NATIONAL GLASS ASSOCIATION with GANA

Informational Bulletin for Building Code Officials, Designers, Architects, Specifiers, Building Owners

School Security: Windows Respond First

The request:

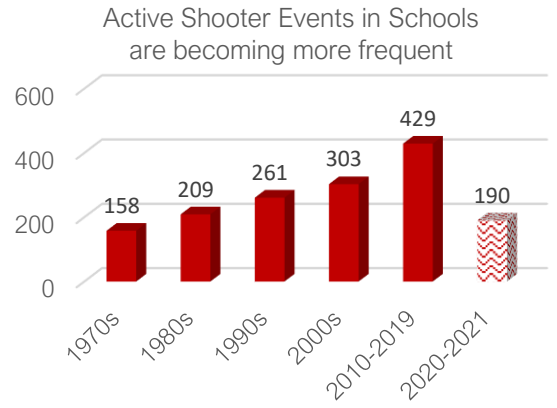
- Incorporate windows resistant to active shooters in school buildings in high-risk areas such as entrances and cafeterias.
- Support the implementation of school security design strategies, including security windows, in model building codes.
- Specify windows for high-risk areas of schools that meet, at a minimum, the new consensus standard ASTM F3561-22 Standard Test Method for Forced-Entry-Resistance of Systems after Simulated Active Shooter Attack.

The issue:

From 1970 to 2021, there were:

- 1550 incidents of school shooting, defined as shots fired on school property
- 163 active shooter events, defined as 4 or more people shot
- 729 deaths and 2076 injuries

Active Shooter Events in schools are becoming more frequent. In 2020 and 2021, there were 190 active shooter events in schools despite many schools holding fewer in-person school days during the pandemic.



The average length of active shooter events is 8 minutes; the shortest reported time is 90 seconds. Response times for first responders average 3 minutes, so some active shooter events are over even before first responders arrive.

Common locations for active shooters to begin the attack are entrance/exit areas and cafeterias.

There are no building codes or mandates for school security. In comparison, every building is subject to fire codes because of (relatively smaller numbers of) historic deaths in building fires. Since the adoption and enforcement of the fire codes, the number of deaths from fires has dramatically decreased.

The strategy:

In active shooter events, windows can be the first line of defense, slowing down an attacker when installed as security glazing resistant to forced entry, allowing more time for schools to enact emergency plans and for first responders to arrive.

ASTM F3561-22 *Standard Test Method for Forced-Entry-Resistance of Systems after Simulated Active Shooter Attack* serves as the minimum industry-accepted standard for security glazing for schools.

Window solutions - Glass can be part of the school's security plan as the "first element of surprise"

- Security glass installed in school entrances looks like a normal entrance and is perceived as a point of weakness. However, it can act as the first line of defense. It can isolate those entering the building, slow down an active shooter and delay entry into the building.
- Windows can allow for line of sight, both exterior to interior and within the building, allowing school personnel and first responders to identify impending danger. Security windows can create safer spaces within the building. Tinted or translucent glass can provide privacy and allow light flow while selectively blocking line of sight of attackers.
- Windows can be designed for forced entry resistance, energy-efficiency, fire-rating, bullet-resistance, or any combination.
- Retrofit options are available for existing windows.
- Security windows provide passive protection 24/7, continuing to function during power outages.
- Students in classrooms with windows providing natural daylight and a view to the outside have lower absenteeism and score 7-30% higher in math and reading.

National Glass Association (NGA) combined with the Glass Association of North America (GANA) in 2018 to create the largest trade association serving our industry. We develop standards, create technical resources, and promote and advocate for glass in the built environment. Learn more at glass.org/about-nga/advocacy. For further information on glass industry sustainability efforts and CO_2 eq. please feel free to contact NGA Technical Staff at mailto:technicalsvcs@glass.org.

References

ASTM Standard: ASTM F3561-22 *Standard Test Method for Forced-Entry-Resistance of Systems after Simulated Active Shooter Attack* Astm.org

FEMA Primer to Design Safe School Projects in Case of Terrorist Attacks and School Shootings (December 2012) https://www.dhs.gov/xlibrary/assets/st/bips07_428_schools.pdf

First responders' average response time: https://leb.fbi.gov/image-repository/police-response-time-to-active-shooter-attacks.jpg/view

Benefits of views to the outside:

- Daylighting Impacts on Human Performance in School. Journal of the Illuminating Engineering Society, Summer 2002. Lisa Heschong, Roger L. Wright, Ph D. and Stacia Okura.
- https://www.glass.org/resources/market-intelligence/daylighting

School Security Windows Specification Considerations

When deciding what level of protection to specify, consider these factors:

- Direct line of sight to students
- Location and movement of students during an active shooter event
- Distance and time for first responders

FEMA publication *Primer to Design Safe School Projects in Case of Terrorist Attacks and School Shootings* includes the following considerations in Appendix F:

- Use extensive glazing at main entrance to enhance visual surveillance to parking lots and pedestrian routes.
- Install openings or windows in solid walls to make areas adjacent to the school without line of sight visible from the interior.
- Consider using burglary- and ballistic-resistant glazing in high-risk school areas.

Additional Resources

- NGA Glass Technical Paper FB71-21 School Security Glazing
- NGA Glass Technical Paper FB16-07 Bullet Resistant Glazing
- NGA Glass Technical Paper FB43-14 (2020) Security Glazing
- NGA/PGCI Protective Glazing Manual
- NGA Laminated Glazing Reference Manual
- Glass Magazine Glass & Metals 401: Guide to Protective Glazing
- United States Secret Service and United States Department of Education publication Threat Assessment in Schools
- https://www2.ed.gov/admins/lead/safety/threatassessmentguide.pdf
- https://www.schoolsafety.gov

National Glass Association (NGA) combined with the Glass Association of North America (GANA) in 2018 to create the largest trade association serving our industry. We develop standards, create technical resources, and promote and advocate for glass in the built environment. Learn more at glass.org/about-nga/advocacy. For further information on glass industry sustainability efforts and CO_2 eq. please feel free to contact NGA Technical Staff at mailto:technicalsvcs@glass.org.