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Designing for Safety, Designing for Learning

Enlist architects in the quest to deter threats to school safety while promoting an open learning environment.

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School leaders are feeling conflicted about their school buildings. On the one hand, they want to provide children with safe, secure spaces. On the other, they want to provide open, collaborative, and exceptional 21st century learning environments. By taking a holistic approach, they can have both.

It's important to remember that many current schools were designed with threats other than school shootings in mind. In the wake of World War II and the postwar baby boom, another boom took place: school construction. Mid-Century Modern was a common design style across the country, and school safety meant something much different. As a result of the increased threat of nuclear war, many schools installed fallout shelters in their basements. Students practiced air raid drills and learned to "duck and cover" under their desks. For their time, they were the cutting edge of safe school design.

As Cold War fears subsided, Crime Prevention through Environmental Design, or CPTED, came into vogue in the 1970s as an approach to security in urban areas. This multidisciplinary approach to neighborhood security sought to reduce criminal behavior through architectural design techniques. These principles could be applied to new and existing buildings:

- territoriality
- natural surveillance
- access control
- maintenance

Territoriality is the building's ability to claim its space. When people approach a building designed with CPTED principles, they know they have entered its property, usually because it has a clearly

defined perimeter. Natural surveillance is the ability of people moving through the property to "see and be seen." When people know their actions can be observed, they are less likely to commit crimes. Well-designed access control limits a building's point of entry to one location, so the building administrators can know exactly who is entering. Finally, building maintenance plays a role in security—also known as the "broken window" concept of security. When the community sees a building that has been vandalized and nothing has been done to fix it, the building appears to be a weak and vulnerable target that only encourages more vandalism.

Today, school security needs to respond to a completely different threat. Lockdown drills have replaced the air raid drills of the 1950s and '60s, and students learn to shelter in place to avoid an active intruder. Designing buildings for school security is all about time: Time to deter, time to detect and delay the advancement, and time to find a defensive place against armed intruders trying to gain access to the school. It's much harder to defend against an armed student that already has permission to access the campus.

Ever since the school shooting at Columbine High School in Littleton, Colorado, in 1999, which took the lives of 13 people and wounded more than 20 others, architects have been looking for ways to improve the security of schools through design. Twenty years later, the tragic school shooting at Marjory Stoneman Douglas High School in Parkland, Florida, has once again brought school security back to the forefront of the media. Seventeen people lost their lives, the largest loss of life in a school shooting event since the 2012 massacre at Sandy Hook Elementary School in Newtown, Connecticut, in which 20 children and six adults were killed.[1]

In the search for answers, it is natural to look for something or someone to blame: guns, video games, parents, teachers, the buildings themselves. But although these events are referred to as "active shooter" events, most of them would be more appropriately defined as mass murder–suicide events. As one of the mothers of a Columbine shooter put it: "His involvement in the shootings was rooted not in his desire to kill but in his desire to die."[2] She added, "If estimates are correct that 1 to 2 percent of successful suicide attempts involve the murder of another person, then as suicide rates rise, then murder suicides will rise as well." According to Colorado's Safe2Tell program, there has been a 30 percent increase in teen suicide completion since the Columbine incident.

Architectural design cannot cure mental illness, but it may be able to help reduce the number of triggering events that contribute to school violence and help school staff avoid situations that threaten to escalate to murder suicide. According to researcher Daniel Lamoreaux, "School facilities with closer adherence to CPTED principles tend to have lower reported rates of violence and aggression…."[3] Some of those principles follow.

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Design Basics That Support CPTED Principles

1. The bus drop-off loop and the parent drop-off loop should be completely separate. This measure reduces the risk of student involvement in pedestrian accidents but also provides better supervision of site visitors.
2. The building should have a single point of entry. Requiring all building occupants—students and visitors—to enter via this point allows for better awareness of who is entering the building.
3. Front office view of the front entry. Though security cameras should be placed at the front of the building, there is no substitute for a person with a clear line of site on the front door.
4. Visitor parking in view of the administration and main entry. By giving the administration view of the entire approach to the building, smart design provides more time for front desk staff to identify someone approaching the front door who may be perceived as a threat.
5. Clear, simple circulation within the building allows for all spaces to be easily monitored. First responders are also more readily able to navigate the building and hone in on incident locations.
6. Zoned classroom wings that can be shut off during lockdown can help contain an intruder and slow their progress through the building, providing critical time for students and teachers to find shelter.

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7. Interior glazing for transparency of circulation is controversial because of the misunderstanding that it may not allow for protection from an intruder. However, it provides for natural surveillance between learning spaces and circulation spaces. Not only does this help to deter bullying, which often happens in the circulation spaces between class times, it also presents more opportunities to identify intruders should they get past the front entry.
8. Security locksets can be installed at classroom doors, so teachers do not need to step out of the classroom to lock the door.
9. There should be areas of refuge in learning spaces away from line-of-site of circulation. This strikes a balance between having interior glass and providing an area to hide in the event of a lockdown.

There are two major hurdles to moving forward with safe and open design. The first is the lack of funding for necessary construction to put current best-practice design standards in place. The second is a lack of understanding of how best to design schools for safety and security.

Protecting the health, safety, and welfare of the public is central to what architects do. Schools need to be an open place of learning, and open, collaborative environments foster a culture of security. "The school-built environment has a measurable impact on student functioning," according to Lamoreaux. "Namely, the school's physical design characteristics influence student stress levels, attention and concentration, psychosocial well-being, and sense of safety."[4] Architects can help school leaders keep students safe as well as help to promote a positive, nurturing school climate.

The American Institute of Architects (AIA) has a formal committee dedicated to studying the educational built environment, the Committee on Architecture for Education (CAE).

On October 19, 2018, the AIA/CAE brought together experts from across the country to take part in an all-day symposium, "The Design of Safe, Secure & Welcoming Learning Environments." There, leaders from the National Education Association, National Association of School Resource Officers, National Commission on Social, Emotional and Academic Development, administrators from the Sandy Hook School, student survivors from Marjorie Stoneman Douglas High School, educators, architects, and others shared experience and best practices on safe school design. For more information on how to incorporate safe school best practices, you can reach out to the architects on the AIA CAE leadership group through its webpage: https://network.aia.org/committeeonarchitectureforeducation/home/advisorygroup. ■

[1]Lisa Marie Segarra et al., "Sheriff's Office Had Received about 20 Calls Regarding Suspect: The Latest on the Florida School Shooting," *Time* (February 18, 2018).
[2]Sue Klebold, "My Son Was a Columbine Shooter. This Is My Story," TEDMED Talk (November 2016).
[3]Daniel Lamoreaux, "Using Crime Prevention through Environmental Design to Foster Sense of Safety and Psychological Well-Being in Schools" (Washington, DC: American Institute of Architects, October 2018).
[4]Ibid.

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