THIS MONTH
D&H looks at industry trends in K-12 schools. From sustainability to security to collections, we examine the impact of the Great Recession and what’s on the horizon.

INDUSTRY In the Know
Learn how access to education improves employee retention. Also, Kelly Chimiliar, AHC tells how he became involved in the industry and the role DHI has played.

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ON THE COVER

As budgets are being cut, schools are being forced to make tough choices between safety and education.

Photo Credit: © iStockphoto.com/Steve Debenport

Photo Courtesy of Dorma
Parents Should Know
School Facilities Impact Academic Outcomes

As the father of five children, I can assure you that if parents fully understood the lack of funding for life safety and security in their children’s schools, they would be up in arms! I see parents today fighting aggressively about their children’s grades and sports, but I don’t see that same passion when it comes to life safety and security.

As we work our way through this recession, it is clear that state budgets that fund school systems have shrunk, meaning fewer schools and fewer repairs. I suspect that if we could visit the next PTO meeting and take the parents on a tour illustrating the poor maintenance of many fire doors and doors of egress, they would be appalled. However, as the condition of the facility doesn’t really impact the long-term success of each student unless there’s an emergency event, parents’ passion would eventually dissipate. But is it really true that school conditions do not impact the long-term success of each student?

Mark Schneider, a researcher from State University of New York, cited the following research in his article, “Do School Facilities Affect Academic Outcomes?”:

A recent review produced by Earthman and Lemasters (1996, 1998) reports links between building quality and higher test scores. Researchers did a study in Georgia’s primary schools and learned that fourth-grade students in non-modernized buildings scored lower in basic skills assessments than students in modernized or new buildings (Plumley 1978). Similarly, Chan (1979) found that eighth-grade students scored consistently higher across a range of standardized tests if housed in new or modernized buildings. Bowers and Burkett (1987) found that students in newer buildings outperformed students in older ones and posted better records for health, attendance, and discipline. In more recent work, Phillips (1997) found similar improvements in newer facilities, and Jago and Tanner (1999) also found links between building age and student achievement and behavior.

While many studies link the effects of building quality to academic achievement, other studies tie building quality to student behavior. Vandalism, leaving early, absenteeism, suspensions, expulsions, disciplinary incidents, violence, disruption in class, tardiness, racial incidents, and smoking all have been used as variables in these studies. More than sixteen studies collated by McGuffey (1982) found fewer disciplinary incidents as building quality improved. Discipline also was better in newer buildings.

However, later reports (Edwards 1992; Cash 1993) found that disciplinary incidents actually increased in schools with newer and better buildings—perhaps caused by the stricter discipline standards in these newer schools, among other factors. In studying how school quality relates to achievement and behavior, the criteria that Earthman et al. (1995) used included factors such as structural differences and open space as indicators of quality. They found that schools farther up the overall quality index had fewer disciplinary incidents, but schools that rated higher only on the structural component had more disciplinary incidents.

The bottom line is that there is a correlation between the school environment and success. Our industry’s products play two important roles in schools: aesthetics and safety. School buildings are heavily abused by students, and maintenance often violates life safety for security. So at the next PTO meeting you attend, ask to speak about the condition of the school’s doors. Perhaps you will spark the parents’ passion, and they will demand funding for improvements...because the funding probably isn’t going to come any other way!
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A report published by the U.S. Department of Education in June 2010 details the school services, programs or entire departments that have been reduced or eliminated due to state budget cuts. Many of these cuts are being felt today.

One area of concern within the Department of Education is the effect that state budget cuts have had on school security. Forty-four respondents provided information on the state of school security and how it relates to their ability to protect students and staff.

Those surveyed gave examples of decisions that were not directly related to security or safety, but that did have a perceived impact in these areas—for example, reducing the amount of time that lights are on after dark or having fewer staff members available to assemble safety kits. Although not directly related to school safety, these cuts do have an effect on the overall perception of how safe a school is.

Since one of the largest expenses any school district has to address is labor, many of the cuts had to do directly with staffing positions. Now faced with fewer staff members to help solve existing problems, the schools have proposed the following alternatives:

- Reorganize departments
- Increase training of existing staff
- Collaborate more efficiently
- Use innovative technology
- Look for alternative sources of funding

**Innovative Use of Technology**

According to the report, one school used technology to reduce costs in the following way: “In addition to reorganizing and reallocating resources, a New York school district reported they have also begun to leverage their recently completely IP-based security surveillance camera network and proximity card access control system to reduce reliance on security personnel.”

Web-based tools are also seen as a vehicle for providing training while reducing cost. (Both the Foundation and DHI are creating web-based tools for training. Although not specifically for security training, both organizations see the value in providing web-based training tools.)

Specific examples of state budgets reductions that were cited by those surveyed include the following:

- **Colorado** – A district-wide security department was restructured to compensate for less available funding and fewer campus monitors. A large school district reported a 30% reduction in the school security budget, resulting in staff reduction and the elimination of 24-hour facility coverage.
- **Florida** – The number of unarmed security guards was reduced to address a 10% budget cut.
- **Indiana** – Plans for the renovation of eight schools and the construction of a new middle school underwent major modifications to adjust for budget reductions.
- **Maryland** – A district negotiated with vendors to maintain prices with no increases.

**Bad news or opportunities?**

This all sounds like bad news if you’re conducting business as usual. However, if you’re providing your customers with creative solutions, setting yourself apart, and packaging the knowledge your organization possesses along with the products you sell, these examples become opportunities.

The Foundation is taking similar action. We continue to work with other organizations, such as the National Association of State Fire Marshals, the Association of Facility Engineers, and the Department of Criminal Justice in Virginia, to help advance causes on your behalf—both security- and fire-related.

We cannot change this new order. We can only work within the parameters that have been set.

We’ll all continue to see the ups and downs as the economy finds its footing. The Foundation and DHI are working with other associations by staying active on coalitions, creating cost-effective training programs, and providing the awareness and education that position each of you as solution providers in a challenging environment—all reasons to offer your support and remain collectively engaged in our efforts. 

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By Bill Johnson, Executive Vice President
Door Security & Safety Foundation
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ver the past decade, electronic security technology has evolved from an exotic possibility into an essential safety consideration. Technological improvements are coming onto the market almost daily, and keeping up with the latest innovation is a full-time job. At a minimum, a basic understanding of these devices has become a prerequisite for well-informed school security planning.

Before resorting to high-tech security solutions, think carefully about the potential for unintended consequences. Technological fixes may be mismatched to the problems being addressed. They can be expensive. Any network will require continual maintenance, eventual upgrading, and constantly updated virus protection and intrusion detection systems (IDS) to watch for hackers or unauthorized transfers of data. A full-blown information technology (IT) department will usually be essential. An over-reliance on electronic technology can backfire with power outages and technological failures. Some security technologies raise political and philosophical concerns. Still, technology, used correctly, can be highly functional and cost effective. Its pros and cons must be weighed carefully within the context of local sensibilities and conditions.

Don’t start by choosing a technology and looking for a problem it can solve. The process should be the reverse: Identify and prioritize the problems before jumping to solutions, and analyze solutions carefully before committing funding. It’s not uncommon for districts to invest in a particular technology district-wide before analyzing and priority-ranking the real concerns of the individual schools. Every school should be capable of quick lockdowns and evacuations, but the details beyond that can vary considerably. Some schools are in rough neighborhoods where violence is endemic; others are not. Some schools are constrained by meager budgets; others have deep pockets. Leaky roofs may take precedence over electronic access control systems.

Partial measures can prove to be wasted investments. Secure front doors are of little value if back entries remain uncontrolled. Metal detectors and ID cards won’t stop bullying behavior, nor will security cameras stop suicidal or...
impulsive offenders, as has become all too evident at many school shootings. On the other hand, comprehensive access control and improved emergency communication systems are usually good investments.

**Access Control**

If windows and doors are left unsecured and unsupervised, the choice of access control device is of no consequence. But once a school has committed to controlling access, decisions have to be made about which technologies to use.

**DOOR LOCKS AND LATCHES**

Most doors lock with a spring latch, dead latch, or deadbolt extending from the door into a strike plate on the door jamb. Spring latches are fine for holding a door shut against the wind but are relatively easy to defeat by prying open, in some cases, by sliding a credit card through the gap between door and jamb. Dead latches offer more security, but the bolts are still relatively short and tapered. Deadbolts are the most effective, squared off rather than tapered and extending about an inch beyond the edge of the door when thrown. However, fire codes dictate where specific types of deadbolts can or cannot be used. Designated exit doors cannot be deadbolt-locked when areas are occupied. Any of these devices can be controlled manually or electronically. See the NCEF publication *Door Locking Options in Schools*.

**LOCK-AND-KEY SYSTEMS**

In many cases, a conventional lock-and-key system is still the best option. If it works, don’t fix it. However, many schools readily admit that dozens of keys or more are floating around, lost, stolen or unaccounted for. If many keys have to be accounted for, checked out, and tracked, and this is spiraling out of control, look into a key management system that tightens control or electronically establishes an audit trail showing who last checked a key out. Indicators that conventional keys and locks are no longer adequate include the following:

- Burglaries in which thieves accessed locked rooms and there were no signs of forced entry.
- Lost keys or a history of distributing keys that were not stamped “Do not duplicate.” Stamping should discourage duplication, although it is no guarantee that it will not occur.
- Lockdown plans that are heavily dependent on the extensive use of keys. If the keys are carried by only some staff members, or if the act of locking the doors would put teachers in the line of fire, or if teachers are likely to be physiologically stressed during the crisis, then an alternative plan is worth considering.

**ELECTRONIC ACCESS CONTROL SYSTEMS**

If any of the above are concerns, consider door hardware that automatically locks, classroom doors that can be pulled shut to lock without inserting a key, electronic entry-control devices such as programmed wireless fobs or proximity cards, or hard-wired control switches for instantaneous lockdowns. Some campuses are considering remote lockdown abilities from central consoles at strategic locations on- or off-site.

In some cases, doors may be normally left unlocked during working hours but should be easily secured during a lockdown. A lockdown button at the reception desk is invaluable for this purpose, empowering the receptionist to instantly secure the school against an approaching threat.

Electronic controls can be integrated into almost any type of door, including hinged and sliding models, turnstiles, or revolving doors. If opting for this approach, it’s usually far more economical to build in the devices during initial construction. Brigham Young University (BYU) now uses access cards for all buildings.

There are a few basic down sides to electronic controls: initial cost, technical difficulties, and power outages. **Initial cost.** If installation is integrated into initial construction, electronic controls are likely to be more affordable than if installed as a retrofit, but in either case is considerably more than the cost of conventional lock hardware. Wireless technology may reduce installation costs. For example, Lehigh Career and Technical Institute (LCTI) in Schnecksville, Pennsylvania, used its existing WiFi network and compatible locksets to retrofit conventional doors campus-wide for centralized control without hard wiring. Electronic key cards can be cancelled instantly with a few key strokes, telling the system to reject the card if it is presented, and can even send an alert to tell a supervisor that someone has attempted to gain entry using the cancelled card—a far more efficient option than changing all of the locks or pleading with a fired employee to return a key. If installing electronic door controls, consider installing data cabling at the same time so that...
Technical difficulties. Someone has to install and run the software, updating information whenever a new card is issued or an old card is cancelled. At the front end, this includes creating cards for all users. Someone has to replace lost cards and issue new ones. If the people who know how to operate or repair the equipment are unavailable, the system can be derailed, at least temporarily.

Power outages. All systems should have emergency back-up power. The alternative is complete systems failure during a power outage.

Early models of keyless entries involved push-button coded locks, which were often compromised through unauthorized access to codes. An early electronic model was the swipe card, which involved passing a card through a slot—a device that proved vulnerable to vandalism. Nowadays most models involve simply holding a coded fob or card within close proximity to the reader (hence the term “prox” cards). Vehicles can have readers installed on their dashboards to automatically open gates.

Location. Electronic controls are not needed at every door but can be used selectively (especially to keep costs down). If a facility’s outer doors are secured electronically, internal areas might be adequately secured with conventional locks. Electronic locks may be worth considering for doors to higher security areas as well, or for areas that a school would prefer not to have to supervise. For example, if the parking on the west side of the building is for staff only, the west side door can be unsupervised, allowing entry only to those who carry access cards. Cards can be issued to temporary workers or contractors, programmed to open only certain doors during specified days and hours. Schools have no need to worry about losing keys, since the cards expire when the job is completed. Cards can serve multiple functions, acting as debit, library, attendance, or identification cards as well.

Whether devices are free-standing or tied into a central processor, if they are too accessible, they may be vulnerable to technologically savvy intruders. As a precaution, it may be wise to install lock activation devices or relays on the secured side of the installation, in line with the conventional security panel approach.

Biometrics. Fingerprint scanners, iris readers, hand vein readers, and facial recognition technology are options to consider for high-security locations, but their use in public schools is still rare, controversial, and not especially practical. There is considerable concern about the implications of entering such data into databases that could find their way into government files or the public domain. At the least, parental consent forms should be considered and privacy provisions tightly worded. Which biometric feature is used as an identifier—iris, fingerprint, etc.—is not overly significant at this point. Decisions should be based on functionality, cost, and maintenance considerations.

Jackson State students now use a combination of an ID number and biometric reader to gain access to dorms.¹ Chiba Institute of Technology students in Japan log in to registration with a smart card and a palm reader. The University of Georgia, Athens uses biometric hand geometry readers in dining rooms, the recreation center, and dormitories. It has also recently completed a pilot study on using biometric readers in exam sites. Bentley University, Massachusetts, has used fingerprint readers on its laptops since August 2008. The University of West Alabama in Livingston is using fingerprint readers, backed up by webcams, for online students, who must purchase and use the $180 devices to take tests.

Piggybacking/Tailgating. A glaring weakness in access control is the ease with which intruders can slip in close behind legitimate users. Often this is with a gesture of courtesy from the first student, who holds the door for someone behind him or her, or when the first student is too intimidated to confront the person who “piggybacks” on his or her entry. If this is commonplace at your school, access control measures may be illusory, providing a false, and counterproductive, sense of security, although they may at least reinforce territoriality. To address this problem, the issue is not primarily what type of access device is used, but what response measures are in place. Options might include: (1) video analytics or on-site security personnel that trigger alarms when piggybacking occurs, (2) video recording of the incident to identify the intruder, and (3) an access control response, such as a lockdown of a second door preventing further entry coupled with an immediate response from security guards to confront the intruder. Training for all legitimate users goes hand-in-hand with these tighter measures. Some high-tech
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The mere presence of cameras can suggest that the environment is dangerous, reinforcing fear and undermining the school climate.

Unauthorized intruders, denying them access or identifying them for follow-up, at costs ranging from $50,000 to $75,000 per revolving door or $13,000 to $45,000 per turnstile. 3D image technology installed in the ceiling makes it much easier to identify piggybacking and to send an alarm.3

Staff cooperation. Many security measures will fail if staff and students fail to cooperate. For example, after shots were fired inside Wilson High in Virginia, it became apparent that door security was being compromised. Some students told reporters that they’d seen doors propped open with pencils, often for quite a while. The school now has hourly inspections.4

Visitor Screening and Badging

In most public schools, visitors don’t receive access control cards, but they do receive visitors’ badges to make them easily spotted while on campus and, more to the point, to make people who are not wearing badges more noticeable. Schools use widely varied levels of screening before issuing badges. In some cases, visitors can walk in and pick up stickers without having to clear any kind of screening—a self-serve operation that has minimal value but is fairly commonplace. (One inspector reports that he often signs into schools as “Charles Manson” without being questioned.) In other cases, visitors are obliged to introduce themselves and present ID. More extensive systems may check fingerprints, sex offender registries, or school-maintained databases.

Broward County Public Schools (Florida) are using a Fast-Pass screening system that tracks people entering and exiting school sites. The system checks visitors against sex offender and law enforcement databases and confirms authorization for anyone picking up a child. It also screens volunteers as part of the application process. The system is networked to serve all buildings and entry points and can serve to send district-wide emergency messages to all work stations. A similar product at Paragon Charter Academy serves as a “virtual security guard”—a machine that snaps visitors’ photos and scans their driver’s licenses, which are then run through national sex offender databases. Other features include time-deactivated badges, which fade out or change color after an allotted amount of time. More comprehensive products can scan an ID, take digital photographs, print bar-coded badges, and issue parking permits. Rarely is there an effective process in place to retrieve visitors’ badges after visits or to oblige visitors to check out. Because of the wide variety of options, schools should carefully consider what they want to accomplish with visitor badging before investing in a product.

Surveillance Equipment

On top of cost, maintenance, and effectiveness issues, surveillance cameras raise some serious philosophical concerns. The mere presence of cameras can suggest that the environment is dangerous, reinforcing fear and undermining the school climate. Americans are particularly wary of empowering an Orwellian government to watch over citizens, and surveillance cameras are classic icons of such an arrangement. The issue is worthy of some attention. In February 2010, a Pennsylvania lawsuit alleged that school officials were activating school-issued laptop webcams while the students were at home. The district claims the devices were to be activated only if a computer was lost or stolen for tracking purposes. Even in England, where cameras are commonly seen in public places, one private school created quite the storm in 2010 when it installed cameras in bathrooms to deter vandalism. (A hue and cry shut down the project before the cameras were activated.)

On a pragmatic level, appropriately used cameras are merely affordable substitutes for placing staff members with better memories and an endless attention span in the halls to watch over our children. What could be wrong with that? The distinction is that in functional schools, human monitors are more likely to engage in pro-social interactions with students, offering a smile, a pat on the back, or a kind word. Cameras don’t offer positive reinforcement; their role is perceived as strictly negative, catching students doing something wrong and preserving evidence against them. From this perspective,
Surveillance technologies are appropriate when: (1) offenders need to be identified and their actions documented, (2) hidden areas are attracting problem behaviors that have not been successfully deterred through other measures, (3) the location filmed is semi-public and there should be no reasonable expectation of privacy, (4) risks are higher than average, such as in an overseas embassy school that may be targeted for political reasons, or in a residential treatment program where there may be a heightened risk of abuse or false accusations, and (5) when vandalism, bullying, or other problems persist despite other interventions.

From deterrence and law enforcement perspectives, cameras are invaluable, and their use is spreading rapidly. For example, Oakland, California, schools will be adding 750 cameras by August 2011, with footage linked to police for viewing as needed. About half the $3 million cost will be covered by a “Secure our Schools” DOJ grant. Over a five-year period, from 2001 to 2006, arson attacks and vandalism that broke 600 school windows cost the Swedish city of Malmö about $6.5 million. In response, it installed “smart” cameras. So far, these have been an effective deterrent against recurrences.

**Technical issues.** Surveillance camera systems have proved most useful in identifying suspects after the fact. In most cases, employees cannot constantly watch electronic monitors to catch misbehavior at the moment it occurs—they have other job duties, and studies have shown that people cannot focus effectively on electronic monitors for more than about 15 minutes at a time. But live viewing can be used selectively and can deter some criminal activity, at least when students realize their behavior is being taped. “Smart” cameras can help alert supervisors in some cases as well. Cameras should be mounted well out of reach and secured in opaque domes or similar enclosures that protect against vandalism without compromising the camera’s coverage area. Outdoor cameras may need heated or cooled housings for extreme weather. Cameras in corrosive, dirty, or extremely humid environments also can require protective housings. If components are going to fail, they are most likely to do so fairly quickly. Have spare components on hand for replacement purposes.

Wily criminals often can avoid cameras or wear disguises to obscure their identities. They also can attack the cameras as the first step in a planned crime. There are two measures that can be employed to outfox these offenders:

1. Install cameras in overlapping patterns so that every camera is within the recorded view of another. In this way, any vandalism or tampering with one camera should be captured by another.

2. It may be useful to have some covert cameras capturing images around the corner from the main viewing area, where offenders may not have yet donned disguises.

**Problem locations, such as specific bus routes or classrooms, can be brought back under control by installing cameras and advertising their presence.** Cameras targeting dark areas usually require infra-red (IR) capabilities.

**CAMERA OPTIONS**

**Hard-wired alternatives.** The distance between a camera and a receiver will affect the quality of images received, even with hard-wired systems. Standard coaxial cabling will suffice for distances of up to 1,000 feet; fiber-optic cabling can go further. Repeaters can boost the range considerably. Industrial strength routers make it possible to install wireless cameras almost anywhere. Power-over-Ethernet (PoE) capability has made it possible to install cameras anywhere intranet cabling already runs, saving the substantial cost of running power cabling. (There are some limitations on distance with PoE, usually about 300 feet, although this can be doubled with a mid-span expander.) PoE can power most electronic technologies, including alarm keypads, access readers, fire alarms, and cameras. Cables should be encased in metal conduit or otherwise protected from vandalism or accidental damage. Any installation that leaves cables exposed to vandals is inadequate. For isolated locations,
Lenses are gener-
are a good size to aim for today. Any
needs, 1.3 megapixel HD cameras
power limitations, and lighting
plate on a fast-moving vehicle.
a gate is simpler than capturing a
license plate on a car stopped at
driving up costs. Capturing a
cameras designed exclusively to
can produce a 1280x1040 megapixel image that can
be enlarged much more dramati-
capabilities, can be a good solution—an
approach recently used successfully
at Georgia’s Thomson-McDuffie
Junior High School.
Police can also tie into the system
wirelessly, within 150 feet, for live
video feeds. Unshielded twisted
double-5E cable) is an ideal transmis-
medium that should make it easier
to eventually shift from analog
to digital systems. In some cases,
add-on devices (such as the VideoIQ
Encoder) can upgrade analog
cameras to function like smart
cameras, and this may be worth
exploring as a less expensive
upgrade option.
Fixed versus moving (pan-tilt-
zoom, or PTZ) cameras. Fixed
cameras tend to require much less
maintenance and can be relied upon
to catch targeted locations. Moving
cameras cover more areas but
require more maintenance and can
miss critical details of an incident.
One option is to integrate cameras
into duress-alarm systems; cameras
remain fixed unless alarms are
triggered, at which point cameras
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and redirected with a joystick by
a security officer. Zoom lenses
require higher lighting levels.

Lens options. Lenses are gener-
ally fixed or varifocal. Fixed lenses
are fine if you know ahead of time
the precise distance of the area you
want captured; varifocal lenses
can be adjusted on site, providing
an option for wider fields of view
as needed. This flexibility makes
installation easier and has been
the industry standard for many
years. Megapixel lenses will be
needed for megapixel cameras with
an equal capacity—that is, a five
megapixel camera should have a
five megapixel lens to get best use of
both components. Megapixel lenses
can capture far superior images
that can be enlarged considerably.
For capturing an area wider than
70 degrees, a rectilinear megapixel
lens corrects fisheye distortion;
360-degree lenses can be used for
comprehensive coverage of large
areas to help detect intruders,
manage crowds, or enhance overall
situational awareness.

Color versus black-and-white.
Color cameras are usually most
effective under well-lit condi-
tions, while black-and-white
cameras are more effective
at night. Infra-red lights can
improve nighttime recording.

Solar-powered cameras are now on
the market as well. Wireless mesh
networks, routers, and repeaters are
discussed further on.

High-definition (HD) versus
analog. High-definition cameras are
the state-of-the-art option. Analog
cameras represent the older technol-
yogy, usually at a much more attrac-
tive price, but likely to become obso-
late in the years to come. The main
difference between the two is that
HD “forensic quality” digital images
can be enlarged without losing defi-
nition—up to a twelve-fold increase
over traditional analog record-
ings—and this will only continue
to grow as technology improves.
Picture resolution is measured in
pixels per foot (ppf). The minimum
needed for facial recognition is
40x40, or 1600 pixels. License plate
recognition starts at 6400 ppf. But
even a good analog camera image
resolution of 640x480 can be inade-
equate if the picture needs to be
enlarged to more than double the
size. An HD camera can produce a
1280x1040 megapixel image that can
be enlarged much more dramati-
cally without losing definition.

One application can be seen with
cameras designed exclusively to
capture license plates in low light
conditions, a feature that cost
$30,000 just a few years ago but
costs closer to $300 to $3000 today.
Lighting, distance, reflections, and
movement each place different
demands on license plate cameras,
driving up costs. Capturing a
license plate on a car stopped at
a gate is simpler than capturing a
plate on a fast-moving vehicle.

Because of band width, process-
ing power limitations, and lighting
needs, 1.3 megapixel HD cameras
are a good size to aim for today. Any
higher capacity may overwhelm the
recording and band width capacities
of your equipment. Within a year
or two, larger capacity HD cameras
will make sense, when the record-
ing devices catch up to them. Some
medical facilities are already using
10 megapixel HD cameras, and a
network video recorder system
recently came on the market that
can handle 16 megapixel images,
160 times the density of an analog
image. The greater capacity found
with megapixel cameras means that
in addition to being able to enlarge
pictures without losing definition,
it’s possible to cover broad areas
efficiently and effectively. A few
new cameras can replace five or 10
old ones and deliver crisper images.

On the other hand, many institu-
tions are already heavily invested
in analog cameras and aren’t likely
to replace them in the short term. In
those cases, hybrid systems, tying
analog cameras into networked
DVRs or other recording devices
with higher-end processing capa-
bilities, can be a good solution—an

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Calibration and tuning. Calibration and adjustments for changing seasons, along with lighting conditions, can require regular adjustment with older cameras, meaning more maintenance is required. Some newer “smart” cameras on the market (such as the VideoIQ Icvr, used by the Onondaga Central School District in upstate New York) will make these adjustments automatically.

Video analytics: Specialized, “smart,” or “intelligent video” cameras versus conventional equipment. Conventional cameras passively collect images. Smart cameras can analyze “unusual behavior” in an environment, using algorithms to spot selected shapes or movements—such as people entering through an exit, leaving a suspicious package, lingering in a suspicious location or a short-term parking space, hopping a fence, or falling down, as well as tampering with, blocking, or attacking the camera—and send immediate alerts. They can sort images based on time, date, alarm notification, object, size, location, and color; count the number of people who move through a door; determine attendance at large events; help analyze pedestrian traffic patterns; and read license plates. They can be triggered when equipment is removed from a room, and they can search all cameras for matching objects. Additional perimeter sensors become redundant if the cameras know what to watch for. Such “event-driven” video can trigger an alarm or tell a monitor to wake up and display a live image. This will likely change the landscape of security offices; instead of walls of monitors, only one or two should suffice. Power and display space won’t be wasted on pictures of empty hallways.

Human on-site guard tours have some advantages—the high visibility of officers can deter misbehavior—but they are expensive, and a guard can only be in one place at a time. Attentive criminals will time their offenses to occur just after a guard or school resource officer has passed by and will predictably be absent for a period of time—or they will make guards their first targets. With high-end video analytics, one operator can manage 1,000 cameras, incidents are well documented, and claims of innocence or police brutality are much easier to address. When events do occur, video clips can automatically be sent to officers for a response on foot, or they can talk directly to the offenders through an integrated speaker system. It’s important to note that, in at least one study, on-the-ground guards responding to alarms dramatically improved effectiveness in deterring thieves, with thefts in parking lots dropping 41%. Other public spaces using unsupervised, unmanned, low-quality cameras saw much more modest crime reductions.

Centralized versus distributed systems. With centralized systems, all of the data collected by a camera is usually sent to a “head-end” for processing. With analog cameras, this is often a DVR; with a networked video system, the head-end is usually a PC server. But processing power and on-board memory capacity on Internet protocol (IP) cameras is improving, making it possible to beef up algorithms and retain data on the cameras themselves, taking some of the load off of centralized servers. Transmission of high-resolution images only occurs on an as-needed basis, such as when an alarm is triggered. This distributed approach, using “edge” installations, minimizes band-width usage and maximizes scalability, cost-effectiveness, and flexibility in general. Improved digital signal (DS) processing, low light sensitivity, and megapixel technology are boosting the ability to use edge devices for video content analysis (VCA). However, with so many analog cameras still in use, many institutions will need to handle the analysis at the head-end for some time to come.

Capacity issues. There are two critical issues to consider when selecting equipment: storage capacity (how many gigabytes of memory) and active processing (CPU) capability. It’s possible to gather a huge amount of information, but if you try to juggle it all at once, the computer may become overloaded. If you’ve ever experienced a slow computer, you know what this is about—the ability to multi-task is severely limited. This becomes significant when you are drawn to a variety of intelligent video options and want to use them all. For example, video analytics can be used to trigger an alarm when someone crosses a fence. Other software might try to capture faces and watch for them elsewhere in the facility. Still other software grabs license plate numbers. The swipe of a card at an entry point could tap into a database and pull up a picture of a student requesting entry at a guard station. All of these options have a certain allure, but that doesn’t mean your computer can apply all of them at once, which is why a professional systems integrator
It's early. You are trying to get a head start on your busy day, but most of your suppliers are still in bed. You log on to and have complete access to all of the products and information you need to get the job done. Online ordering, product information and shipment status at your fingertips whenever and wherever you want it. Enhances the industry-leading service, accuracy, and speed to market that you have come to expect from Akron Hardware. Visit akronhardware.com and click the blue button to get started!

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Extremely sensitive devices can be triggered by a lit match, similar to the alarms used in airplane lavatories. These can respond with audible alarms or recorded messages, or by triggering an alert at a monitoring station. Protective covers that must be lifted, or glass covers that must be broken, discourage false alarms by triggering a local noise alarm first, drawing attention to the person pulling the handle. “Intelligent” fire alarm systems, such as one recently installed at New England College, can detect tampering with room detectors, sending an alert to a monitoring station that pinpoints the location of the activity.

**Hard-wired panic button alarms** can be built into intercom, phone, or burglary alarm systems, or they can independently trigger buzzers or lights at monitoring stations.

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**Annunciators.** Similar to burglar alarms triggered by door or window entry, these devices make noise at the point of intrusion and alert staff members at a monitoring station that an emergency door has been opened. If surveillance cameras are used, staff can instantly view the activity.

**Wireless alarms** can be integrated into pendants, key fobs, radios, equipment, or vehicles. First-generation devices (such as body alarms) merely make noise; second-generation devices send messages that identify the person assigned to the device and in some cases can pull up useful data, such as the person’s photograph, stalking complaints, or medical concerns, but may not be able to pinpoint his or her immediate location.

**Tracking devices.** Third-generation wireless alarms can identify the location of a person or item carrying a device in real time using GPS, radio frequencies, or similar technologies. They can be triggered manually, by pushing a panic button, or automatically, by being moved past a reader. For example, if an extended capability radio frequency identifying device (RFID, or transponder) is implanted inside the case, a computer carried out of the media room might trigger an alarm. This would be an active or semi-active system. A passive RFID can only be read if passed quite close to a reader, like bar codes in stores. Tracking devices can be used to monitor the location of any asset, including school buses—a useful option in case of hijacking. Ohio State University is investing $1 million in an electronic tagging system that uses the school’s WiFi network for tracking. The school plans on installing $100 tags in 10,000-15,000 pieces of equipment between 2010 and 2012. The same technology may be used to track dementia patients, as well as employees who trigger personal wireless panic alarms. Children at high risk of abduction could wear similar devices as well.  

**Integration and Convergence**

**Integration.** Most large institutions have found value in tying all security components into a single platform in an IP-based system. If a school plans on using multiple types of security technology, such as cameras, alarms, communication, and access control devices, those components’ hardware and software must be not only compatible, to maximize their usefulness, but fully integrated. If you have cameras on the front door, for example, they should be tied in with a monitor in the office and a lockdown button. If you use proximity cards at entries, you might want to tie those into a database that pulls up the cardholder’s photograph and identification information. Any Ethernet-based device is effectively monitored for failures 24/7. For example, if an alarm system fails, the failure itself sends an alert to a monitoring station. But integrated systems need not be limited to security technology. Proximity cards are now commonly used not just for access control, but as debit cards in cafeterias, bookstores, copy shops, or laundry rooms, for attendance, as library cards, and as storage devices.

**Convergence.** The biggest leap in this multi-faceted direction is known as convergence, which ties electronic (sometimes called “physical”) security into IT security (sometimes called “cyber” security) and data management. Institutions have become alarmed over the past decade at the astronomical growth in the theft or vandalism of intellectual property, as well as the invasion of privacy and exposure of confidential, proprietary information. Convergence ties everything tied in with a monitoring station...
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should be guiding the process of selecting hardware and software. Specifications for new software should be analyzed to determine compatibility with the available hardware's processing power. Quad-core processors are quickly becoming essential minimums. High-resolution MPEG cameras may be more than some analytic software can handle at present. In addition to active processing capability, storage demands can be daunting: one megapixel camera can generate 207 gigabytes of data in 24 hours. Motion activation can help reduce the load, but retaining this kind of data for months or years adds up to a huge storage requirement. Creative storage arrangements can include off-site storage and information dispersal with multiple back-up copies—an approach that may be more cost-effective than on-site storage.

Real versus fake cameras. Occasionally, schools consider using fake cameras as cheaper deterrents. While that might have some benefit, there are two downsides to this approach: no surveillance occurs, and people may be misled into thinking they are in an area being supervised when in fact they are not.

VCRs versus DVRs versus NVRs. The camera is only one piece of the surveillance system in which quality can vary considerably. Another critical piece is the recording device, and recording devices are having a hard time keeping up with camera improvements. Early systems recorded analog images onto reels of film that had to be developed before viewing. They were surpassed by video cassette recorders (VCRs), using tapes that deteriorate and are cumbersome to search. The next evolution was to digital video recorders (DVRs). DVRs work well unless you anticipate upgrading the quality or number of cameras, at which point the DVR may reach capacity and require replacement. For that reason, especially at the institutional level, DVRs are now being gradually overtaken by network video recorders (NVRs). NVRs are generally installed on the edge of a local area network (LAN) as part of an IP digital video surveillance system (IPDVS). As memory needs grow, the server memory can be upgraded without having to overhaul the system.

Good NVRs and DVRs should be highly reliable, capable of self-diagnosis and self-repair, and able to send alerts to designated staff when alarms are triggered. Images that can be pulled up on the Internet, either in recorded or live mode, can be useful for emergency responders or school administrators (for example, Chicago police and 911 centers are currently upgrading their system to monitor 4,500 school cameras and send images to patrol cars during emergencies). A number of devices are now available that promise to bridge the gap between older and newer technology, such as by converting analog information into digital information in a customized DVR. In some cases, these may provide a means of keeping down costs by deferring the replacement of older cameras, but only if they work as advertised. Schools that already have run coaxial cable for VCRs might find it economical to use it for DVRs. If that cabling is not in place, and if an Ethernet is already in place, the NVR may be more economical. The next major change on the horizon is a jump from NVRs to Cloud computing, in which the head-end functions are outsourced to massive off-site computing centers.

The larger the memory capacity of cameras and systems, the greater the detail, number of frames per second, and days of recording are possible before available memory is filled. Be specific about the minimum quality of pictures and number of days of recording you require. A year ago, a 16-camera analog system with a 240-gigabyte DVR sounded reasonable. A school system today should be looking into high-definition cameras—around 1.3 megapixels—and should set aside at least 1-3 terabytes of storage on its network server. When purchasing components, it is essential to actually see not just the live image broadcast, but also the recorded image accessible after the fact and the printed result, field-tested on-site before finalizing a purchase. Focal length, equipment limitations, and weather can impact the quality of images generated, but lighting is a critical factor. The higher the number of megapixels, the more proper lighting is needed. Test any equipment being considered under low-light as well as changing conditions (day and night, rainy and clear).

Furthermore, whatever system you use must have a video management component so that you can work with the data from all of the cameras on your system. One example is the CompleteView products from Salient Systems.8

Alarms

Fire alarms can be triggered by smoke or flame or set off by manually operated pull stations.
If technology is part of your planned solution, emphasize quality and performance more than cost savings. Inexpensive cameras and recorders generally produce less useful images. Inexperienced installers are more likely to make mistakes or go out of business.

■ Include generators, back-up batteries, or other secondary power sources. Without them, the system may fail just when it’s needed most.

■ Do your homework. Research makes and models of equipment, and seek out first-hand reports on their effectiveness. Many schools have moved boldly into the high-tech security arena, for better or for worse. Seek out these pioneers and take advantage of their lessons learned. Nobody is in a better position to offer counsel about what works and what doesn’t.

■ Finally, remember that security technology cannot solve all school security problems. Ultimately, schools must integrate technological solutions into broader prevention and intervention measures, ranging from practicing crisis response drills to building a positive school climate.11

In Conclusion

When upgrading security technology in schools, consider the following:

■ If considering multiple devices, fully involve the IP manager and a convergence expert from day one.

■ Identify and priority rank the problems you want to address or the risks you want to mitigate, such as hurricanes, intruders, drive-by shootings, graffiti on the north wall, bullying in the cafeteria, or smoking in the bathroom. Each of these requires very different solutions, only some of which involve high technology.

■ Beware of mission drift. Always go back to your originally identified problem and ask yourself, “Do the solutions we chose match the problems we wanted to address?”

Resources


Footnotes

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11. www.ekahau.com
12. www.iviewsystems.com

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What’s New

Student training on campus shootings. Wayne State University in Detroit, Michigan, recently launched a one-hour online training course for students on what to do if a school shooting occurs. The training was developed in response to lessons learned after a 2007 active shooter drill. In addition to realizing which technological changes and equipment were needed, it became clear that students needed to know how to stay safe.

Staff training. Radford University in Virginia offers Managed Awareness and Trust training on safety and security to faculty, staff, and external vendors on all aspects of cyber security, as well as campus safety, emergency preparedness, and related topics [www.awareity.com]. Jenzabar’s Retention Management Solution (RMS) provides software, along with professional services to help identify at-risk college students and develop effective intervention strategies [www.jenzabar.com].

Especially for stadiums. “SportEvac” is simulation software being funded by the DHS Science and Technology Directorate and tested by the National Center for Spectator Sports Safety and Security (NCS4) at the University of Southern Mississippi. The developers are creating virtual, digital 3D stadiums, filled with tens of thousands of avatars programmed to react to crises as unpredictably as people do. Once testing is completed at seven in-state schools, the software should become available to other stadiums nationwide, allowing security teams to cheaply and safely run through all kinds of crisis scenarios.

Fire extinguisher electronic monitoring. The New Hampshire State House has installed devices that electronically monitor fire extinguishers as an alternative to monthly physical inspections. Some critics suggest that such systems won’t pick up various obstacles, corrosion, insect nests, etc. The en-Gauge fire-extinguisher monitoring system tracks location, functionality, age, in-service dates, history, inspections, and current pressure for each device. Removal of extinguishers triggers an alarm. Most new systems are wireless. Once the system is installed, you can also monitor other devices, such as defibrillators. Extinguishers with scalable wireless packages cost $300-$500.

Integrated lighting and security systems, put together by in-house electricians, are saving money for Liberty Mutual Insurance in its Boston headquarters. When employees use their proximity cards to gain access, the system knows which lights on which floors will be needed, eliminating unnecessary lighting and making it easier for security staff to see which parts of the building are in use.

Fingerprints and biometrics may eventually replace credit card signatures or ATM codes. In one system that has been operational since 2006, the card itself has an imbedded fingerprint reader. If the prints don’t match, the card won’t work. Other software relatively new to the market uses voice biometrics as the equivalent of a fingerprint.

together on a single platform. If workers are fired, not only are their key cards deactivated, but their computer access codes are also immediately voided. As convergence has continued to evolve, the demand has increased for improvements in ease of use (often using on-screen maps and graphic user interfaces, or GUIs), efficiency, and functionality for end users. As much as possible, these systems go beyond alerting security staff to incidents, analyzing situations and telling them precisely how to respond. This is sometimes referred to as a physical security information management (PSIM) system.

A command and control platform ties together all system components and runs them through rules, workflows, and scenarios to guide the human operator. One example of such a platform is iView systems’ iTrak Incident Reporting and Risk Management System, which ties together video, incident reports, risk analysis, visitor management, lost and found, employee databases, vehicle databases, and many more features. A parallel development is the emphasis on converging security with non-security features, such as fire alarms, HVAC controls, lighting, power metering, phones, and sound systems, along with all kinds of data management and work flow. Automated reminders can be sent to all appropriate recipients, advising them about which employees are due for recertification, testing, or license renewal, for example. A converged system can identify students with excessive absences or failing grades, or who have overdue library books. Convergence eliminates costly redundancy and makes it infinitely
easier to send information across silos and crunch data. Ave Maria University in Naples, Florida, is a good example of total integration: It has tied together fire alarms, climate control, HVAC monitoring, access control, video cameras, low voltage lighting, electrical power metering, campus debit and security cards, voice-over-Internet (VoIP), sound systems, LAN/WAN networks, wireless technology, and more. This kind of interconnectedness is best guided by a professional systems integrator—someone who knows which components are compatible, has a good track record, and will be available for further consultations down the road if things go wrong.

In Conclusion

When upgrading security technology in schools, consider the following:

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Resources

U.S. Department of Education, Office of Safe and Drug-Free Schools:

National Clearinghouse for Educational Facilities (NCEF):

Mitigating Hazards in Schools (information about hazard assessment, mitigation planning, and project funding): [www.ncef.org/pubs/mitigating_hazards.pdf]

Selecting Security Technology Providers: [www.ncef.org/pubs/providers.pdf]

NCEF resource lists: Access Control Systems in School and University Buildings:
[www.ncef.org/rl/access_control.cfm] and Campus Safety and Security:
[www.ncef.org/rl/safety_securityHE.cfm]

NCEF Safe Schools webpage at the NCEF website: [www.ncef.org]

Public Alert Radios:

NOAA Weather Radio All Hazards, a nationwide network of radio stations broadcasting all-hazards information 24 hours a day, 7 days a week. Broadcasts include alerts and safety steps for a wide range of emergencies and hazards: [www.nws.noaa.gov/image/lot/nwr/NWR-FactSheet.pdf]

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10. www.ekahau.com
11. www.videofied.com
12. See the Schools Interoperability Framework, or SIF, at [www.sifinfo.org]

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STATE REGULATORS HAVE ROUTINELY FAILED TO enforce California’s landmark earthquake safety law for public schools, allowing children and teachers to occupy buildings with structural flaws and potential safety hazards reported during construction.

Top management with the Division of the State Architect—the chief regulator of school construction—for years did nothing about nearly 1,100 building projects that its own supervisors had red-flagged. Safety defects were logged and then filed away without follow-up from the state.

California law requires the state architect’s office to enforce the Field Act—seismic regulations enacted nearly 80 years ago. The law is considered a gold standard of school construction. It requires state oversight to assure professional engineering and quality control from the early design phase to the first day of classes. These regulators are granted “the police power of the state” over the construction of public schools.

But over the last two decades, enforcement of the Field Act has been plagued with bureaucratic chaos, a California Watch investigation has found. Tens of thousands of children attend schools without the required Field Act certification.

Documents show uncertified schools with missing wall anchors, dangerous lights poised above children, poor welding, slipshod emergency exits for disabled students and malfunctioning fire alarms. These problems were reported by district school inspectors and state field supervisors and then lost in a swamp of paperwork.

In many cases, the state does not know if school officials have fixed these problems. Instead, the state
The state architect’s office issued warning letters to school board members and administrators, and walked away. “This is a crisis,” said Steve Castellanos, the California state architect from 2000 to 2005, acknowledging the office he once ran needs an overhaul. “I think there has been a failure in the system.”

Over the past 19 months, California Watch has reviewed tens of thousands of pages of documents, interviewed scores of sources, and built two databases tracking school projects and inspector evaluations. Among the findings to be presented in a three-part series:

■ At least 20,000 projects—from minor fire alarm upgrades to major construction of new classrooms—were completed without receiving a final Field Act certification. California Watch determined that roughly six out of every 10 public schools in the state have at least one uncertified building project.

■ The state architect’s office has allowed building inspectors hired by school districts to work on complex and expensive jobs despite complaints of incompetence. Inspectors have been missing from construction sites at key moments and have been accused of filing false reports—but that has not stopped them from getting more work.

■ The state’s top regulators at times have appeared more concerned with caseload management than enforcing the Field Act. One state architect ordered what was dubbed “Close-O-Rama”—a mad dash in the 1990s to approve projects as Field Act safe. Even now, the state architect’s office has classified hundreds of projects for “no apparent or recorded reason” as simply missing paperwork, according to a 2011 internal memo.

■ A separate state seismic safety inventory created nearly a decade ago shows more than 7,500 older buildings as potentially dangerous. But restrictive rules have prevented schools from accessing a special $200 million fund for seismic repairs. Only two schools have tapped the money. The vast majority of the buildings remain unfixed and the money unused.

■ As the state architect’s office relaxed its oversight, the office became closely aligned with the industry it regulates. Government officials became members of a lobbying group for school construction firms; mingled at conferences, golf tournaments and dinners; and briefed the lobbying group’s clients at monthly meetings. The state even told its employees that taxpayers would foot the bill for their membership dues.

■ The California Geological Survey redrew the state’s official earthquake hazard maps decades ago amid pressure from property owners, real estate agents and local government officials, who feared that property values would decline inside these seismic hot spots. As the maps shifted, some schools were located inside hazard zones one day and outside the next.

For years, the state architect’s office has been aware of school construction problems. In 2006, the office found inadequate testing of construction materials, an increase in unapproved and unqualified inspections of school sites, and buildings that were “completed with other dangerous construction flaws,” according to internal task force reports and emails.

But there is much left unknown. In addition to the 20,000 projects lacking Field Act certification, the state has discovered 59,000 more that have yet to be fully reviewed by the state architect’s office to identify their Field Act status.

The state cannot assure the safety of students and teachers in every school without unwinding thousands of building projects. It would require contacting scores of architects and contractors, visiting school sites and reviewing reams of documents from projects that are years and even decades old. It could take 14 years to clear the backlog, an official with the state architect’s office wrote in an internal memo last month.

School officials have contributed to the regulatory breakdown. They have pressured architects, builders and their own inspectors to move forward on projects, even if it means overlooking the Field Act, records and interviews show. And contractors, according to inspectors, have cut corners to save costs and speed projects along.

Officials at the state architect’s office cited sloppy record keeping among local school administrators and a lack of communication with state regulators as the central reason so many projects have failed to receive Field Act certification. “We’ve seen definitely a lack of documentation. We’ve seen inconsistencies in some of the submitted documentation,” said Howard “Chip” Smith, who became acting...
head of the state architect’s office in August. “But we haven’t actually seen a case where a significant, imminent hazard or risk was posed by one of these projects.”

Scott Harvey, the acting director of the Department of General Services, which oversees the state architect’s office, has doubts. When asked whether he believed schools are safe for children, he replied: “I don’t really know. I’m hopeful that we have done the best we can to assure that kids are safe in their schools.”

The case files at Southeast Middle School show just how regulatory failures have prompted alarm. Taxpayers spent $52 million to build the campus on a former General Motors factory site in South Gate, near Los Angeles. The school, which opened in 2004, sits in a liquefaction zone that could turn to mush in an earthquake, according to a report by a geological firm hired by the Los Angeles Unified School District.

Both the main architect and inspector on the construction job insisted that massive windows in the school’s central classroom building were incorrectly installed. Now, more than 1,300 middle school students mingle, send text messages and listen to teachers next to windows that could, building officials have warned, dislodge or shatter in a quake. Informed about the problems, the state architect’s office denied Field Act certification to the school, then filed the project away without a detailed follow-up until contacted by California Watch.

Officials at the state architect’s office now say they do not believe there are “any outstanding safety issues on the project.” In an interview, administrators with the Los Angeles Unified School District insisted Southeast was constructed to Field Act standards and that critical phases of the design were approved by the state architect’s office.

But a former L.A. district inspector who worked at the school continues to question whether the window defects were repaired. To be certain, he said, the district would have to rip open the walls and test the window connections—and there is no evidence that ever occurred. “Would I send my kids there, or my grandkids there? No, I wouldn’t,” said David Bridi, the inspector. “Those are huge windows.”

Critics believe the Field Act duplicates local building codes. Some legislators have even tried unsuccessfully to abolish it, calling the law onerous and complicated. Builders say the law creates too much unnecessary paperwork—and costly delays as they wait for action from the state architect’s office. But seismic experts say the law provides an important system of accountability and is one reason no child has died in an earthquake-damaged school in California since it was passed.

“The Field Act... guaranteed they would have that information and make good use of it,” said Peter Yanev, a World Bank earthquake engineer with more than 40 years of experience studying seismic building failures. “Otherwise, what’s the use?”

Until now, experts such as Yanev said they believed nearly every school project in California had been certified.

The state has not seen a major quake in an urban area since the Northridge earthquake toppled freeways, ripped through apartment complexes and killed at least 57 people in 1994. But images of a crippled Japan, as well as a series of other powerful earthquakes around the globe the past two years, serve as chilling reminders of what could happen here.

**Enforcement Falls by the Wayside**

In March 1933, the Long Beach earthquake destroyed or severely damaged 230 school buildings near its epicenter. Officials speculated that thousands of children could have died if the quake had occurred during school hours. A month later, the Field Act’s building standards and statewide inspection system became law.

The breakdown in the state’s enforcement of the Field Act has occurred as schools face real threats from earthquakes. In 2003, a magnitude 6.5 earthquake in Paso Robles along the Central Coast caused significant damage to the main building at Flamson Middle School, which had to be demolished. The school had been built nine years before the Field Act and was seismically retrofitted in 1959.

Most other building projects are subject to inspection by city or county officials. But schools are different. The central mission of the Division of the State Architect is to enforce the Field Act and its distinct inspection process. The office must review the design and engineering plans for school construction and renovation projects to make sure the buildings can withstand the ground-shaking forces of an earthquake.

If a contractor is funneling concrete over a series of welds on a support column, for example, an inspector hired by the school district must witness the work and verify that the strength of the
welds and concrete meets Field Act standards. A field engineer from the state architect’s office oversees these inspectors.

School board members, builders, architects and inspectors can be charged with a felony for failing to follow the act’s provisions. School board members could face additional criminal charges if a student or staff member dies or is injured by earthquake damage at a school without Field Act certification.

The state architect’s office also has the authority to halt construction projects if inspectors or field engineers uncover faulty work, but officials acknowledge they rarely use the power. A 2006 internal survey of division employees noted unspecified “political pressure” for the lack of stop-work orders.

Kathy Hicks, former deputy director of the state architect’s office, defended the agency’s lack of sanctions. “Although we are a regulatory enforcement agency, our goal is to facilitate construction of safe schools,” she said. “The idea of prosecuting is counter to what we are trying to accomplish.”

California Watch found cases in which the state architect’s office did little or nothing about safety problems identified during inspections or visits by its own field engineers.

A year after renovations were made to the San Martin/Gwinn School in Santa Clara County, a field engineer from the state architect’s office found seven large holes on the east side of the building and walls that were built too thin. An unsecured brick chimney towered over a classroom. A minor earthquake could cause the chimney to collapse and crash through the building, field engineer Robert Potter wrote in a letter to the school district. He described the chimney as “an obvious seismic hazard.”

“Although the modernization plans for the (building) were approved by this office, the reviewer and checker apparently missed the above possible seismic deficiencies,” Potter wrote in 1999. There is no evidence that the school district hired an inspector to oversee the project or that the construction work was monitored, as required by law. Despite Potter’s warning, the district used the classroom as a kindergarten and daycare center for nearly a decade.

In 2007, the state architect’s office finally sent the Morgan Hill Unified School District a letter denying Field Act certification—but nothing more. The building was converted to storage. The unreinforced masonry chimney remains attached to the building.

**Regulators Fall Behind**

From 1940 to 1970, nearly every school project built in California received Field Act certification, according to state architect records.

The failure to fully enforce school earthquake safety standards came as California embarked on an unprecedented school construction boom. Over the past 13 years, voters have approved $35.4 billion in state bonds to build and renovate public schools, as well as to rehabilitate structures with unreinforced masonry and other potential hazards.

School districts hired construction firms, architects and inspectors, but the Division of the State Architect’s staff had been cut under Gov. Pete Wilson. Wilson, who served from 1991 to 1999, pushed the use of private contractors instead of state employees for many jobs. During his term, the state architect’s office was reduced by more than half—from nearly 400 employees to 189. Today, the office has about 300 employees.

As the number of school projects increased, governors began to raid the division’s budget. The state architect’s office has collected tens of millions of dollars in fees from construction projects fueled by the bond money. The fees represent the bulk of the division’s budget. Over the past decade, the Division of the State Architect received nearly $400 million from school districts.

During the 1980s and 1990s, the state faced a series of budget crises, prompting the Wilson administration to shift nearly $6.5 million from the state architect’s office. The money was never repaid. Over the course of his term, Gov. Gray Davis and the Legislature borrowed $35 million from the office; they paid it back by 2003. Five years later, Gov. Arnold Schwarzenegger’s administration borrowed $60 million more. To date, only $10 million from that budget raid has been returned.

The state architect under Wilson, Harry C. Hallenbeck, began questioning the need for state building standards altogether. In a 1991 interview with *The San Diego Union*, Hallenbeck scoffed at whether California should be promoting earthquake safety, noting that his private architectural firm’s office in the Gaslamp Quarter of San Diego did not meet safety standards: “We’ve been in this space for seven years now and been in several good quakes, and it’s still here.”

Dale T. Rittman, a former supervisor in the state architect’s office, said he resigned in 1993 after a confrontation with Hallenbeck over safety standards. Rittman said he was urged
by Hallenbeck to certify schools that Rittman believed did not meet state standards. “I told him I wasn’t going to jail for him,” Rittman said. “I knew then I better retire because my days would be numbered.”

In April 1993, weeks after the confrontation, Hallenbeck ordered the state architect’s office to waive scores of Field Act safety requirements, according to a memo under Hallenbeck’s name. In his memo titled “Close-O-Rama instructions,” Hallenbeck authorized his staff to approve projects even if they lacked sworn affidavits from architects and engineers or were missing documents proving that fire alarms had been installed. The standard documents confirming the quality of concrete mixes were not needed, nor were original signatures on documents. The certification letters issued during Close-O-Rama did not need to include a list of waived items, Hallenbeck instructed.

Hallenbeck, who now works for Vanir Construction Management, said in an interview that he does not remember the Close-O-Rama memo or a conversation with Rittman. “I don’t believe I would have waived anything,” he said.

Despite efforts such as Close-O-Rama, the caseload grew out of control. The state was asked to review about 1,800 projects in 1995. Five years later, the division had more than 3,500 school building projects to review in a single year, records show. When school districts complained about delays, the state redirected its field engineers to clear the backlog of so-called “plan reviews.” As a result, the staff spent more time checking construction plans and less time at job sites ensuring that standards were met.

Uncertified Projects Get New Status

When California Watch asked about uncertified schools last spring, then-State Architect David Thorman, a Schwarzenegger appointee, ordered his office to examine more than 1,000 school construction projects that, records indicated, were completed with unresolved safety problems.

Soon thereafter, the state architect’s office began changing the uncertified projects to a lesser designation, without visiting the schools, according to interviews and records. Regulators only reviewed some of the paperwork in the project files, according to an email from Masha Lutsuk, an administrator at the state architect’s office. During a two-day period in March 2010, the state changed the status of more than 400 separate building projects in the Los Angeles region.

An internal memo raised concerns about this process. The February 2011 memo from a high-ranking official at the state architect’s office expressed alarm that “hundreds of projects” were changed from possible structural defects to missing paperwork “for no apparent or recorded reason.”

Last year, the division started to worry about how the public might react. At a meeting of prominent architects, engineers and builders, while discussing the certification issue and California Watch’s investigation, a regional manager for the division said, “It is only a matter of time before this explodes in all our faces.” At the same time, the state braced itself for questions about what it had done.

The media staff at the Department of General Services—which oversees the state architect’s office—created talking points describing these projects as simply bookkeeping issues. “Sensitivity has increased as to reporters digging deep into government business. People need to be mindful of what they put in emails,” stated internal minutes from a November 2009 meeting with top managers at the state architect’s office.

By December 2010, only 192 school projects retained their uncertified status due to unresolved safety issues. California Watch found projects with potential safety problems, including at least one that had been recently reclassified as a paperwork issue.

The construction of Southeast Middle School near Los Angeles in the early 2000s had three inspectors involved in oversight, yet problems with poor quality persisted. As classes started, the fire alarm system did not work properly and water leaked into walls, according to project records. Most of the problems appear to have been resolved—except for one.

Before the school opened, Don Shirley, a building inspector for the Los Angeles Unified School District, found that large steel-frame windows at the school were being installed without the proper interlocking steel bolts needed to hold the structure together in an earthquake. The window-wall system had not been reviewed and approved by the state architect’s office, as required by the Field Act. Inspectors worried that a strong wind or an earthquake could pop the glass out of the frame. One administrator even speculated the entire wall could fail. According to Shirley’s reports, “Windows being installed at Bldg. A do not comply with DSA (Division of the State Architect) approved drawings and...
are unsafe.” After Shirley raised concerns in 2004, the district replaced him with a less-qualified inspector, records show. Shirley left the project before the windows were finished.

In an interview, Jim Smith, the supervising architect working for the L.A. district, said a contractor had incorrectly built columns anchoring the window walls. Some bolts could not be attached because the columns were not precisely fitted to the windows. Smith recommended rebuilding the columns.

But officials at Los Angeles Unified balked, telling Smith that the changes would take too long, according to interviews. The district ordered the walls around the windows to be finished without fixes to the columns, according to inspection reports. Smith said the district believed it could later submit computer calculations showing the building was sturdy enough. “We went back and forth over several months,” Smith said. “But they went ahead with the installation.”

Drawings submitted to the state architect’s office two years after the windows were completed indicate that shims and steel angles could serve as a fix to support the windows. The documents also indicate that the repair work was, in fact, completed.

But Smith, the lead architect on the project at the time, insists that those drawings were never shown to him. He said that if the shims were installed, they were not designed to withstand earthquake forces.

The replacement for Shirley—the original inspector on the project—was not trained to inspect steel-frame buildings or windows. But in July 2010, six years after he joined the project, the inspector signed a final report for the state architect’s office saying the Southeast project was built to standards.

As of early April 2011, Southeast Middle School still had not received Field Act certification from the state architect’s office. 

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About the Author: Corey G. Johnson reported this story. Reporters Erica Perez, Anna Werner, Kendall Taggart, Agustin Armendariz and KQED’s Krissy Clark contributed to this report. This story was edited by Robert Salladay and Mark Katches. It was copy edited by Nikki Frick and Joanna Lin.

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JULY 2011 □ DOORS & HARDWARE 27
With the bursting of the housing bubble in 2007 and the subsequent collapse of the financial markets, home values have dropped by more than 30%, unemployment has increased to 9%, and consumer spending has fallen so low that even WalMart has reported losses for the last five quarters. For states, the downturn has resulted in decreased property and sales tax receipts and record budget shortfalls. In 2009, Congress appropriated $100 billion in emergency education financing to help states close their budget gaps and save more than 300,000 teaching positions, but in 2010, facing a record $191 billion in shortages, many states were forced to make additional cuts in spending.

Among the many public services and programs to land on the chopping block in 2010 was K-12 school funding. According to the Center for Public Education, a total of 34 states and the District of Columbia made $15 billion in cuts to their K-12 budget that year. Hawaii slashed its K-12 budget by almost 40% and shortened its school year by 17 days. California alone saw a whopping $18 billion in cuts over a two-year period.

School budgets have been stretched thin for some time, so we wondered how these latest cuts were affecting members of our industry. Forced to make every dollar count, what would be value-engineered out of plans? Would the trend toward greener schools be affected? What about security measures? The media has reported that some states like Illinois are now averaging six months or more to pay their bills—are contractors and subcontractors seeing increases in collection times?

We surveyed a large portion of our members and collected hundreds of responses to those very questions. Some of the results were as we expected, but others were surprising.

Security

Our survey asked, “Since the start of the recession, do you feel the level of industry-related security features for K-12 schools has increased, decreased or stayed the same?”

In addition to cutting funds for education, many states have also been making cuts to local police forces. As a result, officers in many areas are no longer responding to fraud, burglary and theft calls, instead focusing their limited resources exclusively on violent crimes.

With fewer police available to patrol and respond to incidents, would we see a corresponding increase in K-12 school security measures? Surprisingly, no. According to the results, only 33% of respondents have seen an increase in security, while 21% say the number of security features has actually decreased, and 46% said there has been no change.

However, that trend may be shifting, according to Jeff Floreno, director of security operations and strategy for Wren Solutions. “I don’t think we’ve seen the full impact of budget shortfalls yet,” says Floreno. “But there has been an immediate impact in the area of staffing, and School Resource Officers (SROs) are probably feeling it the most. We’re seeing the beginning of a trend in which SROs are being displaced out of the schools entirely, or the SROs are being replaced by lower-cost security officers. The concern around that is the security officers don’t have the level of training that the SROs do. SROs are sworn law enforcement officers with the authority when needed to make arrests as a response to a security situation, and overall, they’re better equipped to deal with problems in the schools than security officers are. SROs also carry roles as community leaders and mentors, especially to young people, maintaining a level of trust with the students and teachers they are sworn to protect.
and serve. We’ve seen cases in which dangerous situations were able to be wholly prevented based on information entrusted to SROs by students. Many SROs also serve as educators within the schools as well.”

The silver lining to this, at least for our industry, is that some schools are replacing physical security with electronic alternatives. “Schools are still making expansions on security systems—especially in the areas of access control and video—as well as doing the necessary maintenance to ensure that those systems remain fully operational,” says Floreno. “If schools have the approved bond money and funding, we are also still seeing new projects push through.”

The number-one item Floreno’s seeing an increased demand for? Access control systems. “The most significant issue plaguing schools today is theft,” says Floreno. “Many of the thefts can be attributed to the student body. Although a “Root Cause Analysis” reveals that there are other prevalent security issues that exacerbate thefts, one root cause is trespassing. By that, I mean a situation in which people who are not authorized to be in the schools are getting on campus and inside the buildings, whether it’s a student who graduated who no longer has business being on school grounds or non-students who don’t have a legitimate reason for being on the property. Another root cause is that access to the vast majority of schools is controlled with mechanical locks. The inherent problem with mechanical locks is key control. Key control is a problem that plagues all schools in the country.”

So if our industry has seen cuts to security, surely green is taking a hit as well, right?

Sustainability

We asked, “Since the start of the recession, have you seen the number of industry-related green features increase, decrease or stay the same?”

If you had to choose between making a facility more sustainable and making it more secure, which would you choose? According to our survey results, schools are overwhelmingly choosing sustainability. Only 10% of survey participants said they have seen a reduction in green features, while 67% said they have seen that number increase, and 23% said it has stayed the same.

While this initially seems surprising, Tim Petersen, LEED AP with VT Industries explained, “Keep in mind that specs are often written 1.5-2 years in advance of construction. It is easy to write environmental directives into specifications, but it is tough to take them out. When something is removed from the spec, the end user expects to see a cost savings. By pulling green out, they really don’t see much savings. Also green is a ‘feel good,’ particularly at the K-12 level.”

So where are schools making cuts?

Value Engineering

We asked, “What are you seeing value-engineered out of plans for K-12 schools?”

The number-one answer to this question was “quality.” Quality closers, quality finishes, quality hardware, quality doors—all are being substituted for, as one commenter put it, “products that allow the contractor to get past the one-year warranty with complete disregard for the product longevity.”

As David McBrier of Builders Hardware explained, “[They are] value engineering hardware—going from a premium grade hardware, which is designed to last 30 years, to a less durable and more economical hardware product. [It’s like] buying a Yugo instead of a tank. In the long run, this is going to cost the school a lot more money with maintenance cost, frustration... but you get what you pay for. Quality costs money. Value products save money; you just have to replace the item more frequently.”

“There is nothing that is sacred,” said Glen Baines of Baines Builders Products. “Contractors are cutting all construction corners that can be cut.”

Some, like Don Filippo of D & D Door, Inc., put it more strongly: “The general public is being screwed over by approving value-engineered [products] that are not equal to the deduct. Yes, you save now, but not tomorrow.”

The second most popular answer to this question was “profits” which leads us to our next survey question.

Collection Times

Our survey asked, “Have you seen an increase in collection times? If so, what changes have you made?”

Not surprisingly, this question received the most responses, with 56% of those surveyed reporting an increase in collection times—26% of those saying they’ve seen significant increases.

“We did seven school jobs in 2009 and 2010, and we have not bid one in the last six months because I can’t afford to have my profit and then some held for a year or more!” complained John S. Fritz, Jr. of Commercial Door & Hardware, LLC.
“Even private clients are going to 120-day payment terms,” said an anonymous commenter. “We are responding by sending everything via return receipt methods to document the clock’s start, encouraging direct deposits, double- and triple-checking invoices and back-up documents to ensure there are no delays.”

Many commented that they have become much more diligent about following up with clients and making sure payments aren’t stretched out too far. Several said they are now demanding payment upfront without exception, and some are even increasing prices to slow-paying customers. A few have begun offering discounts for early payment and are charging interest for payments beyond 30 days. Others have more unique approaches:
- “Killing the customer with kindness.”
- “Praying.”
- “Being a pest.”
- “Holding product for ransom.”

However, the most unique solution offered was: “We hired a big, mean, odoriferous collections person who threatens to pay personal visits if we don’t get the cash!”

Looking Forward

Although economists insist that the Great Recession ended in 2009, the average American would agree that there’s little sign of it outside of Wall St. The federal assistance that helped states close their budget gaps in 2010 and 2011 will be exhausted by the end of this fiscal year. Currently, 44 states and the District of Columbia are projecting shortages totaling $112 billion next year. Many experts are predicting that fiscal year 2012 will be as difficult as 2010 or 2011, if not more so, and with unemployment remaining stubbornly high and housing prices continuing to fall, the prospects for a recovery before 2013 are looking slim.

With no hope of additional federal funds to close the gap, state governors are again proposing deep cuts to budgets that have already endured substantial reductions in the last three years—including K-12 schools. Michigan K-12 schools are facing $1.1 billion in cuts—the largest in the state’s history. California schools are facing another $4 billion in cuts. As this issue went to press, other states had yet to announce their budget plans, but many have already warned that cuts to education will be inevitable.

Yet even in the face of so much disheartening news, there are encouraging signs. Economists are predicting that state finances will begin to stabilize next year, and the recovery will continue, albeit slowly. Budget shortfalls for 2013 are predicted to be down to $75 billion, which is significantly less than the $191 billion they faced in 2010. Also encouraging is the fact that so many members took the time to respond to the survey and that their tone was largely positive, some even humorous, like the commenter who noted, “We are thinking of renaming our company ‘Bank of Subcontractor.’”

Perhaps then they would qualify for a bailout…

About the Author: Jess Madden is the editor of Doors & Hardware magazine. She can be reached at jmadden@dhi.org.
DHI Board of Governors
The Board of Governors met in March to review DHI’s Strategic and Operational Plans. Among the items given top priority are the goals to increase online educational offerings, evolve the DHI Conference, and increase the sense of DHI community. Other goals include strengthening the role of the Door Security & Safety Foundation, delivery of management best practices education, and maintaining DHI’s influence in the development of codes and standards.

International Accreditation Services (IAS) Proposal AC415
In April, several members of DHI executive staff and Board of Governors testified at a public hearing on the IAS proposal AC415 – Certifying Fire Door Inspectors. DHI was successful in having the proposal tabled, and IAS staff was directed to work closely with the openings industry moving forward.

Foundation Fundraising
The Foundation’s Annual Fundraising Campaign is under way. Support the Foundation’s efforts through donations or contribution of corporate-owned goods for the 2011 Silent Auction being conducted this summer.

Foundation Educates Facility Engineers
It has become clear to the Foundation that there is a need for stakeholders to receive additional education on the management and inspection of fire door assemblies. The target market is facility engineers employed by commercial building owners, hospitals, K-12 schools and universities.

DHI Forum for the Future
This year’s Forum provides attendees with the opportunity to attend a Kick-Off Luncheon on the first day to hear a panel of distinguished industry stakeholders address the most pertinent issues facing our industry as we navigate this business succession.

The following day, you can select from a portfolio of Break-Out Sessions that expand upon these topics, as well as others.

Make plans today to attend!

Contact DHI today at www.dhi.org or 703/222-2010 to find out how you can help make a difference in your industry.

Go online to www.dhi.org for the complete Spring issue of The Plan Room newsletter.
WHILE LEED® FOR SCHOOLS covers many aspects of school construction, the scope of this article is limited to that section pertaining to acoustic performance. More precisely, this article was written to address the impact that LEED for schools has on the acoustic performance requirements for classroom entry doors.

If you are as chronologically blessed as I am, you will likely have school memories of being distracted from an otherwise thrilling grammar lesson by the sounds of other students enjoying their half of a split recess period. Other distractions may have come in the form of the shop compressor kicking in, someone’s tuba lesson, the unintelligible French class next door, or a game of dodge ball in the gymnasium. While many of these sounds were good in their proper context, they were all undesirable noise in a classroom where teaching was taking place.

The concern over classroom acoustics is not new, but its inclusion in LEED for schools has focused new attention on it. In 2002, ANSI S12.60 brought acoustics to the design phase of schools. Because this standard has been voluntary since its introduction, its guidelines were not mandated in school design unless referenced within the construction requirements. While the LEED rating system is also voluntary, its popularity within both public and private sectors has increased the visibility and application of the standards it references, including ANSI S12.60.

Within the LEED document, there are two levels of compliance for acoustic performance. The first is a prerequisite minimal acoustic performance. The second is IEQ Credit 9. Patterned off of the requirements of the ANSI S12.60 standard, both levels specify maximum background noise levels and reverberation time. IEQ Credit 9 goes on to provide sound transmission guidelines as well.

To understand the effect that this standard has on the acoustic performance requirement for classroom doors, we need to take a look at how the standard measures acoustic performance—specifically, how it addresses background noise in the room, the acoustic performance of the building shell and classroom partitions, and the operable doors in the various learning spaces.

The starting point is the background level in the room. This is the acoustic pressure or energy present when the room is not occupied. The goal of the standard is to ensure that this level does not exceed 45 dBA for the prerequisite level and 40 dBA for Credit 9. It is important to understand that this is a measurement of the actual sound level, and not a measurement of transmission loss or noise isolation. For this measurement, the lower the number, the quieter the room is. Keep in mind that this scale is logarithmic; a decrease of 10 dB essentially halves the volume.
Table 4: Minimum STC ratings required for single or composite wall and floor-ceiling assemblies that separate a core learning space from an adjacent space

<table>
<thead>
<tr>
<th>Adjacent Space</th>
<th>STC Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other enclosed or openplan core learning space, therapy room, health care room and space requiring a high degree of acoustical privacy</td>
<td>50</td>
</tr>
<tr>
<td>Common-use and public-use toilet room and bathing room</td>
<td>53</td>
</tr>
<tr>
<td>Corridor, staircase, office, or conference room</td>
<td>45</td>
</tr>
<tr>
<td>Music room, music performance space, auditorium, mechanical equipment room, cafeteria, gymnasium, or indoor swimming pool</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 4 is reprinted from ANSI/ASA S12.60-2010/Part 1.

When we discuss the acoustic performance of the building shell and classroom partitions, the performance is expressed as a sound transmission class (STC). While this value is still expressed in decibels, it is a measure of how well these construction elements restrict the transmission of sound energy. For this measurement, the higher the number, the less sound energy is allowed into the room. Here an increase of 10 dB essentially halves the volume.

The LEED document provides minimum STC ratings for walls separating core learning spaces from adjacent spaces (see Table 4, ANSI-ASA S12.60–2010/Part 1).

The STC 45 rating shown in the table above is for partitions, exclusive of the doors, and represents the most common classroom door applications. The STC ratings of entry doors into these classrooms and other core learning spaces are specified separately in Section 5.4.2.4.

In the referenced version of S12.60, those entry doors are required to have minimum STC ratings of 30, where the adjacent space is a corridor, staircase, office, or conference room. Entry doors into music rooms are required to have a minimum STC rating of 40, if those doors are within 9 meters of an entry door into a core learning space.

When looking at the various sound levels and STC ratings required within the LEED document, it is important to correctly differentiate between the background sound level to be achieved, the STC rating of the partition, and the STC rating of the doors. Using the background noise level or the partition STC rating to specify the acoustic performance of the doors is incorrect and will add unnecessary expense. Conversely, specifying the correct door for the application will help limit the background noise to provide the appropriate acoustic environment for effective learning.

About the Author: Dan Hibbs is the Product Development Manager for Eggers Industries. To learn more, visit www.eggersindustries.com, call 920/722-6444, or email sales@eggersindustries.com.
JOSEPH E. ORIHEL was born on October 18, 1930, to Joseph and Mary Orihel in Akron, Ohio, where he lived his entire life. Joe and his brother Tom grew up hunting, fishing and playing sports—activities that Joe enjoyed throughout his 80 years. He was a devoted husband to his wife Rita for 54 years, until her passing in 2008. Together they had three children and five grandchildren. They enjoyed spending winters in Arizona and the occasional trip to Las Vegas.

Joe was an avid golfer and a member at Ohio Prestwick Country Club for more than 35 years. Even though his golf scores rose steadily over the past few years, he was consistently at the top of the leader board of club events last season. Those who played golf with Joe knew that betting against him on the golf course was never a good idea.

Most people in our industry knew Joe as a hard-working, quick-witted businessman who always put people first. He was respected and admired by employees, customers and vendors alike. He loved the art of negotiation but believed that the best deal was one that was ultimately fair for both sides. He enjoyed the role of leadership and always took his responsibilities to his employees and their families very seriously.

Joe’s path to a career in sales and management started when he enrolled at the University of Akron. Joe was, self-admittedly, not a very good student and particularly struggled in his German language class. At the end of the semester, when it had become clear that he was going to fail the class, he made an appointment to speak with the professor about his grade. The professor informed him that there was nothing he could do for him and that Joe would have to retake the class in the fall. Joe argued that, while German had been a bad experience for him, it had to have been even worse for the professor. If he failed the class and had to retake it, the professor would have to endure another semester of trying to teach Joe German—and that wouldn’t be a good situation for anyone. The professor held his
ground until Joe promised that with a passing grade, he would not take German 2. The professor thought for a moment and, to Joe’s surprise, agreed and changed Joe’s grade to a C-. Joe said that it was at that moment he realized that he was born to be a salesman.

In 1956, Joe was hired by Morgan Hardware, a traditional retail hardware store in downtown Akron with wood floors and a contract hardware department upstairs. Joe once said, “It was one of my great decisions to leave Acme grocery store making $90 a week and go to Morgan Hardware for $70 a week.” Little did he know that the job would provide a great foundation for the future. Joe worked in the contract hardware department and learned about doors, hardware, blueprints and hardware schedules, and he honed his sales skills with architects and builders. As Morgan Hardware’s emphasis on contract hardware began to diminish, Joe became frustrated with the lack of opportunity. His high school friend Roger Judy had the same frustrations with his current employer. So Joe and Roger decided to go into business for themselves.

The birth of Akron Hardware Consultants in February 1960 came when neither time nor money were plentiful for Joe and Rita. Their son Kenneth (now CEO of Akron Hardware) was two years old at the time. Thomas (now Akron’s COO) was born on the same day that Akron Hardware first opened its doors. And daughter Diane (an Akron salesperson) was born just a year and a half later. Joe invested everything he had to start the business. He said, “We put up $4,000 each to start our business. I sold everything but my slippers to get the cash together, and

Roger put himself in the same position.” Life was tough for Joe, Rita and their young family for several years, but they knew that it was going to be worth the struggle. Joe once said, “Our gross wages in 1963 were $3,200. I had three kids; Roger had four, but we never felt like we were poor.”

Akron Hardware Consultants made it through the lean years, and the business began to grow. It became the leading contract distributor in the Akron area. In the late ’70s, Joe had an idea—a concept that would change the lives of his family, his employees and the hardware industry. He believed that there was a role for a wholesale distributor to bridge the gap between the distributors’ need for hardware and the manufacturers’ 16-20 week lead times. After months of “selling” his concept to the manufacturers, Joe finally convinced Corbin Hardware to take a chance on Akron Hardware. Since that time, Akron Hardware has grown to become an influential part of the door and hardware industry, with 60 employees and distribution centers in four states.

Joe retired from Akron Hardware in 1996. He left the business in the hands of his sons, Ken and Tom, who strive to keep the company true to its founding principles of honesty, integrity and service. Last summer, Joe attended the company’s 50th anniversary celebration with current and past employees. It was a great time for him to recount stories from the early days of Akron Hardware and to relate how proud he was of where the company is today.

Woodrow Wilson once said, “You are not here merely to make a living. You are here to enable the world to live more amply, with greater vision, and with a finer spirit of hope and achievement. You are here to enrich the world.” Joe certainly enriched the world around him with humor, hard work, compassion and a dedication to excellence. He will be greatly missed by his family, friends, and business associates.
By Land, By Sea
New York is place the to be!
DHI Optional Tours and Foundation Fundraiser Event

You’ve heard the story. Peter Minuit purchased the island of Manhattan for $26 worth of glass beads in 1626. Little did he know that centuries later, this island would be home to people from every corner of the globe.

With more than 8.3 million residents, the Big Apple is the most populous city in America and is one of the most popular destinations for the world’s art, finance, commerce, media, fashion, technology and entertainment communities.

While New York City is made up of five official boroughs, each block and street has a unique character all its own—the product of countless cultures converging in this bustling city.

You undoubtedly have an image of this world-class destination. Now experience it for yourself—for the first time, or all over again. Better yet, join DHI for a private and personal tour of some of the city’s sights! Take part in a DHI-sponsored tour while you are in town for the show, and see for yourself why millions of people live here and millions more visit each year. Join the first Door Security & Safety Foundation Dinner Cruise for an even more unique view of the city and its unmistakable skyline.

By land or by water, DHI has your ticket to New York City!

New York City Sightseeing Tour
Wednesday, October 26
8:30am – 12:30pm
$55 per person

Want to see it all but don’t know where to start? Hop aboard DHI’s private charter motor coach for a personal tour of some of the most interesting and exciting sights in the city. Weather and traffic permitting, you will have a front-row seat to noteworthy neighborhoods, sensational shopping, and legendary landmarks!

From the world famous Macy’s Herald Square (the country’s largest department store covering more than a million square feet with its own cooking school in the basement) to Avenue of the Americas, (home to some of the largest corporations in America), Lincoln Center, the Metropolitan Opera House and Ground Zero, you will see the sights that have shaped the history of this amazing city.

Focusing on the most exciting parts of the city, you will visit the iconic Times Square and drive through some of the most eclectic New York neigh-

Photo Credit: Jen Davis ©NYC and Co.
neighborhoods, including Little Italy, Chinatown, SoHo and Wall Street. You are sure to recognize many of the streets and landmarks from television shows and the big screen, not to mention the numerous books and works of literature that have used New York City as their backdrop.

Did you know that there are tens of thousands of millionaires living in New York City? Drive by the famous doorman buildings where some of New York’s wealthiest families reside, including The Dakota, where John Lennon lived and died. On Fifth Avenue, you will find the legendary Plaza Hotel, FAO Schwartz, Trump Tower and Tiffany’s.

We will also visit Ground Zero, allowing you time to pay your respects to those who lost their lives in the terrorist attacks on New York City. With our visit coming just a month after the 10th anniversary of the September 11 attacks and the dedication of the National 9/11 Memorial, you will be among the first to visit this new landmark. Covering eight of the 16 acres at the World Trade Center, this deeply moving memorial features twin reflecting pools which sit in the footprints where the Twin Towers once stood. Amid a grove of trees surrounding the pools are bronze parapets inscribed with the names of the 2,982 people killed in the attacks of September 11, 2011, and February 26, 1993. This is sure to be a visit that will stay with you for a lifetime.

With the sights you take in and the information you learn on this city overview tour, you’ll be walking the streets like a native New Yorker for the rest of your visit!

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**Backstage Pass—NBC Studio Tour**

**Thursday, October 27**

9:00am – 1:00pm

$50 per person

Don’t miss this special opportunity to visit some of the most famous studios in the country! With a history dating back to 1933, the historic GE Building at 30 Rockefeller Center is one of the tallest and most recognizable buildings in the city. Until 1988, it was known as the RCA Building, named after the building’s main tenant, the Radio Corporation of America. On your tour of the building, you’ll learn behind-the-scenes secrets of the world of broadcasting as your tour guide transports you back to the launching of the Golden Age of Radio.
Today, the studios are home to the Today Show, Saturday Night Live, NBC Nightly News, NBC Sports, Dateline NBC, Late Night with Jimmy Fallon and more. You’ll recognize the famous marquee above the building’s entrance from the television shows 30 Rock and Seinfeld. Due to the fast-breaking nature of the news and the broadcasting schedule, you never know what you’ll see or hear! The NBC page who guides your tour this year could be the next big name in news or entertainment, like Ted Koppel, Lorne Michaels, Michael Eisner and Marcy Carsey.

Your visit will also include a walking tour of Rockefeller Center. Consisting of nearly 22 acres of prime real estate, the property includes shops, restaurants, businesses and many famed media companies. Plazas, concourses, and stores create a sense of community for the nearly quarter of a million people who use it daily while also boasting one of the largest collections of public art in New York City.

A Trip through History on the Liberty Island and Ellis Island Tour

Wednesday, October 26 and Friday, October 28
8:30am – 2:30pm
$63 per person

Do you know where your family came from? Did your ancestors make the trip to Ellis Island? Board the ferry at Battery Park to find out! Guests will have breathtaking views of the Statue of Liberty, Ellis Island and Manhattan as they are transported across the harbor.

Our first stop will be Liberty Island, home to one of the country’s most famous ladies: the Statue of Liberty. Dedicated 125 years ago, this neoclassical statue was a gift from the people of France in 1866. Holding a tablet and raising a torch to the sky with broken chains at her feet, Lady Liberty is one of the most recognizable images of Americana. Don’t miss this opportunity to see one of our national symbols of freedom.

Next stop: Ellis Island. Known as America’s “Golden Door,” Ellis Island was the busiest immigration inspection station in America between 1892 and 1934, with millions of immigrants taking their first steps on American soil right here. Get a closer look at the plight of these new Americans as you watch the film “Island of Hope—Island of Tears.” Walk through the many buildings and the museums on the island. Find out if your ancestors were among the many entertained by Jimmy Durante, Bob Hope or Rudy Vallee while here. With more than 12 million immigrants coming through Ellis Island, it’s no surprise that four in 10 Americans can trace their ancestry back to this spot.

Door Security & Safety Foundation's Dinner Cruise
Tuesday, October 25
6:00pm – 10:00pm
$145 per person

Book your passage now for the Door Security & Safety Foundation’s 2011 Dinner Cruise! Don’t miss your opportunity to join fellow DHI Conference attendees for this special event supporting the Foundation.

Taking this cruise is like accepting a VIP invite from the city to kick-off the 36th Annual DHI Conference & Exposition. This tantalizing escape from the hustle and bustle of the city will enhance the sensory elements that brought you to the best metropolis in the world. From Manhattan’s landmark cinematic skyline to the sumptuously created cuisine to dancing under the stars as you sail along the river, every moment is infused with urban vibrancy.

Chef Denis Weekes has designed our menu by blending his 25 years of New York culinary expertise with his extensive world travel. Global influence mixes with local ingredients to create intricate, savory dishes that evolve with the seasons. Before and after dinner, guests stroll along the outdoor upper level, escaping into the magic of landmark sights such as the Statue of Liberty, Brooklyn Bridge and Battery Park in awe as the city transitions from dusk to evening sparkle. Join us for the Foundation’s Night Out!
Remember proceeds from this fundraising event go toward activities and events that support the Foundation’s mission to advance awareness of life safety and security issues within the non-residential built environment. All contributions raised are used to educate Authorities Having Jurisdiction (AHJs), code officials, the fire service community, facility management, and building owners about fire door assembly inspection requirements being adopted around the U.S.

What can you do you help?

Generously donate an item for auction. Consider donations of corporate-owned goods like event tickets, trips, stocks, services, and/or products to be showcased in the Foundation’s Online Auction to begin this summer. Contact Bill Johnson by phone at 703/766-7039 or by email at bjohnson@doorsecuritysafety.org to arrange a donation.

Place a bid.

Once the auction goes live this summer, when you see an item that interests you, click on the “Bid” button, and you’ll be asked to register for a bidding account. Check back frequently to see whether someone else has placed a higher bid!

Invite co-workers, colleagues, family, friends and community members to make their bids. Thank you all for taking the time to point, click, and bid in order to support the Foundation. We will be adding new items continuously, so please check back often!

**FACE TIME... It Really Does Matter**

**Wireless Connectivity**

You have to go to know! We may all be connected via the Internet, but how connected are you to your industry? Just once a year, our Annual Conference and Exposition offers you the only opportunity to share ideas and gain insights directly from your industry peers. Stay on top of your profession, and connect face-to-face with channel partners and prospects, colleagues and competitors.

There are some things you just can’t find on the Web. Meet your contemporaries this October in New York City and get real results.

DHI 36TH ANNUAL CONFERENCE & EXPOSITION

OCTOBER 26 & 27 • Javits Convention Center

NEW YORK 2011

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JULY 2011  □  DOORS & HARDWARE  □  39
ONE OF THE GREATEST CHALLENGES faced by any company in any industry is employee retention. Studies have found that the total cost of employee turnover ranges from a low of 50% to as much as 150% of the employee’s annual salary.

With the current state of the economy, retention at most companies has improved simply because there are fewer options for disgruntled employees to pursue. But a staff that is merely biding its time until things improve or something better comes along is unlikely to increase productivity or be responsible for the kind of innovation and creativity that is vital to the growth of any business.

So what causes employees to start eyeing the competition? According to a study by The Society for Human Resource Management and Aon Consulting, one of the top five reasons employees leave a company is to advance their career with greater opportunities for training and career development. No one wants to be stuck in a dead-end job that doesn’t offer new challenges or opportunities to enhance their skill set.

However, companies that want to improve retention through training were traditionally faced with footing the cost of travel, hotels, and the time necessary for employees to attend education sessions. For many, the initial cost of this investment in the future growth of their company was simply too great. But with the advent of online technology and virtual classrooms, those same companies are now able to provide in-house education to their employees at a fraction of the cost.

DHI’s new In-House Training program enables companies to provide many of DHI’s technical education courses conveniently to their employees—without anyone having to leave the office! The company purchases the instructor and student manuals from DHI at a reduced rate and can conduct the class on site or at a location of your choosing. Following the class, students are required to complete an end-of-class exam, and those who pass receive the same credit as if they had attended a DHI national class session.

This was great news for companies like Cleveland Vicon that were already conducting their own in-house training programs. As Sue Flowers, DAHC/CDC, FDHI explains, “We have always done in-house training, so when DHI formalized the program so that our employees could receive credit toward DHI certification, it was a real win for our company and our employees.”

“With in-house training, we have the ability to train several employees at the same time without the expense and lost time of travel,” says Flowers. “We are able to run the courses at the times that work best for our work load and for our employees, saving them time away from their families.”

But there are other, less obvious benefits to in-house training, as Brian Clarke, AHC, CDT, CSI of Hager Companies discovered. “We were able to train a wide range of personnel at one time and use the knowledge of some of our other employees to help the others,” says Clarke. Sue Flowers agrees: “Sometimes as many as six to eight employees receive the same information at the same time. They are then able to turn to each other when questions arise or when they need to recall specific pieces of information from the class.”

By providing employee education and training programs, staff members are exposed to new ideas that put their companies in the forefront and will ultimately improve the bottom line. The training sessions can also have a positive impact on morale and increase employee loyalty to the company. “Our employees love the...
opportunity to learn, and they appreciate the investment that the company is making in them,” says Flowers.

Education can also be used as a reward. Clarke says his company relies on performance reviews and supervisor feedback to determine if an employee is ready to participate in industry education.

Cleveland Vicon, however, takes a different approach. “We believe that employees are ready to participate in industry education on the day that they start here,” says Flowers. “All of the employees at Cleveland Vicon take the Fundamentals of Architectural Doors and Hardware Self-Study Course right away. While it may not always stick with them and we will go back and review the information contained in this course at a later point, we feel it helps them recognize the basic concepts and terminology, as well as acquaints them with the complexity of our industry. Every employee, from the truck drivers to the welders to the receptionist at our firm, takes this class.”

Regardless of whether education is mandatory or offered as a reward, the benefits of it are clear. The American Society for Training and Development (ASTD) collected training information from more than 2,500 firms and found that companies that offer comprehensive training have 218% higher income per employee than those with less comprehensive training, and they enjoy a 24% higher profit margin than those who spend less on training. Additional studies have found that the turnover rate among employees who take advantage of employee education benefits is reduced by at least 50%, saving companies thousands on each employee they don’t have to replace. Increased retention rates also allow companies to promote from within, an increasingly important issue as baby boomers begin retiring from the industry.

“We have seen great success from the training class,” says Clarke. “I would encourage all companies to look at their company and the weaknesses they have, review the classes offered by DHI, and utilize the experience that DHI has to offer.”

Want to offer DHI Education in your area? We can help!

Contact DHI’s Education department at 703/222-2010, and we can walk you through the steps for delivering a successful in-house training program. From guidelines and scheduling to marketing and setup, we’ll help ensure you have all the information you need. We provide:

- Instructor applications and forms
- Review guidelines for planning a successful session
- Guidelines for planning class(es), location, and instructor selection
- Guidelines for developing a registration system
- Guidelines and support materials for marketing your class(es)
- Promotion of your school on DHI’s chapter web page and in the e-newsletter Industry Watch

Keep in mind that all applications must be submitted at least six weeks prior to the start of your school, so don’t delay! Contact DHI, and take the next step toward improving company morale and employee retention. Invest in your employees today in order to reap the benefits in the future!

Employers:

- Provide industry training and education to your employees economically and efficiently!
- Be a resource to your employees!
- Discover how more knowledgeable employees mean fewer mistakes, increased productivity and greater staff morale!

DHI’s In-House Training program enables companies to provide many of DHI’s technical education courses conveniently to your employees—in your town and on site at your company’s office, if you prefer!

- Expand employee understanding of current standards!
- Increase technical knowledge!
- Experience hands-on learning!
- Earn CEP points!

For more information about the program, a list of courses available through the local, in-house education program, and guidelines to help you plan your education sessions, go online to www.dhi.org
Why DHI Membership IS Important!

Kelly W. Chimilar, AHC
Allmar International

“Without DHI, there are thousands of people who wouldn’t be where they are today,” says Kelly Chimilar, AHC of Allmar International. He counts himself among those thousands, as well as his father, sister and three uncles. “I guess the industry must be ‘in our blood,’ as they say.”

Unlike his family members, however, Chimilar is relatively new to the world of doors and hardware. “I’ve been in the industry for six and a half years, all with Allmar,” he says. “I was laid off from a job as a manager at a cleaning company seven years ago, and that was the eye-opener I needed to make a career change. It was the best thing I did, and in hindsight, I should have made the move to the door and hardware industry 15 years ago!”

Not long after joining the industry, Chimilar began working toward his AHC certification. It took five and a half years, but he finally completed his certification in June of 2009. “It was a lot of hard work and dedication to constantly learn and retain the information I needed in order to get through the certification exam,” he recalls, “but it was worth the effort. It gives such a wealth of knowledge to me day in and day out, and also earns respect from all of my peers. To know I worked that hard and achieved the goal I set out for was a big point in my short career.”

Chimilar is quick to credit the support of others for helping make this achievement possible. He was able to receive financial support for his education through three different scholarship awards: one from the Canadian Steel Door Manufacturers Association (CSDMA) and two from DHI International. Perhaps most importantly, he also had the support of his company. “I really appreciate the way that Allmar encourages and trains its sales staff, such as myself, by supporting the DHI course of study,” he says.

Having achieved his goal, Chimilar set about helping others achieve theirs by serving as an instructor on both the chapter and national levels in Canada. He also serves on the DHI Canada National Board of Directors as the Chapter Liaison. “The people and experiences I have gained by being involved are priceless,” he says. “As a member of DHI, I love to share my enthusiasm and passion for our business with anyone who wants to listen. This has allowed me to start fostering some new relationships with people across Canada, who I otherwise would not have had the chance to meet.”

So what does he see as his next big challenge in this industry? “The emergence of the FDAI program will be the biggest change the industry has seen in a very long time,” says Chimilar. “The opportunities it will open up for people and businesses are immeasurable at this point. It will provide opportunity for new jobs to be created and other revenue streams to be created within already-successful companies.”

Go to www.dhi.org to see what DHI is doing for you, your company AND the openings industry.

Want More Information?
Contact DHI’s Member Services Department at 703/222-2010 or membership@dhi.org.

A barcode scanner application is required to read the QR code. To get the app, start a search and download an app for “Barcode Scanner” compatible with your Smart Phone.

DHI has been able to help me actually find the current job that I have.”

Kim McCallum, Ontario, Canada

Kelly W. Chimilar, AHC
Allmar International

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REGISTRATION INFORMATION

FULL CONFERENCE PACKAGE
Participate in two full days of conference and exposition activities with full access to the Industry Marketplace, Forum for the Future Kick-Off Luncheon, Tradeshow Floor, Opening Reception, expanded Forum Break-Out Sessions, Networking Luncheon, and Closing Reception.

TEAM PRICING
Available to distributors and sales agents only, team pricing allows an unlimited number of attendees to participate in two days of conference and exposition activities with full access to the Industry Marketplace, Tradeshow Floor, Opening Reception, expanded Forum Break-Out Sessions, Networking Luncheon, and Closing Reception. Additionally, each team will receive five tickets to the Forum for the Future Kick-Off Luncheon. Additional luncheon tickets are available for $25 each. Please contact DHI to purchase.

To learn more about team pricing and to register, call 703/222-2010.

ONE-DAY PASS
**Wednesday:** Full access to all DHI-sponsored conference activities on Wednesday, including the Industry Marketplace, Forum for the Future Kick-Off Luncheon, Wednesday Exhibit Hall hours, and the Opening Reception.

**Thursday:** Full access to all DHI-sponsored conference activities on Thursday, including expanded Forum Break-Out Sessions, Thursday Exhibit Hall hours, Networking Luncheon, and the Closing Reception.

EXPO-ONLY PASS *(For Distributors and Sales Agents Only.)*
**Wednesday:** Wednesday Exhibit Hall Hours and Opening Reception.
*(Not valid for Industry Marketplace, Forum Kick-Off Luncheon or Forum Break-Out Sessions.)*

**Thursday:** Thursday Exhibit Hall Hours, Networking Luncheon, and Closing Reception.
*(Not valid for Industry Marketplace, Forum Kick-Off Luncheon or Forum Break-Out Sessions.)*

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Expo-Only Passes will not be mailed in advance and can **ONLY** be picked up at On-site Registration preceeding Exhibit hours for the day of the pass.

OPTIONAL EVENTS
- Spouse Opening Reception Only (Wednesday) $25
- Spouse Closing Reception Only (Thursday) $25

For information on the Foundation fundraiser and optional tours, please visit www.dhi.org.

Register for at least one day of National Education, and attend the Conference & Exposition **FREE!**

REGISTER ONLINE AT WWW.DHI.ORG.
Call DHI Member Services for additional information: 703/222-2010.

Registration pricing does not include costs for housing or optional events.
## DHI CONFERENCE & EXPOSITION
### ATTENDEE REGISTRATION FORM

**FIRST NAME** | **M.I.** | **LAST NAME** | **INFORMAL FOR BADGE**
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**TITLE** | **COMPANY** | **COMPANY NAME (Only if spouse is registering)**
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**STREET ADDRESS (Will be used in Conference Attendee Booklet)**

**CITY** | **STATE/PROVINCE** | **COUNTRY** | **ZIP+4/POSTAL CODE**
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**DAYTIME PHONE** | **FAX** | **EMAIL** | **WEBSITE**
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### REGISTRATION FEES

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<td>Member/Non-Member Fee</td>
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<td><strong>ONE-DAY PASS</strong>&lt;br&gt;Wednesday – Member/Non-Member</td>
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<td><strong>EXPO-ONLY PASS (DISTRIBUTORS &amp; SALES AGENTS only.)</strong></td>
<td>$25</td>
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(Additional for on-site pick-up only.

### NATIONAL EDUCATION REGISTRATION

Purchase any National Education Course and receive a complimentary Full Conference Package.

Total from National Education Registration Form = $_________

### CONFERENCE EVENTS

Please indicate the number of persons attending each event.

<table>
<thead>
<tr>
<th>EVENT</th>
<th>NO. OF PERSONS ATTENDING</th>
<th>COST</th>
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<tr>
<td>Door Security &amp; Safety Foundation Dinner Cruise (Tuesday 10/25)</td>
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<td>New York City Sightseeing Tour (Wednesday 10/26)</td>
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<td>Networking Luncheon (Thursday 10/27)</td>
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<td>x $63/person</td>
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Visit www.dhi.org for more information on the Foundation Fundraiser and Optional Tours.

**TOTAL** = $_________

### PAYMENT INFORMATION

**PAYMENT METHOD** (Make checks payable to DHI, U.S. dollars only):
- [ ] Check enclosed
- [ ] VISA
- [ ] MC
- [ ] AMEX
- [ ] OTHER:_________

**CARDHOLDER’S NAME** (Please print):

**CARDHOLDER’S SIGNATURE**:_________

**CARDHOLDER’S FULL BILLING ADDRESS**:_________

---

I understand and acknowledge that during my attendance at the DHI 36th Annual Conference & Exposition ("Conference"), I may be photographed, filmed or otherwise recorded by the Door and Hardware Institute ("DHI") and/or those designated by DHI. As a condition of my attendance at the Conference, I agree to indemnify and release DHI, its assigns, licensees and successors, the right to photograph, publish, record, broadcast, exhibit, digitize, display, copy, copyright, license, transfer, reproduce, translate, modify, add or otherwise use perpetually throughout the world, in all media now and hereafter known or devised, in whole or in part, my image, likeness, name, biographical information, actions, performance, voice, conversations, quotes and material spoken or otherwise provided by me. I also waive any and all rights in and to any and all works containing the Material, in whole or in part, for all purposes whatsoever and in any manner or media including, without limitation, printed works, videocassettes, DVD, and computer online services. I shall have no rights or interest thereunder whatsoever.

**ATTENDEE REGISTRATION FORM**

**Important Dates**

- **August 31, 2011**: Final day to receive advance special registration fees.
- **September 23, 2011**: Housing cut-off.
- **September 27, 2011**: Final day to receive “Early Bird” tuition discount.
- **October 5, 2011**: Deadline for registrant’s name to appear in the Conference Attendee List.
- Final day to preregister; no refunds after this date.
- Final day to register for National Education.
- **October 25, 2011**: On-site registration opens at the Javits Convention Center.

**Register**

**ONLINE**: [www.dhi.org](http://www.dhi.org)
**Phone**: 866/977-3667 Mon.–Fri. 8:30am–5:30pm EDT
**Fax**: 703/222-2410 All faxed registrations must include credit card payment
**Mail**: DHI Registration 14150 Newbrook Dr. Suite 200 Chantilly, VA 20151

Please do not mail this form if you have already registered by phone, fax or online.

---

*Important*: Please ensure that your payment is made securely through the website at www.dhi.org.
ACCOMODATIONS

Sheraton New York Hotel and Towers

811 Seventh Avenue, New York

In the city that never sleeps, DHI has reserved some of the best rooms at rock-bottom rates. DHI’s Conference Headquarters Hotel, the Sheraton New York Hotel and Towers, will more than satisfy all of your needs and act as your home away from home. This AAA-rated AAA Diamond Award-winning hotel is located in the heart of Midtown Manhattan’s business and entertainment district, situated between Central Park and Times Square. From your hotel room, you are just steps away from Broadway theatres, the David Letterman Show, Radio City Music Hall, Carnegie Hall, Lincoln Center, and the world-famous Fifth Avenue. Whether you’re interested in taking in a show, experiencing some of New York’s best eateries, or doing some marathon shopping, you won’t have to go far.

The Sheraton has just undergone major renovations to update its sleeping rooms for your enjoyment. All guest rooms are smoke-free, and as a special benefit to DHI, guests have complimentary Internet access. Other guest room amenities include the Sheraton SweetSleeper™ Bed, hypo-allergenic and feather pillows, hairdryers, dual-line telephones, clock radios with alarm, coffee/tea makers, oversized desks with ergonomic chairs, irons and ironing boards, complimentary newspapers, and more.

If you prefer to indulge in a Club Level room, you will also receive free bottled water daily, complimentary access to the onsite fitness center, terrycloth robes, and upgraded amenities. Your Club Level room will also allow you to use the 44th Floor Club Lounge, with breathtaking views of Central Park and Times Square. Here you are welcome to enjoy complimentary continental breakfast and evening hors d’oeuvres, in addition to priority hotel check-in and wireless Internet access. (Limited Club Level rooms available.)

On-site dining options include Hudson Market, which is available for buffet breakfast daily until 11:30 am, Hudson Market Burger, which is open for dinner from 5 pm until 11 pm daily, and room service.

UNBEATABLE DHI CONFERENCE RATES:

<table>
<thead>
<tr>
<th>Type of Room</th>
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<tr>
<td>DHI Standard Rooms</td>
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<tr>
<td>Online Standard Rooms</td>
<td>$499 Single</td>
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</table>

Special for DHI Conference & Exposition Attendees:

- Complimentary Internet access in guest rooms
- Complimentary shuttle service to DHI Conference and Expo events at Javits Convention Center
- One complimentary drink coupon per DHI guest to be used at the Sheraton between October 25th and October 28th

BEST RATES • RENOVATED ROOMS • CONFERENCE HEADQUARTERS
1. ROOM ASSIGNMENT: Rooms are assigned on a first-come, first-served basis. Room rates do not include applicable tax and hotel fees. Suite information may be obtained by calling DHI Housing at 888/872-8899 or emailing dhihousing@conferencedirect.com.

   ARRIVAL:  Day ___________________ Date ___________________
   DEPARTURE: Day ___________________ Date ___________________

   Note: Hotel charges an early check-out fee of up to one night’s room fare plus applicable taxes. Please verify your departure date upon arrival.

2. ROOM RATES/TAXES: In order to take advantage of the DHI rates, be sure to book your reservation by Friday, September 23, 2011. After this date, the official DHI block will be released, and the hotel may charge significantly higher rates. Room rates are valid three (3) days before and after the Conference, based upon availability. Rates are subject to applicable taxes and hotel fees.

3. ACKNOWLEDGEMENTS: Acknowledgements will be sent to the email address or fax number noted above. Please check your acknowledgement immediately to ensure that all information is correct. If you do not receive an acknowledgement via email or fax within 14 days after sending in your request, please contact DHI Housing at 888/872-8899.

4. CHANGES/CANCELLATIONS/REFUNDS: DHI Housing will be available to make changes and cancellations until 5:30 pm on Monday, October 17, 2011, after which all inquiries should go directly to the hotel. Cancellations will be subject to a $30 processing fee. This is in addition to the hotel’s cancellation policy, which requires you to cancel your reservation 72 hours prior to arrival or one night’s room and tax will be charged.

5. TO AVOID DELAYS IN PROCESSING: Be sure all information is legible and arrival/departure dates are included. If specific dates are not requested, the official conference dates will be entered. Failure to arrive on your confirmed arrival date will result in forfeiture of deposit and loss of room for the entire stay.

6. GUARANTEE INFORMATION: All reservations must be guaranteed by a major credit card valid through October 2011 or with one night’s deposit by check. Rooms guaranteed by credit card will be charged first night’s room plus tax as early as Friday, September 23, 2011. Checks received after September 23 will be returned.

Make checks payable to DHI/ConferenceDirect (in U.S. funds drawn on a U.S. bank). Checks must accompany form to be processed and mailed to DHI/ConferenceDirect, PO Box 241714, Charlotte, NC 28224-1714 by September 23. After September 23, checks must go directly to the hotel with a copy of each acknowledgement.

Housing Deadline: September 23, 2011
The Local’s Guide to NYC

by Mark J. Berger

There’s no question in my mind that you’ll be visiting the greatest city in the world. I must confess my bias: I’ve lived here for almost 35 years and have raised a family right in the heart of it.

New York City’s rating as the preferred travel destination around the world means that we must be doing something right. I constantly meet people who talk about their annual trip to NYC, whether it’s for Broadway outings, museums, shopping, business or other special activities.

I fully understand the assumption that New York City is an expensive city for a visitor. When I visit LA, San Francisco, Chicago or other major cities, I always feel sticker shock when I leave my hotel room. But I have to believe that’s because of the giant label on my forehead that says “Tourist.” I speak to people who live in these places, and they all don’t seem to be as wealthy as Donald Trump, yet they live nicely. When I ask them their secret, it’s pretty universal: The locals know where to go.

So contrary to what you might have heard, New Yorkers are extremely hospitable people, and we love to have visitors and make sure they have a great time. After all, we want you to come back! Here’s my guide to helping you experience all that NYC has to offer, but doing it as if it were your hometown.

Eating

Whether you are a foodie or casual diner, NYC has everything you could want at a price you can afford. Want a taste of the old country? Whatever that old country is, you’ll not only find one restaurant serving that cuisine, you’ll find a neighborhood with your choice of great places to dine.

Action Item: Email me at nyctrip@securitech.com and tell me what part of the world your family is from (or if that’s too far back, where you had the best time on a vacation), and I’ll let you know my suggestions, as well as the neighborhood you’ll want to visit.

Get your deals ahead of time. When you are in NYC, never ever eat at a restaurant that has a branch near where you live (or even any with multiple outposts outside of NYC). You have now reduced the list of eateries in NYC by approximately 1%. This should give you an idea of how many choices you’ll have.

Breakfast

If you’d like a special breakfast, go to www.chowhound.com and you’ll easily be able to find a great place, with insightful comments from the locals. I would send you down to the B&H Dairy on 2nd Ave. and 8th St. You’ll sit at the counter (or a table for two), and the experience will be true NYC, taking you back to an earlier time. I also love Eisenberg’s Sandwich Shop on 5th Ave. and 22nd St. for a similar experience (Eisenberg’s has meat, whereas B&H is strictly dairy). Eisenberg’s has great pictures on the walls of all the celebrities who have eaten there.

The best place in NYC (and this side of the Atlantic) for croissants is CeciCela on Spring St. in Nolita (North Little Italy). If I had one item to choose before they put on the blindfold and led me before the firing squad, it would be a croissant or chocolate croissant from CeciCela. Well worth the trip to this area.

Lunch

I’ll skip over lunch, as you should be at the Conference and Exposition for this. However, if you are staying some extra days, visit Eataly, Mario Batalli’s new Italian experience on 5th Ave. at 23rd St. Billed as a little bit of Italy in NYC, it is one of the newer destinations, so you’ll be able to have bragging rights when you head home.

Dinner

The biggest disappointment you will face is limiting yourself to one meal per night. I enjoy dining out. I joke that Manhattan is a Native American term for “Apartment with no kitchen.” That’s because so many of us eat out with great frequency or order take-out when we don’t. The
definition of a home-cooked meal is radically different over here, so we clearly have developed an efficient and cost-effective dining-out model. Here are some secrets of how to find a great deal on a meal.

1. **Plan ahead.** Go online to sites like Yelp and Chowhound and TripAdvisor for recommendations. You will quickly be overwhelmed, so make some choices of cuisine ahead of time.

2. **Take advantage of the discounts.** There are plenty of ways to get them, and they are all easy. My favorite websites are Groupon, LivingSocial, Yelp, and OpenTable. All send out daily deals which you can buy in advance and which will be usable on your trip to NYC. Start watching one or two of these now, and you’ll get an idea of what some of the great offers are. Most are vouchers for 50% off, redeemable at specific restaurants. Great restaurants participate and offer these deals to build clientele. Some of our neighborhood favorites (like the Knickerbocker Steak House) have shown up on these sites. As we get closer to the show, take one or two deals for your trip.

   If you don’t want to buy anything in advance but still want to save on a meal, sign up for the idine program, which typically offers a 15% discount and is usable in restaurants all across the country. Visit [www.idine.com](http://www.idine.com) for details.

3. **Eat burgers.** These places are popping up like crazy. From the Shake Shack (in Madison Square or the theater district) to Stand (on E. 12th St.) to 5 Napkin Burger (in the theater district), NYC is undergoing a burger explosion. It’s a very reasonable way to have a great meal and a great NYC experience.

4. **Eat pizza.** Visit Lombardi’s on Spring St., billed as the first Pizzeria in the U.S. Enjoy brick-oven pizzas in dozens of spectacular pizzerias across the city, or try a spectacular slice on the go at thousands of places. Email me your neighborhood, and I’ll send you a favorite.

5. **Avoid the ethnic restaurants in the ethnic neighborhoods, unless you have a recommendation in advance.** That means you should ask where to go in Chinatown or Little Italy before heading down there.

**Desserts**

If you are entering NYC while you are on a diet, please reconsider...
your level of observance. My wife subscribes to the “Life is short; eat dessert first” school of thought, and NYC is a great place to live this theory to the fullest. Here’s my quick list of favorites, and believe me, this could be 10 times longer.

1. Max Brenner, Chocolate by the Bald Man. He has dedicated himself to chocolate. He started in Israel and has conquered NYC. It’s very noisy (as are many NYC restaurants, which drives me nuts), but not to be missed. On Broadway and 13th St., near Union Square.

2. Rocco’s on Bleeker St. Walk around Greenwich Village, and then take a rest with a cannoli and cappuccino (or other tasty treat or drink) at this family-run landmark.

3. Magnolia Bakery. This is where the current custom cupcake craze began. Crowds line up on Bleeker and W. 11th St. for a chance to enter this tiny storefront (all take-out). Their banana pudding is worth clogging your arteries. They also have larger locations on the upper west side and at Rockefeller Center and Grand Central Station.

4. 16 Handles. My daughters wish this was closer to our home, as they think every dinner should end here. 16 refers to the different flavors of frozen yogurt they have each day, which you serve yourself and then add toppings to. One warning: You pay by weight, so watch out for a little sticker shock, but it is so, so worth it.

5. The restaurant where you had dinner. Many pride themselves on their desserts, so be sure to eye the dessert menu before ordering your meal and ask the server if he or she has tried the desserts, which are his or her favorites, and why. Also, try to go with the specials, if they tickle your fancy. They usually are the best.

**Getting Around**

Take the subways, at least once. They are safe and the fastest way to get around town. Say hello to all of my locks there (shameless bit of self-promotion). You’ll see some great stations with live musicians, who have to audition for the right to play in the subways. They live off of tips, so show them your appreciation. If you want to plan your trip in advance, use [www.hopstop.com](http://www.hopstop.com) and it will not only tell you how to go from Point A to Point B, it will give you great places to see and eat at on each end.
Parking

We hope that many distributors and their staff will drive in for a day or two. To save a few bucks on parking, please visit [www.centralparking.com](http://www.centralparking.com) where you can print, at no charge, coupons for specific parking lots. You can save a fortune. As of this writing, you can find a place near the Javits Center and pay $20 for the day.

Another option is to get into the city early and take advantage of early-bird parking specials. Then move around the city by subway or bus, and return to your car at night.

Late Night

From great comedy clubs to terrific jazz clubs and nightclubs, you have more to choose from than you can see in a year. Who will be appearing while you are in town? Use TimeOut New York magazine’s guide ([newyork.timeout.com](http://newyork.timeout.com)), or New York Magazine ([nymag.com](http://nymag.com)), or the New York Times newspaper ([www.nytimes.com](http://www.nytimes.com)) to see what’s up.

Museums and Historical Sights

Friends, it’s NEW YORK CITY. Have you seen a movie or TV show in your life? I am sure that you have your favorites, and my suggestion is to rate them, then place them together geographically. The big decision will be determining which ones to see on this trip and which ones to see when you return next time. Remember, I started this off by saying that NYC is the top tourist destination—and repeat tourist destination.

When exploring museums, look for free museum days and evenings, and plan around them. Also, many museums have “suggested” contributions, so feel free to adjust what you’ll pay. If you are a member of a museum back home, it might have a reciprocal arrangement with a museum in NYC.

More Questions?

I’m sure you have them. Email me at nyctrip@securitech.com and I’ll be happy to help. In New York City parlance, if you think coming to New York City is too expensive, “Fuhggedaboutit!”

About the Author: Mr. Berger is a graduate of New York University and resides with his family in Greenwich Village, which he calls his college town.
The date was July 9, 1970, three days after my 23rd birthday. The certificate stated:

“Be it known that Michael Hallgren has given satisfactory evidence that he has the qualifications as set forth in the By-Laws of the Society, and therefore the Board of Directors grants to him this Certificate of Membership” in the American Society of Architectural Hardware Consultants. What a proud and exciting day that was. I was now an AHC.

I remember well the many times that people who I met casually asked what it is that I do for a living, and I would proudly answer that I was an Architectural Hardware Consultant.

“What’s that?” they would ask, and I would attempt to go into an explanation of what an AHC does. I could tell that most people didn’t have any idea what I was talking about. Most would just say, “Oh,” and that was it. I soon realized that it was difficult to explain to someone outside of the industry just exactly what it means to be an AHC.
With this realization, I kept remembering an article I had read in the *Hardware Consultant* magazine sometime in the late 1960s. The *Hardware Consultant* and the American Society of Architectural Hardware Consultants were the predecessors to *Doors & Hardware* and the Door and Hardware Institute. I wish that I could remember the author so I could give that person proper credit, but since I can’t, the following is how I remember the article.

The story is about an extraterrestrial being that had some difficulties with his spaceship and had to crash-land on Earth. As he was making repairs to his spacecraft, he decided that he needed to replace a door and needed to buy some hardware for it. Since he was a friendly alien, the locals directed him to a builder’s hardware supply business. When he walked through the door, he was greeted by a gentleman who introduced himself as John Smith, AHC. Mr. Smith asked the alien how he could be of assistance. Our alien friend explained that he was making repairs on his spacecraft and needed hardware for a door. Our AHC assured him that he had come to the right place. At that point, the conversation went something like this:

**ALIEN:** “What does AHC mean?”

**AHC:** “I am an Architectural Hardware Consultant.”

**ALIEN:** “Oh.”

**AHC:** “Now, in order to get started, we first must determine what you need to hang the door.”

**ALIEN:** “I just need some hinges.”

**AHC:** “No problem. I see that you are pretty tall. What is the height of your door?”

**ALIEN:** “It is eight feet. Why do you need to know that?”

**AHC:** “So that we can determine how many hinges you need. For an 8’ door, I recommend four hinges.”

**ALIEN:** “Okay, let me have four of them.”

**AHC:** “Well now I need to know the width of your door.”

**ALIEN:** “It is three feet wide. Why do you need to know that?”

**AHC:** “Well, knowing the width of the door will tell me what hinge height I should recommend. In this case, I recommend a 4-½” hinge.”

**ALIEN:** “Okay, then give me four 4-½” hinges.”

**AHC:** “What is the thickness of your door?”

**ALIEN:** “It is 1-¾” thick. Why do you need to know that?”

**AHC:** “Knowing the thickness will tell me what hinge width to recommend. In this case, I recommend a...
4½” width, providing you do not need to clear more that 1½” when you open the door. If the clearance required is greater than that, you will need a wider hinge, possibly even a wide throw hinge if there is a lot of trim to clear.”

ALIEN: “Okay, okay! Let me have four 4½” high by 4½” wide hinges. I only have to clear about one inch of trim.”

AHC: “Before I do that, I need to know the expected frequency of the door operation.”

ALIEN: “It is going to be used a lot! Why do you need to know that?”

AHC: “If the door is going to be used an average of about 60 or more times a day, I recommend standard weight ball bearing hinges instead of plain bearing ones. However, if the door is going to be used more than 400 times a day, I must certainly recommend heavy weight ball bearing hinges.”

ALIEN: “I expect the door will be opened 70 or 80 times in a day, so let me have four standard weight ball bearing 4½” x 4½” hinges. Are we done now?”

AHC: “Well, not quite. Before I can recommend the proper hinges for your door, I need to know what material you are using for the door and frame.”

ALIEN: “I am going to buy a metal door and a metal frame. Why do you need to know that?”

AHC: “That helps me determine whether you need a full mortise hinge, a half mortise hinge, a full surface hinge, or a half surface hinge. In this case, I recommend a full mortise hinge. Just be sure you buy a door and frame that are prepared for four 4½” hinges that are .134 in thickness.”

ALIEN: “I had no idea this was going to be so complicated! So now let me have four full mortise standard weight ball bearing 4½” x 4½” non-ferrous five-knuckle hinges with non-removable pins and in a dull chrome finish.”

AHC: “No problem at all. We have them in stock. I will have our warehouse clerk bring them up. Now, for your locking requirements, I have a few questions….”

ALIEN: “Good grief! I am glad my job is simply flying a spaceship!!!!”

Our industry has seen many changes in the last 40 years, and our roles as Architectural Hardware Consultants have changed… or have they?

I wonder what that alien would think if he came here again but this time wanted to build an entire space station and found out that it had to comply with the International Building Code, life safety and fire codes, and accessibility codes. This time, he may also be concerned with access control.

Yes, things have changed in 40 years, but my guess is if our alien wants to be sure the doors, frames, and hardware are done right, he will seek out Mr. John Smith, Jr., AOC.

About the Author: Michael Hallgren, DAHC is co-owner of The Hallgren Company and has been involved in the industry for the last 45 years. He can be reached at mikeh@hallgrenco.com.
DHI National Education
Flexible | Convenient | Customized

DHI NATIONAL EDUCATION
(Fall Session):
September 18-25, 2011
CHAPARRAL SUITES
SCOTTSDALE, AZ

Register NOW for “Early Bird” Tuition Rates!
Offer ends: AUGUST 18, 2011

DHI Education is for EVERYONE!
DHI National Education

September 18-25, 2011 • Scottsdale, AZ

**COURSE CURRICULUM**

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<td>Understanding and Using Construction Documents (COR103)*</td>
<td>Architectural Hardware &amp; Applications (COR113)</td>
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<td>Architectural Hardware &amp; Applications (COR113)</td>
<td>Door and Frame Applications (COR120)</td>
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<td>Door and Frame Estimating and Estimating (COR125)*</td>
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<td>Detailing Hardware (AHC205)**</td>
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<td>Detailing Hardware (AHC205)**</td>
<td>Principles of Specification Writing (COR145)*</td>
<td>Installation Coordination and Project Management (COR153)*</td>
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<td>Detailing Doors and Frames (CDC305)*</td>
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<td>Writing Door and Frame Specifications (CDC310)*</td>
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<td>ELT (3-day)</td>
<td>How to Develop and Retain Customers (ELT510)</td>
<td>Effective Management of Employees (ELT505)</td>
<td>Aftermarket Sales and Building Renovations (ELT505)</td>
<td>Additional AHC Course</td>
<td>AHC Exam Prep (AHC220)**</td>
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<td>DAI Course (4-day)</td>
<td>Fire and Egress Door Assembly Inspection (DAI600)**</td>
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<td>EHC (2-day)</td>
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</table>

* Please see DHI’s Education Resource Guide as well as this Registration Form for complete information regarding course prerequisites.
** All courses begin at 8:00 am and end at 5:30 pm daily. Punctual and complete attendance is mandatory.
+ Students attending these classes are required to bring reference materials which will pertain to the class exercises. See DHI’s online Education Resource Guide found at www.dhi.org for the complete list of required reference materials used during classes.

**IMPORTANT INFORMATION**

**WHAT IS A TRACK?** – A “track” is a series of two or more classes that are arranged in a sequence that provides the most educationally beneficial learning experience to the student.

**PREREQUISITES** - There are prerequisites for some courses, as detailed in the course descriptions provided. Reference the DHI Education Resource Guide (ERG) for complete information regarding course prerequisites. The current ERG is posted at www.dhi.org. DHI recommends to students who are new to the industry, and those with minimum field experience, that they follow the suggested education path when registering for classes.

**OPTIONAL COURSES** – Exam Prep courses (AHC220, CDC315, EHC420) are available to assess students’ skills and abilities in preparation for taking the certification exams. Exam Prep courses are considered elective courses. Before taking an Exam Prep class, students must pass all courses required to sit for the certification exam.

**TUITION STRUCTURE** – Member tuition applies to any DHI individual member or any employee of a corporate member. Tuition in Scottsdale, AZ, includes course material, break and lunch.

**CHALLENGE EXAM** – DHI offers a series of exams allowing you to earn credit for courses using knowledge you have gained by DHI education, industry training, and on-the-job training. Passing an exam gives you credit for that course in the DHI Credentialing Program. For Challenge Exams, go to www.dhi.org.

**CLASS SIZE** – Registrations are entered in the order they are received. In cases where a course is sold out, registrations are placed on a waitlist upon receipt of a completed application and tuition payment. If waitlisted students are not able to attend the course of their choice, they may opt to transfer to another course, or another class session, or seek a refund.

**HOTEL ACCOMMODATIONS** – Students are responsible for making their own hotel reservations. Complete Education Housing Information will be made available online at www.dhi.org.

**TUITION POLICIES** – The tuition policies below have been developed to encourage students to be certain of the classes they’ve selected prior to registering for their classes. Prompt and decisive registration is necessary to fully prepare for the school.

- “Early Bird” tuition rates apply to registrations received on or before August 18, 2011.
- A $200.00 administration fee will be applied to cancellations received from August 4, 2011, to August 18, 2011.
- After August 18, 2011, no refunds will be allowed.
- Prior to August 18, 2011, a student may transfer his/her tuition from the current school to the next school or to another member of his/her company so that they may attend the current school. Either type of transfer will incur a $100 administrative fee. (Transfers occurring on or after August 18, 2011, will incur the $200 administrative fee.) Transfers of any kind may be done only once.
- Students will owe the balance due if tuition rates change between the current school and the school that they are transferring their monies to.
- Students who are unable to meet the terms of the transfer (i.e., attending the next school themselves or their colleague attending the current school) and notify DHI after August 18, 2011, will forfeit the class tuition. Notifications occurring from August 4 – August 18, 2011, will incur the additional $200 late cancellation administrative fee (bringing the cancellation total to $300).
- Students who register for a class prior to fulfilling the course’s prerequisite(s) will have until August 3, 2011, to complete the course prerequisite(s). Students who do not satisfy this condition will receive an automatic cancellation of registration on August 4, 2011, and will also incur the $200 late cancellation administrative fee.
- A $100 administrative fee will apply to cancellations (requested on or after August 4, 2011) that are emergency related. Proof of emergency will be required, otherwise all other applicable fees will be due and all applicable terms will apply.
- Students will incur a $200 administration fee should they switch their classes while at the school.
COURSE DESCRIPTIONS

COR103 Understanding and Using Construction Documents
(8 Hours) (24 CEP points)
Understanding how construction projects are organized and designed requires a thorough knowledge of the construction documents that administrate, illustrate, detail and describe them. Estimators, detailers and project managers need to understand the purpose and use of specifications and drawings. Knowing where to find specific information in the specifications, and on the drawings, and understanding how that information applies to our trade can make the difference between a profitable and an unprofitable job. This program provides estimators, detailers and project managers with the essential knowledge to sort through these documents to find the information they need.
Prerequisite: SSC100 – Fundamentals of Architectural Doors and Hardware Self-Study Course

COR113 Architectural Hardware and Applications
(24 Hours) (72 CEP points)
To be successful in our industry, you need to have a well-rounded, general knowledge of the multitude of items used every day. A vast assortment of samples is utilized in this course to help you identify, describe and explain many of the hardware items in use today. This course also will give you an understanding of proper applications and use of architectural hardware items that is an important step in your development as a professional in the architectural openings industry. Many hardware items can be used in more than one application. Knowing which application is correct for a particular opening will make you indispensable to your customers and clients.

COR120 Door and Frame Applications
(16 Hours) (48 CEP points)
Construction projects use some of the most advanced materials and products ever made. Fire-rated and means of egress door openings have specific requirements they must meet to be able to function correctly. This course teaches you about doors and frames (e.g., hollow metal, wood and aluminum) used today.

COR125 Takeoff and Estimating
(16 Hours) (48 CEP points)
Profitability of a company often hinges on the accuracy and efficiency of the bids that estimators turn out. This course introduces you to material takeoff techniques and estimating skills that will help you become a more accurate and efficient estimator.
Prerequisite: COR103 – Understanding and Using Construction Documents
COR120 – Door and Frame Applications

COR133 Electrified Architectural Hardware
(40 Hours) (120 CEP points)
Electrified hardware items are used on virtually all new building projects. You need to understand how these products are properly used and what their capabilities are if you are going to advance in this industry. This course provides you with the principles of low-voltage electricity through hands-on class exercises. In addition, this course is focused on teaching you how separate electrified architectural hardware components are used to create single-opening systems. Learn how to design low-voltage circuits and hook up these components through the hands-on labs.

COR140 Using Codes and Standards+
(24 Hours) (72 CEP points)

COR145 Principles of Specification Writing+
(8 Hours) (24 CEP points)
Whether you are pursuing the designation of Architectural Hardware Consultant (AHC), Certified Door Consultant (CDC) or Electrified Hardware Consultant (EHC), you need to master the basic principles of writing architectural specifications. Specification writing skills are an essential element of becoming a professional in today's construction industry. Architects and engineers will expect you to have mastered these skills when you work with them.

COR153 Installation Coordination and Project Management
(16 Hours) (48 CEP points)
Project management requires effectively working with contractors, installers, owners, and architects. Coordination of the installation of doors, frames, and architectural hardware is an essential element of a project manager’s responsibilities. Pre-installation meetings with the installers increase their productivity, reduce installation errors, and ensure the door assemblies will operate reliably for many years. Project managers must also be able to read and interpret contract documents, oversee projects with fast-track schedules, and maintain profitability—all of which requires disciplined attention to detail. This course teaches you how to coordinate installations and provides you with techniques to help you succeed as a project manager.
Prerequisites: COR103 – Understanding and Using Construction Documents

COR160 Material Purchasing Concepts
(8 Hours) (24 CEP points)
Once the shop drawings are approved and you move into the order processing stage of a project, you need to accurately and efficiently communicate the project's requirements with each of the manufacturers. Purchase orders have to be reviewed for accuracy, acknowledgements verified and materials inspected upon receipt. In addition, everything must arrive on time and for the right price! This course teaches you how to communicate and coordinate your material purchases with the project and manufacturing schedules.

COR165 Professional Sales
(8 Hours) (24 CEP points)
Professional sales skills are crucial when calling on owners, end users, contractors and architects. How you present yourself and your company can be just as important as the information you are presenting. This course teaches you how to make professional sales calls to each of these groups.

* Students attending these classes are required to bring reference materials which will pertain to the class exercises. Please see DHI’s online Education Resource Guide found at www.dhi.org for the complete list of required materials.
COURSE DESCRIPTIONS

AHC200 Masterkeying
(8 Hours) (24 CEP points)
A solid knowledge base of master key systems is essential to all estimators, detailers, project managers and consultants. This program covers recognizing the different types and styles of cylinders and keys used in today’s locks, understanding and using industry-standard key-set symbols and terminology, organizing keying meetings, and integrating mechanical cylinders and keying into access control and security systems.

AHC205 Detailing Hardware+
(24 Hours) (72 CEP points)
Perhaps the most necessary skill you can develop in our industry is learning how to properly create detailed hardware schedules. Coordinating the many hardware products with the project’s requirements can be a daunting task. This course introduces you to the sequence and format of the hardware schedule through a series of in-class exercises.
Prerequisites: COR113 – Architectural Hardware and Applications
COR140 – Using Codes and Standards

AHC220 Exam Prep+
(24 Hours) (72 CEP points)
Students pursuing the AHC designation will complete in-class exercises designed to replicate exam conditions and better prepare them for the AHC exam. You will leave this class with a firm understanding of how to prepare for the formal AHC certification exam.
Prerequisites: All courses required to sit for the exam

CDC300 Using Door & Frame Standards+
(8 Hours) (24 CEP points)
Knowledge of the many door and frame standards is essential to properly detail these products in shop drawings. These standards contain a wealth of information and can be used to establish levels of quality for all types of buildings.

CDC305 Detailing Doors and Frames
(16 Hours) (48 CEP points)
Proficiency in creating shop drawings only comes through practice and attention to detail. Students learn the techniques and skills necessary to become an expert detailer.
Prerequisites: COR120 – Door and Frame Applications
COR140 – Using Codes and Standards

CDC310 Writing Door and Frame Specifications+
(24 Hours) (72 CEP points)
Door and frame specifications require as much attention to detail as other specification sections. Fire-rated openings (both neutral and positive pressure tested) require particular attention to construction, labeling requirements, reinforcements, hardware preparations, glazing and frame anchors. These specifications must be carefully coordinated with other specifications to ensure the proper materials are provided. This course teaches you how to write clear, concise, correct and complete door and frame specifications using the Construction Specifications Institute’s MasterFormat™ as a guide.
Prerequisites: COR145 – Principles of Specification Writing
CDC300 – Using Door & Frame Standards

CDC315 CDC Exam Prep+
(16 Hours) (48 CEP points)
This course walks you through the exercises required to complete the Certified Door Consultant (CDC) certification exam, under exam-like conditions. You will leave this class with a firm understanding of how to prepare for the formal CDC certification exam.
Prerequisites: All courses required to sit for the exam

EHC420 EHC Exam Prep
(16 Hours) (48 CEP points)
This course is designed to walk you through the exercises required to complete the Electrified Hardware Consultant (EHC) certification exam, under exam-like conditions. You will leave this class with a firm understanding of how to prepare for the EHC exam. You will be required to complete shop drawing exercises and a written exam that covers topics such as access control systems, CCTV terminology, principles of low-voltage electricity, and specification writing.
Prerequisites: All courses required to sit for the exam

ELT500 Aftermarket Sales and Building Renovations
(8 Hours) (8 CEP points)
Existing buildings require ongoing maintenance throughout their life cycles, which includes repairing, replacing or upgrading doors, frames and hardware items. Often, the building owner or property management company performs this maintenance rather than offering it for bid as a project. This course teaches you how to call building owners, end users and property management companies to service existing buildings.

ELT505 Effective Management of Employees
(8 Hours) (8 CEP points)
Employees are a company’s most valuable resource. Learning how to effectively manage employees will create a better work environment for your company. This course helps you improve employee morale and loyalty through more effective management techniques.

ELT510 How to Develop and Retain Customers
(8 Hours) (8 CEP points)
Developing long-term professional relationships with your customers is essential to sustaining your company’s longevity. Understanding how your customers make purchasing decisions and determining what their expectations are for the order they place are critical aspects of developing and retaining customers. This course presents ideas and techniques you can use to better develop your company’s customer relations.

DAI600 Fire and Egress Door Assembly Inspection+
(32 Hours) (96 CEP points)
Please see the applicable pages of DHI’s Education Resource Guide for the full DAI600 course description.
Prerequisites: SSC100 – Fundamentals of Architectural Doors and Hardware Self-Study Course
COR113 – Architectural Hardware and Applications
COR140 – Using Codes and Standards

* Students attending these classes are required to bring reference materials which will pertain to the class exercises. Please see DHI’s online Education Resource Guide found at www.dhi.org for the complete list of required materials.
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* See DHI’s *Education Resource Guide* as well as this Registration Form for complete information regarding course prerequisites.

** All courses begin at 8:00 am and end at 5:30 pm (daily). Punctual and complete attendance is mandatory.

+ Students attending these classes are required to bring reference materials which will pertain to the class exercises. See DHI’s online *Education Resource Guide* found at [www.dhi.org](http://www.dhi.org) for the complete list of required reference materials used during classes.

++ An additional $100 has been added to the cost of the COR133 tuition to support the cost of the consumable class materials, as well as the cost of an ohm meter that the student will get to use in class and take home for future use. A grading fee has been built into class exams that require hand grading (COR125 or COR133 = $50). This fee applies to all types of education: National, Chapter, In-house Online, and Challenge Exams (including Challenge Exams granted for failed face-to-face classes).

+++ For more details, see the TUITION POLICIES section located on page 2 under IMPORTANT INFORMATION.
DHI NATIONAL EDUCATION REGISTRATION FORM

DHI National Education
September 18-25, 2011 • Scottsdale, AZ

Register online at www.dhi.org.
Registrations MUST be received by August 31, 2011.

PLEASE COMPLETE PARTS 1 & 2 OF THIS FORM
AND RETURN TO:
Door and Hardware Institute
14150 Newbrook Drive, Suite 200
Chantilly, VA 20151
Phone: 703/222-2010 • Fax: 703/222-2410
or
Register online at www.dhi.org

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**  All courses begin at 8:00 am and end at 5:30 pm. Punctual and complete attendance is mandatory.

*** Provide current email address. All registration confirmations AND exam results are sent via email.

**

PAYMENT INFORMATION

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Accounting use only.
Dear Openings Professionals:

One role of the Door Security & Safety Foundation is to advance the initiative promoting fire door safety inspections and school security issues as they pertain to the door opening. In 2010, over a dozen training seminars were conducted by the Foundation that educated several thousand Authorities Having Jurisdiction (AHJs) and facility engineers (end users).

By reaching AHJs and end users, the Foundation has positioned itself as the leading advocate for education and awareness of the Fire Door Assembly Inspection (FDAI) program.

\[ \text{Education} + \text{Awareness} = \text{Enforcement.} \]

\[ \text{Enforcement} = \text{Improved and updated life safety products & solutions.} \]

Enforcement by the AHJ will not happen without education. Facility engineers will take proactive steps quicker if they have a better understanding of what deficiencies to look for.

The greater the awareness and understanding of the fire-rated opening and the purpose of an inspection, the more likely that fire-rated openings will be brought into compliance. This means building owners and facility managers will turn to openings professionals LIKE YOU to provide improved and updated life safety products and long-term solutions. This is why the Foundation needs your support.

We can see our efforts paying off to advance this initiative and positively impact openings professionals and their companies. We are so close to that tipping point—the point at which events trigger exponential results. But there is more work to be done! This is why the Foundation needs your support.

Here are a few ways your financial support helps the work done by the Foundation to provide education and create awareness of the FDAI program:

- A $50 contribution covers the expense for one AHJ to take online education.
- A $100 contribution creates 400 Fire Door Inspection Reference Checklists for distribution to AHJs to increase their awareness of the FDAI program.
- A $250 contribution provides AHJ and Building Owner’s Reference Guide books for attendees of 10 seminars.
- A $500 contribution affords 20 AHJs the opportunity to attend the Foundation Fire Door Inspection training program.

ALL are reasons why the Foundation needs your generous contributions each year.

In recognition of your annual support, the Foundation acknowledges your generosity in our Contributor’s Listings featured in signage at DHI’s industry events AND in the pages of Doors & Hardware magazine at the close of the annual fundraising campaign in July 2011.

Determine how you want to help continue the Foundation’s work. There are three convenient ways to contribute:

- **Donate online at:** [www.doorsecuritysafety.org/Contribute.php](http://www.doorsecuritysafety.org/Contribute.php)
  Click on the “Donate” tab at the top right-hand side of the page.
- **Pledge your donation using email:** BJohnson@DoorSecuritySafety.org

In advance, thank you for your generous support of the Foundation and its efforts to raise public awareness of door safety and security issues.

Best Regards,

Dale P. Garrett, DAHC, FDHI
Foundation President

P.S. Visit us online at [www.doorsecuritysafety.org](http://www.doorsecuritysafety.org) to see all the work being done by the Foundation in partnership with affiliate organizations whose members are critical to the decisions being made for life safety and security solutions across the country.
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Security Lock Distributors is offering the new Schlage AD-Series electronic lock. The AD-Series has an innovative, modular design that can adapt to new technologies and allows the user to upgrade the security level/credential type without taking the lock off the door. Equipped for stand-alone, networked or wireless solutions. Now you know.
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www.schott.com

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Are you still unsure about electrified hardware? Midwest Wholesale Hardware can help, use our electrified hardware manual at midwestwholesale.com. It is complete with the elevation diagram, system operation, schedule and hardware list.
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800/659-8527 (FL)
888/707-8527 (CA)
800/821-8527 (PA)
www.midwestwholesale.com

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770/944-1006 (GA)
713/690-0435 (TX)
www.trustpremier.com

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Mohawk Adds ABS and CC Hardware Consultants to Sales Team

Mohawk Flush Doors is pleased to announce the addition of Advanced Building Solutions (David Bersuder) to its sales team. ABS will represent Mohawk in the Michigan market. Contact David Bersuder at dbersuderabs@gmail.com.

Mohawk Flush Doors is also pleased to announce the addition of CC Hardware Consultants (Tom Cheatham and Jeff Clark) to its sales team. CCHC will represent Mohawk in Indiana, Kentucky and southern West Virginia markets. Contact Tom Cheatham at tec5@insightbb.com or Jeff Clark at jclark6723@aol.com. For further information, contact Mohawk Flush Doors at 570/473-3557.

Ellison Welcomes New Representative for New England Region

Ellison Bronze, Inc., the inventor of the balanced door and a leader in providing high-quality marquee entrances, has named Frank Lane of Lane Associates its newest representative. Lane will supply Ellison custom balanced doors to Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

Lane has served as an independent representative for 14 years and brings more than 25 years of industry experience to his position. In this time, he has worked closely with building teams to specify appropriate building products, assist with budget management, organize preliminary construction details, aid in lunch-and-learn presentations, and generally oversee product sales.

“We’re thrilled to welcome Frank to our team,” says Tracy Hultin, National Sales Manager for Ellison. “He will be using his strong relationships with architects and glazing contractors to promote Ellison in New England. His firm has been
industry access

press release

independently representing high-end manufacturers in this region for more than two decades, and we look forward to watching the business grow as a result of his expertise and upstanding character.” Contact 781/444-9609 or laneassociates@hotmail.com.

New Sales Representatives for Leading Manufacturer

Due to recent growth, Boon Edam Inc, the leading manufacturer of revolving doors and security entrance solutions in North America, has hired several sales representatives for North America and Latin America.

Joel Johnson, Northeast Region: Eastern PA, NJ, NY, CT, RI, VT, NH, ME, Quebec, Eastern Ontario; Phone: 646/851-5011.

Simon Sheehan, Mid-Atlantic Region: MD, VA, WV, DE; Phone: 202/210-8444.

Brian Marshall, Southern Mid-West Region: Eastern MO, IL, IN, OH, KY, Western PA; Phone: 317/667-2332.

JC Powell, Southwest Region: NM, CO, TX, OK, KS, Western MO; Phone: 972/365-7816.

Jeannette Sweat, Latin America and Caribbean; Phone: 972/365-7816.

To learn more about Boon Edam, visit us at www.boonedam.us.

PRODUCTS

Detex Introduces Game-Changing Door Security in a Multi-Point Panic Device

Detex Corporation has designed and engineered the next generation of multi-point locking security door hardware. Built for maximum strength, the new 230X hardware features heavy-duty, three-bolt construction that provides a uniquely high level of toughness against break-ins.

Ideal for back doors requiring both panic hardware and high-level protection from break-ins, the 230X puts more deadbolt into the frame than other locks in the category. Connecting rods are made of continuous solid metal, rather than the hollow-rod/cable construction common in the category. Exclusive to Detex, the 230X is life safety and code compliant and functions both as panic hardware and as the strongest hardware of its type in the industry.

Please visit www.detex.com/230X.

EDPS Eases Installation for Advanced Entry Systems

BEA’s Enhanced Door Position System (EDPS) for automatic swinging doors has helped Advanced Entry Systems by providing easy installation and reliable performance.

Advanced Entry Systems is the largest automatic door sales and service company in the Pacific Northwest. EDPS is easy to install and saves time and costs by minimizing return calls for service.

EDPS uses advanced positioning technology to eliminate problems with automatic swinging doors commonly caused by stack pressure or manual opening and closing. It can be installed on any new or retrofit swing door system.

For more information, call 412/249-4100, toll free 800/523-2462, or visit www.beasensors.com.
Vacuum Tube Lifter Gets New Handlebar and Tube Assembly

An updated VT Series ergonomic vacuum lifter that features a stronger and more secure handlebar and a proprietary lifting tube and tube attachment system is being introduced by Anver Corp. of Hudson, MA.

The Anver VT Series Tube Lifter features a new stainless steel handlebar that secures at six points (front, center, and rear) for optimum rigidity, has custom formed plastic grips, and is fully adjustable to let operators tailor it to their own comfort requirements. This ergonomic vacuum tube lifter also received a new lifting tube that is 15% lighter than previous versions, is more compressible, and has new easy screw-on connectors.

For more information, contact Bob McNulty, Group Manager, at 800/654-3500; fax: 978/568-1570; email: bmcnulty@anver.com; or on the web at www.anver.com.

Announcing the New CyberLock Flex System™

The CyberLock Flex System is a family of access modules that expand the elasticity of the CyberLock Access Control System. Flex technology, melded with the CyberLock solution, brings smart padlocks, electronic locks, and a hardwired door system together under one powerful access management structure.

You can create an access management system that is tailored to the requirements of each area of your facility, whether on or off site. From protecting server cabinets to securing office doors and tracking access to padlocks on gates, you can have audit reporting, access and key control how you want it, where you want it. For more information, contact sales@videx.com or visit www.videx.com/lock89.

ZERO’s World-Famous Automatic Door Bottoms

Patented technology activates to drop the seal with a scissors-like motion when the door closes, and retract when opened. This results in a smooth drop, without drag, for a tight seal against gaps under exterior doors waste energy and money, while allowing unwanted pests to enter the building. Stop it for good, with the new concealed Adjustable Bottom Brush from Special-Lite, available for new or existing Special-Lite® Doors.

An accordion folding and roll-up doors suitable for installations calling for site, security, and acoustics. Space division made easy!
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For more information, contact ZERO INTERNATIONAL at 718/585-3230 or visit us online at zerointernational.com.

CORPORATE CORNER

**Door Division of Woodharbor Doors and Cabinetry Purchased by TruStile Doors**

Denver, Colorado-based TruStile Doors, LLC is pleased to announce that it has purchased the door division of Woodharbor Doors and Cabinetry, based in Northwood, IA. After the closing, Woodharbor Doors will become a fully owned subsidiary of TruStile Doors, LLC. Woodharbor Doors will continue to operate in Northwood, and all of Woodharbor Doors’ key personnel will continue to work for the Woodharbor door division, guaranteeing a seamless transition for existing Woodharbor customers.

“Our goal is to maintain and leverage the strengths of the existing Woodharbor employees and door operation,” states Scott Schmid, TruStile President/CEO. “We are also excited to grow the business by leveraging TruStile’s strong national dealer network and entering new market segments with the product line.” For more information, visit www.trustile.com.

**Marks USA Custom Lockset Division Used in The Georgica, NY**

MARKS USA Custom Lockset Division graces The Georgica Residential Towers located in Manhattan’s Upper East Side. Forged brass levers in a polished nickel finish were created to compliment the distinctive “L” shape of this architectural majesty by imitating the abundance of corners and protrusions within the design of the building itself. The Georgica, whose name was inspired by the serene Georgica Pond in East Hampton, NY, is sheathed in bronze and clear glass and was designed by the architectural and interior design firm Cetra/Ruddy.

MARKS USA Custom Lockset Division locksets are manufactured from materials that satisfy LEED’s requirements for “green” buildings and reduce environmental impacts from extracting and processing virgin materials.

For more information, visit www.marksusa.com or call 800/526-0233.

**“Champion” Efforts to Advance the FDAI Cause—Bring the Foundation’s work to your community...**

**Door Security & Safety Foundation’s Local Champion Campaign**

Educate local AHJs and fire and building officials about mandates for annual inspections of fire-rated door assemblies.

For more information, visit www.DoorSecuritySafety.org.
ABOUT THE COMPANY (WWW.ALUKHAIMI.COM)

Al-Kuhaimi Metal Industries (KMI) was founded in Dammam, Saudi Arabia in 1975, specialized in providing safety and security solutions. KMI is authorized distributor of the best brands of Architectural Hardware and related specialties. KMI capabilities include Metal products “especially Doors” Manufacturing, Engineering, Project Management, Logistics and after-sales Service.

The company is proud to employ a number of industry professionals from different nationalities that form a solid team offering exceptional quality products and services to wide client base of both public and private sector projects in the Kingdom of Saudi Arabia, the Gulf countries and other countries in Middle East, Africa and Europe.

Applicant needs to be familiar with the following:

- To prepare door hardware Schedules, specification and pricing estimates.
- To assist in managing hardware supply projects from design to completion of delivery.
- To assist managing group of hardware specialists and offer technical training and support.
- To assist in marketing by participating in technical seminars and presentation of products to clients and consultants.

Skills (requirements)

- Architectural Hardware Consultant Certification;
- Technical skills in project estimating and management;
- Good communication, presentation and leadership skills;

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