

Door Security + Safety

DHI'S PUBLICATION FOR DOOR SECURITY + SAFETY PROFESSIONALS

MAY 2023

School Security and Safety

INSIDE:

- + CREATING SAFER, HEALTHIER K-12 SCHOOLS
- + THE CLASSROOM SECURITY PUZZLE
- + SAFE HAVENS WITHIN
- + AUTOMATIC DOORS ENHANCE FACILITIES
- + THE VALUE OF SCHOOL SECURITY VESTIBULES



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BUILDING A FOUNDATION FOR THE FUTURE



DAVID R. BECKHAM, AHC, FDAI, is Vice President & General Manager at Security Builders Supply. He is currently President of DHI. Email: beckhamd@cih-inc.com.

THESE PAST FEW YEARS HAVE TESTED ALL OF US. WHEN I LOOK BACK TO JULY 2018 WHEN I FIRST JOINED THE DHI BOARD OF GOVERNORS, IT IS AMAZING TO SEE HOW MUCH HAS CHANGED IN OUR INDUSTRY AND DHI.

The pandemic certainly tops the list of change drivers, and I commend the DHI past presidents, board of governors and staff leaders who guided us through those uncharted waters. We learned to quickly adopt new ways to operate DHI programs and deliver value. These creative approaches helped us pivot to online learning and other strategies.

Past DHI presidents also successfully navigated other challenges. DHI President Mark Berger, FDHI, and DHI President Bill Trimble III, AHC, led our efforts to transition DHI management to Smithbucklin, a leading association management company.

DHI President David Sylvester, PSP, managed a staff transition as DHI CEO Jerry Heppes Sr., CAE, retired, putting us on a path to new staff leadership, culminating with the hiring of DHI CEO Cedric Calhoun, FASAE, CAE.

DHI President Ron Couch, AHC, CFDAI, championed advocacy, continued the advancement of online learning and was the first president in a couple years to host a DHI event in person.

A year ago, some people asked me, "What are you going to do as president?" Early on in my presidency, I couldn't really answer that question other than to say, "We'll continue to strengthen education."

As the year progressed, it became apparent to me that this was the focus we needed. We are now retooling the DHI learning program and delivering it to new audiences in creative ways.

For example, we've recently updated our learning platform that will appeal to all door, frame and hardware professionals, as well as professionals from other affiliated industries.

This refreshed education will also attract the next generation of life safety and security professionals. DHI is connecting with workforce development offices, vocational schools and two-year colleges across the country to promote integrating DHI education into course curriculums.

Additionally, hiring a technical director will be critical for me to consider my tenure as president successful. Filling this critical role will put DHI on solid ground and position us for future growth.

All this has built a solid foundation for the future around education. It keeps us focused on a core tenet of DHI's mission: Through education, advocacy, accreditation and facilitated networking, we provide members with the collective intelligence to meet the security and safety needs of their customers.

With this, a new era of DHI has begun and I am proud to have been part of its launch.

It has been a great pleasure to serve as a governor and DHI President. The best part of serving for me was meeting people I normally wouldn't have met. The most rewarding part was paying it forward as so many others have done before me.

In the June-July 2023 issue of *Door Security + Safety* magazine, we'll welcome 2023-2024 DHI President Cortney Anderson Wascher. She has been a member of the executive committee and a solid voice of reason during my presidency, along with the other board members who made my success possible. A big thanks to Cortney and every other volunteer who serves DHI and makes it such a great organization. +



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KURT STOLL, CFDAI, DHT

PROJECT MANAGER, WESTERN PARTITIONS, INC.

DHI MEMBER SINCE 2022

BE A FACE OF DHI WE'D LIKE TO GET TO KNOW YOU!

Volunteering to be a "Face" of DHI is a great way to expand your professional network. It allows *Door Security + Safety* readers to get to know you better and also gives you a chance to share your accomplishments and career highlights in our industry. Not ready to be a "Face" but know someone who is? Email Alexandra Walsh at awalsh@dhi.org with your nominee. We'll take care of the rest!

WHAT WERE YOUR CHILDHOOD AMBITIONS?

Besides wanting to be happy in life and have a career and family, I wanted to become an architect or chef. My second year in architecture school, I learned I did not want to be an architect. Instead, I wanted to do something in the construction industry. My aunt was a project manager in the Army Corp and always seemed to have a fun time. I decided being a project manager was my path.

WHAT WAS YOUR FIRST JOB?

It was at a gyro restaurant in my local mall right when I turned 16. It didn't last long. I moved on to several other customer service and food industries before I found the world of door frames and hardware. I feel like I've found my career here.

WHAT LED YOU TO OUR INDUSTRY?

Two years after college, I couldn't find a job at an architecture firm or general contractor. I applied to a local high-end residential hardware company. Shortly after I was hired, I transferred over to the contract hardware distribution side of the company.

WHAT'S YOUR PROUDEST PROFESSIONAL MOMENT?

Besides getting my certificates from DHI, it was designing and implementing a hardware set to be used for a double-acting opening, my first couple months in the industry.

WHAT'S BEEN YOUR BIGGEST CHALLENGE?

Understanding the value I bring to the projects I am involved with and communicating that value to others.

WHAT'S YOUR GUILTY PLEASURE?

Home improvement TV shows or looking at openings in the real world and seeing what's been done to them.

WHAT'S YOUR FAVORITE BOOK/ MOVIE?

"Despicable Me" is my all-time favorite movie.

WHO DO YOU CONSIDER A MENTOR OR HERO?

Steve Lichtenberg—I don't know how to begin. From work, to life, to music choices, the guy teaches me every time I talk with him. He always provides solid advice and is a great sounding board.

WHAT'S THE BEST ADVICE YOU EVER RECEIVED?

Become Zen with the project. Familiarize yourself as much as possible with the project or task so that you're a source of knowledge on the scope of work.

WHAT'S THE BEST ADVICE YOU NEVER RECEIVED?

Be active and involved with your community, never stop learning and growing as a person.

HOW HAS YOUR INVOLVEMENT WITH DHI SUPPORTED YOUR CAREER?

DHI has been great! It helped me become familiar with the industry when I first started. Since then, it's helped me continue my education as I set my path toward being an Architectural Opening Consultant (AOC).



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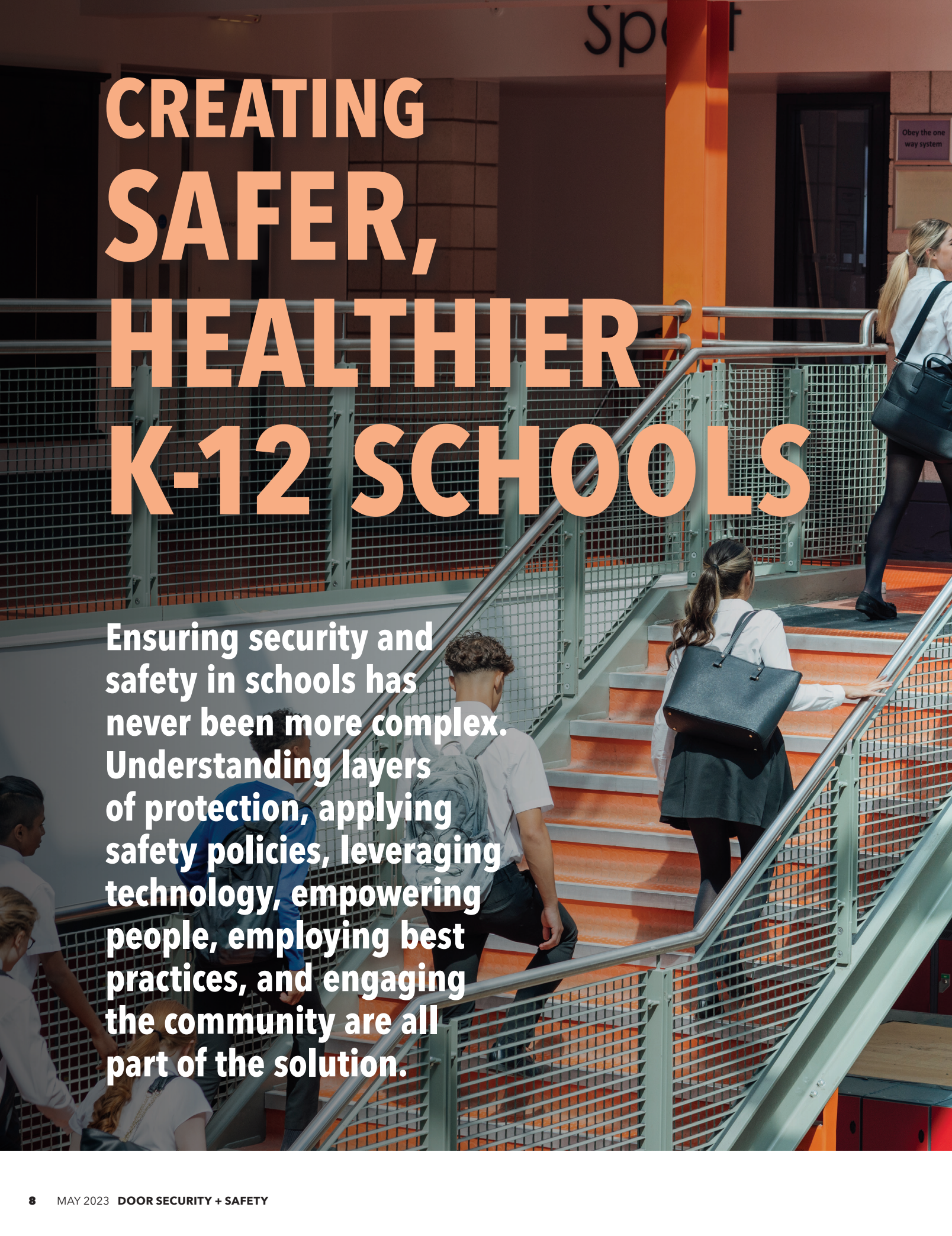


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CREATING SAFER, HEALTHIER K-12 SCHOOLS

A photograph of a school staircase with orange steps and metal railings. Several students in school uniforms are walking up the stairs. A sign on the wall reads "Obey the one way system". The word "Sport" is partially visible on a wall in the background.

Ensuring security and safety in schools has never been more complex. Understanding layers of protection, applying safety policies, leveraging technology, empowering people, employing best practices, and engaging the community are all part of the solution.



BY MICHAEL GARCIA

Safety and security on K-12 campuses are complex and challenging. Never have parents, teachers and staff had to worry so much about a child's well-being at school. That's why education districts must address the changing environment around physical security, cybersecurity and privacy concerns amid heightened awareness of active shooter events, crisis management, emergency response and reunification planning.

Because school populations are inherently multidimensional, the mix of attitudes and levels of maturity can sometimes lead to negative outcomes—defiance, challenges to authority, vandalism, fights and bullying—which can impact mental and physical health. This is particularly conspicuous in middle and high school environments.

These topics and trends point to a highly complex environment that requires comprehensive solutions. Schools operate up to 18 hours a day, from early in the morning until after-school activities conclude. The K-12 campus is a fluid space comprising faculty, staff, visitors and vendors coming and going at a near-constant flow, all adding to the complexity. But students comprise most of the human activity on campus.

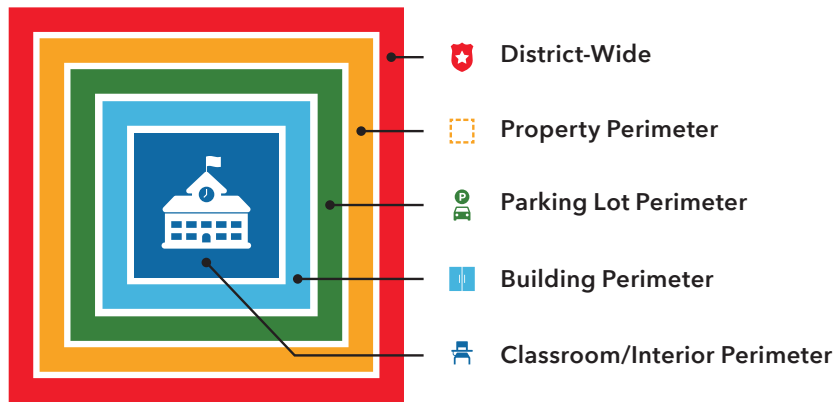
While it may not be practical to implement access control on a per-student basis as many offices

and universities do, access control systems and credentials are realistic solutions for staff and administrators. There are also many other effective approaches and technological solutions to overcome these challenges, such as perimeter fences and gates, single-point entry screening, methods for verifying student identification, video surveillance at main doors and more.

The stakes are high. Security professionals must find ways to fortify schools against an emerging threat landscape while maintaining an open and nurturing learning environment. To that end, districts are seeking a more holistic approach with greater coordination among people, departments and the technologies that serve as a force multiplier, helping school security meet this challenge. The Partner Alliance for Safer Schools (PASS) is also a vital resource and has just released its sixth edition of PASS Safety and Security Guidelines for K-12 Schools.

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LAYERS OF PROTECTION



Layers of Protection

K-12 security is a key element that helps schools prepare for the challenges of today as well as tomorrow's unforeseen events. To get there, schools must focus on the big picture. This includes comprehensive planning and district-wide standards, leveraging updated infrastructure that includes open architecture and systems integration to deliver security as a series of perimeters.

While not every district or school will, or should, utilize the same template, there are global strategies that K-12 security professionals can use to reduce risk. These strategies include the core principles of prevention, mitigation, preparedness response and recovery within the security framework. The core capabilities and planning measures that underpin these principles include a layered approach to overall access control implementations, building upon solid processes and procedures, and upgrading to and integrating modernized solutions.

At the outermost edge are district-wide security measures along with comprehensive policies to guide individual school implementation. There's a property perimeter encompassing the entirety of the physical campus, and within that are separate designations. Drilling down,

security measures would encompass parking lots, the building exterior, and ultimately classrooms and other interior spaces.

Applying Safety Policies

To effectively support a safe K-12 environment, security professionals need to pay special attention to security guidance. It needs to have breadth and depth, and it needs to be communicated so it drives widespread adoption.

Policies should be applied "across all of the layers of a school district," Guy Grace, Chair of the Advisory Board for PASS and former Director of Security and Emergency Planning for Littleton Public Schools, says. In his district, defined policies cover emergency response and threat assessment plans, as well as physical access control. "These could be our use of technology, but also how we're going to open our doors in the morning, how we're going to get our children in and out and even how our staff members are coming and going."

Strong written policies can ensure that people know what to do in an emergency, and they also can support security professionals in their efforts to drive compliance with essential safeguards, as well as accountability.

To be effective, policies centered on preparedness and prevention, as well

as response and recovery, all need to be woven into the fabric of the school community. "It is critical to make the need for change felt," Craig Straw, Director of Security and Safety at Texas City Independent School District, says. "If I come in and just start throwing a bunch of policies [at] a climate and culture that's been this way forever, they may not be well received or understood."

Employ Modern Technologies

A range of modern technologies can help schools meet the high bar around security and access control. From visitor management to interior access controls and modernized controller platforms, the following technologies offer the means to implement a high level of security, while still delivering the openness and accessibility required in a K-12 setting.

Vestibule: Visitor management solutions, such as an entrance vestibule, help support the security effort. "People can choose to get notifications by text when a visitor arrives on campus," Kate Kim, HID Product Marketing Manager for Visitor Management Solutions, says. "The head of security could receive a text message anytime somebody is a potential match on a watch list or screening service."

Interior Controls: While students won't typically show identification at the door, card readers and electronic door locks at exterior entrances are important control mechanisms for teachers, administrators and staff. Credential-based identity can help regulate after-hours access and ease the security burden during the day as authorized personnel enter and exit campus buildings. Interior electronic

Ideally, K-12 security isn't just an assortment of pieces, but rather a coherent and coordinated effort built upon a firm foundation.

access controls are another key piece of the puzzle. While they may remain dormant most of the time, they can play a pivotal role in an active shooter scenario, weather emergency or other unexpected event.

"We put access control readers on every single classroom door," Mike Matranga, Texas City Independent School District Executive Director of Security and School Safety, says. In the event of a lockdown, shelter-in-place or evacuation order—each of which requires a different response—specialized software drives the behavior of those devices.

"We were able to optimize the ability for our staff and students to seek refuge in multiple different classrooms," he says. This includes not just the classroom where they're assigned and have a key to enter. "They can now access any of those classrooms to seek refuge, and we can lock an individual door on our campus or the entire district with the push of a button."

Such capabilities have generally been well-received by school districts in recent years, Ron Baer, Director of Business Development – K-12 at ASSA ABLOY Door Security Solutions, says. "When you talk about expanding access control in K-12 to the interior spaces like we've seen in the last couple of years, it's really been driven by a lower price-per-opening capability of the lock," he says. Wireless control mechanisms have been a major driver of K-12 adoption. "The installation is easier and the hardware is less expensive."

Controller Platforms: Ideally, K-12 security isn't just an assortment of pieces, but rather a coherent and coordinated effort built upon a firm foundation.

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Controller platforms, like those offered by HID Mercury, offer the technology baseline for a strong K-12 access control infrastructure. A reliable and scalable open platform helps establish a chain of trust, with encryption and other key controls reaching from the host all the way to the end device.

This platform approach is imperative for districts looking to shore up security, Grace says. “There are many solutions we could employ to lock the door, but it all starts with that infrastructure.”

Mobile Options: Schools can look to mobile credentials to enhance the user experience for faculty, vendors and visitors, while easing the management burden for security staff. Credentials can be instantaneously provisioned or revoked over the air, removing the need for a face-to-face visit with the school office. Mobile options offer K-12 a way to swim with the changing tide, to meet some users where they live while simultaneously streamlining management and administration for security personnel.

Empower People

While these technologies support robust K-12 security, it’s equally important to consider the human element. “We need to think about how we’re empowering people in our schools to respond to

different emergencies. Whether it’s a lockdown, a pandemic, or when a student or staff member is having a mental health situation or even planning to attack a school, we must empower people. It’s all about people in schools,” Grace says.

If technology is the force multiplier, people are the force, the eyes and ears on the ground who often are the first to notice something amiss and sound the alarm. As such, it’s important to engage all stakeholders when implementing new security technologies to ensure end users understand the rationale for new solutions and are empowered and equipped to utilize them effectively.

Best Practices for K-12 Security

Despite the high stakes, many districts find themselves resource-constrained when it comes to issues of access control and student safety. Thanks to many factors, however, more public funding is flowing in that direction.

While every K-12 school is unique and will need to chart its own migration path, it’s possible to identify overarching best practices that apply to the journey toward modernized access control.

- **Identify a Champion:** There will likely be hurdles on the

way—funding issues and cultural resistance, for example. A highly-placed advocate can help push change. Security can align itself with administrators who are willing to embrace the need for a modernized, secure school infrastructure.

- **Get Stakeholder Buy-in:** The impacts of access control go well beyond security personnel. Students and their families, staff and faculty all have an investment in the success of this effort. It makes sense to engage with stakeholders early on, clearly communicating what is being done and how it will support greater school security.
- **Take Inventory:** What are the existing access control systems, and who runs them? How many readers do you have on the doors? What interior controls do you have, and what would you need in times of crisis? Is there an underlying platform or infrastructure in place to support the security apparatus?
- **Pursue Funding:** With grants available at the federal and state levels, including Elementary and Secondary School Emergency Relief (K-12 ESSER) funding with \$115 billion left to spend over the next 20 months, districts can look to secure public funding in support of innovation. In addition, many state legislatures have allocated a significant increase in funding to ensure schools are better protected and prepared, especially in regions impacted most by tragedies.

The grant writing process requires expertise to usher the process through successfully. There can be upwards of 100 pages of grant guidelines to study, and timeframes to complete

To keep the community engaged, security needs to be not just airtight, but readily explainable.

submissions may only be 30-45 days from the time a grant application is issued. “Only about 15% of school districts in the United States have a full-time professional grant writer,” Baer says. “That’s why many schools and districts are now seeking independent resources for grant writing assistance.” PASS Guidelines also provide a useful resource to help school districts make their case for grants.

Engaging the Community

Schools are inherently community spaces. To keep the community

engaged, security needs to be not just airtight, but readily explainable. “We share with the community what we’re doing. We try to gain their trust and confidence,” Straw says. “We have to help them realize we’re here to create a safe, secure and nurturing learning environment.”

By engaging all stakeholders in the modernization process, K-12 administrators have the opportunity to ensure that teachers, staff and parents understand what steps are being taken to safeguard our schools and how security measures align with

industry best practices. After all, we’re stronger and safer when we all work well together. +

MICHAEL GARCIA is National End User Manager, K-12 Safe Schools at HID Global. He is also an Advisory Board Member of the *PASSK12.org* National School Safety Committee.
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The advertisement features two main sections for specialty doors. The left section is titled 'Acoustic Doors' and shows two doors: a blue 'Metal' door and a wood-grain 'Wood Finish' door. The right section is titled 'Bullet-Resistant Doors' and shows two doors: a red 'Metal' door and a wood-grain 'Wood Finished' door. Each door has a list of features and ratings.

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THE CLASSROOM **SECURITY** PUZZLE

**Fitting together the many pieces to
establish safety in schools.**

BY JAMES STOKES



There are so many different ways to secure classrooms in schools that it can quickly become overwhelming. What is proclaimed a great solution today can be found to present great risk tomorrow. It's difficult to keep up with the ever-changing dialogue on what's safe and what's not.

A Tragic History

Consider the method of securing classrooms only a decade ago. Schools provided each teacher a key to their classroom door so they could lock or unlock the room as needed. In order to lock the room during class, the teacher had to go into the corridor and insert the key into the outside trim to lock it, then pull the door shut from inside.

This was not a bad method of securing classrooms until active shooters became an issue, putting teachers and students at great risk. This was made apparent in the tragic Sandy Hook Elementary School shooting. As a result, the Sandy Hook Advisory Commission stated in its report that doors that can be locked from the inside of a classroom are the most effective for security and safety. With that information, school districts and administrators began developing plans to update their classroom security.

Barricade to Safety

During this same time, there were multiple companies that developed barricade devices. These are physical barriers that were marketed as being easy to install from inside the classroom and effective at stopping intruders. Teachers and students would have a sense of security. However, it was quickly discovered that there was a significant problem when a barricade device was installed: no one could get out.

While school shootings are at the forefront of our minds, bullying and physical attacks by students should also be considered. In the wrong hands, a barricade can be used to block both

the ingress and egress of a room. It contravenes the very basis of life safety.

Classroom doors are required to meet building, fire, life safety and accessibility codes. This means a person must be able to operate the door with a single motion that does not require any special knowledge, effort, key or tool. Most barricade devices do not meet these criteria.

The perceived security of barricade devices is countered by a lack of basic life safety. Unfortunately, many schools have already invested in barricade devices. Against The National Association of State Fire Marshals guidelines, several states changed the wording in their state fire safety codes to allow barricade devices.

Balancing Budget and Safety

To try to better pave the way forward, several organizations have been established to serve as guides to code compliant classroom security. These include:

- Builders Hardware Manufacturers Association (BHMA)
- DHI: Door Security and Safety Professionals
- Door Security and Safety Foundation (DSSF)
- Partner Alliance for Safer Schools (PASS)
- Priority One
- Safe and Sound Schools
- The National Association of State Fire Marshals

These organizations collectively agree that only code compliant door hardware should be used. The hardware should allow doors to be locked from the interior of the classroom and permit one-motion egress.

So where do we go from here? You've probably heard of countless lockdown methods and technologies from the schools your kids, grandkids or your friends' kids attend, or from the media. There are multiple ways to solve the puzzle of classroom safety.

How do schools carefully balance budget restrictions with classroom security while also maintaining life safety? One method is to implement lockdown mechanically. This uses a product that allows a person to lock the outside trim from the inside with a single motion. Mechanical options are plentiful and relatively inexpensive. But the burden is placed on the teacher to remember to lock and unlock the door. It places the safety of their classroom in their hands.

Wired Solutions

Are there solutions that remove the responsibility from the teacher? The answer is yes, according to Ryan Long, School Security Specialist at The Eisen Group in Michigan. "Using electrified and/or electronic solutions can enable a lockdown of a section or an entire school or campus without involving the teacher," he says.

This is where wired versus wireless options come into play.

With a wired solution, every door opening in the lockdown ecosystem



must have power. Bringing power through wires to every single opening—and most likely to every single locking device—is a definite solution, but also a considerable investment.

With a wireless solution, power to every opening is not necessary. Rather, battery operated locking devices are employed. These locking devices communicate wirelessly with a hard-wired gateway or hub, which communicates to the central access control system. This means that a lockdown can be implemented for a specific area, building or an entire campus. The lockdown message is sent to the gateway and then wirelessly to all locking devices in the system.

Software or Fob

How is the lockdown command implemented?

One option is a software program that allows a user at a specific computer to execute a lockdown. But what if the user is not sitting at the computer when an incident begins? Will they rush to the computer, panic through a password entry and then stumble to get to the right button to execute the lockdown? How many seconds will be lost?

While this option is an excellent choice when there is 24/7 monitoring, that level of monitoring may not be practical for most schools.

Another option is that the lockdown message is delivered by a unique credential that is presented at any wired or wireless locking device in the ecosystem. The credential could be an RFID card or fob, or a mobile phone used by essential personnel in an emergency.

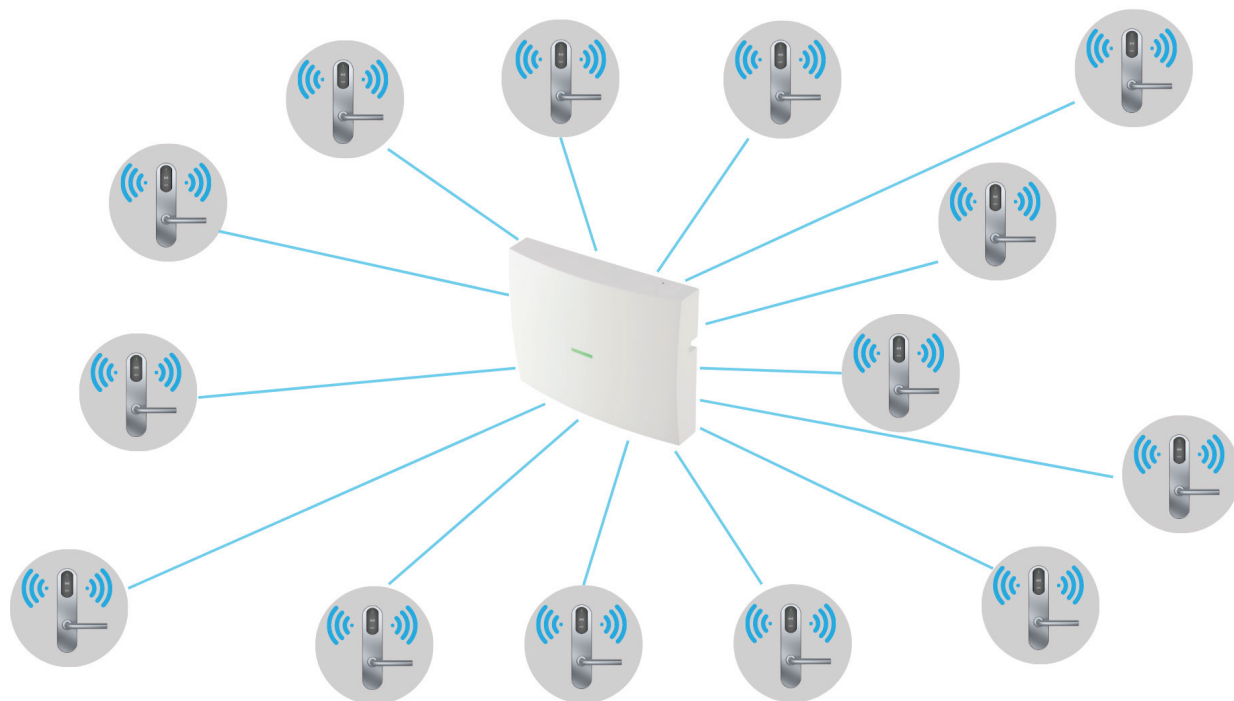
Emergency buttons can also be installed strategically throughout the school or campus. When the button is depressed, lockdown is activated.

“In addition to considering how the lockdown message is delivered, there’s the question of whether an interface is needed,” Gordon Holmes, Integrated Technology Manager at Hager Companies, says.

When a lockdown is activated, will alarms go off? Will they be silent, or audible? Are there video cameras that activate and immediately start recording? Does a lockdown trigger an alert to the local police, or an alert to every teacher and staff mobile phone?

Server or Cloud

Next is the question of using server-based or cloud-based software. Generally, server-based software will



Wireless infrastructure: the lockdown message is sent to the gateways and then wirelessly to all associated locking devices.



A wireless classroom lock is able to be locked down remotely.

require an experienced, on-site IT staff to manage. Cloud-based software is managed offsite and may be more intuitive and easier to use.

Regardless of which software option is used, budgetary considerations should always be given to the potential annual licensing fees of such programs.

Finally, with a wireless option, a type must be selected. The most common types of wireless include:

- Wi-Fi
- 900 MHz
- Zigbee 900 MHz and 2.4 GHz Z Wave
- Bluetooth
- Bluetooth Low Energy (BLE)
- Bluetooth Low Energy 5 Coded PHY

Each of these wireless technologies has its advantages and disadvantages. It's critical to research three key factors before committing to a specific type:

- 1. Range:** Some wireless options can handle distance and obstacles, such as walls and masonry, better than others.
- 2. Battery Consumption:** Wireless systems are usually battery-operated locking devices, which must wake up and look for alerts from the wireless gateway to which they are connected. The more often they wake up, the more

battery power they consume. Some wireless types consume more battery power than others.

- 3. Security:** How easily can the system be hacked? There are wireless options with a more heavily encrypted signal that are more impervious to attack.

Evaluation of a school building's infrastructure should also be part of a design plan. Wireless signals can be impeded by dropped ceilings, metal shelving/walls/ducts, adjacent repeaters or signal boosters, and electrical equipment.

There are clearly many pieces to consider when establishing safety in schools. And for every question answered or option selected, a handful more present themselves further complicating the decision. It's why these conversations around the country are so difficult—everyone has a different idea of what lockdown should mean or look like.

It's important to involve the knowledge base of not only the organizations noted in this article, but also a licensed security professional familiar with security solutions and life safety codes.

We're solving the puzzle together—one piece at a time. +

JAMES STOKES is Director of Training for Hager Companies.
Email: jstokes@hagerco.com.

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SAFE HAVENS WITHIN

Providing
multiple layers
of protection
in educational
settings.

BY DEVIN BOWMAN



Right: Multifunctional, fire-rated glazing assemblies provide security without sacrificing visual connection.

Below: Multifunctional, fire-rated glazing helps secure an elementary school's entry vestibule.



When designing educational settings, architects and engineers face several unique challenges. They can range from planning an environment that supports learning to satisfying the increasingly stringent fire and life safety code requirements that govern school design. The latter challenge becomes more complicated as a growing number of schools choose to elect voluntary security standards.

Early this year at the National Glass Association's conference, Thom Zaremba, a code consultant and partner at Roetzel & Andress, addressed why the road to providing multiple layers of protection in schools is rarely straightforward.

"The challenge begins with confusion around egress terms," Zaremba explains, noting there are differences in specifications for corridors, fire partitions, paths of egress, exit stairwells and more.

He pointed out that walls, windows and glass within doors in areas of egress all have different fire-rating time requirements. Zaremba also stated that in Chicago schools, which adopted the 2018 International

Building Code (IBC) with amendments, every corridor now needs to be rated for one-hour fire resistance.

These codes vary by state and often by district. The specificity of requirements and variances between schools compound the difficulty of planning a building that is code compliant and supports student wellbeing. When a school elects to institute voluntary security standards, it adds another layer of complexity to building design.

In instances where fire safety and building security overlap, it's important for school design professionals to understand how these critical safeguards interact. This is central to ensuring one life

safety category does not compromise the other. The goal instead is for the categories to work together to provide multifaceted occupant protection. It also allows for multiple layers of protection to be used throughout a school to provide the utmost protection possible—no matter the threat to life safety.

Fire Safety and Security Against Assailants

To bolster school security, many designers look to hardening the building perimeter. It also explains the rise in demand for ballistic and forced entry rated glass. However, it's important to note that areas of egress, including entryways, protect against fire as well. This is not just a code requirement—it also helps safeguard students during a fire. That is a significant concern, given the National Fire Prevention Association (NFPA) estimates that fire departments respond to more than 3,000 school fires each year.

This means that glass used in doors, sidelites, exterior facing wall panels, vestibules and more may be tasked with defending against both fire and violent attacks. Applying ballistic or forced entry rated films to fire-rated glass may seem like the simplest solution to satisfying both levels of safety and security. However, this may not provide the levels of protection needed. In fact, it may provide a false confidence in a full system's ability to provide adequate protection against multiple types of threats to life safety.

Designing a system that provides multiple forms of protection is as complex as it is important. Often, the solution to such concerns will reflect this complexity.

Evacuating and Sheltering in Place

Taking appropriate measures to bolster the safety and security of the building envelope is an important step. It is not, however, the only means of increasing student safety. Data compiled by the Center for Homeland Defense and Security (CHDS) from the past 50 years

Designing a system that provides multiple forms of protection is as complex as it is important.

indicates that some threats also provide reason for school designers to include areas of refuge for lockdowns.

At the conference, Zaremba noted the terrible dichotomy when it comes to lockdowns (caused by active shooter events) and fire code requirements. During some lockdowns, occupants may need to shelter in place and ignore fire alarms. However, this can have dire consequences in the case of an actual fire, since not all areas within a building are required to be rated as fire resistive.

This begs a few questions: When is it appropriate to evacuate, and when is it appropriate to seek a safe haven within a building? Which life safety threat supersedes the other?

On one hand, during a fire, evacuation is often the preferred choice. However, as law enforcement and other safety experts have advised, sheltering in place may be necessary during some lockdowns related to active shooter events. This is because the location and number of assailants may not be known. In this case, evacuation may unwittingly put people in harm's way.

Seeking shelter may also be advisable when outdoor air quality is dangerous. Sheltering is sometimes needed because of the occupant's condition. Some may not be able to evacuate easily due to injury or disability, and doing so may cause harm. For these individuals, sheltering in place may be their safest option.

In these instances, a multifunctional fire-rated glazing assembly can create exit pathways and safe havens within a building. This can help protect occupants until first responders arrive or evacuation is a viable course of action.

Glazing Improves Safe Havens

The general definition of a safe haven can be a complete wing that can be made inaccessible. It can also simply be a hard corner within a room that is not observable from the outside. The latter is specific to K-12 school design. While the nuances of the term can vary depending on context, it's important to note the commonality. These spaces provide temporary protection until first responders arrive.

It's important that safe haven areas for active shooter events provide a locked door that cannot be compromised by breaking a sidelight or window panel. Bullet-resistant and forced entry-resistant materials used in doors, walls and windows increase the level of protection these areas offer.

Large lites of transparent glass with appropriate life-safety ratings also support the construction of safe havens. They allow emergency responders to quickly assess where occupants are within a building. They also allow those sheltering in place to know more information about the location and number of assailants within the building.





Systems with compatible components ensure one form of protection is not compromised for another.

Outside of the K-12 context, safe havens can also refer to fire resistance-rated partitions. They create temporary safe zones for occupants to wait for emergency assistance during a fire if necessary. In this instance, it's important that the materials used provide fire resistance (i.e., they block flames, smoke and radiant heat). This ensures those within the safe zone do not experience dangerous levels of heat as temperatures rise on the other side of the partition.

Outside of a fire event, large lites of transparent fire-resistive glass can also benefit safe haven design. They allow visual connection between spaces and access to daylight.

These requirements on their own may be simple enough. Yet they can cause complications when both forms of protection must overlap. This is the case in the addendums to the International Building Code (IBC) for Chicago area schools. In these situations, it's important to consider how forms of protection can be combined without unintended consequences to fire and life safety.

No Compromise Over Protection

One form of protection should never compromise another. Fire and active shooter events create different requirements for a viable safe haven. Designers can plan for both when they use multifunctional, fire-rated glazing assemblies.

These systems can incorporate products that are known to be compatible, or they can be tested and rated across multiple standards as a full system. Both options provide peace of mind. Combining fire-resistant materials with forced entry and bullet resistant materials will not result in a potentially ineffectual assembly.

Many of today's ballistic and forced entry products are plastic based, which limits their ability to meet required fire-rated testing standards. On the other hand, fire-rated glass that's not rated for impact or forced entry resistance can break into small pieces. This can potentially harm occupants during an active shooter situation.

To ensure compatibility, it's paramount to demonstrate that all components can meet the test requirements of all protocols. Otherwise, they risk negating each other.

No international testing standard exists yet for multifunctional, fire-rated glazing systems. And yet, more than 400 school safety bills were proposed between 2021 and 2022 (according to the National Conference of State Legislatures). As such, it's important to carefully plan how these systems will be used. It's equally important to consult with a glass supplier to understand how its multifunctional glazing products are tested.

An example of best practice in securing an entry vestibule is an elementary

school in Oregon. The entry utilizes a multifunctional, fire-rated full-lite door and wall panel assembly. This offers forced entry protection and bullet resistance without compromising the ability to provide code driven fire ratings for paths of egress. The attention the design teams paid to this aspect of the school helped ensure one form of protection was not compromised for another. It also ensured that this vestibule will provide the protection needed for multiple life and fire safety threats.

Compatible Systems Benefit the Future

While hardening the perimeter of a school building creates one layer of safety, safe havens can provide an additional important layer of protection. Incorporating these areas throughout a building can also create a more open and welcoming environment. That is especially true when areas utilize multifunctional, fire-rated glazing systems.

However, be aware that different protective products may not be compatible, and a testing protocol has not yet been developed for these systems. This can make it difficult to know if a complete assembly will provide the desired level of performance in an emergency. This does increase the complexity of specifying these systems in schools, but it does not make it impossible.

When architects, designers and glass suppliers work together, they develop compatible systems. More importantly, they help to safeguard future students and teachers. +

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Automatic Doors

ENHANCE

Education Facilities



Automatic doors can offer added safety and security for education facilities' staff and students.

BY KRISTA RIVERS

Everyone wants to feel protected within their environment, especially in the education system. Schools must be functional yet safe for students of all ages, particularly young children.

Students, teachers, staff and parents need peace of mind to have a successful school year. To help provide this, there are many types of automatic doors that are ideal for education facilities.

Automatic doors can provide extra security, fire protection, access control, accessibility and touchless technology.

When creating the best space for younger children, college-bound teens or vocational students, entrances and corridors of the building must be secure, easy to open, safe from damage and backed with professional and convenient maintenance.

Easy Access for the Disabled

Automatic doors help schools adhere to the Americans with Disabilities Act (ADA), providing more accessible access to the school building, classrooms and restrooms for those who have a difficult time pushing and pulling on manual doors.

Touchless technology with automatic doors makes movement throughout the building easier for anyone in a wheelchair or who uses a walker or crutches. It also helps students and staff move easily through the building while carrying books, classroom supplies, instruments or sporting equipment.

Revolving doors provide ample space and make it much easier for people with mobility issues to access doorways.



PHOTOS COURTESY OF WON DOOR CORPORATION

These “before” (above) and “after” (right) photos show how horizontal sliding doors provide more efficient use of space for foot traffic.



Security Threats and Fire Doors

Sadly, safety in schools is a huge topic in recent years. With the assistance of new technologies in horizontal sliding doors, they can create a safer space for students, teachers and staff, offering schools products to protect against fires and intruders. These doors can stop intruders in their tracks with these added benefits:

- **Access Controls:** These controls limit access after hours or in emergencies at the push of a

button. They connect to external peripheral devices such as a keypad, card reader or fingerprint authentication device. Access controls can also block sight lines and keep out unwanted intruders.

- **High-speed Closing Options:** These options compartmentalize and harden buildings in seconds, while still meeting ADA requirements and allowing for safe and secure passageway. These options can also shut and lock corridors with a push of a button.

- **Fire Protection:** Accordion type, fire-rated horizontal sliding doors provide fire protection while also providing an increased traffic flow and easier egress.
- **Cost Effectiveness:** Minimize costs by allowing for security on fire doors. Horizontal sliding doors increase leasable space, can integrate with existing systems, replace costly fire-rated glass and lower maintenance costs, providing larger, more open spaces for less.
- **Bullet and Blast-Resistant Doors:** Bullet-resistant glass and blast-resistant doors are now offered by door manufacturers for a variety of configurations and door systems.

Accessibility

With revolving, sliding, folding and touchless options, there is no lack of accessibility for door systems in the industry today.

These products make life easier for everyone on school grounds, from the youngest kindergarteners wearing backpacks that may be a little too big to distracted high schoolers with phones in their hands.

Old or outdated doors can be difficult to operate and may not be aesthetically pleasing with tiny glass slots or no windows. Modern automatic doors can provide easier operation with more visibility.

Hygienic Features

Since the COVID-19 pandemic, many people are taking a closer look at proper hygiene and finding ways to make their schools safer for students' health.

Contactless doors with hands-free openers provide more protection from germs for students, teachers, staff and parents.

K-12 School Options

The safety and protection of students are of the utmost importance while ensuring they receive the best education possible. With various security door options, parents can feel comfortable knowing their child's school is protected. Options available throughout the industry for K-12 schools include entrance solutions, classroom and restroom doors, plus fire and security doors.

Colleges and Universities

There are many door options when looking for the perfect solution for a college or university. These doors must be safe, functional and provide convenient accessibility and added efficiencies.

Door offerings for higher education buildings can meet the need for safety and productivity in all building areas, including classrooms, corridors, entrances, meeting rooms and restrooms.

The safety and security of your school doesn't stop in the classrooms. There are options available for dorms and common areas to make school life a little easier and provide peace of mind, even in the smallest of spaces.

Vocational Schools

In a vocational school, students can learn valuable trades hands-on. Since their hands are always busy and likely full, automatic touchless doors are a must.

Automatic sliding and swinging touch-free doors are durable, visually pleasing, and perfect for vocational schools in classrooms, entrances and restrooms.

Door Maintenance and Service

The typical school day is a busy time for everyone inside the building and out. Students can be tough on doors and so can the weather on exterior doors. There is no time for door malfunctions, especially during a school day.

Hire a certified door service technician to provide quality commercial door repair services when needed.

Fire doors must also be tested and inspected on an annual basis. A ruling of non-compliance could have tragic consequences.

Obtaining an automatic door maintenance contract with scheduled inspections will ensure that students and staff are always safe and protected, and that the doors last longer. +

KRISTA RIVERS is Marketing Specialist at Door Services Corporation. Email: krista_rivers@overheaddoor.com.

THE VALUE OF SCHOOL SECURITY VESTIBULES

BY WADE ARNOLD, CSI, CDT

THESE CENTRALIZED
ACCESS POINTS
PROVIDE ADDITIONAL
SECURITY AND SAFETY
TO SCHOOLS.





Security vestibules are becoming an essential component of today's school security strategy and should be considered when designing or upgrading any educational institution.

Vestibules create a secure physical barrier between the outside world and school environment. They provide an extra layer of protection against threats or unauthorized access, allowing time for first responders to arrive, as required.

Ancient Architecture

Vestibules have been a staple of architecture for thousands of years, originating in ancient Rome where they were used as antechambers between the entry and inner parts of a building.

Until the 1930s, vestibules were popular features in new homes because they created an additional barrier to keep heat or cool air in and street noise out.

Today, vestibules are commonly located at the entrance of public buildings, such as schools, offices and stores. They provide a buffer between the space outside and the main building. Today's vestibules are used to regulate temperature, provide accessibility and deliver additional security.



Aluminum doors with ballistic protection at Central Elementary School in Maryland.



Access Control

Security vestibules serve as a centralized access point. From there, visitors can be directed, identified, screened and logged before being allowed into the building.

Visitors can be required to show valid identification and sign in to gain entry. This helps ensure that only authorized people enter the building.

Security vestibules prevent potential threats from gaining access without permission or supervision. In addition, these systems discourage intruders from even attempting to enter the school by making it more difficult for intruders to remain unseen or unnoticed, which reduces criminal activity overall.

Threats

New Jersey was one of the first states to widely adopt a security vestibule solution. However serious the risk of active shooters, schools must also protect themselves from

a growing variety of additional threats. These include explosions from a terrorist attack or other hazardous incidents related to nearby facilities, such as nuclear plants and chemical laboratories.

Schools must also be prepared for storm impact and provide protection in case of tornadoes and hurricanes. Being able to plan and implement these measures early on is essential to keep students and faculty safe.

Unfortunately, the more common threats are illicit drugs and weapons, such as knives, combined with mental health issues, disgruntled employees, at-risk youth and estranged parents. Threats such as these are part of a risk assessment that could compromise the hardware, frame and glazing solution incorporated into the facility.

With proper security systems and protocols in place, schools can be better protected against all types of threats, ensuring a safer learning environment for everyone involved.

Options

With advancements in technology, security vestibules are becoming increasingly sophisticated. They have features such as electronic access control (EAC) card readers, CCTV cameras and intercoms to monitor entry points.

Additional components of a vestibule include the exterior storefront entrance system, security windows, doors, frames, hardware, panic devices, magnetic locks and panic alarm buttons. Many vestibules also include transaction windows, deal trays and drawers to exchange items and eliminate the entry of weapons into the building. Additional security measures include concrete bollards, perimeter fencing, multiple checkpoints and staffed security guards within the security vestibules.

Security vestibules are generally set up to protect from outside intruders.

There is locking hardware on both sets of doors. They can also be used to prevent students from leaving without authorization. For example, early education daycare centers and preschools should have locking hardware and access detection alarms.

Wall Armor

Steel and fiberglass wall armor panels are easily integrated into a building's walls, vestibule or any area deemed to be high risk. This type of ballistic protection is lightweight and offers superior strength in comparison to other ballistic materials. Not only is it discreet, but the installation within the walls provides effective protection against various types of ballistic threats.

Steel and fiberglass wall armor panels are a great solution to secure buildings without sacrificing aesthetic appeal. They offer impressive security without having to make major structural changes to the building.

Best Practices

To maximize the effectiveness of a security vestibule system, they should be installed in strategic locations with clear lines of sight. This will help ensure the area is monitored consistently and efficiently while still allowing easy access to authorized personnel. They can provide peace of mind for students, staff and visitors alike by creating a secure environment in which to work or visit.

Security needs to be looked at holistically, and all staff members must be trained to ensure they follow proper protocols. This includes making sure that doors are securely locked when not in use. Access points must always be monitored. Staff should also be aware of the importance of asking for identification or other forms of verification before granting access to any unauthorized persons.

Security Glazing Systems

Not all security glazing systems are created equal. That makes vestibules only as strong as their weakest link. It is crucial to understand factors such as assets, potential threats and vulnerability levels when evaluating the glazing and framing for security applications. It is how appropriate testing and necessary certifications are identified.

Protection levels range from deterring simple smash and grab criminals to blast mitigation. The National Glass Association Glass School Security Glazing Technical Paper FB71-21 states that glazing penetration resistance is determined based on seven levels of resistance. They are basic, enhanced, ballistic protection, forced-entry, enhanced forced-entry, multiple forced-entry assault (ballistics and forced-entry) and blast mitigation.

Basic safety glazing is a crucial element in the construction industry. It is designed to protect individuals from injuries caused by accidental impact with glass surfaces. These standards are incorporated into building codes to provide adequate glass strength and containment measures for broken fragments. In scenarios that necessitate barriers against immediate access through glass, or where intruders attempt to manipulate door handles, products such as laminated glazing and surface-applied safety films are easily accessible, meeting industry-approved testing standards.

Enhanced glazing provides protection from smash and grab crimes using hands, feet and general burglary tools, such as a hammer. These products are intended to deter theft and vandalism.

Ballistic-rated (BR) glazing is rated to provide protection from a variety of firearm ammunition calibers. Ballistic-rated glazing

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This diagram shows how a security vestibule can be positioned as a single point of entry for visitors to provide enhanced security and safety.

provides an improved safety barrier against bullets and related flying glass (spall).

Forced-entry (FE) resistant glazing is engineered to significantly delay unauthorized access. The extra time enables implementation of vital lockdown measures, making it ideal for high-risk zones and critical entry points such as vestibules. FE glazing resists attacks from common handheld or thrown objects, including hammers, crowbars, bats, knives, bricks and rocks.

Enhanced forced-entry resistant glazing products are specially designed to prevent intrusion attempts after enduring a ballistic attack. While these materials will not prevent bullet penetration, they serve the purpose of providing additional time for emergency responders to arrive on the scene. Advanced testing measures involve weakening the glass through targeted gunfire, followed by physical impact tests with diverse weapons.

Multiple forced-entry assault (ballistics and forced-entry) combines BR laminates with FE glazing, ensuring resistance against ballistic assaults and physical impacts without penetration from various weapons. It's designed for usage in high-risk areas where assailants may be armed. These glazing systems boast both ballistic and forced entry certifications.

Blast-resistant glazing is rarely used in education applications. Blast-rated glazing is designed to reduce injuries from flying glass, caused by the impact of a bomb blast shock wave. When properly designed, framed and anchored, blast-resistant glazing can maintain the integrity of the building envelope and minimize damage to the interior.

Interior doors, especially classroom doors, should be able to be locked down quickly. Doors should be designed with view panels or sidelights to increase the visibility of adjacent spaces and corridors.

Other general door considerations recommended by the National Glass Association's technical paper include providing ballistic-rated doors and frames, and matching the strength of the latch and frame anchor to that of the door and frame.

Risk Assessment

It is important to do a comprehensive threat assessment and understand the different levels and types of protection needed against potential threats or hazards. Risk assessments also identify the most cost-effective protective measures for a school building's unique security and safety needs.

Evaluating school safety is ideally handled by security specialists with expertise in diverse fields such as risk management, architecture, ballistic protection, blast resistance, and chemical or biological events. These consultants are also up to date on the most effective counterterrorism measures.

School administrators or design professionals can also use the Federal Emergency Management Agency (FEMA) publication, “Primer to Design Safe School Projects in Case of Terrorist Attacks and School Shootings.” The free document provides thorough information on these assessments. The fundamental goal of the risk assessment procedures is to identify the most impactful mitigation strategies that ensure an optimal degree of security against various attack types, including terrorism.

Safer Schools

These approaches aid school authorities and designers when assessing potential threats, repercussions and weak spots in the wall systems. It allows them to devise

effective security plans to harden the school. This invaluable insight enables administrators to prioritize resource allocation. Architects, engineers and security experts can pinpoint the most effective solution tailored to an institution’s specific security requirements.

SchoolSafety.gov’s innovative Grants Finder Tool is designed to match a school community’s safety needs with the latest federally available grant opportunities. The comprehensive guide to federal funding evolves in real-time, including the latest grant opportunities. It expertly sorts them by safety topic, award amount and level of application effort.

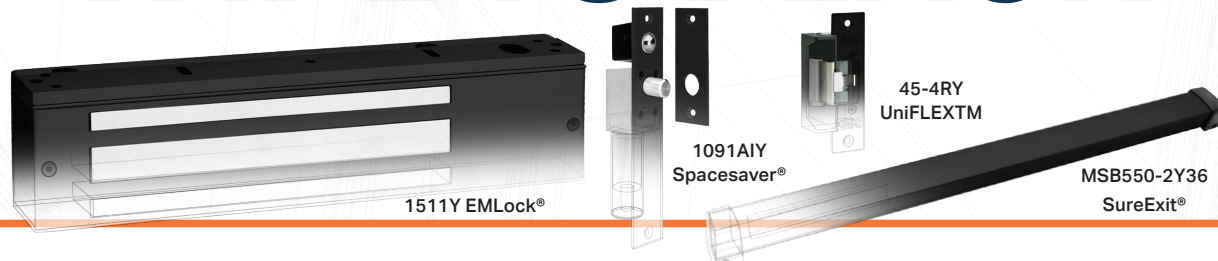
Ultimately, security vestibules provide an additional level of security that can help keep students

safe. This additional layer of security helps protect people within the building while maintaining privacy and confidentiality.

Choosing the right array of solutions for a school will help ensure that all its needs are met. This can include protecting against unwanted intrusions while still enhancing the learning environment for its faculty and students. Additional benefits include maximizing daylighting, improving classroom comfort and reducing energy costs through increased efficiency. +

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'LORD OF THE
RINGS'

Transparent Collaboration and Sun Shades in Texas

Tubelite systems are featured inside and out at the career and technical center.

BY BRIAN TOBIAS, LEED® AP

Celebrating the beginning of its second academic year, the Dan Dipert Career and Technical Center (CTC) serves approximately 2,400 students from across the Arlington Independent School District (AISD) in Texas.

Designed by VLK Architects, the CTC incorporates Tubelite Inc.'s storefront, curtainwall, entrances and sun shades—on both the building's exterior and interior—emphasizing transparency to promote collaboration and connection.

The CTC is providing real-world experiences and skills for high school juniors and seniors. Its purpose-built, two-story structure spans 169,800 square feet to accommodate Career Technical Education programs in 18 specialized academies, ranging from culinary arts to robotics. The facility is designed for flexibility to evolve and adapt to changing programs and future areas of interests.

"Collaboration at all levels is the driving force behind the design," VLK Architects Project Designer Richard Hunt, AIA, LEED® AP, says. "Expressive and monumental, the architecture is unique to the neighborhood and city as a whole. The expansive curtainwall, featuring diagonal sun shade fins, serves as a subconscious billboard to passersby. Visitors and students understand they are entering an institution of higher learning and not just another run-of-the-mill high school building."

SIGNATURE LOOK, DURABLE PERFORMANCE

Tubelite worked closely with VLK Architects and glazing contractor Pierce Riverside Glass to achieve the CTC's

architectural vision and meet the project's performance requirements. Tubelite's wide stile entrances employ durable tie-rod corner construction to withstand continuous use from students, staff and visitors.

Enhancing the façade's strength and thermal performance, the wide stile entrances are installed within Tubelite's T14000 Storefront Framing system. T14000 Storefront is a flush-glazed system ideally suited for low-rise applications. Also suited for the Texas heat, the CTC's storefront and curtainwall systems use Solarban® 60 Solar Control glass. This high-performance low-e glass blocks unwanted solar heat and allows in visible light for year-round comfort, as well as heating and cooling cost savings.

Further minimizing costs and maintenance, the clear anodize finish on all of Tubelite's aluminum systems for the CTC meets the American Architectural Manufacturers Association's AAMA 611 specification. Applied by Linetec, anodize protects the structural integrity of the aluminum for lasting durability. In total, Linetec finished nearly 75,000 feet of Tubelite's extruded aluminum framing systems.

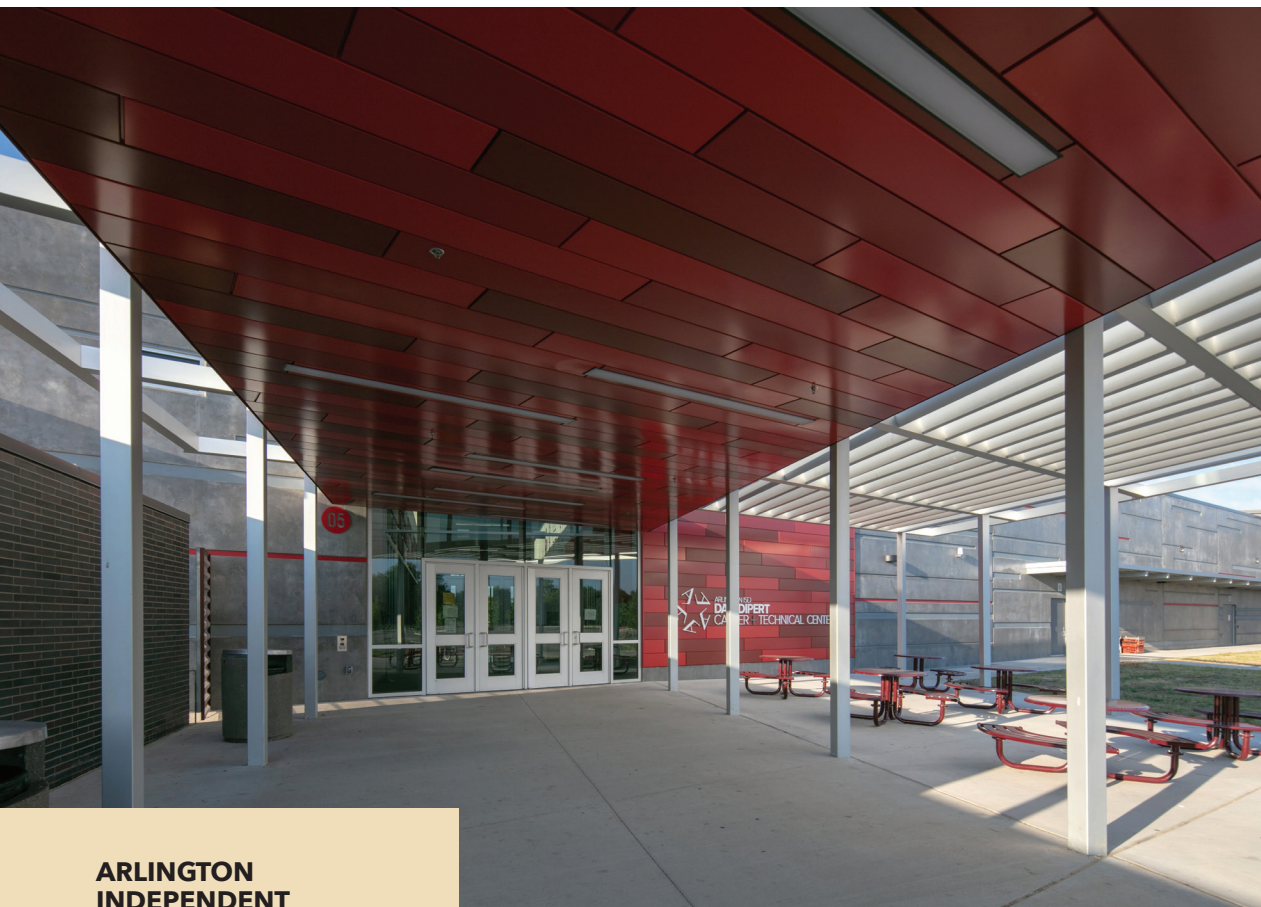
Pierce Riverside installed all of the material from Tubelite, including the 400 Series Curtainwall and custom MaxBlock® sun shades that define the CTC's building envelope.



Above: Designed by VLK Architects, the Dan Dipert Career and Technical Center serves approximately 2,400 high school juniors and seniors from across the Arlington Independent School District in Texas.



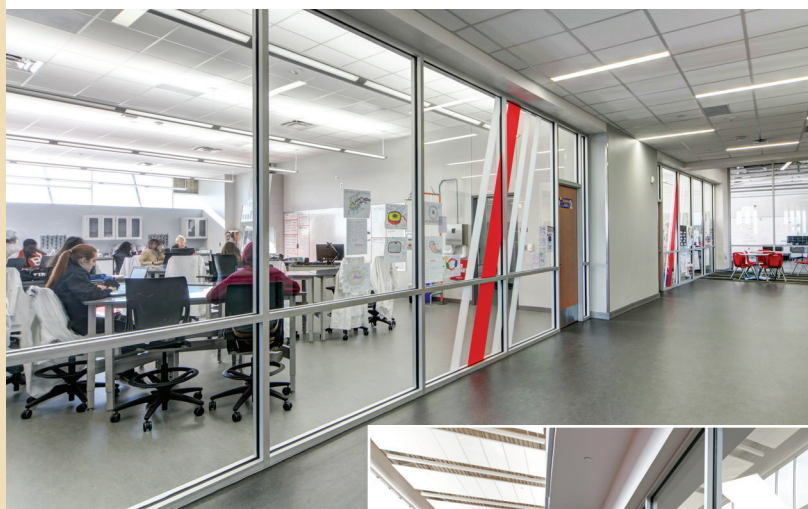
Left: Protecting the structural integrity of the metal for lasting durability and minimal maintenance, nearly 75,000 feet of extruded aluminum framing systems were finished in clear anodize.



The welcoming, wide stile entrances of CTC employ durable tie-rod corner construction to withstand continuous use from students, staff and visitors.

ARLINGTON INDEPENDENT SCHOOL DISTRICT, DAN DIPERT CAREER AND TECHNICAL CENTER

- Architect: VLK Architects, Inc. - Fort Worth, Texas
- Construction Manager - Balfour Beatty US; Dallas, Texas
- Glazing Contractor - Pierce Riverside Glass; Justin, Texas
- Glazing Systems - Glass: Vitro Architectural Glass; Cheswick, Pennsylvania
- Glazing Systems - Storefront, Curtainwall, Entrances, Sun Shades Manufacturer: Tubelite Inc.; Walker, Michigan
- Glazing Systems - Aluminum Finisher: Linetec; Wausau, Wisconsin



Storefront and entrance aluminum framing systems are installed throughout the interior of the CTC to emphasize transparency and to promote collaboration and connection.

For fast, simple installation on the CTC, perimeter trim members were pre-applied on one side of interior aluminum-framed, flush-glaze framing systems.



The distinctive curtainwall with diagonal sun shades and expansive entrances acts as a billboard to passersby.



"We worked on this project from conception with VLK and engineered a custom 24-inch vertical sun shade detail that runs the length of the 9-inch-deep curtainwall," Kevin Haynes, Architectural Specification Manager at Tubelite, says. "Not only is the sun shade custom, but it is on a slant connecting at the bottom of one vertical curtainwall mull and carries across to the top of the next vertical curtainwall mull."

Tubelite used its 3D printer to create various sizes and thicknesses of the sun shade detail. "Having the 3D printed prototypes saves a lot of money and time. These samples let the architect see something and determine the right look before committing to the expense of a bunch of new dies," Dan Smith, Tubelite's Client Development Manager, says. "Because of all the upfront work Tubelite's engineering team did, Tubelite was the basis of design for the project."

TRANSPARENT AND UNITED IN BUILDING AND BRAND

Inside the CTC, VLK Architects specified Tubelite's INT45 Interior Flush Glaze Framing system. The system's perimeter trim members were pre-applied on one side of the frame opening for fast, simple installation by Pierce Riverside.

"All 18 academies surround a central space fronted with glass to maximize transparency," Hunt says. "Strolling down this main corridor, one can view students engaging in a variety of skills, from aligning the wheels on a Ford F150 or programming and operating CNC machines, to styling hair or conducting TV newscasts."

VLK Architects extended the CTC signature look to create an all-inclusive, branded facility.

"The brand for the program and the building had to be united, easily recognizable, simple and powerful, symbolizing the opportunities the Center affords students in this large district," Hunt says. "It was inspired by the building itself, using the [Tubelite] sun shade fins as the repeating image throughout."

Hunt adds, "The image not only works to identify the school, but also provides wayfinding so that academies can be easily located. Visitors and students can easily identify the Dan Dipert CTC and will remember it long after they experience it."

Construction manager Balfour Beatty US broke ground in April 2016 and completed the project on schedule for its opening in August 2017. A dedication ceremony followed in February 2018. +

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Safe and Secure at Candy Lane

Multifunctional glazing helps elementary school meet design goals.

BY DEVIN BOWMAN

Oregon City School District 62 began renovating Candy Lane Elementary School's 1960s-era facilities in 2020. The project focused on improving safety and security from the fence line to the heart of the building.

To support project goals, the main office was relocated and its layout was reconfigured. Modifications allowed staff to face forward toward the interior hallway. This made it easier to welcome students and carefully monitor who is entering and exiting the building. However, the new location and configuration presented a few challenges.

Straddling a central hallway and entry vestibule, the interior doors and windows of the main office needed to have a fire rating to satisfy code requirements. While not yet code driven, the assemblies were also rated for forced entry resistance to



The fire and security solution at Candy Lane Elementary offers bullet-resistance rating and withstands forced-entry attacks.

contribute to the overall goal of the retrofit. Lastly, these doors and windows give students, families and visitors one of their first impressions of the school.

FIRE RATED AND FORCED-ENTRY RESISTANT

To solve these challenges with a single, multifunctional product, the team installed Fireframes® Heat Barrier Series doors and frames with Pilkington Pyrostop® fire-rated glass from Technical Glass Products (TGP), laminated to School Guard Glass® from LTI Smart Glass, Inc. School Guard Glass® meets H.P. White 5-aa1 and ASTM F1233 Class 1.4 standards. That means in testing, after being shot, the product could defend against violent attacks for more than 12 minutes. It is also compatible with fire-rated glazing.

By joining forces with LTI Smart Glass, Inc., TGP was able to combine two products with a proven track record and create a reliable fire and security solution for education facility design teams. This system offers a bullet-resistance rating and withstands forced-entry attacks. It is a level of security that helps school districts protect students and faculty. It is security that is becoming more necessary as incidences of gun violence in schools continue to rise.

Additionally, the system's 120-minute fire rating can provide staff and students with an extended window to escape a fire. First responders are given the ability to enter and exit the building to stop any flames deep within the school. The TGP and LTI Smart Glass systems used at Candy Lane Elementary helped the retrofit achieve its security goals. The fire-rated, forced entry and bullet resistant frames and glass work together to delay violent intruders. The element of surprise is taken away, giving first responders time to arrive on scene.



Straddling a central hallway and entry vestibule, the interior doors and windows of the main office needed to have a fire rating to satisfy code requirements.

LITES MAKE A WELCOMING ENTRYWAY

Improving the safety and security of the building was not the only concern driving the new design for Candy Lane Elementary. These improvements also needed to create a warm and welcoming environment for students, faculty and visitors.

The main office and entry vestibule are now reconfigured so receptionists can monitor foot traffic and welcome students. These areas play a vital role in creating a building that is not just safe but also can support the emotional well-being of its occupants.

Due to their narrow profiles, the Fireframes® Heat Barrier Series doors and frames help support large lites of multifunctional fire-rated glazing to increase visual connectivity. They also control the amount of daylight let into the school. And a close visual match to adjacent non-rated systems provides a cohesive design aesthetic.

A FORWARD-LOOKING RETROFIT

The renovated school opened its doors in early 2021. As students and staff walked in, they may not have even noticed the fire and life safety features of the main office and entry vestibule.

While increasing safety and security were goals the school administrators took on voluntarily, it speaks to a larger trend in school design. It might even be a trend that will soon become a requirement.

Candy Lane Elementary chose to provide its students and faculty with what might be standard protections in the future. And now they are safer because of these design choices. +

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An Ounce of Prevention

An upgrade to the entryway at Magnolia Middle School brings greater security and peace of mind to students and faculty alike.

BY DAVE SWEENEY

U.S. schools have historically been safe and peaceful centers of academic exploration, personal development, and socialization for students and faculty members. They have also become the site of a tragic and alarming number of mass shootings and other acts of violence in the past decade or so.





Left and above: The new secure vestibule at the entryway of Magnolia Middle School was designed and installed by Cook & Boardman sister companies Advantech and HC Quality Doors.

PHOTOS COURTESY OF COOK & BOARDMAN

That grim reality is not lost on the leadership of Magnolia Middle School in Magnolia, Delaware, part of the Caesar Rodney School District. They recently worked with Cook & Boardman companies Advantech and HC Quality Doors on the construction of a robust and aesthetically pleasing new access-controlled entryway. The school now offers an elevated degree of safety, security and peace of mind to its students, faculty members and

community at large. It is positioned for strength for years to come.

A DESIGN DILEMMA

"The state of Delaware requires any new school construction or remodel supported by state funding to include a secure vestibule. That way people enter the building into a holding area where they're screened by the main office before they can access the rest of the



The new Magnolia Middle School is located in a former high school in Magnolia, Delaware.

PHOTO COURTESY OF MAGNOLIA MIDDLE SCHOOL

school,” Jimmy Pennewell, Supervisor of Facilities Management for the Caesar Rodney School District, says. “All of our schools conform to that layout except Magnolia Middle School, a building that was recently added to our district, which we had to bring into compliance.”

Magnolia Middle School is a 25-year-old, single story building and was formerly a parochial high school that closed in 2020. “We wanted to create a secure vestibule so that the front office team could screen people coming into the building,” Pennewell says of the

upgrade. “The building’s main office was near the front door. But the space was completely open and anyone coming in had free access to all of the hallways, classrooms and common areas throughout the school.”

“Our district has placed a great deal of emphasis on safety and security protocols over the years. That includes how and where we enter buildings and ensuring that building occupants have access badges that operate properly,” Keith Wisher, Principal of Magnolia Middle School, says. “When we acquired this building, the district wanted to ensure that it was safe and secure for all of our stakeholders, including more than 400 students in grades 6-8 and 50 faculty members.”

WHAT’S NEW IN WEAPONS DETECTION AT SCHOOLS

“The tragic events that have occurred at schools and other public places nationwide in recent years confirm that bad actors don’t discriminate and that violence can happen anywhere,” Keith Wisher, Principal of Magnolia Middle School in Magnolia, Delaware, says. “A school’s best defense is to investigate any security deficits and do your best to strengthen those areas.”

“We’ve demonstrated Ceia USA’s OPENGATE weapons detection systems for many schools,” Ryne Johnson, Account Manager at Advantech, a Cook & Boardman company, adds. “They make the metal detectors seen in many airports and we support the commissioning and configuration of these mobile, battery-powered pillar systems in school settings.”

According to Johnson, the benefit of these systems is their sensitivity. “In an effort to prevent mass casualty events, you can set them to detect only larger metal objects that could be a weapon so that they don’t back up the entry process for students,” he explains. “These systems are safe, mobile, aesthetically pleasing and are becoming increasingly common, especially in potentially volatile settings where schools mix outside visitors with their own student population, such as sporting events between rival teams.”

Johnson notes that the OPENGATE weapons detection system is most effective when operated in combination with support staff. “Once it detects a large piece of metal going through, an onsite support staffer with a hand-held metal detector in a secondary screening area would identify its location and determine if it’s a threat,” he says.

“These systems are popular in schools because of their throughput; they get students through faster than a standard metal detector without the need to empty pockets or scan backpacks, especially with so many kids coming into the school building to start class all at the same time,” Johnson says. “While standard metal detectors are prone to more nuisance alarms that reduce throughput of the entryway, the combination of OPENGATE systems with Advantech commissioning is far more effective and is a robust tool for identifying the presence of dangerous weapons on school property.”

AN INTEGRATED SOLUTION

Pennewell addressed Magnolia Middle School’s need for a totally integrated safety and security solution by reaching out to the experts at Cook & Boardman sister companies HC Quality Doors and Advantech, a security integration company.

“We have a lot of school security experience, and we saw the immediate need to reduce the access visitors had to the entire school from the entryway,” Levi Lantz, Branch Manager of HC Quality Doors, says.

Lantz explains the company was brought into the project by Advantech and assessed the space with them in August 2022. “We created a design involving the construction of a 10-foot-high, 40- to 50-foot-long, bullet-resistant glass wall incorporating two sets of doors that are always locked,” he says. “With that interior structure, people can come into the lobby but can’t continue into the school without being vetted and having the doors unlocked by office personnel.” Lantz adds they matched the school’s exterior doors for optimal aesthetics.

Ryne Johnson, Account Manager at Advantech, explains his team walked

the job with the team from HC Quality Doors because their systems work together. They addressed the need for access control within the frame that Lantz's team designed and built.

"For security, we placed a card reader on the frame of the door and an electrified crash bar controlling access to the office and hallway," Johnson says. "When someone's badge grants them access, the card reader will retract the motorized exit device and allow the person to pull on the door. Otherwise, it will remain in a locked state."

Johnson noted that the school was not originally aware of the possibility of bullet-resistant glass, but when presented with that option, they saw the value.

"Bullet-resistant window technology has improved dramatically over the years, and today you can't tell the difference," Lantz says. "We use real glass that remains clear and clean-looking and won't scratch or spider—as opposed to the polycarbonate material sometimes used in these applications. It's nice for the school and its occupants."

A WIN-WIN ALL AROUND

After successfully working around the existing headers, columns and other infrastructure already in place in the entryway, the professionals from HC Quality Doors and Advantech completed installation of the integrated new security configuration. The project wrapped up during the school's holiday break in December 2022, just in time to welcome the school community back to a safer, more secure space in January 2023.

"The team from Cook & Boardman were very responsive and we were extremely happy with their work," Pennewell says. "The new system is doing exactly what we intended it to do operationally." Pennewell adds the team also did a great job matching the new interior structure to the maroon color of the exterior doors, to make it look like it was always there.

"We loved the fact that the structure was made of glass, which gives a better appearance by allowing a lot of natural light and visibility in the hallways, while still being thick enough to ensure our security," Wisher says. He notes his team's excitement that a hand-painted sign bearing the school's name, created by an art teacher for the opening, remains visible through the glass wall. "Our staff, faculty and students were all excited to come back in January and see the brand new system in place," he says.

According to Wisher, the new infrastructure delivers other benefits as well. "For instance, if a bus is running late and there's inclement weather, we can now have our kids wait in this new controlled area and keep everyone safe in the building," he says. "And during cold and flu season, this new holding area helps us fast-track students in and out of the building rather than through the office, where they can potentially expose others to illness."

"I was very happy with the way this job turned out," Lantz says. "In the case of most school shootings, the point of entry for the shooter is the main entrance. The project that Magnolia Middle School undertook to better secure their entryway and help prevent an incident from occurring is a great starting point. We're proud of our ability to support their objective and hopefully save lives."

Johnson couldn't agree more. "This is a job we've shared with many other schools when they ask about our door and hardware/access control capabilities," he says. "Schools derive so much security from controlling the flow of traffic within the facility through the combination of door frames, hardware and physical security/access control with card readers onsite."

"School security is more pressing than ever today, and things like secured vestibules, double-sided locks, panic buttons and other measures have been a big focus for us," Pennewell says. "The ability to provide school communities with peace of mind knowing that

DID YOU KNOW?

- *Security.org* confirms there were nearly 1,000 gun-related incidents at K-12 schools nationwide between 1999 and 2022.
- Non-profit organization Everytown for Gun Safety confirms so far this year, there have already been more than 30 incidents of gunfire on U.S. school grounds that have resulted in eight deaths and nearly two dozen injuries.
- According to a recent study by the Pew Research Center, 57% of teens surveyed reported being either "worried" or "very worried" about the possibility of a shooting happening at their school.

anyone who enters the building has been vetted represents an invaluable layer of protection that every school wants for their students and faculty."

"We thank the Cook & Boardman team for their excellent, high-quality work and for making this one of the most seamless projects we've undertaken at our school," Wisher says.

"All schools need to place importance on safety and security because you just never know," Wisher concludes. "Thanks to Cook & Boardman, we're more aware of safety-related protocols, feel more secure that our physical space is better prepared and can now refocus on our main goal of educating our students." +

DAVE SWEENEY is General Manager at Advantech, a division of The Cook & Boardman company.



Exterior of the Innovation Alley building, part of Carrollton-Farmers Branch Independent School District.

Security Center in Every School

Texas district overhauls nearly 40 facilities.

BY RICK TAYLOR

Carrollton-Farmers Branch Independent School District (CFBISD) provides schooling for pre-K-12 in the suburbs of Dallas, Texas. Welcoming about 25,000 students, the school district comprises 24 elementary schools, six middle schools, five high schools and three specialty program centers.

At CFBISD, part of preparing this diverse community of learners for a bright future means offering them a safe and secure environment. This ensures they can focus on their studies and gather valuable knowledge and skills to prosper through life.

INTEGRATION BRINGS JOINT SOLUTION

The CFBISD community has a rich history of investing in the school system. The district had previously upgraded school buildings and security over the years, but it was time to reassess and enhance safety measures.

The school district had video surveillance, access control, intrusion

LaVillita School is part of a three-year bond project to update all security systems.

and other security systems in place. However, these technologies were managed separately and integration among them was not possible. Having multiple disparate security systems slowed investigations and visibility across the district was limited. Device failures and inadequate security coverage in certain schools also left gaps that needed to be addressed.

"Our biggest challenge at the time was that there was very little standardization across our schools and facilities. We needed a more streamlined approach to security," Daniel Robertson, Senior Security Systems Engineer for the CFBISD, says. "The upgrade wasn't only about investing in a new unified security solution. It was a complete change of mindset in how we secured our district."

The school district began a three-year bond project to refurbish older buildings and update all security systems. The goals were to increase video coverage and door monitoring while implementing a standardized modern intrusion system. To streamline the decision process, they enlisted the help of True North Consulting Group with its vast experience in school district security upgrades.

After many product demonstrations, CFBISD made a final decision: Genetec™ Security Center for video surveillance and access control combined with Bosch Security Systems for intrusion detection. The integration between Genetec and Bosch solutions and the ability to manage and maintain all systems from a single intuitive platform were key decision factors for this joint solution.

STANDARDIZING ACROSS THE DISTRICT

Today, the Genetec-Bosch solution is deployed across 42 sites within



CFBISD. This includes most schools, administrative buildings, sports stadiums, transportation depots, service centers and other facilities. At all locations, the team is using Security Center. It manages nearly 2,000 cameras, 50 door readers and 600 Bosch intrusion sensors with Bosch G series intrusion panels. Video intercoms are set up at main entrances.

"Security Center allows us to quickly investigate any situation across our facilities. All our doors and intrusion points are linked to video, so we can easily retrieve everything from one platform," Robertson says. "And if there's an alarm triggered, we can click on that event and immediately know what's going on. All this can be done quickly, so we see what's happening and address it right away."

Using Security Center, school receptionists monitor intercom video and manage visitors by remotely confirming their identity and granting them access to the school if needed. The district's central monitoring team uses Security Center to manage and respond to all door and intrusion

alarms around the clock. When an alarm is triggered, key security staff are automatically notified. No matter if it's after-hours or during a school day, lead staff always stay informed of what's going on across the district.

The security team has also set up automated reporting to track any recurring issues. These might include doors that are kept open too long or wrong pins entered at intrusion panels. This gives the team good visibility of potential risks so they can address them before they become bigger security concerns.

"Using Genetec Security Center and Bosch Intrusion together under one platform has been extremely simple," Dalton Lee, Technology Consultant at True North Consulting Group, says. "Ease of use is probably one of the [strongest] points of this joint solution, because both our tech-oriented people and those with less technical expertise can easily use [it]. At first, they were hesitant about learning and using this new security technology, but now they're loving it because they have better control and feel safer."



Perry Middle School is one of six middle schools in the CFBISD to benefit from enhanced security.

ACHIEVING SEAMLESS CONTROL

For years, Bosch and Genetec have cultivated a strategic technology partnership. For a customer like CFBISD, this means it benefits from deep, full-featured integrations and seamless control of all their devices through Security Center.

The Genetec-Bosch intrusion and video integration is a very strong security tool, according to Robertson. "Since all our intrusion points are populated on a map within Security Center, I can see where an intrusion alarm is located. Then I can click on the map to view the associated video and see what's going on immediately," he says. "If someone forgets to arm an intrusion panel, I can retrieve video to validate and arm the panel remotely."

At one school campus, CFBISD has set up a scheduled task to arm the intrusion system in the building. If the intrusion system has not been armed by a certain time, Security Center will automatically trigger the intrusion arming.

"Automatically arming our intrusion system on schedule is something we're trialing as a fail-safe plan," Lee says. "In case someone forgets to arm the intrusion system at the end of the day, we know our buildings will remain secure."

MANAGING CARDHOLDERS AND PINS

Within the Security Center platform, the CFBISD team has set up cardholder groups. It has also assigned certain groups intrusion pins for arming and disarming zones. Groups such as principals, facilities, maintenance staff and sometimes school staff have different pins.

With over 7,000 cardholders to manage, the Active Directory (AD) Integration feature in Security Center has helped streamline cardholder activation and deactivation.

According to Robertson, this trickles down to intrusion pin management.

"When someone leaves and we deactivate them in our Microsoft Active Directory, Security Center will automatically deactivate their cardholder profile and remove their privileges and intrusion pins," Robertson says. "That automation has helped our team tremendously. It's just another way for us to ensure our schools are always secured."

The security team has also given relevant school resource officers and police chiefs in their district areas AD accounts and limited security system access. This will help streamline response and keep everyone on

the same page in the event of an emergency.

To facilitate the Bosch intrusions system integration, the CFBISD team deployed Genetec Streamvault. This turnkey infrastructure appliance runs the main intrusion role and the full Bosch Remote Programming Software (RPS) through a USB dongle.

The team also set up automated bidirectional synching between Security Center and Bosch RPS. Now, any time they use the unified platform to update panels, change pins, or alter intrusion system configurations, a nightly sync ensures that Bosch RPS always receives the updated settings.

SECURITY PARTNERS

While the CFBISD team has made huge progress in the upgrade, it is still underway.

Plans are to move the remaining 10 schools onto the joint Genetec-Bosch solution. Then the team ensures all systems are working and set up according to their new physical security standards. In the future, CFBISD may explore analytics, mobile functionality and even automatic license plate recognition technology to further enhance school safety and security.

As it keeps evolving its district-wide security system, the CFBISD is happy to have Genetec and Bosch on its side. "Working with Bosch and Genetec has been great. These two physical security industry leaders are quick to lend support when we need it," Robertson says. "Can I say their support makes my job easier? Absolutely." +

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Preserving Old Virginia

A boarding school renovates an existing school house and stays true to its rich history.

BY NICHOLE BOTTINI

Every door supplier's favorite specification: "match existing." This was one of the only specifications provided in the renovation of a historic boarding school in Virginia. The school was founded in 1906 and relocated from Washington, DC, to Virginia in 1931.

Several school houses on the sprawling campus are original to the relocation of the school and contain unique and historic architectural elements.

The renovation of School House 1 focused on the reconfiguration of several areas to accommodate larger classrooms and additional office space. It also incorporated more secure and accessible openings to the exterior of the building.

The school's project leads were focused on the ability of the renovations to blend seamlessly with the existing construction.

The doors in the historic school had been replaced in the past. However, those replacements remain true to the original designs—stile and rail, divided lite and odd sizing. The hardware finishes would match the existing hardware. They would also have the added accessibility and security of lever-style cylindrical hardware in lieu of the existing knobs with deadbolts.

The facility managers and project manager worked hand-in-hand to ensure there would be a negligible difference (notably, only the updated hardware) between the new and existing openings.



Several school houses on the sprawling campus are original to the relocation of the school and contain unique and historic architectural elements.

The new exterior doors and hardware allow for added security and accessibility while maintaining the historical aesthetic.



Top: The reconfigured spaces blend seamlessly with the existing construction thanks to custom stile and rail doors.

Bottom: Two classrooms were combined into one to create a larger, lab-style room with a paired opening that matches the existing doors in the hallway. This allows for large lab equipment to be moved in and out.

The exterior openings needed to be upgraded for safety and accessibility. Maintaining the existing historical framing and transom were critical. The existing exterior doors were rotting and were only fitted with push-button keypad locks.

The custom doors were replaced in kind with a stile and rail profile and divided lite consistent with the original panel. A rim exit device with night latch trim replaced the existing cipher lock to improve security. An auto operator was added to improve accessibility.

The doors and hardware helped achieve a seamless match to this existing construction. +

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Channeling 'The Lord of the Rings'

The famous novel and movie series was the inspiration for designing a new school.

BY NICHOLE BOTTINI

An independent, non-denominational school in Virginia underwent a complete ground-up, design-build of a new facility. The challenge? The facility had to be consistent with its unique theme: "The Lord of the Rings."



A custom millwork hobbit door reflects the unique theme of the school.

The school was founded in 1989 and recently relocated from its original building to a larger site to meet the needs of its growing student body. The goal of the project was to create a building with design elements that mirrored themes found in the popular literature series.

The design elements also needed to speak to the community-based mission of the school. Key features of the design are a large gathering space with long communal tables, custom millwork entries and vestibules, stained-glass windows and a hobbit door.

Form was in the forefront with regard to the door scope. Function was equally important in securing the school for student and faculty safety.

The wood doors provided were custom finished to match the extensive millwork in the school. The classroom hardware was chosen to meet safety and accessibility standards with lever style trim and classroom function locking. The school is situated at the intersection of a high-traffic area, so securing the exterior doors correctly was critical for safety.

The doors and hardware played an important role in this ground-up construction project with specific aesthetic requirements. +

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Custom prefinished doors with large lites allow for clear lines of site into classrooms and activity spaces.



The gymnasium exit doors were fitted with surface vertical rod exit devices with entrance function trim.

PHOTOS COURTESY OF COMDOR LLC



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CURRENT REQUIREMENTS OF THE I-CODES FOR CLASSROOM DOOR LOCKS



LORI GREENE, DAHC/CDC, FDAI, FDHI, CCPR, is Manager of Codes and Resources at Allegion. She can be reached at lori.greene@allegion.com or idighardware.com.

ASK YOUR MOST PRESSING QUESTIONS!

Decoded now features a new question-and-answer format. We are selecting some of the most pressing questions that readers have about codes and answering them here. Submit your questions at <https://idighardware.com/decoded-qa/> and we'll answer as many as we can in future Decoded columns.

IN THE 2018 EDITIONS OF THE INTERNATIONAL BUILDING CODE (IBC) AND THE INTERNATIONAL FIRE CODE (IFC), SECTIONS WERE ADDED TO CLARIFY REQUIREMENTS FOR LOCKS USED TO SECURE DOORS IN EDUCATIONAL OCCUPANCIES. THESE SECTIONS WERE CARRIED FORWARD INTO THE 2021 EDITIONS OF THE I-CODES, WITH A FEW SLIGHT CHANGES.

QUESTION: HOW DO THE CHANGES MADE TO THE 2018 AND 2021 I-CODES AFFECT THE REQUIREMENTS FOR LOCKS INSTALLED ON CLASSROOM DOORS IN K-12 SCHOOLS AND HIGHER EDUCATION FACILITIES?

The 2018 changes to the model codes were motivated by the need to secure classroom doors against intruders. Many of the barricade devices marketed to school administrators did not comply with the existing egress or accessibility requirements. When discussions about potential code modifications began, the first consideration was whether the code requirements should be relaxed. The question was whether to allow security methods that restricted egress and/or were not operable in accordance with the accessibility standards.

Analysis of the statistics demonstrated the need to maintain the existing code requirements for fire protection and egress.

According to Federal Bureau of Investigation (FBI) reports, between 2010 and 2020 there was an average of approximately four active shooter events in educational occupancies per year. In comparison, based on reports from the National Fire Protection Association (NFPA), there were approximately 4,800 fires per year in schools and other educational facilities during the same period.

Although classroom security is crucial, life safety must be maintained as well.

The decision was made to maintain the existing code requirements for egress, fire protection and accessibility, while helping ensure security and authorized access. The sections included in the 2018 editions of the IBC and IFC address Group E (educational) and Group B (business) occupancies. College and university classrooms are often classified as Group B. The 2021 editions added Group I-4, day care facilities, to these sections.

The requirements for locking arrangements in educational occupancies apply to egress doors serving classrooms, offices and other occupied rooms. The model codes do not require these doors to be lockable. But if doors are equipped with locks or other security devices, they must comply with the applicable code section.

The IBC and IFC include four basic requirements for these doors:

1. **The door must be able to be unlocked from outside of the room with a key or other approved means.**

The word approved is defined in the I-Codes as "acceptable to the building official." The requirement for authorized access is a change from prior editions of the codes and was motivated by the need for school staff and emergency responders to enter a locked room without delay.

In addition to the potential for barricading and hostage-taking during an active shooter event, there are everyday security concerns. For example, in 2019, “students ages 12-18 experienced 764,600 criminal victimizations at school,” according to the 2020 National Center for Education Statistics Report on Indicators of School Crime and Safety.

During a fight, sexual assault or other incident, immediate authorized access is critical.

2. The door must meet the egress requirements of the code section entitled “Door Operations.”

This includes hardware that unlatches the door for egress with one releasing motion, with no key, special knowledge or effort. Releasing hardware must be mounted between 34 inches and 48 inches above the floor. (Some state codes and standards have more restrictive mounting height limits.) To meet the accessibility requirements, the door hardware must be operable without tight grasping, pinching or twisting of the wrist. If the calculated occupant load of the room is 50 people or more, the door must be equipped with panic hardware.

These requirements ensure that the security methods implemented for classroom doors meet the same life safety requirements that apply to other doors in a means of egress. The section notes that operation of the locks from a remote location is acceptable. However, the hardware must comply with the egress requirements. It must be unlockable from the outside with a key or other approved means.

3. No modifications shall be made to listed panic hardware, fire door hardware or door closers.

Door hardware is tested and certified to specific standards to ensure it will operate properly through the lifetime of the door opening. The intent of the requirement limiting modifications is that the door hardware will not be altered in a way that could affect the operation or the listings.

Some types of barricade devices are designed to attach to panic hardware, locksets, latchsets or door closers. This section of the I-Codes clarifies that modifications needed for this purpose are not acceptable.

4. Modifications made to fire door assemblies must comply with NFPA 80 – Standard for Fire Doors and Other Opening Protectives.

This clarification was added to the 2021 editions of the I-Codes. The NFPA 80 standard includes limitations for job site preparations and field modifications that may be made to existing fire door assemblies.

Typically, round holes are allowed to be drilled in existing fire doors to accommodate new hardware. However, each component of the fire door assembly—including retrofit locking devices—must be listed for use on a fire door. The I-Codes require swinging fire door assemblies to be tested in accordance with either UL 10C – Standard for Positive Pressure Fire Tests of Door Assemblies or NFPA 252 – Standard Methods of Fire Tests of Door Assemblies (conducted using the positive pressure method).



The requirements of the IBC and IFC addressing security for doors serving classrooms and other occupied spaces are not much different from the requirements for other doors in a means of egress. The exception is the prescriptive requirement for authorized access with a key or other approved means. However, it was important to restate the limitations in a separate section to clarify the intent of the I-Codes regarding retrofit locking devices.

NFPA 101 – Life Safety Code includes a similar section with slightly different requirements. Also some state and local codes and standards have been modified to address these doors, so refer to the adopted codes for specific information. And remember, these doors must also comply with the federal Americans with Disabilities Act (ADA) Standards for Accessible Design. +



HONORING THE LEGACY OF THOMAS EDISON



JUSTIN HENDRICKS is Technical Manager - Openings, Building & Construction at Intertek.
Email: justin.hendricks@intertek.com.

The rich history of the door and hardware industry is highlighted by people and companies that drove innovation for decades. Their critical contributions moved us forward into what is now called the door security and safety industry, encompassing hardware and technology in all its forms to ensure life safety for everyone.

If you have a notable historical story to share in this "Unlocking History" column, please contact *Door Security + Safety* Editor-in-Chief Al Rickard, CAE, at arickard@dhi.org or 703-402-9713.

NOT MANY COMPANIES CAN CLAIM THOMAS EDISON AS THEIR FOUNDER. BUT THIS FAMOUS INVENTOR WAS THE DRIVING FORCE BEHIND THE COMPANY FOUNDED IN 1896 THAT BECAME INTERTEK, A TESTING COMPANY THAT SERVES MULTIPLE INDUSTRIES, INCLUDING WHAT IT DEFINES AS THE LIFE SAFETY AND SECURITY SOLUTIONS INDUSTRY.

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Dedicated to bringing a reliable and efficient product to the market, Edison's famed light bulb invention endured rigorous testing. While his competitors' products frequently resulted in electrical hazards, Edison's process brought to light the value of safety and efficiency testing for all manufacturers and paved the way for the world's electric and power industry.

The evolution of Edison's bright idea is consistently at the forefront of increased efficiency. While Edison did not solely pioneer the incandescent bulb, his 1879

invention was the first to extend its life past 13 minutes, offering an improved and practical product for consumers.

As a result, Intertek's expertise is backed by 125 years of product testing, which began when Edison established the Lamp Testing Bureau in 1896. It was later renamed Electrical Testing Laboratories (ETL). This gave a start to the nationally recognized ETL label, which is now owned and administered by Intertek, the successor company to ETL.

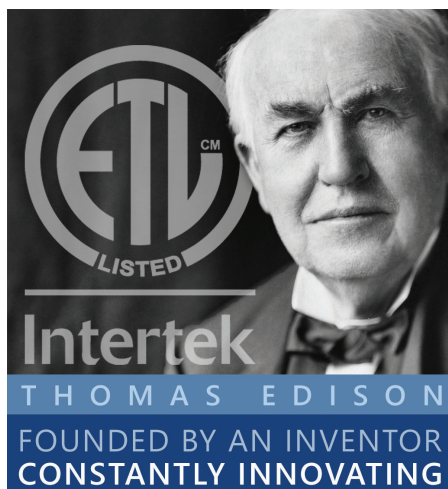
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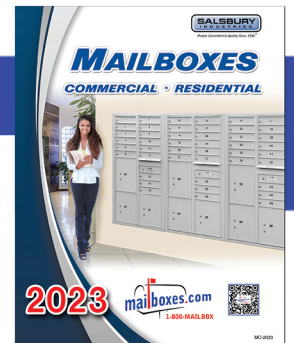


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TIPS TO IMPROVE ENGAGEMENT AT SALES MEETINGS



JASON BADER is Principal of The Distribution Team. He is a holistic distribution adviser who is passionate about helping business owners solve challenges, generate wealth and achieve personal goals. His podcast, "Distribution Talk," can be found at www.distributiontalk.com and through most podcast applications. Phone: 503-282-2333. Email: jason@distributionteam.com. Website: www.thedistributionteam.com.

SALES MEETINGS ARE A NATURAL PART OF ALL DISTRIBUTION ORGANIZATIONS. LET'S FACE IT. THAT'S WHAT WE DO—WE SELL STUFF. AT SOME POINT IN SALES ORGANIZATIONS, WE NEED TO TALK ABOUT HOW ALL THIS SELLING IS GOING.

In a recent meeting with sales managers, we had a healthy discussion about engagement. Specifically, we talked about how to make these gatherings more productive.

Salespeople tend to be independent free spirits by nature. Forcing them to stay seated for an hour or more is challenging. Listening to management drone on about company performance and what they should be focusing on will never gel with their personalities.

This is the rub. Management wants to corral them. The sales team would rather be doing anything other than sitting in a meeting. So how do we get salespeople to see value in a sales meeting? How do both sides, management and sales professionals, walk away feeling that the gathering was productive?

Here are some ideas to bring both sides together.

PURPOSE

When associates are disgruntled with management, the most common cause is confusion about purpose. Why are we doing something? Are the goals clear? Maybe not.

If your meetings are stale and lack engagement, it might be a good idea to go back and revisit why you're having them. What is the focus of the meeting? Are we there for training? Will the meeting focus on a particular segment of the business? Are we going to focus on financial performance?

Often, salespeople are pulled into these gatherings with very little information on

what the ultimate goal of the meeting will be. This needs to change. How can we expect people to engage when we don't give them an opportunity to prepare?

Make sure to create an agenda and distribute it well ahead of the meeting. If you're going to talk about prospecting or upcoming projects, give the participants the opportunity to gather information. People don't engage when they're uncomfortable sharing on a topic.

They might wonder why the meeting needs an agenda if the participants talk about the same things during each meeting. This leads me to the next suggestion—diversity.

DIVERSITY

Where is it written that all sales meetings have to follow the same format?

I think many of us have fallen into this trap and justify it with the word consistency. There's nothing wrong with consistency, as long as it doesn't lead to professional laziness. One of the best suggestions that came out of my sales managers' gathering was to diversify the focus of the meeting each week.

For example, the first week of the month could focus on the financials and company performance. The second week could focus on individual wins or challenges. This is where we want the team to really engage. The third week could be a training session with a supplier representative. The fourth week could be a discussion stemming from an article or other media report given as a reading assignment by the manager.



If you really want to keep meetings short, take away the chairs.

—Dr. Rick Johnson



I found this suggestion fairly intriguing. One of the group members suggested distributing an interesting article or book abstract to meeting participants. During the meeting, they would discuss the piece and look for any opportunity to incorporate some new technique.

The four different meeting formats above are just a suggestion. What else could you try?

Some companies are separated into divisions or customer segments. Would it be beneficial to focus on one of these segments for a week? Sales managers struggle to get their people to sell the complete range of goods available. Most salespeople become comfortable with a particular product group or customer segment and may not step outside their lane. By mixing up the focus of the meeting each time, salespeople will be exposed to areas where they might not be as comfortable.

ROLES AND ATTENDEES

Someone from the sales managers group noted they were having trouble with team members holding back. He

noted that the president of the company attended all sales meetings. I get it—the leader of this sales organization wants to know what the sales team is doing to drive revenue. Unfortunately, it's led to very reserved conversation and a reluctance to discuss real challenges.

How do you tell the boss that their presence is having a negative effect on the meetings? Not an easy one. In this example, the president liked to talk about the numbers—revenue, margin, pricing, etc.

One sales manager suggested that the company president attend the first meeting of the month. In this meeting, the focus would be financials and sales performance. The president's involvement would not be necessary in the other three meetings that month. Obviously, the sales manager would have to do a little soft selling of the idea to the president. But most presidents I've worked with have the ability to recognize the issue and see where their presence might become a barrier.

Another great way to get team members more involved is to assign leadership

roles in the meeting. In other words, let others lead. This can be particularly effective in those meetings where you're trying to highlight a product group or customer segment. Let someone share their experience and expertise. If someone wants to take the lead on new prospects or projects, let them.

The less the manager talks, the more the team engages.

These are just a few suggestions to break up the monotony of the sales meeting. Gatherings are supposed to be productive and even fun. This is a time to share wins and losses. It can be a time to vent about customers that annoy us to no end. It's a galvanizing time, but don't let the banter get you too far off track. Sales meetings should take no longer than 55 minutes.

I'll end with a quip from one of my former mentors, Dr. Rick Johnson: "If you really want to keep meetings short, take away the chairs."

Good luck! +



REINFORCING ACTION PLANS



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IN THE PAST FEW ISSUES OF *DOOR SECURITY + SAFETY*, WE SHARED 10 GUIDELINES FOR ESTABLISHING EMPLOYEE ACTION PLANS. WE'RE GOING TO DO A QUICK RUN THOUGH OF THE REMAINING ACTION PLANS GUIDELINES AS A REMINDER, AND AS A REINFORCEMENT OF HOW THEY ARE IDEALLY ESTABLISHED AND ACCOMPLISHED. HERE WE GO ...

ACTION PLAN GUIDELINE NO. 11: ESTABLISH HOW THE ACTION PLAN WILL BE ACCOMPLISHED.

One of the most important guidelines in establishing action plans is to strive to make sure the action plan states *how* the action plan is accomplished. By far, this is the best way to make it happen and ensure success.

A step-by-step list of action plans is best, especially for new and inexperienced employees.

ACTION PLAN GUIDELINE NO.12: DO NOT ESTABLISH ACTION PLANS THAT CANNOT BE EASILY UNDERSTOOD.

There's the old saying, "keep it simple stupid" (KISS), and that applies to establishing employee action plans, too.

When establishing action plans with your employees, verify mutual understanding at the start of the process so there is no confusion.

Also, remember a not-so-old saying that has application here as well: "Nothing is so simple that it cannot be misunderstood."

ACTION PLAN GUIDELINE NO. 13: DO NOT ESTABLISH ACTION PLANS THAT CANNOT BE EVALUATED.

It's important that action plans can be easily evaluated by the employee and the manager. If no one can evaluate

what is being done, then who knows if results are being achieved?

Remember, what gets measured gets done!

ACTION PLAN GUIDELINE NO. 14: ALWAYS EDIT THE ACTION PLANS.

In establishing action plans with employees, make sure to guard against actions that are already expected of them in the course of doing their job.

Here are some really good action plans:

- Meet face-to-face with general contractors after bidding projects.
- Identify cost savings in my job.
- Conduct customer satisfaction surveys.
- Conduct annual employee performance appraisals.

Company goals and employee action plans are so important. They are relevant to the success of any company and the success of its employees. And they are vital to the overall accountability that is essential to maximize profitability in all phases of the building construction economy.

Make it happen!

ACTION PLAN GUIDELINE NO. 15: HAVE HIGH EXPECTATIONS FOR YOUR COMPANY, YOURSELF AND YOUR EMPLOYEES.

Always have high expectations for yourself in order to have high

expectations for your employees. It's important to remember you're setting an example of motivation. Your employees have high expectations for themselves because they follow your leadership by example.

ACTION PLAN GUIDELINE NO. 16: DON'T BUILD IN ESCAPE CLAUSES.

A degree of risk is acceptable and there are always changing conditions. That is normal.

ACTION PLAN GUIDELINE NO. 17: ACCOMPLISH ACTION PLANS BY SPECIFIC DATES.

Owners and managers are very visible in the company. It's extremely important they accomplish their action plans to set an example of leadership.

If they continually accept missed dates for employees completing action plans, then they are condoning poor performance.

By continually accepting missed dates from an employee, your other employees will see it and think they can also neglect completing their action plans. Avoid these traps.

ACTION PLAN GUIDELINE NO. 18: CONSIDER THE EXPERIENCE LEVEL OF YOUR EMPLOYEE.

Take it easy on new employees (rookies) and challenge the experienced ones.

ACTION PLAN GUIDELINE NO. 19: STRIVE FOR THE IDEAL BALANCE IN ACCOMPLISHING ACTION PLANS.

We can sum it up this way:

- Don't expect perfection in completing action plans.
- Strive for most employees to meet most of their action plans, most of the time.
- The ultimate measure of success is continuous improvement.

ACTION PLAN GUIDELINE NO. 20: SPREAD OUT DATES OF ACCOMPLISHMENT.

Don't set yourself, or allow your employees to set themselves, up for failure. To avoid this from happening, spread out completion of action plans over the entire year.

Avoid too many year-end dates for accomplishing action plans.

ACTION PLAN GUIDELINE NO. 21: ALWAYS ESTABLISH SMART ACTION PLANS.

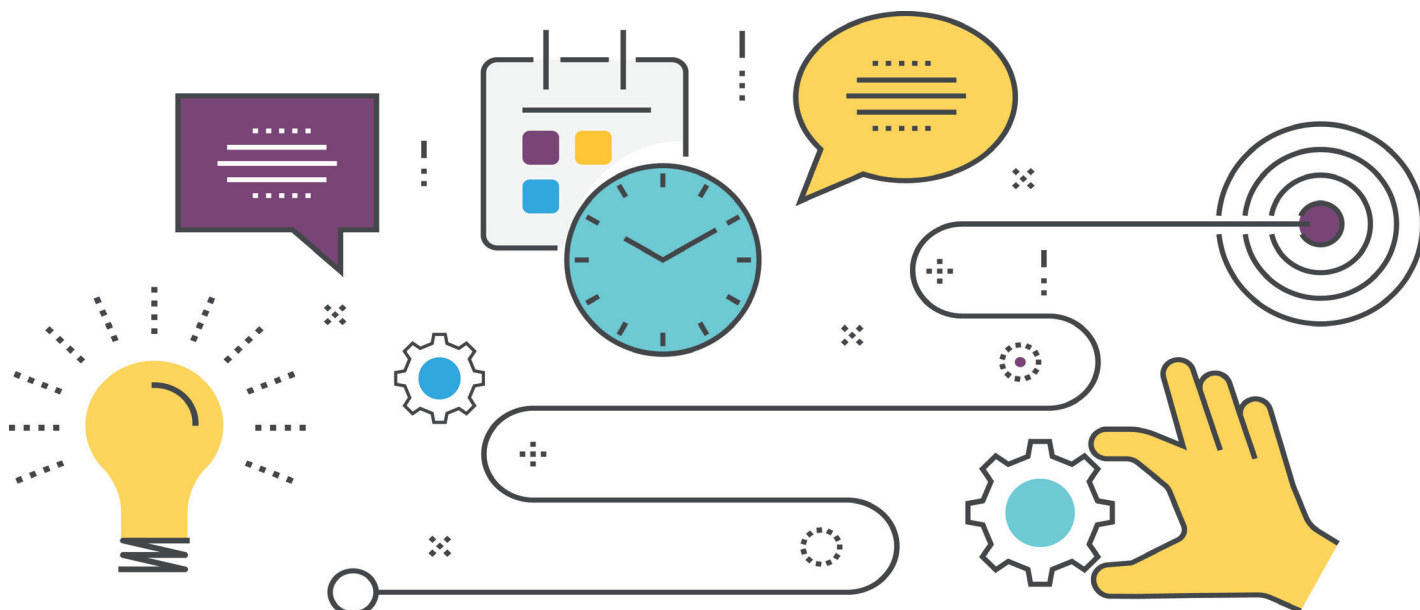
Always establish SMART action plans for yourself and your employees:

- **S**pecific
- **M**easurable
- **A**chievable
- **R**elevant
- **T**ime-framed

SMART companies are making a sharp break with old habits, deliberately adopting new behavior. They're embracing change so they can create a company where the best people want to work and the best customers and suppliers want to do business with them.

In doing so, they're retaining their outstanding employees in a career path, keeping their valued customers and attracting new customers.

It is just SMART business! +





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Several temporary door locking devices, or barricade devices, have been made available with the intention of providing protection for students while in the classroom.

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CONSTRUCTION INDUSTRY CONCERNED ABOUT WORKER SHORTAGES

RESEARCH FROM DODGE CONSTRUCTION NETWORK'S 2023 ISSUE ONE, CIVIL QUARTERLY PUBLICATION FOUND THAT CIVIL CONTRACTORS ARE CONCERNED ABOUT WHERE THEY WILL FIND SUFFICIENT NUMBERS OF SKILLED, PROPERLY TRAINED TALENT AT ALL LEVELS.

The research report shows a considerable number of contractors expect an increase in revenue, with 62% attributing this to an increased number of projects. At the same time, most contractors report a high need for skilled laborers; 72% are experiencing extreme difficulty sourcing the right workers. These contractors are also expecting further attrition due to this lack of staff.

"Finding labor has been a perpetual issue in construction," says Donna Laquidara-Carr, Industry Insights Research Director at Dodge Construction Network. "These labor gaps can impact timelines and even prevent companies from taking on projects, forcing them to sacrifice revenue. Our data clearly reveals that the civil infrastructure sector is still thriving, with increases in both revenue and profit margin consistently reported over the last year."

EFFECTS OF SKILLED WORKER SHORTAGES

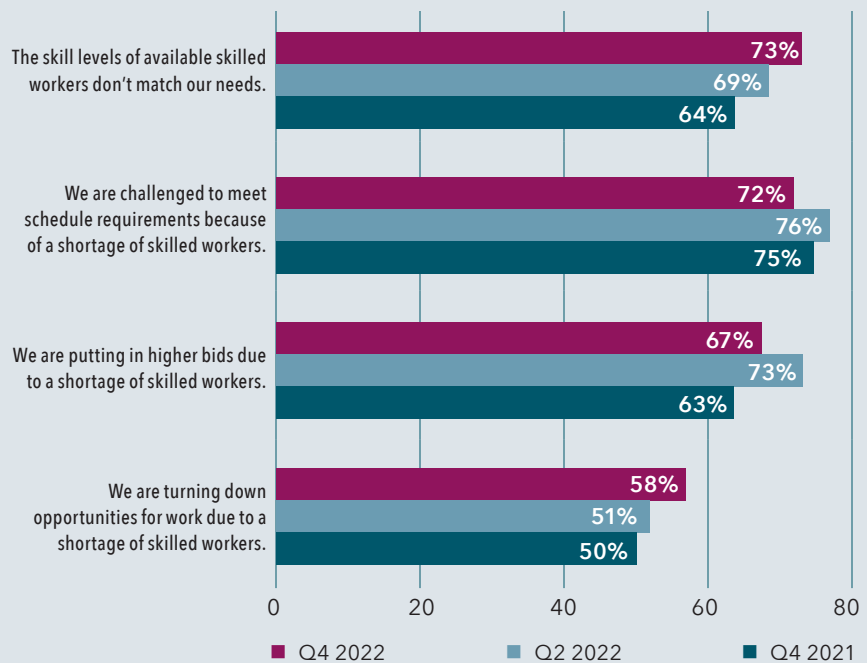


Chart from the Civil Quarterly Issue 1 2023

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BULLETPROOF VS. BULLET RESISTANT: WHAT IS THE DIFFERENCE?



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WITH THE GROWING FREQUENCY AND SOPHISTICATION OF THREATS, SCHOOLS ARE TAKING PROACTIVE STEPS TO IMPROVE SECURITY AND ENSURE THEIR STUDENTS, FACULTY AND STAFF ARE SAFE. THIS INCLUDES HARDENING THEIR BUILDINGS WITH INNOVATIVE SOLUTIONS TO OFFER MUCH-NEEDED BALLISTIC PROTECTION FROM ACTIVE SHOOTERS.

But when it comes to the terminology surrounding such protective measures, details matter. While “bullet resistant” and “bulletproof” are often used interchangeably, both carry significantly different connotations. Let’s take a closer look at the nuances to ensure we are all on the same page when it comes to safeguarding schools.

BREAKING DOWN BULLETPROOF VS. BULLET RESISTANT

The phrase “bulletproof” is widely used, although technically it’s inaccurate. Bulletproof is a misnomer. It is misleading. While these types of security products do provide varying degrees of protection, completely “bulletproof” products which will remain indestructible regardless of the weapon, ammunition or force used as the term implies do not exist.

Instead, these products offer a certain level of resistance to attacks. If you shoot any security product in the same spot over an extended duration with the right firearm, it will fail given enough time.

For example, certain security glass makeups are reinforced to the point that they will withstand multiple high-powered rifle rounds as well as most shotguns and handguns. These types of specialized systems absorb and diffuse the energy of a bullet’s impact to resist penetration, to a limit. The key word is “resist.”

Yet, constant gunfire will eventually cause enough significant damage possibly compromising the window’s structural integrity. Nevertheless, even during prolonged attacks, this type of glass offers protection long enough for people to reach safety.

FINDING THE RIGHT LEVEL OF PROTECTION IN GLASS

Ballistic-rated glazing offers a range of products generally comprising from four types of materials: acrylic, laminated polycarbonate, all glass makeups or glass-clad polycarbonate. Each material has features which make it ideal for some applications and less so for others. The extent of protection comes down to the type and thickness of the framing, glazing or wall armor used in the entire system.

In the June-July issue of *Door Security + Safety Magazine*, we will unpack the different levels of ballistic ratings which make up the North American standard for security glass. We will also drill down on the materials and construction of a ballistic-rated glass while touching on the specialized framing systems used to go into the protection of schools, offices, or other facilities. These measures help create a secure and safe environment for occupants of any building, as well as visitors accessing the property. +

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