

## **VI. PHYSICAL SECURITY**

*... there is a difference between being a soft target and a hard target. Districts can help themselves by making the intruder know that there will be some resistance when they approach a school if they choose that venue to harm others. From there, if they won't be deterred, we have to slow down and detain an intruder. Now this could include secure vestibules, self-locking corridor doors, intrusion locksets, additional security personnel. Staff must prepare by being diligent in their behaviors dealing with visitors and guests. This will be the new normal.*

– William D. (Ted) Hopkins, AIA<sup>205</sup>

*...schools can no longer be as open as we'd like them to be. We used to want them to be warm and welcoming to both students and their families, but I realized that you need both the hardware and the cultural things to find that right balance of safety. Everyone wants a quick fix, but you need that balance.*

– Michael Wanko, Ph.D.<sup>206</sup>

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### **Deter, Slow, Detain**

The Sandy Hook Elementary School had security equipment and procedures in place to control visitor access. The assailant, however, was able to penetrate the building by shooting through the glass panel adjacent to the entry doors in the school vestibule; he gained access to classrooms in a matter of seconds.

In his presentation to the NJSBA Task Force, architect William D. (Ted) Hopkins III provided his research on school shootings and shared his communication with law enforcement, equipment manufacturers and school officials, including Dr. Janet Robinson, the superintendent of schools in Newtown, Connecticut.

Under the conditions described by the superintendent of Newtown, we've learned that minutes count. She said that the entire incident was over in four minutes...four minutes. This didn't last for half an hour or an hour. It happened in four minutes.<sup>207</sup>

Whether they represented architectural firms, law enforcement or state government, the experts who appeared before the NJSBA Task Force emphasized a version of “deter, slow, and detain” as

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<sup>205</sup> William D. (Ted) Hopkins III, AIA, LEEDap, principal, Fraytak Veisz Hopkins Duthie PC, “Security Challenges on the Educational Campus” (presentation to the NJSBA School Security Task Force, Trenton, N.J., April 30, 2013).

<sup>206</sup> John Mooney, “School Killing Informs Educator’s Passion for School Safety,” *NJ Spotlight*, January 22, 2013, <http://www.njspotlight.com/stories/13/01/21/school-killing-informs-educator-s-passion-for-school-safety/>. Accessed Sept. 10, 2014. Dr. Michael Wanko is currently the interim superintendent for the Manchester Regional and Haldeon School Districts in Passaic County. At the time of his interview in *NJ Spotlight* and his participation in NJSBA’s January 2013 Safe and Secure Schools Forum, he was the Piscataway High School principal.

<sup>207</sup> Hopkins, “Security Challenges on the Educational Campus,” April 30, 2013.

the major tenet that guides physical security enhancements, procedures and staffing. George R. Duthie, a principal of the same architectural firm as Mr. Hopkins, offered a variation on the “deter, slow and detain” theme in an article for NJSBA’s *School Leader* magazine:

- **Discern:** Identify anyone who wants to enter your building by requiring everyone to enter the building at locations where they can be screened. In most schools, this is the main office. Some schools may use a lobby check-in station, entry kiosk, or other means to screen visitors to a school.
- **Delay:** Install measures that slow down an intruder’s movement into and through your building.
- **Disrupt:** Provide a way to notify law enforcement of an intruder as quickly as possible. Employing delay measures may frustrate and thus disrupt an intruder. The goal is to slow down an intruder and speed up law enforcement response time.<sup>208</sup>

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### **Target Hardening**

Securing a school site not only means making it more difficult to penetrate, but also sending a clear message to a potential violator, according to the NJDOE *Best Practices Guidelines*.

... countering the perception of schools as easy “soft targets” through target hardening not only support[s] physical security of the school site but also send[s] an instantly recognizable message that the school campus is well protected.<sup>209</sup>

Target hardening is a long-standing principle of crime prevention.

The philosophical perspective behind the concept is “opportunity reduction”. The goal is to strengthen the defenses of a school site and deter criminal activity by increasing the perceived risk to an offender. The perception of difficulty or presence of obstacles to complete a criminal act promotes deterrence. Escalating the time required to conduct an illicit action increases the likelihood of apprehension thereby deeming the target undesirable.<sup>210</sup>

The NJDOE *Guidelines* provide school officials with extensive advice on target hardening, as well as threat-specific recommendations and information on retrofitting existing school buildings.<sup>211</sup>

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<sup>208</sup> George R. Duthie, AIA, PP, Fraytak Veisz Hopkins Duthie PC. “Building Better School Security,” *School Leader*, Vol.43, No.6, May/June 2013, 33. (<https://www.njsba.org/news/school-leader/05062013/building-better-school-security.php>)

<sup>209</sup> New Jersey Department of Education, *School Safety & Security Manual: Best Practices Guidelines* (Trenton, N.J., December 2006), 58. (This document is available only to designated school district officials through a password-protected portal at <http://www.nj.gov/education/schools/security/safetycenter/>).

<sup>210</sup> *Ibid*, 58.

<sup>211</sup> *Ibid*, 58-70.

### **The Importance of Planning**

In 1999, the New Jersey School Boards Association estimated the average age of the state’s public school buildings at 47 years, with some structures in use since the first decade of the 20<sup>th</sup> Century or earlier. Even with the increase in new school construction made possible by the 2000 Educational Facilities Construction and Financing Act, today’s 2,492 public school buildings<sup>212</sup> encompass a wide range of ages, sizes, configurations, settings, and access points—factors that underscore the need to identify security enhancements locally, case-by-case and with careful planning.

How schools are secured, built and maintained is an integral part of school safety and emergency planning. Every school building is unique by virtue of its design, location, students and the surrounding community. That is why mitigating hazards in school facilities should be planned and implemented by those who know the school and community best.<sup>213</sup>

During a presentation at NJSBA’s annual conference, Workshop 2013, Scott Downie of the Spiezle Architectural Group, recommended that school boards plan holistically, achieving specific goals to reduce the likelihood of emergencies over time. He stressed that a single solution, such as installation of security cameras, should not become a replacement for a comprehensive plan.<sup>214</sup>

#### *Security Preparation Team*

Similar to the consultants from law enforcement, school security and school climate, architect Hopkins stressed the importance of creating a school- or district-based team to provide guidance on security solutions and identify physical and technological alterations. “The solution will not be solved in a vacuum or by one person. Together, we need to solve the problem,” he advised the NJSBA Task Force.<sup>215</sup>

A security preparation team, he said, should represent central administration; the board of education; building principals; instructional staff; maintenance staff; students; local code officials; law enforcement, fire department and other emergency responders; professional consultants, such as architects, engineer, and information technology specialists; and members of the community.<sup>216</sup>

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<sup>212</sup> New Jersey Department of Education, *New Jersey Public Schools Fact Sheet, 2012-2013*, (Trenton, N.J.), <http://www.nj.gov/education/data/fact.htm>. Accessed Sept. 10, 2014.

<sup>213</sup> New Jersey Department of Education, Office of School Preparedness and Emergency Planning, *School Safety and Security Plans: Minimum Requirements*, (Trenton, N.J., August 2011), 18. (<http://www.nj.gov/education/schools/security/req/req.pdf>, accessed Sept. 10, 2014).

<sup>214</sup> Scott Downie, AIA, LEEDap, Principal, Spiezle Architectural Group, Inc., “School Security: Success depends on more than lock & key” (presentation at Workshop 2013, NJSBA annual conference, Atlantic City, N.J., October 22, 2013).

<sup>215</sup> Hopkins, “Security Challenges on the Educational Campus,” April 30, 2013.

<sup>216</sup> *Ibid.*

### Long-Range Facility Plans

Mr. Hopkins pointed to the usefulness of the state-required Long Range Facility Plans (LRFP) in identifying security enhancements. “Recognizing and solving this problem at one time may be difficult for any budget. Planning for the projects in future years is probably the best approach, and we would suggest that the LRFP update may be the best place to start that strategy,” he said.

“Long-range plans are required every five years on the anniversary date of the final determination letter from the 2005 submission. The LRFP update is a great tool in planning for these security needs.”<sup>217</sup>

State law<sup>218</sup> requires school districts to update their long-range facility plans at least once every five years. Regulations to implement the statute require that local boards of education approve submission of the update to the NJDOE Office of School Facilities through resolution. In addition to information such as enrollment projections, an inventory of existing space, assessment of functional capacity and analysis of building systems, the Long Range Facility Plan must include the “district’s proposed school facilities projects and other capital projects and preliminary scopes of work” and its “proposed plans for new construction and renovation of other facilities.”<sup>219</sup>

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## **Standards, Equipment, Enhancements**

Security upgrades can be costly; they must be chosen wisely. Architectural changes and the purchase of new equipment represent the juncture at which threat/risk assessment, community desires and school budgets often collide.

### Homeland Security Standards

Mr. Hopkins recounted Office of Homeland Security new school construction standards that were established approximately seven years ago. These standards illustrate steps necessary to safeguard students, staff and structures from a variety of threats:

- Installation of bollards or other physical barriers to block vehicles from school entrances.
- Location of principal/vice-principal offices out of sight from public areas.
- Creation of two emergency control centers in each school.

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<sup>217</sup> *Ibid.*

<sup>218</sup> N.J.S.A. 18A:7G-4, “Long-range facilities plan; facilities efficiency standards; time lines”.

<sup>219</sup> N.J.A.C. 6A:26-2.1 *et seq.*, “Long-Range Facilities Plans,” (<http://www.nj.gov/education/code/current/title6a/chap26.pdf>, 16-26). **The New Jersey Department of Education recently adopted a revised LRFP and Project application process.** Additional information about the new procedure is available from the NJDOE Office of School Facilities at <http://www.nj.gov/education/facilities/lrfp/guidelines.pdf> (accessed Sept. 10, 2014).

- Placement of utility rooms (electric panels, phone systems, alarm systems) away from the main entrance and parking areas and secured from unauthorized access.
- Location of mailboxes, trash bins and package pick-up/drop-off locations at least 33 feet from the main entrance.
- Installation of exterior perimeter lighting.
- Installation of lockable and alarmed roof-level access doors and hatches.
- Installation of locks and alarms on mechanical spaces housing HVAC equipment.<sup>220</sup>

While the Homeland Security standards apply to new school construction, the NJSBA Task Force believes that they should be considered for renovation of existing structures. Some of these standards are not complex, while others may involve extensive renovation and costs that will need to be carefully evaluated by the local school district.<sup>221</sup>

### Choices and Costs

Available physical security upgrades range from electronic access systems and door hardware to major renovations and additions. For local school officials, the key is to evaluate the cost-benefit of each item in view of long-term effectiveness and financial resources.

Below is a listing of various security enhancements and their costs. Except where otherwise noted, the cost estimates were provided by Ted Hopkins.<sup>222</sup>

- **Ballistic film** – \$10 to \$16 per square foot installed (approximately \$2,000 to \$8000 for a vestibule, depending on the amount of glass and type of film). Ballistic film is a protective layer placed over one side of an existing window. It is available from several manufacturers in various thicknesses and strengths. A shatterproof shield, which would prevent the type of entry that took place in Newtown, would cost approximately \$10 to \$16 per square foot installed. Ballistic film is among the “threat specific recommendations” contained in the 2006 NJDOE *Best Practices Guidelines*.<sup>223</sup>
- **Building addition/alteration** to bring visitors directly to the principal’s office without passing classrooms – \$1 million to \$5 million.

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<sup>220</sup> Hopkins, “Security Challenges on the Educational Campus,” April 30, 2013.

<sup>221</sup> The NJDOE’s *School Safety & Security Manual: Best Practice Guidelines* includes a section, “Security Standards for Schools under Construction or Planning for Construction,” that addresses site layout, building layout, standards for lighting, access, HVAC, mechanical rooms, fire protection, emergency control centers/communication, and security surveillance. These guidelines reflect both Homeland Security Standards for Educational Facilities and those found in a *Safety Manual* that was published by the Schools Construction Corporation, the predecessor agency of the New Jersey Schools Development Authority.

See: *School Safety & Security Manual: Best Practices Guidelines*, NJDOE, December 2006, 215-218. (Document is available only to designated school district officials through a password-protected portal at <http://www.nj.gov/education/schools/security/safetycenter/>).

<sup>222</sup> Hopkins, “Security Challenges on the Educational Campus,” April 30, 2013.

<sup>223</sup> *School Safety & Security Manual: Best Practices Guidelines*, 67.

- **Bullet-proof glass** – \$300 per square foot (approximately \$100,000 for a vestibule with glass doors and large sidelights).
- **Classroom Door Hardware/Mortise Locks**, \$350 per door.
- **Door contacts/entry buzzers** – \$2,000 per door, plus software. These devices provide screening at the vestibule and other entryways.
- **Entryway redesign** with additional security doors/walls – \$50,000 to \$100,000. The alteration would restrict visitors to a waiting area until they were cleared for entry into the schools.
- **Identification badges** for all students, staff, visitors and vendors – \$1,000 or less.
- **Lockable hallway partitions** to restrict access to certain parts of the school building – \$1,000 to \$2,500 each.
- Metal-detecting **handheld wands** – \$250 to \$1,000 per unit.
- **Metal detectors** – \$4,000 to \$35,000 for stationery units.
- **Panic alarm systems/emergency lights** connected to police – \$2,500 per school, according to the state Office of Legislative Services.
- **Proximity card readers** for entry doors – \$750 per door.
- Quick-lock **magnetic strips** for interior classroom doors – \$3 to \$7 per piece.
- **Security gate and guard station** – \$8,000 for gate and \$15,000 to \$35,000 for guard house.
- **Surveillance Cameras** – \$2,500 per unit (from \$150,000 to \$250,000 for a complete system).

During his presentation, Mr. Hopkins noted that additional personnel costs would be associated with some of the security enhancements, and he cautioned that school districts must be aware of unintended consequences.

Not to be lost is the human element of security. Almost all of these measures require a person in the office to screen visitors, to review and monitor cameras, to check IDs or to use the metal detectors.

Be careful not to solve one problem and create another. There are interventions that may impact fire code or place students in jeopardy. I suggest discussing any potential changes with your design professionals or local code officials.<sup>224</sup>

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<sup>224</sup> Hopkins, “Security Challenges on the Educational Campus,” April 30, 2013.

*'Best Bang for the Buck'*

With limited resources, school districts will have to pick and choose—carefully—among various types of physical alterations, renovations and security equipment. When asked by the NJSBA Task Force to identify the three security enhancements that would provide the most value, Mr. Hopkins identified the following:

1. **Classroom door hardware** – The upgrade could be performed over time, starting with those classroom doors closest to the front entrance.
2. **Entryway redesign** through the addition of security doors/partitions – This upgrade will detain visitors in vestibules until security clearance is granted and/or will direct individuals to the principal's office and away from classrooms. The result of the security enhancement would be “very effective,” according to Mr. Hopkins.
3. **Ballistic film.**<sup>225</sup>

*Low-Cost, No-Cost Enhancements*

Hand-in-hand with any physical security upgrades are review and improvement of procedures. Options that school districts might wish to explore include the following:

- **Re-designation of entrances** for students, staff and visitors;
- **The use of visitor/vendor escorts**, and
- **Key distribution protocol** – “Analyzing and auditing key control will be a must,” Ted Hopkins told the NJSBA Task Force. “Who gets a key, what type of key, and making sure that all keys are returned at the end of the school year. That’s a simple thing, but it’s very important.”<sup>226</sup>

Not all physical security enhancements come with a big price tag. Security consultants provided the NJSBA Task Force with a list of maintenance and preventative measures. Those cited by Mr. Hopkins include the following:

- Trim trees and shrubbery, eliminate hiding places, and provide clear lines of sight;
- Eliminate climbing devices that could allow access to windows or the roof;
- Secure roof hatches, HVAC equipment doors and access doors;
- Routinely inspect and make immediate repairs to perimeter of buildings, including windows, exterior door hardware, and security lighting;
- Fence off areas that may create niches and blind spots;
- Slow traffic by adding stop signs, pavement markings, walkways and speed bumps;
- Limit the number of entry points to the school;
- Number doors and rooms so that emergency responders can locate rooms quickly;

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<sup>225</sup> *Ibid.*

<sup>22</sup> *Ibid.*

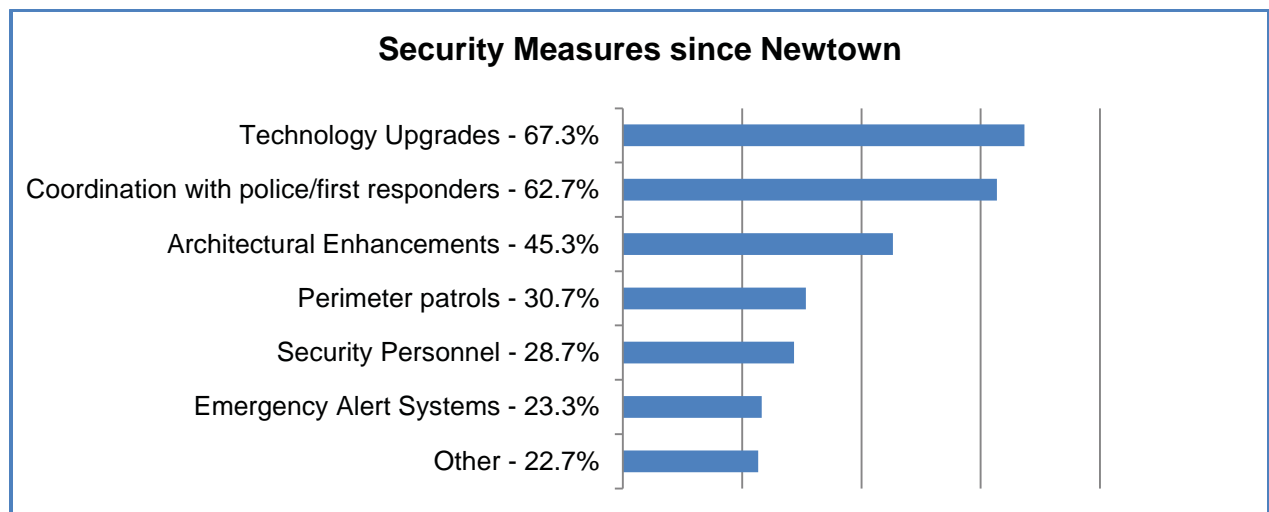
- Label room numbers on the exterior so emergency responders can locate them;
- Ensure that emergency evacuation maps are current;
- Install panic or duress alarm within the main office area to alert key staff and local law enforcement, and
- Restrict access to all rooms and spaces containing wiring, equipment and controls.<sup>227</sup>

### Current Focus

#### New Security Measures

Since the Newtown tragedy, a majority of school districts have implemented new security measures, according to the NJSBA Task Force survey of local school officials. Over 85% of respondents answered “yes” to the question, “Has your school district implemented new security measures since the December 14, 2012 incident in Newtown, Connecticut?”<sup>228</sup> Physical security factored prominently.

Of the districts that have implemented new security measures, over two-thirds identified “Technology upgrades,” such as electronic access systems and closed-circuit cameras, represented the most frequently cited enhancement. Over 45% cited “Architectural changes,” such as building alterations, changes to windows and doors, and outdoor alterations.” Just under one-quarter indicated they had implemented “Emergency alert systems.”



<sup>227</sup> *Ibid.*

<sup>228</sup> The electronic survey was administered July 25 through September 26, 2013 to local school board presidents and school business administrators. Two hundred seventy-three local school officials participated in the survey.



## **PHYSICAL SECURITY: RECOMMENDATIONS**

The NJSBA School Security Task Force makes the following recommendations in the area of physical security:

### *Local School District/Community*

- 34.** Local boards of education and school administrators should use the state-required updates to their district's Long Range Facility Plan as an opportunity to ensure that security needs are met in an effective, consistent and financially prudent manner.
- 35.** Local school boards should ensure that school security planning includes consultation with professionals in the areas of architecture, engineering and information technology, as well as construction and fire code officials.
- 36.** For schools with extensive windows and glass doors, particularly at ground level, districts should implement the most effective and economical method to prevent penetration through the use of firearms.
- 37.** Through the use of security planning teams, school districts should (a) regularly review the effectiveness of protocols governing visitor entry, key distribution, and student, staff, vendor and visitor access to school buildings and (b) identify improvements to these processes.
- 38.** To the extent possible, school districts should incorporate the Homeland Security Standards for new construction and the NJDOE "Security Standards for Schools under Construction" into renovations and alterations of existing facilities.
- 39.** School districts should routinely evaluate and review the condition of their buildings and identify maintenance issues (e.g., repair of door locks, doors and windows, alarm systems, public address systems, utility room access, etc.) in need of attention.
- 40.** School districts should ensure the effectiveness of revised school security procedures, new equipment or building improvements/alterations through a careful review of threat/risk assessment and consideration of community desires and norms, and local budget constraints.