WHILE school shootings capture national headlines for a few days of the year when events are freshest and public outcry is strongest, protecting students from school shootings, bullying, and violence is a concern of school administrators, staff, students, and parents each and every day of the year. Unthinkable tragedies such as those at Columbine High School and Sandy Hook Elementary School and in the locker rooms at Penn State University trigger heated national debates about school safety. There have been more than 140 school shootings since the massacre at Sandy Hook in December 2012, although that figure includes occasions when a gun was fired without anyone being hurt.

We all work at the University of Illinois at Urbana-Champaign, but approach school safety from different perspectives. One of us is an architecture professor; one of us is a law enforcement officer; and one of us is an architecture student. We have different backgrounds and different experiences, but our mutual interest and expertise prompted us to collaborate on a research project to examine this issue from multiple perspectives.

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Examine school building design to help prevent security problems

BY KATHRYN H. ANTHONY, SHAWN JOHNSON, AND JOHNATHON NELSON
We have several common concerns. What about the role of school safety and the physical environments of schools themselves? How can school buildings be designed in ways that deter bullying and violence that may lead to school shootings? What physical design features can we identify that appear to encourage or discourage criminal behavior in schools, or that help or hinder first responders during emergencies?

To address these issues, our research project involved an overview of relevant literature that then served as the basis for an on-site evaluation of two contrasting school campus designs.

Research led by University of Illinois Educational Psychologist Dorothy Espelage, and featured in U.S. News & World Report, shows that in a survey of nearly 1,400 Midwestern middle school students, 27 percent of girls and 25 percent of boys reported that they had experienced verbal or physical sexual harassment or violence, most commonly unwanted physical touching (22 percent). The majority of incidents of harassment occurred in school hallways (23 percent), classrooms (21 percent), school gyms (13 percent), and near school lockers (10 percent).

In an earlier study of 684 middle and high school students published in Journal of Youth and Adolescence, Espelage and her colleagues identified four distinct bully-victim subtypes—uninvolved, victims, bully-victims, and bullies—and found that anxiety/depression levels were highest among victims and bully-victims. A review of 45 published studies confirms links between bullying behaviors and violence. They revealed a strong correlation between being a “bully-victim” (children who become bullies after being a target of bullying themselves) and carrying a weapon. While bullying may not be the main cause of gun violence in schools, efforts to prevent bullying could lead to students’ improved mental health and ultimately more peaceful school campuses. Similarly, efforts to design spaces to minimize opportunities for bullying can have a positive effect on overall school safety as well.

In addition to reviewing recent findings on bullying, we examined some of the vast literature on school shootings, as well as crime prevention, through environmental design. We reviewed articles by educators, behavioral scientists, sociologists, psychologists, and law enforcement officers, as well as architects and designers published in such journals as American Behavioral Scientist, Educational Researcher, Journal of School Violence, Sociology Compass, The Journal of the American Medical Association, The Journal of Primary Prevention, Aggression and Violent Behavior, and elsewhere. While these articles shed much-needed light on a wide variety of issues related to school shootings, few, if any, discussed the crucial role that the physical environment can play.

Valuable Checklist

We then turned to recent literature on crime prevention through environmental design (known as CPTED). Primer to Design Safe School Projects in Case of Terrorist Attacks and School Shootings, published by the U.S. Department of Homeland Security in 2012, provides an in-depth look at how design standards can be used to protect places of education and learning.

After culling through the report’s building vulnerability assessment checklist, we extracted the most salient criteria for evaluating school safety. Next, we identified two Midwestern high schools with contrasting design features (listed here as School A and School B) and arranged for detailed site visits on campus with staff escorts so we could evaluate each school. We asked staff to take us on an in-depth walk-through of the school building with these safety criteria in mind and asked them to stop and identify pluses and minuses along the way.

Our findings reveal vast discrepancies in the way the design of each of these two high schools adequately address school safety issues. At each school we examined common areas such as...
entryways, classrooms, libraries, corridors, locker rooms, showers, and restrooms. We looked for blind spots and “bully-friendly” environments.

School A:
Plenty of Hot Spots for Potential Criminal Activity
School A is beset with a myriad of hot spots for potential criminal activity. Its front entrance is not secured and reveals many blind spots, making it impossible for staff to directly observe who is entering the building from afar, except by a motion-activated front-door camera. Narrow windows create poor sight lines. Poor, outdated signage makes it difficult for police officers to locate specific rooms in an emergency. Not all classrooms have uniform doors with appropriate security glass built into them, making it hard to monitor situations both inside and outside the classroom. In the locker room, a privacy wall creates egress issues and blocks all surveillance from the coach’s office. A long and narrow recessed double-walled shower area creates many blind spots and invites bullying behavior. Restrooms in the locker room are far removed from supervisors, which could lead to troublesome behavior.

Figure 1 (above) shows a detailed analysis of design features in School A’s locker room. On the positive side, School A features several security checkpoints. Access from the outside is controlled with gates on the ground level to create a closed campus, and its restrooms feature vandal-proof flushing mechanisms and stall partitions at the recommended height.

School B:
Better on Safety, But Still Deficient
School B fares much better on safety issues, although it still has some deficiencies. Its clearly defined front entrance has triple-layer security, including a manned security check-in. Signage is uniform and accompanied by maps (where appropriate) for easy access in case of emergency. All classrooms feature uniform doors with a small pane...
Law enforcement officials, working side by side with architects, can play a proactive, critical role throughout the design and construction process.

of glass, allowing visibility into the classroom. Library shelves are at an appropriate height, and technology carts are securable. The locker area is open and has wide access. The shower area is also open, but a small recessed area in the back makes that part difficult to monitor. Restroom stall partitions are shortened and vandal-proof. Updated bathroom partitions meet the U.S. Department of Homeland Security’s recommended heights.

Figure 2 (below) provides a detailed analysis of design features in School B’s locker room. On the negative side, School B has a nonsecurable secondary entrance, which sees heavy foot traffic for school events during the day and for public events after school hours. A tertiary entrance and egress route is partially obstructed with vending machines that would be better located in a specially designed alcove.

Restroom ceilings are not solid, making it possible for someone to tamper with acoustical ceiling tiles.

The budgets available to each of these two school districts are dramatically different. As one might assume, School B is located in a more affluent district with more resources available to make the needed security improvements. Many aging inner-city schools, where violence occurs on a daily basis, lack resources to make any security improvements at all.

While many of the security measures we witnessed were add-ons well after the school buildings were constructed, it’s more effective to integrate safety and security concerns into the design of new and newly remodeled school buildings from the start. At School A, we witnessed how poor initial design of access and stairways posed a significant challenge in adapting the school to growing security threats. To adequately secure...
many areas would entail a major redesign with a high price tag that most public schools simply cannot afford. However, School B was able to retrofit its original front entrance and create a new triple-layered front entrance quickly and for a reasonable price, thanks to good initial design. Overhead walkways that were originally an architectural feature for the main atrium created the perfect frame for the seamless integration of glass security doors with a manned security checkpoint.

One of the most effective ways for school designs to become even safer in the future is to foster more effective collaborations among all involved from the outset of the design or building renovation process: school boards, parents, students, staff, architects, law enforcement officers, and security consultants. Law enforcement officials, working side by side with architects, can play a proactive, critical role throughout the design and construction process. Just as architects are required to design schools that meet building safety codes for egress from fire, early consultations with law enforcement officials can help architects create school buildings that operate more efficiently in times of emergencies that call for first responders. By ensuring a seat at the table for all stakeholders, we can hope to produce designs that protect students, staff, and visitors today—and that can be adapted to counter growing threats in the future.

How safe is your school? How does it stack up against the U.S. Department of Homeland Security’s building vulnerability assessment checklist? Consider scheduling a checkup like those we conducted, and taking small steps to remedy easy fixes, if possible, to help prevent blind spots and hot spots that can lead to bullying and criminal behavior.

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