Safety and Security Guidelines for Facility Design – Littleton Public Schools

October 4, 2019

I. INTRODUCTION

Purpose

The Safety and Security Guidelines for Facility Design are standards used by design professionals to prevent and minimize threats to a facility and its occupants. They identify planning exercises, design strategies, spatial relationships, and other design or programming elements that impact safety, security, and mental well-being. When properly aligned with the District's mission, the Guidelines enhance educational and community outcomes by creating clear standards that are in line with desired outcomes.

Intended Use

The Guidelines are for use in the design of school renovations and new construction projects. They describe the essential components of school safety and security and explain how the school campus will support the academic programs and vision of the school's leadership.

The Guidelines are primarily intended for use by architects and project planners. However, they also serve as an important tool for communicating the District standards to all project stakeholders, including:

- Students, parents, and families
- Faculty and administrators
- Civic leaders and community members
- First responders and law enforcement
- Project design and construction partners

The design team should facilitate participatory design, which will allow all relevant voices the chance to contribute. Include principals, teachers, and key community stakeholders as needed.

These Guidelines provide the framework for safety and security measures, while leaving architects ample flexibility for creativity and design options. In this way, the Guidelines define expectations among project stakeholders, but do not limit ingenuity. They are a living document that will continue to develop and evolve as safety and security needs change.

Expectations

Building design is one component of a holistic approach to school safety and security, which also must include legislation, policy, education, awareness, and technology. It is not possible to secure a school 100 percent, and these guidelines attempt to balance multiple considerations. The Architect is responsible to design a facility that supports positive engagement and interactions among students, faculty, staff and administration.

PK-12 children may face a number of threats during their schooling, from rare and catastrophic active shooter incidents, to more common instances of bullying, harassment or sexual violence. These Guidelines include active shooter determent strategies, but also address day-to-day concerns facing students and staff.

Littleton Public Schools Board of Education Strategic Plan

These Guidelines are intended to support the District's Strategic Plan. The Plan was last updated in November 2014 to better reflect the Board's and the community's values for education. The most significant change to the Strategic Plan was the addition of Focus Area 10, which centers on the community's value around the importance of mental health for the students and their families.

Vision Statement:

Littleton Public Schools: Extraordinary learning, exceptional community, expanded opportunity and success for all students

Mission Statement:

The Littleton Public School District shall strive to educate all students for the future by challenging every individual to continuously learn, achieve, and act with purpose and compassion in a safe and secure environment.

Core Beliefs and Focus Areas:

Core Beliefs

1. A Littleton Public Schools education prepares all students to succeed in a global society.
2. Every student is unique and has different abilities, needs, and learning styles that require varying educational techniques and strategies.
3. Students learn best when their passions and talents are coupled with high expectations and academic rigor in a safe and caring environment.
4. A quality educational environment requires exceptional teachers, administrators, and staff supported by effective professional development, competitive compensation, and personnel practices that attract and retain the best staff.
5. The foundation for education and citizenship is built upon communication and connections with the community, including the active participation of students, staff, and parents.
6. A comprehensive education provides students with varied learning opportunities that include curricular and extra-curricular offerings.
7. Meaningful and appropriate evaluation of student learning occurs through timely and ongoing analysis of student performance on a variety of assessments.
8. Effective use of technology as an instructional tool enables students to successfully communicate, learn, and compete in a global environment.
9. An LPS education enables students to think critically, work collaboratively, communicate effectively, and act with integrity.
10. Students learn best when there are collaborative partnerships that foster thoughtful and relevant learning innovations between school and district leadership.
11. A strong, flexible, and fiscally responsible school district that is adequately funded is critical for long-term success and community confidence; for maintaining strong partnerships with local, state, and national elected officials and neighboring agencies; and for engaging in, shaping, and influencing public policy that affects education services in LPS.

Focus Areas

1. Enhance instructional systems and career pathways that maximize achievement for all students and integrate knowledge and skills relevant to 21st century career choices.
2. Expand utilization of instructional technology with appropriate use for student achievement while providing the infrastructure for organizational efficiency and effectiveness.
3. Provide an educational and work environment that supports professional learning and collaborative work for all staff.
4. Promote, sustain, and create quality programs that make Littleton Public Schools the uniquely preferred choice for families inside and outside the District.
5. Engage the community and parents as active partners in the objectives, activities, and performance of the school district and its students.
6. Optimize the use of District resources and facilities to meet student learning needs while operating the District efficiently.
7. Promote and provide a safe environment that fosters caring, respect, and compassion for others.
8. Enhance and support quality early childhood and childcare programs.
9. Educate and support staff, parents, and community to address diverse student learning by providing access and opportunities for all students.
10. Partner with parents and community to expand and enhance programs that address the physical, social, and emotional well-being of students, families, and staff.

Approved 11/13/14

Legacy Statement and Guiding Principles of the 2018 Bond Program

LPS voters have provided us with the rare opportunity to create history -- an opportunity to continue our tradition of excellence that we have not had in more than 30 years. Today, we have before us the challenge of building learning environments that excite and inspire our children; that prepare them for careers and life beyond what we can imagine; that honors their differences and engages their minds for generations to come and that stand the test of time.

We will create something bigger than ourselves; something our community can be proud of; schools that are beautiful, thoughtful, and relevant today as well as for future generations whose world we cannot begin to know.

What we build today will be our legacy. It must be worthy of that challenge.

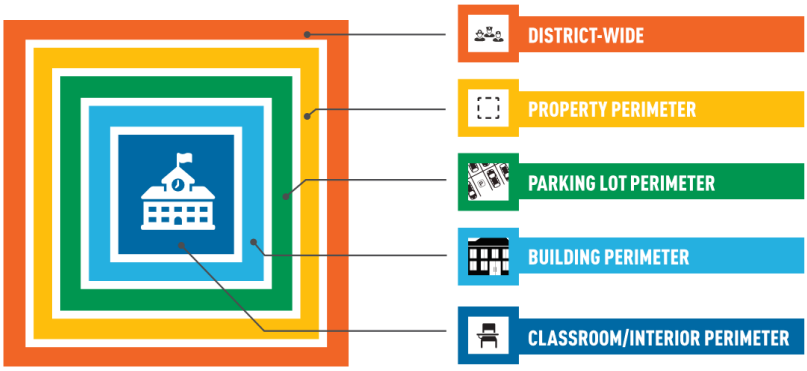
II. IMPORTANT CONCEPTS / DEFINITIONS

Crime Prevention Through Environmental Design (CPTED) [1]**:** Proper design and effective use of the built environment can lead to a reduction in the fear of crime and the incidence of crime, and to an improvement in the quality of life. In contrast to the approach of addressing crime concerns by implementing visually affronting security or target-hardening measures such as locks, hard barriers, security gates, security patrols, etc., CPTED promotes high quality and visually pleasing solutions as first responses that aim to enhance the legitimate use of space. CPTED can be applied without interfering with the normal use of the space. It is easy to apply and can be economical to implement, especially if it is done early at the planning and design stages of a project.

THE FOUR PRINCIPLES OF CPTED ARE:

- Natural Surveillance: use of sight lines, windows, and permeable barriers (i.e., fencing) to facilitate passive monitoring of spaces.
- Natural Access Control: use of barriers and entry/exit points to restrict who is allowed in and out of the designated space.
- Territorial Reinforcement: visual delineation of spaces serving different purposes and functions such as the use of landscaping elements (i.e., plants and shrubs) to mark perimeters or the use of signage to establish expectations for the space.
- Maintenance and Management: mitigate disorderly and deteriorating spaces that are associated with neglect and delinquency

Layered Security [2]**:** A layered approach addressing a broad range of threats, as each successive layer provides specific components to deter, detect or delay adversarial behaviors in the event that other layers are bypassed or breached. Layers of Protection include:



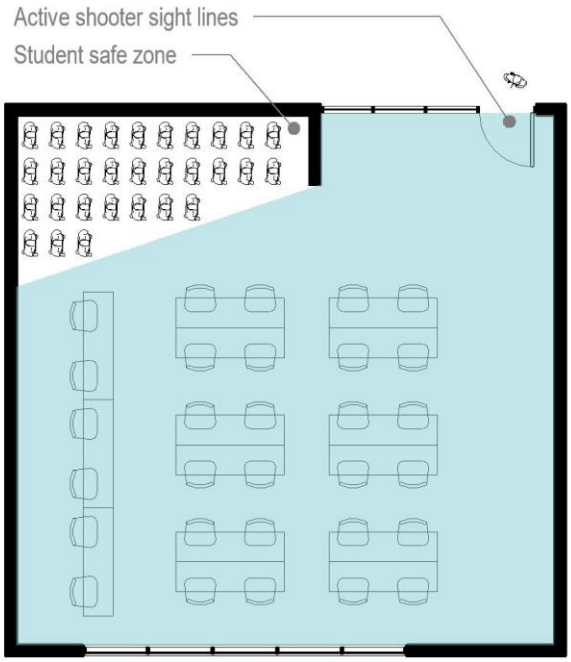
[2]

- Building design must allow free circulation between layers during normal operation.
- Each layer includes basic protective elements, or components, of security. Every layer does not necessarily include all seven of these common components, and a layer may include additional components unique to that layer. Safety and security components include:
    - Policies and Procedures
    - People (Roles and Training)
    - Architectural
    - Communication
    - Access Control
    - Video Surveillance
    - Detection and Alarms

These Guidelines are mostly concerned with the Architectural component and how it supports Communication, Access Control, Video Surveillance, and Detection and Alarms.

Shelter | Evade | Defend | Care [3]**:** An active threat protocol consisting of four situation-dependent response options. Building design should consider all four actions.

- Shelter:
    a. Alert others, initiate lockdown
    b. Lock doors, close window shades and shut off lights
    c. Persons to stay quiet and get low, ideally behind large items and out of sightlines from the corridor.



- Evade: (If you cannot get to a safe location)
    a. Run away from commotion
    b. Find the nearest exit and flee to a safe location
    c. If you cannot flee, seek concealment
    d. If you are in a room, understand where your exit options are if a threat is nearby
    e. Call 911 when safe
- Defend: (As a last resort)
    a. If your life is in danger, attempt to incapacitate a threatening person
- Care:
    a. Call 911
    b. Give emergency first aid to the best of your ability
    c. Reassure and provide comfort to those around you

III. Stakeholder Communication

The Design Team shall:

1. Meet with LPS Safety team at major milestones as part of the owner review meetings to discuss compliance with the Guidelines.
2. Support LPS's efforts to communicate approach with all stakeholders.
3. Engage the Authority Holding Jurisdiction and first responders during the design process to encourage their input and collaboration while developing site and building specific safety strategies.
4. Provide a narrative to LPS that explains the layers of protection approach taken.
5. Provide narrative, drawings, and specifications to LPS of how the design implements *District Security Technology* standards including:
    a. Video Surveillance
    b. Access control
    c. Mass Notification
    d. Intrusion Protection
6. Provide overall floor plans, roof plan, fire/ HVAC/ security system plans, a five-block radius site aerial image, and other information useful to police, fire, and other emergency partners. Documents must be submitted to the LPS Security and Emergency Planning Department and shall not be publicly available.
7. Generate digital plans for record and tactical use by LPS, which include basic room name/ numbers and identification of security cameras and other access control points.

IV. Design Principles

The following are requirements and best practices for site and building design. [1] [2] [3] [4] [5].

Site Guidelines (Property perimeter and Parking lot perimeter)

1. Secure Property Perimeter
    a. Delineate the property perimeter from adjacent properties by creating symbolic or physical barriers in an attractive appearance.
        i. Boundaries may include fencing, landforms, boulders, plantings, etc.
    b. Consider securable gates at secondary entries for vehicles and/or pedestrians.
    c. Consider perimeter fencing in areas that can't be visually monitored.
    d. Provide secure perimeter fencing, or physical barrier, at all formal athletic fields and tracks.
    e. Provide sight lines or perimeter fencing at storm water basins, playgrounds, outdoor teaching areas and outdoor dining areas.
    f. Consider site access needs of community use before and after school hours.
2. Site Signage
    a. Provide clear signage directing visitors to designated entrance(s).
    b. Locate signs posting rules at key points around the site.
3. Parking Lots
    a. Design site and parking lots per CPTED principles to enhance natural surveillance.
    b. Promote visibility from front desk to parking/site access/bus loop (i.e., grading, low plantings).
    c. Reflect conversation with AHJ to accommodate emergency ingress, staging, and egress.
4. Building Access
    a. Provide safe, direct, and separate paths of pedestrian and vehicular access for students, parents, staff, visitors, and deliveries.
    b. Consider aesthetic of materials, signage, and lighting.
    c. Provide barriers to prevent vehicular intrusion at unauthorized areas of property.
        i. Useful or natural elements such as heavy anchored benches or boulders, etc., are preferred over bollards.
    d. Locate pedestrian amenities such as trash cans and trash receptacles along key pedestrian pathways.
    e. Locate bike racks to be easily monitored.
    f. Locate visitor parking adjacent to the main entry of the administrative offices.
    g. Consider occupants' emergency access back into the building from outdoor areas.
5. Secondary Access Points
    a. Design site to limit access to sheltered areas of building.
        i. Grading/elevation (i.e.., berm).
        ii. Strategic location of plantings.
        iii. Prevent easy physical access to walls/openings and roof.
6. Play Areas
    a. Locate play areas away from major site and building access points.
    b. Arrange play areas so staff can supervise.
        i. Include low landscaping and visual access both from within the building and when standing near the play area (full range of view).
7. Landscaping
    a. Eliminate hiding places caused by landscaping or fencing.
    b. Enhance the grounds with landscaping, student artwork, monuments, and/or other physical means to encourage people to occupy the space and build pride and ownership.

c. Use landscaping to visually screen undesirable objects that detract from a welcoming entry experience.

8. Site Lighting
    a. Provide adequate, even footcandle coverage, per local zoning code and industry standards.
    b. At a minimum, provide lighting at main entry, parking lot(s), building perimeter.
    c. Consider landscaping and future tree growth when designing site lighting.
    d. Coordinate lighting to support exterior camera coverage.

9. Exterior Cameras (locate to provide coverage for):
    a. Entry approach
    b. Playgrounds
    c. Parking lot
    d. Outdoor learning
    e. Athletic fields
    f. Coordinate with site lighting or provide cameras adapted to low lighting levels in areas that do not have site lighting.
    g. Consider landscaping and future tree growth when locating cameras.

10. Other
    a. Secure access to dumpsters and site utilities.

Building Perimeter Guidelines

The exterior envelope provides the first level of protection, physical and visual, as well as views, natural daylight, connection to the community, and natural surveillance.

1. General
    a. Apply CPTED principles for natural access control and surveillance.
    b. Consider door, window, and building-mounted security devices, such as cameras and intercoms, that are attractive and unimposing.
    c. Determine if a Distributed Antenna System (DAS) is required via a site survey. [2]
        i. Two-way radio signal boosters may be required in new construction/renovation for compliance with the emergency responder radio coverage.
        ii. The evolution of new composite construction materials and wireless networks can interfere with the effective radio coverage for first responders.
        iii. Schools can find more information on DAS through IFC-510 or NFPA-72, Chapter 24.
    d. Design public address system to have a one-way communication system reaching student-occupied areas immediately outside the building.
2. Exterior Doors and Glazing
    a. Categorize exterior openings as Primary, Secondary, or Tertiary.
        i. Primary: main and event entrances with controlled and monitored building access.
        ii. Secondary: primarily for emergency egress but may be used for limited building access by faculty or access to/from playgrounds/ outdoor learning areas.
        iii. Tertiary: emergency egress only.
    b. Mark all entry doors with first responder numbering system
        i. Coordinate numbering with local police and fire officials.
        ii. Typically begin numbering at the main entrance and proceed clockwise.
        iii. Numbers should be made of reflective material.
    c. If entrances have electronic access control, place key locks as a backup (at Primary entrances).
        i. For keying, all exterior entrances should be on a separate master key from interior entrances.

ii. A video intercom should always be used when there is no direct line of sight to the person that is screening incoming visitors. When possible, network and integrate with electronic access control system.

d. Provide a Knox Box(es) to hold a master key or credential accessible only to fire departments, emergency medical services, and law enforcement to allow rapid access to locked doors in emergency situations.

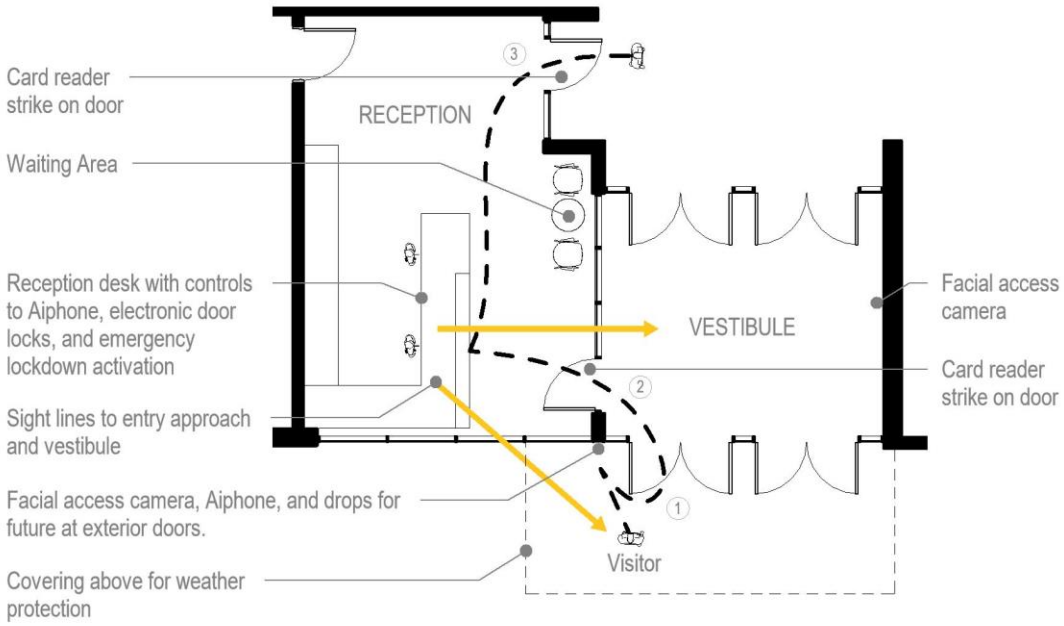
e. Provide increased security for exterior door vision panels and sidelights. Specifically, consider locations with no other barriers.
   i. Security film and ballistic security glass deter or delay the ability of an attacker to breach a doorway using a firearm or other tool/weapon, in addition to limiting injuries from glass shards resulting from a blast, fire, accident, natural disaster or severe weather event.
   ii. For renovations, install security window film at least 14 millimeters thick (350 microns) on all exterior door vision panels and sidelights.
   iii. For new construction, specify ballistic security glass that meets or exceeds the UL Level 3 standard for ballistic protection at all exterior door vision panels and sidelights.

f. Consider reflectivity of glazing on exterior windows to prevent visual access from the outside to the inside.
   i. For renovations, consider one-way film.
   ii. For new construction, specify an integrated one-way or highly reflective glazing unit.

g. Provide window coverings at all exterior windows to occupied spaces.

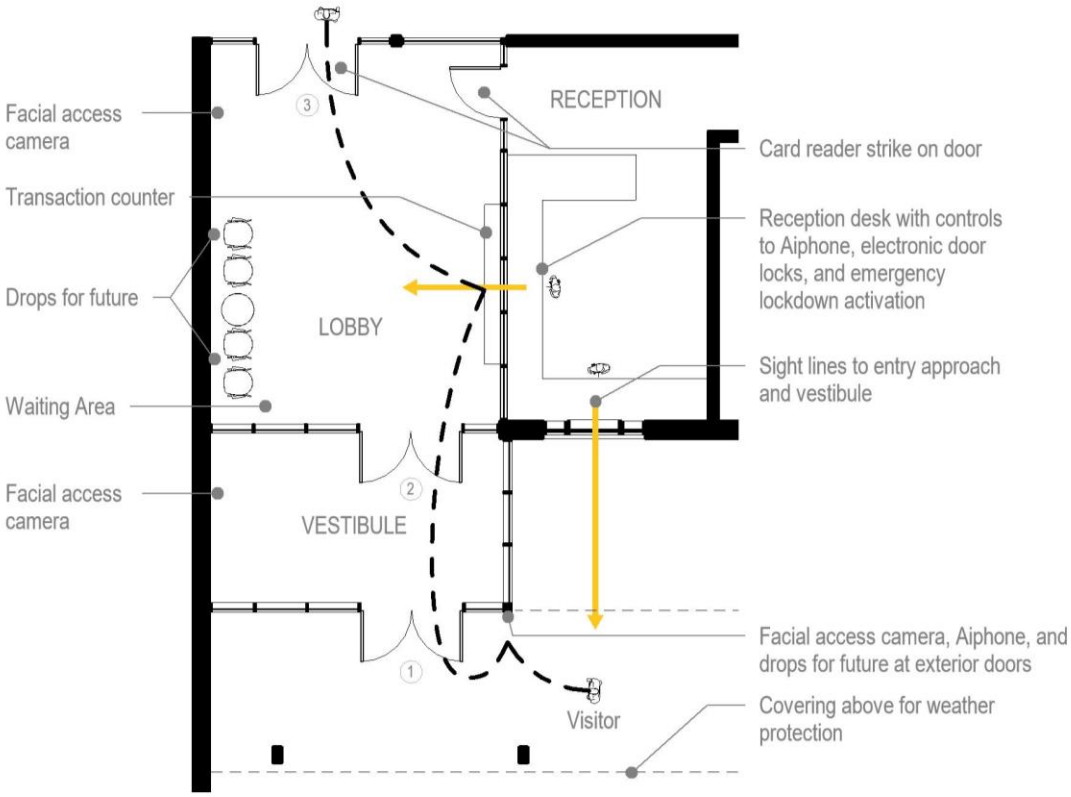
4. Front/Main Entry:

a. Option 1 Entry Sequence (standard at Pre-K and Elementary School): Visitors circulate through the weather vestibule and then enter the administration office/ reception.



*During normal business hours, all doors shown require card access and/or remote electronic latch release. Provide extra drops for future technology at the door exterior and interior.

b. Option 2 Entry Sequence (standard at Middle and High School): Visitors circulate through a weather vestibule to a secure lobby with transaction counter to the administration office/ reception.



*During normal business hours, all doors shown require card access and/or remote electronic latch release

c. For both options:

i. Provide sight lines from reception to vestibule, and ideally the front doors and building approach.

iii. Provide Aiphone system outside building and/or within vestibule to request entry into administration office.

iv. Provide vestibule or secured lobby sized to be a welcoming waiting area for visitors as well as for students.

v. Create an entry that is well marked, lit, and attractive.

vi. Locate electronic door lock and emergency lockdown activation controls at reception desk and one other location in the administration suite.

vii. For new construction, specify construction of vestibule walls, doors, and glazing to meet or exceed UL Level 3 standard for ballistic protection. This applies only to glazing and partitions below door-head height.

Building Guidelines – Interior Space Planning

1. Compartmentalize Building
   a. Stairwell and cross-corridor doors should be configured to allow for confining an emergency event to a limited area of the building.
   b. These doors should normally be held open with electromagnetic devices that resist tampering and release upon remote activation.

c. Cross-corridor doors should be equipped with exit-only panic hardware and either a cylinder lock to manually gain access with a key or integration with an electronic access control system to electronically gain access.

2. Guided Circulation
    a. Design corridors to be easily observed and supervised.
    b. Provide wayfinding and room signage that is clear and easily visible.
    c. Create interior corridors that are attractive and uplifting.
3. Lockers
    a. Locate lockers along common paths of travel and eliminate hiding places.
    b. Where lockers are grouped in an open area, consider limiting locker heights to promote visibility.
4. Common Spaces
    a. Partially or fully open common areas shall have multiple well-distributed, points of egress. Consider exceeding the number required by egress calculations.
    b. Provide areas of possible refuge within the space or accessible nearby.
5. Health and Wellness
    a. Prioritize space for student support and mental health services.
    b. Consider locating the counseling suite in a high traffic area, perhaps near Commons.
    c. Create inviting spaces to encourage student participation and reduce mental health stigmas.
    d. Consider creating locations for positive imagery and messages that can be curated by the school staff, students, or community.

Building Guidelines – Room Design and Details

1. Visibility
    a. All student occupied rooms must have visibility into/from room. At a minimum, provide a ¼ lite door.
    b. Classrooms must also have 'shelter in place' areas to fit the entire class load.
        i. Consider layouts that are not dependent upon window coverings.
        ii. If using garage style doors, consider frosted glazing at lower elevations.
        iii. Consider use of wall-mounted sliding whiteboards or mobile furniture to cover transparent interior glazing.
        iv. Indicate shelter in place zone with floor pattern or markings.
    c. Provide sight lines at breakout areas inside and/or outside the classroom.
    d. Promote visibility in common/circulation areas.
2. Exiting
    a. Consider providing multiple points of egress from classrooms only if sheltering in place is not possible and if the additional exits do not negatively impact the use of the classroom.
3. Door Locks
    a. Consider wireless access control locks, with wireless fob to lock door.
    b. Tie into mass notification/lockdown system.
    c. Locks should have visual indicator so status (locked or unlocked) is visible from interior.

Building Systems

While the Architects' focus is building layout and design, they are to coordinate the incorporation of Communications, Access Control, Video Surveillance, Detection and Alarms with sub-consultants and District personnel.

V. References and Sources

[1] T. D. Crowe and L. J. Fennelly, Crime Prevention through Environmental Design, 3rd ed., Waltham: Butterworth-Heinemann, 2013.

[2] Partner Alliance for Safer Schools, Safety and Security Guidelines for K-12 Schools, 4th ed., Partner Alliance for Safer Schools, 2018.

[3] G. Grace, "What Works in Active Threat Incidents: Best Practices for the K-12 Environment," 14 March 2019. [Online]. Available: https://passk12.org/news/what-works-in-active-threat-incidents-best-practices-for-the-k-12-environment/. [Accessed 20 September 2019].

[4] National Fire Protection Association, "NFPA 3000 (PS): Standard for an Active Shooter / Hostile Event Response (ASHER) Program," 2018.

[5] Centers for Disease Control and Prevention, "Crime Prevention Through Environmental Design (CPTED) School Assessment (CSA)," Center for Disease Control and Prevention, and Carter & Carter Associates, Atlanta, 2017.

The recommendations listed here are made for the purpose of providing for a safer environment, acknowledging that it is not possible to secure a school 100 percent. It is up to the design team for each specific project to determine whether and how to incorporate these generic recommendations into solutions appropriate for actual and specific applications and in conformance with state and local building and life safety codes.