology.

Security technology provides many tools schools can point to as measures they have taken to enhance student safety. Unfortunately, such technology can inspire more enthusiasm than is warranted. Technology can fall short in a number of ways, including:

- Heavy-handed use of technology can generate resistance from individuals uncomfortable with a big-brother or prisonlike atmosphere, which can undermine a positive school climate.
- The technology may fail to compensate for design weaknesses. For example, a secure main entry is of little value if the back door remains uncontrolled.
- Equipment can be cumbersome, expensive, unsupportable, and counterproductive. New technology can quickly prove itself obsolete, or dependent upon unproven distributors for ongoing maintenance and repairs. If manufacturers close, schools maybe left with expensive, nonworking security equipment that is difficult to repair or replace, with little or no resale value. After reasoned consideration, more than one school district has chosen more teachers and less security technology as the better investment strategy.
- Hastily chosen technology may not even come close to addressing the problem. For example, electronic surveillance can provide evidence against bullies, and that can be an effective deterrent, but such an approach would be ineffective against suicidal armed intruders.

Ultimately, if considering security technology, schools need to avoid being overly impressed with electronic wizardry. Security cameras, ID cards, burglar alarms, and most weapon and drug detectors would have had no bearing on the outcome of the highly publicized school shootings of the past decade. Solid access control and improved emergency communication, on the other hand, might have made a difference. Schools with chronic violence and small budgets won't be served well by the same approaches taken in schools where violence is rare and budgets are large. Always bring the discussion back to the original problem being addressed, and see if the technology is a good match.

Communication Devices

Telephones, radios, cell phones, intercoms, public address systems, and pagers are the least controversial, and possibly the most sensible, technological fixes that can be employed. Trouble can occur anywhere on or near campus. If staff can immediately call for help, damage can be minimized. Using staff members to patrol the grounds will be of limited value if they have no communication devices; more than likely they are simply being set up as the first victims. Leaving them isolated in classrooms can have a similar effect.

Without cell towers, most wireless technologies will be of little or no use. Sparsely populated areas may not contain enough customers to justify the expense to a private company of constructing towers.

Annunciators are lights or buzzers indicating an open door. Wired into new construction, they can alert staff at a central console when a secondary or emergency door has been opened. Augmented with cameras, these allow staff to observe behavior at all entry points, inside and out, and respond in a timely fashion.

Alarms triggered by smoke or flame, or set off by hand, are required by fire code. More sophisticated systems can also send messages to a central receiving station, pinpointing the location of a problem. Panic button alarms can be built into intercom systems; identification alarms can be worn as pendants. Combination identification/location alarms identify, locate, and track people using them. Depending on the sophistication and reach of equipment, costs can range from a few hundred dollars for an in-house wiring job to $100,000 or more for a 40-acre campuswide system.

A number of companies offer complex or innovative communications technology to schools. For example:

1. Many counties now invest in Community Emergency Notification Systems (CENS). The first use of this technology in the United States came in 1999, when it was installed in Lane County, Oregon. It allows designated authorities to send recorded messages to defined geographic areas, such as within a two-block radius of a school. It can also auto-dial specified lists of numbers, such as for school officials. Thousands of calls can be generated in less than a minute. Costs to the county can include $24,000 in setup costs, $45,000 a year in ongoing costs, and 20 to 30 cents per phone number called. For example, a 28-second message delivered to 2,000 telephones would cost $600. If the county is willing to cover most of these costs, the school district is well served. Shortcomings exist, however, including: Cell phones or pagers will not be triggered by this system, unless specified on preestablished lists; answering machines or voice mail may not capture the electronic message; and existing software does not coordinate automatically with other emergency calls near schools. For example, if a bank is robbed next door to a school, current 911 technology does not alert dispatchers to the fact that a school is nearby. As a result, the school is not immediately advised to lock down the facility.

2. Rapid notification services, as provided by the IWS Corporation and others, offers a credible alternative. Rather than keying off geographic boundaries, it sends messages to predetermined lists, such as all parents' home and work numbers, school staff, students, or district offices. It can send emergency messages via siren, overhead public address, wireless warning sign marquee, phone, fax, paging, PCS, cellular, and e-mail systems, at a cost of $3 to $4 per device per month, with a minimum of 150 devices per contract—at least $450 to $600 per month. Using icons on a computer screen, users can quickly select individuals or groups and send text or voice simulation messages [IWS Corp. (281) 356-5689 or sales@inwireless.com]. The primary drawback to this system is the cost, carried by the school district rather than government offices.

3. The ideal communication device will combine cell phone and radio functions in a single unit—a standard feature in all Nextel phones (www.nextel.com). Users can reach an individual or predetermined group with one push of a button. The phones start at about $50, along with a minimum $50 monthly service fee.

4. Skyline High School resource officers in Longmont, Colorado, give high marks to Handspring Visor Pro Personal Digital Assistants for tracking data and potentially sending messages. A springboard module allows for camera connections. Officers can pull up student schedules, home phone numbers, parent work numbers, and even digital images. Eventually they anticipate sending e-mail messages via satellite. The devices cost about $450 each, and are given to all campus supervisors, officers, and administrators [National Data Solutions (303)838-5912].

5. Ham radio groups, working with local disaster response groups and the Red Cross, can be a resource, especially useful when power sources for other means of communication fail. One such group is the Irvine, California, Disaster Emergency Communications volunteer group. They place portable stations at designated emergency shelters at area high schools, containing battery power, a printer, a laptop computer, and a radio. Volunteers attend various trainings in the area (contact: rick.rossback@alconlabs.com).

Surveillance Technology

The simplest and least expensive mechanical surveillance quick-fix improvements are also the most reliable: convex mirrors. Mirrors should be used to open up surveillance around all blind corners and dead walls. Mounted above head height, convex mirrors can make it possible to observe behavior throughout a crowded hallway.

Video cameras are attractive higher technology fixes, but they come with strings attached. Maintenance costs and parts replacement must be built into the budget. Without emergency access to repair persons and supplies, equipment usefulness can be severely limited.

Berkeley (California) High School, which serves 3,000 students, 150 full-time teachers, and 80 classified staff members, provides one good example of effective surveillance technology. With limited options for access control (although they are closing 11 of the 14 entries onto the campus) or territoriality (their inner-city, 17-acre site serves as a neighborhood cultural center almost 24 hours a day), school surveillance capacity was critical. They installed 80 motion-activated cameras in 2001. The cameras cover hallways, bathroom doors, and fire alarms, as well as other locations. Images are sent to a security office containing five monitors, each of which is split into 16 screens. As of 2002, they are still using videotape (analog technology). They have found the cameras useful for evidence gathering, and as a deterrent. The cameras have helped identify arsonists, and make it much easier to ascertain the facts when a conflict occurs. The latter has been particularly helpful when trying to determine whether two students contributed equally to a fight, or whether one was clearly the victim of an unjustifiable assault. The cameras appear to have had a deterrent effect as well. Vandalism, fire alarms, theft, and fights have dropped dramatically.

If a school chooses to invest in surveillance technology:

- Test cameras in actual lighting conditions, in conjunction with monitors and recorders, with successful performance a contingency of purchase.
- Be prepared for vandals targeting cameras, especially outdoors. Secondary, hidden cameras should cover primary cameras to document any wrongdoing. Protective cages or cases are also essential.
- Dependable, high-quality recorders are critical. Many a taped crime has yielded pictures of such poor quality that they were useless. Specify at least 400 lines of resolution in an industrial-quality recorder.
- From a cost-effective point of view, videotapes (analog technology) are still more economical, but their quality varies to extremes, and the technology is at risk of becoming obsolete over the next decade. Digital technology, on the other hand, is improving rapidly while prices are going down. DVR (Digital Video Recording) systems often can self-diagnose, send warnings, or self-repair. Digital images generally offer better image quality, and enable users to zoom in without losing details. Search parameters can simplify the process of reviewing recordings after an incident. Compare costs and technology before buying, and make sure all parts of the system are compatible.
- Essential storage of digital images requires hard drive space or backup equipment and compression software. Determine what it will take to maintain digital tapes for at least 24 to 48 hours, in addition to any archived suspicious activity. (Sony's HSR-X200 holds 671 hours at one frame per second on an 80 GB hard drive.)
- Going out for bid on video technology must be done with great care. Payment should be contingent upon installation and successful operation. Specify required results in your request for quotes, such as: "must be able to distinguish between two different faces of unmasked individuals anywhere on the basketball court at 3 a.m. despite darkness and inclement weather.... Images printed on the included printer should show the difference between the school principal and the librarian in the north stairwell under normal lighting conditions."
- If equipment is going to fail, the first few months are the most likely time, so test diligently during this period. Vendors should be easily reached for timely maintenance and repair services for the life of the equipment. If the service representatives cannot be there the same day, with replacement parts, that's a major concern.

Access Control Technology

The access control field has been evolving at breakneck pace during the past decade, and shows no sign of letting up. Reliance on conventional keys is likely to fade as more sophisticated options become more affordable. Conventional keys can be lost, copied, or stolen, at which point there is no access control. They will still be needed for emergency use in the foreseeable future, but are likely to become backup devices rather than primary access methods.

Electronic devices such as swipe cards, proximity cards, and coded entries, or biometric devices such as fingerprint scanners, or facial recognition technology, offer far better control. In conjunction with readers that send messages to a central computer, electronic access control devices can track who used which door at what time. With a few swift keystrokes, any individual can be barred from entry at a moment's notice. Contractors can be given swipe cards that expire in a predetermined number of days; school staff may have access only during certain hours, or to certain buildings. Cards cannot be copied, and can be immediately nullified. Schools are reluctant to change keys and locks every time someone retires, but changing the codes on access control devices is relatively easy, and voiding one card is almost effortless. As with all other technology, reliability of vendors for ongoing maintenance, repairs, parts, and supplies—especially on a Saturday night—is a critical factor that must not be overlooked.

The Racine, Wisconsin, schools received a 1999 grant to install a cost-effective, user-friendly but intruder prohibitive access control system for a school with 113 publicly accessible exterior doors. The system, which relies on proximity cards, allows for complete lockdowns and tracks who is or is not in the school. (As of April 2002, the system had been installed, but not yet activated.)

Weapons Detectors

Metal detectors, wands, portals, and X-ray machines have drawn attention as potential solutions, particularly for high-crime schools. Unfortunately, they come with considerable expenses beyond the initial equipment cost, not the least of which involve staffing the equipment. This, along with the fact that most schools have never had shootings, maybe why they are only used in perhaps 1 percent of American schools on a daily basis (Kaufman et al., 1999; Guerard, 2002).

Schools with tight budgets will quickly find that labor-intensive security stations can be beyond their ability. Consider an airport security station: It requires an X-ray machine costing anywhere from $250,000 to $1 million; a portal to walk through costing another $4,000 to $30,000; and individual wands at $150 to $200 for closer inspection. At least one person must staff the portal, another must watch the X-rays, and a third must operate the hand wand. If anything suspicious is found, a fourth staff person will be needed to take the suspect into custody or isolate him from the rest of the students. One report recommends eight security staff to operate an entry for a school of 2,000 students, and notes that one New York city school employs nine security staff for two hours each morning, adding up to 100 work hours weekly (Green, 1999).

School X-ray units start at about $30,000, although walk-through metal detectors cost less—from $2,500 to $7,000. Devices that will detect substances like gunpowder can cost up to $75,000.

With airplanes, once you're in flight nobody new is going to gain entry. With schools, visitors may be able to slip in at any time, while windows and secondary entry points may allow students to slip in contraband even while a security station is in high gear. As discussed earlier, security stations also oblige students to form a crowd or a queue, waiting for their turn passing through. This leaves them highly vulnerable, stuck in a holding pattern outside the front entry.

While entry point screening can be costly and time-consuming, and requires significant staffing, it is not the only option for weapons screening. A number of schools have had excellent results with random screening of classrooms, entry points, and school buses. Random screening can be accomplished with a low investment in both equipment and personnel.

While incidents of targeted weapons violence are of concern, it is important to remember that they make up only a tiny fraction of school-related weapons assaults.

Security vestibules are expensive options, costing tens of thousands of dollars. These self-contained units control access effectively, only allowing one individual to pass through at a time. Once inside the vestibule, the first door closes and an adjustable scanner checks for weapons. A camera transmits an image to a controller, who can ask visitors, via intercom, to open packages or coats, and can then reject them, give them instructions, or allow them to pass through the second, electronically controlled door. Exits also involve double-door vestibules, making unauthorized entry through exits impossible. The volume of traffic moving through a large school makes this option questionable on a pragmatic level, and may interfere with emergency exit requirements.

School Size, Renovation, and Rebuilding

The larger the school, the more of a challenge it is to secure. Multiple entry points will require an equivalent number of guardians, or will compromise access control. A labyrinth of add-ons often incorporates numerous blind corners and niches, creating hidden areas attractive for delinquent behavior. Individual at-risk students can feel lost in a large student body, and may not draw needed attention until it is too late. If the student body is quite large, staff and students alike may have trouble determining who belongs on campus and who doesn't, undermining territoriality.

Recent research makes a strong case for small schools in order to promote more personal learning communities, boost academic performance, improve the likelihood of personal connections and attention, reduce isolation and achievement gaps, build group cohesion, and make staff coordination easier, as well as to improve school safety. The research suggests a size limit of 300 to 400 students in elementary schools, no more than 600 in junior high or middle schools, and between 600 and 900 students in high schools (Lackney, 2000; Duke & Trautvetter, 2001). Strategies to create smaller learning communities have the effect of making large schools feel smaller by creating schools within a school.

Many schools do not or cannot accommodate these limitations. In those cases, a number of options can be considered. Converting excess doors into alarmed emergency exits, sealing off under-utilized sections of the school with metal accordion-style grates, recruiting volunteer hall monitors, and installing surveillance cameras are some possibilities. Schedules can be staggered to reduce congestion and conflict in the hallways. Large schools can be divided into a number of smaller, specialized wings, houses, families, academies, or schools-within-schools, focusing on arts, sciences, language immersion, trades, career exploration, or other subjects. From a CPTED perspective, any arrangement that makes it easier for students to know each other and build bonds while enhancing staff surveillance and access control abilities is a step in the right direction.

SAFETY AUDITS AND SECURITY SURVEYS

Approaches to school safety audits can range from basic, no cost, in-house overviews to extensive projects drawing on government or private grants and consultants. To find CPTED specialists, contact the International CPTED Association (www.cpted.net). Local police and security agencies maybe able to help as well. A variety of checklists and surveys are available nationally, many from sources listed at the end of this section. The two surveys provided below attempt to cover the main points.

Because the variables are considerable, school comparisons can be difficult and subjective. Especially for political reasons, it can be tempting to spread funds thin, giving each school a token amount of money for improvements. From a CPTED perspective, this is like plugging half the holes in a sieve. The public may gain the illusion that all the schools are safer, when all are still equally at risk. Invest in a complete upgrade for one school, rather than dropping token amounts into each school, then build from there.

Until the survey is conducted you cannot reasonably predict the costs of remodeling, so bear this in mind while seeking grant funding or crafting bond measures. A two-stage process would be most sensible. If that is not possible, assume that CPTED improvements can easily run $100,000 to $500,000 per school, *not* including electronic technology.

There are many approaches to site inspections. One that works well is to use a basic school layout map, as is typically given to school visitors. Mark locations on the map that need attention, identifying them with letters or numbers corresponding to your notes. Always attach a site map to your survey results. Depending on the setting, start from a few blocks out, then work your way onto the grounds and in through the main entrance. At each point along the way, consider the issues of natural surveillance, access control, and territoriality as discussed. Two sample surveys—one basic, one more detailed—are included here to serve as guides.

1. Basic School CPTED Survey

School name, address, contact information:

Addressing the key questions:

1. What risks and opportunities do students encounter between home and school?
2. What risks and opportunities are posed in areas directly adjoining school property?
3. Can office staff observe approaching visitors before they reach the school entry?
4. Do staff members have the physical ability to stop visitors from entering?
5. How well can people see what's going on inside the school?
6. Do staff members have immediate lockdown capability in classrooms and other locations?
7. Is the overall school climate prosocial?
8. Are there identifiable or predictable trouble spots or high-risk locations?

For each of the problems or locations identified above, determine:

How can we improve natural surveillance?
How can we improve access control?
How can we improve territoriality?

2. Annotated School CPTED Survey

School name, address, contact information:

History of problems:

Source of information: (police, school records, student interviews)

Anticipated problems:

Source of information: (police, school records, student interviews)

1. What risks and opportunities do students encounter between home and school?
   - Traffic related: Are crosswalks hazardous? How well protected are they? Can crossing guards be recruited?
   - Crime related
   - Weather or environment related
   - Other hazards
   - Opportunities: field trips, mentors, jobs, safe havens
   - Alternative transportation options
   - How can natural surveillance be improved?

2. What risks and opportunities are posed in areas directly adjoining school property?
   - Traffic related
   - Crime related
   - Other hazards
   - Opportunities: field trips, mentors, jobs, safe havens
   - How can natural surveillance be improved?
   - Is access to school property controlled by fencing, walls, signs?
   - Do solid walls, fences, hedges block surveillance or attract graffiti?
   - Do students congregate at predictable locations off campus, and does this cause a problem?
   - Where are possible evacuation sites? Do they have telephones, bathrooms, heat, securable areas?

3. Can office staff observe approaching visitors before they reach the school entry?
   - Is the office located adjacent to the main entry?
   - Do windows allow natural surveillance of approaching visitors?
   - Does anything block the view? (Posters, sculpture, shrubbery, etc.)
   - Does the office layout allow staff to see approaching visitors from normal working positions?
   - If poorly located, can the office be moved?
   - Can new locations for the office be identified?

4. Do staff members have the physical ability to stop visitors from entering?
   - How difficult is it for staff members to lock entry doors in an emergency?
   - Can they use an emergency electronic lock button?
   - Do they have to use keys? Do they have to go outside in order to insert keys in locks?
   - Are doors locked other than during rush hours?
   - Is the front entry staffed with security personnel?
   - Are office staff provided with crisis intervention and response training?
   - Is the front entry controlled with weapons scanners or other technology?
   - Do counters or windows protect office staff?
   - If threatened, can office staff retreat to safer locations, or are they trapped?

- Do staff members have panic button alarms?
- Can intruders gain access any other way than through the main entry?
- Can those secondary entries be locked, staffed, otherwise controlled?
- How is access controlled after hours?
- Are keys controlled effectively?
- Is an alarm system in place? What triggers the alarm? What happens when the alarm is triggered?

5. How well can people see what's going on inside the school?
   - How extensively can office staff and others see activity in immediately adjacent public areas, as well as up and down hallways? Can they see over the heads of crowds using mirrors, cameras, raised areas?
   - Do blind corners, niches, unlocked and unattended rooms block surveillance?
   - Where can illicit activity occur undetected?
   - How can access to hidden areas be denied? Can those areas be locked off?
   - Where would convex mirrors help?
   - Can internal windows be uncovered, or blinds be opened, to improve surveillance?

6. Do staff members have immediate lockdown capability in classrooms and other locations?
   - Which rooms can be used as "safe havens" in emergencies?
   - How hard is it to lock each room in an emergency? Does it require a key? Does a person have to step out into the hallway to lock the door?
   - Will classroom doors lock automatically when closed? Are they kept closed during class?
   - Is there a two-way intercom or telephone in each room?
   - Do staff carry communication devices?
   - Do thin walls and windows weaken rooms as safe havens?
   - Are there secondary, emergency exits available from each room?

7. Is the overall school climate prosocial?
   - Are behavioral expectations spelled out in positive terms?
   - Are these reflected in student-created posters or other displays?
   - Is there hostile graffiti? At whom are they directed? Are graffiti immediately painted over?
   - Are there conflicts between groups?
   - Are there students who are isolated?
   - Does bullying occur?
   - Do students feel safe?
   - Do students turn to staff for help resolving problems?
   - Are student mediators used?
   - Is there a universal prosocial curriculum in place, teaching empathy, problem solving, anger management, tolerance?
   - Is there an overall behavior plan for the school?
   - Do all staff members participate in behavior management training? Does this include school officers, cafeteria workers, playground monitors, bus drivers?
   - Is there a targeted program in place for intervening with severely misbehaving individuals?

8. Are there identifiable or predictable trouble spots or high-risk locations?
(These locations may have already been addressed in #1-7. This serves as a fail-safe measure, to see if any locations have been missed, and require more specific recommendations)

- Neighboring streets
- Neighboring businesses
- Other neighboring locations
- School boundaries
- School grounds
- Parking lots
- Driveways
- Loading docks and dumpsters
- Main entry area
- Main office
- Hallways (specify which ones)
- Secondary entryways
- Classrooms
- Gymnasium
- Cafeteria
- Auditorium
- Bathrooms
- Locker rooms, locker bays, locker halls
- Art rooms
- Industrial and home economics rooms
- Science labs
- Library
- Preschool or Head Start classrooms
- Courtyards
- Music rooms
- Special education rooms
- Computer/technology rooms
- Furnace and custodial storage
- Time-out rooms
- Meeting or conference rooms
- Informal or formal gathering areas
- Roof
- Crawl spaces
- Portable buildings
- Surveillance equipment closet
- Key control
- Lighting problems indoors or out

Security technology

- What access control devices are used?
- How well are keys controlled?
- Have keys been lost?
- Have locks been changed?
- Are electronic access control devices being used? If not, should they be considered?
- Will repair parts be readily accessible during the next 10 years?
- Will repair services be readily available during the next 10 years?
- Do emergency workers have easy access when needed?

- What surveillance equipment is used?
  - > Are surveillance cameras used?
  - > Are they protected from vandals?
  - > Are they maintained?
  - > How well do they work?
  - > How long are tapes or images kept?
  - > Are the transmitted images of adequate quality for identifying individuals?
  - > Are the printed images of adequate quality for identifying individuals?

- Are weapons scanners used? If so, how effectively?
  - > Is the system impractical?
  - > Are there traffic jams at scanning devices?
  - > Are they cost-justifiable?
  - > Are they well maintained?
  - > Are staff members trained in their use?
  - > Have they effectively kept weapons out?
  - > Have they had a positive or negative impact on school climate?

What communication devices are available?
Do staff members have cell phones, radios, intercoms, pagers? Do they operate throughout the school property, both indoors and out?
Are there locations that lack communication devices?
Are there emergency call stations or panic alarms? Who receives the distress signal when a panic alarm is used? Is the signal monitored 24 hours a day, seven days a week, or just when office staff are working?
Do radios operate on channels coordinated with police and other emergency workers?
Is there an unlisted number reserved for outgoing calls during a crisis?
Can emergency personnel easily and directly reach a live adult—not voice mail, or a student volunteer—24 hours, seven days a week?
Does your local 911 dispatch center have the capacity for electronic mass calling with urgent messages—a Community Emergency Notification System (CENS)?
Are all staff trained in emergency communications?

CONCLUSION

Crime Prevention Through Environmental Design is a key component of school safety planning. A site that is well protected with natural surveillance, access control, and territoriality will require less staff time and energy to maintain as a safe environment. This leaves instructors more time to focus on teaching, and students more time to focus on learning. Security technology can further enhance school safety. Because this technology is experiencing dramatic improvements annually, schools are advised to keep a close eye on opportunities, as equipment improves and costs come down.

As important as these approaches are, they are only part of the bigger picture. CPTED is an approach that can help set the stage for a positive, safe learning experience. Many other factors will also have a huge impact on a school's success or failure. CPTED will only reach its full potential to promote school safety if linked to other essential components of a comprehensive school safety plan, as discussed in the accompanying technical assistance guides in this series.

REFERENCES

Carter, S.P. (2001). *Surrounded by safety: A Crime Prevention Through Environmental Design (CPTED) handbook for youth.* Miami, FL: Office of Juvenile Justice and Delinquency Prevention & Youth Crime Watch of America.

Crowe, T.D. (1991). *Applications of architectural design and space management concepts.* Boston, MA: Heinemann.

Duke, D.L., & Trautvetter, S. (2001). *Reducing the negative effects of large schools.* Washington, DC: National Clearinghouse for Educational Facilities.

Green, M. (1999). *The appropriate and effective use of security technologies in U.S. schools: A guide for schools and law enforcement agencies.* Washington, DC: Department of Justice, Scandia Labs.

Guerard, E.B. (2002, January 30). High school tests high-tech weapon scanner. *eSchoolNews.* Retrieved October 25,2002, from www.eschoolnews.com

Jacobs, J. (1961). *The death and life of great American cities.* New York, NY: Random House.

Jeffery C.R. (1971). *Crime prevention through environmental design.* Beverly Hills, CA: Sage.

Kachur, S.P., Stennies, G.M., Powell, K.E., Modzeleski, W., Stephens, R., Murphy, R., etal. (1996). School associated violent deaths in the United States, 1992-94. *Journal of the American MedicalAssociation, 275(22),* 1729-1733.

Kaufman, P., Chen, X., Choy S.R, Ruddy, S.A., Miller, A.K., Chandler, K.A., et al. (1999). *Indicators of school crime and safety, 1999.* Washington, DC: U.S. Departments of Education and Justice. (NCES 1999-057/NCJ-1 78906)

Kaufman, P., Chen, X., Choy, S.P., Ruddy, S.A., Miller, A.K., Fleury J.K., et al. (2001). *Indicators of school crime and safety, 2001.* Washington, DC: U.S. Departments of Education and Justice. (NCES 2002-113/NCJ-190075)

Lackney, J.A. (2000, November 15). *Thirty-three educational design principles.* Washington, DC: National Clearinghouse for Educational Facilities.

Newman, O. (1972). *Defensible space.* New York, NY: Macmillan.

U.S. General Accounting Office. (1995). *School facilities: Conditions of America's schools.* Washington, DC: Author.

RESOURCES

The SafetyZone
www.safetyzone.org
The SafetyZone, a project of the Northwest Regional Educational Laboratory's Comprehensive Center, Region X, provides technical assistance related to school safety and violence prevention. The center also provides information and a variety of resources, as it tracks the latest research about possible causes of violence and the best practices that foster resilient youth and promote safe and productive schools and communities.

101 S.W. Main St., **Ste.** 500
Portland, OR 97204
Phone: 1-800-268-2275 or (503) 275-0131
Fax: (503) 275-0444
E-mail: safeschools@nwrel.org

Northwest Regional Educational Laboratory (NWREL)
www.nwrel.org
NWREL is the parent organization of the SafetyZone, a project of the Northwest Regional Educational Laboratory's Comprehensive Center, Region X. It provides information about coordination and consolidation of federal educational programs and general school improvement to meet the needs of special populations of children and youth, particularly those programs operated in the Northwest region, through the U.S. Department of Education. The Web site has an extensive online library containing articles, publications, and multimedia resources. It also has a list of other agencies and advocacy groups that addresses issues pertaining to, among other things, school safety issues as well as alcohol and drug abuse.

101 S.W. Main St., Ste. 500
Portland, OR 97204
Phone: (503) 275-9500
E-mail: info@nwrel.org

American Society for Industrial Security (ASIS)
www.asisonline.org
ASIS International, with more than 32,000 members, is the preeminent international organization for professionals responsible for security, including managers and directors of security.

1625 Prince St.
Alexandria, VA 22314
Phone: (703) 522-5800
Fax: (703) 519-6299

Institute on Violence and Destructive Behavior
http://darkwing.uoregon.edu/~ivdb/index.html
The institute's mission is to empower schools and social service agencies to address violence and destructive behavior, at the point of school entry and beyond, in order to ensure safety and to facilitate the academic achievement and healthy social development of children and youth. This is a combination of community, campus, and state efforts to research violence and destructive behavior among children and youth.

1265 University of Oregon
Eugene, OR 97403-1265
Phone: (541) 346-3592
Fax: (541) 346-2594

International Association of Campus Law Enforcement Administrators (IACLEA)
www.iaclea.org
IACLEA advances public safety for educational institutions by providing educational resources, advocacy, and professional development.

342 N. Main St.
West Hartford, CT 06117-2507
Phone:(860)586-7517
Fax: (860) 586-7550
E-mail: info@iaclea.org

International Association of Professional Security Consultants (IAPSC)
www.iapsc.org
The purpose of IAPSC is to establish and maintain the highest possible standards in the security consulting profession. The IAPSC Web site features a searchable database of security consultants.

2402 Vista Nobleza
Newport Beach, CA 92660
Phone: (949) 640-9918
Fax:(949)640-9911
E-mail: press@iapsc.org

International Crime Prevention Through Environmental Design Association
www.cpted.net
The International CPTED Association (ICA) is committed to creating safer environments and improving the quality of life through the use of CPTED principles and strategies. Crime Prevention Through Environmental Design (CPTED pronounced \sep-ted\) has as its basic premise that the proper design and effective use of the physical environment can lead to a reduction in the incidence and fear of crime, thereby improving the quality of life. Membership is invaluable to anybody working in the crime prevention field.

Barry Davidson, Executive Director
439 Queen Alexandra Wy.,S.E.
Calgary, Alberta, Canada T2J3P2
Phone: (403) 225-3595

National Clearinghouse for Educational Facilities
www.edfacilities.org
Created in 1997, the National Clearinghouse for Educational Facilities serves as an information resource for those who plan, design, build, operate, and maintain K—12 schools. See the "Safety and Security" section of this Web site for an excellent collection of resources.

National Institute of Building Sciences
1090 Vermont Ave.,N.W.,Ste. 700
Washington, DC 20005
Phone: (888) 552-0624 or (202) 289-7800

National Criminal Justice Reference Service (NCJRS)

www.ncjrs.org

NCJRS is one of the most extensive sources of information on criminal and juvenile justice in the world, providing services to an international community of policymakers and professionals. NCJRS is a collection of clearinghouses supporting all bureaus of the U.S. Department of Justice, Office of Justice Programs, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, the Bureau of Justice Statistics, the Bureau of Justice Assistance, and the Office for Victims of Crime.

P.O. Box 6000
Rockville, MD 20849-6000
Phone: 1-800-851-3420 or (301) 519-5500
E-mail: askncjrs@ncjrs.org

National School Safety Center (NSSC)

www.nssc1.org

The NSSC was created by presidential directive in 1984 to meet the growing need for additional training and preparation in the area of school crime and violence prevention. Affiliated with Pepperdine University, NSSC is a nonprofit organization whose charge is to promote safe schools, free of crime and violence, and to help ensure quality education for all America's children.

141 Duesenberg Dr., Ste. 11
Westlake Village, CA 91362
Phone: (805) 373-9977
E-mail: rstephens@nssc1.org

North Carolina Center for the Prevention of School Violence

www.cpsv.org

Established in 1993, the North Carolina Center for the Prevention of School Violence serves as a primary point of contact for information, programs, and research about preventing school violence.

North Carolina Department of Juvenile Justice and Delinquency Prevention
313 Chapanoke Rd., Ste. 140
Raleigh, NC 27603
Phone: 1-800-299-6054 or (919) 733-3388
Fax:(919)815-1208
E-mail: joanne.mcdaniel@ncmail.net

Safe and Drug-Free Schools Program, Office of Elementary and Secondary Education

www.ed.gov/offices/OESE/SDFS

The Safe and Drug-Free Schools Program is the federal government's primary vehicle for reducing drug, alcohol, and tobacco use, and violence, through education and prevention activities in our nation's schools.

U.S. Department of Education
400 Maryland Ave.,S.W.
Washington, DC 20202
Phone: (202) 260-3954
E-mail: safeschl@ed.gov

Thomas Jefferson Center for Educational Design

www.tjced.org

This mission of the Thomas Jefferson Center for Educational Design is to promote the design of learning environments that foster the acquisition of knowledge, skills, and wisdom in a climate of caring, cooperation, and mutual respect.

Curry School of Education, University of Virginia
P.O. Box 400409
Charlottesville, VA 22904-4409
Phone: (434) 982-2866
Fax: (434) 982-4782
E-mail: tjced@virginia.edu

Additional Readings

Brooks, K., Schiraldi, V., & Ziedenberg, J. (2000). *School house hype: Two years later*. Washington, DC: Justice Policy Institute & Covington, KY: Children's Law Center. Retrieved August 8,2002, from www.cjcj.org/schoolhousehype

Crowe, T.D. (1990, Fall). Designing safer schools. *School Safety*, pp. 9-13. Encino, CA: National School Safety Center.

Gaustad, J. (1999). *Fundamentals of school security* (ERIC Digest No. 132). Eugene, OR: ERIC Clearinghouse on Educational Management. (ERIC Document Reproduction Service No. ED436814)

Gottfredson, D.C. (1997). School-based crime prevention. In L.W Sherman, D. Gottfredson, D. Mackenzie, J. Eck, P. Reuter, &S. Bushway, (Eds.), *Preventing crime: What works, what doesn't, what's promising. A report to the United States Congress* (Chap. 5). Washington, DC: U.S. Department of Justice, National Institute of Justice. Retrieved August 7,2002, fromwww.preventingcrime.org/report/chapter5.htm

Green, M.W. (1999). *The appropriate and effective use of security technologies in U.S. schools: A guide for schools and law enforcement agencies.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice. Retrieved December 20,2002, from www.ncjrs.org/school/home.html

Heaviside, S., Rowland, C., Williams, C., Farris, E., Burns, S., & McArthur, E. (1998). *Violence and discipline problems in U.S. public schools: 1996-1997.* Washington DC: U.S. Department of Education, National Center for Education Statistics. Retrieved January 21,2003, from http://nces.ed.gov/pubs98/violence

Jeffery C.R. (1999). *CPTED:Past, present and future.* Position paper prepared for the International CPTED Association at the 4th annual ICA Conference, Mississauga, Ontario, Canada.

National School Safety Center. (1990). *School safety check book: School climate and discipline, school attendance, personal safety, school security model programs.* Malibu, CA: Pepperdine University.

Norris, C., &Armstrong, G. (1999). *The maximum surveillance society: The rise of CCTV*. New York, NY: Berg.

Pollock, I. (Ed.). (2001). Crime at school continues to decline. *Safety Zone, 3(4),* p. 7. Portland, OR: National Resource Center for Safe Schools. Retrieved August 7,2002, fromwww.safetyzone.org/pdf/winter2001.pdf

Schneider, T. (2001). *Newer technologies for school security* (ERIC Digest No. 145). Eugene, OR: ERIC Clearinghouse on Educational Management. (ERIC Document Reproduction Service No. ED449550)

Schneider, T., Walker, H.M., & Sprague, J.R. (2000). *Safe school design: A handbook for educational leaders applying the principles of crime prevention through environmental design.* Eugene, OR: University of Oregon, ERIC Clearinghouse on Educational Management.

Small, M., & Tetrick, K.D. (2001). School violence: An overview. *Juvenile Justice Journal, 8(1).* Washington, DC: U.S. Department of Justice. Retrieved August 8,2002, from www.ncjrs.org/html/ojjdp/jjjournal_2001_6/jj1.html

Snyder, H.N. (2001). *Law enforcement and juvenile crime* [Bulletin]. Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention. Retrieved August 8,2002, from www.ncjrs.org/html/ojjdp/nrs_bulletin/nrs_2001_12_1/contents.html

Snyder, H.N., & Sickmund, M. (1999). *Juvenile of fenders and victims: 1999 national report.* Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Stephens, R.D. (1990). *School safety check book.* Malibu, CA: Pepperdine University, National School Safety Center.

Virginia Department of Education. (n.d.) *Checklist for the safety and security of buildings and grounds.* Richmond, VA: Author. Retrieved December 19,2002, from www.pen.k12.va.us/VDOE/Instruction/schoolsafety/checklis.html

ACKNOWLEDGMENTS

Project coordination:
Ira Pollack

Editing:
Suzie Boss

Technical editing:
Eugenia Cooper Potter

Bibliographic review:
Linda Fitch

Graphic design and production:
Denise Crabtree

Cover photography:
Judy Blankenship

ABOUT THE AUTHOR

Tod Schneider, a national consultant on violence, environmental design, and hope building, has served as the senior Eugene (OR) Police Department crime prevention specialist for 15 years, and is the senior author of *Safe SchoolDesign.* He has taught confrontation management, violence prevention, and crime prevention through environmental design for a wide variety of audiences, including the Arizona Juvenile Justice Association, the Kansas Advisory Group, the Oregon Department of Education, state and federal government groups, the National Recreation and Parks Association, many social service groups, and the University of Oregon.

Guide 1: Creating Schoolwide Prevention and Intervention Strategies

Guide 2: School Policies and Legal Issues Supporting Safe Schools

Guide 3: Implementing Ongoing Staff Development To Enhance Safe Schools

Guide 4: Ensuring Quality School Facilities and Security Technologies

Guide 5: Fostering School-Law Enforcement Partnerships

Guide 6: Instituting School-Based Links With Mental Health and Social Service Agencies

Guide 7: Fostering School, Family, and Community Involvement

Guide 8: Acquiring and Utilizing Resources To Enhance and Sustain a Safe Learning Environment

Northwest Regional Educational Laboratory
101 S.W. Main St.,
Suite 500
Portland, OR 97204

Phone:
1-800-268-2275
(503) 275-0131

Fax:
(503)275-0444

E-mail:
safeschools@nwrel.org

Web:
www.safetyzone.org